



SECTION 1

INTRODUCTION



November 1, 2015

Lorraine See, Procurement Services Coordinator
Metropolitan Area Planning Council
60 Temple Place, 6th Floor
Boston, MA 02111
Phone: 617.933.0766
Email: lsee@mapc.org

Re: RFP#: FCAM 2015 Pumpers

Dear Ms. See,

In response to your Request for Proposals ("RFP"), Kovatch Mobile Equipment Corp. (KME) ("the Respondent") hereby submits our Proposal to provide Pumpers and Equipment to the Fire Chiefs Association of Massachusetts ("FCAM") and its Members.

The Manufacturer of the pumpers to be provided under this Proposal is Kovatch Mobile Equipment Corp. (KME) and the Authorized Dealer and Service Provider is Bulldog Fire Apparatus. We are the manufacturer.

We offer the following commitments and representations to Metropolitan Area Planning Council ("MAPC") and FCAM:

1. The undersigned is authorized to submit this Proposal on behalf of the Respondent and to bind the Respondent to its terms. We have fully reviewed the RFP and any and all addenda thereto, and we fully understand the scope and nature of the RFP and contractual arrangements for which Responses are being requested.
2. Our Proposal has been prepared and is being submitted without collusion, fraud, or any other action taken in restraint of free and open competition for the response to this RFP.
3. Neither the Respondent nor any of its employees or representatives is currently suspended or debarred from doing business with any governmental entity.
4. Neither the Respondent, nor any of its employees or representatives is currently the subject of or party to a Massachusetts public employee conflict of interest action or investigation.
5. The Respondent is not a party to any pending or current litigation that might adversely affect its performance on this project.
6. The Respondent has not filed for bankruptcy protection in the last seven years.
7. The Respondent has no business dealings with countries or organizations that fund or support terrorist activities anywhere in the world.

Kovatch Mobile Equipment Corp.

One Industrial Complex, Nesquehoning, PA 18240 USA
(800) 235-3928 Toll Free ■ (570) 669-9461 Ph ■ kme@kovatch.com ■ www.kovatch.com

ISO 9001:2008 CERTIFIED

8. We certify that all of the information provided in our Proposal is true and accurate and that MAPC and FCAM may rely on such information in the evaluation of our Proposal. We have read and understand the evaluation criteria in the RFP. We accept that MAPC reserves the right to waive informalities and to reject in whole or in part any or all Proposals. We accept that the MAPC Evaluation Committee reserves the right to select the Proposals that they view as the most advantageous on the basis of the evaluation criteria listed in the RFP.
9. We agree to take full responsibility for all costs of preparing this Proposal. We waive any and all claims against MAPC, FCAM, their employees, representatives, agents, and members related to the cost of preparing, submitting and having MAPC review and evaluate this Proposal.
10. We have read and understand the product requirements and standards specified in this RFP, and certify that any and all apparatus, vehicles, and equipment offered in response to this RFP meet or exceed those requirements and standards.

Sincerely,



Philip J. Gerace
Director of Sales and Marketing
Kovatch Mobile Equipment Corp. (KME)
One Industrial Complex
pgerace@kovatch.com
11/1/2015



CERTIFICATE OF SECRETARY
AS TO
CORPORATE RESOLUTION

I, Richard T. Reaman, Secretary of Kovatch Mobile Equipment Corp., a corporation organized under the laws of the State of Pennsylvania, ("Corporation") do hereby certify that the following resolution is a full, true, and correct copy of the resolution, duly and regularly adopted by the Board of Directors of the Corporation, in conformance with applicable law and the By-Laws of said Corporation, on the 30th day of July, 2015:

RESOLVED, that the following persons are hereby authorized to sign all bid documents, bonds and/or contract documents, title work and all related documents necessary to complete any and all transactions for, on behalf of, and in the name of Kovatch Mobile Equipment Corp.:

John J. Kovatch, III
Peter Hoherchak
Philip J. Gerace
Judith Kovatch Lebo

Kathy Kovatch Reaman
Richard T. Reaman
John J. Kovatch IV

I further certify that said Resolution has not been amended or revoked and remains in full force and effect.

IN WITNESS WHERE OF, I have hereunto set my name as Secretary and affixed the seal of said Corporation, this 1st day of November, 2015.

TAX ID# 23-2367607


Richard T. Reaman, Secretary

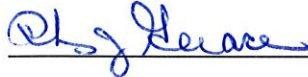
Proposal Signature Page

The accompanying Forms & Documentation are hereby submitted as a Proposal in response to the subject RFP. All information and statements are true, accurate and binding representations of its intentions and commitments in responding to this RFP.

<u>Kovatch Mobile Equipment Corp.</u>	<u>Philip Gerace</u>
Company Name	Contact Person
<u>One Industrial Complex</u>	<u>570-669-5174</u>
Street	Phone
<u>Nesquehoning, PA 18240</u>	<u>570-669-5124</u>
City, State, Zip	Fax
<u>kme@kovatch.com</u>	
Email	

Respondent acknowledges receipt of the Request for Proposals (RFP) and Addendum No(s) _____, dated _____, and submits the attached proposal for this Request for Proposals to the Metropolitan Area Planning Council (MAPC), on the authority of the undersigned and as dated below who by signing confirms and pledges to abide by and be held to the requirements of this RFP and its resulting contract, to perform any tasks and deliver any documents required, and to execute a Contract with the MAPC.

Authorized Agent of the Respondent:



Kovatch Mobile Equipment Corp.

Signature (blue ink please)

Name (as used for tax filing)

Philip J. Gerace

23-2367607

Printed Name

SS# or Federal ID#

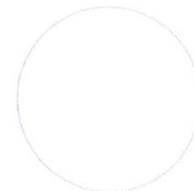
Director of Sales & Marketing

11/1/2015

Title

Date

(If a corporation, attach certificate of vote or
apply corporate seal here)



Certificate of Non-Collusion

As required under Chapters 233 and 701 of the Massachusetts Acts and Resolves of 1983 and as required under M.G.L. c. 30B certification must be made to the following by signing in the space indicated below. Failure to offer such signature will result in rejection of the proposal.

“The undersigned certifies under penalties of perjury that this proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word person shall mean any natural person, business, partnership, corporation, union, committee, club or other organization, entity, or group or individuals.”

Authorized Agent of the Respondent:



Kovatch Mobile Equipment Corp.

Signature (blue ink please)

Name (as used for tax filing)

Philip J. Gerace

23-2367607

Printed Name

SS# or Federal ID#

Director of Sales & Marketing

11/1/2015

Title

Date

Certificate of Tax Compliance

"Pursuant to M.G.L. c. 62C § 49A, I certify under the penalties of perjury that to my best knowledge and belief the undersigned has complied with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support."

Authorized Agent of the Respondent:



Kovatch Mobile Equipment Corp.

Signature (blue ink please)

Name (as used for tax filing)

Philip J. Gerace

23-2367607

Printed Name

SS# or Federal ID#

Director of Sales & Marketing

11/1/2015

Title

Date

Conflict of Interest Certification

The Respondent hereby certifies that:

1. The Respondent has not given, offered, or agreed to give any gift, contribution, or offer of employment as an inducement for, or in connection with, the award of a Contract pursuant to this RFP.
2. No consultant to, or subcontractor for, the Respondent has given, offered, or agreed to give any gift, contribution, or offer of employment to the Respondent, or to any other person, corporation, or entity as an inducement for, or in connection with, the award to the consultant or subcontractor of a Contract by the Respondent.
3. No person, corporation, or other entity, other than a bona fide full time employee of the Respondent has been retained or hired to solicit for or in any way assist the Respondent in obtaining a Contract pursuant to this RFP upon an agreement or understanding that such person, corporation or entity be paid a fee or other compensation contingent upon the award of a Contract to the Respondent.
4. Respondent understands that the Massachusetts Conflict of Interest Law, M.G.L. c. 268A, applies to the Respondent and its officers, employees, agents, subcontractors, and affiliated entities with respect to the transaction outlined in the Request for Proposals.
5. Respondent understands that the Respondent and its officers, employees, agents, subcontractors, and affiliated entities, shall not participate in any activity which constitutes a violation of the Massachusetts Conflict of Interest Law or which creates an appearance of a violation of the Massachusetts Conflict of Interest Law.

Authorized Agent of the Respondent:



Signature (blue ink please)

Philip J. Gerace

Printed Name

Director of Sales & Marketing

Title

11/1/2015

Date

Kovatch Mobile Equipment Corp.

Name (as used for tax filing)


23-2367607

SS# or Federal ID#

Certificate of Compliance with M.G.L. c. 151B

The Respondent hereby certifies that it is in compliance with and shall remain in compliance with M.G.L. c. 151B and shall not discriminate on any prohibited basis outlined therein. The Respondent also hereby certifies that it shall comply with any and all applicable Commonwealth of Massachusetts Supplier Diversity Office (SDO) thresholds that have been established in conjunction with this Request for Proposals.

Authorized Agent of the Respondent:



Signature (blue ink please)

Philip J. Gerace

Printed Name

Director of Sales & Marketing

Title

11/1/2015

Date

Kovatch Mobile Equipment Corp.

Name (as used for tax filing)

23-2367607

SS# or Federal ID#

Certificate of Non-Debarment

The Respondent hereby certifies that it is presently not debarred, suspended, or otherwise prohibited from practice by any federal, state, or local agency, and that, should any proceeding arise in which it is debarred, suspended, or otherwise prohibited from practice by any federal, state, or local agency, the Respondent shall inform the MAPC and involved municipalities within one (1) business day of such debarment, suspension, or prohibition from practice.

Authorized Agent of the Respondent:



Kovatch Mobile Equipment Corp.

Signature (blue ink please)

Name (as used for tax filing)

Philip J. Gerace

23-2367607

Printed Name

SS# or Federal ID#

Director of Sales & Marketing

Title

11/1/2015

Date

Additional Certifications

I certify that all information, statements, and pricing made in my Proposal are true, accurate, and binding representations of the Respondent's intentions and commitment in responding to this RFP. Any such representations that exceed the minimum requirements of the RFP constitute legal obligations on the part of the Respondent to perform as stated and that failure to so perform may be used by MAPC as grounds to terminate the my contract.

I certify that pursuant to 28 CFR Part 42.204 (d) my employment practices comply with Equal Opportunity Requirements and comply with 28 CFR Part 42.202 and that my organization complies with the Americans with Disabilities Act.

Authorized Agent of the Respondent:



Kovatch Mobile Equipment Corp.

Signature (blue ink please)

Name (as used for tax filing)

Philip J. Gerace

23-2367607

Printed Name

SS# or Federal ID#

Director of Sales & Marketing

Title

11/1/2015

Date

Right to Know Law Page

Any Respondent who receives an order or orders resulting from this invitation, agrees to submit a Material Safety Data Sheet (MSDS) for each toxic or hazardous substance or mixture containing such substance, pursuant to M.G.L. c. 111F §§8, 9, 10 and the regulations contained in 454 CMR 21.06 when deliveries are made. The Respondent agrees to deliver all containers properly labeled pursuant to M.G.L. c. 111F § 7 and the regulations contained in 454 CMR 21.05. Failure to submit an MSDS and/or label on each container will place the Respondent in noncompliance with the Purchase Order. Failure to furnish MSDSs and/or labels on each container may result in civil or criminal penalties, including bid debarment and action or prevent the Respondent from selling said substances or mixtures containing said substances within the Commonwealth. All Respondents furnishing substances or mixtures subject to M.G.L. c. 111F are cautioned to obtain and read the Law and Rules and Regulations referenced above. Copies may be obtained from the State House Bookstore, State House, Room 117, Boston, MA 02133 (617-727-2834) for a fee.

FAILURE TO COMPLY WITH THESE REQUIREMENTS COULD RESULT IN THE CANCELLATION OF YOUR CONTRACT.

Authorized Agent of the Respondent:



Signature (blue ink please)

Philip J. Gerace

Printed Name

Director of Sales & Marketing

Title

11/1/2015

Date

_____ Kovatch Mobile Equipment Corp.

Name (as used for tax filing)

23-2367607

SS# or Federal ID#



SECTION 2

MINIMUM QUALITY

REQUIREMENTS

Minimum Quality Requirements

In order for a Proposal to receive further consideration, Respondent must unconditionally check "Yes" to each Quality Requirement below. A Proposal will be rejected in its entirety if a Respondent fails to check "Yes", or who modifies, qualifies, or limits its affirmative response in any way.

Circle "Yes" or "No" for each of the following requirements:

- a. In attendance for the duration of the mandatory bidder conference (if required by this RFP).
 Yes No
- b. Actively engaged in the manufacture, sale, or service of fire apparatus, emergency vehicles and equipment.
 Yes No
- c. A minimum of twenty apparatus or vehicles of substantially the same types and classifications that are being offered have been delivered to, and are presently in use (front line service), in fire departments in the United States AND appear on the List of Apparatus and Vehicle Deliveries required under Tab 6.
 Yes No
- d. The Manufacturer of the apparatus or vehicles being offered has a minimum five years of continuous ownership and management.
 Yes No
- e. The Dealer has a minimum five years of continuous ownership and management and is able to document proof of status as Manufacturer's authorized dealer for the apparatus or vehicles offered.
 Yes No
- f. The Service Provider has a minimum five years of continuous ownership and management and is able to document proof of status as Manufacturer's authorized service provider for the apparatus or vehicles offered.
 Yes No
- g. Legally in possession of and physically occupying a facility or facilities suited to providing the sales and service support required of the business volume anticipated by this RFP.
 Yes No

- h. In possession or control of an existing public website used to market the products and services offered.

Yes No

Authorized Agent of the Respondent:



Kovatch Mobile Equipment Corp.

Signature (blue ink please)

Name (as used for tax filing)

Philip J. Gerace

23-2367607

Printed Name

SS# or Federal ID#

Director of Sales & Marketing

Title

11/1/2015

Date

6.2.2 Tab 2 Minimum Quality Requirements

KME's sales representative organization, Bulldog Fire Apparatus, attended the mandatory bidder conference.

KME is actively engaged in the manufacture, sale and service of apparatus. It is a member of the Fire Apparatus Manufacturers' Association (www.fama.org) and maintains a website at www.kmefire.com as well as a Facebook (<https://www.facebook.com/kmefireapparatus?fref=ts>), YouTube(<https://www.youtube.com/user/KMEFireApparatus>), Twitter (<https://twitter.com/KMEFire>) and Instagram Account (<https://instagram.com/explore/tags/kmefireapparatus/>) to promote our fire apparatus line.

KME sells approximately 200 pumper configurations per year. See Section 6.2.5 for details.

Enclosed is an overview brochure on the KME organization. The company is privately held and family run since 1946. Our sales representative organization, Bulldog Fire Apparatus, joined the KME team in 2005 and has continuously been owned by Jeffrey Mazza. See attached letter of authorization.

Bulldog Fire Apparatus is one of KME's highest volume sales and service organizations. Information about their capabilities can be found here: <http://fire.kovatch.com/support/dealer-locator/bulldog-fire-apparatus>. Their website is <http://www.bulldogfireapparatus.com/>

SECTION 2

KOVATCH MOBILE EQUIPMENT CORP.

A BRIEF HISTORY

The Kovatch Organization brings to the fire and specialty vehicle market over six (6) decades of broad based experience in manufacturing, sales and service; all under the ownership and management of the Kovatch Family. We believe KME to be the largest privately owned and operated fire apparatus manufacturer in the country. The company was founded by John "Sonny" Kovatch Jr in 1946 and today is still a family owned enterprise with a history of consistent growth, profitability and success.

In the mid 1960's KME began a series of awards of contracts from various branches of the United States military. By the 1970's the company had a succession of successful rebuild and new manufacture contracts for a number of Defense Department branches. KME has continued and built on this success with the Federal Government and is currently working on several such contracts, due in large part to KME's reputation of being a premier supplier of specialty vehicles.

In 1985 KME expanded its product line to include a commercial fire apparatus division, known as KME Fire Apparatus. By combining decades of specialty vehicle manufacturing experience with wise and advantageous acquisitions, KME quickly earned a reputation for quality fire apparatus products and service. Today KME manufactures hundreds of vehicles per year for municipal, industrial, aviation and volunteer fire and rescue service providers. KME apparatus can be found across the country and around the world.

The KME headquarters complex, located in Nesquehoning, PA, consists of over 500,000 square feet and is a totally integrated manufacturing campus for emergency and specialty vehicles. The KME facility includes state of the art fabrication, machining, welding, painting and finishing departments. KME maintains a full in house engineering staff as well as a manual publication department for our entire product line. Our knowledgeable work force, including marketing, engineering, manufacturing and after market service personnel work as a team to provide world class quality. In order to extend this world class performance KME has opened additional factory owned and operated sales and service branches in California, New York, Oregon and Virginia. In addition, KME boasts an extensive dealer sales and service network in order to insure that all KME customers have access to trusted knowledgeable people that can look after current and future sales and service requirements. By working closely with the KME factory these locations provide a wide range of local support that includes service, maintenance, training and parts.

John Kovatch III, the son of founder "Sonny" Kovatch took over from his father as President and CEO of KME in 1999. John was brought up in the business so his assumption of control was seamless, due to his intimate knowledge of every facet of the organization. It should be of some comfort to past, continuing and future KME customers to know that John Kovatch IV is following in his father's footsteps. The Kovatch family has always taken a conservative approach to the operation and management of a company of KME's size. This conservative approach is illustrated by the fact that KME carries NO long term debt.

Quality is the number one priority in everything we do at KME. There is an in-house Quality Assurance Department that is monitored by the Defense Contract Management Command (DCMC) and held to a high standard by our ISO 9001 certification. KME also has on site Underwrites Laboratory (UL) inspectors. Every pumper is UL certified before shipment. If off site testing is required by any customer KME has access to the US Army Aberdeen Proving Ground as well private testing agencies (such as Cape Engineering – the internationally recognized organization that conducted our cab crash, seat belt and static load testing).

KME is a true “sole source” fire apparatus manufacturer in that we engineer, design, manufacture and paint our own cabs, chassis, bodies, pump enclosures, electrical systems and aerials. All work is done in KME owned and operated facilities by KME’s skilled direct employees. KME provides a full line of fire apparatus that includes airport crash trucks (AARF), aerials, pumpers, tankers, wild land, heavy rescues, urban interface and industrial foam apparatus.

For aftermarket service KME maintain a separate parts department dedicated to aftermarket parts supply department that is isolated from the manufacturing parts inventory. In addition KME offers a complete after market service center, located in Nesquehoning, which is also a separate entity.

For the Massachusetts market, KME offers two (2) sales and service centers, Bulldog Fire Apparatus in Woodville (Hopkinton), MA and our factory branch in Latham (Albany), NY.

KME New York was opened in 1997 and is under the local control of General Manager Tim Besser, a 10 year KME veteran. KME New York includes four sales representatives, an office manager, two parts specialists, ten mechanics and one dedicated road service technician. The parts department includes an inventory worth over \$750,000. Emergency road service is available 24/7. The KME New York shop area is 19,000 square feet with six double depth service bays and three standard depth bays. KME New York also offers a heated paint booth, full body shop capability and EVT/ASE certified specialists for all aspects of fire apparatus operation and equipment. KME New York has six road service vehicles and a pump test trailer. See the photos enclosed in this section.

Bulldog Fire Apparatus, located in the hamlet of Woodville, MA (part of the Town of Hopkinton) is easily accessible to most Massachusetts customers due to its location near the intersection of Interstate Routes 90 and 495. The current apparatus repair and sales facility was opened as the E.J. Murphy Company in 1988 by Ed Murphy. Bulldog’s President, Jeff Mazza purchased the company from Mr. Murphy in 2005. Byron Brooks the chief operating officer came along with that purchase and remains with Bulldog to this day. The Bulldog facility includes a full body shop, a 55 foot long **down draft** paint booth, a 10 x 12 metal shear, a press brake, an apron brake, a finger brake, modern TIG and MIG welding equipment, plasma cutters, computerized paint analysis equipment, computerized analyzers and 22,000 square feet of shop space that permits operations in 11 service bays. No customer equipment is ever stored outside – never. Bulldog maintains a fleet of three road service vehicles. Hours of operation are 7 AM to 6PM. Emergency service is available 24/7. At Bulldog, turnaround of apparatus is a high priority. Normal scheduled maintenance is typically done in one day. The Bulldog shop includes 11 mechanics (4 EVT certified) and two parts specialists who manage Bulldog’s \$500,000 parts inventory and a 4 person administrative staff. Also on staff are Glenn Silvia a Commonwealth of Massachusetts licensed Motor Vehicle Damage Appraiser and Ed Roy, a Massachusetts, Connecticut and Rhode Island licensed Motor Vehicle Damage Appraiser.



EAGLE Registrations Inc.
SERVICE • INTEGRITY • VALUE



Certificate No. 5163 (3 Copies)
September 10, 2015 through September 10, 2018

Certificate of Registration

This is to certify that the Quality Management System of



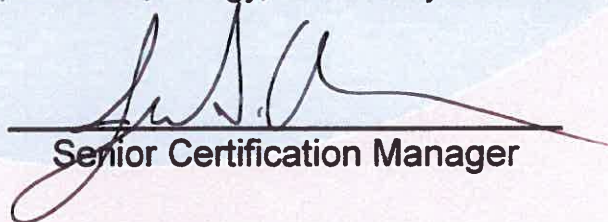
- A. One Industrial Complex, Nesquehoning, Pennsylvania 18240 USA
1708 Seibel Drive NE, Roanoke, Virginia 24012 USA
- B. 5400 East Jurupa Street, Ontario, California 91761 USA
68 Sicker Road, Latham, New York 12110 USA

Has been assessed by **EAGLE Registrations Inc.** and
conforms to the following standard:

ISO 9001:2008

Scope of Registration

- A. The Design, Manufacture, Sales & Service of Customized Specialty Trucks and Vehicles to the Fire-Rescue, Aviation, Petro-Chemical, Industrial, Energy and Military Industries.
- B. The Sales and Service of Customized Specialty Trucks and Vehicles to the Fire-Rescue, Aviation, Petro-Chemical, Industrial, Energy, and Military Industries.


Senior Certification Manager



SECTION 3

REFERENCES

Section 3: Ten (10) most recent New England Deliveries

1. Haverhill, MA GSO 9854 – KME Severe Service Pumper – Director of Maintenance Ted Mazzotta- Haverhill Fire Department- 978-373-8459 - tmazzotta@haverhillfire.com
2. Sudbury, MA GSO 9848 – KME Panther chassis – Flex pumper body – Delivered September 29, 2015 – Chief William Miles- Sudbury Fire Department – 978-443-1038- milesW@sudbury.ma.us
3. Mass Fire Academy GSO 10036 -39 – Navistar chassis – Flex pumper - Delivered September 22, 2015 – Director George Kramlinger- 978-567-3114 george.kramlinger@state.ma.us
4. Greenland, NH GSO9818 – KME Panther chassis – LDH reel pumper body – Delivered September 15, 2015 – Chief Ralph Cresta – Greenland Volunteer Fire Department – (603) 436-1188 – (603) 235-7676 cell – rcresta@nationalwrecker.com
5. Lancaster, MA GSO0779 – KME Panther chassis – Flex pumper – Delivered September 1, 2015 – Chief Michael Hanson – Lancaster Fire Department – 978-368-4003 mhanson@lancasterfd.net
6. Peabody, MA GSO9652 – KME Severe Service chassis –Flex pumper – Delivered August 7, 2015 – Chief Steven Pasdon – Peabody Fire Department — (978) 538-1210 steve.pasdon@peabody-ma.gov
7. Marlborough, MA GSO 9643 – KME Severe Service XLFD chassis – Medium Flex Pumper – Delivered May 2015 – Deputy Chief Stanley Clement – 508-624-6986 – sclement@marlborough-ma.gov
8. Newport, RI GSO 9596 - KME Panther chassis – custom pumper – Delivered March 2015 - Capt. Peter J. Kerwin (Administrative Officer) – Newport Fire Department – (401) 845-5914 – PJKJMK@aol.com
9. Fitchburg, MA GSO9579 – KME Panther chassis – Custom Pumper – Delivered February 2015, Chief Kevin Roy - (978) 345-9660 kroy@fitchburgma.gov
10. Walpole, MA GSO 9548 – KME Panther chassis – Custom Pumper – Delivered November 2014 – Chief Tim Bailey Walpole Fire Department – 508-668-0260- tbailey@walpolefire.com



SECTION 4

EXPERIENCE &

QUALIFICATIONS



KME Method of Inspection and Certification of Apparatus Construction

KME has implemented a Certified Quality Management System in accordance with ISO 9001 2008. We operate with 35 documented procedures which insure that we consistently Sell, Design, Purchase components for and Manufacture a Quality Product. These procedures are supported by a fully trained staff and controlled documentation throughout all Branches.

All vendors for KME are also kept to a very high standard by our Vendor Control and Purchasing Procedures. Each critical vendor is evaluated twice a year to insure that they supply a quality service and/or product to go into all apparatus.

Underwriters Laboratories is under contract with KME to perform all third party testing and inspections. UL has personnel available on a daily basis to witness aerial, pump and generator testing along with performing weld NDT and torque inspections that may be required by the NFPA Standard.

DCMA inspectors are also utilized for Government Contracts. They have maintained offices at KME Headquarters in Nesquehoning, PA for over 30 years. These inspectors are trained and certified to accept and sign off on numerous types of specialty vehicles and apparatus.

KME Quality Control Procedures consist of numerous methods throughout the Design and Manufacturing Processes. These procedures are performed by trained QC personnel along with experienced employees when required. These tests and inspections are designed and performed to meet all applicable standards including NFPA, DOT and FMVSS.

Standards and requirements are also met by utilizing our External and Engineering Document Control Procedures. The most current versions of required standards are stored on our Document Control Database. These documents are available to all employees electronically. Engineering documents are kept electronically on our servers and controlled through revision levels and dates as required. This insures that all information is up to date and current to enable KME to manufacture a quality vehicle to the appropriate standard.

Director of Quality Assurance
ISO Management Representative

A handwritten signature in blue ink, appearing to read "Robert M. Krajcirik".

Robert M. Krajcirik

6.2.4 Tab 4 Experience and Qualifications

Enclosed is an overview brochure on the KME organization.

OVERVIEW:

For over six decades, the Kovatch Organization has garnered a reputation for quality and reliable delivery. KME manufactures its own custom chassis, as well as distributes a wide variety of commercial chassis. KME is also a true sole source body builder that designs and manufactures a full range of bodies and related equipment. Operating as a privately held company since 1946, the Organization of 900 employees puts the customer - and their needs - first. This customer-focused philosophy is why KME and Kovatch have a reputation for delivering unprecedented value, custom options, dependable safety and stand-out customer service.

The Organization's world headquarters is located in Nesquehoning, Pennsylvania and the location houses over 700 employees and is the central manufacturing center for all Kovatch vehicles. Other factory locations include Albany, New York; Roanoke, Virginia; and Ontario, California.

KME has manufactured and delivered almost 11,000 units since it began production of municipal fire trucks in 1985.

KME is a member in good standing of the Fire Apparatus Manufacturer's Association. Jack Terefinko, KME Development Engineer and Jim Currin, KME Aerial Engineer are voting members of the NFPA 1901 committee. Members of KME's sales and engineering staff are involved in various organizations within the fire service including the Fire Department Safety Officer's Association, NFPA 414 advisory board, and Pennsylvania Fire and Emergency Services Institute. Many of them are also members of volunteer fire departments with over twenty years of experience. Sales and service personnel within KME also hold numerous certifications from manufacturers including Cummins, International, Hale, Waterous, Akron, Elkhart, Class 1, Weldon and FRC.

KME has a long established history of successfully providing fire apparatus and related services to both small and large fleets and offering the necessary maintenance, service, parts and support for the vehicles to perform in an outstanding manner beyond the life expectancy of other brands in the fleet.

FACILITY:

Whether the department requires a pumper, special rescue or aerial, KME is able to provide unrivaled flexibility during the design and manufacturing phase. Customers can choose from hundreds of commercial and custom chassis configurations and fully custom body styles. During production, experienced craftsmen construct the vehicle to exacting standards using the latest cutting, welding and painting technologies. Finally, every vehicle receives extensive quality checks and testing to ensure safety and then is backed with service and support by a nationwide network.

KME is one of only a few true sole source suppliers that design, engineer and manufacture our own cab, chassis, body and aerial device. This ensures our customers that KME chassis are designed to integrate seamlessly with the KME body and aerial device as well as the unique options of each configuration. KME starts with a core, proven and tested design, but then finalizes the configuration to ensure that the overall apparatus is optimized. For example, exhaust systems and related components are selected to minimize wheelbase and maximize turning radius. The suspension is selected to offer the best overall weight distribution, and electrical systems are designed to easily combine the chassis and body into one central system. By controlling all aspects of the process, we can offer unrivaled quality control and customization and the ability to support our products without any split warranty responsibility.

A history of success—KME has a long history of successfully completing contracts ranging from one truck to over 1,000 vehicles for a variety of customers. The Los Angeles County Fire Department has over 250 KME vehicles in service included pumpers, aerials, rescues and wildland units. Their most recent purchases continue to be KME as we offer unprecedented value before the sale and a robust service and parts system for the life of the vehicles. In addition, KME is just a few units away from completing a pumper contract to the City of New York (FDNY) for 94 pumpers.

STAFFING:

Jeff Mazza

Dealer Principal—Bulldog Fire Apparatus

Byron Brooks

VP Sales—Bulldog Fire Apparatus

Phil Gerace

Director of Sales and Marketing—KME Fire Apparatus

- Marketing-The Pennsylvania State University
- Former firefighter (8 years)
- Employed by KME for 23 years. In his role he oversees the sales administration, sales engineering division and marketing activities of the company including all schedule contracts (ie HGAC, GSA, DLA, COSTARS, Ohio State Contract and FCAM pumper contract)

John Kovatch IV

VP and Director of Customer Service

- Business Administration—Kings College
- Current Firefighter
- Employed with KME for 13 years with experience in sales and customer service. Today oversees the entire customer service division which encompasses training, service, maintenance, warranty and parts.

Jack Terefinko

Development Engineer—KME Fire Apparatus

- Mechanical Engineering-Lehigh University
- Employed by KME for 33 years. In his role he oversees the engineering development division responsible for the design of apparatus. He has an extensive manufacturing background and also serves on the NFPA 1901 Fire Apparatus committee.

John Brady

Production Engineer—KME Fire Apparatus

- Mechanical Engineering – The Pennsylvania State University
- Employed by KME 6 years. In his role he oversees all production engineering and Bill of Materials.
- Previous employment at American LaFrance Aerials (previously Ladder Towers Inc. LTI) for 22 years. Responsibilities there included engineering department management, aerial product development, and representation for company on NFPA 1901, 1906, 1911 and 1912 committees.

Pete Hoherchak

Pre-Sales Manager—KME Fire Apparatus

- Carbon County Area Vocational-Technical School
- Former Firefighter/Captain (15 years)
- Former Emergency Medical Technician, EMT (9 years)
- Employed by KME for 29 years. He spent 6 years in manufacturing installing pumps, plumbing, foam system and testing fire fighting vehicles. In 1992 move to sales as product manager. In his role today, he oversees all pre-sales functions.
- Manages pricing and specification software and programming for our entire product line.

John Borovics

Contracts Manager—KME Fire Apparatus

- Mechanical Design and Drafting-Lincoln Tech
- Former Firefighter/Captain (15 years)
- Employed by KME for 9 years. Manages the post sales division that acts as the project management team for all sold apparatus.

QUALITY CONTROL AND INSPECTIONS:

KME maintains 3rd party inspectors and testers on-site. The US Federal Government houses inspectors for numerous federal contracts in production at KME at any given time. In addition, KME utilizes Underwriter Laboratories (UL) for 3rd party testing and certification at our Nesquehoning facility.

KME, a leading manufacturer of specialty vehicles for the fire-rescue, aviation, petro-chemical, industrial, energy and military industries received its recertification from Eagle Registrations Inc. in 2015 after they assessed the company's quality system and found it to be in compliance with ISO 9001:2008.

Eagle Registrations is accredited as a registrar by ANSI-ASQ National Accreditation Board (ANAB), the organization responsible for qualifying registrars as competent to audit and certify organizations conforming to ISO 9001 or other management system standards.

The International Organization for Standardization (ISO) is a worldwide federation of national standards bodies from 130 countries. Its ISO 9001 standard is a quality assurance model made up of 20 sets of quality system requirements. This model applies to organizations that design, develop, produce, install, and service products. ISO expects organizations to apply this model, and to meet these requirements by developing a quality system.

KME's quality policy is "Excellence-Right from the Start" and they have developed a quality and business management system manual designed to support this policy at all KME locations. According to KME's CEO, John Kovatch III, "We have always had a strict quality control system, but the additional structure of the ISO 9001 registration has helped us to improve all areas of our company including sales, purchasing, inventory control, quality assurance, manufacturing, engineering, and customer service. I'm pleased to report that our personnel at all locations have embraced the system to assure that our customers receive excellent products and services with an ongoing commitment to continuous improvement."

Bob Krajcirik, KME's Director of Quality Assurance states, "While no policy by itself assures product quality, KME achieved this certification in a relatively short period of time because it already had a commitment to a documented process of continuous improvement. This investment is a natural path given KME's substantial growth and commitment to excellence for all of our customers around the world."

KME's quality policy and system not only help KME to be more effective and efficient, our customers benefit as well.

Our continuous improvement process helps to deliver benefits to our customers as well including:

- On time deliveries of apparatus in full compliance with the specification
- Consistent and documented processes and inspections that offer confidence in the quality of the finished truck
- A formal system to measure KME's performance with customer surveys seen by all Senior Management and ownership
- KME is easy to do business with because our team understands our roles and the processes to deliver the right product at the right time

WELDING PROCEDURES

Weld procedures, certifications and testing are part of KME's ISO 9001 process which includes 34 documents within the Company's ISO database. Attached on the following pages is the record of qualification form and the Aerial Weld Inspection Summary. KME utilizes AWS (American Welding Society) standards in our ISO database and process that include but are not limited to:

- AWS B1.10M/B1.10:2009 Guide for Nondestructive Examination of Welds
- AWS B1.11:2000 Guide for the Visual Inspection of Welds
- AWS D1.1/D1.1M:2010 Structural Welding Code-Steel
- AWS D1.2/D1.2M: 2008 Structural Welding Code-Aluminum
- AWS D1.3/D1.3M: 2008 Structural Welding Code-Sheet Steel

KOVATCH MOBILE EQUIPMENT CORPORATION P75-2-F1	DESIGNATION									
	ORIGINAL DATE	PAGE OF								
SUBJECT: Manufacturer's Record of Welder or Welder Operator Qualification Test Original Issue Date: 3/21/12 Revision: 0 Revision Date: 3/21/12	REVISION NO.	DATE								
	ISSUE APPROVAL									
REF: A.S.M.E. Section IX, QW-482 (W-93) AWS. B2. 1-84	ISSUE PREP.									
Welder Name: _____ Check No. _____ Stamp No. _____ Welding Process: _____ Type: _____ In accordance with Welding Procedure Specifications (WPS) _____ Backing (QW-402) _____ Material (QW-403 Spec. _____ to _____ of P No. _____ to P No. _____ Thickness _____ Diameter _____ Filler Metal (QW-404) Spec. No. _____ Class No. _____ F. No. _____ Other _____ Position (QW-405) (1G, 4F, 6G, etc.) _____ Gas (QW-408) Type _____ Percentage (%) Composition _____ Electrical Characteristics (QW-409) Current _____ Polarity _____ Weld Progression (QW-410) _____ Other _____										
FOR INFORMATION ONLY Filler Metal Diameter and Trade Name: _____ Submerged Arc Flux Trade Name: _____ Gas Metal Arc Welding Shield Gas Trade Name: _____ Visual Inspection Per QW-194 _____ GUIDED BEND TEST RESULTS QW-462.2 (A), QW-462.3 (A), QW-462.3 (B)										
<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Type and Fig. No.</th> <th style="width: 50%;">Result</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>			Type and Fig. No.	Result						
Type and Fig. No.	Result									
Test Conducted By: _____ Laboratory – Test No. _____ We certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code. Organization _____ Date _____ By _____										
(Detail of record of tests are illustrative only and may be modified to conform to the type and number of test required by the Code.) NOTE: Any essential variables in addition to those above shall be recorded.										

In printed form, this document is an Uncontrolled Document unless stamped **Controlled Copy in Red**

QUALITY CONTROL AND CERTIFICATION PROCESS

KME's quality control system begins before the manufacturing process begins. It is incorporated into the design and model testing process. KME utilizes computer-generated 3D solid part models to ensure smooth parts integration, efficient assembly and optimal reliability. Then a technique known as finite element analysis is performed throughout the design process to verify the structural integrity of the design. KME even contracted a globally recognized engineering firm, Lucius Pitkin, to perform an over-the-road evaluation and life history analysis of the performance of a KME truck. This data, when combined with our decades of apparatus experience, helps KME design quality and safety into every product.

Every step of the production process includes checks and double checks to ensure quality and safety, many even before the process begins. For example, when we take delivery of aerial material, random samples are sent to an independent laboratory to confirm its compliance with our strict standards of yield strength and material type. Only when the material is formally approved will production begin at our facilities. Only KME takes this extra step for quality. **In addition, KME contracts Underwriters Laboratories (UL) to perform tests on fire apparatus both during and after the production process to ensure independent verification of quality at KME's onsite UL Certification Station.** All vehicles also have a complete Quality Control checklist, including driving and function testing, so they're ready to perform immediately upon delivery.

Some of the production inspections during the build include:

- Weld inspections along with functional and cosmetic inspections are performed throughout the plant. In process cab inspections, tank weld inspections and finish assembly testing and inspections are addressed in numerous areas.
- Weld inspections on cab structures, cab doors, body doors and numerous aerial weldments are performed. UL is contacted to complete Visual and Magnetic Particle Testing on all structural aerial weldments.
- Functional and cosmetic inspections and tests are performed on the incomplete cab and chassis. Numerous steering and driveline components are installed and lines and components marked to insure proper torque.
- The Fabrication shop is monitored to manufacture parts to acceptable tolerances to comply with specification. Body weld and dimension inspections are completed before the body continues on the body work and paint process. PPG recommended paint processes are followed to insure quality finish to all painted surfaces. Body and pumphouse mounting are completed according to specification and checked for proper alignment with the chassis.

- Pump testing and certification is performed along with electrical, including generator, aerial flow, CAFS system, and foam system testing. These tests are witnessed by UL as required by specification and/or NFPA standards. KME also provides in house testing and product familiarization to customers upon request. All units are pressurized before testing to insure integrity of all pump components. Proper operation of throttle, pressure governor, relief valve and generators are checked before testing is started.
- Inspections on driveline and steering components are completed before a truck is released for testing. Upon receiving the truck it is prepared for any testing that is required and all functions are checked at this time. Quality Control interfaces with production to insure proper operation of components when needed. All testing and inspections are documented and any issues are addressed when the truck is returned to production for completion.
- Inspections on driveline and steering components are completed before a truck is released for testing. Upon receiving the truck it is prepared for any testing that is required and all functions are checked at this time. Quality Control interfaces with production to insure proper operation of components when needed. All testing and inspections are documented and any issues are addressed when the truck is returned to production for completion.

WELDING CERTIFICATION

KME has established a quality control manual to achieve performance in accordance with the requirements of section VIII Division 1 of the A.S.M.E. Boiler and Pressure Code and the National Board Inspection Code.

All welding and tack welding is performed by welders qualified to welding procedure specifications which have been written and qualified to conform to the A.S.M.E. code, section IX.

Each welder is listed in the welder's log maintained by the Quality Control department.

NAME	STAMP #	DATE	F.C.A.W.	G.M.A.W.	G.T.A.W.	Procedure Qualifications
HAROLD BONSER	43	4/10/2015		X	X	WP-2, 5, 11
MIKE BUCKLES	95	4/10/2015		X	X	WP-1, 2, 5, 11, 12
JEREMY LLERA	24	4/10/2015		X	X	WP- 2, 5, 11
ALLEN LILLY	85	4/10/2015		X	X	WP-1, 2, 5, 11
MARK STRATCHKO	35	4/10/2015		X	X	WP-1, 2, 5, 11, 17
DAVE FARKAS	47	4/10/2015	X	X	X	WP-1, 2, 5, 10,11
CORY COONS	41	4/10/2015		X	X	WP- 2, 5, 11
JUSTIN HINGLER	16	4/10/2015		X	X	WP-1,2,5,11,17
BILL REMALEY	20	4/10/2015		X	X	WP-2,5, 11,17
JOE MATULA	22	4/10/2015		X	X	WP- 2, 5, 11
SCOTT REX	9	4/10/2015	X	X	X	WP- 5,7,8,9, 10, 11,12
GEORGE STROHL	76	4/10/2015		X	X	WP-1, 2, 5, 11,17

JOHN BREINER	52	4/10/2015		X	X	WP-2, 5,11,17
GEORGE HALDEMAN	66	4/10/2015		X		WP-2, 5, 11
MIKE SIMMONS	48	4/10/2015		X		WP-1, 2, 5, 11
DAVE MAKARA	7	4/10/2015		X	X	WP-2, 5, 11,17
JOE DOMINES JR.	64	4/10/2015		X	X	WP-1,2,5,11,17
NICK STEIGERWALT	14	4/10/2015		X	X	WP-1, 2, 5, 11,17
CRAIG ZIEGENFUSS	30	4/10/2015		X		WP-2, 5, 11
BILL WAGNER	8	4/10/2015		X		WP-2, 5, 11
						WP_5, 7, 8, 9, 10, 11,
MARK MILLER	33	4/10/2015		X	X	17
ANTHONY STRANKO	75	4/10/2015		X		WP-2, 5, 11
JOEL MILLER	4	4/10/2015		X		WP-2,5,7,10,11
CHRIS STEIGERWALT	62	4/10/2015		X		WP-2, 5, 11
ED HALABURDA	11	4/10/2015		X		WP-2,5,11
RON MERTZ	19	4/10/2015		X		WP-2, 5
JASON RUCH	50	4/10/2015		X		WP-2, 5, 11
LORI EVERETT	29	4/10/2015	X	X	X	WP-2, 5, 10,11,17
GEORGE CONARTY	36	4/10/2015		X	X	WP-1,2, 5, 11,17
CASMIR DITKOSKY	13	4/10/2015		X	X	WP-1,2,5, 7, 11,17
BRUCE SMITH	91	4/10/2015		X		WP-2, 5, 11
DAVID HORTER	63	4/10/2015		X		WP-2, 5, 11
WILLIAM ULSHAFFER	37	4/10/2015	X	X		WP-2 ,5, 10,11
JOEY BELTZ	39	4/10/2015		X		WP-2, 5, 11
CLEN SEWINSKY	49	4/10/2015		X		WP-2, 5, 11
RON LIENHARD	68	4/10/2015		X		WP-2, 5,11
JAY REINHEIMER	61	4/10/2015		X	X	WP-1, 2, 5, 11,17
GEORGE CAFFERY	92	4/10/2015		X	X	WP-2, 5, 11,17
MIKE GUTH	69	4/10/2015		X		WP-2, 5,7,10, 11
LEON SOBOLEWKI	70	4/10/2015		X	X	WP-2,5,11,17
PHIL THOMPSON	2	4/10/2015		X		WP-1, 2, 5, 11,17
CARL MCHUGH	58	4/10/2015		X		WP-2, 5, 11,12
LEROY HAGERTY	59	4/10/2015		X	X	WP-1,2, 5, 11,17
BRIAN GOTT	74	4/10/2015		X		WP-2, 5, 11
JIM SZOKE	73	4/10/2015		X	X	WP-2,5,11,17
DAN RUGGIERO	98	4/10/2015		X		WP-2, 5, 11
ROBERT HUNSICKER	12	5/15/2015		X		WP-2, 5, 11
BRUCE SOLOMAN	45	4/10/2015		X		WP-2,5,11
JUSTIN GUTH	79	4/10/2015		X		WP-2,5,11
FRANK INGRASSIA	1	4/10/2015		X		WP-2,5,11
RICH DOLL	97	4/10/2015		X	X	WP-1,2, 5, 11,17
DON BERNOSKY	90	4/10/2015		X		WP-2, 5, 11
RICK STROHL	31	4/10/2015		X		WP-2, 5, 11
KYLE BENSOTER	65	4/10/2015		X		WP-2, 5, 11
FRANK MARZEN	84	4/10/2015	X	X	X	WP-2,5,10,11,17
VICTOR STROUSE	25	5/15/2015		X		WP-5,7,11
ERICA SZOKE	40	4/10/2015		X	X	WP-2, 5, 7, 11,17
DAVE PASTERNAK	56	4/10/2015		X		WP-2, 5, 11
MATT KESSLER	32	4/10/2015		X		WP-2,5,11
DUANE EIDEM	54	4/10/2015		X		WP-2, 5, 11
CODY MERTZ	67	4/10/2015		X	X	WP-2, 5, 11,17
TREVOR HOLTZ	27	4/10/2015		X		WP-2,5,11

LARZ BARNES	96	4/10/2015	X		WP-2, 5, 7,10,11
JOE HEATTER	71	4/10/2015	X		WP-2,5,11
JESSE SMITH	51	4/10/2015	X		WP-5,7,11
KEVIN KNAPPENGER	55	4/10/2015	X		WP-2, 5, 7, 10,11
LUKE GERHARD	82	5/15/2015	X		WP-5,7,11
WILLIAM PICHT	93	4/10/2015	X		WP-2,5,11
MELQUIADEZ					
GONZALEZ	15	4/10/2015	X		WP-2,5,11
BROOKE WEISS	46	4/10/2015	X		WP-2,5,11
ROB MOYER	42	4/10/2015	X		WP-2,5,11
KEITH OLIPANT	89	4/10/2015	X		WP-2,5,11
RANDY EATON	5	4/10/2015	X		WP-2,5,11
DANIAL HUNADI	6	4/10/2015	X		WP-2,5,11
NATE KUNKEL	10	4/10/2015	X		WP-2,5,11
CHAD GREEN	34	4/10/2015	X		WP-2,5,11
LAWSON MILLER	94	4/10/2015	X		WP-2,5,11
JASON MCFARLAND	72	4/10/2015	X		WP-2,5,11
RON ARNER	78	4/10/2015	X		WP-2,5,11
BRANDON PIERCE	3	4/10/2015	X		WP-2,5,11
CODY					
SCHOENEBERGER	80	4/10/2015	X		WP-2,5,11
DANIEL DERR	81	4/10/2015	X		WP-2,5,11
JOE CHRIN	77	4/10/2015	X		WP-2,5,11
JAMES BODNER	83	4/10/2015	X		WP-2,5,11
RON ROMANCHIK	26	4/10/2015	X	X	WP-2,5,11,17
HAROLD ALLEN	23	4/10/2015	X		WP-2,5,11
NATHANIEL					
MELENDEZ	57	4/10/2015	X		WP-2,5,11
BOB WILLIAMS	99	4/10/2015	X		WP-2,5,11
JERRAM HEYDT	18	4/10/2015	X		WP-2,5,11
CASEY DONALDSON	21	4/10/2015	X		WP-2,5,11
DONALD HECKMAN	60	4/10/2015	X		WP-2,5,11
SHANE PARENT	44	4/10/2015	X		WP-2,5,11
DAN SMITH	53	5/15/2015	X		WP-2,5,11
TILDEN WARD	30	4/10/2015	X		WP-13,14,15,16
PAUL TOBIN	18	4/10/2015	X		WP-13,14,15,16
NATHAN SIMMONS	19	4/10/2015	X	X	WP-13,14,15,16
JONATHAN SALLEE	27	4/10/2015	X		WP-13,14,15,16
JIM MUNDY	25	4/10/2015	X		WP-13,14,15,16
BILL PERDUE	26	4/10/2015	X		WP-13,14,15,16
JOHN ANDERSON	21	4/10/2015	X		WP-13,14,15,16
CHRIS HUFFMAN	12	4/10/2015	X		WP-13,14,15,16
MARK THOMPSON	28	4/10/2015	X		WP-13,14,15,16
COLE GUIDRY	11	4/10/2015	X		WP-13,14,15,16
CHRIS MARSOLEK	23	4/10/2015	X		WP-13,14,15,16
DANNY PRUIT	13	4/10/2015	X		WP-13,14,15,16
GARY ROBERTS	14	4/10/2015	X		WP-13,14,15,16
TRAVIS NEESE	15	4/10/2015	X		WP-13,14,15,16
MARTY WILHELM	16	4/10/2015	X		WP-13,14,15,16
CHANCE WHORLEY	17	4/10/2015	X		WP-13,14,15,16
CURTIS WISE	20	4/10/2015	X		WP-13,14,15,16

NEIL CORMANY	22	4/10/2015	X	WP-13,14,15,16
KEN MEYERS	24	4/10/2015	X	WP-13,14,15,16
JERRY WOOD	29	4/10/2015	X	WP-13,14,15,16
WAYNE HYACK	17	4/10/2015	X	WP-2,5,11
JOSEPH HANCHERIK	87	5/27/2015	X	WP-2,5,11
KOREY KISSENBERGER	88	5/27/2015	X	WP-2,5,11



Bulldog Fire Apparatus
17 Winter Street-Woodville MA 01784
(508) 435-4200 [Phone] - (508) 435-0250 [Fax]

Bulldog Fire Apparatus is the designated Regional sales and service center for KME fire apparatus in the states of Massachusetts (with the exception of Berkshire County), Connecticut, Rhode Island, New Hampshire and Maine. Bulldog traces its heritage back to the E.J. Murphy Company that was founded by Ed Murphy in 1980. In 2005 Jeffrey R. Mazza purchased the E.J. Murphy Company and renamed the organization Bulldog Fire Apparatus. Throughout all of those years Byron Brooks has been the principle manager with over 40 years of experience in the world of fire apparatus sales and service to his credit. In 1975 Mr. Mazza started his working career as a certified welder and fabricator of fire trucks for the old Continental Fire Truck Company located in Hopkinton, MA not far from the current location of Bulldog in Woodville.

Bulldog maintains an outside sales staff of nine (9) individuals and a shop staff that includes 11 shop technicians (4 of whom are EVT certified and 1 ASE certified) and two parts department managers.

Jeffrey R. Mazza

Dealer Principal and CEO —Bulldog Fire Apparatus
Former AWS Certified Welder
10 years of experience in fire apparatus fabrication, sales and service

Byron Brooks

Vice President—Bulldog Fire Apparatus – Principle Manager
AB – Princeton University
BS – University of Maine
MBA – University of Maine
40 years experience in fire apparatus sales and service

Brian Beaudoin

General Manager – Bulldog Fire Apparatus
31 years' experience in automotive/truck repair
6 years RV tech
18 years Regulating Engineer EMI/RFI/Telecom
KME established a factory owned and operated sales and service center in Latham, New York in 1997. A staff of KME factory personnel led by John Cameron, with 18 years of service at KME, have seen to the smooth operation and full service capabilities of the New York center since its inception. The Latham, New York KME branch includes all KME activities in Berkshire County, Massachusetts due to its close proximity to Western Massachusetts customers. However, all Massachusetts customers are free to choose which service facility best meets their needs.

Welder Training Certification, Inc.

Certificate of Completion

This is to certify that

MAURICE GAIZICK

has satisfactorily completed a Specialized Training Program in

Dye Penetrant Inspection Level II (P.T.)

as of this 18th day of

May, 2013

Enoch Baldwin

Instructor


Walter Trubling
President
ASNT-1A LEVEL-II

Member Training Certification, Inc.

Certificate of Completion

This is to certify that

MAURICE GAIZICK

has satisfactorily completed a Specialized Training Program in
Magnetic Particle Inspection Level II (M.P.I.)

as of this 18th day of

Enoch Baldwin

Instructor

May 2013

Maurice Gaizick
Member Training
Certification Inc.

ASNT-1A LEVEL- II

President

WELDER TRAINING & CERTIFICATION, INC.

**115 Appalachian Trail
Dallas, Georgia 30132**

QUALIFICATION RECORD – N.D.T.

METHOD: Dye Penetrant-P.T. Testing

DATE: 05/18/13

COMPANY NAME: Kovatch Corp., K.M.E.

TECHNICIAN: Maurice Gaizick

LEVEL: I & II

CODE OR STANDARD: ASNT-TC-1A --- AWS D1.1

EXPERIENCE: (# Mos.) Satisfactory

TRAINING: (# Hrs.) 24. +8

EXAMINATION RESULTS

EYE TEST: Jaeger #2 at 18" – Satisfactory

GENERAL: 75.0 % x .33

SPECIFIC: 76.1% x .33

PRACTICAL: 100% x .34

CUMULATIVE TOTAL: 83.9%

QUALIFICATION STATUS: Satisfactory

LEVEL III EXAMINER:

Level II Trainer: Enoch Baldwin Level II ASNT-TC-1A

Level III Examiner: Joseph Meckley Level III ASNT-TC-1A

Welder Training and Certification, Inc.

W.T.C. I. hereby certifies the Level II Qualification of the above mentioned individual in the referenced N.D.T. method in accordance with ASNT-TC-1A.


Enoch Baldwin

**Welder Training
And Certification Inc.
ASNT-1A LEVEL- II**

WELDER TRAINING & CERTIFICATION, INC.

**115 Appalachian Trail
Dallas, Georgia 30132**

QUALIFICATION RECORD – N.D.T.

METHOD: Magnetic Particle Testing [Dry Powder]

DATE: 05/18/13

COMPANY NAME: Kovatch Corp. K.M.E.

TECHNICIAN: Maurice Gaizick

LEVEL: II **CODE OR STANDARD:** ASNT-TC-1A --- AWS D1.1

EDUCATION LEVEL: Satisfactory

EXPERIENCE: (# Mos.) Satisfactory

TRAINING: (# Hrs.) 24. +8

EXAMINATION RESULTS

EYE TEST: Jaeger #2 at 18" – Satisfactory

GENERAL: 75.0 % x .33

SPECIFIC: 76.1% x .33

PRACTICAL: 100% x .34

CUMULATIVE TOTAL: 83.9%

QUALIFICATION STATUS: Satisfactory

Expiration: 05/19/16

WELDER TRAINING AND CERTIFICATION, INC.

Level III Examiner: Joseph Meckley Level III ASNT-TC-1A

Level II Trainer: Enoch Baldwin Level II ASNT-TC-1A


Enoch Baldwin

**W.T.C.I. Hereby Certifies the
Level I and II Qualification of the above mentioned
Individual in accordance with ASNTTC-1A.**

**Welder Training
And Certification Inc.
ASNT-1A LEVEL- II**

Cargo Tank Test, Inspection
and Repair Facility
Interactive Workshop
Philadelphia, PA August 19-20, 2003

Certificate of Attendance

Bob Hontz




Clifford J. Harvison, President
National Tank Truck Carriers, Inc.


Doug Sawin, CT TAG Sponsor
U.S. DOT / FMCSA



The Commonwealth of Massachusetts
Secretary of the Commonwealth
State House, Boston, Massachusetts 02133

William Francis Galvin
Secretary of the
Commonwealth

Date: June 10, 2015

To Whom It May Concern :

I hereby certify that according to the records of this office,

KOVATCH MOBILE EQUIPMENT CORP.

a corporation organized under the laws of

PENNSYLVANIA

on **October 24, 1985** was qualified to do business in this Commonwealth on

September 05, 2000 under the provisions of the General Laws, and I further certify that said

corporation is still qualified to do business in this Commonwealth.

I also certify that said corporation is not delinquent in the filing of any annual reports required to
date.



In testimony of which,
I have hereunto affixed the
Great Seal of the Commonwealth
on the date first above written.

William Francis Galvin

Secretary of the Commonwealth

Certificate Number: 15063687010

Verify this Certificate at: <http://corp.sec.state.ma.us/CorpWeb/Certificates/Verify.aspx>

Processed by: ach



Section 4—Qualifications & Experience,” for provision of a list of the Apparatus Manufacturer’s “AWS Certified Welders or AWS Certified Welding Inspectors”

The Proposer, Kovatch Mobile Equipment Corp. (“KME”) requires that all of its welders meet qualifications and standards utilized by AWS. KME’s welders are evaluated/qualified by an independent third party, Laboratory Testing Inc. (“LTI”). LTI’s qualifications and testing documentation is attached.

KME has been successfully utilizing its existing welder and welding procedure certification process for more than 25 years, and the qualifications of its welders, and the acceptability of its welding procedures and standards meet ISO and AWS test standards.

WELDERS KME

NAME	STAMP #	CLOCK :	DATE	F.C.A.W.	G.M.A.W.	S.M.A.W.	G.T.A.W.	SUPERVISION	Procedure Qualifications
HAROLD BONSER	43	140	1/3/2012		X			R.H.	WP-2, 5
MIKE BUCKLES	95	288	1/3/2012		X		X	R.H.	WP-1, 2, 5, 11
SHAWN BOGER	18	195	1/3/2012		X			R.H.	WP-2, 5, 11
ALLEN LILLY	85	2200	1/3/2012		X			R.H.	WP-1, 2, 5, 11
MARK STRATCHKO	35	3061	1/3/2012		X		X	R.H.	WP-1, 2, 5, 11
DAVE FARKAS	47	626	1/3/2012		X			R.H.	WP-2, 5, 10, 11
CORY COONS	41	376	1/3/2012		X			R.H.	WP-2, 5, 11
JUSTIN HINGLER	16	2559	1/3/2012		X			R.H.	WP-1, 2, 5, 11
BILL REMALEY	20	2695	1/3/2012		X			R.H.	WP-2, 5, 11
JOE MATULA	22	2257	1/3/2012		X			R.H.	WP-2, 5, 11
SCOTT REX	9	2743	1/3/2012		X		X	R.H.	WP-5, 7, 8, 9, 10, 11
GEORGE STROHL	76	3076	1/3/2012		X			R.H.	WP-2, 5, 11
LARRY REESER	4	2662	1/3/2012		X		X	R.H.	WP-2, 5, 11
GEORGE HALDEMAN	66	858	1/3/2012		X			R.H.	WP-2, 5, 10, 11
MIKE SIMMONS	48	2952	1/3/2012		X		X	R.H.	WP-2, 5, 11
JOE HEATTER	71	1150	1/3/2012		X			R.H.	WP-2, 5, 11
MIKE PARK	24	2533	1/3/2012		X			R.H.	WP-2, 5, 11
NICK STEIGERWALT	14	2831	1/3/2012		X			R.H.	WP-2, 5, 11
CRAIG ZIEGENFUSS	30	3365	1/3/2012		X			R.H.	WP-2, 5, 11
BILL WAGNER	8	3285	1/3/2012		X			R.H.	WP-2, 5, 11
MARK MILLER	33	1116	1/3/2012		X			R.H.	WP-5, 7, 11
ANTHONY STRANKO	75	3050	1/3/2012		X			R.H.	WP-2, 5, 11
CHRIS FRETS	5	717	1/3/2012		X			R.H.	WP-1, 2, 5, 11
ED HALABURDA	11	957	1/3/2012		X			R.H.	WP-2, 5, 11
RON MERTZ	19	2346	1/3/2012		X		X	R.H.	WP-5, 11
JASON RUCH	50	2835	1/3/2012		X			R.H.	WP-2, 5, 11
LORI EVERETT	29	7	1/3/2012		X		X	R.H.	WP-2, 5, 10, 11
GEORGE CONARTY	36	325	1/3/2012		X			R.H.	WP-1, 2, 5, 11
CASMIR DITKOSKY	13	475	1/3/2012		X		X	R.H.	WP-1, 2, 5, 11
WILLIAM ULSHAFFER	37	3215	1/3/2012		X		X	R.H.	WP-2, 5, 10, 11
CLEN SEWINSKY	49	3143	1/3/2012		X			R.H.	WP-1, 2, 5, 11
RON LIENHARD	68	2190	1/3/2012		X			R.H.	WP-2, 5, 11
JAY REINHEIMER	61	5750	1/3/2012		X			R.H.	WP-2, 5, 11
DAVE OPLINGER	25	2490	1/3/2012		X			R.H.	WP-2, 5, 11

WELDERS KME

LEON SOBOLEWIKI	70	2991	1/3/2012	X		R.H.	WP-2, 5, 11
PHIL THOMPSON	2	3153	1/3/2012	X	X	R.H.	WP-1, 2, 5, 11
CARL MCHUGH	58	2292	1/3/2012	X	X	R.H.	WP-1, 2, 5, 11
LEROY HAGERTY	59	816	1/3/2012	X	X	R.H.	WP-1, 2, 5, 11
JIM SZOKE	73	3091	1/3/2012	X		R.H.	WP-2, 5, 11
JOE RODRIGUEY	86	2764	1/3/2012	X		R.H.	WP-2, 5
STEVE LUKASHUNAS	46	2272	1/3/2012	X	X	R.H.	WP-1, 2, 5, 11
ED GOGAL	72	745	1/3/2012	X		R.H.	WP-2, 5, 11
RICH DOLL	97	484	1/3/2012	X	X	R.H.	WP-1, 2, 5, 11, 12
RICK STROHL	31	3172	1/3/2012	X		R.H.	WP-2, 5, 11
JUSTIN GUTH	12	805	1/3/2012	X	X	R.H.	WP-1, 2, 5, 11
FRANK MARZEN	84	2235	1/3/2012	X		R.H.	WP-5, 10, 11
JONATHAN SMITH	28	3038	1/3/2012	X		R.H.	WP-2, 5, 10, 11
ERICA SZOKE	40	482	1/3/2012	X		R.H.	WP-2, 5, 11
MATT KESSLER	32	2000	1/3/2012	X		R.H.	WP-2, 5, 11
DUANE EIDEM	54	1122	1/3/2012	X		R.H.	WP-2, 5, 11
EFREN CARRASCO	38	268	1/3/2012	X	X	R.H.	WP-1, 2, 5, 11
KEVIN KNAPPENGER	55	2168	1/3/2012	X		R.H.	WP-2, 5, 7, 11
ROANOKE WELDERS							
HENRY SHELL		2939	1/3/2012	X		J.A.	
JIM MUNDY		2423	1/3/2012	X		J.A.	
BILL PERDUE		2540	1/3/2012	X		J.A.	
JOHN ANDERSON		16	1/3/2012	X		S.J.	
CHRIS HUFFMAN		930	1/3/2012	X		J.A.	
NEIL CORMANY		349	1/3/2012	X		J.A.	
KEN MEYERS		2471	1/3/2012	X		J.A.	
JERRY WOOD		3302	1/3/2012	X		J.A.	
TILDEN WARD		3268	1/3/2012	X		J.A.	
PAUL TOBIN		3160	1/3/2012	X		J.A.	
NATHAN SIMMONS		2953	1/3/2012	X	X	J.A.	

Kovatch Mobile Equipment Corp. maintains copies of each certification for all welding staff, which is available upon request

WELDERS KME



Philip J Gerace, Director of Sales and Marketing



LABORATORY TESTING INC.

2331 Topaz Drive, Hatfield, PA 19440
Phone: 800-219-9095 • Fax: 800-219-9096

Certified Test Report

KME001-11-02-04051-2



SOLD TO

Kovatch Mobile Equipment Corp.
One Industrial Complex
Nesquehoning, PA 18240

SHIP TO

Kovatch Mobile Equipment Corp.
One Industrial Complex
Nesquehoning, PA 18240
ATTN: Maurice Gaizick

CUSTOMER P.O.

KT37251

CERTIFICATION DATE

2/15/2011

SHIP VIA

EMAIL AND MAIL

DESCRIPTION

Quantity:
Size: 3/8" x 12" x 12"
Description: Weld Procedure Qualification Test Plate
Material: ASME SA-516, Grade 70
Heat No.: 4106895-03
Lot No.: 483
Welder: Carl McHugh
Employee No.: 2292
Welder Stamp: #58

The above material was 100% Visually inspected in accordance with ASME Section IX, 2010 Edition, using L.T.I. Procedure VT-III-IX, Rev. 1, dated 10/10/03. See Test Results below.

Testing performed by Rick Stuart, SNT-TC-1A, Level II.

Inspected	Accepted	Rejected	Reason for Rejection
1	1	0	

BEND TEST: PLUNGER

APPLICABLE SPECIFICATIONS: ASME Section IX, 2010 Edition

KEY: C - Conforms NC - Non-Conformance R-Report for Information

Bend Type	Face 1	Root 1
Specimen Thickness (Inches)	3/8	3/8
Bend Through (Degrees)	180	180
Pin Diameter (Inches)	1 1/2	1 1/2
Bend Test Results	C	C

The services performed above were done in accordance with LTI's Quality System Program Manual Revision 18 dated 7/27/07 and ISO/IEC 17025. These results relate only to the items tested and this report shall not be reproduced, except in full, without the written approval of Laboratory Testing, Inc. L.T.I. is accredited by PRI to ISO17025 and by Nadcap for NDT and Materials Testing for the test methods and specific services as listed in the Scopes of Accreditation available at www.labtesting.com and www.eAuditNet.com. The results reported on this test report represent the actual attributes of the material tested and indicate full compliance with all applicable specification and contract requirements.

MERCURY CONTAMINATION: During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

NOTE: The recording of false, fictitious or fraudulent statements or entries on this document may be punishable as a felony under Federal Statutes.

Sherri L. Scheifele
QA Specialist

Authorized Signature (ES)



World Class Accreditation

The American Association for Laboratory Accreditation

Accredited Laboratory

A2LA has accredited

LABORATORY TESTING, INC.

Hatfield, PA

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-LAF Communiqué dated 8 January 2009).

Presented this 8th day of June 2011.



President & CEO
For the Accreditation Council
Certificate Number 117.02
Valid to April 30, 2013
Revised: March 28, 2013

For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.



The American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

LABORATORY TESTING, INC.
2331 Topuz Drive
Hatfield, PA 19440
Frank Peszka Phone: 800 219 9095

MECHANICAL

Valid Until: April 30, 2013

Certificate Number: 0117.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following metal and fastener tests:

<u>Test</u>	<u>Test Method</u>
<u>Mechanical Testing</u>	
Compression Test of Washers	ASTM F959
<u>Hardness</u>	
Bruell	ASTM E10
Rockwell (A, B, C, E, F)	ASTM E18; NASM-1312-6
Superficial (15, 30, 45 N & T)	ASTM E18; NASM-1312-6
Vickers (1-10kg)	ASTM E384
Microhardness (Knoop, Vickers (25-1000g))	ASTM E384; NASM-1312-6
Shore (A, B, C, D)	ASTM E2240 (N)
Tensile and Proof Load (<= 400klbs, <=2100 °F)	ASTM E8/E8M, E9, E21, A370, B557, F606/F606M, F835, NASM-1312-8, EN 2002-1, 10002-1, 1025-02; ISO 6892-1
Fracture Toughness	ASTM E1820, E399
Joining Hardenability	ASTM A255
Expansion (Pin Test) of Copper and Copper Alloy Piping and Tubing	ASTM B153
Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners	ASTM F959
Flattening	ASTM A999, A530
Conductivity	BAC 5946 (N)
Flare Testing	AMS 5557, 5576
Fastener Testing (Duplication acceptable)	ASTM A370, F606; SAE J429; NASM-1312-18

(A2LA Cert. No. 0117.02) Revised 03/28/2013

Page 1 of 3

5301 Buckeystown Pike, Suite 350 | Frederick, Maryland 21704-8373 | Phone: 301 644 3248 | Fax: 301 662 2974 | www.A2LA.org

<u>Test</u>	<u>Test Method</u>
Bend Testing	ASTM E290, E190, A370
Stress Rupture	ASTM E139, E292; NASM-1312-10
Stress Durability (Hydrogen Embrittlement)	NASM-1312-5A
Impact (Charpy)	ASTM E23, ISO 148
Drop Weight	ASTM E208
Metallographic Evaluation	
Preparation	ASTM E3
Grain Size	ASTM E112, E930, E1181, E1382; GE E50TF133
Micro Exam (including Alpha Case)	ASTM E407; GE P3TF19; PWA E142; AMS-T-9046 section 4.4.2
Macro Exam	ASTM E340, E381, A604
Intergranular Corrosion Susceptibility	ASTM A262 (Practices A & E (micro))
Intergranular Attack & End Grain Pitting	BSS 7219
Case Depth	SAE J423
Delta Ferrite Determination	AMS 2315
Steel Self-Drilling Tapping Screws	SAE J78
Microhardness of Electroplated Coatings	ASTM B578
Inclusion Content	ASTM E45; SAE J422
Plating Thickness	ASTM B487; NASM-1312-12
Depth of Decarburization	ASTM E1077, E384; SAE J121
EDM & Laser Evaluation (Recast / Remelt)	CPW 425; PWA E167
Weld and Brazed Evaluation	
	ASME IX; API 1104; AWS D1.1/1.1M, 1.2/1.2M, D1.3, D1.4, D1.5, D1.6, D9.1/9.1M, D14.1/14.1M, D14.3/14.3M, D14.4, D14.6, D15.1, D17.1; ISO 15614-1; BS EN 287-1, 287-2, 910, 288-4; New York State Steel Construction Manual; AMS-STD-1595; ASTM A488; MIL-STD-248D; NAVSEA S9674-AQ-GIB-010; ANSI/AASHTO
Failure Analysis	
	ASM Handbook 11 (N)



Dimensional Testing

Parameter/Equipment	Range	CMC ^{1,2} (±)	Comments
Thread Inspection ³ – Tri-roll Gauging: External Threads	Up to 1½ in	0.00028 in	FED-STD H28/20A (systems 21, 22, & 23); AS8879C
Bi-Element: Internal Threads	#10 to 1½ in	0.00026 in	MIL-DTL-1222J; FEDSTD H28/20; ANSI/ASME B1.1M
External Threads: Ring Gauges (Go-No-Go)	Up to 1½ in	0.00019 in	MIL-S-8879; ANSI/ASME B1.3M
Internal Threads: Thread Plug	#10 to 1½ in	0.00015 in	MIL-S-007742C Pratt & Whitney Supermicrometer®
Length ³	Up to 20 in	(19 + 3.4L) µin	UMM
Angle ³	(0 to 360)°	0°, 1', 57"	Video measuring machine
Radius ³	Up to 6 in	(150 + 6L) µin	Video measuring machine

¹ Calibration and Measurement Capability (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. Calibration and Measurement Capabilities represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

² In the statement of CMC, L is the numerical value of the nominal length of the device measured in inches.

³ This test is not equivalent to that of a calibration.



AWS D1.1 Structural welding code

WELDER or WELDING OPERATOR QUALIFICATION TEST

Welder's Name: Joel Kimball Stamp No.: 4040251 Rev # none
 Identification of type followed by welder during welding of test coupon: D1.1
 Base Material Welded: ASTM A36 Thickness: 1/8 inch

Manual, Semi, or Auto Variables for each Process

Variable	Record Actual Values	Qualification Range
Process	SMAW	
Process Type	SMAW	
Beckside Joint Prep.	NA	
Base Metal List/Class	Group 1 All	Group 1 All
Diameter	1/8 7018	3-6
	double bevel	unlimited
	unlimited	unlimited
	SFA5.1	All in SFA5.1
	SMAW	1
	1	1

Deposited Weld Metal Thickness
 F-No. _____
 Class _____
 Spec _____
 Fillet _____
 Fillet Metal _____

Position
 Groove: unlimited Fillet unlimited Groove unlimited Fillet unlimited
 Weld Progression: Vert. Fillet unlimited Groove unlimited Fillet unlimited
 Gas Type: none
 Backing Gas: N/A

Electrical Characteristics
 CURRENT DC
 POLARITY reverse DC
reverse

GUIDED BEND TEST RESULTS

Type & Figure	Results	Type & Figure	Results
side bend	accepted		accepted
side bend	accepted		acceptable

VISUAL TEST

D1.1 AWS xde acceptable results

Fillet Weld Test Results

Fracture Test: N/A Length & Percent of Defects: N/A
 Macro Test - Fusion: N/A In X N/A in Convexity N/A In. or Concavity
 Appearance-Fillet Size (leg): N/A in X N/A in Convexity N/A In. or Concavity

Test Conducted by: Neil Mansfield Lab Test No N/A


We certify that the statements in this report are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of A.W.S. D 1.1 Code

QUALIFICATION MAINTENANCE (Verified)

By	Date
Neil Mansfield	4/9/2006



HBL & MANSTRIED
 CW 04040251
 (C) ETP 401/06

	Production P75-1-W13 Weld Procedure #2	Original Issue Date: 5/1/12 Revision: 0 Revision Date: 5/1/12
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Welding Procedure 2

WP-2 Semi-Automatic Gas Metal Arc Welding 3G Vertical Aluminum

WELDING PROCEDURE QUALIFICATION DATA

WELDING PROCESS: GMAW PLATE PIPE CASTING OTHER
 NOTE: SPECIFY OTHER _____

BASE MAT'L: (1) SPEC. QQ-1-250/8 FILLER METAL:
 (2) GRADE OR CLASS 5052 (1) GOVT SPEC. MIL-E-16053
 (3) THICKNESS 250 (2) MIL-TYPE 5556
 (4) GROUP NO. (S-NO.) 22 (3) DIAMETER 3/64

(MAX. SIZES TO BE USED IN PRODUCTION)

JOINT DESIGN: SINGLE VEE (REF. NO. OR SKETCH) SEE ATTACHED SHEET

METHOD OF EDGE PREPARATION: MACHINE, GRIND

WELDING POSITION: 3G

POWER SOURCE (FOR INFO. ONLY) AIRCO 650 AMP

SER. # D9-49 SKETCH OF JOINT WELDING CURRENT: DCRP

RANGE: 140-220
 (SEE NOTE 1)

ARC VOLTAGE RANGE: 19-26
 (SEE NOT 1)

TRAVEL SPEED RANGE (IPM): N/A FLUX: (1) GOVT SPEC. N/A

TORCH GAS: ARGON (2) MIL-TYPE N/A

TORCH TIP SIZE (OXY-FUEL): N/A (3) SIZE N/A

CUP SIZE 5/8"

SHIELDING GAS: (1) COMPOSITION 100% WELD GRADE

(2) FLOW RATE RANGE 30-40 CFH

PURGE GAS: (1) COMPOSITION N/A

(2) FLOW RATE RANGE N/A

MINIMUM PREHEAT TEMPERATURE: 60°F MAXIMUM INTERPASS TEMP. 350°F

POST-WELD HEAT TREATMENT/TEMPERATURE: N/A TIME

WELDER/WELDING OPERATOR: CLARENCE MUFFLEY

NONDESTRUCTIVE TEST RESULTS

***DESTRUCTIVE TEST RESULTS**

APPLICABLE ACCEPTANCE STANDARD

R.T	MIL-STD-271E	PASS
P.T	MIL-STD-271E	PASS
M.T	N/A	
U.T	N/A	

	U.T.S.	Y.S	EL. (MIN)	BEND
BASE MATERIAL				
WELD METAL TESTS	40,609	14,400	18	PASS
TRANS.	36,509	12,800	18	PASS
LONG.	N/A	N/A	N/A	N/A

*CHARPY IMPACT TEST SHALL BE PERFORMED ON WELD AND RECORDED WHEN REQUIRED BY TABLE V FOOTNOTE 2.

TEST APPROVED BY: ROBERT W. MCVAUGH AT LABORATORY LABORATORY TESTING IN
 (NAME) # T/XR/-P-1725

DATE OF CERTIFICATION 4/21/87 VERIFIED BY: KOVATCH CORPORATI
 (QUALIFYING ACTIVITY)

APPROVED BY: _____
 (AUTHORIZED AGENT OF NAVSHIPS)

KOVATCH CORPORATION
ONE INDUSTRIAL COMPLEX
NESQUEHONING, PA 18240

WP-2 ALUM.

WP-2
ORIGINAL DATE 4/21/87 PAGE 2 OF 6

SUBJECT: WELDING PROCEDURE SPECIFICATION (WPS)
INTENDED FOR FABRICATION, WELD DEFECT REPAIR
AND BASE METAL REPAIR OR BUILD-UP.
REF. ASME SECTION IX, QW-482, MIL-STD-248C.

REVISION NO. 0 DATE 4/21/87

ISSUE APPROVAL:

[Signature]

SUPPORTING PQR NO.(S)

DATE

WP-1, WP-3, WP-4

4/21/87

WELDING PROCESS(S)

GMAW

TYPE(S) SEMI-AUTO

JOINTS (QW-402)

JOINT DESIGN SINGLE VEE
BACKING (YES) X (NO) _____
BACKING MATERIAL (TYPE) S-22

SKETCHES, PRODUCTION DRAWINGS,
WELD SYMBOLS OR WRITTEN DESCRIP-
TION SHOULD SHOW THE GENERAL AR-
RANGEMENT OF THE PARTS TO BE
WELDED. WHERE APPLICABLE, THE
ROOT SPACING AND THE DETAILS OF
WELD GROOVE MAY BE SPECIFIED.

BASE METALS (QE-403)

S^P-NO. 22 GR.NO. _____ TO S^P-NO. 22 GR. NO. _____

OR

SPECIFICATION TYPE AND GRADE QQ-A-250/8 5052

TO SPECIFICATION TYPE AND GRADE Q-A-250/8 5052

OR

CHEM. ANALYSIS AND MECH. PROP. N/A

TO CHEM. ANALYSIS AND MECH. PROP. N/A

THICKNESS RANGE:

BASE METAL: GROOVE 1/8" - 1/2" FILLET UNLIMITED

DEPOSITED WELD METAL

PIPE DIA. RANGE: GROOVE 2-7/8" & OVER FILLET UNLIMITED

FILLER METALS (QW-404)

F-NO. 22B OTHER N/A

A-NO. N/A OTHER N/A

SPEC. NO. (SFA) 5.10

AWS NO. (CLASS) ER 5556

SIZE OF FILLER METALS 3/64

(ELECTRODE, COLD WIRE, HOT WIRE, ETC.)

ELECTRODE-FLUX (CLASS) N/A

FLUX TRADENAME N/A

CONSUMABLE INSERT N/A

WP-2 ALUM.

SIGNATION (WPS NO.)
WP-2

WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.
REF. ASME SECTION IX, QW-482 (W-83)

PAGE
3 OF 6

REV. NO.
0

DATE
4/21/87

POSITIONS (QW-405)

POSITION(S) OF GROOVE 3G
WELDING PROGRESSION: UP X DOWN _____
POSITION(S) OF FILLET 1F, 2F, 3F

POSTWELD HEAT TREATMENT (QW-407)
TEMPERATURE RANGE _____ N/A
TIME RANGE _____ N/A

PREHEAT (QW-406)

PREHEAT TEMP. MIN. 60°F
INTERPASS TEMP. MAX. 350°F
PREHEAT MAINTENANCE N/A

(CONTINUOUS OR SPECIAL HEATING
WHERE APPLICABLE SHOULD BE
RECORDED)

GAS (QW-408)

SHIELDING GAS(ES) ARGON
PERCENT COMPOSITION
(MIXTURES) 100% WELD GRADE

FLOW RATE 30-40 CFH
GAS BACKING N/A
TRAILING SHIELDING GAS COMPOSITION N/A

ELECTRICAL CHARACTERISTICS (QW-409)

CURRENT AC OR DC DC
POLARITY REVERSE
AMPS (RANGE) 140-220
VOLTS (RANGE) 19-26

(AMPS AND VOLTS RANGE SHOULD BE
RECORDED FOR EACH ELECTRODE SIZE,
POSITION, AND THICKNESS, ETC.
THIS INFORMATION MAY BE LISTED IN
A TABULAR FORM SIMILAR TO THAT
SHOWN BELOW.)

TUNGSTEN ELECTRODE SIZE AND TYPE

N/A
(PURE TUNGSTEN, 2% THORIATED)

MODE OF METAL TRANSFER FOR GMAW

SPRAY, ARC
(SPRAY ARC, SHORT CIRCUITING ARC)

ELECTRODE WIRE FEED SPEED RANGE

N/A

TECHNIQUE (QW-410)

STRING OR WEAVE BEAD STRING OR WEAVE
ORIFICE OR GAS CUP SIZE UP TO .750
INITIAL AND INTERPASS CLEANING (BRUSHING, GRINDING, ETC.) GRIND
STAINLESS STEEL WIRE BRUSH

METHOD OF BACK GOUGING AIR ARC, BACK GRIND
OSCILLATION N/A
CONTACT TUBE TO WORK DISTANCE 1/2" - 3/4"
MULTIPLE OR SINGLE PASS (PER SIDE) MULTIPLE
MULTIPLE OR SINGLE ELECTRODES SINGLE
TRAVEL SPEED (RANGE) N/A
PEENING NONE ALLOWED
OTHER N/A

WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.

PAGE
5 OF 6

REV. NO.
0

DATE
4/21/87

PROCEDURE QUALIFICATION RECORD PQR
REF. ASME SECTION IX, QW-483 (W-83)
MIL-248C

WPS NO. USED WP-2
REV. 0 DATE 4/21/87

PROCEDURE QUALIFICATION RECORD NO. _____ DATE _____

WELDING PROCESS(ES) GMAW TYPE(S) SEMI-AUTO
(MANUAL, AUTOMATIC, SEMI-AUTO)

JOINTS (QW-402)

GROOVE DESIGN USED

BASE METALS (QW-403)

MATERIAL SPEC. QQ-A-250/8
TYPE OR GRADE 5052
P NO. 22 TO P NO. 22
THICKNESS .250
DIAMETER N/A
OTHER N/A

POSTWELD HEAT TREATMENT (QW-40)

TEMPERATURE N/A
TIME N/A
OTHER N/A

FILLER METALS (QW-404)

WELD METAL ANALYSIS A NO. N/A
SIZE OF ELECTRODE 3/64
FILLER METAL F. NO. 22B
SFA SPECIFICATION 5.10
AWS CLASSIFICATION ER 5556
OTHER _____

GAS (QW-408)

TYPE OF GAS OR GASES ARGON
COMPOSITION OF GAS MIXTURE 100% WELD GRADE
OTHER N/A

POSITION (QW-405)

POSITION OF GROOVE 3G
WELD PROGRESSION (UPHILL, DOWNHILL)
UPHILL
OTHER N/A

ELECTRICAL CHARACTERISTICS (QW-407)

CURRENT DIRECT
POLARITY REVERSE
AMPS. 140-220
VOLTS 19-26
OTHER N/A

PREHEAT (QW-406)

PREHEAT TEMP. 60°F
INTERPASS TEMP. 250°F MIN
OTHER N/A

TECHNIQUE (QW-410)

TRAVEL SPEED N/A
STRING OR WEAVE BEAD STRING C
OSCILLATION N/A
MULTIPASS OR SINGLE PASS (PER
MULTIPASS
SINGLE OR MULTIPLE ELECTRODES
SINGLE
OTHER N/A

WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.

PAGE 6 OF 6

REV. NO. 0

DATE 4/21/87

PROCEDURE QUALIFICATION RECORD (PQR) CONT'D.
REF. ASME SECTION IX, QW-483, W-83)

(PQR NO.)

FIGURE NO. _____ TENSILE TEST (QW-150)

SPECIMEN NO.	WIDTH	THICKNESS	AREA	ULTIMATE TOTAL LOAD LB.	ULTIMATE UNIT STRESS PSI	CHARACTER OF FAILURE & LOCATION
1	1.490	.238	.3546	14,400	40,609	WELD
2	1.492	.235	.3506	12,800	36,508	WELD

FIGURE NO. _____ GUIDED BEND TESTS (QW-160)

TYPE AND SPECIMEN	RESULT
FACE BEND	SATISFACTORY
FACE BEND	SATISFACTORY
ROOT BEND	SATISFACTORY
ROOT BEND	SATISFACTORY

TYPE _____ TOUGHNESS TESTS (QW-170) SIZE _____

SPECIMEN NO.	NOTCH LOCATION	NOTCH TYPE	TEST TEMP.	IMPACT VALUES	LATERAL EXP.	
					% SHEAR	MILS

FILLET WELD TEST (QW-180)

RESULT-SATISFACTORY: YES _____ NO: _____
 PENETRATION INTO PARENT METAL: _____ NO: _____
 MACRO-RESULTS _____

OTHER TESTS

TYPE OF TEST X-RAY PASS
 DEPOSIT ANALYSIS _____
 OTHER PT PASS

.....
 WELDER'S NAME CLARENCE MUFFLEY CLOCK NO. _____ STAMP NO. Q
 TESTS CONDUCTED BY: LABORATORY TESTING INC. LABORATORY TEST NO. T/XR/P-1725
 WE CERTIFY THAT THE STATEMENTS IN THIS RECORD ARE CORRECT AND THAT THE TEST WELDS WERE PREPARED, WELDED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION IX OF THE ASME CODE AND MIL-STD-248C.

MANUFACTURER KOVATCH CORPORATION

DATE 5/4/87 BY William J. Boyer C. A. Nigro
 (DETAIL OF RECORD OF TESTS ARE ILLUSTRATIVE ONLY AND MAY BE MODIFIED TO CONFORM TO TYPE AND NUMBER OF TESTS REQUIRED BY THE CODE.)

TERMS: NET CASH - 10 DAYS



LABORATORY TESTING INC.

P.O. Box 249 Dublin, Pennsylvania 18917

SOLD TO

Kovatch Corporation

One Industrial Complex

Hempden, PA 18240

SHIPPING ADDRESS

120 MILL STREET, DUBLIN, PA 18917

SHIP TO

Attn: Bob Montz

CUST. P.O.

CO-10433

LAB REPORT NO.

T/X/P-1725

SHIPMENT

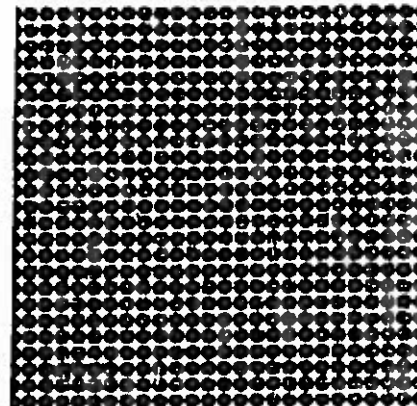
Complete

INVOICE DATE

1/21/77

DESCRIPTION

1 pc. Aluminum Test Plate per QQ-A-250/8P, Alloy 5052, Temper O, Weld Procedure Qualification Test Plate, 3G, per MIL-STD-248C, Welders Name: Clarence Muffley, Stamped "Q"



- A. The above material was 100% Liquid Penetrant inspected in accordance with MIL-STD-271E, Acceptance Criteria per NAVSEA 0900-003-8000, Class 1 and (1) piece was found to be acceptable to those requirements.
- B. The above material was 100% Radiographically inspected in accordance with MIL-STD-271E, Acceptance Criteria per NAVSEA 0900-003-9000, Class 1 and (1) piece was found to be acceptable to those requirements. See attached sheet for results.
- C. (4) bend tests were performed (per MIL-STD-418) on the above Test Specimens and (4) pieces were found to comply with the requirements of MIL-STD-248C with no cracks. See attached sheet.
- D. (2) Tensile tests were performed (per ASTM A-370/E-8, MIL-STD-418) on the above Test Specimen and (2) pieces were found to comply with the requirements of MIL-STD-248C. See attached sheet for results.

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

Robert W. McVaugh
AUTHORIZED SIGNATURE

LABORATORY MECHANICAL PROPERTY TEST REPORT

Supplier: Kovatch Corporation Customer Order No. CO 10438 Date: April 21, 1987
 Shop Order No. One Industrial Complex Report No. T-1725
Nesquehoning, PA 18240 Part Aluminum Test Plate, per QQ-A-250/8R Material Alloy 5052, Temper 0

Specimen No.	SIZE IN INCHES		Area Sq. In.	TENSILE STRENGTH		YIELD <u>2</u> %		Elongation IN <u>2</u> in. %	REDUCTION OF AREA New Dia. Reduction %	HARDNESS	REMARKS
	Dia. or Thk.	Width		Load Lbs.	PSI	Load Lbs.	PSI				
Bend #1	.250"	1.5"									Satisfactory - No Cracks
Bend #2	.250"	1.5"									Satisfactory - No Cracks
Bend #1	.250"	1.5"									Satisfactory - No Cracks
Bend #2	.250"	1.5"									Satisfactory - No Cracks
File #1	.238"	1.490"	.3546"	14,400	40,609						Included in Weld
File #2	.235"	1.492"	.3506"	12,800	36,508						Fracture in Weld

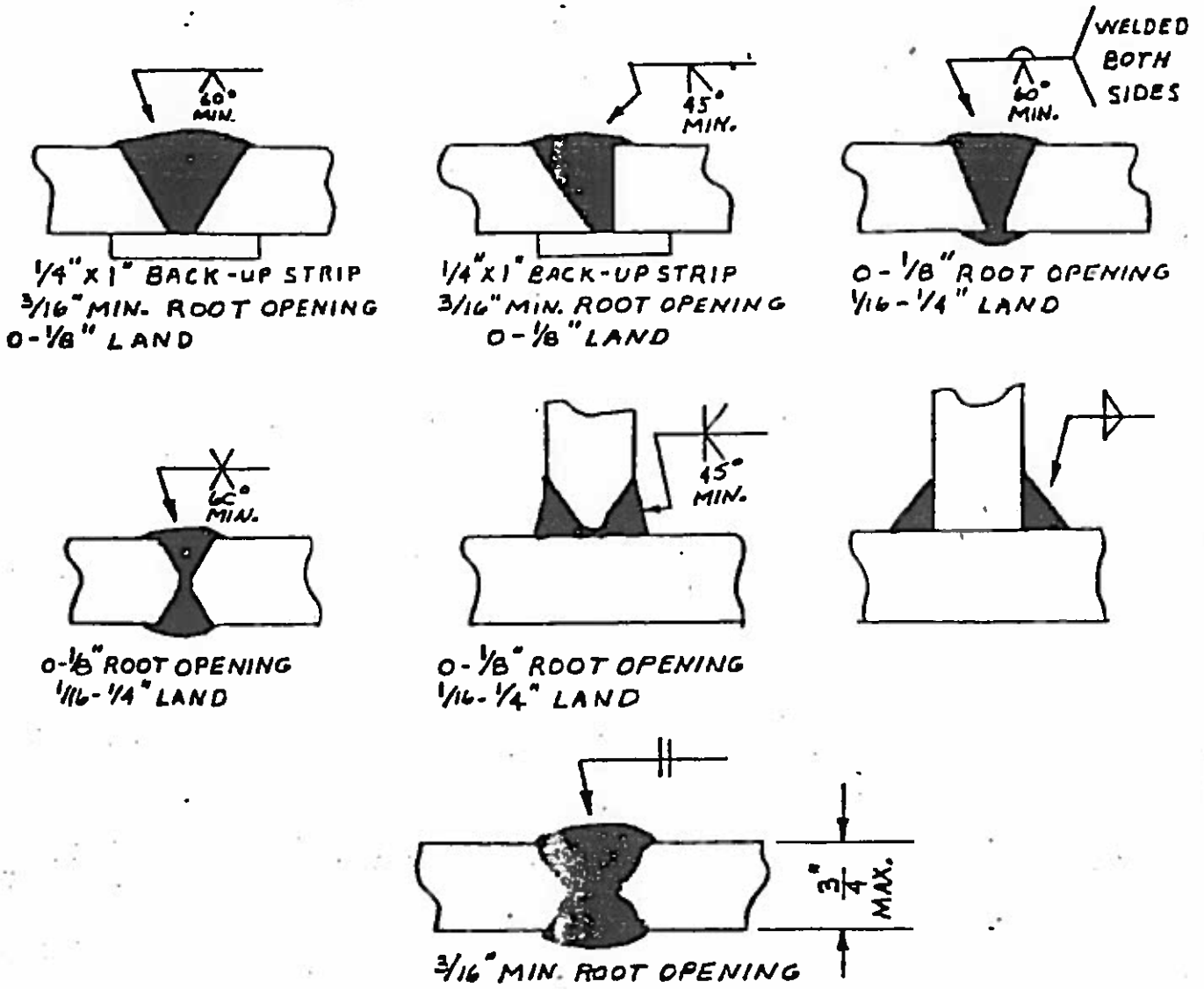
REQUIREMENTS:

Ultimate Tensile Strength 25,000 PSI
 Yield Strength _____
 Elongation _____
 Reduction of Area _____

CERTIFICATION

This is to certify that the above mentioned parts have been processed as indicated above.

Tester: Jim Wenzell



- Notes:
1. When full penetration welds are made from one side only, a backing shall be employed.
 2. The sketches shown hereon are presented for reference only and are intended to provide general guidance for the welding process involved. These sketches are not necessarily inclusive of all applications which may be employed. However, alternate applications of the welding process shall follow the same general joint designs as represented above.

Radiographic Weld Report

COMPANY KOVATCH

WELDER CLARENCE MUFFLEY

DATE & XR. NO. 4-13-87 XR-1725

RT SPEC. & ACCEP. MICSTD-248C

JOB IDENTIFICATION ALUM TEST PLATE

- WELD DEFECT ABBREVIATION
- SL. - SLAG LINE
 - IS. - ISOLATED SLAG
 - LP. - LACK PENETRATION
 - UC. - UNDERCUT CAP
 - IU. - INTERNAL UNDERCUT
 - BT. - BURN THROUGH
 - NF. - NON FUSION
 - CC. - CONCAVE CAP
 - P. - POROSITY

SN#	RT#	HT#	VIEWS	ACCEPT	REJECT	REMARKS
"Q"			3-4	X		porosity acc.
						X-RAYED PER MIC-STD-271E
						ACC. PER. NAVSEA 0900-003-9000
						CLASS

Mick McVay
SIGNATURE/LEVEL

RADIOGRAPHIC TECHNIQUE

Views: Section	0			
Source	300KVCP			
Curie: KVp/ma	100/5			
Exposure Time	30 SEC			
F.F.D. (inches)	40"			
Focal Size	1.5MM			
Mat'l Thick. Radiographed	.250			
Penetrameter Size	.25			
Penetrameter Material	AL			
Penetr. Shim: Thickness	.125			
Penetr. Shim: Material	AL			
Film Size	7"X17"			
Film Type	NDT-55			
P9 Screen: Front/Back	1.010			
Tech. (single/double wall)	SINGLE			
Penetrameter Sensitivity	2-2T			
Acceptance Class				

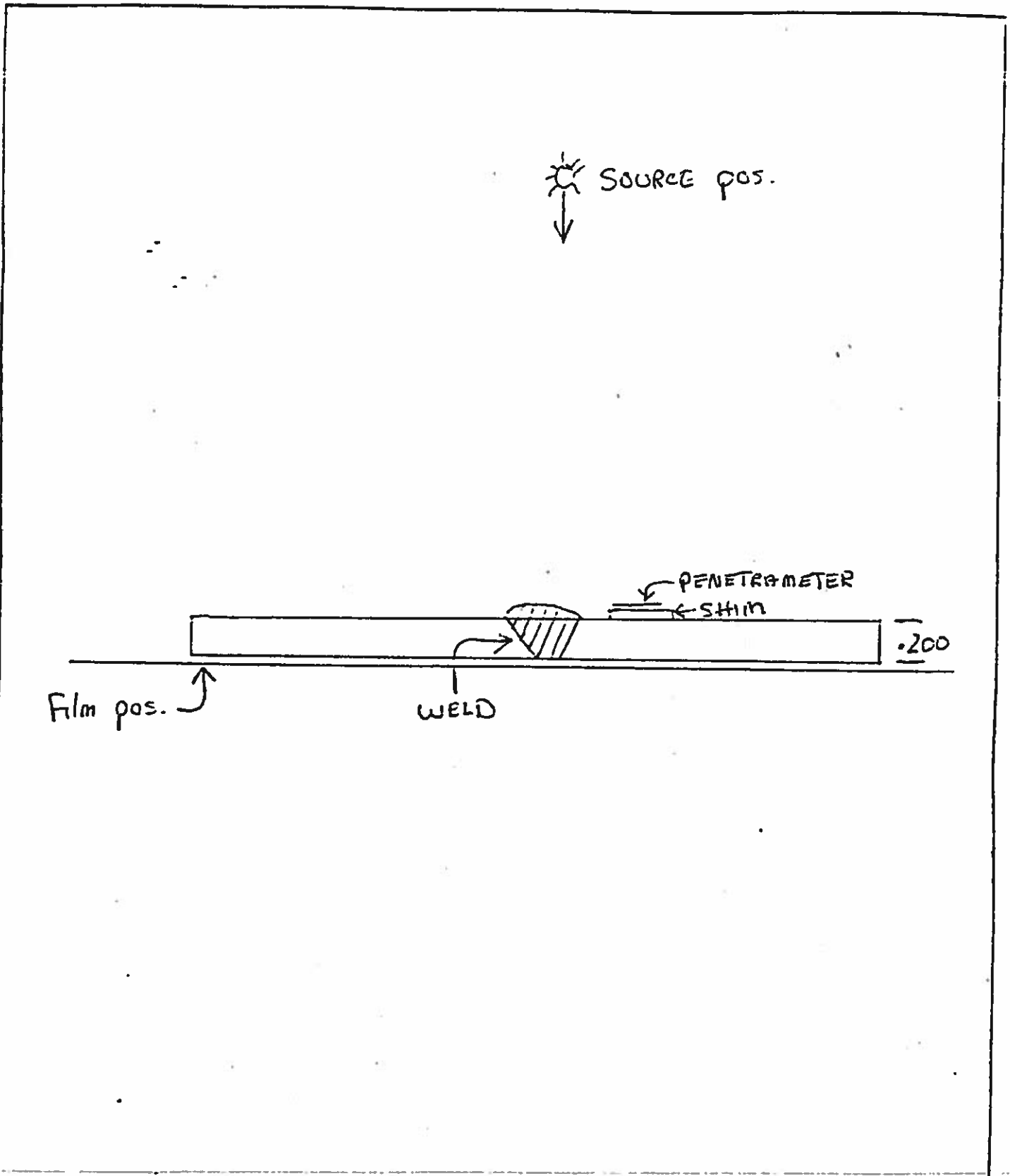
GENERAL INFORMATION

Date 4-10-87 Part No. (DWG) _____
 Customer KORVM-1A Inspection Code MIL STD 242
 Customer P.O. No. CO/0438 Material AL 5052

SKETCH

Radiographer: Carl Roberts Page 1 of 1

RADIOGRAPHIC SHOOTING SKETCH (RSS)



NOTE: SKETCH SHOWS FINISHED DIMENSIONS

RSS NO.
XR-1726

Sheet	of	REV
Page	or	



Production
P75-1-W14
Weld Procedure
#3

Original Issue Date: 5/1/12
Revision: 0
Revision Date: 5/1/12

Welding Procedure 3

WP-3 Automatic Gas Metal Arc Welding 3G Rotated Aluminum

WELDING PROCEDURE QUALIFICATION DATA

DATE: 4/21/87

WP-3

WELDING PROCESS: GMAW PLATE PIPE CASTING OTHER
 NOTE: SPECIFY OTHER _____

BASE MAT'L: (1) SPEC. QQ-A-250/8 FILLER METAL:
 (2) GRADE OR CLASS 5052 (1) GOVT SPEC. MIL-E-16053
 (3) THICKNESS .250 (2) MIL-TYPE 5556
 (4) GROUP NO. (S-NO.) 22 (3) DIAMETER 3/64

(MAX. SIZES TO BE USED IN PRODUCTION)

JOINT DESIGN: SINGLE VEE (REF. NO. OR SKETCH) _____

METHOD OF EDGE PREPARATION: MACHINE, GRIND

WELDING POSITION: 3G ROTATED

POWER SOURCE (FOR INFO. ONLY) _____

SKETCH OF JOINT

WELDING CURRENT: DCRP
 RANGE: 140-220
 (SEE NOTE 1)

ARC VOLTAGE RANGE: 19-26
 (SEE NOTE 1)

TRAVEL SPEED RANGE (IPM): N/A FLUX: (1) GOVT SPEC. _____
 TORCH GAS: ARGON (2) MIL-TYPE _____
 TORCH TIP SIZE (OXY-FUEL): N/A (3) SIZE _____
 CUP SIZE 5/8"

SHIELDING GAS: (1) COMPOSITION 100% WELD GRADE
 (2) FLOW RATE RANGE 30-45 CFH

PURGE GAS: (1) COMPOSITION N/A
 (2) FLOW RATE RANGE N/A

MINIMUM PREHEAT TEMPERATURE: 60°F MAXIMUM INTERPASS TEMP. 350°F

POST-WELD HEAT TREATMENT/TEMPERATURE: N/A TIME _____

WELDER/WELDING OPERATOR: NEVIN FREY

NONDESTRUCTIVE TEST RESULTS
 APPLICABLE ACCEPTANCE STANDARD

*DESTRUCTIVE TEST RESULTS

		U.T.S.	Y.S	EL. (MIN)	BEND TES
R.T	<u>MIL-STD-271E PASSED</u>	BASE MATERIAL			
P.T	<u>MIL-STD-271E PASSED</u>	WELD METAL TESTS	<u>35532</u>	<u>12.600</u>	<u>18 PASSED</u>
M.T	_____	TRANS.	<u>38752</u>	<u>13.300</u>	<u>18 PASSED</u>
U.T	_____	LONG.	_____	_____	_____

*CHARPY IMPACT TEST SHALL BE PERFORMED ON WELD AND RECORDED WHEN REQUIRED BY TABLE VI FOOTNOTE 2.

TEST APPROVED BY: ROBERT MCVAUGH AT LABORATORY LABORATORY TESTING, I
 (NAME) T/XR/P-1814,

DATE OF CERTIFICATION 4/28/87 VERIFIED BY: KOVATCH CORPORATION
 (QUALIFYING ACTIVITY)

APPROVED BY: _____
 (AUTHORIZED AGENT OF NAVSHIPS)

KOVATCH CORPORATION
ONE INDUSTRIAL COMPLEX
NESQUEHONING, PA 18240

DESTINATION (WPS NO.)
IP-3

ORIGINAL DATE	PAGE
4/21/87	2 OF 6

SUBJECT: WELDING PROCEDURE SPECIFICATION (WPS)
INTENDED FOR FABRICATION, WELD DEFECT REPAIR
AND BASE METAL REPAIR OR BUILD-UP.
REF. ASME SECTION IX, QW-482, MIL-STD-248C.

REVISION NO.	DATE
0	4/21/87

ISSUE APPROVAL:

Greg E. Lubergath

WELDING PROCESS(ES)

GMAW

TYPE(S) AUTO

SUPPORTING PQR NO.(S) - DATE

WP-1, WP-2, WP-4

4/21/87

JOINTS (QW-402)

JOINT DESIGN SINGLE VEE
BACKING (YES) X (NO)
BACKING MATERIAL (TYPE) S-22

SKETCHES, PRODUCTION DRAWINGS,
WELD SYMBOLS OR WRITTEN DESCRIPTION SHOULD SHOW THE GENERAL ARRANGEMENT OF THE PARTS TO BE WELDED. WHERE APPLICABLE, THE ROOT SPACING AND THE DETAILS OF WELD GROOVE MAY BE SPECIFIED.

BASE METALS (QE-403)

P-NO. 22 GR.NO. _____ TO P-NO. 22 GR. NO. _____

OR

SPECIFICATION TYPE AND GRADE QQ-A-250/8 5052
TO SPECIFICATION TYPE AND GRADE QQ-A-250/8 5052

OR

CHEM. ANALYSIS AND MECH. PROP. N/A
TO CHEM. ANALYSIS AND MECH. PROP. N/A

THICKNESS RANGE:

BASE METAL: GROOVE 1/8" - 1/2" FILLET UNLIMITED

DEPOSITED WELD METAL

PIPE DIA. RANGE: GROOVE 2-7/8" OD AND OVER FILLET UNLIMITED

FILLER METALS (QW-404)

F-NO. 22 OTHER N/A
A-NO. N/A OTHER N/A

SPEC. NO. (SFA) 5.10

AWS NO. (CLASS) ER 5556

SIZE OF FILLER METALS 3/64

(ELECTRODE, COLD WIRE, HOT WIRE, ETC.)

ELECTRODE-FLUX (CLASS) N/A

FLUX TRADENAME N/A

CONSUMABLE INSERT N/A

WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.
REF. ASME SECTION IX, QW-482 (W-83)

PAGE

REV. NO.

DATE

3 OF 6

0

4/21/87

POSITIONS (QW-405)

POSITION(S) OF GROOVE 3G ROTATED
WELDING PROGRESSION: UP X DOWN _____
POSITION(S) OF FILLET 1F, 2F, 3F

POSTWELD HEAT TREATMENT (QW-407)

TEMPERATURE RANGE N/A
TIME RANGE N/A

PREHEAT (QW-406)

PREHEAT TEMP. MIN. 60°F
INTERPASS TEMP. MAX. 350°F
PREHEAT MAINTENANCE N/A

(CONTINUOUS OR SPECIAL HEATING
WHERE APPLICABLE SHOULD BE
RECORDED)

GAS (QW-408)

SHIELDING GAS(ES) ARGON
PERCENT COMPOSITION
(MIXTURES) _____
100% WELD GRADE
FLOW RATE 30-45 CFH
GAS BACKING _____
TRAILING SHIELDING GAS COMPOSITION _____

ELECTRICAL CHARACTERISTICS (QW-409)

CURRENT AC OR DC DC
POLARITY REVERSE
AMPS (RANGE) 140-220
VOLTS (RANGE) 19-26

(AMPS AND VOLTS RANGE SHOULD BE
RECORDED FOR EACH ELECTRODE SIZE,
POSITION, AND THICKNESS, ETC.
THIS INFORMATION MAY BE LISTED IN
A TABULAR FORM SIMILAR TO THAT
SHOWN BELOW.)

TUNGSTEN ELECTRODE SIZE AND TYPE

N/A
(PURE TUNGSTEN, 2% THORIATED)

MODE OF METAL TRANSFER FOR GMAW

SPRAY
(SPRAY ARC, SHORT CIRCUITING ARC)

ELECTRODE WIRE FEED SPEED RANGE

N/A

TECHNIQUE (QW-410)

STRING OR WEAVE BEAD STRING OR WEAVE
ORIFICE OR GAS CUP SIZE 5/8
INITIAL AND INTERPASS CLEANING (BRUSHING, GRINDING, ETC.) _____
S/S WIRE BRUSH, GRIND

METHOD OF BACK GOUGING AIR ARC, BACK GRIND

OSCILLATION N/A

CONTACT TUBE TO WORK DISTANCE 1/2" - 3/4"

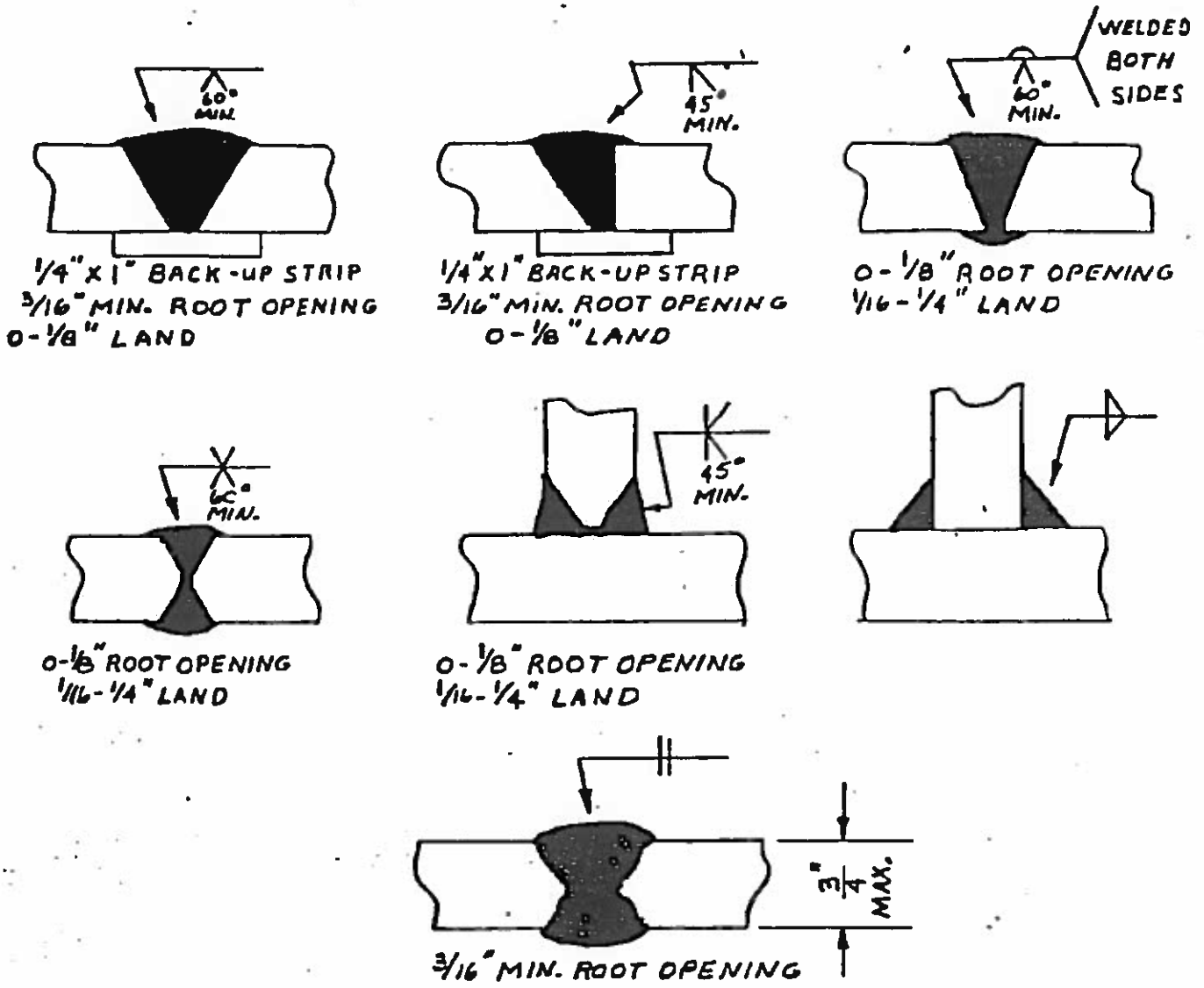
MULTIPLE OR SINGLE PASS (PER SIDE) MULTIPLE

MULTIPLE OR SINGLE ELECTRODES SINGLE

TRAVEL SPEED (RANGE) N/A

PEENING N/A

OTHER N/A



Notes:

1. When full penetration welds are made from one side only, a backing shall be employed.
2. The sketches shown hereon are presented for reference only and are intended to provide general guidance for the welding process involved. These sketches are not necessarily inclusive of all applications which may be employed. However, alternate applications of the welding process shall follow the same general joint designs as represented above.

WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.

PAGE	REV. NO.	DATE
5 OF 6	0	4/21/87

PROCEDURE QUALIFICATION RECORD PQR
 REF. ASME SECTION IX, QW-483 (W-83)
 MIL-248C

WPS NO. USED WP-3
 REV. 0 DATE 4/21/87

PROCEDURE QUALIFICATION RECORD NO. 3 DATE 4/21/87

WELDING PROCESS(ES) GMAW TYPE(S) AUTO
 (MANUAL, AUTOMATIC, SEMI-AUTO)

JOINTS (QW-402)

GROOVE DESIGN USED

BASE METALS (QW-403)

MATERIAL SPEC. _____
 TYPE OR GRADE 5052
 P NO. S-22 TO P NO. S-22
 THICKNESS .250
 DIAMETER 24"
 OTHER _____

POSTWELD HEAT TREATMENT (QW-407)

TEMPERATURE N/A
 TIME N/A
 OTHER N/A

FILLER METALS (QW-404)

WELD METAL ANALYSIS A NO. N/A
 SIZE OF ELECTRODE 3/64
 FILLER METAL F. NO. 22B
 SFA SPECIFICATION 5.10
 AWS CLASSIFICATION ER 5556
 OTHER N/A

GAS (QW-408)

TYPE OF GAS OR GASES ARGON
 COMPOSITION OF GAS MIXTURE _____
100% WELD GRADE
 OTHER N/A

POSITION (QW-405)

POSITION OF GROOVE 3G ROTATED
 WELD PROGRESSION (UPHILL, DOWNHILL)
UPHILL
 OTHER N/A

ELECTRICAL CHARACTERISTICS (QW-409)

CURRENT DC
 POLARITY REVERSE
 AMPS. 140-240
 VOLTS 19-26
 OTHER N/A

PREHEAT (QW-406)

PREHEAT TEMP. 60°F
 INTERPASS TEMP. 350°F
 OTHER N/A

TECHNIQUE (QW-410)

TRAVEL SPEED 16-20 IPM
 STRING OR WEAVE BEAD STRING OR
 OSCILLATION 3/4 - 1"
 MULTIPASS OR SINGLE PASS (PER S
MULTIPASS
 SINGLE OR MULTIPLE ELECTRODES
SINGLE
 OTHER 5-8 IPM FOR FILLET WELD

WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.

PAGE 6 OF 6 REV. NO. 0 DATE 4/21/87

PROCEDURE QUALIFICATION RECORD (PQR) CONT'D.
REF. ASME SECTION IX, QW-483, W-83)

(PQR NO.)

FIGURE NO. TENSILE TEST (QW-150)

Table with 7 columns: SPECIMEN NO., WIDTH, THICKNESS, AREA, ULTIMATE TOTAL LOAD LB., ULTIMATE UNIT STRESS PSI, CHARACTER OF FAILURE & LOCATION. Rows 1 and 2.

FIGURE NO. GUIDED BEND TESTS (QW-160)

Table with 2 columns: TYPE AND SPECIMEN, RESULT. Rows: ROOT BEND, ROOT BEND, FACE BEND, FACE BEND.

TYPE TOUGHNESS TESTS (QW-170) SIZE

Table with 7 columns: SPECIMEN NO., NOTCH LOCATION, NOTCH TYPE, TEST TEMP., IMPACT VALUES, LATERAL EXP. (ZSHEAR, MILS).

FILLET WELD TEST (QW-180)

RESULT-SATISFACTORY: YES N/A NO: N/A
PENETRATION INTO PARENT METAL: N/A NO: N/A
MACRO-RESULTS N/A

OTHER TESTS

TYPE OF TEST X-RAY PASSED
DEPOSIT ANALYSIS
OTHER PT - PASSED

WELDER'S NAME NEVIN FREY CLOCK NO. STAMP NO. F
TESTS CONDUCTED BY: LABORATORY TESTING, INC. LABORATORY TEST NO. T/XR/P-1814
WE CERTIFY THAT THE STATEMENTS IN THIS RECORD ARE CORRECT AND THAT THE TEST WELDS WERE PREPARED, WELDED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION IX OF THE ASME CODE AND MIL-STD-248C.
MANUFACTURER KOVATCH CORPORATION

DATE 5/4/87 BY [Signature]
(Detail of record of tests are illustrative only and may be modified to conform to type and number of tests required by the code.)

P.O. Box 98
Perkasie, PA 18944

LABORATORY MECHANICAL PROPERTY TEST REPORT

Customer: Kovatch Corporation Customer Order No. CO 10442 Date 5/4/87
 Shop Order No. One Industrial Complex Report No. T/XXR/P-1814
 Part Neyin Frey, Stamped "P" Material Aluminum 5052 Test Plate

Specimen No.	SIZE IN INCHES		Area Sq. In.	TENSILE STRENGTH		YIELD 2 %		Elongation IN 2 in. %	REDUCTION OF AREA New Dia Reduction %	HARDNESS	REMARKS
	Di. or Thk.	Width		Load Lbs.	PSI	Load Lbs.	PSI				
Spec #1	.238"	1.490"	.3546"	12,600	35,532						Broke in Weld
Spec #2	.230"	1.492"	.3432"	13,300	38,752						Broke in Weld

CERTIFICATION

This is to certify that the above mentioned parts have been processed as indicated above.

YIELD STRENGTH: 25,000 PSI
 Ultimate Tensile Strength _____
 Elongation _____
 Reduction of Area _____

Tested By Jim Wenzell



Radiographic Weld Report

COMPANY KOUATCH
WELDER NEVIN FREY
DATE & XR. NO. 4-16-87 XR-1814
RT SPEC. & ACCEP. MIL-STD-248C
JOB IDENTIFICATION ALUM RING 3G
NEVIN FREY "F" STAMP

- WELD DEFECT ABBREVIATIONS
- SL. - SLAG LINE
 - IS. - ISOLATED SLAG
 - LP. - LACK PENETRATION
 - UC. - UNDERCUT CAP
 - IU. - INTERNAL UNDERCUT
 - BT. - BURN THROUGH
 - NF. - NON FUSION
 - CC. - CONCAVE CAP
 - P. - POROSITY

SN#	RT#	HT#	VIEWS	ACCEPT	REJECT	REMARKS
"F"			1-2	X		
			2-3	X		
						X-RAYED 12" OF TEST RING TO MIL-STD-271E ACC. PER. NAUSE 0900-003-9000, CL-1

Mike McLaughlin / LEVEL III
SIGNATURE LEVEL

RADIOGRAPHIC TECHNIQUE

Views; Section	1-2 2-3			
Source	300KVCP			
Curie; Kvp/ma	100/4			
Exposure Time	50 SEC			
F.F.D. (inches)	30"			
Focal Size	1.5			
Mat'l Thick. Radiographed	.37			
Penetrameter Size	.37 #25			
Penetrameter Material	AL			
Penetr. Shim; Thickness	1/8"			
Penetr. Shim; Material	AL			
Film Size	4 1/2" X 10"			
Film Type	NOF-35			
PB Screen; Front/Back	MT/010			
Tech. (single/double wall)	SINGLE			
Penetrameter Sensitivity	2-2T			
Acceptance Class	NAVSEA 0900-003			

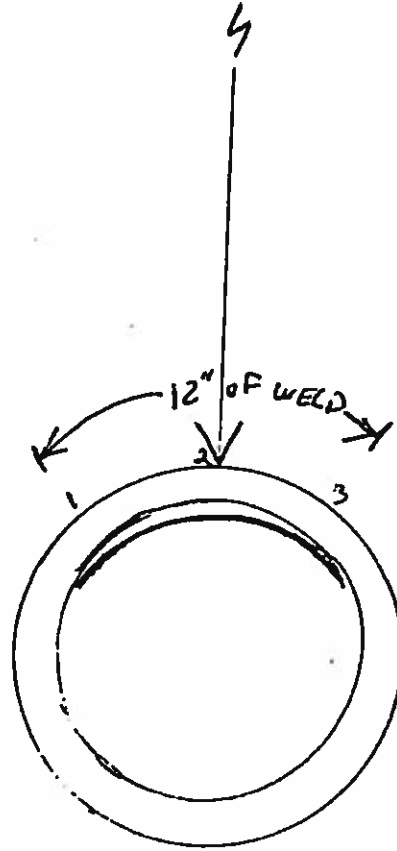
**9000 CLASS I
 GENERAL INFORMATION**

Date 4-20-87 Part No. (DWI) 5052 ALUM.
 Customer KOPATCH Inspection Code MIL SFD-271
 Customer P.O. No. CC10442 Material TEST PLATE (AL)

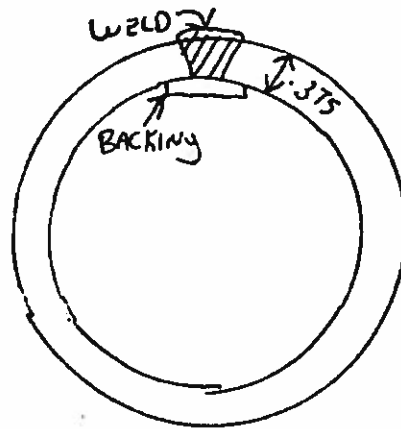
SKETCH

Radiographer: Carl Roberts Page 01 of 01

RADIOGRAPHIC SHOOTING SKETCH (RSS)



X-RAY 1-2
2-3
CONSISTS OF 12"
OF WELD



NOTE: SKETCH SHOWS FINISHED DIMENSIONS

RSS NO.
XR-1814

Sheet	of
Page	of

REV



Production
P75-1-W15
Weld Procedure
#4

Original Issue Date: 5/1/12

Revision: 0

Revision Date: 5/1/12

Welding Procedure 4

WP-4 Semi-Automatic Tungsten Arc Welding 2G Horizontal Aluminum

WP-4 DATE: 4/21/87

WELDING PROCEDURE QUALIFICATION DATA

WELDING PROCESS: GTAW PLATE PIPE CASTING OTHER
 NOTE: SPECIFY OTHER _____

BASE MAT'L: (1) SPEC. QQ-A-250/8 FILLER METAL:
 (2) GRADE OR CLASS 5052 (1) GOVT SPEC. MIL-E-16053
 (3) THICKNESS .250 (2) MIL-TYPE 5556
 (4) GROUP NO. (S-NO.) 22 (3) DIAMETER 1/8

(MAX. SIZES TO BE USED IN PRODUCTION)

JOINT DESIGN: SINGLE VEE (REF. NO. OR SKETCH) _____

METHOD OF EDGE PREPARATION: MACHINE, GRIND

WELDING POSITION: 2G

POWER SOURCE (FOR INFO. ONLY) AIRCO SQUARE WAVE
MH606058 SKETCH OF JOINT WELDING CURRENT: AC

ARC VOLTAGE RANGE: -16-21 RANGE: 120-230
 (SEE NOTE 1) (SEE NOTE 1)

TRAVEL SPEED RANGE (IPM): N/A FLUX: (1) GOVT SPEC. N/A
 TORCH GAS: ARGON (2) MIL-TYPE N/A
 TORCH TIP SIZE (OXY-FUEL): N/A (3) SIZE N/A
 CUP SIZE # 8

SHIELDING GAS: (1) COMPOSITION 100% WELD GRADE
 (2) FLOW RATE RANGE 20-30 CFN

PURGE GAS: (1) COMPOSITION N/A
 (2) FLOW RATE RANGE N/A

MINIMUM PREHEAT TEMPERATURE: 60°F MAXIMUM INTERPASS TEMP. 350°F

POST-WELD HEAT TREATMENT/TEMPERATURE: N/A TIME _____

WELDER/WELDING OPERATOR: NEVIN FREY

NONDESTRUCTIVE TEST RESULTS
 APPLICABLE ACCEPTANCE STANDARD

*DESTRUCTIVE TEST RESULTS

		U.T.S.	Y.S	EL. (MIN)	BEND TEST
R.T	MIL-STD-271E PASSED	BASE MATERIAL			
P.T	MIL-STD-271E PASSED	WELD METAL TESTS	43,629	15,650	18 PASSED
M.T		TRANS.	44,326	15,900	18 PASSED
U.T		LONG.			

*CHARPY IMPACT TEST SHALL BE PERFORMED ON WELD AND RECORDED WHEN REQUIRED BY TABLE VI FOOTNOTE 2.

TEST APPROVED BY: ROBERT MCVAUGH AT LABORATORY LABORATORY TESTING, INC
 (NAME) T/XR/P-2009

DATE OF CERTIFICATION 4/28/87 VERIFIED BY: KOVATCH CORPORATION
 (QUALIFYING ACTIVITY)

APPROVED BY: _____
 (AUTHORIZED AGENT OF NAVSHIPS)

KOVATCH CORPORATION
ONE INDUSTRIAL COMPLEX
NESQUEHONING, PA 18240

DESIGNATION (WPS NO.)

WP-4

ORIGINAL DATE

4/21/87

PAGE

2 OF 6

SUBJECT: WELDING PROCEDURE SPECIFICATION (WPS)
INTENDED FOR FABRICATION, WELD DEFECT REPAIR
AND BASE METAL REPAIR OR BUILD-UP.
REF. ASME SECTION IX, QW-482, MIL-STD-248C.

REVISION NO.

0

DATE

4/21/87

ISSUE APPROVAL:

[Handwritten Signature]

SUPPORTING PQR NO.(S)

DATE

WP-1, WP-2, WP-3

4/21/87

WELDING PROCESS(ES)

GTAW

TYPE(S)

MANUAL

JOINTS (QW-402)

JOINT DESIGN SINGLE VEE

BACKING (YES) X (NO)

BACKING MATERIAL (TYPE) S-22

SKETCHES, PRODUCTION DRAWINGS,
WELD SYMBOLS OR WRITTEN DESCRIPTION SHOULD SHOW THE GENERAL ARRANGEMENT OF THE PARTS TO BE WELDED. WHERE APPLICABLE, THE ROOT SPACING AND THE DETAILS OF WELD GROOVE MAY BE SPECIFIED.

BASE METALS (QE-403)

P-NO. 22 GR.NO. 5052 TO P-NO. 22 GR. NO. 5052

OR

SPECIFICATION TYPE AND GRADE
TO SPECIFICATION TYPE AND GRADE

OR

CHEM. ANALYSIS AND MECH. PROP. N/A

TO CHEM. ANALYSIS AND MECH. PROP. N/A

THICKNESS RANGE:

BASE METAL: GROOVE 1/8" - 1/2" FILLET UNLIMITED

DEPOSITED WELD METAL

PIPE DIA. RANGE: GROOVE 2-7/8" OD AND OVER FILLET UNLIMITED

FILLER METALS (QW-404)

F-NO. 22 OTHER N/A

A-NO. N/A OTHER N/A

SPEC. NO. (SFA) 5.10

AWS NO. (CLASS) ER 5556

SIZE OF FILLER METALS 1/16, 3/32, 1/8

(ELECTRODE, COLD WIRE, HOT WIRE, ETC.)

ELECTRODE-FLUX (CLASS) N/A

FLUX TRADENAME N/A

CONSUMABLE INSERT N/A

WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.
REF. ASME SECTION IX, QW-482 (W-83)PAGE
3 OF 6REV. NO.
0DATE
4/21/87

POSITIONS (QW-405)

POSITION(S) OF GROOVE 2G POSTWELD HEAT TREATMENT (QW-407)
 WELDING PROGRESSION: UP N/A DOWN N/A TEMPERATURE RANGE N/A
 POSITION(S) OF FILLET 1F, 2F TIME RANGE N/A

PREHEAT (QW-406)

PREHEAT TEMP. MIN. 60°F
 INTERPASS TEMP. MAX. 350°F
 PREHEAT MAINTENANCE N/A

(CONTINUOUS OR SPECIAL HEATING
 WHERE APPLICABLE SHOULD BE
 RECORDED)

GAS (QW-408)

SHIELDING GAS(ES) ARGON
 PERCENT COMPOSITION
 (MIXTURES) 100% WELD GRADE

FLOW RATE 20-30 CFN
 GAS BACKING N/A
 TRAILING SHIELDING GAS COMPOSITION N/A

ELECTRICAL CHARACTERISTICS (QW-409)

CURRENT AC OR DC AC
 POLARITY N/A
 AMPS (RANGE) 120-230
 VOLTS (RANGE) 16-21

(AMPS AND VOLTS RANGE SHOULD BE
 RECORDED FOR EACH ELECTRODE SIZE,
 POSITION, AND THICKNESS, ETC.
 THIS INFORMATION MAY BE LISTED IN
 A TABULAR FORM SIMILAR TO THAT
 SHOWN BELOW.)

TUNGSTEN ELECTRODE SIZE AND TYPE 3/32 - 1/8 PURE
 (PURE TUNGSTEN, 2% THORIATED)

MODE OF METAL TRANSFER FOR GMAW N/A
 (SPRAY ARC, SHORT CIRCUITING ARC)

ELECTRODE WIRE FEED SPEED RANGE N/A

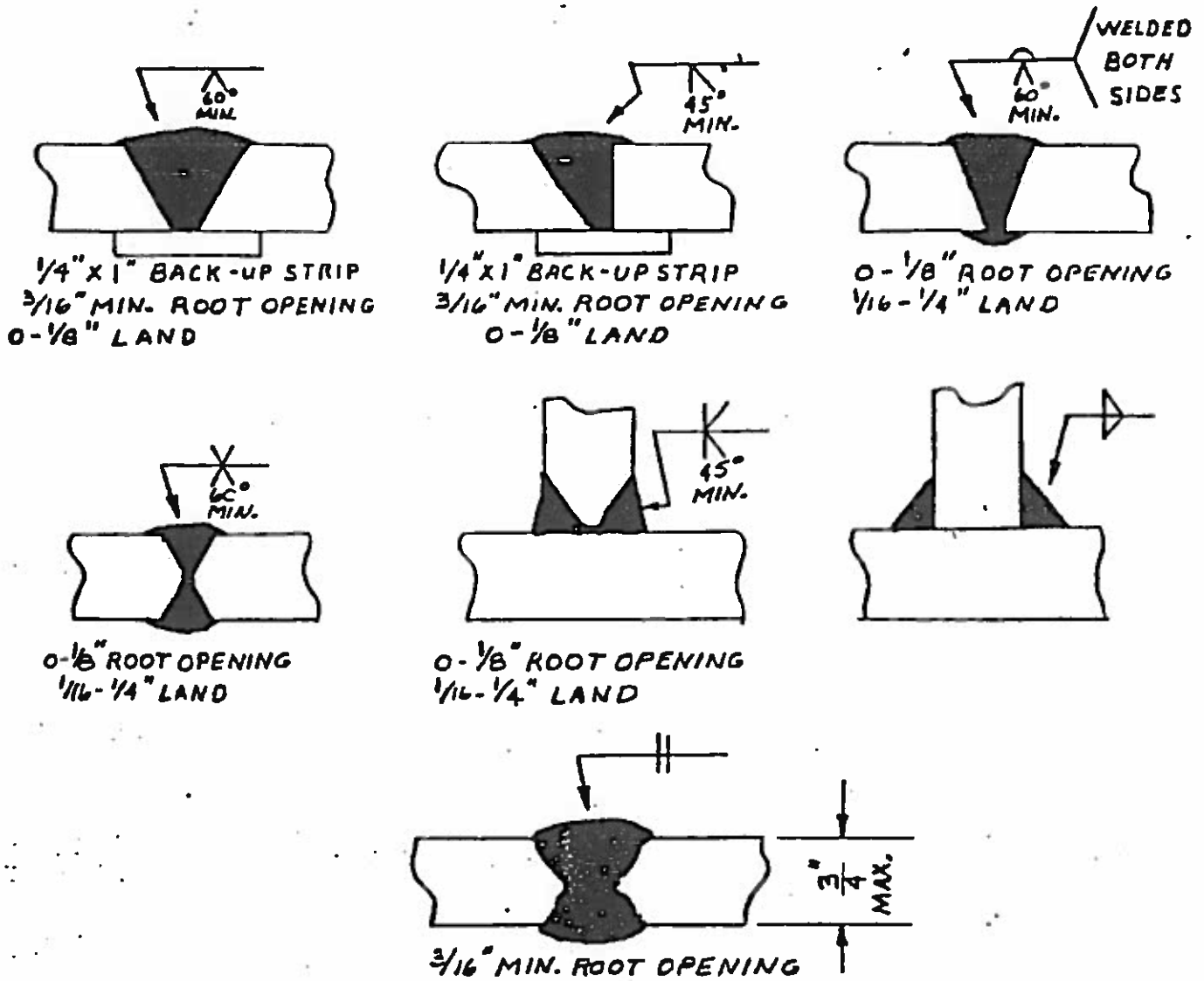
TECHNIQUE (QW-410)

STRING OR WEAVE BEAD STRING OR WEAVE 3-4 TIMES FILLER WIRE DIAMETER
 ORIFICE OR GAS CUP SIZE N/A
 INITIAL AND INTERPASS CLEANING (BRUSHING, GRINDING, ETC.) STAINLESS STEEL WIRE BRUSH GRIND

METHOD OF BACK GOUGING AIR ARC, BACK GRIND
 OSCILLATION N/A

CONTACT TUBE TO WORK DISTANCE N/A
 MULTIPLE OR SINGLE PASS (PER SIDE) MULTIPLE
 MULTIPLE OR SINGLE ELECTRODES SINGLE

TRAVEL SPEED (RANGE) N/A
 PEENING N/A
 OTHER N/A



- Notes:
1. When full penetration welds are made from one side only, a backing shall be employed.
 2. The sketches shown hereon are presented for reference only and are intended to provide general guidance for the welding process involved. These sketches are not necessarily inclusive of all applications which may be employed. However, alternate applications of the welding process shall follow the same general joint designs as represented above.

WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.

PAGE
5 OF 6REV. NO.
0DATE
4/21/87PROCEDURE QUALIFICATION RECORD PQR
REF. ASME SECTION IX, QW-483 (W-83)
MIL-248CWPS NO. USED WP-4
REV. 0 DATE 4/21/87PROCEDURE QUALIFICATION RECORD NO. WP-4 DATE _____WELDING PROCESS(ES) GTAW TYPE(S) MANUAL
(MANUAL, AUTOMATIC, SEMI-AUTO)

JOINTS (QW-402)

GROOVE DESIGN USED

BASE METALS (QW-403)

MATERIAL SPEC. _____
TYPE OR GRADE 5052
P NO. 22 TO P NO. 22
THICKNESS .250
DIAMETER N/A
OTHER _____

FILLER METALS (QW-404)

WELD METAL ANALYSIS A NO. N/A
SIZE OF ELECTRODE 1/16, 3/32, 1/8
FILLER METAL F. NO. 22
SFA SPECIFICATION 5/10
AWS CLASSIFICATION ER 5556
OTHER N/A

POSITION (QW-405)

POSITION OF GROOVE 2G
WELD PROGRESSION (UPHILL, DOWNHILL)
UPHILL
OTHER N/A

PREHEAT (QW-406)

PREHEAT TEMP. 60°F
INTERPASS TEMP. N/A
OTHER N/A

POSTWELD HEAT TREATMENT (QW-407)

TEMPERATURE N/A
TIME N/A
OTHER N/A

GAS (QW-408)

TYPE OF GAS OR GASES ARGON
COMPOSITION OF GAS MIXTURE _____
100% WELD GRADE
OTHER N/A

ELECTRICAL CHARACTERISTICS (QW-409)

CURRENT AC
POLARITY STRAIGHT
AMPS. _____
VOLTS _____
OTHER N/A

TECHNIQUE (QW-410)

TRAVEL SPEED N/A
STRING OR WEAVE BEAD STRING OR
OSCILLATION METAL DIA. MAX.
MULTIPASS OR SINGLE PASS (PER S.)
MULTIPASS
SINGLE OR MULTIPLE ELECTRODES
SINGLE
OTHER _____

WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.

PAGE 6 OF 6 REV. NO. 0 DATE 4/21/87

PROCEDURE QUALIFICATION RECORD (PQR) CONT'D.
REF. ASME SECTION IX, QW-483, W-83)

(PQR NO.)

FIGURE NO. _____ TENSILE TEST (QW-150)

SPECIMEN NO.	WIDTH	THICKNESS	AREA	ULTIMATE TOTAL LOAD LB.	ULTIMATE UNIT STRESS PSI	CHARACTER OF FAILURE & LOCATION
1	1.458	.246	.3587	15,650	43,629	WELD
2	1.458	.246	.3587	15,900	46,326	BM

FIGURE NO. _____ GUIDED BEND TESTS (QW-160)

TYPE AND SPECIMEN	RESULT
ROOT BEND	SATISFACTORY
ROOT BEND	SATISFACTORY
FACE BEND	SATISFACTORY
FACE BEND	SATISFACTORY

TYPE N/A TOUGHNESS TESTS (QW-170) SIZE _____

SPECIMEN NO.	NOTCH LOCATION	NOTCH TYPE	TEST TEMP.	IMPACT VALUES	LATERAL EXP.	
					% SHEAR	MILS

FILLET WELD TEST (QW-180)

RESULT-SATISFACTORY: YES N/A NO: N/A
 PENETRATION INTO PARENT METAL: N/A NO: N/A
 MACRO-RESULTS N/A

OTHER TESTS

TYPE OF TEST X-RAY PASSED
 DEPOSIT ANALYSIS _____
 OTHER PT PASSED

.....
 WELDER'S NAME NEVIN FREY CLOCK NO. _____ STAMP NO. F
 TESTS CONDUCTED BY: LABORATORY TESTING, INC. LABORATORY TEST NO. T/XR/P-2009
 WE CERTIFY THAT THE STATEMENTS IN THIS RECORD ARE CORRECT AND THAT THE TEST WELDS WERE PREPARED, WELDED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION IX OF THE ASME CODE AND MIL-STD-248C.

MANUFACTURER KOVATCH CORPORATION

DATE 5/4/87 BY William J. Boyle & J. H. Hef
 (DETAIL OF RECORD OF TESTS ARE ILLUSTRATIVE ONLY AND MAY BE MODIFIED TO CONFORM TO TYPE AND NUMBER OF TESTS REQUIRED BY THE CODE.)


**LABORATORY
TESTING INC.**

P.O. Box 249 Dublin, Pennsylvania 18917

SOLD TO

 Kovatch Corporation
 One Industrial Complex
 Nesquehoning, PA 18240

 SHIPPING ADDRESS
 120 MILL STREET DUBLIN, PA 18917

SHIP TO

Attn: Bob Hontz

CUST. P.O.
 CO 1044J

LAB REPORT NO.
 T/XR/P-2909

SHIPMENT
 Complete

INVOICE DATE
 5/4/87

DESCRIPTION

1 pc. Aluminum Test Plate per QQ-A-250/8,
 Alloy 5052, Temper O, Weld Procedure
 Qualification Test Plate, 2G, per
 MIL-STD-248C, Welders Name:
 Nevin Frey, Stamped "P"

- A. The above material was 100% Liquid Penetrant inspected in accordance with MIL-STD-271E, Acceptance Criteria per NAVSEA 0900-003-8000, Class 1 and (1) piece was found to be acceptable to those requirements.
- B. The above material was 100% Radiographically inspected in accordance with MIL-STD-271E, Acceptance Criteria per NAVSEA 0900-003-9000, Class 1 and (1) piece was found to be acceptable to those requirements. See attached sheet for results.
- C. (4) bend tests were performed (per MIL-STD-418) on the above Test Specimens and (4) pieces were found to comply with the requirements of MIL-STD-248C with no cracks. See attached sheet.
- D. (2) Tensile tests were performed (per ASTM A-370/E-8, MIL-STD-248C and MIL-STD-418) on the above Test Specimen. See attached sheet for results.

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh

AUTHORIZED SIGNATURE

P.O. Box 98
Perkasie, PA 18944

LABORATORY MECHANICAL PROPERTY TEST REPORT

Kovatch Corporation

Customer Order No. CO 10443

Date 5/4/87

One Industrial Complex

Shop Order No.

Report No. T-2009

Nesquehoning, PA 18240

Part Nevin Frey, Stamped 2" Pn

Material Aluminum 5052 Test Plate

Specimen No.	SIZE IN INCHES		Area Sq. In.	TENSILE STRENGTH		YIELD 2%		Elongation IN 2 In. %	REDUCTION OF AREA		HARDNESS	REMARKS
	Dia. or Thk.	Width		Load Lbs.	PSI	Load Lbs.	PSI		New Dia. In.	Reduction %		
Spec #1	.246"	1.458"	.3587"	15,650	43,629							Broke in Weld
Spec #2	.246"	1.458"	.3587"	15,900	44,326							Broke in Weld - Base Material

REQUIREMENTS:

Minimum Tensile Strength 25,000 PSI

Minimum Elongation
Minimum Reduction of Area

CERTIFICATION

This is to certify that the above mentioned parts have been processed as indicated above.

Tested By: Jim Wenzell

Radiographic Weld Report

COMPANY KOVATCH

WELDER NEVIN FREY

DATE & XR. NO. 4-24-87 XR-2009

RT SPEC. & ACCEP. MIL-STD-271E

JOB IDENTIFICATION ALUM TEST PLATE
G.T.A.W. 2G

WELD DEFECT ABBREVIATION

- SL - SLAG LINE
- IS. - ISOLATED SLAG
- LP. - LACK PENETRATION
- UC. - UNDERCUT CAP
- IU. - INTERNAL UNDERCUT
- BT. - BURN THROUGH
- NF. - NON FUSION
- CC. - CONCAVE CAP
- P. - POROSITY

SN#	RT#	HT#	VIEWS	ACCEPT	REJECT	REMARKS
<u>9/N F</u>			<u>1-2</u>	<u>X</u>		<u>TUNGSTEN ACC.</u>
						<u>X-RAYED TO MIL-STD-271E AND</u>
						<u>ACC. TO NAVSEA 2980-003-1000</u>

Mark McLaugh
SIGNATURE / LEVEL



Production
P76-1-WI6
Weld Procedure
#5

Original Issue Date: 5/1/12
Revision: 0
Revision Date: 5/1/12

Welding Procedure 5

WP-5 Semi-Automatic Gas Metal Arc Welding 3G Vertical .035 Steel

DATE: 4/21/87

WELDING PROCEDURE QUALIFICATION DATA

WELDING PROCESS: GMAW PLATE PIPE CASTING OTHER
NOTE: SPECIFY OTHER

BASE MAT'L: (1) SPEC. ASTM 569 (2) GRADE OR CLASS ASTM 569 (3) THICKNESS 3/16" (4) GROUP NO. (S-NO.)
FILLER METAL: (1) GOVT SPEC. MIL-E-23765/1 (2) MIL-TYPE ER 70-S-3 (3) DIAMETER .035

(MAX. SIZES TO BE USED IN PRODUCTION)

JOINT DESIGN: SINGLE VEE (REF. NO. OR SKETCH)

METHOD OF EDGE PREPARATION: MACHINE GRIND

WELDING POSITION: 3G

POWER SOURCE (FOR INFO. ONLY) MILLER DELTAWELD 650

#JB525789 SKETCH OF JOINT WELDING CURRENT: DC RP RANGE: 100-225 (SEE NOTE 1)
ARC VOLTAGE RANGE: 17-26 (SEE NOT 1)

TRAVEL SPEED RANGE (IPM): N/A FLUX: (1) GOVT SPEC. N/A (2) MIL-TYPE N/A (3) SIZE N/A
TORCH GAS: ARGON-CO2
TORCH TIP SIZE (OXY-FUEL): N/A
CUP SIZE 5/8"

SHIELDING GAS: (1) COMPOSITION 75-25 (2) FLOW RATE RANGE 30-40 CFH

PURGE GAS: (1) COMPOSITION N/A (2) FLOW RATE RANGE N/A

MINIMUM PREHEAT TEMPERATURE: 60°F MAXIMUM INTERPASS TEMP. 350°F

POST-WELD HEAT TREATMENT/TEMPERATURE: N/A TIME

WELDER/WELDING OPERATOR: HAROLD BONSER

Table with 2 main columns: NONDESTRUCTIVE TEST RESULTS and *DESTRUCTIVE TEST RESULTS. Includes rows for R.T, P.T, M.T, U.T and BASE MATERIAL, WELD METAL TESTS (TRANS., LONG.).

*CHARPY IMPACT TEST SHALL BE PERFORMED ON WELD AND RECORDED WHEN REQUIRED BY TABLE VII FOOTNOTE 2.

TEST APPROVED BY: ROBERT MCVAUGH AT LABORATORY LABORATORY TESTING, IN (NAME) T/XR/P-1726,

DATE OF CERTIFICATION 4/21/87 VERIFIED BY: KOVATCH CORPORATION (QUALIFYING ACTIVITY)

APPROVED BY: (AUTHORIZED AGENT OF NAVSHIPS)

KOVATCH CORPORATION
 ONE INDUSTRIAL COMPLEX
 NESQUEHONING, PA 18240

DESIGNATION (WPS NO.)

WP-5
 ORIGINAL DATE 4/21/87 PAGE 2 OF 6

SUBJECT: WELDING PROCEDURE SPECIFICATION (WPS)
 INTENDED FOR FABRICATION, WELD DEFECT REPAIR
 AND BASE METAL REPAIR OR BUILD-UP.
 REF. ASME SECTION IX, QW-482, MIL-STD-248C.

REVISION NO. 0 DATE 4/21/87

ISSUE APPROVAL:

Walter Zebrowski

SUPPORTING PQR NO.(S) DATE

WELDING PROCESS(ES)
 GMAW

TYPE(S) SEMI-AUTO

JOINTS (QW-402)

JOINT DESIGN SINGLE VEE
 BACKING (YES) X (NO) N/A
 BACKING MATERIAL (TYPE) S-1

SKETCHES, PRODUCTION DRAWINGS,
 WELD SYMBOLS OR WRITTEN DESCRIPTION SHOULD SHOW THE GENERAL ARRANGEMENT OF THE PARTS TO BE WELDED. WHERE APPLICABLE, THE ROOT SPACING AND THE DETAILS OF WELD GROOVE MAY BE SPECIFIED.

BASE METALS (QE-403)

P-NO. 1 GR. NO. _____ TO P-NO. 1 GR. NO. _____
 OR

SPECIFICATION TYPE AND GRADE ASTM 569
 TO SPECIFICATION TYPE AND GRADE ASTM 569
 OR

CHEM. ANALYSIS AND MECH. PROP. N/A
 TO CHEM. ANALYSIS AND MECH. PROP. N/A

THICKNESS RANGE:
 BASE METAL: GROOVE 1/8" - 3/8" FILLET UNLIMITED

DEPOSITED WELD METAL
 PIPE DIA. RANGE: GROOVE 2-7/8" OD AND OVER FILLET UNLIMITED

FILLER METALS (QW-404)

F-NO. 6 OTHER N/A
 A-NO. 1 OTHER N/A

SPEC. NO. (SFA) 5.18
 AWS NO. (CLASS) ER 70-S-3
 SIZE OF FILLER METALS .030 - .035 .045

(ELECTRODE, COLD WIRE, HOT WIRE, ETC.)

ELECTRODE-FLUX (CLASS) N/A
 FLUX TRADENAME N/A
 CONSUMABLE INSERT N/A

WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.
REF. ASME SECTION IX, QW-482 (W-83)

PAGE
3 OF 6

REV. NO.
0

DATE
4/21/

POSITIONS (QW-405)

POSITION(S) OF GROOVE 3G
WELDING PROGRESSION: UP X DOWN _____
POSITION(S) OF FILLET 1F, 2F, 3F

POSTWELD HEAT TREATMENT (QW-407)
TEMPERATURE RANGE N/A
TIME RANGE N/A

PREHEAT (QW-406)

PREHEAT TEMP. MIN. 60°F
INTERPASS TEMP. MAX. 350°F
PREHEAT MAINTENANCE N/A

(CONTINUOUS OR SPECIAL HEATING
WHERE APPLICABLE SHOULD BE
RECORDED)

GAS (QW-408)
SHIELDING GAS(ES) ARGON - CO₂
PERCENT COMPOSITION
(MIXTURES) 75-25

FLOW RATE 30-40 CFH
GAS BACKING N/A
TRAILING SHIELDING GAS COMPOSITION N/A

ELECTRICAL CHARACTERISTICS (QW-409)

CURRENT AC OR DC DC
POLARITY REVERSE
AMPS (RANGE) 100-225
VOLTS (RANGE) 17-26

(AMPS AND VOLTS RANGE SHOULD BE
RECORDED FOR EACH ELECTRODE SIZE,
POSITION, AND THICKNESS, ETC.
THIS INFORMATION MAY BE LISTED IN
A TABULAR FORM SIMILAR TO THAT
SHOWN BELOW.)

TUNGSTEN ELECTRODE SIZE AND TYPE N/A
(PURE TUNGSTEN, 2% THORIATED)

MODE OF METAL TRANSFER FOR GMAW SHORT CIRCUIT
(SPRAY ARC, SHORT CIRCUITING ARC)

ELECTRODE WIRE FEED SPEED RANGE N/A

TECHNIQUE (QW-410)

STRING OR WEAVE BEAD STRING OR WEAVE
ORIFICE OR GAS CUP SIZE 5/8
INITIAL AND INTERPASS CLEANING (BRUSHING, GRINDING, ETC.) _____
WIRE BRUSH GRIND

METHOD OF BACK GOUGING AIR ARC, BACK GRIND
OSCILLATION N/A
CONTACT TUBE TO WORK DISTANCE 3/8 - 1/2"
MULTIPLE OR SINGLE PASS (PER SIDE) MULTIPLE
MULTIPLE OR SINGLE ELECTRODES SINGLE
TRAVEL SPEED (RANGE) N/A
PEENING N/A
OTHER N/A

WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.

PAGE
5 OF 6

REV. NO.
0

DATE
4/21/87

PROCEDURE QUALIFICATION RECORD PQR
REF. ASME SECTION IX, QW-483 (W-83)
MIL-248C

WPS NO. USED WP-5
REV. 0 DATE 4/21/87

PROCEDURE QUALIFICATION RECORD NO. WP-5 DATE

WELDING PROCESS(ES) GMAW TYPE(S) SEMI-AUTO
(MANUAL, AUTOMATIC, SEMI-AUTO)

JOINTS (QW-402)

GROOVE DESIGN USED

BASE METALS (QW-403)

MATERIAL SPEC. ASTM 569
TYPE OR GRADE ASTM 569
P NO. 1 TO P NO. 1
THICKNESS 3/16
DIAMETER N/A
OTHER

POSTWELD HEAT TREATMENT (QW-407)

TEMPERATURE N/A
TIME N/A
OTHER N/A

FILLER METALS (QW-404)

WELD METAL ANALYSIS A NO. 1
SIZE OF ELECTRODE 035
FILLER METAL F. NO. 6
SFA SPECIFICATION 5.18
AWS CLASSIFICATION E70-S-3
OTHER N/A

GAS (QW-408)

TYPE OF GAS OR GASES ARGON - CC
COMPOSITION OF GAS MIXTURE
75-25
OTHER N/A

POSITION (QW-405)

POSITION OF GROOVE 2G
WELD PROGRESSION (UPHILL, DOWNHILL)
N/A
OTHER N/A

ELECTRICAL CHARACTERISTICS (QW-409)

CURRENT DC
POLARITY REVERSE
AMPS. 120-225
VOLTS 17-24
OTHER N/A

PREHEAT (QW-406)

PREHEAT TEMP. 60°F
INTERPASS TEMP. 350°F
OTHER N/A

TECHNIQUE (QW-410)

TRAVEL SPEED N/A
STRING OR WEAVE BEAD STRING OR
OSCILLATION N/A
MULTIPASS OR SINGLE PASS (PER
MULTIPASS
SINGLE OR MULTIPLE ELECTRODES
SINGLE
OTHER N/A

WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.

PAGE 6 OF 6 REV. NO. 0 DATE 4/21/87

PROCEDURE QUALIFICATION RECORD (PQR) CONT'D.
REF. ASME SECTION IX, QW-483, W-83)

(PQR NO.)

FIGURE NO. _____ TENSILE TEST (QW-150)

SPECIMEN NO.	WIDTH	THICKNESS	AREA	ULTIMATE TOTAL LOAD LB.	ULTIMATE UNIT STRESS PSI	CHARACTER OF FAILURE & LOCATION
1	1,491	.128	.1908	73050	60376	BM
2	1,497	.174	.2605	13750	52783	BM

FIGURE NO. _____ GUIDED BEND TESTS (QW-160)

TYPE AND SPECIMEN	RESULT
ROOT BEND	SATISFACTORY
ROOT BEND	SATISFACTORY
FACE BEND	SATISFACTORY
FACE BEND	SATISFACTORY

TYPE _____ TOUGHNESS TESTS (QW-170) SIZE _____

SPECIMEN NO.	NOTCH LOCATION	NOTCH TYPE	TEST TEMP.	IMPACT VALUES	LATERAL EXP.	
					% SHEAR	MILS

FILLET WELD TEST (QW-180)

RESULT-SATISFACTORY: YES _____ N/A _____ NO: _____ N/A _____
 PENETRATION INTO PARENT METAL: _____ N/A _____ NO: _____ N/A _____
 MACRO-RESULTS _____ N/A _____

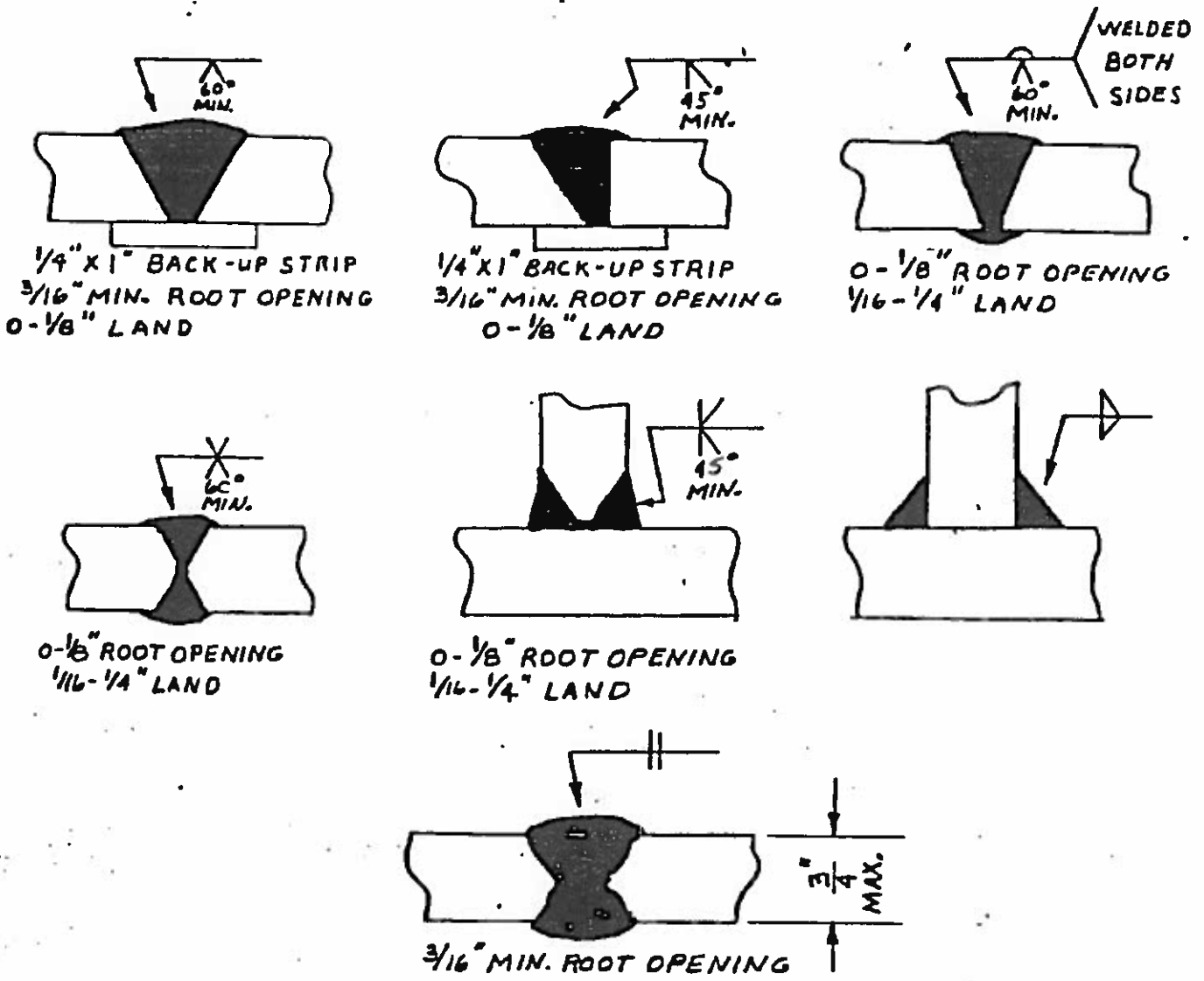
OTHER TESTS

TYPE OF TEST _____ X-RAY PASSED _____
 DEPOSIT ANALYSIS _____
 OTHER _____ PT - NP PASSED _____

.....
 WELDER'S NAME HAROLD BONSER CLOCK NO. _____ STAMP NO. B
 TESTS CONDUCTED BY: LABORATORY TESTING, INC. LABORATORY TEST NO. T/XR/P-1726
 WE CERTIFY THAT THE STATEMENTS IN THIS RECORD ARE CORRECT AND THAT THE TEST WELDS WERE PREPARED, WELDED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION IX OF THE ASME CODE AND MIL-STD-248C.

MANUFACTURER KOVATCH CORPORATION

DATE 5/4/87 BY William J. Prof. G.A. 1/87
 (DETAIL OF RECORD OF TESTS ARE ILLUSTRATIVE ONLY AND MAY BE MODIFIED TO CONFORM TO TYPE AND NUMBER OF TESTS REQUIRED BY THE CODE.)



- Notes:
1. When full penetration welds are made from one side only, a backing shall be employed.
 2. The sketches shown hereon are presented for reference only and are intended to provide general guidance for the welding process involved. These sketches are not necessarily inclusive of all applications which may be employed. However, alternate applications of the welding process shall follow the same general joint designs as represented above.

TERMS: NET CASH - 10 DAYS



LABORATORY TESTING INC.

P.O. Box 249 Dublin, Pennsylvania 18917

SOLD TO

Kovatch Corporation
One Industrial Complex
Neshannock, PA 18210

SHIPPING ADDRESS
120 MILL STREET, DUBLIN, PA 18917

SHIP TO

Attn: Bob Hontz

CUST. P.O.
PO 18410

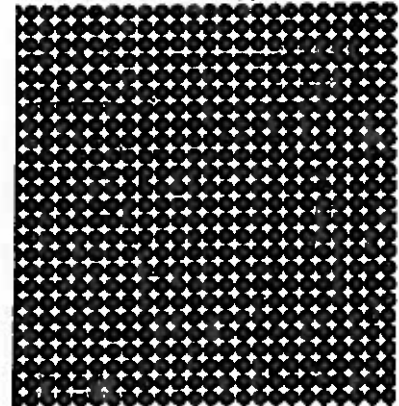
LAB REPORT NO.
T/XR/P-1725

SHIPMENT
Complete

INVOICE DATE
1/23/77

DESCRIPTION

1 pc. Steel Test Plate per A-569,
Weld Procedure Qualification
Test Plate, 3G, per
MIL-STD-248C, Welders Name:
Harold Houser, Stamped "A"



- A. The above material was 100% Magnetic Penetrant inspected in accordance with MIL-STD-271E, Acceptance Criteria per NAVSEA 0900-003-8000, Class 1 and (1) piece was found to be acceptable to those requirements.
- B. The above material was 100% Radiographically inspected in accordance with MIL-STD-271E, Acceptance Criteria per NAVSEA 0900-003-9000, Class 1 and (1) piece was found to be acceptable to those requirements. See attached sheet for results.
- C. (4) bend tests were performed (per MIL-STD-418) on the above Test Specimens and (4) pieces were found to comply with the requirements of MIL-STD-248C with no cracks. See attached sheet.
- D. (2) Tensile tests were performed (per ASTM A-370/E-8, MIL-STD-418) on the above Test Specimen. See attached sheet for results.

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By: *Robert W. McVaugh*
AUTHORIZED SIGNATURE

XXXXXXXXXX
 XXXXXXXXXXXX
 P.O. Box 249
 Dublin, PA 18917

LABORATORY MECHANICAL PROPERTY TEST REPORT

Supplier Kovatch Corporation Customer Order No. CO 10439 Date April 21, 1987
 Address One Industrial Complex Shop Order No. _____ Report No. T-1726
Nesquehoning, PA 18240 Part Aluminum Test Plate, per QQ-A-250/8P Material Alloy 5052, Temper 0

Specimen No.	SIZE IN INCHES		Area Sq. In.	TENSILE STRENGTH		YIELD <u>2</u> %		Elongation IN <u>2</u> In. %	REDUCTION OF AREA		HARDNESS	REMARKS
	Dia. or Thk.	Width		Load Lbs.	PSI	Load Lbs.	PSI		New Dia. In.	Reduction %		
ace Bend #1	.250"	1.5"										Satisfactory - No Cracks
ace Bend #2	.250"	1.5"										Satisfactory - No Cracks
oot Bend #1	.250"	1.5"										Satisfactory - No Cracks
oot Bend #2	.250"	1.5"										Satisfactory - No Cracks
ensile #1	.128"	1.491"	.1908"	13,050	68,396							Fracture Base M
ensile #2	.174"	1.497"	.2605"	13,750	52,783							Fracture Base M

REQUIREMENTS:

Ultimate Tensile Strength _____
 Yield Strength _____
 Elongation _____
 Reduction of Area _____

CERTIFICATION

This is to certify that the above mentioned parts have been processed as indicated above.

Tested By Jim Wenzell

Radiographic Weld Report

COMPANY KOKVATCH
WELDER "B"
DATE & XR. NO. 4-10-87 KR-1726
RT SPEC. & ACCEP. MIL-STD-248C
JOB IDENTIFICATION STEEL TEST PLATE

WELD DEFECT ABBREVIATIONS

- SL. - SLAG LINE
- IS. - ISOLATED SLAG
- LP. - LACK PENETRATION
- UC. - UNDERCUT CAP
- IU. - INTERNAL UNDERCUT
- BT. - BURN THROUGH
- NF. - NON FUSION
- CC. - CONCAVE CAP
- P. - POROSITY

SN#	RT#	HT#	VIEWS	ACCEPT	REJECT	REMARKS
"B"			11-12	X		porosity acc. X-RAYED PER MIL-STD-271E ACC. PER NAVSEA 0900-003-9003 CLASS 1

M. J. McLaughlin / C.E.T. III
SIGNATURE/LEVEL

RADIOGRAPHIC TECHNIQUE

Views; Section	C			
Source	300KVCP			
Curie; KVp/MA	100/10			
Exposure Time	1 MIN 10			
F.F.D. (inches)	40"			
Focal Size	4MM			
Mat'l Thick. Radiographed	.200			
Penetrameter Size	.25			
Penetrameter Material	AL			
Penetr. Shim; Thickness	.125			
Penetr. Shim; Material	S S			
Film Size	7" X 17"			
Film Type	NOT SS			
PB Screen; Front/Back	.005 / 010			
Tech. (single/double wall)	SINGLE			
Penetrameter Sensitivity	2-2T			
Acceptance Class	0900	NAV SEA -003 900		

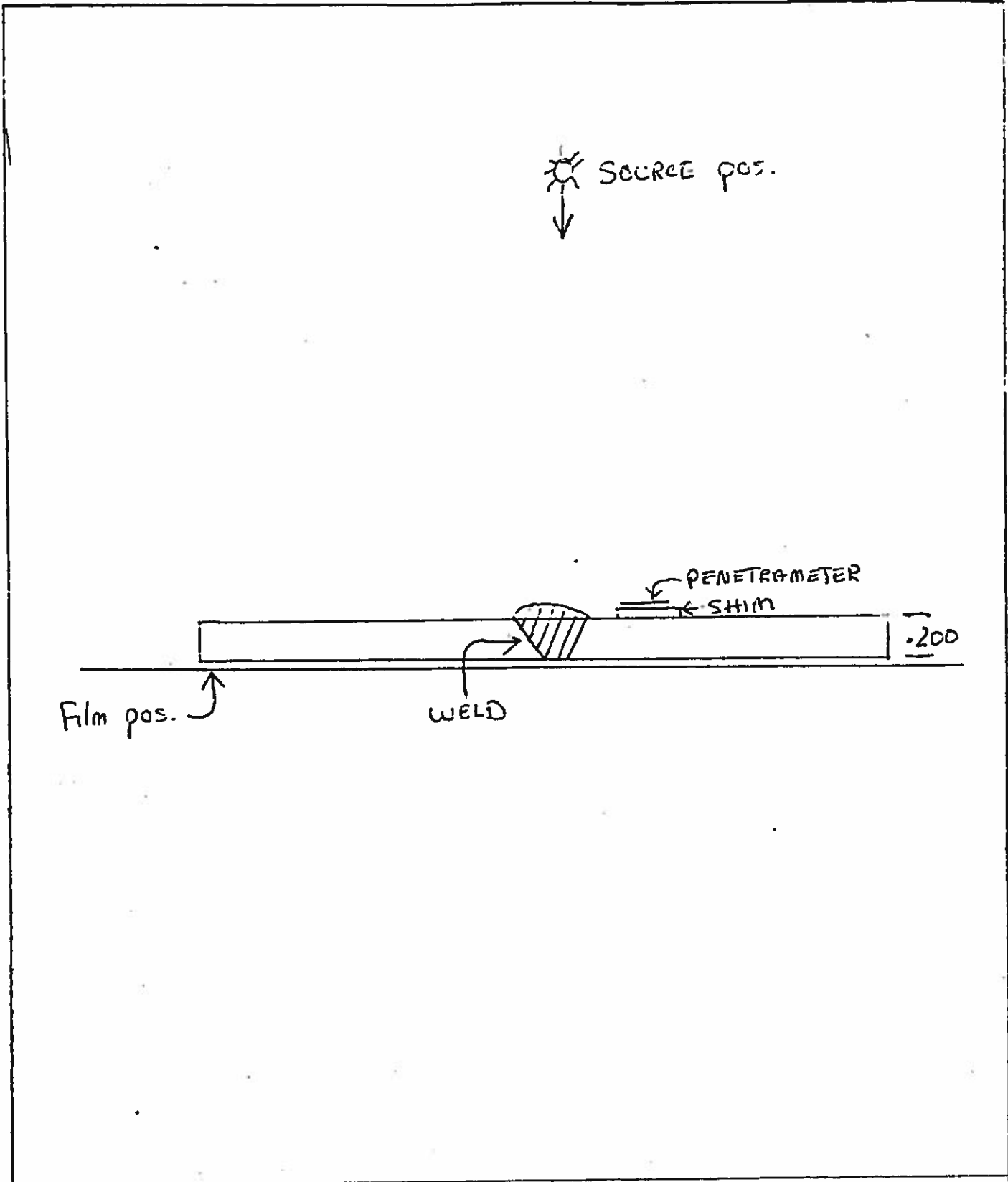
**CLASS 7
GENERAL INFORMATION**

Date 4-7-87 Part No. (DWG) _____
 Customer KORVATCH Inspection Code MIL STD-246
 Customer P.O. No. _____ Material STEEL

SKETCH

Radiographer: Carl Robert Page _____
 of _____

RADIOGRAPHIC SHOOTING SKETCH (RSS)



NOTE: SKETCH SHOWS
FINISHED DIMENSIONS

RSS NO.
XR-1726

Sheet of
Page or

REV



Production
P75-1-WI7
Weld Procedure
#6

Original Issue Date: 5/1/12
Revision: 0
Revision Date: 5/1/12

Welding Procedure 6

WP-6 Automatic Gas Metal Arc Welding 1G Aluminum-Seam Welder

DATE: 5/18/87

WELDING PROCEDURE QUALIFICATION DATA

WELDING PROCESS: GMAW PLATE PIPE CASTING OTHER
NOTE: SPECIFY OTHER

BASE MAT'L: (1) SPEC. Q2-A-250/10 (2) GRADE OR CLASS 5454 (3) THICKNESS 3/16 (4) GROUP NO. (S-NO.) 22
FILLER METAL: (1) GOVT SPEC. MIL-E-16053 (2) MIL-TYPE 5556 (3) DIAMETER 1/16

(MAX. SIZES TO BE USED IN PRODUCTION)

JOINT DESIGN: BUTT (REF. NO. OR SKETCH) SEE ATTACHED SHEET

METHOD OF EDGE PREPARATION: MACHINE, GRIND

WELDING POSITION: 1G

POWER SOURCE (FOR INFO. ONLY) LINCOLN

SKETCH OF JOINT WELDING CURRENT: RANGE: 200-270 (SEE NOTE 1)

ARC VOLTAGE RANGE: 19-26 (SEE NOTE 1)

TRAVEL SPEED RANGE (IPM): 20-30 FLUX: (1) GOVT SPEC. N/A (2) MIL-TYPE N/A (3) SIZE N/A
TORCH GAS: ARGON
TORCH TIP SIZE (OXY-FUEL): N/A
CUP SIZE 5/8 - 3/4

SHIELDING GAS: (1) COMPOSITION ARGON (2) FLOW RATE RANGE 35-55 CFH

PURGE GAS: (1) COMPOSITION N/A (2) FLOW RATE RANGE N/A

MINIMUM PREHEAT TEMPERATURE: 60°F MAXIMUM INTERPASS TEMP. 350°F

POST-WELD HEAT TREATMENT/TEMPERATURE: N/A TIME

WELDER/WELDING OPERATOR: MIKE SIMMONS

NONDESTRUCTIVE TEST RESULTS APPLICABLE ACCEPTANCE STANDARD

*DESTRUCTIVE TEST RESULTS

Table with 6 columns: Test Type (R.T, P.T, M.T, U.T), Test Result (PASSED), Base Material (BASE MATERIAL, WELD METAL TESTS, TRANS., LONG.), U.T.S., Y.S., EL. (MIN), and Bend Test (PASSED).

*CHARPY IMPACT TEST SHALL BE PERFORMED ON WELD AND RECORDED WHEN REQUIRED BY TABLE VII, FOOTNOTE 2.

TEST APPROVED BY: ROBERT MCVAUGH AT LABORATORY LABORATORY TESTING (NAME) T/P/XR-2268

DATE OF CERTIFICATION 5/18/87 VERIFIED BY: KOVATCH CORPORATION (QUALIFYING ACTIVITY)

APPROVED BY: (AUTHORIZED AGENT OF NAVSHIPS)

DESIGNATION (WPS NO.)

WP-6

ORIGINAL DATE

PAGE

5/18/87

2 OF 6

SUBJECT: WELDING PROCEDURE SPECIFICATION (WPS)
 INTENDED FOR FABRICATION, WELD DEFECT REPAIR
 AND BASE METAL REPAIR OR BUILD-UP.
 REF. ASME SECTION IX, QW-482, MIL-STD-248C.

REVISION NO.

DATE

0

5/18/87

ISSUE APPROVAL:

[Handwritten Signature]

WELDING PROCESS(ES)

GMAW

TYPE(S) AUTO

SUPPORTING PQR NO.(S)

DATE

WP-1, WP-2

4/21/87

WP-3, WP-4

JOINTS (QW-402)

JOINT DESIGN BUTT
 BACKING (YES) N/A (NO) X
 BACKING MATERIAL (TYPE) _____

SKETCHES, PRODUCTION DRAWINGS,
 WELD SYMBOLS OR WRITTEN DESCRIPTION
 SHOULD SHOW THE GENERAL ARRANGEMENT
 OF THE PARTS TO BE WELDED. WHERE
 APPLICABLE, THE ROOT SPACING AND THE
 DETAILS OF WELD GROOVE MAY BE SPECIFIED.

BASE METALS (QE-403)

P-NO. 22 GR. NO. _____ TO P-NO. 22 GR. NO. _____

OR

SPECIFICATION TYPE AND GRADE 5454
 TO SPECIFICATION TYPE AND GRADE 5454

OR

CHEM. ANALYSIS AND MECH. PROP. N/A
 TO CHEM. ANALYSIS AND MECH. PROP. N/A

THICKNESS RANGE:
 BASE METAL: GROOVE 1/8" - 3/8" FILLET UNLIMITED

DEPOSITED WELD METAL
 PIPE DIA. RANGE: GROOVE 2-7/8" OD & OVER FILLET UNLIMITED

FILLER METALS (QW-404)

F-NO. 22 OTHER N/A
 A-NO. N/A OTHER N/A

SPEC. NO. (SFA) 5.10
 AWS NO. (CLASS) ER 5556
 SIZE OF FILLER METALS 1/16

(ELECTRODE, COLD WIRE, HOT WIRE, ETC.)

ELECTRODE-FLUX (CLASS) N/A
 FLUX TRADENAME N/A
 CONSUMABLE INSERT N/A

WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.
REF. ASME SECTION IX, QW-482 (W-83)

PAGE
3 OF 6

REV. NO.
0

DATE
5/18/1

POSITIONS (QW-405)

POSITION(S) OF GROOVE 1G
WELDING PROGRESSION: UP N/A DOWN N/A
POSITION(S) OF FILLET 1G

POSTWELD HEAT TREATMENT (QW-407)
TEMPERATURE RANGE N/A
TIME RANGE N/A

PREHEAT (QW-406)

PREHEAT TEMP. MIN. 60°F
INTERPASS TEMP. MAX. 350°F
PREHEAT MAINTENANCE N/A

(CONTINUOUS OR SPECIAL HEATING
WHERE APPLICABLE SHOULD BE
RECORDED)

GAS (QW-408)
SHIELDING GAS(ES) ARGON
PERCENT COMPOSITION
(MIXTURES) 100%
WELD GRADE
FLOW RATE 35-55 CFH
GAS BACKING N/A
TRAILING SHIELDING GAS COMPOSITION N/A

ELECTRICAL CHARACTERISTICS (QW-409)

CURRENT AC OR DC DC
POLARITY REVERSE
AMPS (RANGE) 200-270
VOLTS (RANGE) 19-26

(AMPS AND VOLTS RANGE SHOULD BE
RECORDED FOR EACH ELECTRODE SIZE,
POSITION, AND THICKNESS, ETC.
THIS INFORMATION MAY BE LISTED IN
A TABULAR FORM SIMILAR TO THAT
SHOWN BELOW.)

TUNGSTEN ELECTRODE SIZE AND TYPE

N/A
(PURE TUNGSTEN, 2% THORIATED)

MODE OF METAL TRANSFER FOR GMAW

N/A
(SPRAY ARC, SHORT CIRCUITING ARC)

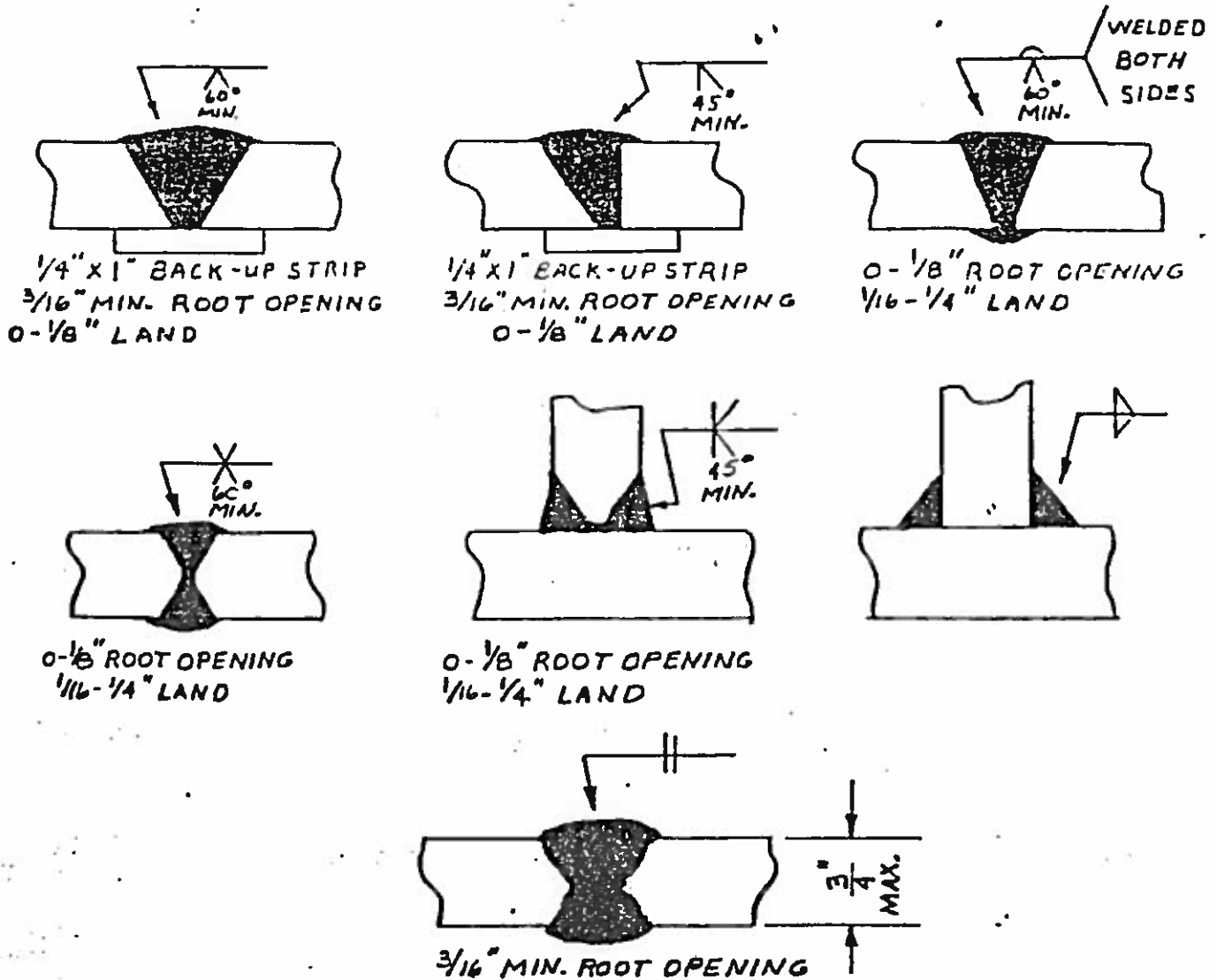
ELECTRODE WIRE FEED SPEED RANGE

N/A

TECHNIQUE (QW-410)

STRING OR WEAVE BEAD STRING
ORIFICE OR GAS CUP SIZE 5/8 - 3/4
INITIAL AND INTERPASS CLEANING (BRUSHING, GRINDING, ETC.) SS WIRE BRUSH GRIND

METHOD OF BACK COUING AIR ARC, BACK GRIND
OSCILLATION N/A
CONTACT TUBE TO WORK DISTANCE 3/4" - 1"
MULTIPLE OR SINGLE PASS (PER SIDE) SINGLE
MULTIPLE OR SINGLE ELECTRODES SINGLE
TRAVEL SPEED (RANGE) 20-30
PEENING N/A
OTHER N/A



Notes:

1. When full penetration welds are made from one side only, a backing shall be employed.
2. The sketches shown hereon are presented for reference only and are intended to provide general guidance for the welding process involved. These sketches are not necessarily inclusive of all applications which may be employed. However, alternate applications of the welding process shall follow the same general joint designs as represented above.

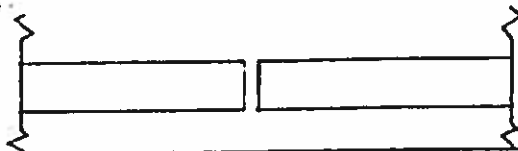
WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.

PAGE
5 OF 6REV. NO.
0DATE
5/18/87PROCEDURE QUALIFICATION RECORD PQR
REF. ASME SECTION IX, QW-483 (W-83)
MIL-248CWPS NO. USED WP-6
REV. 0 DATE 5/18/87

PROCEDURE QUALIFICATION RECORD NO. _____ DATE _____

WELDING PROCESS(ES) GMAW TYPE(S) AUTO
(MANUAL, AUTOMATIC, SEMI-AUTO)

JOINTS (QW-402)



3/32 ROOT OPENING

GROOVE DESIGN USED

BASE METALS (QW-403)

MATERIAL SPEC. QQ-A-250/10
TYPE OR GRADE 5454
P NO. 22 TO P NO. 22
THICKNESS 3/16
DIAMETER N/A
OTHER N/A

POSTWELD HEAT TREATMENT (QW-407)

TEMPERATURE N/A
TIME N/A
OTHER N/A

FILLER METALS (QW-404)

WELD METAL ANALYSIS A NO. N/A
SIZE OF ELECTRODE 1/16
FILLER METAL F. NO. 22B
SFA SPECIFICATION 5.10
AWS CLASSIFICATION ER5556
OTHER N/A

GAS (QW-408)

TYPE OF GAS OR GASES ARGON
COMPOSITION OF GAS MIXTURE
100% WELD GRADE
OTHER _____

POSITION (QW-405)

POSITION OF GROOVE 1G
WELD PROGRESSION (UPHILL, DOWNHILL)
N/A
OTHER N/A

ELECTRICAL CHARACTERISTICS (QW-409)

CURRENT DC
POLARITY REVERSE
AMPS. 245
VOLTS 21
OTHER ACTUAL TEST

PREHEAT (QW-406)

PREHEAT TEMP. 60°F
INTERPASS TEMP. 350°F
OTHER N/A

TECHNIQUE (QW-410)

TRAVEL SPEED 28" IMP
STRING OR WEAVE BEAD STRING
OSCILLATION N/A
MULTIPASS OR SINGLE PASS (PER SIDE)
SINGLE
SINGLE OR MULTIPLE ELECTRODES
SINGLE
OTHER N/A

WELDING PROCEDURE SPECIFICATION (WPS) CONT'D.

PAGE 6 OF 6 REV. NO. 0 DATE 5/18/87

PROCEDURE QUALIFICATION RECORD (PQR) CONT'D.
REF. ASME SECTION IX, QW-483, W-83

(PQR NO.)

FIGURE NO. _____ TENSILE TEST (QW-150)

SPECIMEN NO.	WIDTH	THICKNESS	AREA	ULTIMATE TOTAL LOAD LB.	ULTIMATE UNIT STRESS PSI	CHARACTER OF FAILURE & LOCATION
1	1.502	.189	.2839	9550	33,638	WELD
2	1.502	.188	.2824	9550	33,817	WELD

FIGURE NO. _____ GUIDED BEND TESTS (QW-160)

TYPE AND SPECIMEN	RESULT
ROOT BEND	SATISFACTORY
ROOT BEND	SATISFACTORY
FACE BEND	SATISFACTORY
FACE BEND	SATISFACTORY

TYPE _____ N/A TOUGHNESS TESTS (QW-170) SIZE _____

SPECIMEN NO.	NOTCH LOCATION	NOTCH TYPE	TEST TEMP.	IMPACT VALUES	LATERAL EXP.	
					%SHEAR	MILS

FILLET WELD TEST (QW-180)

RESULT-SATISFACTORY: YES _____ N/A _____ NO: _____ N/A _____
 PENETRATION INTO PARENT METAL: _____ N/A _____ NO: _____ N/A _____
 MACRO-RESULTS _____ N/A _____

OTHER TESTS

TYPE OF TEST X-RAY PASSED _____
 DEPOSIT ANALYSIS _____
 OTHER PT PASSED _____

WELDER'S NAME MIKE SIMMONS CLOCK NO. _____ STAMP NO. _____
 TESTS CONDUCTED BY: LABORATORY TESTING LABORATORY TEST NO. T2268

WE CERTIFY THAT THE STATEMENTS IN THIS RECORD ARE CORRECT AND THAT THE TEST WELDS WERE PREPARED, WELDED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION IX OF THE ASME CODE AND MIL-STD-248C.

MANUFACTURER KOVATCH CORPORATION

DATE 5/18/87 BY William J. Banje
 (DETAIL OF RECORD OF TESTS ARE ILLUSTRATIVE ONLY AND MAY BE MODIFIED TO CONFORM TO THE

TERMS: NET CASH - 10 DAY



LABORATORY TESTING INC.

P.O. Box 249 Dublin, Pennsylvania 18917

SOLD TO
Kovatch Corporation
One Industrial Complex
Hesquehoning, PA 18240

SHIPPING ADDRESS
120 MILL STREET, DUBLIN, PA 18917

SHIP TO

Attn: Bob Hontz

CUST. P.O.
CG 10447

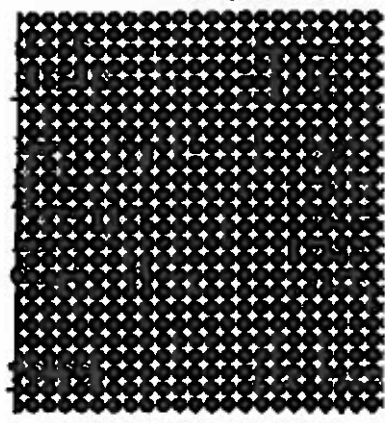
LAB REPORT NO.
T72/XR-2258

SHIPMENT
Complete

INVOICE DATE
5/19/87

DESCRIPTION

1 pc. Test Piece, Mat'l: 5454
Position: 1G, Process: CHAW
Gas: Argon 50 CFM
Filler Mat'l: 1/16" 5356
Polarity: DC Rev., Welders Name:
Michael Simmons



- A. The above material was 100% Liquid Penetrant inspected in accordance with MIL-STD-271E, Acceptance Criteria per NAVSEA 0900-003-8000, Class 1 and (1) piece was found to be acceptable to those requirements.
- B. The above material was 100% Radiographically inspected in accordance with MIL-STD-271E, Acceptance Criteria per NAVSEA 0900-003-9000, Class 1 and (1) piece was found to be acceptable to those requirements. See attached sheets.
- C. Four (4) Bend tests were performed on the above Test Specimen and (4) pieces were found to conform to MIL-STD-248C and MIL-STD-418 with no cracks.
- D. Two (2) Tensile tests were performed (per ASTM A-370/E-8) on the above Test Specimen. See attached sheet for results.

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By: *Robert W. McVaugh*
AUTHORIZED SIGNATURE

P.O. Box 98
Perkasie, PA 18944

LABORATORY MECHANICAL PROPERTY TEST REPORT

Customer Kovatch Corporation Customer Order No. CO 010447 Date May 14, 1987
Address _____ Shop Order No. _____ Report No. T-2268

Part _____ Material _____

Specimen No.	SIZE IN INCHES		Area Sq. In.	TENSILE STRENGTH		YIELD <u>2</u> %		Elongation IN <u>2</u> In. %	REDUCTION OF AREA		HARDNESS	REMARKS
	Di. or Thk.	Width		Load Lbs.	PSI	Load Lbs.	PSI		New Dia. In.	Reduction %		
#1	.189	1.502	.2839	9,550	33,638			BROKE	IN WELD			
#2	.188	1.502	.2824	9,550	33,817			BROKE	IN WELD			

REQUIREMENTS:
Ultimate Tensile Strength _____
Yield Strength _____
Elongation _____
Reduction of Area _____

CERTIFICATION
This is to certify that the above mentioned parts
have been processed as indicated above.

Tested By Jim Menzel



Radiographic Weld Report

COMPANY KOVATCH
 WELDER MICHAEL SIMMONS
 DATE & XR. NO. 5-11-87 XR-2268
 RT SPEC. & ACCEP. MIL-STD-248C
 JOB IDENTIFICATION ALUM TEST WELD
STAMP 5 GMAW 1G

WELD DEFECT ABBREVIATIONS

- SL. - SLAG LINE
- IS. - ISOLATED SLAG
- LP. - LACK PENETRATION
- UC. - UNDERCUT CAP
- IU. - INTERNAL UNDERCUT
- BT. - BURN THROUGH
- NF. - NON FUSION
- CC. - CONCAVE CAP
- P. - POROSITY

SN#	RT#	HT#	VIEWS	ACCEPT	REJECT	REMARKS
"5"			1-2	X		POROSITY ACC.
						X-RAY PER MIL-STD-271E
						ACC. PER NAVSEA 0900-003-9000
						CLASS 1

Michael M. W. [Signature]
 SIGNATURE/LEVEL



Production
P75-1-W18
Weld Procedure
#7

Original Issue Date: 5/1/12
Revision: 0
Revision Date: 6/1/12

Welding Procedure 7

WP-7 Semi-Automatic Flux-Cored Arc Welding 1G Steel

WP-7

WELDING PROCEDURE SPECIFICATION (WPS) PROCEDURE QUALIFICATION RECORD (PQR)

Company Name KOVATCH (KME)
 Welding Process(es) FCAW
 Supporting PQR No(s)

Identification # WP-7
 Revision 0 Date 9/27/93 By AH
 Authorized by Robert Harty Date 9-27-93
 Type-Manual () Semi-Automatic ()
 Machine () Automatic (X)

JOINT DESIGN USED

Type SINGLE VEE
 Single (X) Double Weld ()
 Backing Yes (X) No ()

POSITION

Position of Groove 1G Fillet ALL
 Vertical Progression: Up () Down ()

Backing Material A-715
 Root Opening 125 Root Face Dimension

ELECTRICAL CHARACTERISTICS

Groove Angle Radius (J-U)
 Back Gouging Yes () No (X) Method

Transfer Mode (GMAW) Short-Circuiting ()
 Globular () Spray (X)
 Current AC () DCEP (X) DCEN () PULSED ()
 Other

BASE METALS

Material Specs A-715
 Type or Grade 80
 Thickness-Groove 3/16 Fillet UNLIMITED
 Diameter (Pipe) 3" & OVER

TECHNIQUE
 Stringer or Weave Bead STRINGER
 Multi-pass or Single Pass (per side) MULTIPASS
 Number of electrodes 1
 Electrode Spacing Longitudinal
 Lateral
 Angle

FILLER METALS

AWS Specification SFA 5.20
 AWS Classification E70T-1

SHIELDING

Flux Gas ARGON/CO2
 Composition 92%-8% Peening NONE
 Electrode-Flux (Class) Flow Rate 30-40 SCFH Interpass Cleaning WIRE BRUSH, GRIND, CHIP
 Gas Cup Size 5/8

PREHEAT

Preheat Temp, Min 60F
 Interpass Temp, Min 350F Max 450F

POSTWELD HEAT TREATMENT

Temp N/A
 Time

WELDING PROCEDURE

Pass or Weld Layer (s) Process	Filler Metals		Current		Joint Details	
	Class	Diam	TYPE	Amps or Wire Feed Polarity Speed	Travel Volts	Speed
ALL FCAW	E70T-1	3/16	DCEP	250-350	22-32	N/A

PROCEDURE QUALIFICATION RECORD (PQR) # WP-7

TEST RESULTS

TENSILE TEST

Specimen	Width	Thickness	Area	Ultimate tensile load lb	Ultimate unit stress psi	Character of failure and location
	752	174	1308	77982	90596	BROKE IN WELD
	758	175	1327	79804	92313	BROKE IN WELD

GUIDED BEND TEST

	Type of bend	Result	Remarks
1	FACE	PASSED	SATISFACTORY WITH NO CRACKS
2	FACE	PASSED	SATISFACTORY WITH NO CRACKS
3	ROOT	PASSED	SATISFACTORY WITH NO CRACKS
4	ROOT	PASSED	SATISFACTORY WITH NO CRACKS

VISUAL INSPECTION

Appearance: GOOD
 Undercut: SATISFACTORY
 Piping porosity: NONE
 Convexity: SATISFACTORY
 Test date: 9/27/93
 Witnessed by: JCM WELDING & CONSULT

Radiographic-ultrasonic examination: N/A
 RT report no.: _____ Result: _____
 UT report no.: _____ Result: _____

FLUJET WELD TEST RESULTS

Minimum size multiple pass: _____ Maximum size single pass: _____

Macroetch: _____
 1 _____ 3 _____
 2 _____

Other Test

All-weld-metal tension test

Tensile strength, psi: _____
 Yield point/strength, psi: _____
 Elongation in 2 in., %: _____
 Laboratory test no.: _____

Welder's name: JEFFREX
 Tests conducted by: LABORATORY TESTING

Clock no.: _____ Stamp no.: 41
 Laboratory test no.: T-7764
 per: GLENN DERSTINE

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of section 5, Part B of ANSI/AWS D1.1 (1993) Structural Welding Code-

Signed

Manufacturer or Contractor

By: *William Beale*
 Title: *QA Manager*
 Date: *October 12, 1993*



Production
P75-1-W19
Weld Procedure
#8

Original Issue Date: 5/1/12
Revision: 0
Revision Date: 5/1/12

Welding Procedure 8

WP-8 Semi0-Automatic Flux-Cored Arc Welding 2G ER80S Steel

WP-8

PROCEDURE QUALIFICATION RECORD (PQR) # WP-8

TEST RESULTS

TENSILE TEST

Specimen No.	Width	Thickness	Area	Ultimate tensile load lb.	Ultimate unit stress psi	Character of failure and location
1	1.502	.163	.2448	85417	93668	BROKE IN WELD
2	1.504	.162	.2436	84236	93350	BROKE IN WELD

GUIDED BEND TEST

Specimen No.	Type of bend	Result	Remarks
1	FACE	PASSED	SATISFACTORY WITH NO CRACKS
2	FACE	PASSED	SATISFACTORY WITH NO CRACKS
3	ROOT	PASSED	SATISFACTORY WITH NO CRACKS
4	ROOT	PASSED	SATISFACTORY WITH NO CRACKS

VISUAL INSPECTION

Appearance: GOOD
 Undercut: SATISFACTORY
 Piping porosity: NONE
 Convexity: SATISFACTORY
 Test date: 9/27/93
 Witnessed BY: JCM WELDING & CONSULT

Radiographic-ultrasonic examination: N/A
 RT report no.: _____ Result: _____
 UT report no.: _____ Result: _____

FILLET WELD TEST RESULTS

Minimum size multiple pass: _____ Maximum size single pass: _____
 Macroetch: 1. _____ 2. _____ 3. _____
 All-weld-metal tension test

Other Test

Tensile strength, psi: _____
 Yield point/strength, psi: _____
 Elongation in 2 in., %: _____
 Laboratory test no.: _____

Welder's name: JEFF REX
 Tests conducted by: LABORATORY TESTING
 Laboratory test no.: T-77641
 Clock no.: _____ Stamp no.: 41
 per: GLENN DERSTINE

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of section 5, Part B of ANS/AWS D1.1 (1993) Structural Welding Code-

Signed: _____
 Manufacturer or Contractor
 By: *William J. Baskin*
 Title: *P. I. Manager*
 Date: *October 12, 1993*

WELDING PROCEDURE SPECIFICATION (WPS) PROCEDURE QUALIFICATION RECORD (PQR)

Company Name KOVATCH (KMF)
 Welding Process(es) FCAW
 Supporting PQR No.(s) _____

Identification # WP-8
 Revision 0 Date 9/27/93 By RH
 Authorized by [Signature] Date 9-27-93
 Type-Manual () Semi-Automatic (X)
 Machine () Automatic ()

JOINT DESIGN USED

Type SINGLE VEE
 Single (X) Double Weld ()
 Backing Yes (X) No ()

POSITION

Position of Groove 2 G Fillet ALL
 Vertical Progression: Up () Down ()

Backing Material A-715
 Root Opening .125 Root Face Dimension _____

ELECTRICAL CHARACTERISTICS

Groove Angle _____ Radius (J-U) _____
 Back Gouging Yes () No (X) Method _____

Transfer Mode (GMAW) Short-Circuiting (X)
 Globular () Spray ()
 Current: AC () DCEP (X) DCEN () PULSED ()
 Other _____

BASE METALS

Material Specs. A-715
 Type or Grade 80
 Thickness Groove 3/16 Fillet UNLIMITED
 Diameter (Pipe) 3" & OVER

TECHNIQUE
 Stringer or Weave Bead STRINGER
 Multi-pass or Single Pass (per side) MULTIPASS
 Number of electrodes 1
 Electrode Spacing Longitudinal
 Lateral _____
 Angle _____

FILLER METALS

AWS Specification SFA 5.18
 AWS Classification ER80S-D2

SHIELDING

Flux Gas ARGON/CO2 Contact Tube to Work Distance 3/8-1/2"
 Composition 92%-8% Peening NONE
 Electrode-Flux (Class) Flow Rate 30-40 SCFH Interpass Clearing WIRE BRUSH, GRIND, CHIP
 Gas Cup Size 5/8

PREHEAT

Preheat Temp., Min. 60F
 Interpass Temp., Min. 350F Max. 450F

POSTWELD HEAT TREATMENT

Temp. N/A
 Time _____

WELDING PROCEDURE

Pass or Weld Layer (s)	Process	Filler Metals		Current		Joint Details	
		Class	Diam.	TYPE	Amps or Wire Feed Speed	Travel Volts	Speed
ALL	GMAW	ER80S-D2	.035	DCRP	135-225	18-26	N/A



Production
P75-1-W110
Weld Procedure
#9

Original Issue Date: 5/1/12
Revision: 0
Revision Date: 5/1/12

Welding Procedure 9

WP-9 Semi-Automatic Gas Metal Arc Welding 2G Horizontal .030 Steel

WP-9

WELDING PROCEDURE SPECIFICATION (WPS) PROCEDURE QUALIFICATION RECORD (PQR)

Company Name KOVATCH (KME)
Welding Processes: GMAW
Supporting PQR No(s)

Identification # WP-9
Revision 0 Date 9/27/93 By AH
Authorized by Robert Harty Date 9-27-93
Type Manual () Semi-Automatic (X)
Machine () Automatic ()

JOINT DESIGN USED

Type SINGLE VLT
Single (X) Double Weld ()
Backing Yes () No (X)

POSITION

Position of Groove 2 G Fillet ALL
Vertical Progression Up () Down ()

Backing Material
Root Opening 125 Root Face Dimension

ELECTRICAL CHARACTERISTICS

Groove Angle Radius (J-U)
Back Gouging Yes () No (X) Method

Transfer Mode (GMAW) Short-Circuiting (X)
Globular () Spray ()
Current: AC () DCEP (X) DCEN () PULSED ()
Other

BASE METALS

Material Specs A-36
Type or Grade
Thickness Groove 3/16 Fillet UNLIMITED
Diameter (Pipe) 3" & OVER

TECHNIQUE

Stringer or Weave Bead STRINGER
Multi-pass or Single Pass (per side) MULTIPASS
Number of electrodes 1
Electrode Spacing 1 longitudinal
Lateral
Angle

FILLER METALS

AWS Specification SFA 5.18
AWS Classification ER 70S-6

SHIELDING

Flux Gas ARGON/CO2
Composition 92%-8%
Electrode (Class) Flow Rate 30-40 SCFH
Gas Cup Size 5/8
Contact Tube to Work Distance 3/8-1/2"
Peening NONE
Interpass Cleaning WIRE BRUSH, GRIND, CHIP

PREHEAT

Preheat Temp, Min 60F
Interpass Temp, Min 350F Max 450F

POSTWELD HEAT TREATMENT

Temp N/A
Time

WELDING PROCEDURE

Pass or Weld Layer (s)	Filler Metals		Current		Joint Details	
	Class	Diam	TYPE	Amps or Wire Feed Polarity Speed	Travel Volts	Speed
ALL	GMAW	ER 70S-6	030	DCEP	125-185	16-24 N/A

PROCEDURE QUALIFICATION RECORD (PQR) 7 WP-9

TEST RESULTS

TENSILE TEST

Specimen No	Width	Thickness	Area	Ultimate tensile load lb	Ultimate unit stress psi	Character of failure and location
1	1.505	161	2420	54669	74008	BROKE IN WELD
2	1.503	163	2405	54761	74553	BROKE IN WELD

GUIDED BEND TEST

Specimen No	Type of bend	Result	Remarks
1	FACE	PASSED	SATISFACTORY WITH NO CRACKS
2	FACE	PASSED	SATISFACTORY WITH NO CRACKS
3	ROOT	PASSED	SATISFACTORY WITH NO CRACKS
4	ROOT	PASSED	SATISFACTORY WITH NO CRACKS

VISUAL INSPECTION

Appearance GOOD
 Undercut SATISFACTORY
 Piping porosity NONE
 Convexity SATISFACTORY
 Test date 9/27/93

Radiographic-ultrasonic examination N/A

RT report no. Result
 UT report no. Result

FILLET WELD TEST RESULTS

Witnessed BY JCM WELDING & CONSULT

Minimum size multiple pass Maximum size single pass

Macroetch Macroetch
 1. 3 1. 3
 2. 2

Other Test

All-weld-metal tension test

Tensile strength, psi
 Yield point/strength, psi
 Elongation in 2 in., %
 Laboratory test no.

Welder's name JEFF REX

Clock no Stamp no. 41

Tests conducted by LABORATORY TESTING

Laboratory test no. T-7764

per GLENN DERSTINE

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of section 5, Part B of ANSI/AWS D1.1

(1993) Structural Welding Code-

Signed

Manufacturer or Contractor

By William J. Bampf

Title P. A. Manager

Date October 12, 1993



Production
P75-1-WI11
Weld Procedure
#10

Original Issue Date: 5/1/12

Revision: 0

Revision Date: 5/1/12

Welding Procedure 10

WP-10 Semi-Automatic Flux-Cored Arc Welding 2G Steel $\frac{3}{4}$ " to $1 \frac{1}{2}$ " Thick

WP-10

WELDING PROCEDURE SPECIFICATION (WPS) PROCEDURE QUALIFICATION RECORD (PQR)

Company Name KOVACH II (KMF)
 Welding Process(es) FCAW
 Supporting PQR No(s)

Identification # WP-10
 Revision 0 Date 9/27/93 By *AK*
 Authorized by *Robert Hardy* Date 9-27-93
 Type-Manual () Semi-Automatic (X)
 Machine () Automatic ()

JOINT DESIGN USED

Type SINGLE VEE
 Single (X) Double Weld ()
 Backing Yes (X) No ()
 Backing Material A-572
 Root Opening 125 Root Face Dimension

POSITION

Position of Groove 1 G Fillet ALL
 Vertical Progression: Up () Down ()

Groove Angle Radius (I-U)
 Bevel Chamfer Yes () No (X) Method

ELECTRICAL CHARACTERISTICS

Transfer Mode (GMAW) Short-Circuiting (X)
 Globular () Spray ()
 Current AC () DCEP (X) DCEN () PULSED ()
 Other

BASE METALS

Material Specs A-572
 Type or Grade 50
 Thickness Groove 3/4 Fillet UNLIMITED
 Diameter 3" & OVER

TECHNIQUE

Stringer or Weave Bead STRINGER
 Multi-pass or Single Pass (per side) MULTIPASS
 Number of electrodes 1
 Electrode Spacing Longitudinal
 Lateral
 Angle

FILLER METALS

AWS Specification EFA 5.20
 AWS Classification E701-1

SHIELDING

Flux 60% FeON/CO2
 Composition 92%-8% Peening NONE
 Electrode Flux Process Flow Rate 30-40 SCFH Interpass Cleaning WIRE BRUSH, GRIND, CHIP
 Gas Cup Size 5/8

PREHEAT

Preheat Temp Min 60F
 Interpass Temp Min 350F Max 450F

POSTWELD HEAT TREATMENT

Temp N/A
 Time

WELDING PROCEDURE

Pass or Weld Layer(s) Process	Filler Metals		Current		Joint Details	
	Class	Diam	TYPE	Amps or Wire Feed Polarity Speed	Travel Volts	Speed
A FCAW	E701-1	045	DCRP	125-250	19-28	N/A

PROCEDURE QUALIFICATION RECORD (PQR) # WP-10

TEST RESULTS

TENSILE TEST

Specimen No	Width	Thickness	Area	Ultimate tensile load lb.	Ultimate unit stress psi	Character of failure and location
1	750	.709	.5318	64536	90701	BROKE IN WELD
2	751	.713	.5355	64314	89244	BROKE IN WELD

GUIDED BEND TEST

Specimen No	Type of bend	Result	Remarks
1	FACE	PASSED	SATISFACTORY WITH NO CRACKS
2	FACE	PASSED	SATISFACTORY WITH NO CRACKS
3	ROOT	PASSED	SATISFACTORY WITH NO CRACKS
4	ROOT	PASSED	SATISFACTORY WITH NO CRACKS

VISUAL INSPECTION

Appearance GOOD
 Undercut SATISFACTORY
 Piping porosity NONE
 Convexity SATISFACTORY
 Test date 9-27-93

Radiographic-ultrasonic examination N/A

RT report no. _____ Result _____
 UT report no. _____ Result _____

FILED WELD TEST RESULTS

Witnessed BY JCM WELDING & CONSULT

Minimum size multiple pass _____ Maximum size single pass _____

Macroetch
 1. _____ 3. _____ 1. _____ 3. _____
 2. _____ 2. _____

Other Test

All-weld-metal tension test

Tensile strength, psi _____
 Yield point/strength, psi _____
 Elongation in 2 in., % _____
 Laboratory test no. _____

Welders name: JETT REX

Stamp no. 41

Tests conducted by LABORATORY TESTING

Laboratory test no. 7-7764

per GLENN DERSTINE

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of section 5, Part B of ANSI/AWS D1.1 (1993) Structural Welding Code-

Signed

Manufacturer or Contractor

By William J. Baff
 Title Q.A. Manager
 Date October 12, 1993



Production
P75-1-W12
Weld Procedure
#11

Original Issue Date: 5/1/12
Revision: 0
Revision Date: 5/1/12

Welding Procedure 11

WP-11 Semi-Automatic Gas Metal Arc Welding 2G Stainless Steel

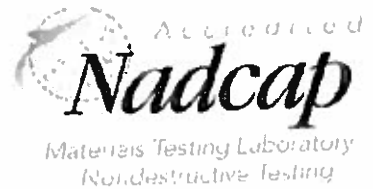
WP-11



LABORATORY TESTING INC.

2331 Topaz Drive, Hatfield, PA 19440
TEL: 800-219-9095 • FAX: 800-219-9096

Certified Test Report
KME001-12-03-12157-1



SOLD TO

Kovatch Mobile Equipment Corp.
One Industrial Complex
Nesquehoning, PA 18240

SHIP TO

Kovatch Mobile Equipment Corp.
CENTRAL RECEIVING
44 MOUNTAIN AVE.
Nesquehoning, PA 18240
ATTN: Maurice Gaizeck

CUSTOMER P.O.

KT39915

CERTIFICATION DATE

4/3/2012

SHIP VIA

EMAIL & UPS #174155

DESCRIPTION

Quantity: 1
Lot No.: 486
Type: A240, 2-B Finish
Size: 1/4" x 12" x 12"
Description: Weld Plate
Position: 2G
Welder: Casimir Ditkosky
Clock No.: 475
Welder Stamp No.: 13

Quantity: 1
Lot No.: 487
Type: A240, 2-B Finish
Size: 1/4" x 12" x 12"
Description: Weld Plate
Position: 2G
Welder: Casimir Ditkosky
Clock No.: 475
Welder Stamp No.: 13

TENSILE TEST:

APPLICABLE SPECIFICATIONS: ASME Section IX, 2010 Edition, 2011a Addenda
KEY: C - Conforms NC - Non-Conformance R-Report for Information

GMAW MIG

----- LOT 486 -----

----- LOT 487 -----

	<u>SPECIMEN 1</u>	<u>SPECIMEN 2</u>	<u>SPECIMEN 1</u>	<u>SPECIMEN 2</u>
Size (Inches)	0.7490 x 0.2360	0.7495 x 0.2305	0.7465 x 0.2294	0.7480 x 0.2121
Area (Square Inches)	0.1768	0.1728	0.1712	0.1587
Tensile Load (Pounds)	14,399	15,701	15,231	14,685
Tensile Strength (KSI)	81.5	91.0	89.0	92.5
Yield Load (.2%) (Pounds)	9,228	9,714	9,122	8,731
Yield Strength (.2%) (KSI)	52.0	56.0	53.5	55
Elongation (In 2") (%)	18	36	37	43
Failure Location	Weld Area	Weld Area	Weld Area	Weld Area
Mode of Fracture	Ductile	Ductile	Ductile	Ductile
Required Tensile Strength (KSI)	75	75	75	75
Tensile Test Results	C	C	C	C



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TEL: 800-219-9095 • FAX: 800-219-9096

Certified Test Report
KME001-12-03-12157-1



BEND TEST: PLUNGER
APPLICABLE SPECIFICATIONS: ASME Section IX, 2010 Edition, 2011a Addenda
KEY: C - Conforms NC - Non-Conformance R-Report for Information

----- LOT NO. 486 -----

	<u>Face 1</u>	<u>Root 1</u>	<u>Face 2</u>	<u>Root 2</u>
Bend Type				
Specimen Thickness (Inches)	1/4	1/4	1/4	1/4
Bend Through (Degrees)	180	180	180	180
Pin Diameter (Inches)	1	1	1	1
Bend Test Results	C	C	C	C

----- LOT NO. 487 -----

	<u>Face 1</u>	<u>Root 1</u>	<u>Face 2</u>	<u>Root 2</u>
Bend Type				
Specimen Thickness (Inches)	1/4	1/4	1/4	1/4
Bend Through (Degrees)	180	180	180	180
Pin Diameter (Inches)	1	1	1	1
Bend Test Results	C	C	C	C

The services performed above were done in accordance with LTI's Quality System Program Manual Revision 19 dated 11/11/11 and ISO/IEC 17025. These results relate only to the items tested and this report shall not be reproduced, except in full, without the written approval of Laboratory Testing, Inc. L.T.I. is accredited by PRI to ISO17025 and by Nadcap for NDT and Materials Testing for the test methods and specific services as listed in the Scopes of Accreditation available at www.labtesting.com and www.eAuditNet.com. The results reported on this test report represent the actual attributes of the material tested and indicate full compliance with all applicable specification and contract requirements.

MERCURY CONTAMINATION: During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

NOTE: The recording of false, fictitious or fraudulent statements or entries on this document may be punishable as a felony under Federal Statutes.

Sherri L. Scheifele
QA Specialist

Sherri L. Scheifele

Authorized Signature (ES)



Production
P75-1-W113
Weld Procedure
#12

Original Issue Date: 5/1/12
Revision: 0
Revision Date: 5/1/12

Welding Procedure 12

WP-12 Semi-Automatic Gas Tungsten Arc Welding 2G Stainless Steel

WP-12



LABORATORY TESTING INC.

2331 Topaz Drive, Hatfield, PA 19440
TEL: 800-219-9095 • FAX: 800-219-9096

Certified Test Report

KME001-12-03-12157-1



Materials Testing Laboratory
Nondestructive Testing

SOLD TO

Kovatch Mobile Equipment Corp.
One Industrial Complex
Nesquehoning, PA 18240

SHIP TO

Kovatch Mobile Equipment Corp.
CENTRAL RECEIVING
44 MOUNTAIN AVE.
Nesquehoning, PA 18240
ATTN: Maurice Gaizeck

CUSTOMER P.O.

KT39915

CERTIFICATION DATE

4/3/2012

SHIP VIA

EMAIL & UPS /174155

DESCRIPTION

Quantity: 1
Lot No.: 486
Type: A240, 2-B Finish
Size: 1/4" x 12" x 12"
Description: Weld Plate
Position: 2G
Welder: Casimir Ditkosky
Clock No.: 475
Welder Stamp No.: 13

Quantity: 1
Lot No.: 487
Type: A240, 2-B Finish
Size: 1/4" x 12" x 12"
Description: Weld Plate
Position: 2G
Welder: Casimir Ditkosky
Clock No.: 475
Welder Stamp No.: 13

TENSILE TEST:

APPLICABLE SPECIFICATIONS: ASME Section IX, 2010 Edition, 2011a Addenda

KEY: C - Conforms NC - Non-Conformance R-Report for Information

GTAW TIG

	----- LOT 486 -----		----- LOT 487 -----	
	<u>SPECIMEN 1</u>	<u>SPECIMEN 2</u>	<u>SPECIMEN 1</u>	<u>SPECIMEN 2</u>
Size (Inches)	0.7490 x 0.2360	0.7495 x 0.2305	0.7465 x 0.2294	0.7480 x 0.2121
Area (Square Inches)	0.1768	0.1728	0.1712	0.1587
Tensile Load (Pounds)	14,399	15,701	15,231	14,685
Tensile Strength (KSI)	81.5	91.0	89.0	92.5
Yield Load (.2%) (Pounds)	9,228	9,714	9,122	8,731
Yield Strength (.2%) (KSI)	52.0	56.0	53.5	55
Elongation (In 2") (%)	18	36	37	43
Failure Location	Weld Area	Weld Area	Weld Area	Weld Area
Mode of Fracture	Ductile	Ductile	Ductile	Ductile
Required Tensile Strength (KSI)	75	75	75	75
Tensile Test Results	C	C	C	C



LABORATORY TESTING INC.

2331 Topaz Drive, Hatfield, PA 19440
 TEL: 800-219-9095 • FAX: 800-219-9096

Certified Test Report

KME001-12-03-12157-1



Materials Testing Laboratory
 Nondestructive Testing

BEND TEST: PLUNGER

APPLICABLE SPECIFICATIONS: ASME Section IX, 2010 Edition, 2011a Addenda

KEY: C - Conforms NC - Non-Conformance R-Report for Information

----- LOT NO. 486 -----

	<u>Face 1</u>	<u>Root 1</u>	<u>Face 2</u>	<u>Root 2</u>
Bend Type				
Specimen Thickness (Inches)	1/4	1/4	1/4	1/4
Bend Through (Degrees)	180	180	180	180
Pin Diameter (Inches)	1	1	1	1
Bend Test Results	C	C	C	C

----- LOT NO. 487 -----

	<u>Face 1</u>	<u>Root 1</u>	<u>Face 2</u>	<u>Root 2</u>
Bend Type				
Specimen Thickness (Inches)	1/4	1/4	1/4	1/4
Bend Through (Degrees)	180	180	180	180
Pin Diameter (Inches)	1	1	1	1
Bend Test Results	C	C	C	C

The services performed above were done in accordance with LTI's Quality System Program Manual Revision 19 dated 11/11/11 and ISO/IEC 17025. These results relate only to the items tested and this report shall not be reproduced, except in full, without the written approval of Laboratory Testing, Inc. L.T.I. is accredited by PRI to ISO17025 and by Nadcap for NDT and Materials Testing for the test methods and specific services as listed in the Scopes of Accreditation available at www.labtesting.com and www.eAuditNet.com. The results reported on this test report represent the actual attributes of the material tested and indicate full compliance with all applicable specification and contract requirements.

MERCURY CONTAMINATION: During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

NOTE: The recording of false, fictitious or fraudulent statements or entries on this document may be punishable as a felony under Federal Statutes.

Sherri L. Scheifele
 QA Specialist

Sherri L. Scheifele

Authorized Signature (ES)

WP-13



Production
P75-1-WI17
Weld Procedure
#13

Original Issue Date: 7/11/12
Revision: 1
Revision Date: 9/11/12

Welding Procedure 13

WP-13 GMS – Fillet - Blackwire

**KME Fire Apparatus
1708 Seibel Drive
ROANOKE, VIRGINIA 24012**

Welding Process - GMAW-Spray

Identification WPS KME-2012-GMS-Fillet-Blackwire

Revision Date 8/8/12 By SLJ

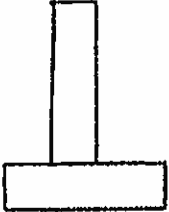
Authorized by Nathan Simmons

Supporting PQR No. Pre-qualified

Type - Manual Semi-Automatic X
Machine Automatic

JOINT DESIGN Type Fillet Single X Double weld Backing Backing material Root Opening: Groove angle: Back gouging: method:	POSITION Position of groove: fillet: 1F,2F Vertical progression: N/A
BASE METALS Material Spec. P1 Type or Grade Thickness: Groove Fillet Unlimited Diameter (pipe)	ELECTRICAL CHARACTERISTICS Transfer Mode (GMAW) Short Circuit: Globular: Spray: X Current: DCEP Tungsten Electrode (GTAW) Size: N/A Type: N/A
FILLER METALS AWS Specification - 5.28 AWS Classification - E90C-D2	TECHNIQUE Stringer or Weave - Stringer & weave Multi-pass or Single pass - Multi Pass Number of Electrodes - 1 Spacing Contact Tube to Work Distance 3/8 - 3/4 Peening - None Interpass cleaning - Chipping, Wire brush, Grinding
SHIELDING Flux N/A Electrode-Flux (Class) Gas Tri-mix Flow rate 20-40 CFH Cup size - 7/16 - 5/8	POSTWELD HEAT TREATMENT Temp. None Time
PREHEAT Preheat Temp., Min - 50 degrees Interpass Temp.	

WELDING PROCEDURE

Pass or Weld Layers	Process	Filler Metals		Current		Volts	Travel Speed	Joint Details
		Class.	Diam.	Type & Polarity	Amps or Wire Feed Speed			
All	GMAW-S	E 90	.045	DCEP	250 - 305 275 optimum	28-32	As Req.	



Production
P75-1-W119
Weld Procedure
#14

Original Issue Date: 9/11/12
Revision: 0
Revision Date: 9/11/12

Welding Procedure 14

WP-14 GMS - Groove

KME Fire Apparatus
1708 Seibel Drive
ROANOKE, VIRGINIA 24012


Welding Process - GMAW-Spray

Identification WPS KME-2010-GMS-Groove
 Revision _____ Date 11/03/10 By SLJ
 Authorized by Nathan Simmons
 Type - Manual _____ Semi-Automatic X
 Machine _____ Automatic _____

Supporting PQR No. Pre-qualified

JOINT DESIGN Type Single X Double weld Backing X Backing material - Metal Root Opening: 1/4 Groove angle: 45 Back gouging: To sound metal method: mechanical	POSITION Position of groove: 2G fillet: 1F,2F Vertical progression: N/A
BASE METALS Material Spec. P1 Type or Grade Thickness: Groove 1/2 Fillet Unlimited Diameter (pipe)	ELECTRICAL CHARACTERISTICS Transfer Mode (GMAW) Short Circuit: Globular: Spray: X Current: DCEP Tungsten Electrode (GTAW) Size: N/A Type: N/A
FILLER METALS AWS Specification - 5.28 AWS Classification - ER-110S-D2	TECHNIQUE Stringer or Weave - Stringer & weave Multi-pass or Single pass - Multi Pass Number of Electrodes - 1 Spacing Contact Tube to Work Distance 3/8 - 3/4 Peening - None Interpass cleaning - Chipping, Wire brush, Grinding
SHIELDING Flux N/A Electrode-Flux (Class) Gas Tri-mix Flow rate 20-40 CFH Cup size - 7/16 - 5/8	POSTWELD HEAT TREATMENT Temp. None Time
PREHEAT Preheat Temp., Min - 50 degrees Interpass Temp., Min. - 50 degrees Max. - 500 degrees	

WELDING PROCEDURE

Pass or Weld Layers	Process	Filler Metals		Current		Volts	Travel Speed	Joint Details
		Class.	Diam.	Type & Polarity	Amps or Wire Feed Speed			
All	GMAW-S	ER110 ER90	.035	DCEP	140-250	20-30	As Req.	



Production
P75-1-W/20
Weld Procedure
#15

Original Issue Date: 9/11/12
Revision: 0
Revision Date: 9/11/12

Welding Procedure 15

WP-15 GMS – Fillet - LA

KME Fire Apparatus
1708 Seibel Drive
ROANOKE, VIRGINIA 24012

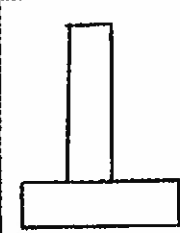
Welding Process - GMAW-Spray


Identification WPS KME-2012-GMS-Fillet - LA,
Revision Date 8/7/12 By SLJ
Authorized by Nathan Simmons
Type - Manual Semi-Automatic X
Machine Automatic

Supporting PQR No. Pre-qualified

JOINT DESIGN Type Single X Backing Double weld Root Opening: Backing material Groove angle: Back gouging: method:	POSITION Position of groove: fillet: 1F,2F Vertical progression: N/A
BASE METALS Material Spec. P1 Type or Grade Thickness: Groove Fillet Unlimited Diameter (pipe)	ELECTRICAL CHARACTERISTICS Transfer Mode (GMAW) Short Circuit: Globular: Spray: X Current: DCEP Tungsten Electrode (GTAW) Size: N/A Type: N/A
FILLER METALS AWS Specification - 5.28 AWS Classification - ER-110S-D2, 90S-2	TECHNIQUE Stringer or Weave - Stringer & weave Multi-pass or Single pass - Multi Pass Number of Electrodes - 1 Spacing Contact Tube to Work Distance 3/4-1" Peening - None Interpass cleaning - Chipping, Wire brush, Grinding
SHIELDING Flux N/A Gas Tri-mix Cup size - 7/16 - 5/8 Electrode-Flux (Class) Flow rate 20-40 CFH	POSTWELD HEAT TREATMENT Temp. None Time
PREHEAT Preheat Temp., Min - 50 degrees Interpass Temp.	

WELDING PROCEDURE

Pass or Weld Layers	Process	Filler Metals		Current		Volts	Travel Speed	Joint Details
		Class.	Diam.	Type & Polarity	Amps or Wire Feed Speed			
All	GMAW-S	ER110	.035	DCEP	180 Optimum	27	As Req.	
		ER90			162 - 198	25-29		

	<p>Production P75-1-W121 Weld Procedure #16</p>	<p>Original Issue Date: 9/11/12 Revision: 0 Revision Date: 9/11/12</p>
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Welding Procedure 16

WP-16 Sheet – 100A

Weld Procedure Specification (WPS) D9.1 and D1.3 Sheet steel KME

Welding Procedure Specification No. KME Sheet 100A

Supporting Procedure Qualification No. KME Sheet 100

Welding Process GMAW Type Semi automatic

Mode of transfer Short Circuit

Joint	Tee	Material Spec.	PI
Backing	N/A	Sheet steel	10 ga to 10 ga
Backing material	N/A	Support steel	N/A
Groove	N/A		

Thickness Range		Filler Metal	
Sheet steel	.06 - .125	Specification	A 5.28
Support steel	N/A	Classification	ER90/102
Thickness	N/A		
Base metal prep	N/A		

Positions

Position of groove	N/A
Position of fillet	Horizontal

Gas

Shielding gas	Tri mix
Flow rate	22 CFH

Technique

Pass No	Electrode Size	Amps	Volts	Travel Speed	Joint detail
1	.035	122-148	16-20	As needed	

This procedure may vary due to fabrication sequence, fit up, pass size, etc. within the limitation of variables given in ANSI/AWS D1.3 2011, Structural Welding Code Sheet Steel

Authorized by Nate Simmons, KME

Date

TPST

**Procedure Qualification Record (PQR) D9.1 and D1.3 Sheet steel
KME**

PQR Number KME Sheet100
WPS Number KME Sheet 100A

Variables

Base metal P1
Metal thickness 10 gage
Coating N/A
Joint preparation N/A
Backing N/A
Position of welding 2F
Welding process GMAW
Manual, Semi, auto Semi
Filler metal spec A5.28
Filler metal class ER90/D2
Filler metal F no 6
Electrical char AC X DCEP DCEN
Mode of transfer Short Circuit
Shielding gas/percentage Trimix
Gas flow (CFH) 22 CFH
Welder's name John Anderson
Welder ID 16 Lab No 201210

Butt Joint visual exam results

	Specimen 1	Specimen 2
Fusion	N/A	N/A
Penetration	N/A	N/A
Reinforcement	N/A	N/A
Porosity	N/A	N/A
Undercut	N/A	N/A
Cracks	N/A	N/A

Filler weld visual exam results

	Specimen 1	Specimen 2
Fusion	Acceptable	Acceptable
Effective throat	Acceptable	Acceptable
Convexity	Acceptable	Acceptable
Porosity	N/A	
Undercut	N/A	
Cracks	N/A	

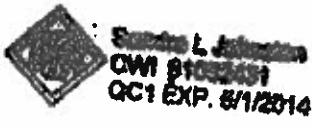
Joining Procedure

Pass No	Electrode Size	Amps Volts	Travel Speed	Joint detail
1	.035	135 18	As needed	3x3x10ga 1" weld in ctr.

The undersigned certifies that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of 6.7 of ANSI/D1.3 2011, Structural Welding Code Sheet Steel

Authorized by Nathan Simmons [Signature] Date 8/27/2012
Manufacturer KME

Name of Inspector Sandra Johnston CWI
Signature [Signature] Date 8/13/12





KOVACOR-01

REKA

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

10/28/2015

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER The Graham Company The Graham Building 1 Penn Square West Philadelphia, PA 19102	(215) 567-6300	CONTACT NAME: Richard Ogle	PHONE (AC, No, Ext): 215-701-5377	FAX (AC, No): 215-525-0242
		E-MAIL ADDRESS: rogle@grahamco.com	INSURER(S) AFFORDING COVERAGE	
INSURED Kovatch Mobile Equipment Corp. t/a KME Fire Apparatus and Kovatch Corp. et al One Industrial Complex Nesquehoning, PA 18240		INSURER A: Allied World National Assurance Company	10690	
		INSURER B: Travelers Indemnity Co. of CT	25682	
		INSURER C: Pennsylvania Manufacturers Assoc.	12262	
		INSURER D: Endurance American Specialty Insurance Company	41718	
		INSURER E: Starr Indemnity & Liability Company	38318	
		INSURER F:		

COVERAGES**CERTIFICATE NUMBER:****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	<input checked="" type="checkbox"/> GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR	X		306-4315	3/1/2015	3/1/2016	EACH OCCURRENCE	\$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC						DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 1,000,000
B	<input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> HIRED AUTOS			810 2B295816 TCT 15	3/1/2015	3/1/2016	COMBINED SINGLE LIMIT (Ea accident)	\$ 1,000,000
	<input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS						BODILY INJURY (Per person)	\$
A	<input type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> EXCESS LIAB			0305-3643	3/1/2015	3/1/2016	BODILY INJURY (Per accident)	\$
	<input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input type="checkbox"/> RETENTION \$						PROPERTY DAMAGE (PER ACCIDENT)	\$
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A	201500-43-36-814	3/1/2015	3/1/2016	Garagekeepers Liab.	\$ 1,000,000
							EACH OCCURRENCE	\$ 10,000,000
							AGGREGATE	\$ 10,000,000
D	Excess Liability Coverage			EXC10004634201	3/1/2015	3/1/2016	E.L. EACH ACCIDENT	\$ 1,000,000
E	Excess Liability Coverage			1000010933	3/1/2015	3/1/2016	E.L. DISEASE - EA EMPLOYEE	\$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	\$ 1,000,000
							\$10M Per Occ/Agg	Excess of \$10M
							\$10M Per Occ/Agg	Excess of \$20M

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
 RFP# FCAM 2016 Pumpers - Fire Apparatus Emergency Vehicles & Equipment Aerial Fire Apparatus.

Metropolitan Area Planning Council (MAPC) and Fire Chiefs Association of Massachusetts (FCAM) are added as Additional Insureds on the General Liability policy if required by written contract.

CERTIFICATE HOLDER**CANCELLATION**

Metropolitan Area Planning Council
 60 Temple Place, 6th Floor
 Boston, MA 02111-

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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SECTION 5

SALES

SECTION 5

KME & BULLDOG SALES NARRATIVE

Kovatch Mobile Equipment Corp. (KME) is one of the country's leading manufacturers of fire and emergency apparatus. We believe ourselves to be the second largest producers of fire apparatus over the last five years and the largest privately owned manufacturer.

KME rates HIGHLY ADVANTAGEOUS or ADVANTAGEOUS in MAPC/FCAM sales categories as shown in the chart below.

KME DOMESTIC PUMPER SALES 2010-2014

908 Units (250 required for HIGHLY ADVANTAGEOUS rating)

KME CALENDAR YEAR 2014 DOMESTIC PUMPER SALES

184 units (75 required for HIGHLY ADVANTAGEOUS rating)

KME CALENDAR YEAR 2014 NEW ENGLAND PUMPER SALES

15 units (10 required for ADVANTAGEOUS rating)

It should be noted that the above totals represent only a portion of our production as the units above do not include aerial, rescue, wildland, ARRF and sales to US Government agencies and for export.

KME is not a company that dwells on our substantial past performance. Even in this "down" economy, we continue to invest in product, plant, equipment, personnel, training and dealer development in order to insure a strong and resilient future.

As the New England regional representative for KME, Bulldog has been one of KME's top producers over the past 5 years. We have delivered 80 pumpers into the region over this period. Bulldog's New England customer list includes some of the region's largest and smallest communities. Bulldog is building on its success. One example is the recent opening of our second service center in Bozrah, CT.

6.2.5 Tab 5 Sales

KME is North America's largest privately owned apparatus manufacturer. KME offers a full line of sole source manufactured, custom fire apparatus and has been building municipal fire apparatus since 1985. KME manufactures its own chassis, cabs, bodies, tanks and aerial devices. The company maintains four factory branches in addition to its world headquarters and manufacturing facility in Pennsylvania. Distribution of products is primarily through a nationwide network of independently owned sales and service centers with Bulldog Fire Apparatus being the representative for New England.

Attached is a list of sales of pumper apparatus to US clients in 2010-2014. References for MA customers are also included. KME maintains a wide customer base including small volunteer fire departments, medium and large cities, federal clients and county/district fire departments. KME is fully capable of building and servicing any type of apparatus available on the FCAM contract.

**6.2.5 TAB 5 SALES
FCAM 2015 PUMBERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMBERS
2010			142
	AL	DEPT. OF VETRANS AFFAIRS MEDICAL CENTER	1
		OAK RIDGE VOL FIRE DEPT	1
		STILLWATERS VOL FIRE & RESCUE INC.	1
		TOWN OF SILVERHILL VFD	1
		AL TOTAL	4
	AZ	MOUNTAIN VISTA FIRE DISTRICT	AZ TOTAL
			2
	CA	BIG BEAR CITY COMMUNITY SERVICE DISTRICT	1
	CA	LOS ANGELES COUNTY FIRE DEPT	12
	CA	SANTA MONICA FIRE DEPT.	4
		CA TOTAL	17
	CT	ROUND HILL FIRE CO	1
	CT	SHERMAN FIRE DEPT.	1
	CT	TOWN OF WESTPORT	1
		CT TOTAL	3
	GA	CITY OF GREENSBORO	1
	GA	CITY OF ATLANTA	2
	GA	CITY OF THOMSON	1
	GA	McDUFFIE COUNTY BOARD OF COMMISSIONERS	1
	GA	UNIFIED GOV'T OF ATHENS-CLARKE COUNTY	1
		GA TOTAL	5
	ID	KOOTENAI COUNTY FIRE & RESCUE	ID TOTAL
			1
	IL	CITY OF PINCKNEYVILLE	1
	IL	CITY OF WAUKEGAN	1
	IL	CITY OF WITT	1
	IL	SANGAMON VALLEY FIRE PROTECTION DISTRICT	1
	IL	SECOR FIRE PROTECTION DISTRICT	1
		IL TOTAL	4
	IN	CITY OF WESTFIELD FIRE DEPT	1
	IN	ELKHART TOWNSHIP	1
	IN	HENRY TOWNSHIP (NEW CASTLE)	1
		IN TOTAL	3
	KS	JEFFERSON TOWNSHIP FIRE DISTRICT #10	KS TOTAL
			1
	KY	ZONETON FIRE PROTECTION DISTRICT	KY TOTAL
			1
	MA	Town of Framingham	1
	MA	TOWN OF HOPKINTON	1
		MA TOTAL	2
	ME	TOWN OF ORLAND	ME TOTAL
			1

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPER**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPER
2010	MI	CITY OF HAMTRAMCK	1
CONT	MI	GAINES TOWNSHIP	1
	MI	NOTTAWA-SHERMAN TWP FIRE DEPT	1
		MI TOTAL	3
	MN	CITY OF LITTLEFORK	1
	MN	RURAL FIRE PROTECTION AGENCY	1
		MN TOTAL	2
	MO	CARL JUNCTION FIRE PROTECTION DIST	1
	MO	CENTRAL CALLAWAY FIRE PROTECTION DIST	1
	MO	HERMAN VOL FIRE DEPT NO 1 INC	1
		MO TOTAL	3
	NC	JERUSALEM VOL FIRE DEPT	1
	NC	JONATHAN CREEK FIRE AND RESCUE	1
	NC	MOUNTAIN PARK VOL FIRE DEPT.	1
	NC	PUPPY CREEK VFD	1
	NC	ROBBINS FIRE DEPT	1
	NC	TOWN OF FAITH FIRE DEPT	1
	NC	U S COAST GUARD BSU ELIZABETH CITY	1
		NC TOTAL	7
	NE	PLATTE CENTER RURAL FIRE DISTRICT	1
	NH	TOWN OF HILLSBOROUGH	1
	NH	TOWN OF PETERBOROUGH	1
		NH TOTAL	2
	NJ	AVON BY THE SEA, NEW JERSEY	1
	NJ	BOROUGH OF BERGENFIELD, NJ	1
	NJ	BOROUGH OF DUMONT	1
	NJ	BOROUGH OF ESSEX FELLS	1
	NJ	TOWNSHIP OF VERONA	1
		NJ TOTAL	5
	NM	MCKINLEY COUNTY/WHITE CLIFFS VFD	1
	NM	RIO ARRIBA COUNTY/TRUCHAS VFD	1
	NM	TAOS COUNTY COMMISSION /LA LAMA VFD	1
	NM	VILLAGE OF LOS LUNAS FIRE DEPT	1
	NM	VILLAGE OF QUESTA	1
		NM TOTAL	5

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2010			
CONT	NY	CHELSEA FIRE DISTRICT	1
	NY	CRANESVILLE VOL FIRE DEPT	1
	NY	HUNTINGTON FIRE DISTRICT	1
	NY	MOLESTON FIRE DISTRICT	1
	NY	NAPANOCH FIRE DISTRICT	1
	NY	NEW YORK STATE DIVISION OF STATE	1
	NY	NEWTON ABBOTT FIRE CO.	1
	NY	OWASCO FIRE DISTRICT	1
	NY	SCHROON LAKE FIRE DISTRICT	1
	NY	SHAKER ROAD/LOUDONVILLE FIRE DEPT.	2
	NY	STONY POINT FIRE DISTRICT	1
	NY	TOWN OF MAMARONECK	1
	NY	VILLAGE OF CAYUGA HEIGHTS	1
	NY	VILLAGE OF ORISKANY	1
	NY	YORKTOWN HEIGHTS FIRE DISTRICT	1
		NY TOTAL	16
	OH	BERLIN TOWNSHIP TRUSTEES	1
	OH	C B & S JOINT FIRE DISTRICT	1
	OH	CITY OF EUCLID FIRE DEPT	1
	OH	OSNABURG TOWNSHIP	1
	OH	VALLEY FIRE DISTRICT	1
	OH	WELLINGTON COMMUNITY FIRE DISTRICT	1
		OH TOTAL	6
	OK	PIEDMONT FIRE DEPARTMENT	1
	OK	TOWN OF APACHE FIRE DEPT	1
		OK TOTAL	2
	PA	AMERICAN HOSE CO #2	1
	PA	BLAIN VOLUNTEER FIR COMPANY	1
	PA	BOROUGH OF COPLAY	1
	PA	DEFENSE SUPPLY CENTER	12
	PA	DGS, COMMONWEALTH OF PA STATE FIRE ACADEMY	1
	PA	DUSHORE FIRE COMPANY #1	1
	PA	HAMPDEN TOWNSHIP	1
	PA	HAVERFORD TWSP -BON AIR FIRE CO	1
	PA	HAVERFORD TWSP/LLANERCH FC	1
	PA	LIBERTY VOL FIRE CO	1
	PA	LINCOLN FIRE CO	1
	PA	RAYBURN TWP VFD	1
	PA	RESCUE HOSE COMPANY #1	1
	PA	ST THOMAS VOL FIRE & RESCUE CO	1
	PA	UNION DEPOSIT VOLUNTEER FIRE COMPANY	1
	PA	VOLUNTEER FIRE CO #1 OF SCHAEFFERTOWN	1
		PA TOTAL	27

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2010	SC	BELVEDERE FIRE DEPT	1
CONT	SC	TOWN OF KINGSTREE	1
	SC	TOWN OF PAGELAND	1
	SC	WINDY HILL FIRE DEPT.	3
		SC TOTAL	6
	TX	ORANGE COUNTY FIRE/RESCUE ESD #1	TX TOTAL
			1
	VA	AMISSVILLE VOL FIRE AND RESCUE	1
	VA	CLARKSVILLE VFD/TOWN OF CLARKSVILLE	1
		VA TOTAL	2
	VT	NEW HAVEN FIRE DEPT	
	VT	SHELBURNE FIRE DEPT	
	VT	TOWN OF FAIR HAVEN	
	WV	FLATROCK VFD INC	
	WV	GREAT CACAPON VOLUNTEER FIRE DEPT	

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2011			151
	AK	MUNICIPALITY OF ANCHORAGE	AK TOTAL
			2
	AL	CITY OF HOOVER	
			2
	AL	City of Huntsville	
			2
	AL	CITY OF JEMISON	
			1
	AL	CITY OF SHEFFIELD	
			1
	AL	Gold Ridge VFD	
			1
	AL	HODGESVILLE VOLUNTEER FIRE DEPT	
			1
	AL	Moores Mill Volunteer Fire/Rescue	
			1
	AL	ROLLING HILLS LAKES VOL FIRE DEPT	
			1
	AL	TOWN OF BROOKSIDE INC FD	
			1
	AL	TOWN OF PRICEVILLE	
			1
			AL TOTAL
			12
	CA	City of Ontario	
			2
	CA	CITY OF RIVERSIDE	
			1
	CA	La VERNE FIRE DEPT	
			1
			CA TOTAL
			4
	CT	EAST THOMPSON VFD INC	
			1
	CT	Kent Volunteer Fire Company, Inc	
			1
	CT	Town of Farmington (East Farms VFD)	
			1
			CT TOTAL
			3
	GA	CITY OF HAPEVILLE	
			1
	GA	CITY OF NEWNAN	
			1
			GA TOTAL
	IL	FILLMORE FIRE PROTECTION DISTRICT	IL TOTAL
			1
	IN	City of Peru	
			1
	IN	ZIONSVILLE FIRE DEPT	
			1
			IN TOTAL
			2
	KS	CITY OF ATCHISON	KS TOTAL
			1
	KY	Maytown Volunteer Fire Department	KY TOTAL
			1
	MA	BOSTON CITY FIRE DEPT	
			7
	MA	City of Peabody Fire Department	
			1
	MA	Town of Athol Fire Department	
			1
	MA	Town of Danvers	
			1
	MA	Town of Harvard	
			1
	MA	Town of Northbridge	
			1
			MA TOTAL
			12
	MD	TOWN OF OCEAN CITY /DEPT EMERGENCY SERVICE	MD TOTAL
			2
	ME	Town of Newcastle	ME TOTAL
			1

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2011	MI	Bronson Fire Department	1
CONT	MI	CITY OF CROSWELL	1
	MI	SUPERIOR TOWNSHIP	1
	MI	Village of Carsonville	1
		MI TOTAL	4
	MO	JOPLIN FIRE DEPT	1
		MO TOTAL	1
	NC	CITY OF LAURINBURG	1
	NC	YOUNGSVILLE VOL FIRE DEPT	1
		NC TOTAL	2
	NH	TOWN OF WINDHAM	1
		NH TOTAL	1
	NJ	Borough of North Arlington	1
	NJ	Borough of Sea Bright	1
	NJ	Borough of West Long Branch	1
	NJ	DEPTFORD BOARD OF FIRE COMMISSION DISTRICT #1	1
	NJ	TOWNSHIP OF MIDDLETOWN	1
	NJ	TOWNSHIP OF ROXBURY	1
	NJ	Wantage Township	1
		NJ TOTAL	7
	NY	ALEXANDER FIRE DEPT	1
	NY	Centerville Fire District	1
	NY	East Bloomfield-Holcomb Fire District	1
	NY	First Fire District-Granby Center Fire Department	1
	NY	Greenfield Fire District	1
	NY	Huntington Fire District	1
	NY	North Castle Fire District #2	1
	NY	South Bay Fire Department	1
	NY	Village of West Haverstraw	1
	NY	WEST VALLEY FIRE DISTRICT #1	1
		NY TOTAL	10
	OH	City of Bellbrook	1
	OH	CITY OF WARRENSVILLE HEIGHTS FIRE DEPT	1
	OH	FORT MORROW CONSOLIDATED FIRE DISTRICT	1
		OH TOTAL	3

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2011	PA	Allen Township Fire Co.	1
CONT	PA	CITY OF PITTSTON	1
	PA	City of Scranton	1
	PA	DLA Troop Support	29
	PA	Duncannon Fire Company	1
	PA	EAGLE FIRE CO. #1 OF MT WOLF BOROUGH	1
	PA	Eddington Fire Company	1
	PA	Forest City Area Emergency Services	1
	PA	FREELAND FIRE DEPARTMENT	1
	PA	MINERSVILLE FIRE-RESCUE	1
	PA	Municipality of Norristown	1
	PA	City of Philadelphia	19
	PA	TREVOSE FIRE CO	1
	PA	WEST WYOMING VOL HOSE CO 1	1
	PA	Yeadon Fire Company No. 1	1
		PA TOTAL	60
	RI	PASCOAG FIRE DISTRICT	1
		RI TOTAL	1
	SC	Fairfield County Council	1
	SC	Laurens County Fire Service	9
		SC TOTAL	10
	TN	Stanley Valley Volunteer Fire Department	1
		TN TOTAL	1
	VA	CITY OF EMPORIA	1
	VA	County of Prince William	2
	VA	Madison County Volunteer Fire Co. Inc.	1
		VA TOTAL	4
	VT	TOWN OF RANDOLPH	1
		VT TOTAL	1
	WA	Spokane Valley Fire Department	1
		WA TOTAL	1
	WV	FLATWOOD VFD	1
	WV	FOLSOM VOL FIRE DEPT INC	1
		WV TOTAL	2

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2012			136
	AL	Caddo-Midway Fire & Rescue District	1
	AL	City of Decatur	1
	AL	City of Dothan Fire Department	2
	AL	City of Hoover	1
	AL	City of Huntsville	1
	AL	Smiths Station Fire & Rescue	2
		AL TOTAL	
	AZ	Lakeside Fire District	1
		AZ TOTAL	
	CA	City of Bakersfield	2
	CA	City of Highland	1
	CA	City of Manhattan Beach	1
	CA	City of Montebello Fire Department	1
	CA	City of San Rafael	2
	CA	City of Sunnyvale	1
	CA	City of Yucaipa	1
	CA	Felton Fire Protection District	1
	CA	Los Angeles County Fire Department	18
	CA	San Bernardino County Fire Department	3
		CA TOTAL	31
	CO	Town of Castle Rock	2
		CO TOTAL	
	CT	Town of Waterford	1
		CT TOTAL	
	GA	Baldwin County Board of Commissioners	3
	GA	City of Atlanta	9
	GA	City of Marietta	1
	GA	Polk County Fire Department	1
		GA TOTAL	14
	IN	CITY OF WESTFIELD	1
	IN	Morris Volunteer Fire Department	1
	IN	Warren Township	1
	IN	Wayne Township	1
		IN TOTAL	4
	KY	Calloway County Fire-Rescue	1
		KY TOTAL	
	MA	Dalton Fire District	1
	MA	Town of Freetown Massachusetts	1
	MA	Town of Ipswich	1
	MA	Town of Lee	1
	MA	Town of Needham, Fire Station 1	1
	MA	Town of Westminster	1
		MA TOTAL	6

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPER**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPER
2012			
CONT	MD	The Chestnut Ridge Volunteer Fire Co. MD TOTAL	1
	ME	Town of Thomaston Fire Department	1
	ME	Town of Unity	1
		ME TOTAL	2
	MN	City of Fifty Lakes	1
	MN	Crooked Lake Township	1
		MN TOTAL	2
	MO	City of Joplin	2
	MO	Johnson County Fire Protection District	1
	MO	Rolla Rural Fire Protection District	2
		MO TOTAL	5
	NC	Town of Atlantic Beach	1
	NC	Woodleaf Volunteer Fire Department, Inc.	1
		NC TOTAL	2
	NH	Town of Hopkinton NH TOTAL	1
	NJ	Board of Fire Commissioners, Mount Laurel Fire District #1	1
	NJ	Borough of Brooklawn	1
	NJ	Borough of Fair Lawn	2
	NJ	Borough of Shrewsbury	1
	NJ	City of Millville	1
	NJ	Hamilton Twp BOC Fire District #2	1
	NJ	Township of Lumberton	1
	NJ	Vernon Township	1
		NJ TOTAL	8
	NM	County of McKinley NM TOTAL	1
	NY	Averill Park-Sand Lake Fire District #2	1
	NY	Midway Fire District	2
	NY	Pavilion Board of Fire Commissioners	1
	NY	S.W. Pltts Hose Company of Latham, NY Inc.	1
	NY	South Schodack Fire District	1
	NY	Town Village of Harrison	1
	NY	Village of Angelica	1
	NY	Village of Lacona Fire Department	1
	NY	Warwick Fire District	1
		NY TOTAL	10

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2012	OH	City of Galion	1
CONT	OH	Miami Twp Trustees	1
	OH	Parkman Township Trustees	1
	OH	Perry Township Trustees	1
	OH	Warren Township Trustees	1
	OH	Village of Beloit	1
	OH	Village of Grafton	1
		OH TOTAL	7
	OR	Goshen Fire District	1
	OR	Goshen Fire District	1
	OR	Toledo Fire Department	1
		OR TOTAL	3
	PA	City of Erie	1
	PA	DLA Troop Support	7
	PA	Good Will Fire Company #4	1
	PA	Jenkins Township Board of Supervisors	1
	PA	Mahoning Valley Fire Company #1	1
	PA	Mill Creek Fire Co.	1
	PA	PPL Service Corporation	1
	PA	Ryan Township Fire Rescue	1
	PA	Taylor Township Volunteer Fire Department	1
	PA	Training Specialties Inc.	1
	PA	Upper Salford Volunteer Fire Co.	1
	PA	West Bradford Township	1
	PA	West Pennsboro Twp	1
		PA TOTAL	19
	SC	City of Walhalla	1
	SC	Lugoff Fire Protection District	1
	SC	SC Electric and Gas	1
		SC TOTAL	3
	TN	Cumberland County Fire Department	1
	TN	Sullivan West Volunteer Fire Department	1
		TN TOTAL	2
	VA	Halifax Vol. Fire Association, Inc.	1
		VA TOTAL	1

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2013			295
	AL	Adamsburg Volunteer Fire Department	1
	AL	Booth Volunteer Fire Department, Inc	1
	AL	City of Dothan	1
	AL	City of Foley	1
	AL	City of Opelika	1
	AL	City of Saraland	1
	AL	City of Sylacauga	1
	AL	Pine Grove Volunteer Fire Department	1
	AL	Redland Volunteer Fire Department	1
	AL	St. Elmo-Irvington Fire District	1
	AL	Waugh-Mount Meigs Volunteer Fire Protection Authority	1
		AL TOTAL	
	AZ	City of Goodyear	3
	AZ	City of Holbrook	1
		AZ TOTAL	4
	CA	City of Colton	1
	CA	City of Los Angeles	11
	CA	City of Montclair	1
	CA	City of Montebello	1
	CA	City of Rancho Cucamonga Fire Protection District	2
	CA	County of San Bernardino	1
	CA	County of Santa Barbara	1
	CA	Diamond Springs/El Dorado Hills Fire Protection District	1
	CA	El Dorado Hills Fire Department	1
	CA	Orange County Fire Authority	9
	CA	Pala Band of Mission Indians	1
		CA TOTAL	29
	CO	Cortez Fire Protection District	1
		CO TOTAL	1
	CT	City of Stamford	3
	CT	Town of West Hartford	2
	CT	Wequetequock Fire Department	1
		CT TOTAL	6
	GA	Augusta-Richmond County	5
	GA	City of Atlanta	2
	GA	Polk County Fire Department	1
		GA TOTAL	8
	HI	City and County of Honolulu	5
	HI	County of Hawaii	2
		HI TOTAL	7

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2013	IL	Farina Fire Protection District	1
CONT	IL	Mount Olive Fire Protection District	1
	IL	Sangamon Valley Fire Protection District	1
	IL	Teutopolis Fire Protection District	1
	IL	The Village of Mudelein Illinois	1
		IL TOTAL	5
	IN	City of Peru	1
	IN	City of Winchester	1
	IN	Thorncreek Township	1
	IN	Town of Liberty	1
	IN	Waveland Community Volunteer Fire Department	1
		IN TOTAL	5
	KY	City of Radcliff	KY TOTAL
			1
	LA	St. Bernard Parish Government	LA TOTAL
			1
	MA	Brookline Fire Department	1
	MA	City of Beverly	2
	MA	City of Boston	5
	MA	City of Fitchburg	1
	MA	City of Holyoke	3
	MA	Town of Edgartown	1
	MA	Town of Paxton	1
	MA	Town of Royalston	1
	MA	Town of Walpole	1
		MA TOTAL	15
	MD	Hagerstown Fire Department	MD TOTAL
			1
	MI	City of Flint, Purchasing and Supplies	1
	MI	City of Harper Woods	1
	MI	Grosse Ile Fire Department	1
	MI	Larkin Charter Township	1
	MI	Lincoln Charter Township	1
		MI TOTAL	5
	MN	City of Grand Rapids	1
	MN	Mission Township	1
		MN TOTAL	2
	MO	Battlefield Fire Protection District	1
	MO	Brookline Fire Protection District	2
	MO	Butler County Fire Protection District	1
	MO	Iconium Fire Protection District	1
		MO TOTAL	5
	MS	Lauderdale County Fire Service	MS TOTAL
			1

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2013	NC	Broadway Fire Department, Inc.	1
CONT	NC	Town of Wrightsville Beach	1
	NC	Village of Pinehurst	1
		NC TOTAL	3
	NE	City of Beatrice Nebraska	1
	NE	Kennard Rural Fire Department	1
		NE TOTAL	2
	NH	City of Keene	1
	NH	Town of Merrimack, Fire	1
		NH TOTAL	2
	NJ	Board of Fire Commissioners of Fire District #3, Old Bridge Twp	1
	NJ	Borough of Paramus	1
	NJ	Borough of Paulsboro	1
	NJ	Borough of Rumson	1
	NJ	City of Woodbury	2
	NJ	Dennis Township Fire District #2	1
	NJ	Deptford Board of Fire Commissioners, District #1	1
		NJ TOTAL	8
	NY	Bolivar Joint Fire District	1
	NY	Carthage Wilna Fire District	1
	NY	City of New York Fire Department	91
	NY	Copiague Fire District	1
	NY	Keene Valley Fire District	1
	NY	Millgrove Volunteer Fire Department Inc.	1
	NY	Nassau Fire District #1	1
	NY	Niverville Fire Department Inc.	1
	NY	Orange Lake Fire District	2
	NY	Penrhyn Engine and Hose Company	1
	NY	Rotterdam Fire District #6	1
	NY	Tuxedo Joint Fire District	2
	NY	Village of Speculator	1
		NY TOTAL	105
	OH	City of Warren	1
	OH	City of Willoughby	1
	OH	Fredericktown Community Fire District	1
	OH	North Georgetown Volunteer Fire Dept. Inc.	1
	OH	The Marlboro Township Volunteer Fire Co. Inc	1
	OH	Village of Sheffield	1
	OR	Mohawk Valley Rural Fire District	1
	OR	Fredericktown Community Fire District	1
		OH TOTAL	8

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2013	PA	Barren Hill Vol Fire Company	1
CONT	PA	Bellefonte Borough/Logan Fire Co. No 1	1
	PA	Borough of Yeadon	1
	PA	Citizen's Fire Company #1	1
	PA	DLA TROOP SUPPORT CONSTRUCTION & EQUIPMENT	32
	PA	Franklin Twp & Franklinton Community Fire Company	1
	PA	Laurel Fire Company #1	1
	PA	Londonderry Fire Company	1
	PA	North Penn Volunteer Fire Company	1
	PA	Sanatoga Fire Company	1
	PA	Upper Milford Western District Fire Company	1
	PA	Weisenberg Volunteer Fire Department	1
	PA	West End Fire Companyt #2, Palmerton	1
	PA	William Cameron Engine Company	1
		PA TOTAL	45
	RI	City of Newport	1
		RI TOTAL	1
	SC	Langley Water and Sewer	1
	SC	Town of Blackville	1
	SC	Town of Williston	1
		SC TOTAL	3
	TX	China Grove Fire and Rescue Inc.	1
	TX	City of Nixon	1
	TX	Garden Dale Fire Department	1
		TX TOTAL	3
	VA	City of Petersburg	1
	VA	Montgomery County, Emergency Services Coordinator	1
	VA	Shady Grove Volunteer Fire and Rescue	1
	VA	Town of Kenbridge Fire Department Inc	1
	VA	Town of South Hill	1
		VA TOTAL	5
	VT	Town of Ludlow	1
		VT TOTAL	1
	WA	City of Battle Ground	1
	WA	City of Vancouver Procurement Services	1
	WA	Mason County Fire District #6	1
		WA TOTAL	3
	WV	East Lynn VFD Inc.	1
		WV TOTAL	1

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2014			184
	AK	City of Anchorage	1
		AK TOTAL	
	AL	Alexander City Fire & EMS	1
	AL	City of Dothan	1
	AL	City of Hoover	1
	AL	Gap of the Mountain Community Volunteer Fire Department	1
	AL	Jones Volunteer Fire Department	1
	AL	Madrid Community Volunteer Fire Dept. Inc	1
	AL	Poarch Creek Indians	1
	AL	Priceville Fire Department	1
	AL	Southwest Lee County Fire Protection Authority	1
	AL	Town of Grove Hill	1
	AL	Windermere Volunteer Fire Department	1
		AL TOTAL	11
	AR	City of Bella Vista	1
		AR TOTAL	
	CA	Alpine Fire Protection District	1
	CA	City of Bakersfield	2
	CA	City of Corona	2
	CA	City of El Centro	1
	CA	City of Fontana	2
	CA	City of Grass Valley	1
	CA	City of Los Angeles-Supply Svcs	15
	CA	City of Monrovia	2
	CA	City of Riverside	2
	CA	City of Victorville	1
	CA	County of Santa Barbara	1
	CA	Mainwood Community Services District	1
	CA	North Tahoe Fire Protection District	2
	CA	San Bernardino County Fire Department	4
	CA	Santa Clara County Fire Department	4
		CA TOTAL	41
	CT	City of Norwalk	2
	CT	Quiambaug Fire District	1
		CT TOTAL	3
	GA	City of Atlanta	2
	GA	City of Marietta Fire Department	1
		GA TOTAL	3
	HI	Purchasing Division, Dept of Finance, Hawaii County	2
		HI TOTAL	
	IN	City of West Lafayette	1
	IN	Palmyra Fire District	1
	IN	Town of Fairmount	1
		IN TOTAL	3

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2014	LA	St. Bernard Parish Government	3
CONT			
	MA	City of Boston	1
	MA	City of Marlborough	1
	MA	City of Peabody	1
	MA	Haverhill Fire Department	1
	MA	The Town of Brookline	1
	MA	Town of Charlton	1
	MA	Town of Lancaster	1
	MA	Town of New Marlborough	1
	MA	Town of Newbury	1
	MA	Town of Sudbury	1
		MA TOTAL	10
	MD	Bedford Road Volunteer Fire Department Inc	1
	MD	New Market District Volunteer Fire & Rescue Co. Inc	1
	MD	Oxford Fire Co. Inc.	1
		MD TOTAL	3
	MI	Charter Township of Superior	1
	MI	City of Fenton Fire Department	1
	MI	Edwardsburg Fire Department	1
	MI	Ida Twp Fire Department	1
		MI TOTAL	4
	MN	Lake Superior College	1
		MN TOTAL	1
	MO	Battlefield Fire Protection District	1
	MO	City of Clayton	1
	MO	City of Polar Bluff, Missouri	2
		MO TOTAL	4
	NC	Acme-Delco-Riegelwood Volunteer Fire-Rescue Inc.	1
	NC	City of Winston-Salem	1
	NC	Coats-Grove Fire & Rescue Department Inc	1
	NC	Mill Spring Fire Department	1
	NC	Number 3 VFD	1
	NC	Oregon Hill Volunteer Fire District Inc.	1
	NC	Riceville Volunteer Fire Department	1
	NC	Seven Lakes Fire and Rescue Dept. Inc	1
	NC	Wayside Volunteer Fire Department	1
	NC	West End Fire and Rescue, Inc.	1
		NC TOTAL	10
	NE	City of Scottsbluff Nebraska	1
	NE	North Bend Rural Fire Protection District #9	1
		NE TOTAL	2
	NH	Town of Greenland	1
		NH TOTAL	1

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2014			
CONT	NJ	Bayville Volunteer Fire, c/o Township of Berkeley	1
	NJ	Board of Fire Commissioners, Mantua Twp Fire District	1
	NJ	Borough of West Cape May	1
	NJ	City of Camden, Dept. of Admin, Purchasing	1
	NJ	Fire Commissioners of Fire District #4, Twp Howell, Ramtown Fire Company	1
	NJ	Township of Byram	1
	NJ	Township of Clinton	1
	NJ	Township of Greenwich	1
	NJ	Township of Roxbury	1
	NJ	Township of West Deptford	1
	NJ	Township or Readington	1
		NJ TOTAL	11
	NY	Bullville Fire District	2
	NY	Orchard Park Fire District	1
	NY	Rotterdam Fire District #1	1
	NY	Sauquoit Fire District #1	1
	NY	Speigletown Fire District	2
	NY	Stony Point Fire District	1
	NY	The City of New York, Fire Department	1
		NY TOTAL	9
	OH	City of Miamisburg	1
	OH	Dalton Volunteer Fire Department, Inc	1
		OH TOTAL	2
	OK	Bridge Creek Fire Protection District	1
	OK	Collinsville Rural Fire Protection District	1
		OK TOTAL	2
	OR	City of North Bend Fire Department	1
	OR	Cornelius Rural Fire District	1
	OR	Polk County Fire District #1	1
		OR TOTAL	3
	PA	Blue Ridge Hook & Ladder Fire Company #1 Inc.	1
	PA	Borough of Nazareth	1
	PA	City of Scranton	1
	PA	Delaware Township Volunteer Fire Department	1
	PA	DLA Troop Support	10
	PA	Good Intent Fire Co. #1	1
	PA	Greenfield Twp Volunteer Fire Company of Lackawanna County	1
	PA	Greenfields Volunteers Firefighter's Relief Association	1
	PA	Lehighon Borough	1
	PA	Liberty Steam Fire Engine and Hose Co	1
	PA	South Whitehall Township	1
	PA	Tri-Clover Volunteer Fire Company	1
		PA TOTAL	21

**6.2.5 TAB 5 SALES
FCAM 2015 PUMPERS**

YEAR	STATE	FIRE DEPARTMENT	# OF PUMPERS
2014	RI	City of Newport	1
CONT			
		RI TOTAL	
	SC	Caromi Rural Volunteer Fire Department	1
	SC	City of Cayce	1
	SC	City of Easley	1
	SC	City of Greenwood	1
	SC	City of Myrtle Beach	5
	SC	Fairfield County Fire Service	1
	SC	Florence County	8
	SC	North Greenville Fire District	1
	SC	Southside Fire District	1
		SC TOTAL	20
	TN	City of Tullahoma	1
		TN TOTAL	
	TX	City of Runge	1
		TX TOTAL	
	VA	City of Richmond	4
		VA TOTAL	
	WA	City of Vancouver	2
	WA	City of Wapato Fire Department	1
	WA	Spokane Valley Fire Department	2
		WA TOTAL	5
	WV	Cora Volunteer Fire Department	1
		WV TOTAL	

YEAR	DEPARTMENT	CONTACT PERSON	PHONE NUMBER	EMAIL ADDRESS
2014				
	Boston	Peter Cakridas Superintendent of Maintenance	617-343-3798	peter.cakridas.bfd@cityofboston.gov
	Marlborough	Deputy Chief Stanly Clement	508-624-6986	sclement@marlborough-ma.gov
	Peabody	Chief Steven Pasdon	978-538-1210	steve.pasdon@peabody-ma.gov
	Haverhill	Ted Mazzotta Director of Maintenance	978-373-8459	tmazzotta@haverhillfire.com
	Brookline	Chief Paul Ford	617-730-2272	pford@brooklinema.gov
	Charlton	Chief Charles Cloutier Jr.	508-248-2299	charles.cloutier@townofcharlton.net
	Lancaster	Chief Michael Hanson	978-368-4003	mhanson@lancaster
	Newbury	Deputy Chief Wallace J. Ziehler	978-462-2282	wziehler@newburyfirerescue.org
	Sudbury	Chief William Miles	978-443-1038	miles@sudbury.ma.us

YEAR	DEPARTMENT	CONTACT PERSON	PHONE NUMBER	EMAIL ADDRESS
2013				
	Brookline	Chief Paul Ford	617-730-2272	pford@brooklinema.gov
	Beverly	Deputy Chief William Petrosino	978-922-2424	wvp116@aol.com
	Boston	Peter Cakridas Superintendent of Maintenance	617-343-3798	peter.cakridas.bfd@cityofboston.gov
	Fitchburg	Chief Kevin Roy	978-345-9660	kroy@fitchburgma.gov
	Holyoke	Chief John Pond	413-534-2250	pondj@holyoke.org
	Edgartown	Chief Peter G. Shemeth	508-627-5167	pshemeth@edgartown-ma.us
	Paxton	Chief Jay Cante	508-981-3400	chiefcante@hotmail.com
	Walpole	Chief Tim Bailey	508-668-0260	tbailey@walpolefire.com

YEAR	DEPARTMENT	CONTACT PERSON	PHONE NUMBER	EMAIL ADDRESS
2012				
	Boston	Peter Cakridas Superintendent of Maintenance	617-343-3798	peter.cakridas.bfd@cityofboston.gov
	Dalton	Chief Richard Kardasen	413-684-0500	daltonchief@aol.com
	Freetown	Chief Gary Silvia	508-763-4828	firechief@freetownma.gov
	Ipswich	Chief Richard Smith	978-356-4321	firechief@ipswichfire.org
	Lee	Chief Allan Sparks	413-281-8086	sparky7446@hotmail.com
	Needham	Chief Paul Buckley	781-455-7582	pbuckley@needhamma.gov
	Westminster	Captain Kevin Nivala	978-407-5055	knivala@westminster-ma.gov

YEAR	DEPARTMENT	CONTACT PERSON	PHONE NUMBER	EMAIL ADDRESS
2011				
	Boston	Peter Cakridas Superintendent of Maintenance	617-343-3798	peter.cakridas.bfd@cityofboston.gov
	Danvers	Chief Kevin Farrell	978-762-0247	kfarrell@mail.danvers-ma.org
	Northbridge	Chief Gary Nestor	508-234-8448	gnestor@northbridgemass.org
	Peabody	Chief Steven Pasdon	978-538-1210	steve.pasdon@peabody-ma.gov
	Athol	Chief Thomas Lozier	978-249-8275	athofd@verizon.net
	Harvard	Chief Rick Sicard	<u>978-456-3648</u>	rsicard@harvard.ma.us

YEAR	DEPARTMENT	CONTACT PERSON	PHONE NUMBER	EMAIL ADDRESS
2010				
	Hopkinton	Chief Kenneth Clark	508-435-6365	chief@hopkintonfd.org
	Framingham	Asst Chief John Magri	508-532-5930	JMC@Framinghamma.gov



SECTION 6

SERVICE



November 1, 2015

To Whom It May Concern,

Bulldog Fire Apparatus is an authorized KME sales and service center for territories in Maine, New Hampshire, Rhode Island, Connecticut and Massachusetts. We have complete confidence in them providing a full range of apparatus, parts and services to our municipal clients.

Additional information can be found at: <http://fire.kovatch.com/support/dealer-locator/bulldog-fire-apparatus>

Sincerely,

A handwritten signature in blue ink, appearing to read "Philip J. Gerace".

Philip J. Gerace
Director of Sales and Marketing



Bulldog Fire Apparatus
17 Winter Street-Woodville MA 01784
(508) 435-4200 [Phone] - (508) 435-0250 [Fax]
Bulldogsales@bulldogfa.com

SECTION 6 – SERVICE

1. KME has been actively engaged in the manufacture and sale of fire apparatus since 1985.
2. Bulldog Fire Apparatus is the authorized KME dealership for the Commonwealth of Massachusetts and as such is a KME subcontractor. See enclosed letter from Phil Gerace, KME Director of Marketing and Sales.
3. KME has the ability to sell and service all of the apparatus that we have delivered into the Commonwealth of Massachusetts as illustrated by our listed deliveries. What is more, due to our strong financial position and well established production and distribution systems we are primed to continue sales and service of fire apparatus in Massachusetts far into the future.
4. As the KME authorized sales and service center for Massachusetts Bulldog Fire Apparatus legally possess and physically occupies its fire apparatus sales and service facility in Woodville as documented by the enclosed Commonwealth REGISTRATION FOR MOTOR VEHICLE REPAIR SHOP which expires in May of 2018.
5. Both KME and Bulldog Fire Apparatus maintain public web sites. See www.kovatch.com and www.bulldogfireapparatus.com
6. It should be noted that KME maintains a factory owned sales and service center in Latham, NY that covers Massachusetts Berkshire County. All KME customers have their choice as to the use of Bulldog Fire Apparatus in Woodville (Hopkinton), MA or the KME New York Factory branch. Bulldog maintains two (2) service centers in New England. The primary center is located in Hopkinton, Massachusetts and the newest addition to Bulldog's capabilities is our fire apparatus service center in Bozrah, CT.
7. Contact information for the two available Massachusetts sales and service centers is:

Bulldog Fire Apparatus	KME NEW YORK
Jeffrey R. Mazza	Timothy Besser
17 Winter Street	Albany Airport Industrial Park
P.O. Box 58	68 Sicker Road
Woodville, MA 01784	Latham, NY 12110
(877) 644-2707	(800) 394-5593

8. KME dealer and service center information can be verified by contacting:
Mr. Philip Gerace
Director of marketing and Sales
Kovatch Mobile Equipment Corp. (KME)
One Industrial Complex
Nesquehoning, PA 18240
(570) 669-5174
pgerace@kovatch.com

9. The Bulldog Hopkinton facility encompasses approximately 22,000 sq. ft., with 12 service bays, a 55 foot long **down draft** type paint booth, computerized paint analysis and mixing equipment, apparatus service lifting equipment, a full service body shop, fabrication equipment that includes a 10 x 12 shear, a press brake, an apron brake a finger brake, modern TIG and MIG welding equipment, plasma cutting equipment and a machining center. Bulldog services Waterous and Hale pumps, and is an authorized dealer for such important vendors as Task Force, Akron Brass, Elkhart Brass, Kocheck, Code 3 to name a few. Bulldog offers full hydraulic, electrical (both 12 volt and 120/240 volt), pump and power train service and repair. The Bulldog parts inventory exceeds \$500,000.00

Bulldog's newest service center in Bozrah, CT has 7,200 square feet of enclosed service area all of which is committed to fire apparatus and ambulance service and repair. The addition of the Bozrah facility is another example of Bulldog's long term commitment to the Fire Service.

The KME New York center is approximately 20,000 sq. ft. with six double deep bays. In addition KME New York operates a modern paint booth and provides fully body, pump, hydraulic and electrical service and repair capabilities. KME New York maintains an inventory of parts valued at \$750,000.00, and is a master distributor for Akron Brass. The KME New York is certified for both Hale and Waterous pumps and is an approved warranty repair center for Spartan Chassis.

The KME and Bulldog service centers that serve Massachusetts have full and comprehensive capability that range from simple apparatus adjustments to complete chassis, motor, pump or aerial replacement. Our capabilities extend to a body shop that can fabricate and repair damaged body components and complete repaint. Because of our almost unlimited capabilities turnaround time can be anywhere between a few minutes for an adjustment to days for some of the major repairs listed above. As an average apparatus service turnaround is between 24 and 48 hours.

Because of the complete service center capability all KME warranty repairs can be completed at Bulldog. Warranty repairs done both others include those required by some of the component manufacturers such as engines and transmissions.

The KME New York center and Bulldog have full access to KME's impressive parts inventory. In addition, both facilities have developed local parts sources with the result that part availability rarely impacts service turnaround.

These personnel are supported at KME's World Headquarters by:

John Kovatch IV, VP Customer Service
(570) 669-5231, jkovatchiv@kovatch.com

Jim Hauser, Service Manager
(570) 273-2810, jhauser@kovatch.com

Chris Morrison, Warranty Manager
(570) 669-5577, cmorrison@kovatch.com

Vaughn Andrew, Parts Sales Mgr. (oversees a team of parts specialists)
(570) 669-5259, vandrew@kovatch.com

Dave Barachie, International Truck Parts
(570) 669-5229, dbarachie@kovatch.com

Dean Miller, International Truck Parts
(570) 669-5187, dmiller@kovatch.com

In addition, KME's New York factory branch also serves as a backup service and parts depot in support of Bulldog Fire Apparatus and its customers.

The mission of KME's Customer Service Division is to provide friendly, timely and accurate response to customer demands for parts, service, training, technical support and warranty. Our world headquarters location has a staff of customer service representatives with over 220 years of combined experience. This staff, plus our factory branch service staff and nationwide network of sales and service centers, comprise a knowledgeable and experienced team of professionals ready to serve.

Problems are communicated by customers to their local sales and service representative organization (SRO). The SRO then contacts the appropriate person within customer service to resolve the problem if necessary. All issues are logged, tracked and reported on a daily basis to customer service management

until a resolution is provided. Repetitive issues are communicated to Quality Assurance, Engineering, Production, Sales and Purchasing if appropriate.

KME EVT's

Employee Number	name	licert	Description
12	Agee, Gregory L.	EVT-F4	Fire Apparatus Electrical Systems
		EVT-F8	Hydraulic Systems
56	Bartek Jr, Joseph S.	EVT-F4	Fire Apparatus Electrical Systems
99	Bernosky III, Donald P.	EVT-F1	Maintenance, Inspection and Testing
		EVT-F2	Design & Performance Standard
192	Bonsynat, Donald B.	EVT-F1	Maintenance, Inspection and Testing
		EVT-F4	Fire Apparatus Electrical Systems
257	Cameron, John W.	EVT-F1	Maintenance, Inspection and Testing
		EVT-F2	Design & Performance Standard
262	Canhoto, Victor J.	EVT-F5	Aerial Fire Appartus
		EVT-F8	Hydraulic Systems
358	Cortez, Phillip M.	EVT-F1	Maintenance, Inspection and Testing
587	Bugdanavage, Todd A.	EVT-F1	Maintenance, Inspection and Testing
592	deRose Jr, Grant R.	EVT-F5	Aerial Fire Appartus
625	Farrell, Timothy P.	EVT-F1	Maintenance, Inspection and Testing
		EVT-F2	Design & Performance Standard
		EVT-F3	Fire Pumps and Accessories
886	Gallo, Hector M.	EVT-F2	Design & Performance Standard
		EVT-F3	Fire Pumps and Accessories
1142	Koerbler, Trajan S.	EVT-F1	Maintenance, Inspection and Testing
2083	Kovatch IV, John J.	EVT-F1	Maintenance, Inspection and Testing
2483	Oliphant, Keith V.	EVT-F2	Design & Performance Standard
2972	Smell, John T.	EVT-F1	Maintenance, Inspection and Testing
3032	Squadere, Kenneth J.	EVT-F1	Maintenance, Inspection and Testing
		EVT-F2	Design & Performance Standard
		EVT-F3	Fire Pumps and Accessories
		EVT-F4	Fire Apparatus Electrical Systems
		EVT-F7	Foam Systems
3271	Webster Jr, Tinsley E.	EVT-F3	Fire Pumps and Accessories
3535	SantaBarbara Jr, Donald A.	EVT-F1	Maintenance, Inspection and Testing
		EVT-F2	Design & Performance Standard
3547	Wilson, Timothy E.	EVT-F4	Fire Apparatus Electrical Systems
3551	Sitlinger, Matthew A.	EVT-F1	Maintenance, Inspection and Testing
		EVT-F2	Design & Performance Standard
		EVT-F3	Fire Pumps and Accessories
1158	Disbrow Jr., David P.	EVT-F1	Maintenance, Inspection and Testing

631	Dalrymple III, Brice F.	EVT-F1	Maintenance, Inspection and Testing
		EVT-F2	Design & Performance Standard
623	Farrell, Timothy F.	EVT-F1	Maintenance, Inspection and Testing
		EVT-F2	Design & Performance Standard
1162	Hooper, James F.	EVT-F1	Maintenance, Inspection and Testing
1232	Bonesteel, Stephen M.	EVT-F3	Fire Pumps and Accessories
		EVT-F4	Fire Apparatus Electrical Systems
1390	Gardiner, Jonathan C.	EVT-F1	Maintenance, Inspection and Testing
2273	Martinez, Francisco	EVT-F1	Maintenance, Inspection and Testing
BULLDOG	Joel Kimball	EVT-F2	Design & Maintenance, Inspection & Testing, Allison Transmissions
BULLDOG	Glenn Silvia	EVT-F1	Fire Pumps, Electrical, Hydraulics
BULLDOG	Scott Mickle	EVT-F1	Pumps, Electrical
BULLDOG	Tom Michael	EVT-F2	Pumps, Electrical, Aerials, Hydraulics
BULLDOG	Keith Adams	EVT-F1	Maintenance, Inspection & Testing
BULLDOG	Ed King	EVT-F1	Maintenance, Inspection & Testing

It should be noted that many of the technicians listed above have training and capability certifications over and above the EVT qualifications shown above. We have included a selection of some of these additional certificates in the documentation that follows.

EMERGENCY VEHICLE TECHNICIAN

CERTIFICATION COMMISSION, INC.

Scott Mickle

is certified in the areas listed below:

- Fire Pumps and Accessories
- Fire Apparatus Electrical Systems

Expires:

05/04/2017

05/04/2017



Stephen Wilde

Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

Thomas Michael

is certified in the areas listed below:

- Fire Pumps and Accessories
- Fire Apparatus Electrical Systems
- Aerial Fire Apparatus
- Hydraulic Systems

Expires:

- 10/02/2014
- 05/04/2017
- 12/11/2015
- 04/30/2016



Stephen Wilde

Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

Keith Adams

is certified in the areas listed below:
Maintenance, Inspection, & Testing of Fire Apparatus

Expires:
06/25/2016



Stephen Wilde

Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

Edwin King

is certified in the areas listed below:

Maintenance, Inspection, & Testing of Fire Apparatus

Expires:

10/15/2015



Stephen Wilde

Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN

CERTIFICATION COMMISSION, INC.

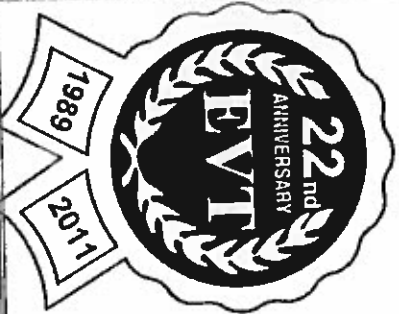
Glenn Silvia

is certified in the areas listed below:

Fire Pumps and Accessories
Aerial Fire Apparatus
Hydraulic Systems

Expires:

09/18/2014
12/11/2015
04/30/2016



Stephen Wilde

Stephen Wilde, President



CERTIFICATE OF ATTENDANCE

AWARDED TO

Glenn Silvia

FOR COMPLETION OF

AERIAL FIRE APPARATUS

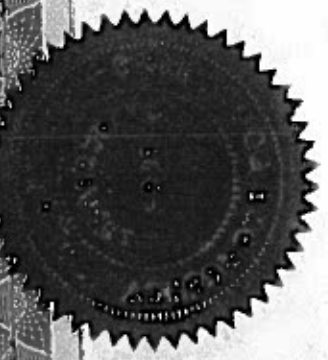
GREENWOOD EMERGENCY VEHICLES NORTH ATTLEBOROUGH, MA



Michael Tenney

TRAINING DIRECTOR

DECEMBER 11, 2010





CERTIFICATE OF COMPLETION

AWARDED TO

Glenn D. Silvia

FOR COMPLETION OF

HYDRAULIC SYSTEMS

GREENWOOD EMERGENCY VEHICLES NORTH ATTLEBOROUGH, MA

Michael Tenney
TRAINING DIRECTOR

APRIL 30, 2011





Service Seminar

The following Service Technician has completed the necessary training required for electronic repair and maintenance associated with the Horton Intelliplex system.

Service Technician: Glen Silvia

Organization: Fall River Fire Department

Date: April 8, 2010

A handwritten signature in black ink, appearing to read "Kevin Handlin".

Kevin Handlin, Electrical Engineer

EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

Joel Kimball

is certified in the areas listed below:

Maintenance, Inspection, & Testing of Ambulances

Expires:

06/25/2016



Stephen Wilde

Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

Joel Kimball

is certified in the areas listed below:

Maintenance, Inspection, & Testing of Fire Apparatus	Expires:	06/25/2016
Design & Performance Standards of Fire Apparatus		06/05/2014
Allison Automatic Transmissions		06/26/2015



Stephen Wilde

Stephen Wilde, President

Certificate of Attendance

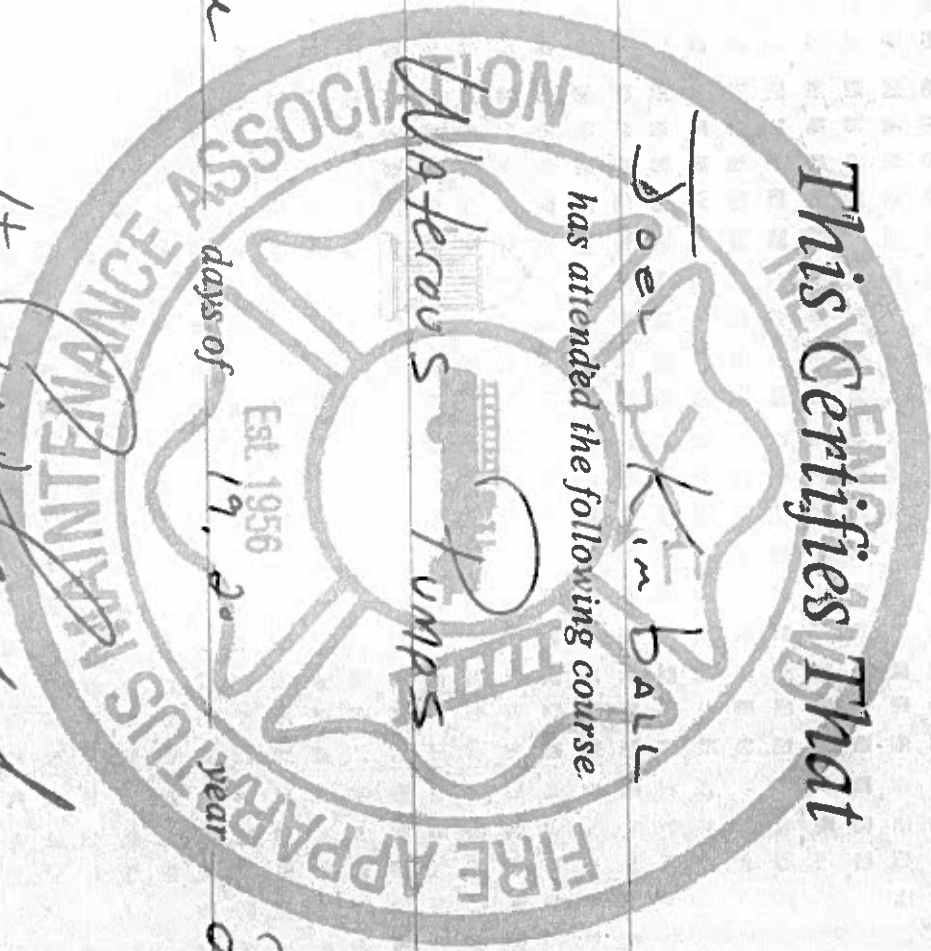
This Certifies That

Joel Kimball
has attended the following course

Masters Pumps

on this June days of 19 year 2008

At San Jose
President



**AWS D1.1 Structural welding code
WELDER or WELDING OPERATOR QUALIFICATION TEST**

Welder's Name: Joel Kimball

Stamp No: 4040251

Identification of WPS followed by welder during welding of test coupon: D1.1

Rev.# none

Base Materials Welded: ASTM-A36

Thickness: 1/2 inch

Manual, Semi or Auto Variables for each Process
Variable

Record Actual Values

Qualification Range

Process	SMAW	
Process Type	SMAW	
Backside Joint Prep	NA	
Base Metal List/Class	Group 1 All	Group 1 All
Diameter	1/8 7018	3G
	double bevel	unlimited
Groove	unlimited	
Filler Metal	SFA5.1	All in SFA5.1
Class	SMAW	
F.No	1	1

Deposited Weld Metal Thickness

Groove: unlimited

Fillet unlimited

Groove unlimited

Fillet unlimited

Position

Groove: unlimited

Fillet unlimited

Groove unlimited

Fillet unlimited

Weld Progression: Vert.

Gas Type: none

Backing Gas: N/A

Electrical Characteristics

CURRENT DC

DC

POLARITY reverse

reverse

GUIDED BEND TEST RESULTS

Type & Figure	Results	Type & Figure	Results
side bend	accepted		accepted
side bend	accepted		acceptable

VISUAL TEST

D1.1 AWS code acceptable results

Results

Fillet Weld Test Results

Fracture Test: N/A

Length & Percent of Defects: N/A

Macro Test - Fusion: N/A

Appearance-fillet Size (leg): N/A

in. X

N/A

in. Convexity N/A

in. or Concavity

Test Conducted by: Neil Mansfield

Lab Test No. N/A

We certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of AWS S. D 1.1 Code.



NEIL B. MANSFIELD
CWI 04040251
DCI EIP, 4/9/08

QUALIFICATION MAINTENANCE (Verified)			

By: Neil Mansfield
Date: 4/9/2008



This Certificate is Awarded to:

JOEL KIMBALL

For

***KME Level II Pumper Design & Performance
KME Level II Aerial Design & Performance***

DATE

October 20-24, 2008


John J. Kovatch III, CEO & President

**KME Fire Apparatus
Nesquehoning, PA 18240**



This Certificate is Awarded to:

JOEL KIMBALL

For

***KME Level I Pumper Design & Performance
KME Level I Aerial Design & Performance***

DATE

June 23-27, 2008


John J. Kovatch III, CEO & President

**KME Fire Apparatus
Mesquehonng, PA 18240**



This Certificate is Awarded to:

JOEL KIMBALL

For

KME Level II Pumper & Aerial Electrical Systems

DATE

October 27-30, 2008


John J. Kovatch III, President

**KME Fire Apparatus
Mesquite, PA 18240**



This Certificate is Awarded to:

JAMES MURPHY

For

KME Level I Pumper Design and Performance

DATE

June 13-17, 2005

[Signature]
John J. Kovatch III, President

**KME Fire Apparatus
Mesquiteville, PA 18240**



Certificate of Completion

Presented to

Jeffrey Mazza

For active participation and completion of
SMART Damage Analysis

Toni Slaton

Toni Slaton
Executive Director

September 19, 2006



Certificate of Completion

Presented to

Jeffrey Mazza

For active participation and completion of

SMART Money

Toni Slaton

Toni Slaton
Executive Director

December 7, 2006

WATEROUS

Fire Pumps - Since 1886

Waterous Fire Pump Seminar

Certificate of Attendance

This is to Certify that

Greg Magga

Attended 34 hours of the Fire Pump Training Seminar
March 5-9, 2007 at Waterous Company
in the State of Minnesota

Al Hansen
President, Waterous Company

Bradley S. Bruckner
Service Manager, Waterous Company
Jeff R. Condit
Waterous Instructor



This Certificate is Awarded to:

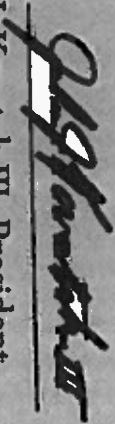
JOSEPH SUEN

For

***KME Level II Pumper Design and Performance
KME Level II Aerial Design and Performance***

DATE

October 22-26, 2007


John J. Kovatch III, President

**KME Fire Apparatus
Hosquethong, PA 18240**



This Certificate is Awarded to:

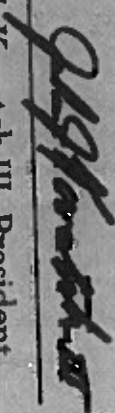
JOSEPH SUEN

For

*KME Level I Pumper Design and Performance
KME Level I Aerial Design and Performance*

DATE

October 16-20, 2006


John J. Kovatch III, President

**KME Fire Apparatus
Resquoting, PA 18240**

HALE PRODUCTS, INC.

Pump Maintenance and Operations

We hereby certify that

Joseph Swen

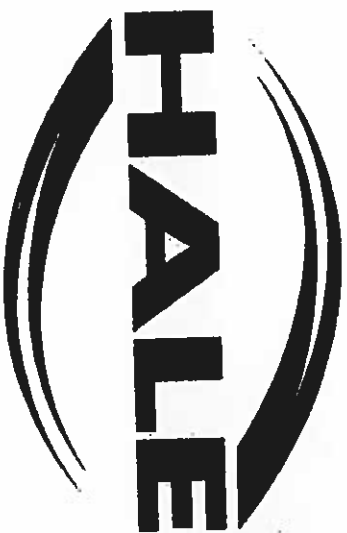
Has successfully completed a 24 hour course in Centrifugal Fire Pump
Maintenance and Repair

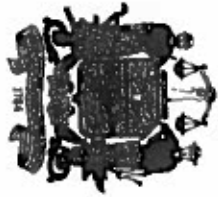
Awarded this day October 23, 2008 by

Ric Tull

Ric Tull, Manager of Product Training

Certification valid for two years





Montgomery County
Pennsylvania

Fire Advisory Board



Certificate Of Completion

THIS IS TO CERTIFY THAT

Joseph Suen

HAS SATISFACTORILY COMPLETED A 24 HOUR COURSE OF INSTRUCTION IN

HALE PUMP MAINTENANCE & OPERATION

CONDUCTED AT

MONTGOMERY COUNTY FIRE ACADEMY

Robert M. Greenberg, Jr.

DIRECTOR, FIRE ACADEMY

Linda M. Greenberg

SECRETARY, FIRE ADVISORY BOARD

10/23/08

DATE

John Kelly

CHAIRMAN, FIRE ADVISORY BOARD

ATell

COURSE COORDINATOR

EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

Joseph Suen

is certified in the areas listed below:

Fire Pumps and Accessories

Expires:

10/24/2013

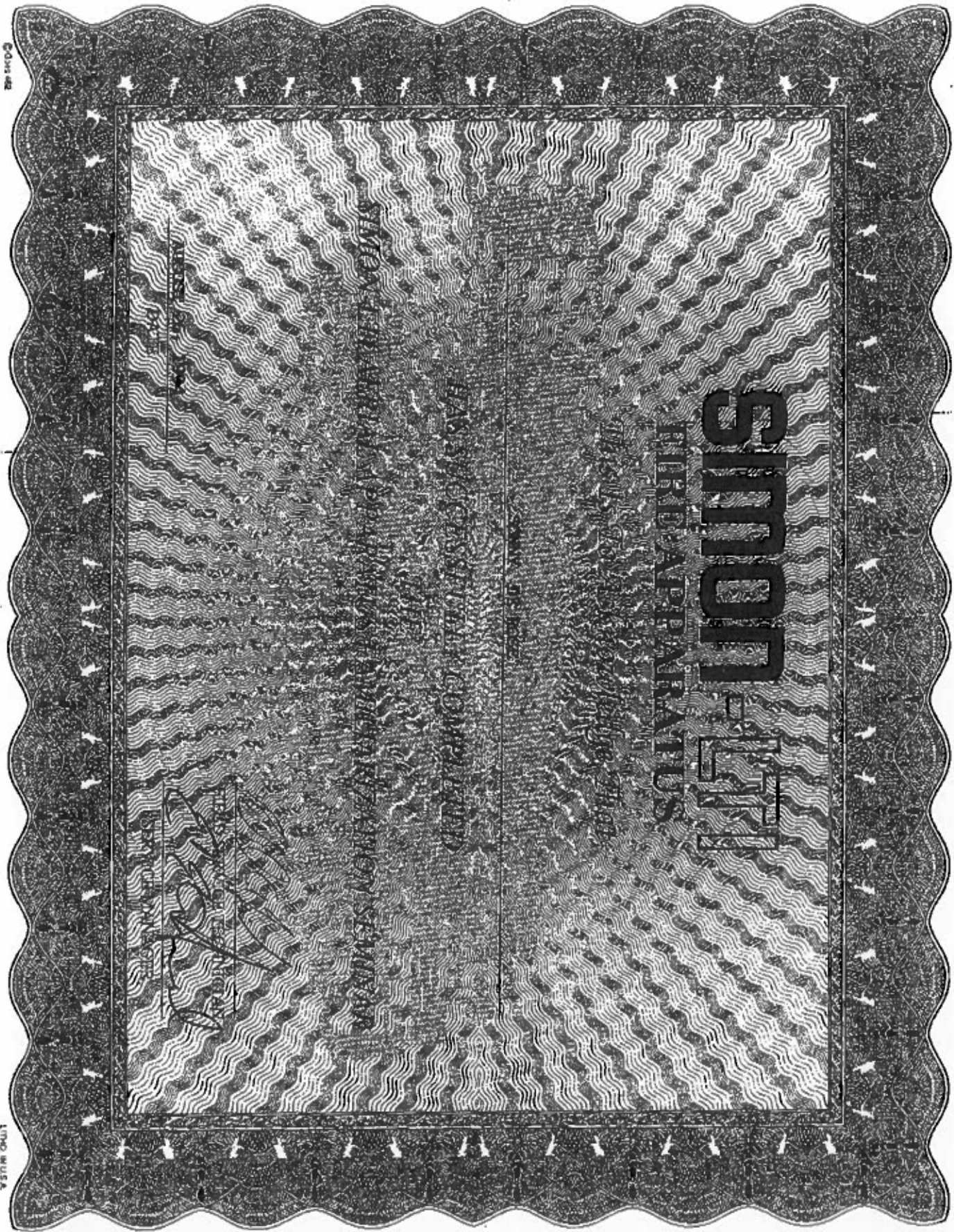


Stephen Wilde

Stephen Wilde, President

COMING

1940 IN U.S.A.



© 1940 Simon & Schuster, Inc. All rights reserved.

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
CALIFORNIA APPRENTICESHIP COUNCIL

Certificate of Completion of Apprenticeship

GRANT DE ROSE
HEAVY DUTY TRUCK AND EQUIPMENT MECHANIC

Having satisfactorily completed training in accordance with apprenticeship standards is awarded this certificate attesting to the achievement of the skills and knowledge required of a journeyman.

AUGUST 17, 1982

California Apprenticeship Council

Allen W. Jones

Chairman

Apprenticeship Program Sponsor

Charles Michael
Official

Wilbur Forbees
School Representative

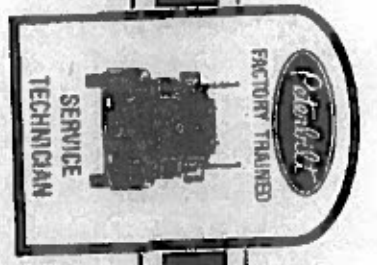


Edward W. Wallace

Secretary

Donald Reid

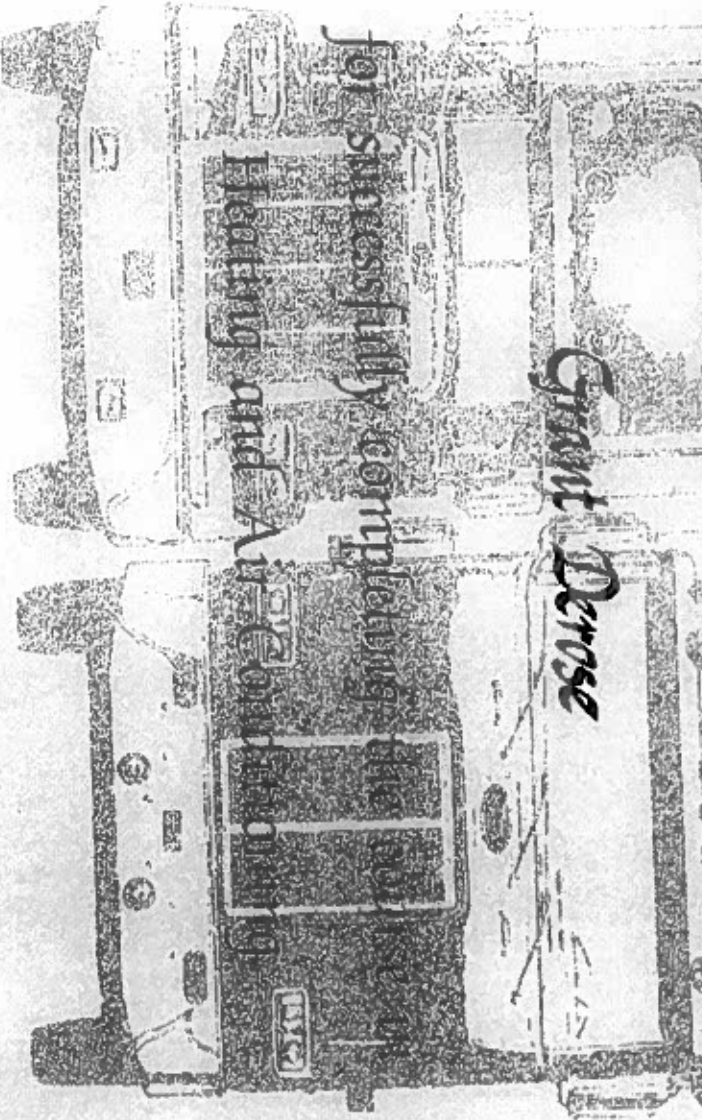
Administrator of Apprenticeship



This Certificate is Awarded to

Grant Derose

for successfully completing
Heating and Air Conditioning



Field Support Manager

A handwritten signature in black ink, appearing to be 'S. Myers', written over a horizontal line.



Director of Training

A handwritten signature in black ink, appearing to be 'J. Williams', written over a horizontal line.



This Certificate is Awarded to:

GRANT DEROSE

For

KME Level I Pumper Design & Performance

DATE

November 17-21, 2008


John J. Kovatch III, CEO & President

**KME Fire Apparatus
Mosquonong, PA 18240**

EMERGENCY VEHICLE TECHNICIAN

CERTIFICATION COMMISSION, INC.

Daniel Robbins Jr

is certified in the areas listed below:

Fire Apparatus Electrical Systems

Expires:

10/20/2014



Stephen Wilde

Stephen Wilde, President



National Institute for
**AUTOMOTIVE
SERVICE
EXCELLENCE**

Be it known that

DANIEL C ROBBINS JR

has successfully passed the examinations and met the experience requirement prescribed by the National Institute for Automotive Service Excellence and is awarded this CERTIFICATE in evidence of COMPETENCE in the service areas listed below:

MASTER MEDIUM/HEAVY TRUCK TECHNICIAN

EXPIRES

AREAS OF DEMONSTRATED COMPETENCE

GASOLINE ENGINES	DECEMBER 31, 2014
DIESEL ENGINES	DECEMBER 31, 2014
DRIVE TRAIN	DECEMBER 31, 2014
BRAKES	DECEMBER 31, 2014
SUSPENSION AND STEERING	DECEMBER 31, 2013
ELECTRICAL/ELECTRONIC SYSTEMS	DECEMBER 31, 2013
HEATING, VENTILATION, & A/C	DECEMBER 31, 2013
PREVENTIVE MAINTENANCE INSPECTION	DECEMBER 31, 2013

*** **

GIVEN THIS 31ST DAY OF DECEMBER 2009, AT LEESBURG, VIRGINIA

Timothy A. Zilke

TIMOTHY A. ZILKE, President

JR2KX8R17ROBBI
IDENTIFICATION NUMBER



EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

Kenneth Squadere

is certified in the areas listed below:

- Maintenance, Inspection, & Testing of Fire Apparatus
- Design & Performance Standards of Fire Apparatus
- Fire Pumps and Accessories
- Fire Apparatus Electrical Systems

Expires:

- 10/22/2016
- 06/09/2017
- 10/26/2018
- 10/26/2018



Stephen Wilde

Stephen Wilde, President

HALE PRODUCTS, INC.

Pump Maintenance and Operations

We hereby certify that

Ken Squadere

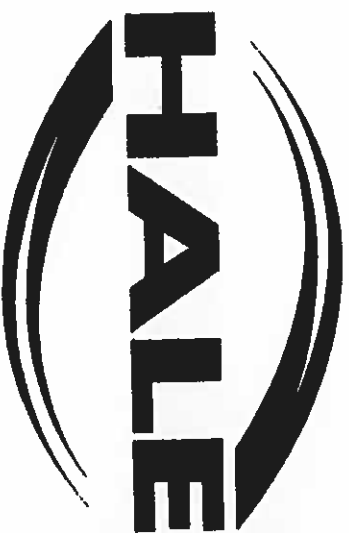
Has successfully completed a 24 hour course in Centrifugal Fire Pump
Maintenance and Repair

Awarded this day October 23, 2008 by

Ric Tull

Ric Tull, Manager of Product Training

Certification valid for two years





This Certificate is Awarded to:

KENNETH SQUADERE

For

***KME Level II Pumper Design and Performance
KME Level II Aerial Design and Performance***

DATE

October 22-26, 2007

[Signature]
John J. Kovatch III, President

**KME Fire Apparatus
Horseshoehorn, PA 18240**



This Certificate is Awarded to:

KENNETH SQUADERE

For

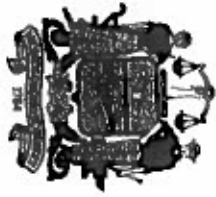
*KME Level I Pumper Design and Performance
KME Level I Aerial Design and Performance*

DATE

June 13-17, 2005

[Signature]
John J. Kovatch III, President

**KME Fire Apparatus
Mesquiteong, PA 18240**



Montgomery County
 Pennsylvania
 Fire Advisory Board
 Certificate Of Completion

THIS IS TO CERTIFY THAT
 Kenneth Squadere

HAS SATISFACTORILY COMPLETED A 24 HOUR COURSE OF INSTRUCTION IN
 HALE PUMP MAINTENANCE & OPERATION

CONDUCTED AT

MONTGOMERY COUNTY FIRE ACADEMY
 Robert M. Spindler, Jr.

Linda M. Greenberg

DIRECTOR, FIRE ACADEMY

SECRETARY, FIRE ADVISORY BOARD

John Kelly

10/23/08
 DATE

Steel

CHAIRMAN, FIRE ADVISORY BOARD

COURSE COORDINATOR

EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

Tinsley Webster

is certified in the areas listed below:

Fire Pumps and Accessories

Expires:

08/19/2016



Stephen Wilde
Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN

CERTIFICATION COMMISSION, INC.

Timothy Wilson

is certified in the areas listed below:

Fire Apparatus Electrical Systems

Expires:

06/04/2016



Stephen Wilde

Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN

CERTIFICATION COMMISSION, INC.

Gregory Agee

is certified in the areas listed below:

Hydraulic Systems

Expires:

06/04/2016



Stephen Wilde
Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN

CERTIFICATION COMMISSION, INC.

Gregory Agee

is certified in the areas listed below:

Fire Apparatus Electrical Systems
Hydraulic Systems

Expires:

10/15/2016

06/04/2016



Stephen Wilde

Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN

CERTIFICATION COMMISSION, INC.

Todd Bugdanavage

is certified in the areas listed below:

Maintenance, Inspection, & Testing of Fire Apparatus

Expires:

12/16/2016



Stephen Wilde

Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN

CERTIFICATION COMMISSION, INC.

Keith Oliphant

is certified in the areas listed below:

F2 - Design & Performance Standards of Fire Apparatus

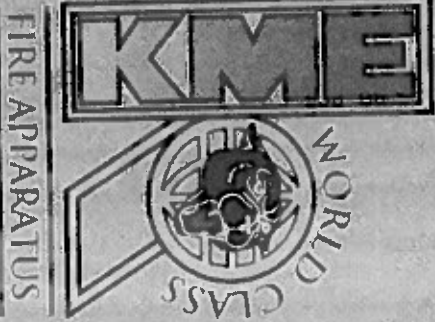
Expires:

12/16/2016



Stephen Wilde

Stephen Wilde, President



This Certificate is Awarded to:

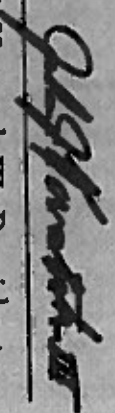
JACK SMELL

For

***KME Level I Pumper Design and Performance
KME Level I Aerial Design and Performance***

DATE

October 10-13, 1994


John J. Kovatch III, President

**KME Fire Apparatus
Mesquiteoning, PA 18240**



FIRE APPARATUS

This Certificate is Awarded to:

JACK SMELL

For

***KME Level II Pumper Design and Performance
KME Level II Aerial Design and Performance***

DATE

July 17-20, 1995

John J. Kovatch III, President

A handwritten signature in cursive script, appearing to read 'John J. Kovatch III', written over a horizontal line.

**KME Fire Apparatus
Mesquiteville, PA 18240**

EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

John Smell

is certified in the areas listed below:

F 1 Maintenance, Inspection, & Testing of Fire Apparatus

Expires:

12/16/2016



Stephen Wilde

Stephen Wilde, President

Presented to: Don Bernosky

*In recognition of your attendance of the 8 hour
F2 Design and Performance of Fire Apparatus using NFPA
Standards*

Hosted by KME Fire Apparatus




Alan Conkle Certified Master EVT & Instructor
Al Conkle's Fire Tech Support

December 15 2011

EMERGENCY VEHICLE TECHNICIAN

CERTIFICATION COMMISSION, INC.

Donald Bernosky III

is certified in the areas listed below:

- F1 Maintenance, Inspection, & Testing of Fire Apparatus
- F2 Design & Performance Standards of Fire Apparatus

Expires:
12/16/2016
12/16/2016



Stephen Wilde

Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

Joseph Bartek

is certified in the areas listed below:

Fire Apparatus Electrical Systems

Expires:

12/16/2016



Stephen Wilde
Stephen Wilde, President

Presented to: Trajan Koerbler

In recognition of your attendance of the 16 hour
*F-1 Inspection, Maintenance & Testing, F2 Design and
Performance of Fire Apparatus using NFPA Standards
Hosted by KME Fire Apparatus*



Alan Conkle
Alan Conkle Certified Master EVT & Instructor
Al Conkle's Fire Tech Support

December 14,15 2011

EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

Trajan Koerbler

is certified in the areas listed below:

Maintenance, Inspection, & Testing of Fire Apparatus

Expires:

12/16/2016



Stephen Wilde
Stephen Wilde, President

Presented to: John Kovatch

In recognition of your attendance of the 16 hour
*F-1 Inspection, Maintenance & Testing, F2 Design and
Performance of Fire Apparatus using NFPA Standards
Hosted by KME Fire Apparatus*



Alan Conkle Certified Master EVT & Instructor
Al Conkle's Fire Tech Support

December 14,15 2011

EMERGENCY VEHICLE TECHNICIAN

CERTIFICATION COMMISSION, INC.

John Kovatch IV

is certified in the areas listed below:

Maintenance, Inspection, & Testing of Fire Apparatus

Expires:

12/16/2016



Stephen Wilde

Stephen Wilde, President

Presented to: Matt Sirlinger

*In recognition of your attendance of the 8 hour
F2 Design and Performance of Fire Apparatus using NFPA
Standards*

Hosted by KME Fire Apparatus



Alan Conkle
Alan Conkle Certified Master EVT & Instructor
Al Conkle's Fire Tech Support

December 15 2011

EMERGENCY VEHICLE TECHNICIAN

CERTIFICATION COMMISSION, INC.

Matthew Sitlinger

is certified in the areas listed below:

Maintenance, Inspection, & Testing of Fire Apparatus	Expires:	12/16/2016
Design & Performance Standards of Fire Apparatus		12/16/2016
Fire Pumps and Accessories		08/19/2016



Stephen Wilde

Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

John Cameron

is certified in the areas listed below:

Maintenance, Inspection, & Testing of Fire Apparatus

Expires:

10/22/2016



Stephen Wilde

Stephen Wilde, President

Emergency Vehicle Technician **EVT** **Certification Commission, Inc.**

P. O. Box 894 Dundee, IL 60118 847-426-4075 Fax :847-426-4076
web address: www.evtcc.org

November 6, 2013

Brice Dalrymple III
Kovatch Mobile Equipment
736 East 5th St
Berwick, PA 18603

Test Date: 10/19/2013

Exam 1: F1 Maintenance, Inspection, & Testing of Fire Apparatus
Points 90 Percent: 87% Status: PASS

Exam 2: F2 Design & Performance Standards of Fire Apparatus
Points 91 Percent: 88% Status: PASS

Above are the results of the EVT Certification Exams which you recently completed. A result of 70% or greater is required to pass the exams. Congratulations, you passed your exam(s)!

Enclosed is a test certificate identifying the EVT exams which you have successfully completed. Also enclosed are an exam registration form, a list of exam locations & dates, a patch order form, and a level certification application form.

If you have completed the required ASE exams to obtain level certification, your next step is to fill in the enclosed level application form. Please be sure to include all requested information pertaining to the ASE Program with a copy of each applicable ASE certificate and submit to the EVT office. Each time you meet the requirements for a new level, you must complete the portion of the level application form that is applicable to your new level. If you need information regarding the ASE Program, you may contact ASE at:

National Institute for Automotive Service Excellence
101 Blue Seal Drive
Leesburg, VA 20175
(703) 669-6600

ENTRUSTED

EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

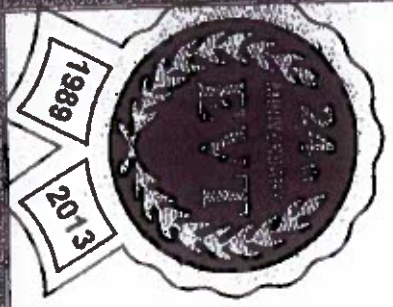
Jim Hooper

is certified in the areas listed below:

Maintenance, Inspection, & Testing of Fire Apparatus

Expires:

10/26/2018



Stephen Wilde

Stephen Wilde, President



This Certificate is Awarded to:

TIMOTHY FARRELL

For

***KME Level II Pumper Design & Performance
KME Level II Aerial Design & Performance***

DATE

June 19-23, 2006


John J. Kovatch III, CEO & President

**KME Fire Apparatus
Mesquehoning, PA 18240**



This Certificate is Awarded to:

TIMOTHY FARELL

For

***KME Level I Pumper Design & Performance
KME Level I Aerial Design & Performance***

DATE

June 13-17, 2005

[Signature]
John J. Kovatch III, CEO & President

**KME Fire Apparatus
Mosquemoaning, PA 18240**

**EMERGENCY VEHICLE TECHNICIAN
CERTIFICATION COMMISSION, INC.**

Timothy Farrell

is certified in the areas listed below:

Maintenance, Inspection, & Testing of Fire Apparatus

Expires:

06/09/2017



Stephen Wilde
Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN

CERTIFICATION COMMISSION, INC.

Timothy Farrell

is certified in the areas listed below:

Maintenance, Inspection, & Testing of Fire Apparatus
Design & Performance Standards of Fire Apparatus

Expires:

06/09/2017

10/26/2018



Stephen Wilde

Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN

CERTIFICATION COMMISSION, INC.

Donald SantaBarbara

is certified in the areas listed below:

Maintenance, Inspection, & Testing of Fire Apparatus

Expires:

10/22/2016



Stephen Wilde

Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

Donald SantaBarbara

is certified in the areas listed below:

- Maintenance, Inspection, & Testing of Fire Apparatus
- Design & Performance Standards of Fire Apparatus

Expires:

10/22/2016

10/26/2018



Stephen Wilde

Stephen Wilde, President

EMERGENCY VEHICLE TECHNICIAN CERTIFICATION COMMISSION, INC.

Stephen Bonesteel

is certified in the areas listed below:

Fire Pumps and Accessories
Fire Apparatus Electrical Systems

Expires:
10/26/2018
10/26/2018



Stephen Wilde

Stephen Wilde, President



- All work performed by factory - trained, certified technicians
- Our work meets manufacturer's specifications
- Annual inspections and factory recommended service
- Service all emergency vehicles, regardless of purchase location
- Emergency road service and on-site maintenance for all makes and models
- Full service body shop for collision repairs or refurbishment
- We repair all makes and models
- We offer annual pump and aerial testing
- We provide traditional, encapsulated, vinyl gold lettering and scotch lite™ for all makes and models



Boston's 1948 Mack Fire Truck Before After



KME Sales and Service for the New England Region

17 Winter Street • Woodville, MA 01784 • Phone: 508-435-4054 • Fax: 508-435-0250 • Toll Free: 877-644-2707

kmesales@bulldogfa.com



SERVICE VEHICLE CAPABILITIES

2008 CHEVY COLORADO

Pickup & deliver parts, used a chase vehicle to pick up and deliver apparatus

2001 FORD F-350

Pickup & deliver parts, used a chase vehicle to pick up and deliver apparatus, conduct pump and aerial testing

1994 GMC P-3500 BOX VAN

Onboard Generator, Onboard tool boxes, Parts bins, compressor. Used for on site service

2012 FORD E SERIES, 2011 F-650, 2010 TERRASTAR, 2008 ISUZU AND 2005 ISUZU

Full complement of mechanics tools, compressor, pneumatic tools, maintenance fluids, valve kits, spare primer, selection of filters, array of electrical components

2013 FORD SUPER DUTY

Tows pump test trailer, pickup and deliver parts, delivery chase vehicle, emergency service calls

2012 PUMP TEST TRAILER

All components necessary for NFPA compliant pump testing

2004 FORD RANGER

Pickup & deliver parts, delivery chase vehicle



BULLDOG





LADDER
2

TRANSFORCE AT
FIRESTONE

KOVATCH ORGANIZATION KME NEW YORK SERVICE CENTER

LATHAM, NEW YORK
KME Fire Apparatus
Albany Airport Industrial Park
68 Sicker Road
Latham, NY 12110
800-394-5593 Ph.

kmeny@kovatch.com



Service capabilities include:

- Full welding and fabrication capability
- Professional body and paint capability
- Apparatus remount and refurbishment
- Professional mounting of equipment
- Custom equipment brackets fabricated onsite
- Factory trained personnel; EVT certified, Hale certified
- Pump testing on site or at your fire house
- Preventative maintenance services such as chassis, pump and aerial services
- Four fully equipment service trucks available 24 hour roadside service

Full line of parts for resale:

- Fire pumps – Hale, Waterous, Darley
- Plumbing components (nozzles, adapters, valves, deck guns) – Akron authorized distributor, TFT, Elkhart Brass, Kocheck, Red Head
- Fire Hose – Snap-tite, Angus, Niedner
- Lighting / Electronics – Fire Research, Whelen, Code 3, Federal Signal, Havis
- Apparatus valves / hardware – Harrington, South Park, TFT, Angus
- Tools / mounting hardware: Fire Hooks, Performance Advantage, Zephyr Industries, Streamlight handlights



**MASSACHUSETTS FIRE DEPARTMENTS HAVE THE OPTION OF BEING SERVICED AT
BULLDOG FIRE APPARATUS IN HOPKINTON, MA
OR
KME NEW YORK IN LATHAM, NY**

**KOVATCH ORGANIZATION
KME NEW YORK SERVICE CENTER**



**MASSACHUSETTS FIRE DEPARTMENTS HAVE THE OPTION OF BEING SERVICED AT
BULLDOG FIRE APPARATUS IN HOPKINTON, MA
OR
KME NEW YORK IN LATHAM, NY**

KOVATCH ORGANIZATION KME NEW YORK SERVICE CENTER



**MASSACHUSETTS FIRE DEPARTMENTS HAVE THE OPTION OF BEING SERVICED AT
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OR
KME NEW YORK IN LATHAM, NY**

KOVATCH ORGANIZATION KME NEW YORK SERVICE CENTER



**MASSACHUSETTS FIRE DEPARTMENTS HAVE THE OPTION OF BEING SERVICED AT
BULLDOG FIRE APPARATUS IN HOPKINTON, MA
OR
KME NEW YORK IN LATHAM, NY**

Month	Year	Vehicle	VIN #	Plate #	Inspection Sticker	Registration Sticker				
		<u>NY Office</u>								
Apr	2005	Isuzu Truck Red	4KLB4B1U75J801746	YVF1576	February 2016	April 2016				
	2008	ISUZU BOX TRUCK	JALC4W16X87004453	96654 JY	July 2016	July 2016				
Apr	2012	Ford E Series Van	1FDXE4FS5BDA01877	ZBT 9743	August 2016	August 2016				
Nov	2011	F-650 Ford Superduty	3FRNF6FG7BV086996	AG13188	May 2016	May 2016				
	2010	Terestar SFA Box Truck	1HTJSSKK7CJ387561	ZDL9483	April 2015	February 2016				
	2004	Ford Ranger	1FTZR45E24PA20773	ZBT 9726	June 2016	June 2016				
	2012	Pump Test Trailer	5PACB2327CC007676	XGP9734		February 2016				
Aug	1979	Strick Trailer Storage	222579	XR80299						
		<u>MA Office</u>								
	2008	Chevy Colorado	1GCCS14E988200505	P84363	January 2015	December 2016				
	1994	GMC P-3500 Box Van	1GDKP32K5R3502448	8851C	April 2015	Decmber 2015				
	2001	Ford F-350	1FTSX31S01EC45374	N27120	August 2015	December 2016				
			Mass Office Dealer Plates	718A		March 2016				
				718B		March 2016				
				718C		March 2016				
				718D		March 2016				
			Mass Office Repair Plate	8851A		December 2015				



SECTION 7

WARRANTIES

SECTION 7

KME WARRANTY COVERAGE

MAPC/FCAM PUMPERS 2016

COMPONENT	COVERAGE
BODY	10 YEAR STRUCTURAL ALL MODELS
CHASSIS	5 YEARS BOTH CUSTOM & COMMERCIAL
FRAME	CUSTOM UNLIMITED – COMMERCIAL 7 YEARS
TRANSMISSION	5 YEARS
ENGINE	5 YEARS
ELECTRICAL	5 YEARS
PUMP PARTS - WATEROUS	10 YEARS
PUMP LABOR - WATEROUS	10 YEARS
WATER TANK	UNLIMITED
RUST	10 YEARS
PAINT – CORROSION PERFORATION	10 YEARS
PAINT	10 YEARS
GRAPHICS	5 YEARS

The warranties listed above in **RED** type at least **DOUBLE** the MAPC/FCAM “Highly Advantageous” rating. All other KME warranties meet the “Highly Advantageous” rating.

SECTION 7

ADDITIONAL WARRANTIES OFFERED BY KME

1. The warranty for the Cummins engines in both custom pumper offerings is extended from five (5) years to ten (10) years
2. The standard KME one (1) year warranty on all three commercial pumpers has been extended to five (5) years
3. The Akron Brass valve warranty is ten (10) years
4. The custom pumper Bostrom seats carry a five (5) year warranty
5. The Meritor axle warranty on all units is five (5) years
6. The Navistar commercial chassis warranty has been extended to five (5) years or 100,000 miles for all Navistar warranted components whose standard warranty is less than five (5) years (as noted on the enclosed Navistar warranty form)



One Industrial Complex – Nesquehoning, PA 18240
(800) 235-3928 [Phone] - (570) 669-5124 [Fax]
www.kovatch.com URL

KME FIRE APPARATUS
NEW PRODUCT WARRANTY
(Domestic Fire Service Sales)

Kovatch Mobile Equipment Corporation ("KME"), hereby warrants to the original purchaser (first end users) that any new products manufactured by KME shall be free from defects in material and workmanship under normal use, maintenance and service for a period of five (5) year from date of delivery, subject to the conditions and exceptions stated herein. Under this warranty, KME'S obligation is limited to the repair or replacement at KME'S option, at its factory, by its representative, or by its authorized service facility, of any part found to be defective by KME. If KME deems it necessary, all parts for which warranty claim is made, shall be returned to KME, transportation charges prepaid, for examination by KME who shall be the sole judge as to whether such part was defective in material or workmanship under normal use, maintenance or service.

THIS WARRANTY DOES NOT APPLY TO:

1. Any product or component which has been subjected to misuse, neglect, alteration, accident or lack of normal maintenance, or which has been operated above factory rated capacity.
2. Routine maintenance items; such as filters, belts and lights, and routine maintenance service, such as normal lubrication or proper adjustments.
3. Components manufactured by others that are warranted by the manufactures thereof to the original purchaser: such as, engines, tires, rims, ignition apparatus, horn or other signal devices, generators, batteries, speedometers, and other trade accessories.

THIS WARRANTY IS EXPRESSLY GRANTED IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience.

KME neither assumes nor authorizes any other person to make or assume for it any other obligation, liability or warranty or to make any other representation on its behalf in connection with the sale or use of the new product covered by this warranty.

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Vin. #: _____



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KME FIRE APPARATUS
CHASSIS LIFETIME FRAME WARRANTY
(Domestic Fire Service Sales)

KOVATCH MOBILE EQUIPMENT CORP. warrants to the original purchaser of a KME chassis that the frame and frame cross members are free of defects in material and workmanship for the lifetime of the vehicle, provided that the chassis is used in a normal and reasonable manner. KOVATCH MOBILE EQUIPMENT CORP'S obligation under this warranty is strictly limited to repairing or replacing, as KOVATCH MOBILE EQUIPMENT CORP. may elect, any part or parts of such frame or frame members which KOVATCH MOBILE EQUIPMENT CORP'S examination discloses to be defective in material or workmanship.

Any part or parts considered to be covered by the conditions of this warranty shall be returned, freight prepaid, to the Company's factory at Nesquehoning, Pennsylvania.

This warranty shall be null and void if the frame shows evidence of alterations, cutting, splicing, welding or drilling of rails or flanges without the written authorization of KOVATCH MOBILE EQUIPMENT CORP. Further, this warranty shall be void if the vehicle is involved in an accident, shows signs of abuse or evidence of being operated in a manner, or for a purpose, not recommended by KOVATCH MOBILE EQUIPMENT CORP.

Nothing contained in this warranty shall make KOVATCH MOBILE EQUIPMENT CORP. liable beyond the express limitations hereof, for loss, injury or damage of any kind to any person or entity resulting from any defect or failure in the chassis or frame.

To the extent permitted by law, THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

To the extent permitted by law, this warranty is also in lieu of all other obligations or liabilities on the part of KOVATCH MOBILE EQUIPMENT CORP., or the Seller, including liability for incidental and consequential damages.

KOVATCH MOBILE EQUIPMENT CORP. makes no representation that the chassis or frame has the capacity to perform any functions other than as contained in the Company's written literature, catalogs or specification accompanying delivery of the chassis.

No person or affiliated company representative is authorized to give any other warranties or to assume any other liability on behalf of KOVATCH MOBILE EQUIPMENT CORP. in connection with the sale, servicing or repair of any KME Chassis. KOVATCH MOBILE EQUIPMENT CORP. reserves the right to make design changes or improvements in its products without imposing any obligation upon itself to change or improve previously manufactured products.

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Vin.# _____



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KME FIRE APPARATUS
NEW SHEET METAL CAB BODY WARRANTY
(Domestic Fire Service Sales)

KME FIRE APPARATUS DIVISION of KOVATCH MOBILE EQUIPMENT CORP., ("KME") hereby warrants to the original purchaser (first end user) that any new fire apparatus cab manufactured by KME shall be free from structural defects under normal use, maintenance, or service for a period of ten (10) years from date of delivery, subject to the conditions and exceptions stated herein. Under this warranty, KME'S obligation is limited to the repair or replacement at KME'S option, at its factory, by it's representative, or by its authorized service facility, of any structural part of the fire apparatus cab found to be defective by KME. For purposes of this warranty, fire apparatus cab is defined as all sheet metal and welds.

THIS WARRANTY DOES NOT APPLY TO:

1. Hinges, door latches, bolt-on items or accessories or other items that are not an integral part of the cab itself.
2. Any part or component which has been subjected to misuse, abuse, neglect, alteration, or lack of normal maintenance.
3. Components that may be manufactured by others and that are warranted by the manufacturers thereof to the original purchaser.

THIS WARRANTY IS EXPRESSLY GRANTED IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience.

KME neither assumes nor authorizes any other person to make or assume for it any other obligation, liability or warranty or to make any other representation on its behalf in connection with the sale or use of the new product covered by this warranty.

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Vin.# _____



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www.kovatch.com URL

KME FIRE APPARATUS
NEW SHEET METAL BODY WARRANTY
(Domestic Fire Service Sales)

KME FIRE APPARATUS DIVISION of KOVATCH MOBILE EQUIPMENT CORP., ("KME") hereby warrants to the original purchaser (first end user) that any new fire apparatus body manufactured by KME shall be free from structural defects under normal use, maintenance, or service for a period of ten (10) years from date of delivery, subject to the conditions and exceptions stated herein. Under this warranty, KME'S obligation is limited to the repair or replacement at KME'S option, at its factory, by it's representative, or by its authorized service facility, of any structural part of the fire apparatus body found to be defective by KME. For purposes of this warranty, fire apparatus body is defined as all sheet metal and welds.

THIS WARRANTY DOES NOT APPLY TO:

1. Hinges, door latches, bolt-on items or accessories or other items that are not an integral part of the body itself.
2. Any part or component which has been subjected to misuse, abuse, neglect, alteration, or lack of normal maintenance.
3. Components that may be manufactured by others and that are warranted by the manufacturers thereof to the original purchaser.

THIS WARRANTY IS EXPRESSLY GRANTED IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience.

KME neither assumes nor authorizes any other person to make or assume for it any other obligation, liability or warranty or to make any other representation on its behalf in connection with the sale or use of the new product covered by this warranty.

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KME Fire Apparatus 10 Year Corrosion Limited Warranty

KME Fire Apparatus provides to the original owner a rustproofing warranty for a period of ten (10) years on new fire apparatus that is operated for non-commercial purposes, provided the owner to whom this warranty is issued follows the "Customer Responsibilities" set forth below. This warranty commences on the date of application of rustproofing material, and is non-transferable.

The apparatus is warranted against rust perforation from the inside out (rust through) of any covered area(s). KME will at its discretion either (1) repair, or (2) replace the rusted through covered area(s).

CUSTOMER RESPONSIBILITIES:

- 1. Inspections.** Customer shall have the apparatus inspected once a year by an authorized KME service provider. Records of such inspections shall be kept and presented to KME upon demand.
- 2. Damage to Fire Truck.** If the fire truck is involved in a collision or other incident that damages the rustproofing application, the owner must notify KME within thirty (30) days of such occurrence. If notice is not given, then this warranty shall automatically become null and void. If KME is notified as required, KME will inspect the vehicle, and if KME determines it necessary in order to continue this warranty, KME will perform either partial or complete reapplication of the rust preventative material at the then-current rates to be charged to the customer.
- 3. Rust-through Claims Procedure.** In the event of rust through during the term of this warranty, the customer must notify KME within thirty (30) days of the first notice of rust. Conformance by the customer with the thirty (30) day notice requirement will be judged by KME on the basis of the extent of damage resulting from rust-through. If, in the opinion of KME, the rust-through is substantially larger than that which could have reasonably occurred within thirty (30) days of the first notice of rust-through, no such claim will be valid under this warranty. Further, in no event shall a claim be considered timely if made later than the last day of the term of this warranty.

EXCLUSIONS:

Service provided by KME or its authorized representative under this warranty does not include the following:

- A.** Repair or replacement of exhaust systems, which are not covered.
- B.** Repair or replacement of any parts damaged by rusting through, if such repair or replacement was performed before obtaining KME's authorization in writing.
- C.** This warranty does not apply to exterior surface or cosmetic rust, rust caused by external damage from any cause, such as dents, scratches, chipped paint, etc.
- D.** Repair or replacement of parts damaged by rusting through on any fire truck whose owner does not present us with copies of inspection records showing that all required inspections have been timely performed.
- E.** Repair or replacement of parts damaged by rusting through if such parts were repaired or replaced because of rust damage and such parts were not treated with rust preventative compound within thirty (30) days of repair or replacement.
- F.** Those areas within the vehicle that are foam or caulk filled.

DISCLAIMER OF IMPLIED WARRANTIES:

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. Some states do not allow disclaimers of or limitations on duration of implied warranties, so these limitations may not apply to you.

INCIDENTAL AND CONSEQUENTIAL DAMAGES EXCLUDED:

The customer shall not be entitled to recover from KME, its successors or assigns, any consequential damages to property, damages for loss of use, loss of time, loss of profits or income, or any other incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

SPECIFIC LEGAL RIGHTS:

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

GSO# _____
Vin.# _____



KOVATCH MOBILE EQUIPMENT CORP.
One Industrial Complex – Nesquehoning, PA 18240
(570) 669-5132 [Phone] - (570) 669-5124 [Fax]
www.kovatch.com URL

KME /PPG 10-YEAR PAINT WARRANTY

KME GSO#: _____ Delivery Date: _____

VIN #: _____

Cab & Body Paint Code: _____

Two Tone Paint Code (If applicable): _____

COMMERCIAL FLEET WARRANTY

PPG Fleet Finishes provides a PPG 10 Year Paint Performance Guarantee, backed by superior DELTA DELFLEET, DURETHANE, and specific related products. PPG Fleet Finishes guarantees to the original owner of the vehicle the durability of any paint work performed to PPG certification standards for a period of ten (10) years.

TERMS & CONDITIONS

The KME/PPG 10 Year Paint Performance Guarantee covers the areas of the vehicle finished with specified products for a period of ten (10) years beginning the day the vehicle was delivered from the PPG Certified Original Equipment Manufacturer to the original vehicle owner. The finished areas, as outlined on this Warranty Certificate, are covered for the following paint failures:

Guarantee Inclusions:

- Peeling or delamination of the topcoat and/or other layers of paint
- Cracking or checking
- Loss of gloss caused by cracking, checking and hazing
- Any paint failure caused by defective PPG Fleet Finishes which are covered by this guarantee

Guarantee Exclusions:

- Paint deterioration caused by blisters or other film degradation due to rust or corrosion originating from the substrate
- Hazing, chalking or loss of gloss caused by improper care, abrasive polishes, cleaning agents, heavy duty pressure washing, or aggressive mechanical wash systems
- Paint deterioration caused by abuse, accidents, acid rain, chemical fallout or acts of nature
- Custom finishes, exotic finishes, or any finishes other than standard finishes and procedures
- Finishes on vehicles used for competitive purposes
- Failures resulting from product misuse or abuse
- Repairs done over previously refinished areas unless stripped to bare metal or appropriate substrate
- Claims presented without proper guarantee documentation
- Failure on finishes containing Non-PPG Finishes approved products
- Failure on finishes performed by Non-PPG Certified Refinish Technicians

- Failure on finishes performed by Non-PPG Certified Repair Centers
- Failure on finishes performed by PPG Certified Refinisher who have allowed their certification to expire

These are the only guarantees (warranties) that PPG makes, and all other expressed or implied warranties, including without limitation, any warranty of fitness for particular purpose or use, are disclaimed by PPG. This program contains the exclusive remedies with respect to any failure of the products to conform to the warranties given above or as to any injury or damage arising from any nonconforming products. In no event shall PPG be liable under any theory of recovery, whether based on negligence of any kind, contract, strict liability or tort, for any indirect, special, incidental or consequential damage, in any way related to, arising or resulting from the purchase or use of the products.

Owner Responsibilities:

- The owner must have yearly inspections of the paint that is covered by this warranty performed by a qualified KME or PPG representative. Records of such inspections shall be maintained by the owner and presented to KME upon request. Failure to have required annual inspections will void the warranty.
- The owner must notify KME of any paint defects within five (5) business days of discovery.
- The owner must schedule a KME /PPG representative to inspect the defect within ten (10) business days after discovery.
- Once the defect has been identified and approved for warranty repair by the KME/PPG representative, the vehicle owner has fourteen (14) working days to schedule the repair.
- All costs related to annual inspections and defect inspections, including transportation, are the owner's sole responsibility. All transportation for warranty repairs is the sole responsibility of the owner.

Other Exclusions:

This warranty is specific to the cab and body finish. The underside of the cab and body, any ladder and ladder components, framework and chassis are not covered by this paint warranty. Vendor-supplied or up-fitted items, including, but not limited to, A/C roof condensers, lighting, generators, plumbing fixtures, ladder racks, etc., are not covered.

KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience.



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KME FIRE APPARATUS BRIGHTWORK WARRANTY
(Domestic Fire Service Sales)

Kovatch Mobile Equipment (KME) warrants all bright finish components used in the construction of KME Fire Apparatus against defects and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original user-purchaser for a period of one (1) year from the date of delivery / acceptance to the original user-purchaser, whichever occurs first.

The expressed warranty excludes corrosion or degradation of bright finished components caused by damage to the component.

THIS WARRANTY IS EXPRESSLY GRANTED IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience.

KME neither assumes nor authorizes any other person to make or assume for it any other obligation, liability or warranty or to make any other representation on its behalf in connection with the sale or use of the new product covered by this warranty.



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KME FIRE APPARATUS
10-STAINLESS STEEL PLUMBING WARRANTY
(Domestic Fire Service Sales)

Kovatch Mobile Equipment (KME) warrants all KME manufactured stainless steel plumbing components used in the construction of KME Fire Apparatus water/foam plumbing systems against defects and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original user-purchaser for a period of ten years from the date of delivery.

THIS WARRANTY IS EXPRESSLY GRANTED IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience.

KME neither assumes nor authorizes any other person to make or assume for it any other obligation, liability or warranty or to make any other representation on its behalf in connection with the sale or use of the new product covered by this warranty.

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www.kovatch.com URL

KME FIRE APPARATUS
NEW PRODUCT WARRANTY
(Domestic Fire Service Sales)

Kovatch Mobile Equipment Corporation ("KME"), hereby warrants to the original purchaser (first end users) that any new products manufactured by KME shall be free from defects in material and workmanship under normal use, maintenance and service for a period of one (1) year from date of delivery, subject to the conditions and exceptions stated herein. Under this warranty, KME'S obligation is limited to the repair or replacement at KME'S option, at its factory, by its representative, or by its authorized service facility, of any part found to be defective by KME. If KME deems it necessary, all parts for which warranty claim is made, shall be returned to KME, transportation charges prepaid, for examination by KME who shall be the sole judge as to whether such part was defective in material or workmanship under normal use, maintenance or service.

THIS WARRANTY DOES NOT APPLY TO:

1. Any product or component which has been subjected to misuse, neglect, alteration, accident or lack of normal maintenance, or which has been operated above factory rated capacity.
2. Routine maintenance items; such as filters, belts and lights, and routine maintenance service, such as normal lubrication or proper adjustments.
3. Components manufactured by others that are warranted by the manufactures thereof to the original purchaser; such as, engines, tires, rims, ignition apparatus, horn or other signal devices, generators, batteries, speedometers, and other trade accessories.

THIS WARRANTY IS EXPRESSLY GRANTED IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience.

KME neither assumes nor authorizes any other person to make or assume for it any other obligation, liability, or warranty or to make any other representation on its behalf in connection with the sale or use of the new product covered by this warranty.

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12 VOLT SYSTEM 5 YEAR WARRANTY

Domestic Fire Service Sales

Kovatch Mobile Equipment (KME) warrants the 12 volt electrical System, equipment and components used in the construction of KME Fire Apparatus against defects and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original user-purchaser for a period of five (5) years from the date of delivery / acceptance to the original user-purchaser, whichever occurs first.

This warranty applies to both purchased and fabricated, manufacturer supplied, electrical system components, and is not provided in lieu of any Vendor provided warranties. All electrical system components provided by the engine manufacturer are covered by the engine manufacturer's warranty only.

THIS WARRANTY IS EXPRESSLY GRANTED IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience.

KME neither assumes nor authorizes any other person to make or assume for it any other obligation, liability or warranty or to make any other representation on its behalf in connection with the sale or use of the new product covered by this warranty.



One Industrial Complex – Nesquehoning, PA 18240
(800) 235-3928 [Phone] - (570) 669-5124 [Fax]
www.kovatch.com URL

KME FIRE APPARATUS
FIVE (5) – YEAR LETTERING WARRANTY
(Domestic Fire Service Sales)

Kovatch Mobile Equipment Corporation will provide a five (5) year warranty against defects in material and workmanship for all graphic processes. Any valid claims must be made in writing within 15 days of the determination of any defects to KME Fire Apparatus. KME Fire Apparatus will at its option make any necessary repairs either at a local authorized service center or at the factory, if required. KME Fire Apparatus will make the final decision as to where the repairs are to be made and any transportation cost are the owners responsibility, KME will at its option repair or replace any verified defects in workmanship or materials at no cost to the owner provided all the requirements of this warranty have been met.

KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience. THE COMPANY MAKES NOT OTHER WARRANTY, EXPRESSED OR IMPLIED, AND SPECIFICALLY, DISCLAIMS ANY IMPLIED WARRANTY INCLUDING THE WARRANTY OF MERCHANTABILITY.

KME continually strives to improve its products and therefore, reserves the right to make improvements or changes without incurring any obligations to make such changes or additions on equipment previously sold.

GSO# _____

Vin.# _____

Waterous Ten-Year Limited Warranty

WATEROUS warrants, to the original Buyer only, that products manufactured by WATEROUS will be free from defects in material and workmanship under normal use and service for a period of ten (10) years from the date the product is first placed in service, or ten and one-half (10-1/2) years from the date of shipment by WATEROUS, whichever period shall be the first to expire; provided the Buyer notifies WATEROUS, in writing, of the defect in said product within the warranty period, and said product is found by WATEROUS to be nonconforming with the aforesaid warranty. When required in writing by WATEROUS, defective products must be promptly returned by Buyer to WATEROUS at WATEROUS' plant at South St. Paul, Minnesota, or at such other place as may be specified by WATEROUS, with transportation and other charges prepaid. A Returned Material Authorization (RMA) is required for all products and parts and may be requested by phone, fax, email, or mail. The aforesaid warranty excludes any responsibility or liability of WATEROUS for:

- (a) damages or defects due to accident, abuse, misuse, abnormal operating conditions, negligence, accidental causes, use in non-firefighting applications, or improper maintenance, or attributable to written specifications or instructions furnished by Buyer;
- (b) defects in products manufactured by others and furnished by WATEROUS hereunder, it being understood and agreed by the parties that the only warranty provided for such products shall be the warranty provided by the manufacturer thereof which, if assignable, WATEROUS will assign to Buyer, if requested by Buyer;
- (c) any product or part, altered, modified, serviced or repaired other than by WATEROUS, without its prior written consent;
- (d) the cost of dismantling, removing, transporting, storing, or insuring the defective product or part and the cost of reinstallation; and
- (e) normal wear items (packing, strainers, filters, light bulbs, anodes, intake screens, mechanical seals, etc.)

ALL OTHER WARRANTIES ARE EXCLUDED, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IN NO EVENT, WHETHER AS A RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, OR ANY OTHER CAUSE OF ACTION, SHALL WATEROUS BE LIABLE FOR ANY PUNITIVE, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR FOR PERSONAL INJURY OR PROPERTY DAMAGES.

The exclusive remedy of Buyer and the sole liability of WATEROUS, whether based on contract, warranty, tort or any other basis of recovery whatsoever, is expressly limited at the election of WATEROUS to:

- (a) the replacement at the agreed point of delivery of any product or part, which upon inspection by WATEROUS or its duly authorized representative, is found not to conform to the limited warranty set forth above; or
- (b) the repair of such product or part; or
- (c) the refund or crediting to Buyer of the net sales price of the defective product or part.

BUYER'S REMEDIES CONTAINED HEREIN ARE EXCLUSIVE OF ANY OTHER REMEDY OTHERWISE AVAILABLE TO BUYER.

**Waterous Company
125 Hardman Avenue South
South St. Paul, MN 55075 USA
www.waterousco.com**



F-2572 (07/17/12)



UNITED PLASTIC FABRICATING, INC.

WARRANTY

FOR: POLY-TANK®, POLYSIDE®, INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™

LIFETIME SERVICE WARRANTY

United Plastic Fabricating, Inc. (hereinafter called "UPF") warrants each POLY-TANK®, Booster/Foam Tank POLYSIDE® Wetside Tank, Integrator Tank/Body, ELLIPSE™ Elliptical Tank, Ellip-T-Tank Tank and DEFENDER™ Skid Tank to be free from defects in material and workmanship for the service life of the original vehicle (vehicle must be actively used in an emergency response for fire suppression). All UPF Tanks must be installed and operated in accordance with the UPF Installation and Operating Guidelines. Failure to do so can void the warranty.

Every UPF Tank is inspected and tested before leaving our facility. Should your UPF Tank require service, please notify UPF via email, fax, in writing or by calling UPF at 1-978-975-4520. Please provide the serial number, a description of the service request, the location along with the phone number and name of the contact person. Our goal is to have scheduled work completed within a reasonable time period.

Under a valid warranty claim, UPF will cover the cost to repair the UPF Tank including the customary and reasonable costs to make the tank accessible such as the removal and reinstallation of the tank if authorized in advance (pre-approved) by UPF. The warranty will not cover tanks that have been improperly installed, operated, misused, abused, or modified from its intended or designed use. Serial number must not have been altered, defaced or removed. Tanks that are not stored or installed properly which results in the tank suffering UV damage will not be covered by this agreement.

Should UPF determine that the service claim is valid under this warranty for a tank located outside of the United States and Canada, UPF will assume the costs for labor and material for the warranty repair as described above plus all travel costs to the U.S. port of embarkation. Costs for airline travel outside of the U.S. and Canada will not be the responsibility of UPF.

In the event the tank shall become stationed in an area of the world that is considered to be a war zone or where unsafe conditions exist for the safe passage of United States Nationals, as reported by the United States Department of State, (<http://www.state.gov>), and a request to perform service or warranty repairs, UPF reserves the right to refuse to honor such requests. It is the purchaser's responsibility to relocate the tank to an area where such repairs can be performed without undue risk to UPF employees or their designee. UPF will make every reasonable effort to support our products through alternative means.

For Ellipse™ elliptical tanks, a separate five year warranty provided by the subcontractor is applied to the sub-frames, chute linings (rubber isolation strips) and metal components. The stainless steel wrap provided by UPF shall be warranted by the subcontractor performing the wrap installation in accordance with their warranty in place at the time of the installation. UPF will not be liable for any warranty costs associated with the wrap, sub-frames, chute linings (rubber isolation strips) and metal components but will assist with all claims on behalf of its customer.

For PolySide® wetsided tanks and Integrator™ Tank/Body units, all polypropylene components related to the tank shall carry the standard UPF lifetime



UNITED PLASTIC FABRICATING, INC.

WARRANTY

FOR: POLY-TANK®, POLYSIDE®, INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™

service warranty. Other polypropylene components, including but not limited to compartments, wheel wells, fenders and other body related components shall be warranted by UPF for a period of ten years. The warranty for the PolySide® and Integrator™ units excludes paint or hardware, which shall be covered by the manufacturer of the paint/hardware.

All UPF tanks 50 gallons or less utilized for non-fire applications and installed on specialty vehicles such as ATVs, trailers, boats, etc. are covered under a separate warranty policy available from UPF. Further, UPF Protector™ foam and water trailers are warranted under a separate warranty policy available from UPF.

This UPF warranty is transferable within the United States only with prior written approval by UPF (except an original apparatus manufacturer may assign this warranty to the first titled owner/lessee of the apparatus).

UPF will NOT reimburse any unnecessary work and/or work that has not been pre-approved. Any and all third party charges must be pre-authorized and approved in writing by UPF prior to commencing the work. Any unauthorized third party repairs, alterations, actions or modifications will not be covered and can void the warranty. UPF will be the sole determining authority as to whether a service claim will be valid and covered under this warranty.

In no event will UPF be liable for an amount in excess of the purchase price of the booster/foam tank at the time of manufacture or for any loss or damage, whether direct, indirect, incidental, consequential, or otherwise arising out of failure of its product. Loss of contents (water, foam, etc.) shall not be the responsibility of UPF. Further, UPF is not responsible for costs associated with service repairs to chassis, sub-frames, bodies, valves, dumps, hoses, pressure vacuum vents, and other components (i.e. liquid level transducers, etc.). Further, UPF will not cover the cost for travel of the vehicle to and from a repair facility.

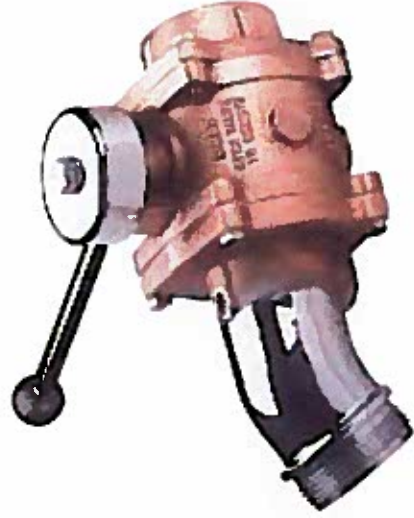
This warranty contains the entire warranty. It is the sole warranty and price agreements or representation, whether oral or written, are either merged herein or expressly cancelled. UPF neither assumes, nor authorizes any person supposing to act on its behalf to change, nor assume for it, any warranty or liability concerning its product.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow exclusion or limitation or incidental or consequential damage, so the above limitation or exclusion may not apply to you. Since some states do not allow limitations on the length of an implied warranty, the above limitation may not apply to you.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF. THERE IS NO EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. ADDITIONALLY, THIS WARRANTY IS IN LIEU OF ALL OTHER OBLIGATION OR LIABILITIES ON THE PART OF UPF.

AKRON BRASS 10 YEAR WARRANTY ON HEAVY DUTY SWING-OUT™ VALVES

Akron Brass warrants Heavy Duty Swing-Out Valves for a period of ten (10) years after purchase against defects in material or workmanship. Akron Brass will repair or replace any Heavy Duty Swing-Out Valve which fails to satisfy this warranty. Repair or replacement shall be at the discretion of Akron Brass. Electrical components shall carry our standard five (5) year warranty. We will not be responsible for: wear and tear; any improper installation, use or maintenance; negligence of the owner or user; repair or modification after delivery; failure to follow our instructions or recommendations; or anything else beyond our control. **WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED, OTHER THAN THOSE INCLUDED IN THIS WARRANTY STATEMENT, AND WE DISCLAIM ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.** Further, we will not be responsible for any consequential, incidental or indirect damages (including, but not limited to, any loss of profits) from any cause whatsoever. No person has authority to change this warranty.



**HEAVY
DUTY**
Swing-Outs
Proven Performance Trusted By Firefighters
For Over Half a Century

 **AKRON**
BRASS COMPANY
An ISO 9001: 2000 Registered Company

H.O. Bostrom Co., Inc.

FireFighter Series

Seat Limited Warranty

Five Year

H.O. Bostrom Company, Inc., Hereinafter called HOBCO, warrants each new seat manufactured by it to be free from defects in materials, (except for the misuse of upholstery materials), and workmanship when delivered to the original purchaser. HOBCO's sole obligation under this warranty is limited to and shall be fully discharged by repairing, or at its option, replacing free of charge at its factory or any authorized service center, such parts which shall prove to HOBCO's satisfaction to be defective within a period of five years from date of delivery to the original purchaser. However, no removal or reinstallation labor will be provided or paid for, or allowance given therefor under the provision of this warranty. Also no transportation will be paid or allowance given therefor under this warranty.

This warranty shall be considered void if recommended maintenance procedures are not followed, if the seat has been altered, modified or changed in any manner that would affect serviceability or if the seat has been negligently used or misused by the purchaser or user.

This warranty is in lieu of all other warranties, expressed or implied, including, without limitation, warranties of merchantability and fitness for a particular purpose, all other representations to the original purchaser, and all other obligations or liabilities, including liability for incidental and consequential damages on the part of HOBCO.

H.O. Bostrom Company
818 Progress Avenue
Waukesha, WI 53186

effective 1/1/98

HEAVY SERVICE WARRANTY INFORMATION

Heavy Service Vehicles

- Airport Rescue Fire (ARF)
- Airport Shuttle
- Asphalt Truck
- Block Truck
- Bottom Dump Trailer Combination
- Cementing Vehicle
- City Bus
- Commercial Pick-Up
- Concrete Pumper
- Construction Material Hauler
- Crash Fire Rescue (CFR)
- Mixer
- Demolition
- Drill Rig
- Dump
- Emergency Service
- Equipment Hauling
- Flatbed Trailer Hauler
- Flatbed Truck
- Fracturing Truck
- Front Loader
- Geophysical Exploration
- Hopper Trailer Combinations
- Landscaping Truck
- Liquid Waste Hauler
- Log Hauling
- Lowboy
- Michigan Special Gravel Trains
- Michigan Special Log Hauler
- Michigan Special Steel Hauler
- Michigan Special Waste Vehicle
- Municipal Dump
- Rapid Intervention Vehicle (RIV)
- Rear Loader (Refuse)
- Recycling Truck
- Residential Pick-Up (Refuse)
- Rigging Truck
- Roll-Off
- Scrap Truck
- Semi-End Dump
- Sewer/Septic Vacuum
- Shuttle Bus
- Side Loader
- Snowplow/Snowblower
- Steel Hauling
- Tanker
- Tank Truck
- Tractors with Pole Trailers
- Tractor/Trailer with Jeeps
- Transfer Dump
- Transfer Vehicle
- Transit Bus
- Trolley
- Utility Truck
- Winch Truck

Heavy Service Typically Is

- Moderate mileage operation (less than 60,000 miles per year)
- On/Off road vocations (10% or more off-road)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under Meritor's warranty requires that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

Front Drive/Non-Drive Steer Axles – 2/Unl/P&L

FD-965	FG-941	MFS-6-162C	MFS-10-144A-N	MFS-13-155	MX-10-120	MX-23-160
FF-941	FG-943	MFS-7-113C-N	MFS-12-122	MFS-14-122	MX-12-120	MX-23-810
FF-942	FH-941	MFS-7-153C-N	MFS-12E-122	MFS-14-143A-N	MX-14-120	
FF-943	FH-946	MFS-7-163C-N	MFS-12-143A-N	MFS-16-122A-N	MX-16-120	
FF-944	FL-941	MFS-8-113B-N	MFS-12-144A-N	MFS-16-143A-N	MX-18-120	
FF-946	FL-943	MFS-8-153B-N	MFS-12-155	MFS-18-133A-N	MX-17-140	
FF-961	MFS-6-151A-N	MFS-8-163B-N	MFS-13-122	MFS-20-133A-N	MX-19-140	
FF-966	MFS-6-153B	MFS-10-122A	MFS-13-143A-N	RF-16-145	MX-21-140	
FF-967	MFS-6-162B	MFS-10-143A-N	MFS-13-144A-N	RF-21-160	MX-21-160	

Drivelines – 1/Unl/P&L

RPL	92N	MXL
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Rear Drive Single Axles – 2/Unl/P&L

MS-17-14X	RS-23-160	MS-30-616-SP
RS-17-144/145/A	RC-23-161	RS-30-185/380
MS-19-14X	RS-23-161	MS-35-380
RS-19-144	RS-23-186/380	RS-38-380
MS-21-114	RC-23-162	RC-25-160
MS-21-14X	RC-23-165	RC-26-633
RS-21-145	RS-24-160	MT-58-616
RS-21-145/A	RS-25-160	MT-58-616-SP
RS-21-160	MS-26-616	71162
RC-22-145	MS-26-616-SP	71163
RC-23-160	RS-26-185/380	79163
RH-23-160	MS-30-616	



HEAVY SERVICE WARRANTY INFORMATION

Rear Drive Tandem/Tridem Axles – 2/Un/P&L

MT-34-14X/P	RT-44-145/P	MT-58-616	RZ-166
RT-34-144/P/A	RT-46-169	MT-58-616-SP	RZ-188
MT-40-14X/P	MT-52-616	RT-58-185/380 ^{1,2}	
RT-40-145/A	MT-52-616-SP	RT-70-380	
MT-44-14X/P	RT-52-185/380 ^{1,2}	MT-70-380	

¹ Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

² Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

Brake Components

Cam P	3/Un/P
Cam P ²	2/100/P
Cam Cast Plus™	2/100/P&L
Q+ Drum Brake™	3/Un/P&L
Q+ Drum Brake™ ²	2/100/P&L
ASA	3/Un/P
ASA ²	2/100/P
Hubs/Cast Drums and Other Wheel-end Components	1/Un/P
Hydraulic Disc Brakes	1/Un/P
All Other Brakes	1/Un/P
EX+ Air Disc Brake	2/100/P&L

¹ Based on stamped wear diameter max.

² Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

³ Warranty for all non-Meritor ASAs supplied by Meritor for all Heavy Service vocations is 1/100/P.

Transfer Cases – 1/Un/P

MTC-4208	MTC-4213	T-2119
MTC-4210	T-2111	T-2120

Rear Drive Tandem – 3/Un/P&L

RT-40-160/P/A ³
RT-46-160/P/A ³
RT-46-164EH/P/A ^{2,3}
RT-50-160/P/A ³

¹ U.S. only. Canadian warranty = 1/Un/P for combination vehicles only.

² Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

³ Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

Meritor Tire Inflation System by PSI

MTIS Components	3/500/P&L
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Trailer Air Suspension Systems

MTA (Trailing Arm)	
Major Structural Components ¹	5/Un/P, 1/Un/L
Height Control Valve	1/Un/P&L
Shock Absorbers	2/Un/P&L
Air Springs	2/Un/P, 1/Un/L
Bushings ¹	5/Un/P, 3/Un/L

¹ Raw wood applications 3/Un/P, 1/Un/L

(For axle and ABS coverage, refer to appropriate product warranties.)

Center Non-drive Axles – 2/Un/P&L

MC26000
71063
79063

Trailer Axles

Beam and Brackets ¹	5/Un/P, 1/Un/L
Wheel End Systems ²	
Standard System ³	1/Un/P&L

¹ 9000 Series is 3/Un/P, 1/Un/L.

² Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

³ When installed by Meritor.

(For brake components and ABS coverage, refer to appropriate product warranties.)



TERMS AND CONDITIONS

Coverage Exclusions

Product Description

All

The cost of any repairs, replacements or adjustments to a covered component (1) associated with noise; (2) resulting from the use or installation of non-genuine Meritor components or materials; (3) due to vibration associated with improper operation or misapplication of drivetrain components; and (4) damage resulting from corrosion.

Front Axles

King Pin Bushings.

Rear Axles

Self-contained traction equalizers and oil filters. The use of NoSPIN differentials will result in the exclusion of axle shafts from warranty considerations. NoSPIN is a product of Eaton.

ASA

Boot and bushing. Bent, broken, over-torqued, missing or otherwise damaged pawl assemblies.

Cam Brake

Brake lining wear and brake shoe "rust-jacking."

Disc Brake

Pad wear, rotor wear.

Coverage Limitations

Product Description

All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program. Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

Front Axles

Tie rod and tie rod ends limited to 3-year/300,000-mile or published vocational coverage, whichever is less. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

Rear Axles

Pinion and through shaft seals limited to 3-year/300,000-mile or published vocational coverage, whichever is less, if yoke is installed by Meritor. If yoke is not installed by Meritor, then Meritor does not warrant pinion seals. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

Rear Axles

The Meritor® breather part number A-2297-C-8765 with A-3196-J-1336 hose must be used for eligibility of any potential warranty consideration relating to contamination and/or loss of lube in axles.

Cam Brake

Limited to bracket, brake spider and camshaft structural integrity.

STEELite X30

Wearable life is up to the discard diameter of the drum.

Disc Brake

Warranty coverage for boots, seals, bushings and pins is 2/200/P. Warranty coverage for pads is 1/100/P.

Warranty coverage on vehicles with 1,850 lb-ft engine torque and over may be reduced on individual drivetrain components. Contact your Meritor representative for specific details.

TERMS AND CONDITIONS

(1) What is Covered by this Commercial Warranty?

Meritor Inc. warrants to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment in vehicles licensed for on-highway use, will be free from defects in material and workmanship. This warranty coverage begins only after the expiration of the OEM's vehicle warranty for the applicable covered components. Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed elsewhere in this warranty statement.

Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Components (whether new, used or remanufactured) installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

For certain components, coverage requires the use of specific extended drain interval or synthetic lubricants. For further information about lubrication and maintenance, see Meritor publication Maintenance Manual Number 1 and the applicable Meritor maintenance manual for the product in question. Other conditions and limitations applicable to this warranty are detailed below.

(2) Designation of Vocational Use Required.

To obtain warranty coverage, each Owner must notify Meritor through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with Meritor directly. Failure to notify Meritor of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date.

A second Owner and each subsequent Owner must also notify Meritor as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor or through the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use.

Coverage under Meritor's warranty requires that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

(3) What is the Cost of this Warranty?

There is no charge to the Owner for this warranty.

(4) What is not Covered by this Warranty?

This warranty does not cover normal wear and tear; nor does it cover a component that fails, malfunctions or is damaged as a result of (I) improper installation, adjustment, repair or modification (including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by Meritor), (II) accident, natural disaster, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the axle and/or driveline capacity), or (III) improper or insufficient maintenance (including deviation from approved lubricants, change intervals, or lube levels). This warranty does not cover any component or part that is not sold by Meritor. For vehicles that operate full or part time outside of the United States and Canada, a one year, unlimited mileage, parts only warranty (1/Unl/P) will apply.

(5) Remedy.

The exclusive remedy under this warranty shall be the repair or replacement of the defective component at Meritor's option. Meritor reserves the right to require that all applicable failed materials are available and/or returned to Meritor for review and evaluation.

(6) Disclaimer of Warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESSED, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

(7) Limitation of Remedies.

In no event shall Meritor be liable for special, incidental, indirect, or consequential damages of any kind or under any legal theory, including, but not limited to, towing, downtime, lost productivity, cargo damage, taxes, or any other losses or costs resulting from a defective covered component.

(8) To Obtain Service.

If the Owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either Meritor or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized Meritor service location. The dealer will inspect the vehicle and contact Meritor for an evaluation of the claim. When authorized by Meritor, the dealer will repair or replace during the term of this warranty any defective Meritor component covered by this warranty.

(9) Entire Agreement.

This is the entire agreement between Meritor and the Owner about warranty and no Meritor employee or dealer is authorized to make any additional warranty on behalf of Meritor. This agreement allocates the responsibilities for component failure between Meritor and the Owner.

Vehicle models, brands and names depicted herein are the property of their respective owners, and are not in any way associated with Meritor Inc., or its affiliates.



Meritor Heavy Vehicle Systems, LLC
2135 West Maple Road
Troy, Michigan 48084 USA

For more information:
call Ontrac at 866-668-7221
or visit meritor.com

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Printed in USA, SP-95155
Revised 03-15 (47865/11900)



Cummins Warranty

Worldwide

Fire Apparatus/Crash Trucks



Coverage

Products Warranted

This Warranty applies to new diesel Engines sold by Cummins and delivered to the first user on or after April 1, 2007, that are used in fire apparatus truck and crash truck* applications Worldwide.

Base Engine Warranty

The Base Engine Warranty covers any failures of the Engine which result, under normal use and service, from a defect in material or factory workmanship (Warrantable Failure). This Coverage begins with the sale of the Engine by Cummins and ends five years or 100,000 miles (160,935 kilometers), whichever occurs first, after the date of delivery of the Engine to the first user.

Engine aftertreatment components included in the Cummins Critical Parts List (CPL) and marked with a Cummins part number are covered under Base Engine Warranty.

Additional Coverage is outlined in the Emission Warranty section.

These Warranties are made to all Owners in the chain of distribution and Coverage continues to all subsequent Owners until the end of the periods of Coverage.

Cummins Responsibilities

Cummins will pay for all parts and labor needed to repair the damage to the Engine resulting from a Warrantable Failure.

Cummins will pay for the lubricating oil, antifreeze, filter elements, belts, hoses and other maintenance items that are not reusable due to the Warrantable Failure.

Cummins will pay for reasonable labor costs for Engine removal and reinstallation when necessary to repair a Warrantable Failure.

Cummins will pay reasonable costs for towing a vehicle disabled by a Warrantable Failure to the nearest authorized repair location. In lieu of the towing expense, Cummins will pay reasonable costs for mechanics to travel to and from the location of the vehicle, including meals, mileage and lodging, when the repair is performed at the site of the failure.

Owner Responsibilities

Owner is responsible for the operation and maintenance of the Engine as specified in Cummins Operation and Maintenance Manuals. Owner is also responsible for providing proof that all recommended maintenance has been performed.

Before the expiration of the applicable Warranty, Owner must notify a Cummins distributor, authorized dealer or other repair location approved by Cummins of any Warrantable Failure and make the Engine available for repair by such facility. Except for Engines disabled by a

Warrantable Failure, Owner must also deliver the Engine to the repair facility.

Service locations are listed on the Cummins Worldwide Service Locator at cummins.com.

Owner is responsible for the cost of lubricating oil, antifreeze, filter elements and other maintenance items provided during Warranty repairs unless such items are not reusable due to the Warrantable Failure.

Owner is responsible for communication expenses, meals, lodging and similar costs incurred as a result of a Warrantable Failure.

Owner is responsible for non-Engine repairs and for "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs and other losses resulting from a Warrantable Failure.

Owner is responsible for a \$100 (U.S. Dollars) deductible per each service visit under this plan in the 3rd, 4th and 5th years of Base Engine Warranty. The deductible will not be charged during the first 2 years of the Base Engine Warranty.

Limitations

Engines with an emissions certification listed below must be operated using only diesel fuel having no more than the corresponding maximum sulfur content. Failure to use the specified fuel (see also Cummins Fuel Bulletin #3379001) can damage the Engine and aftertreatment system within a short period of time. This damage could cause the Engine to become inoperable and failures attributable to the use of incorrect fuels will be denied Warranty Coverage.

Maximum sulfur levels by emissions certification level as listed on the Engine's dataplate are:

EPA 2007/2010/2013	max. 15 parts per million
EPA Tier 4 Interim / Final	max. 15 parts per million
EU Stage IIIB 2011	max. 15 parts per million
Euro 4/5	max. 50 parts per million
Euro 6	max. 10 parts per million

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine.

Any unauthorized modifications to the aftertreatment system could negatively effect emissions certification and void the Warranty.

Cummins is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel exhaust fluid.

This Warranty does not apply to accessories supplied by Cummins which bear the name of another company.

Such non-warranted accessories include, but are not limited to: alternators, starters, fans, air conditioning compressors, clutches, filters, transmissions, torque converters, vacuum pumps, power steering pumps, fan drives and air compressors. Cummins branded alternators and starters are covered for the first two years from the date of delivery of the Engine to the first user, or the expiration of the Base Engine Warranty, whichever occurs first.

Failures resulting in excessive oil consumption are not covered beyond the duration of the Coverage or 100,000 miles (160,935 kilometers) or 7,000 hours from the date of delivery of the Engine to the first user, whichever of the three occurs first. Before a claim for excessive oil consumption will be considered, Owner must submit adequate documentation to show that consumption exceeds Cummins published standards.

Failures of belts and hoses supplied by Cummins are not covered beyond the first year from the date of delivery of the Engine to the first user or the duration of the Warranty, whichever occurs first.

Parts used to repair a Warrantable Failure may be new Cummins parts, Cummins approved rebuilt parts or repaired parts. Cummins is not responsible for failures resulting from the use of parts not approved by Cummins.

A new Cummins or Cummins approved rebuilt part used to repair a Warrantable Failure assumes the identity of the part it replaced and is entitled to the remaining Coverage hereunder.

Cummins Inc. reserves the right to interrogate Electronic Control Module (ECM) data for purposes of failure analysis.

CUMMINS DOES NOT COVER WEAR OR WEAROUT OF COVERED PARTS.

CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

THIS WARRANTY AND THE EMISSION WARRANTY SET FORTH HEREINAFTER ARE THE SOLE WARRANTIES MADE BY CUMMINS IN REGARD TO THESE ENGINES. CUMMINS MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Emission Warranty

Products Warranted

This Emission Warranty applies to new Engines marketed by Cummins that are used in the United States** or Canada in vehicles designed for transporting persons or property on a street or highway. This Warranty applies to Engines delivered to the first user on or after September 1, 1992.

Coverage

Cummins warrants to the first user and each subsequent purchaser that the Engine is designed, built and equipped so as to conform at the time of sale by Cummins with all U.S. federal emission regulations applicable at the time of manufacture and that it is free from defects in material or factory workmanship which would cause it not to meet these regulations within the longer of the following periods: (A) Five years or 100,000 miles (160,935 kilometers) of operation, whichever occurs first, as measured from the date of delivery of the Engine to the first user or (B) The Base Engine Warranty.

If the vehicle in which the Engine is installed is registered in the state of California, a separate California Emission Warranty also applies.

Limitations

Engines with an emissions certification listed below must be operated using only diesel fuel having no more than the corresponding maximum sulfur content. Failure to use the specified fuel (see also Cummins Fuel Bulletin #3379001) can damage the Engine and aftertreatment system within a short period of time. This damage could cause the Engine to become inoperable and failures attributable to the use of incorrect fuels will be denied Warranty Coverage.

Maximum sulfur levels by emissions certification level as listed on the Engine's dataplate are:

EPA 2007/2010/2013	max. 15 parts per million
EPA Tier 4 Interim / Final	max. 15 parts per million
EU Stage IIIB 2011	max. 15 parts per million
Euro 4/5	max. 50 parts per million
Euro 6	max. 10 parts per million

Failures, other than those resulting from defects in material or factory workmanship, are not covered by this Warranty.

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine.

Any unauthorized modifications to the aftertreatment system could negatively effect emissions certification and void the Warranty.

Cummins is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel exhaust fluid.

Cummins is not responsible for non-Engine repairs, "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs or other losses resulting from a Warrantable Failure.

**CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL
OR CONSEQUENTIAL DAMAGES.**

* Airport operated crash trucks and fire department operated trucks employed to respond to fires, hazardous material releases, rescue and other emergency-type situations.

** United States includes American Samoa, the Commonwealth of Northern Mariana Islands, Guam, Puerto Rico and the U.S. Virgin Islands.



Cummins Inc.
Box 3005
Columbus, IN 47202-3005
U.S.A.

Bulletin 3381161
Printed in U.S.A. Rev. 1/13
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NEW PRODUCT WARRANTY



**PARTICIPATING OEM SALES
DISTRIBUTOR SALES**

LIMITED WARRANTY ON NEW ALLISON AUTOMATIC TRANSMISSIONS USED IN AUTOMOTIVE FIRE APPARATUS APPLICATIONS

Allison Transmission will provide for repairs or replacement, at its option, during the warranty period of each new Allison transmission listed below that is installed in an Automotive Fire Apparatus in accordance with the following terms, conditions, and limitations.

WHAT IS COVERED

- **WARRANTY APPLIES** — This warranty is for new Allison transmission models listed below installed in an Automotive Fire Apparatus and is provided to the original and any subsequent owner(s) of the vehicle during the warranty period.
- **REPAIRS COVERED** — The warranty covers repairs or replacement, at Allison Transmission’s option, to correct any transmission malfunction resulting from defects in material or workmanship occurring during the warranty period. Needed repairs or replacements will be performed using the method Allison Transmission determines most appropriate under the circumstances.
- **TOWING** — Towing is covered to the nearest Allison Transmission Distributor or authorized Dealer only when necessary to prevent further damage to your transmission.
- **PAYMENT TERMS** — Warranty repairs, including parts and labor, will be covered per the schedule shown in the chart contained in section “APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE.”
- **OBTAINING REPAIRS** — To obtain warranty repairs, take the vehicle to any Allison Transmission Distributor or authorized Dealer within a reasonable amount of time and request the needed repairs. A reasonable amount of time must be allowed for the Distributor or Dealer to perform necessary repairs.
- **TRANSMISSION REMOVAL AND REINSTALLATION** — Labor costs for the removal and re-installation of the transmission, when necessary to make a warranty repair, are covered by this warranty.
- **WARRANTY PERIOD** — The warranty period for all coverages shall begin on the date the transmission is delivered to the first retail purchaser, with the following exception:

Demonstration Service - A transmission in a new truck or bus may be demonstrated to a total of 5000 miles (8000 kilometers). If the vehicle is within this limit when sold to a retail purchaser, the warranty start date is the date of purchase. Normal warranty services are applicable to the demonstrating Dealer. Should the truck or bus be sold to a retail purchaser after these limits are reached, the warranty period will begin on the date the vehicle was first placed in demonstration service and the purchaser will be entitled to the remaining warranty.

APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE

APPLICABLE MODELS	WARRANTY LIMITATIONS (Whichever occurs first)		ADJUSTMENT CHARGE TO BE PAID BY THE CUSTOMER	
	Months	Transmission Miles Or Kilometers	Parts	Labor
MT, MD 3000, 3200, 3500, 3700	0-24	No Limit	No Charge	No Charge
HT with Hydraulic Controls	0-24	No Limit	No Charge	No Charge
AT, 1000 Series™, 2000 Series™, 2400 Series™	0-36	No Limit	No Charge	No Charge
HT with Electronic Controls	0-60	No Limit	No Charge	No Charge
HD 1000 EVS, 2100 EVS, 2200 EVS 2350 EVS, 2500 EVS, 2550 EVS, 3000 EVS, 3500 EVS, 4000, 4000 EVS, 4500, 4500 EVS, 4700 EVS 4800 EVS	0-60	No Limit	No Charge	No Charge

WHAT IS NOT COVERED

- **DAMAGE DUE TO ACCIDENT, MISUSE, or ALTERATION** — Defects and damage caused as the result of any of the following are not covered:
 - Flood, collision, fire, theft, freezing, vandalism, riot, explosion, or objects striking the vehicle;
 - Misuse of the vehicle;
 - Installation into unapproved applications and installations;
 - Alterations or modification of the transmission or the vehicle, and
 - Damage resulting from improper storage (refer to long-term storage procedure outlined in the applicable Allison Service Manual)
 - Anything other than defects in Allison Transmission material or workmanship

NOTE: This warranty is void on transmissions used in vehicles currently or previously titled as salvaged, scrapped, junked, or totaled.

- **CHASSIS, BODY, and COMPONENTS** — The chassis and body company (assemblers) and other component and equipment manufacturers are solely responsible for warranties on the chassis, body, component(s), and equipment they provide. Any transmission repair caused by an alteration(s) made to the Allison transmission or the vehicle which allows the transmission to be installed or operated outside of the limits defined in the appropriate Allison Installation Guideline is solely the responsibility of the entity making the alteration(s).
- **DAMAGE CAUSED by LACK of MAINTENANCE or by the USE of TRANSMISSION FLUIDS NOT RECOMMENDED in the OPERATOR'S MANUAL** — Defects and damage caused by any of the following are not covered:
 - Failure to follow the recommendations of the maintenance schedule intervals applicable to the transmission;
 - Failure to use transmission fluids or maintain transmission fluid levels recommended in the Operator's Manual.
- **MAINTENANCE** — Normal maintenance (such as replacement of filters, screens, and transmission fluid) is not covered and is the owner's responsibility.
- **REPAIRS by UNAUTHORIZED DEALERS** — Defects and damage caused by a service outlet that is not an authorized Allison Transmission Distributor or Dealer are not covered.
- **USE of OTHER THAN GENUINE ALLISON TRANSMISSION PARTS** — Defects and damage caused by the use of parts that are not genuine Allison Transmission parts are not covered.
- **EXTRA EXPENSES** — Economic loss and extra expenses are not covered. Examples include but are not limited to: loss of vehicle use; inconvenience; storage; payment for loss of time or pay; vehicle rental expense; lodging; meals; or other travel costs.
- **"DENIED PARTY" OWNERSHIP** — Warranty repair parts and labor costs are not reimbursed to any participating or non-participating OEMs, dealers or distributors who perform warranty work for, or on behalf of, end users identified by the United States as being a "denied party" or who are citizens of sanctioned or embargoed countries as defined by the U.S. Department of Treasury Office of Foreign Assets Control. Furthermore, warranty reimbursements are not guaranteed if the reimbursement would be contrary to any United States export control laws or regulations as defined by the U.S. Department of Commerce, the U.S. Department of State, or the U.S. Department of Treasury.

OTHER TERMS APPLICABLE TO CONSUMERS AS DEFINED by the MAGNUSON-MOSS WARRANTY ACT

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Allison Transmission does not authorize any person to create for it any other obligation or liability in connection with these transmissions. **ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO THESE TRANSMISSIONS IS LIMITED IN DURATION TO THE DURATION OF THIS WRITTEN WARRANTY. PERFORMANCE OF REPAIRS AND NEEDED ADJUSTMENTS IS THE EXCLUSIVE REMEDY UNDER THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (SUCH AS, BUT NOT LIMITED TO, LOST WAGES OR VEHICLE RENTAL EXPENSES) RESULTING FROM BREACH OF THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY.****

** Some states do not allow limitations on how long an implied warranty will last or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

OTHER TERMS APPLICABLE TO OTHER END-USERS

THIS WARRANTY IS THE ONLY WARRANTY APPLICABLE TO THE ALLISON TRANSMISSION MODELS LISTED ABOVE AND IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALLISON TRANSMISSION DOES NOT AUTHORIZE ANY PERSON TO CREATE FOR IT ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH SUCH TRANSMISSIONS. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM BREACH OF THIS WARRANTY OR ANY IMPLIED WARRANTY.

QUESTIONS

If you have any questions regarding this warranty or the performance of warranty obligations, you may contact any Allison Transmission Distributor or Dealer or write to:

Allison Transmission
General Motors Corporation
P.O. Box 894
Indianapolis, IN 46206-0894
Attention: Warranty Administration 462-470-PF9
Form SE0616EN (200606)

LIMITED WARRANTY FOR MODELS

1000, 4000, DURASTAR® SERIES

* Effective with vehicles built January 02, 2015 or later

BASIC VEHICLE

Navistar, Inc., at its option, will repair or replace any part of this vehicle that proves defective in material or workmanship, in normal use and service, with new or ReNeWed® parts, based on the Component Coverages below. Exceptions are listed below:

BASIC VEHICLE COVERAGE	Months	Miles/Km (000)
Basic Vehicle Warranty (Feature Code 40024) (See exceptions listed below)	24	Unlimited
Towing (Vehicles with MaxxForce® 7 engine failures only)	24	Unlimited
Towing (Vehicles with MaxxForce® 9 engine failures only)	24	250/400
Towing (Vehicles with Navistar® N 9 engine failures only)	24	250/400
Towing (Vehicles with MaxxForce® DT standard torque engine failures only)	24	Unlimited
Towing (Vehicles with MaxxForce® DT high torque engine failures only)	24	250/400
Towing (First 90 days see below) (Vehicle Down Situations Only)		
(See exceptions listed below)		
Note: Items not listed in warranty exceptions follow basic warranty.		
WARRANTY EXCEPTIONS		
CHASSIS COVERAGE	Months	Miles/Km (000)
Frame side rails	84	Unlimited
C ab/cowl structure	60	Unlimited
C ab/cowl perforation corrosion	60	Unlimited
ENGINE COVERAGE	Months	Miles/Km (000)
Non-Rescue Applications		
MaxxForce® 7 Engine	24	Unlimited
MaxxForce® 9 Engine	24	250/400
Navistar® N 9	24	250/400
MaxxForce® DT Engine Standard Torque	24	Unlimited
MaxxForce® DT Engine High Torque	24	250/400
Rescue Application Only (Fire Truck, Ambulance, Emergency)		
MaxxForce® 7 Engine	60	1000/160
MaxxForce® 9 Engine	60	1000/160
Navistar® N 9	60	1000/160
MaxxForce® DT Engine Standard Torque	60	1000/160
MaxxForce® DT Engine High Torque	60	1000/160
DRIVETRAIN COVERAGE	Months	Miles/Km (000)
Monitor Axles (DuraStar model)	36	Unlimited
MISCELLANEOUS COVERAGE	Months	Miles/Km (000)
Batteries	12	Unlimited
Brightwork, Chassis Paint and Corrosion (other than Cab)	6	Unlimited
Hood/Cab Paint	12	Unlimited

FIRST 90 DAYS FROM DELIVERY TO USER (DTU)
 Correction of loose fasteners, squeaks, rattles and unusual noises; Towing (unless specific coverage is stated above); Adjustments and Maintenance (e.g. aim headlights; adjust brakes/clutch; adjust steering system; check and fill coolant levels).

Navistar Diesel Engine Coverage includes:

Engine block, cylinder heads, internally lubricated components fuel pump, high pressure pump, turbocharger, water pump, air compressor, injectors/nozzles, electronic engine modules, engine relays, engine sensors and regulators required for electronic engine operation, and certain aftertreatment components. Excluding: attaching accessories (e.g., fan clutch, alternator, starter, etc.), and externally mounted electrical and filtration systems.

WHAT IS NOT INCLUDED UNDER BASIC COVERAGE

Components/Items

- Warranted by their respective manufacturers (e.g., non-International® brand engines, tires, Allison Transmissions, Eaton Hybrid components, lubricants, etc.)
- Bodies, equipment, and accessories installed by other than authorized International® Truck employees at International® Truck manufacturing plants
- Front and rear axle alignment
- Front & Rear axle coverage excludes brakes, wheel ends, axle shafts, controls & attachments

Repairs & Maintenance

- Maintenance-related items/repairs, or those, as a result of normal wear and tear, including tune-ups, brake/clutch linings, windshield wiper blades, tire balancing, lubrication, and other similar procedures/parts required to keep vehicle in good working condition
 - Failures that are the result of poor fuel quality, water in fuel, rust, etc.
 - Repairs needed as a result of vehicle misuse, negligent care, improper maintenance, improper operation, or the result of accident or collision
 - Fade, runs, mismatch or damage to paint, trim items, upholstery, chrome, polished surfaces, etc., resulting from environmental causes such as improper polishes, cleaners or washing solutions, or chemical and industrial fallout
 - Failure to observe published capacity or load specifications for engine, transmission, propeller shaft, axles (powertrain) and suspension
- Other**
- Vehicles sold and/or operated outside the United States and Canada
 - Vehicles/components that have had unauthorized alterations or modifications
 - Vehicles on which the odometer reading has been altered
 - Loss of time or use of the vehicle, loss of profits, inconvenience, or other consequential or incidental damages or expenses
 - Replacement of defective parts with parts other than those provided by Navistar, Inc

OBTAINING SERVICE

Return this vehicle to any International Truck Dealer authorized to service this model vehicle and engine.

This warranty is automatically transferred to subsequent owners at no charge. Visit your local Authorized International Truck Dealer for name and address change information.

Note: The customer has 365 days and up to a maximum of 100,000 miles (160,000 km) from DTU to purchase an extended warranty on the unit. For extended warranty purchases between 181 and 365 days from DTU and <100,000 miles (160,000 km) an additional fee will be assessed. See your local International dealer for details.

KME has included Navistar option code 40LNU in all commercial chassis models. This code increases any warranty time period shown above that is less than 60 months to a full five (5) years with a mileage limitation of 100,000 or more.

DISCLAIMER

NO WARRANTIES ARE GIVEN BEYOND THOSE DESCRIBED HEREIN. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. THE COMPANY SPECIFICALLY DISCLAIMS WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. ALL OTHER REPRESENTATIONS TO THE USER/PURCHASER, AND ALL OTHER OBLIGATIONS OR LIABILITIES, THE COMPANY FURTHER EXCLUDES LIABILITY FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES. ON THE PART OF THE COMPANY OR SELLER. NO person is authorized to give any other warranties or to assume any liabilities on the Company's behalf unless made or assumed in writing by the Company, and no other person is authorized to give any warranties or to assume any liabilities on the seller's behalf unless made or assumed in writing by the seller.

Remedies Under State or Provincial Law: Some States and Provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to the owner. This warranty gives the owner specific legal rights, and he may also have other legal rights which may vary by state or province.

RECORD OF OWNERSHIP

Upon receipt of new vehicle by original owner, complete the following: I have read this Warranty Brochure and fully understand the warranty coverage. I acknowledge that I have received a copy of the Owner's Limited Warranty and I accept the terms described herein.

Customer Signature	_____	Date	_____				
Owner's Address	_____	City	_____	State/Prov	_____	Postal Code	_____
Truck Model	_____	Vehicle Identification Number	_____				
Engine Number	_____	Engine Serial Number	_____				
Date Delivered to User (DTU)	_____	Odometer Reading at Delivery	_____				

IMPORTANT: The information contained in this Warranty Policy explains the coverage provided on your new International® vehicle. This policy should be kept in the vehicle for presentation to the Dealer when you request warranty services.



SECTION 8

PRODUCTS



SECTION 8

KME

2015 MAPC/FCAM PUMPER

BASE MODELS

BASIC COMMERCIAL PUMPER

MAPC/FCAM 1 TWO (2) DOOR COMMERCIAL FLEX PUMPER

MIDDLE RANGE COMMERCIAL PUMPER

MAPC/FCAM 2 FOUR (4) DOOR COMMERCIAL FLEX PUMPER

HIGH END COMMERCIAL PUMPER

**MAPC/FCAM 3 FOUR (4) DOOR FLEX "SPECIAL" COMMERCIAL
PUMPER**

MIDDLE RANGE CUSTOM PUMPER

MAPC/FCAM 4 PANTHER CUSTOM PUMPER

HIGH END CUSTOM PUMPER

MAPC/FCAM 5 PREDATOR CUSTOM PUMPER

SECTION 8 – PRODUCTS

To the best of our knowledge all five (5) base model pumpers proposed by KME and all equipment and options offered by KME are in compliance with all relevant standards, to include NFPA Standard 1901, Federal DOT requirements, FMVSS 121. All apparatus and components will be new and unused except for use that is incidental to the construction testing and transportation of the apparatus.

It should be noted that KME is located in the Northeastern region of the United States. As a result KME builds into every pumper the capability to operate in the cold operating conditions that are found in this part of the country. Some of these standard features are a ¼” thick steel radiator skid plate, enclosed pump module, location of heat generating exhaust components in the pump compartment, booster reel air blow down systems, welded stainless steel piping that is fabricated with a large number of Victaulic coupling for ease of disassembly and repair, compartment vents that are shielded from introducing road contaminants into the compartments, multiple heavy duty electrical system grounding straps and the use of extraordinarily high strength aluminum alloy (5052-H32) that is more than 30% thicker than competitive offerings.



PROPOSAL FOR A KME

BASIC COMMERCIAL

CHASSIS PUMPER

MAPC/FCAM 1

2015



QUOTATION

Metropolitan Area Planning Council
 Lorraine See
 60 TemplePlace
 6th Floor Reception
 Boston, Ma 02111
 617-933-0766

Bulldog Fire Apparatus
 Ken Franks
 17 Winter Street
 Woodville, MA 01784
 508-435-4200
 kfranks@bulldogfa.com

Sales Rep: **Terms:**
 FCAM Commercial Basic 2015Final draft
 MAPC/FCAM-1

Drawing #:
Est. Delivery Date: // **Penalty:**

Customer PO #:
Customer #:
QPF #:

Quote No: 10029-0045
 11/11/2015 14:15:27

PART NO	DESCRIPTION	QTY	ID
QUOTE DATA VERSION: 1014.0150- 2015 DATA SET			
02-00-0060	PROPOSED BY - BULLDOG FIRE APPARATUS	1	KME
04-00-0000	PROPOSED - GENERAL INFORMATION - NFPA 1901	1	KME
04-00-0033	PROPOSED - COMPLETION INFO	1	KME
04-00-0040	PROPOSED - FMVSS CERTIFICATION	1	KME
04-00-0060	PROPOSED - RECORDS	1	KME
04-00-0100	PROPOSED - GENERAL CONSTRUCTION	1	KME
04-00-0120	PROPOSED - SINGLE LINE RESPONSIBILITY	1	KME
04-00-0130	PROPOSED - PRODUCT LIABILITY - \$30,000,000.00	1	KME
04-00-0193	PROPOSED - PAINT PERFORMANCE CERTIFICATION	1	KME
04-00-0490	PROPOSED - PRICES & PAYMENTS	1	KME
04-00-0540	PROPOSED - BOND REQUIREMENTS	1	KME
04-00-0560	PROPOSED - PERFORMANCE BOND	1	KME
04-00-0580	PROPOSED - NON-COLLUSION AGREEMENT	1	KME
04-00-0630	PROPOSED - MATERIAL & WORKMANSHIP	1	KME
04-00-0660	PROPOSED - CONTRACT SPECIALIST	1	KME
04-00-0680	PROPOSED - APPROVAL DRAWING	1	KME
04-00-0700	PROPOSED - INSPECTION VISITS (1)	1	KME
04-00-0820	ACCOMMODATIONS FOR ONE (1) DEALER PERSONNEL FCAM	1	DLR
04-00-1200	PROPOSED - DELIVERY	1	KME
04-00-1215	PROPOSED - INSTRUCTION MANUALS, TWO (2) SETS - CD	1	KME
04-00-1215	POWERPOINT DELIVERY - PROPOSAL FCAM	1	DLR
04-00-1300	PROPOSED - VEHICLE FLUIDS PLATE	1	KME
04-00-1320	PROPOSED - PRINCIPAL APPARATUS DIMENSIONS & GVWR	1	KME
04-00-1430	PROPOSED - KME OWNERSHIP	1	KME
04-00-1445	PROPOSED - UNIT BUILT AT HEADQUARTERS	1	KME
04-00-1500	PROPOSED - MANUFACTURE GENERATED EXACT BLUEPRINT WITH BID	1	KME
04-00-1521	PROPOSED - KME and BULLDOG FAMA MEMBERSHIP	1	KME
04-00-1540	PROPOSED - MANUFACTURED IN THE UNITED STATES	1	KME
04-00-1550	PROPOSED - ISO 9001 QUALITY MANAGEMENT SYSTEM	1	KME
04-00-1605	PROPOSED - AMP DRAW REPORT	1	KME
04-00-1700	PROPOSED - COOPERATIVE PURCHASING	1	KME
07-00-0045	"PUMPER FIRE APPARATUS" NFPA 2009 CHAPTERS OF COMPLIANCE	1	KME
08-00-0000	VEHICLE DATA PLATE DESCRIPTION	1	KME
14-00-0000	NFPA ROLLOVER STABILITY GENERAL STATEMENT	1	KME
AA-00-002A	SERVICE CENTER - PROPOSAL FCAM	1	DLR
AC-05-0125	<2> PUMPER - INTL 4400 SA SBA - 2DR 4X2, 40GVW - 14F/26R	1	KME
AC-05-6800	VEHICLE TOP SPEED - INTERNATIONAL - 2009 NFPA STATEMENT	1	KME

PART NO	DESCRIPTION	QTY	ID
AC-05-6900	INTERNATIONAL SAE J2433 ROLLOVER TESTING	1	KME
AC-05-7280	INT ACC - SEATS INC. DRIVER & OFFICER SEAT - IPO INT. SEATS	1	KME
AC-05-9022	INT - ZICO ULLH SCBA BOTTLE BRACKET	1	KME
AC-05-9030	INT - COMMERCIAL CHASSIS STANDARD FRONT BUMPER	1	KME
AC-05-9315	INT - DELETE WHEEL TRIM KITS	1	KME
AC-05-9350	INT - COVER FUEL TANK WITH TREAD PLATE OVERLAY	1	KME
AC-05-9355	INT - COVER BATTERY BOX WITH TREAD PLATE OVERLAY	1	KME
AC-05-9395	INT - INSTALL STANDARD #MATM ANTENNA	1	KME
AC-05-9600	INT - TIRE PRESSURE MONITORING - LED VALVE STEM CAPS - SIX TIRES	1	KME
BA-02-8355	<2> HEADER, FLEX SERIES PUMPER (COMMERCIAL)	1	KME
BA-06-9327	**** AKRON/WELDON VDR/SEAT BELT SYS. INCLUDED IN INTERNATIONAL CHASSIS SPEC	1	KME
BA-06-9330	AKRON/WELDON VDR DOWNLOAD HARNESS	1	KME
BE-01-0050	COMMERCIAL CHASSIS ELECTRICAL SYSTEM DESCRIPTION	1	KME
BE-01-0200	12 VOLT ELECTRICAL SYSTEM TESTING - ALL UNITS	1	KME
BE-05-0330	DIAMOND LOGIC MULTI-PLEX SYSTEM, INTERNATIONAL CHASSIS ONLY	1	KME
BE-05-0900	CHASSIS DIAGNOSTICS SYSTEM	1	KME
BE-15-1500	BATTERY DISCONNECT SWITCH, ALL UNITS	1	KME
BE-20-1630	120 VOLT 20 AMP SUPER AUTO EJECT FOR BATT CHARGER - COMMERCIAL	1	KME
BE-20-1715	SHORELINE RECEPTACLE LABEL - NFPA	1	KME
BE-20-1720	RED COVER FOR KUSSMAUL AUTO-EJECT RECEPTACLE, #091-55RD	1	KME
BE-20-1760	SHORELINE LOCATION - DRIVER'S STEP WELL	1	KME
BE-20-1810	KUSSMAUL MODEL 12HO, 20AMP, BATTERY CHARGER	1	KME
BF-00-5000	DOOR OPEN INDICATOR W/ INTEGRAL AUDIBLE ALARM	1	KME
BG-00-0470	COMMERCIAL CHASSIS MARKER LIGHTS AND REFLECTORS	1	KME
BG-00-1610	TRUCK-LITE MARKER/TURN LIGHTS @ EA SIDE OF BODY	1	KME
BG-00-1660	TRUCK-LITE MARKER LIGHTS @ REAR OF BODY	1	KME
BG-00-1800	TRUCK-LITE DOT AMBER REFLECTORS @ SIDE OF BODY	1	KME
BG-00-1810	TRUCK-LITE DOT RED REFLECTORS @ REAR OF BODY	1	KME
BG-00-2915	TECNIQ #L10 LED LICENSE PLATE LIGHT @ DS REAR OF BODY	1	KME
BG-02-2532	CODE 3, #65 LED BRAKE, REVERSE, & TURN W/ QUAD HOUSING	1	KME
BH-04-1130	BODY STEP LIGHTS, TECNIQ EON 3 LED, ALL DEVICES	2	KME
BH-05-1625	DUNNAGE AREA LIGHTING, TECNIQ EON 3 LED	1	KME
BH-05-2017	UNITY LED SPOTLIGHTS ON REAR BODY STANCHIONS	1	KME
BH-10-6080	CODE 3 9X7 LED SCENE LIGHTS ON REAR OF BODY	1	KME
BH-10-6096	CODE 3 9X7 LED SCENE LIGHTS ON DRIVER SIDE OF BODY	1	KME
BH-10-6098	CODE 3 9X7 LED SCENE LIGHTS ON OFFICER SIDE OF BODY	1	KME
BH-10-8020	CONTROL SWITCH IN CAB FOR REAR OF BODY LIGHTS	1	KME
BH-10-8080	CONTROL SWITCH IN CAB FOR DRIVER SIDE OF BODY LIGHTS	1	KME
BH-10-8100	CONTROL SWITCH IN CAB FOR OFFICER SIDE OF BODY LIGHTS	1	KME
BH-11-0400	NFPA (2) JW SPEAKER LED RECTANGULAR GROUND LIGHTS, BELOW CAB DOORS	1	KME
BI-00-0300	PUMPER BODY ELECTRICAL SYSTEM	1	KME
BI-00-0305	PUMPER BODY JUNCTION COMPARTMENT	1	KME
BJ-00-5110	PUMP ENCLOSURE WORK LIGHTS - GROTE LED	1	KME
BJ-00-5150	ENGINE COMPARTMENT WORK LIGHTS - PETERSON	1	KME
BJ-02-0400	COMPT. LIGHTS, AMDOR LUMA BAR LED LIGHTING - SINGLE	7	KME
BL-95-0000	NFPA COMPLIANT WARNING LIGHT PACKAGE - ALL UNITS	1	KME
BL-95-0100	LIGHT PACKAGE ACTUATION/CONTROLS - ALL UNITS	1	KME
BL-98-0000	WARNING LIGHT FLASH PATTERN - NFPA FLASH PATTERN	1	KME
BM-00-0210	CODE 3 UPPER PACKAGE - COMMERCIAL PUMPER	1	KME
BM-02-0082	A-UPPER, CODE 3 LED 2758NFPA P1, RX 2700 58" PRIZM II BAR	1	KME
BM-02-1055	C-UPPER, CODE 3 ARCH LED BEACONS - 180° SOLID COLOR	1	KME
BM-02-2000	B/D-UPPER REAR, COVERED BY LIGHTS IN ZONE C-UPPER	1	KME
BM-02-3000	B/D-UPPER FRONT, COVERED BY LIGHTS IN ZONE A-UPPER	1	KME
BM-07-0210	CODE 3 LOWER PACKAGE - COMMERCIAL PUMPER	1	KME
BM-09-0016	A-LOWER FRONT, CODE 3 45 SERIES LED	1	KME
BM-09-0100	A-LOWER FRONT MOUNTING, COMMERCIAL CHASSIS	1	KME
BM-09-1014	C-LOWER REAR, CODE 3 65 SERIES LED	1	KME
BM-09-2008	B/D-LOWER FRONT, CODE 3 LED X SINGLE SERIES	1	KME
BM-09-2100	B/D-LOWER FRONT MOUNTING, COMMERCIAL CHASSIS	1	KME
BM-09-3006	B/D-LOWER MID, CODE 3 65 SERIES LED	1	KME
BM-09-4006	B/D-LOWER REAR, CODE 3 65 SERIES LED	1	KME
BM-15-0000	LIGHT PACKAGE NFPA CERTIFICATION - ALL UNITS	1	KME
BW-00-0560	CODE 3, #CA278, BACK-UP ALARM - 87DBA	1	KME
BW-00-5001	DUAL CHROME AIR HORNS (COMMERCIAL)	1	KME
BW-00-5125	DUAL AIR HORNS SIDE MOUNT ON HOOD, 1-DS & 1-OS	1	KME

PART NO	DESCRIPTION	QTY	ID
BW-00-5200	AIR HORN CTRL - FOOT FOR OFFICER & STEERING WHEEL FOR DRIVER	1	KME
BW-01-0110	SIREN, WHELEN #295SLSA1, 100W	1	KME
BW-01-1000	ONE (1) WHELEN SP123BMC SPEAKER	1	KME
DC-00-239K	WATEROUS CX 1250 GPM SINGLE STAGE PUMP	1	KME
DC-01-4650	WATEROUS CX MECHANICAL PUMP SEAL	1	KME
DC-01-5180	WATEROUS PUMP IMPELLER (SINGLE STAGE)	1	KME
DC-01-6210	WATEROUS "C20" PUMP DRIVE UNIT, ALL WATEROUS MID-SHIP PUMPS	1	KME
DC-01-6490	PUMP RATIO (HALE, WATEROUS OR DARLEY)	1	KME
DC-01-8140	WATEROUS - INTERNATIONAL PUMP SHIFT	1	KME
DC-01-9020	TRANSMISSION LOCK-UP (HALE, WATEROUS OR DARLEY)	1	KME
DC-02-1900	PUMP MOUNTS - MID-SHIP PUMPS	1	KME
DC-02-1995	PUMP INSTALLATION - COMMERCIAL	1	KME
DC-04-0120	MANIFOLD - DISCHARGE & SUCTION FOR 1250-2000 GPM INTERFACE PUMPING SYSTEM	1	KME
DC-05-1222	FIRE RESEARCH "PUMP BOSS" PBA400 PRESSURE GOVERNOR	1	KME
DC-05-1280	AKRON STYLE #59 INTAKE RELIEF VALVE	1	KME
DC-05-2500	PUMP UL CERTIFICATION - 750 GPM & UP	1	KME
DC-05-3680	TRIDENT "MANUAL" AIR PRIMING SYSTEM	1	KME
DC-05-5110	ROTARY MASTER DRAIN VALVE	1	KME
DC-05-5400	DRAINS/BLEEDER "INNOVATIVE CONTROLS" LIFT UP @ ALL 1-1/2" OR LARGER	1	KME
DC-05-5500	SYNFLEX SUCTION, DISCHARGE, PRESSURE AND CONTROL LINES	1	KME
DC-10-2202	SIDE MOUNT PUMP MODULE, PUMPER	1	KME
DC-10-2500	PUMP MODULE - STEEL CONSTRUCTION	1	KME
DC-10-2770	SIDE MOUNT DUNNAGE AREA	1	KME
DC-14-3115	WATEROUS MAIN SUCTION INLETS 6" NST, 1250 GPM CX PUMP	1	KME
DC-14-5300	SHORT NECK MAIN PUMP SUCTION INLETS - DS & OS	1	KME
DC-14-5560	6" NST MAIN PUMP SUCTION PRESSURE VENTED CAPS (2)	1	KME
DC-20-1000	2 1/2" AUX. SIDE SUCTION @ DS PANEL TO REAR OF MAIN INLET	1	KME
DC-20-1100	2 1/2" AKRON #8800 S.S. BALL VALVE, DS REAR AUX SUCTION	1	KME
DC-20-1200	SWING CONTROL @ VALVE, DS REAR AUX SUCTION	1	KME
DC-20-9500	BEHIND PANEL MOUNT	1	KME
DC-25-1410	TANK TO PUMP - 3" VALVE - PUMPER	1	KME
DC-25-3110	3" AKRON #8800 SERIES - S.S. BALL, VALVE, TANK TO PUMP	1	KME
DC-25-5110	3" PUSH/PULL CONTROL FOR TANK TO PUMP	1	KME
DC-30-2100	TANK FILL LINE 2" FROM PUMP - SIDE MOUNT	1	KME
DC-30-2300	2" AKRON #8800 SERIES - S.S. BALL TANK FILL, SIDE MOUN	1	KME
DC-30-6500	PUSH/PULL CONTROL FOR TANK FILL	1	KME
	DRIVER'S SIDE #1 MAIN DISCHARGE	1	KME
DC-35-0010	DS MAIN DISCHARGE #1 - SIDE MOUNT	1	KME
DC-35-0110	2 1/2" AKRON #8800 SERIES - S.S. BALL, DS #1, SIDE MOUNT	1	KME
DC-35-1815	DS #1 DISCH - 2 1/2" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-35-2010	2 1/2" NST PRESSURE VENTED CAP - DS DISCHARGE #1	1	KME
DC-35-2410	PUSH/PULL CONTROL FOR DS DISCHARGE #1 -SIDE MOUNT	1	KME
DC-35-3110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DS DISCHARGE #1	1	KME
	DRIVER'S SIDE #2 MAIN DISCHARGE	1	KME
DC-35-5010	DS MAIN DISCHARGE #2 - SIDE MOUNT	1	KME
DC-35-5110	2 1/2" AKRON #8800 SERIES - S.S. BALL, DS #2, SIDE MOUNT	1	KME
DC-35-6815	DS #2 DISCH - 2 1/2" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-35-7010	2 1/2" NST PRESSURE VENTED CAP - DS DISCHARGE #2	1	KME
DC-35-7410	PUSH/PULL CONTROL FOR DS DISCHARGE #2 -SIDE MOUNT	1	KME
DC-35-8110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DS DISCHARGE #2	1	KME
	OFFICER'S SIDE #1 MAIN DISCHARGE	1	KME
DC-39-0010	OS MAIN DISCHARGE #1 - SIDE MOUNT	1	KME
DC-39-0110	2 1/2" AKRON #8800 SERIES - S.S. BALL, OS #1, SIDE MOUNT	1	KME
DC-39-1815	OS #1 DISCH - 2 1/2" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-39-2010	2 1/2" NST PRESSURE VENTED CAP - OS DISCHARGE #1	1	KME
DC-39-2410	PUSH/PULL CONTROL FOR OS DISCHARGE #1 -SIDE MOUNT	1	KME
DC-39-3110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- OS DISCHARGE #1	1	KME
	OFFICER'S SIDE #2 MAIN DISCHARGE	1	KME
DC-39-5010	OS MAIN DISCHARGE #2 - SIDE MOUNT	1	KME
DC-39-5130	4" AKRON #8840 VALVE, OS #2, SIDE MOUNT	1	KME
DC-39-6865	OS #2 DISCH - 4" STRAIGHT NST	1	KME
DC-39-7045	DELETE 4" NST CAP - OS DISCHARGE #2	1	KME
DC-39-7315	4" NSTF X 4" STORZ KOCHER SKE-R 30° ADAPTER WITH CAP OS	1	KME
DC-39-7810	AKRON HANDWHEEL GEAR VALVE CONTROL, OS DISCHARGE #2	1	KME
DC-39-8110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- OS DISCHARGE #2	1	KME

PART NO	DESCRIPTION	QTY	ID
DRIVER REAR DISCHARGE			
DC-43-0405	DS REAR DISCHARGE 2 1/2" NST THREADS - PUMPER	1	KME
DC-43-0850	DS REAR DISCHARGE TERMINATE @ DS REAR BODY PANEL	1	KME
DC-43-0915	2 1/2" NST MALE THREADS ON DS REAR DISCHARGE	1	KME
DC-43-1015	DS REAR DISCHARGE, PLUMBING, 2 1/2" STAINLESS STEEL PIPING	1	KME
DC-43-1220	2 1/2" AKRON #8800 SERIES - S.S. BALL, VALVE DS REAR D	1	KME
DC-43-1610	PUSH/PULL 1/4 TURN CONTROL FOR DS REAR DISCHARGE	1	KME
DC-43-2120	2 1/2" NST DS REAR DISCHARGE PRESSURE VENTED CAP	1	KME
DC-43-2510	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DS REAR DIS	1	KME
DECK GUN DISCHARGE			
DC-45-0310	DECK GUN DISCHARGE - PUMPER	1	KME
DC-45-0810	DECK GUN DISCH TERMINATE @ OFFICER'S SIDE OF DUNNAGE	1	KME
DC-45-0915	3" NPT MALE THREADS ON DECK GUN DISCHARGE	1	KME
DC-45-1005	DECK GUN DISCHARGE - OVA HEIGHT NOT EXCEED TALLEST POINT	1	KME
DC-45-1125	DECK GUN DISCHARGE, PLUMBING, 3" STAINLESS STEEL PIPING	1	KME
DC-45-1230	3" AKRON #8800 SERIES - S.S. BALL, VALVE DECK GUN DISC	1	KME
DC-45-1610	PUSH/PULL 1/4 TURN CONTROL FOR DECK GUN DISCHARGE	1	KME
DC-45-2210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DECK GUN DISCH	1	KME
DC-45-3205	TFT "HURRICANE" MANUAL DECK GUN	1	KME
DC-45-3250	TFT "MASTER STREAM" 1000 GPM MANUAL NOZZLE	1	KME
CROSSLAY #1 DISCHARGE			
DC-47-0600	CROSSLAY #1, 1 1/2" - PUMPER	1	KME
DC-47-1110	CROSSLAY #1 CAPACITY - 200' OF 1 3/4" HOSE	1	KME
DC-47-1410	CROSSLAY #1 - DOUBLE STACK HOSE DESIGN	1	KME
DC-47-1510	1 1/2" NST CHICKSAN SWIVEL - CROSSLAY #1	1	KME
DC-47-2110	CROSSLAY #1, PLUMBING, 2" STAINLESS STEEL PIPING	1	KME
DC-47-2210	2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY #1, DISCH	1	KME
DC-47-2610	PUSH/PULL 1/4 TURN CONTROL CROSSLAY #1	1	KME
DC-47-3210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS - CROSSLAY #1	1	KME
CROSSLAY #2 DISCHARGE			
DC-47-5600	CROSSLAY #2, 1 1/2" - PUMPER	1	KME
DC-47-6110	CROSSLAY #2 CAPACITY - 200' OF 1 3/4" HOSE	1	KME
DC-47-6410	CROSSLAY #2 - DOUBLE STACK HOSE DESIGN	1	KME
DC-47-6510	1 1/2" NST CHICKSAN SWIVEL - CROSSLAY #2	1	KME
DC-47-7110	CROSSLAY #2, PLUMBING, 2" STAINLESS STEEL PIPING	1	KME
DC-47-7210	2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY #2,	1	KME
DC-47-7610	PUSH/PULL 1/4 TURN CONTROL CROSSLAY #2	1	KME
DC-47-8210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS - CROSSLAY #2	1	KME
DC-50-6750	LOWERED CROSSLAYS	1	KME
DC-50-7015	VINYL CROSS LAY COVER	1	KME
DC-50-7030	CROSSLAY COVER RED IN COLOR	1	KME
DD-65-0710	SIDE MOUNT PUMP PANEL - PUMPER	1	KME
DD-65-4115	SIDE MOUNT PANELS - 12 GAUGE BRUSHED STAINLESS STEEL	1	KME
DD-65-4710	VERTICALLY HINGED GAUGE PANEL - SIDE MOUNT	1	KME
DD-65-4810	OFFICER SIDE VERTICALLY HINGED PUMP ACCESS DOOR - SIDE MOUNT	1	KME
DD-65-5150	PANEL FASTENERS	1	KME
DD-65-5510	CAPS AND ADAPTERS SAFETY TETHER - BALL CHAIN	1	KME
DD-65-8820	PUMP PANEL DISCH./SUCTION TRIM PLATES, HIGH POLISHED	1	KME
DD-65-9000	DISCHARGE GAUGE TRIM BEZELS	1	KME
DD-65-9110	IDENTIFICATION PLATES	1	KME
DD-66-0100	PUMP OPERATOR'S PANEL LIGHT SHIELD	1	KME
DD-66-0110	AMDOR LUMA BAR H2O SUPER BRIGHT LED - LIGHT SHIELD	1	KME
DD-66-2100	OS PUMP PANEL LIGHTING	1	KME
DD-66-2130	TECNIQ EON 3 LED LIGHTS - OS PUMP PANEL	1	KME
PUMP OPERATOR'S PANEL - SIDE MOUNT, PUMPER			
DD-70-2150	AIR HORN CONTROL BUTTON ON PUMP PANEL	1	KME
DD-70-2332	FIRE RESEARCH "PUMP BOSS" PRESSURE GOVENOR CONTROL @ PANEL	1	KME
DD-70-2410	PUMP PRESSURE & VACUUM TEST PORTS @ PANEL	1	KME
DD-70-4120	MASTER PRESSURE & COMPOUND GAUGES - 4" NOMINAL GAUGES	1	KME
DD-70-4220	4" INNOVATIVE CONTROLS MASTER PRESSURE AND COMPOUND GAUGES	1	KME
DD-70-4680	PRESSURE & COMPOUND GAUGE RANGES - SINGLE STAGE	1	KME
DD-70-4900	AUXILIARY ENGINE COOLER	1	KME
DD-72-0410	FIRE RES - TANK VISION #WLA300-A00 LED WATER TANK GAUGE - PRIMARY	1	KME
DD-72-1300	FIRE RES WATER LEVEL - 1/4" NPT PRESS TRANS @ BOTTOM TANK	1	KME
DE-15-0750	TANK 750 GAL POLY - PUMPERS & RESCUE PUMPERS	1	KME

PART NO	DESCRIPTION	QTY	ID
DE-16-1000	WATER TANK CONSTRUCTION POLY	1	KME
DE-16-2000	WATER TANK LID POLY	1	KME
DE-16-2100	WATER TANK FILL TOWER POLY	1	KME
DE-16-3000	WATER TANK 4" OVERFLOW & VENT PIPE	1	KME
DE-16-4000	WATER TANK SUMP	1	KME
DE-16-5000	WATER TANK SUMP CONNECTION; ONE (1) FRONT	1	KME
DE-16-5100	WATER TANK 3" SUMP DRAIN	1	KME
DE-16-6000	WATER TANK FLANGES/OUTLETS - PUMPER	1	KME
DE-16-7000	WATER TANK MOUNTING ALL "T" TANKS - PUMPER	1	KME
JB-02-0100	APPARATUS BODY GENERAL DESCRIPTION (PUMPER)	1	KME
JB-02-0500	COMPARTMENT TOPS (STEPPING SURFACE TOPS)	1	KME
JB-02-0600	DRIP MOLDING (HINGED DOORS)	1	KME
JB-02-0700	REAR BODY PANEL	1	KME
JB-05-0200	BODY MATERIAL: 3/16" ALUMINUM	1	KME
JB-05-0210	BODY SUB FRAME - ALUMINUM	1	KME
JB-10-0100	100" WIDE BODY - 29" DEEP COMPARTMENTS	1	KME
JB-10-1000	64" WIDE FENDER - CUSTOM	1	KME
JB-10-2000	STANDARD FENDER - NO STORAGE (CUSTOM)	1	KME
JB-15-3130	FLEX SHORT - DS FULL HEIGHT/SPLIT DEPTH	1	KME
JB-16-3100	FLEX SHORT - OS LOW SIDE COMPARTMENTS	1	KME
JB-17-0100	REAR STEP COMPARTMENT - FULL WIDTH, STANDARD HEIGHT	1	KME
JB-17-0400	REAR STEP COMPARTMENT - FULL SIDE WALLS	1	KME
JB-17-0510	REAR STEP COMPARTMENT - ROLLUP DOOR	1	KME
JB-18-0100	HINGED DOOR BODY	1	KME
JB-20-0240	EXTENDED REAR STEP - 12 D X 100 W - TAPERED ENDS	1	KME
JB-25-0100	STANDARD BED - STANDARD COMPT CAPS (72")	1	KME
JB-25-0300	NFPA MINIMUM HOSEBED CAPACITY	1	KME
JB-25-1000	HOSEBED FLOORING - ALUMINUM SLATS	1	KME
JB-25-1100	ONE (1) - 3/16" ADJUSTABLE HOSEBED PARTITIONS	1	KME
JB-25-1400	HOSEBED COVER - VINYL WITH QUARTER TURNS	1	KME
JB-25-1600	HYPALON MATERIAL COLOR - RED	1	KME
TF-10-0600	2" THICK COMPARTMENT DOORS - FLAT RECESSED DOORS	1	KME
TF-10-1900	BRUSHED FINISHED DOOR PANS - 2" THICK DOORS	1	KME
TF-10-2720	DOOR HINGE FOR FLUSH HINGED DOORS	1	KME
TF-10-2820	DOOR SEAL FOR FLUSH HINGED DOORS	1	KME
TF-10-2940	ROTARY LATCHES WITH D-RING HANDLES	1	KME
TF-10-3150	GAS SHOCK ON HORIZONTALLY & VERTICALLY HINGED DOORS	1	KME
TF-10-6005	SWEEP-OUT COMPARTMENTS (NON-AERIALS)	1	KME
TF-11-0610	COATED FASTENERS	1	KME
TF-11-0622	COMPARTMENT LOUVERS (29" DEEP BODIES)	1	KME
TF-11-0640	ACCESS PANELS (29" DEEP BODIES)	1	KME
TF-11-2015	CAST ALUMINUM SIDE MOUNTED REAR STANCHIONS	1	KME
TF-11-3030	BODY RUB RAILS, TREAD PLATE	1	KME
TF-12-1005	RUNNING BOARD STEPS (NON-AERIALS)	1	KME
TF-12-5010	INTERMEDIATE REAR STEP, 8" x 48" BOLT-ON	1	KME
TF-13-5190	GRAB RAILS, KNURLED ALUMINUM EXTRUSION	1	KME
TF-13-5200	TWO (2) VERTICAL RAILS ON REAR	1	KME
TF-13-5210	ONE (1) HANDRAIL, BELOW HOSE BED LEVEL	1	KME
TF-13-7560	CAST PRODUCTS CHROME FOLDING STEP(S), BODY REAR, DS	1	KME
TF-13-7660	CAST PRODUCTS CHROME FOLDING STEP(S), BODY REAR, OS	1	KME
TF-13-9000	SAFETY SIGNS (NFPA REQUIRED)	1	KME
TF-14-1800	FLEX FENDERETTE/LINER - ONE PIECE	1	KME
TF-14-2100	WHEEL WELL LINERS w/ FENDERETTE (ONE PIECE UNIT) - ALUMINUM	1	KME
TF-14-5000	REAR MUD FLAPS	1	KME
TF-14-6510	PAINTED REAR TOW EYES, BELOW BODY	1	KME
TJ-05-1030	ADJUSTABLE SHELF DESCRIPTION - PUMPER	1	KME
TJ-05-3055	ADJUSTABLE SHELF, DRIVER FRONT COMPARTMENT	1	KME
TJ-05-3060	ADJUSTABLE SHELF, OFFICER FRONT COMPARTMENT	1	KME
TJ-05-3065	ADJUSTABLE SHELF, DRIVER REAR COMPARTMENT	1	KME
TJ-05-3070	ADJUSTABLE SHELF, OFFICER REAR COMPARTMENT	1	KME
TJ-05-3125	ADJUSTABLE SHELF, REAR STEP COMPARTMENT	1	KME
TN-00-9010	CAST ALUMINUM LADDER MOUNTING BRACKETS (OFFICER SIDE)	1	KME
TN-01-2050	ALCO-LITE LADDER COMPLIMENT	1	KME
TN-02-1170	ALCO-LITE PEL-24 24' 2-SECTION EXTENSION LADDER (ALUM)	1	KME
TN-02-2515	ALCO-LITE PRL-14 14' ROOF LADDER W/FOLDING HOOKS (ALUM)	1	KME

PART NO	DESCRIPTION	QTY	ID
TN-02-8010	ALCO-LITE FL-10 10' FOLDING ATTIC LADDER (ALUM)	1	KME
TN-10-0520	PIKE POLE TUBE(S) - PUMPERS	2	KME
TN-10-0725	LOCATION PIKE POLE TUBE(S) - ON LADDER RACK	2	KME
TN-15-0525	SUCTION HOSE STORAGE SIDE OF BODY (1-OFFICER, 1-DRIVER)	1	KME
TN-15-1005	SUCTION HOSE TROUGH	2	KME
TN-15-2235	TWO (2) 10' SECTIONS OF 6" LIGHTWEIGHT SUCTION HOSE	1	KME
TN-15-3500	SAFETY NOTE FOR PVC SUCTION HOSE	1	KME
TN-16-0210	6" NST, RED HEAD BARREL STRAINER W/MTG BKT	1	KME
TN-20-0005	ADDITIONAL ITEMS SHIPPED WITH VEHICLE, ALL NON-AERIALS	1	KME
TN-35-1015	TWO (2) ZICO #SAC-44 FOLDING WHEEL CHOCKS, (2) MTD DRIVER SIDE	1	KME
UA-00-1100	GENERAL PAINT DESCRIPTION - ALL	1	KME
UA-00-1270	GENERAL PRIMER & PREP DESCRIPTION - PUMPER	1	KME
UA-00-1470	GENERAL FINISH PAINT DESCRIPTION - PUMPER	1	KME
UA-00-2755	BODY BUFFING & FINISH - PUMPER	1	KME
UA-03-0150	INSIDE/UNDERSIDE BODY PAINTED BLACK - PUMPER	1	KME
UA-03-0350	JOB COLOR COMPARTMENT INT W/SPATTER PAINT - PUMPER	1	KME
UA-03-0950	SINGLE COLOR BODY PAINT SCHEME - PUMPER	1	KME
UA-03-2120	PUMPHOUSE & PLUMBING PAINTED BLACK - PUMPER	1	KME
UA-03-3000	FENDER COMPARTMENT INTERIOR - JOB COLOR	1	KME
UA-04-0102	INTL 2-DR SINGLE COLOR AS APPROVED BY CHASSIS MFG.	1	KME
UA-04-0640	COMMERCIAL CAB PAINT FINISH - INTERNATIONAL	1	KME
UA-04-0700	COMMERCIAL CHASSIS WHEEL AND HUB PAINT - AS PROVIDED	1	KME
UA-06-2200	PINT OF TOUCH-UP PAINT	1	KME
UA-06-2535	FINALIZATION & DETAILING - PUMPER	1	KME
UA-06-2850	RUSTPROOFING WARRANTY, TEN (10) YEAR	1	KME
UA-12-1200	GOLDLEAF W/ DROP SHADOW LETTERING ON FRONT CAB DOORS	1	DLR
UA-12-1255	CUSTOM LETTERING ON FRONT CAB DOORS	1	DLR
UA-12-2175	GOLDLEAF W/ DROP SHADOW LETTERING ABOVE WINDSHIELD	1	DLR
UA-12-2600	SCOTCH-CAL W/O DROP SHADOW LETTERING ON FRONT BUMPER	1	DLR
UA-12-3600	SCOTCH-CAL W/O DROP SHADOW LETTERING ON REAR COMPARTMENT DOOR	1	DLR
UA-12-3755	CUSTOM LETTERING ON REAR DOOR	1	DLR
UA-12-5150	GOLDLEAF W/ DROP SHADOW LETTERING ON BODY SIDE SHEET	1	DLR
UA-12-5240	CUSTOM LETTERING ON BODY SIDE SHEET	1	DLR
UA-50-0500	NFPA REQUIRED SCOTCH-LITE STRIPING - PUMPER	1	KME
UA-50-0510	4" SCOTCH-LITE STRIPE ON CAB AND BODY - PUMPER	1	KME
UA-58-5100	WHITE SCOTCH-LITE	1	KME
UA-80-6000	REAR CHEVRON STRIPING	1	KME
UA-80-6002	50% VERTICAL SURFACE	1	KME
UA-80-6050	6" 50% REAR SCOTCH-LITE DIAMOND GRADE CHEVRON STRIPING	1	KME
UA-80-6075	RED & FLUORESCENT YELLOW GREEN DIAMOND GRADE SCOTCH-LITE	1	KME
W6-00-0050	PROPOSED - BASE INTERNATIONAL WARRANTY, 4000 SERIES CHASSIS	1	KME
W6-00-0129	PROPOSED - COMMERCIAL CHASSIS - 5 YEAR NEW PRODUCT WARRANTY	1	
W6-00-0330	PROPOSED - 10 YEAR BODY STRUCTURAL WARRANTY	1	KME
W6-00-0410	PROPOSED - 10 YEAR BODY CORROSION WARRANTY, USE W/COMM CHASS	1	KME
W6-00-0450	PROPOSED - PAINT FINISH WARRANTY, TEN (10) YEAR	1	KME
W6-00-0470	PROPOSED - 5 YEAR LETTERING WARRANTY	1	KME
W6-00-0483	PROPOSED - 1 YEAR BRIGHTWORK WARRANTY	1	KME
W6-00-0490	PROPOSED - 10 YEAR STAINLESS STEEL PIPING WARRANTY	1	KME
W6-00-0710	PROPOSED - LIFETIME POLY TANK WARRANTY - ALL TANKS	1	KME
W6-00-0820	PROPOSED - WATEROUS 5 YEAR PUMP WARRANTY (PARTS & LABOR)	1	KME
W6-00-0827	WATEROUS FCAM 10 YR WARRANTY CORRECTION	1	
W6-00-1153	DEALER PROVIDES WARRANTY TRANSPORT PROP and REQ	1	DLR
W6-00-1340	PROPOSED - AKRON HEAVY DUTY VALVE - 10 YEAR WARRANTY	1	KME
WA-00-0040	"PUMPER FIRE APPARATUS" NFPA 2009 STATEMENT OF EXCEPTIONS	1	KME



Amps/Weight Report

Metropolitan Area Planning Council
 Lorraine See
 60 TemplePlace
 6th Floor Reception
 Boston, Ma 02111
 617-933-0766

Bulldog Fire Apparatus
 Ken Franks
 17 Winter Street
 Woodville, MA 01784
 508-435-4200
 kfranks@bulldogfa.com

Quote No: 10029-0045
1 MODEL: 00DEVICE22 COMMERCIAL PUMPER
2 LETTER: LETTER 21 LETTERING & STRIPING, PUMPER
3 COMP ACC: 000COMP006 COMPARTMENT ACCESSORIES PUMPER
5 MISC EQU: 000EQUIP02 MISC AND LOOSE EQUIPMENT (PUMPER)
6 WARRANTY: WARNTY-08 COMMERCIAL PUMPER WARRANTY PACKAGE
SPECIAL: 00000001 SPECIAL, QUOTE OVERRIDE
DEALER: Dealer Parts

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PART NO	S	DESCRIPTION	QTY	RESP	SCENE	IT
AC-05-0125	X	<2> PUMPER - INTL 4400 SA SBA - 2DR 4X2, 40GVW - 14F/26R	1	39.00	33.00	0.00
BF-00-5000		DOOR OPEN INDICATOR W/ INTEGRAL AUDIBLE ALARM	1	0.00	0.00	1.00
BG-00-1610		TRUCK-LITE MARKER/TURN LIGHTS @ EA SIDE OF BODY	1	0.60	0.20	0.00
BG-00-1660		TRUCK-LITE MARKER LIGHTS @ REAR OF BODY	1	0.30	0.30	0.00
BG-00-2915		TECNIQ #L10 LED LICENSE PLATE LIGHT @ DS REAR OF BODY	1	0.10	0.10	0.00
BG-02-2532		CODE 3, #65 LED BRAKE, REVERSE, & TURN W/ QUAD HOUSING	1	3.00	2.00	0.00
BH-04-1130		BODY STEP LIGHTS, TECNIQ EON 3 LED, ALL DEVICES	2	0.00	0.40	0.00
BH-05-1625		DUNNAGE AREA LIGHTING, TECNIQ EON 3 LED	1	0.00	0.20	0.00
BH-05-2017		UNITY LED SPOTLIGHTS ON REAR BODY STANCHIONS	1	0.00	0.00	5.00
BH-10-6080		CODE 3 9X7 LED SCENE LIGHTS ON REAR OF BODY	1	0.00	8.00	0.00
BH-10-6096		CODE 3 9X7 LED SCENE LIGHTS ON DRIVER SIDE OF BODY	1	0.00	8.00	0.00
BH-10-6098		CODE 3 9X7 LED SCENE LIGHTS ON OFFICER SIDE OF BODY	1	0.00	8.00	0.00
BH-11-0400		NFPA (2) JW SPEAKER LED RECTANGULAR GROUND LIGHTS, BELOW CAB DOORS	1	0.00	2.60	0.00
BJ-00-5110		PUMP ENCLOSURE WORK LIGHTS - GROTE LED	1	0.00	0.00	1.20
BJ-00-5150		ENGINE COMPARTMENT WORK LIGHTS - PETERSON	1	0.00	0.00	2.90
BJ-02-0400		COMPT. LIGHTS, AMDOR LUMA BAR LED LIGHTING - SINGLE	7	0.00	4.90	0.00
BM-02-0082		A-UPPER, CODE 3 LED 2758NFPA P1, RX 2700 58" PRIZM II BAR	1	10.00	10.00	0.00
BM-02-1055		C-UPPER, CODE 3 ARCH LED BEACONS - 180° SOLID COLOR	1	3.70	3.70	0.00
BM-09-0016		A-LOWER FRONT, CODE 3 45 SERIES LED	1	1.00	1.00	0.00
BM-09-1014		C-LOWER REAR, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-2008		B/D-LOWER FRONT, CODE 3 LED X SINGLE SERIES	1	0.40	0.40	0.00
BM-09-3006		B/D-LOWER MID, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-4006		B/D-LOWER REAR, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BW-00-0560		CODE 3, #CA278, BACK-UP ALARM - 87DBA	1	0.00	0.00	0.50
BW-00-5001		DUAL CHROME AIR HORNS (COMMERCIAL)	1	0.20	0.00	0.00
BW-01-0110		SIREN, WHELEN #295SLSA1, 100W	1	9.00	0.00	0.00
DC-05-1222		FIRE RESEARCH "PUMP BOSS" PBA400 PRESSURE GOVERNOR	1	1.20	1.20	0.00
DD-66-0110		AMDOR LUMA BAR H2O SUPER BRIGHT LED - LIGHT SHIELD	1	0.00	1.00	0.00
DD-66-2130		TECNIQ EON 3 LED LIGHTS - OS PUMP PANEL	1	0.00	0.60	0.00
DD-72-0410		FIRE RES - TANK VISION #WLA300-A00 LED WATER TANK GAUGE - PRIMARY	1	0.20	0.20	0.00
Totals				71.70	88.80	10.60



PROPOSAL

Bulldog Fire Apparatus is pleased to offer the proposed vehicle to meet the intent of the fire department specifications. KME Fire Apparatus is a leading manufacturer in custom and commercial fire fighting vehicles.

Questions or concerns pertaining to this proposal can be answered by contacting the following KME representative:

Jeff Mazza
Bulldog Fire Apparatus
PO Box 58
17 Winter Street
Woodville, MA 01784

Phone: (877) 644-2707 / (508) 435-4054
Fax: (508) 435-0250

Email: jmazza@bulldogfa.com
Web: www.bulldogfireapparatus.com

GENERAL INFORMATION

The proposed apparatus will be constructed to withstand the severe and continuous use encountered during emergency fire fighting services. The apparatus will be of the latest type, carefully designed and constructed with due consideration to the nature and distribution of the load to be sustained.

The proposed chassis will be certified by KME as conforming to all applicable Federal Motor Vehicle Safety Standards (FMVSS) in effect at the date of contract.

KME will be responsible for preparing and maintaining a record file of parts and assemblies used to manufacture the proposed apparatus. These records will be maintained in KME's factory for a minimum of twenty (20) years. The purchaser will have access to any and all documents contained in this file upon official written request.

GENERAL CONSTRUCTION

The proposed apparatus, assemblies, subassemblies, component parts, etc., will be designed and constructed with the due consideration to the nature and distribution of the load to be sustained and to the general character of the service to which the apparatus is subjected to when placed in service. All parts of the apparatus will be designed with a factor of safety, which is equal to or greater than that which is considered standard and acceptable for this class of equipment in fire fighting service. All parts of the proposed apparatus will be strong enough to withstand general service under full load. The apparatus will be so designed that the various parts are readily accessible for lubrication, inspection, adjustment and repair.

PRODUCT LIABILITY INSURANCE

KME provides liability and facility insurance equaling \$30,000,000.00, which is one of the highest available in the fire industry. Reference attached documentation.



PRICES AND PAYMENTS

The bid price will be F.O.B. Destination, on a delivered and accepted basis at the Fire Department. Total price on KME's proposal sheet will include all items listed in these specifications.

BOND REQUIREMENTS

KME's bonding company will meet the following requirements:

- An acceptable surety as outlined by the United States Department of Treasury on their most recent Federal Register at a limit of at least \$10,000,000;
- A.M. Best rating of "A" or better with a financial rating of at least "VIII"; and licensed as a surety in the Commonwealth of Massachusetts.

PERFORMANCE BOND

A performance bond will be supplied by the KME upon acceptance of the signed sales contract for the apparatus. The performance bond will be for an amount equal to the full contract price (i.e. 100% bond).

NON-COLLUSIVE BIDDING CERTIFICATION

By submission of this bid, KME and each person signing on behalf of KME, certifies, under penalty of perjury, that to the best of their knowledge and belief:

- The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for purpose of restricting competition, as to any matter relating to sell prices with any other bidder or any competitor.
- Unless otherwise required by law, the prices that have been quoted in this bid have not been knowingly disclosed by KME and will not knowingly be disclosed by KME prior to opening, directly or indirectly, to any other bidder or to any competitor
- No attempt has been made by KME to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition.
- That all requirements of the law including amendatory provisions as to non-collusive bidding have been complied with.

MATERIAL AND WORKMANSHIP

All equipment furnished will be guaranteed to be new and of current manufacture, to meet all requirements of purchaser's specifications.

CONTRACT SPECIALIST

KME will designate an in house individual to perform KME's contract specialist functions. The contract specialist will provide a single point interface between the purchaser and KME.

APPROVAL DRAWING

A detailed drawing of the apparatus will be provided to the purchaser for approval before construction begins.

INSPECTION VISITS

Provision has been made in this proposal for one (1) KME representative to make one (1) factory inspection trip to KME's facility.

DELIVERY

A qualified and responsible representative of KME will deliver the apparatus to the Fire Department.



INSTRUCTION MANUALS/DRAWINGS, SCHEMATIC

KME will supply at time of delivery, two (2) CD copies of a complete operation and service manual covering the complete apparatus as delivered and accepted.

DELIVERY AND FAMILIARIZATION

Upon delivery a KME certified delivery engineer will come to the Fire Department to demonstrate the unit to the Department and familiarize Department personnel with the apparatus. There will be an **AS BUILT** PowerPoint presentation of the specific apparatus as delivered, that covers each and every control and feature of the unit. The program will be delivered to each Department shift and maintenance personnel as the Department may request. A copy of the PowerPoint program, will be provided to the Department for future use.

VEHICLE FLUIDS PLATE

As required by NFPA-1901, KME will affix a permanent plate in the driver's compartment specifying the quantity and type of the following fluids used in the vehicle:

PRINCIPAL APPARATUS DIMENSIONS & G.V.W.R.

The principal dimensions of the completed apparatus will not exceed the following maximum dimensions:

KME PROPOSED DIMENSIONS:

- OVERALL LENGTH: 310"
- OVERALL WIDTH: 100"
- OVERALL HEIGHT: 107"
- WHEELBASE: 177"
- MINIMUM FRONT G.A.W.R.: 14,000 lbs.
- MINIMUM REAR G.A.W.R.: 26,000 lbs.
- MINIMUM TOTAL G.V.W.R.: 40,000 lbs.

KME will include the principal dimensions, front G.A.W.R., rear G.A.W.R., and total G.V.W.R. of the proposed apparatus. Additionally, KME will provide a weight distribution of the fully loaded, completed vehicle; this will include a filled water tank, specified hose load, miscellaneous equipment allowance in accordance with NFPA-1901 requirements, and an equivalent personnel load of 250 lbs. per seating position.

PRIMARY PLANT CONSTRUCTION

In order to insure top quality construction, maximum assembly line and engineering communication and the highest level of manufacturing supervision the entire apparatus will be built at KME's (headquarters) manufacturing facility in Nesquehoning, PA.

QUALITY MANAGEMENT

KME is certified ISO 9001 at all company locations.

AMP DRAW REPORT

KME will provide with their bid proposal and at the time of delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

A written load analysis, which will include the following:

- The rating of the alternator.
- The minimum continuous load of each component that is specified per: Applicable NFPA-1901.
- Additional loads that, when added to the minimum continuous load, determine the total connected load.



- Each individual intermittent load.

All of the above listed items will be provided by KME per the applicable NFPA-1901.

GENERAL APPARATUS DESCRIPTION "PUMPER"

The unit will be designed to conform fully to the "Pumper Fire Apparatus" requirements as stated in the NFPA 1901 Standard (2009 Revision),

CHASSIS DATA LABELS

Data labels will be provided as required by NFPA 1901.

ROLLOVER STABILITY

The apparatus will meet the criteria defined in 4.13.1 for rollover stability as defined in the 2009 NFPA Standard for Automotive Fire Apparatus.

KME REGIONAL SERVICE CENTER

The KME New England Regional Service Center is Bulldog Fire Apparatus of Hopkinton, Massachusetts. This location is about 26 miles West of Boston, near the intersection of Interstate 495 and the Mass Pike. The center is totally dedicated to the service of fire apparatus and fire apparatus only and is fully authorized by KME to conduct all levels of repair and service. The capabilities of the service center include:

Authorized pump service for both Hale and Waterous

Full hydraulic service

Full 12 volt electrical service to include multiplexed systems

Full 120/240 volt service

Full chassis and running gear service

Complete body shop and paint facility which includes:

50 foot environmentally certified, heated and humidity controlled down draft paint booth

Full time body shop and paint staff

Secured paint storage area

Computer operated paint color matching and mixing system

Metal fabrication center which includes:

10 x 12 shear, press brake, Apron Brake, Finger brake

Modern MIG, TIG welding equipment, Plasma cutter, Machining center, Pump and piping center, Parts Department and 6 EVT Certified Mechanics

Bulldog maintains a 15 service bay indoor shop with an area of approximately 25,000 square feet (which includes sufficient indoor heated space to permit the storage of the Fire Department's apparatus inside whenever in the center's possession). No outside storage is permitted at Bulldog. The center provides a full time staff of experienced technicians with all of the required equipment to provide modern, accurate and efficient service. The Center may be reached at our email address of pmazza@bulldogfa.com or by phone (877) 644-2707.

The staff includes five six (6) EVT level II technicians, two (2) Commonwealth licensed Motor Vehicle Damage Appraisers and three (3) road service vehicles. The Bulldog service center offers same day turn around for scheduled maintenance and part delivery within 24 hours.

In addition, KME maintains full factory service centers in Latham, New York (near Albany) - (800) 394-5593 and at the factory in Nesquehoning, PA.

CHASSIS

Base Chassis, Model 4400 SBA 4X2 with 221.00 Wheelbase, 153.90 CA, and 75.00 Axle to Frame.

FRAME RAILS Heat Treated Alloy Steel (120,000 PSI Yield); 10.125" x 3.580" x 0.312"

FRAME REINFORCEMENT Outer "C" Channel, Heat Treated Alloy Steel (120,000 PSI Yield); 10.813" x 3.892" x 0.312";



BUMPER, FRONT Full Width, Aerodynamic, Chrome Plated Steel; 0.142" Material Thickness

AXLE, FRONT NON-DRIVING {Meritor MFS-14-143A} Wide Track, I-Beam Type, 14,000-lb Capacity

SUSPENSION, FRONT, SPRING Parabolic, Taper Leaf; 14,000-lb Capacity; With Shock Absorbers

BRAKE SYSTEM, AIR Dual System for Straight Truck Applications

: GAUGE, AIR PRESSURE (2) Air 1 and Air 2 Gauges; Located in Instrument Cluster

: PARKING BRAKE CONTROL Yellow Knob, Located on Instrument Panel

: SLACK ADJUSTERS, FRONT Automatic

: SLACK ADJUSTERS, REAR Automatic

AIR BRAKE ABS {Bendix AntiLock Brake System} Full Vehicle Wheel Control System (4-Channel)

AIR DRYER {Bendix AD-9} With Heater

BRAKE CHAMBERS, FRONT AXLE {Bendix} 20 SqIn

BRAKE CHAMBERS, REAR AXLE {Bendix EverSure} 30/30 Spring Brake

BRAKES, FRONT, AIR CAM S-Cam; 16.5" x 5.0"; Includes 20 Sq. In.

BRAKES, REAR, AIR CAM S-Cam; 16.5" x 7.0"; Includes 30/30 Sq.In. Chamber and Spring Actuated Parking Brake

AIR COMPRESSOR {Bendix Tu-Flo 750} 16.5 CFM Capacity

STEERING COLUMN Tilting and Telescoping

STEERING GEAR {Sheppard HD94} Power

EXHAUST SYSTEM Switchback Horizontal Aftertreatment Device, Frame Mounted Right Side Under Cab; Includes Single Short Horizontal Tail Pipe, Frame Mounted Right Side Back of Cab

ENGINE COMPRESSION BRAKE for Navistar N9/10 I6 Engines; Electronically Activated

SWITCH, FOR EXHAUST 3 Position, Momentary, Lighted Momentary, ON/CANCEL, Center Stable.

ELECTRICAL SYSTEM 12-Volt, Standard Equipment

: DATA LINK CONNECTOR For Vehicle Programming and Diagnostics In Cab

: HAZARD SWITCH Push On/Push Off, Located on Top of Steering Column Cover

: HEADLIGHT DIMMER SWITCH Integral with Turn Signal Lever

: JUMP START STUD Located on Positive Terminal of Outermost Battery

: PARKING LIGHT Integral with Front Turn Signal and Rear Tail Light

: STARTER SWITCH Electric, Key Operated

: TURN SIGNALS, FRONT Includes Reflectors and Auxiliary Side Turn Signals, Solid State Flashers;

: WINDSHIELD WIPER SWITCH 2-Speed with Wash and Intermittent Feature (5 Pre-Set Delays), :

WINDSHIELD WIPERS Single Motor, Electric, Cowl Mounted

: WIRING, CHASSIS Color Coded and Continuously Numbered

POWER SOURCE Cigar Type Receptacle without Plug and Cord

ALTERNATOR {Leece-Neville AVI160P2003} Brush Type; 12 Volt 240 Amp. Capacity, Pad Mount.

BATTERY SYSTEM {International} Maintenance-Free, (3) 12-Volt 1950CCA Total

DATA RECORDER/SEATBELT INDICATOR Includes Display Mounted in Overhead Console

STOP-LIGHT WIRING MODIFIED Stop-Lights Turned on When Engine Compression Brake

POWER SOURCE, TERMINAL TYPE 2-Post



HORN, AIR Black, Single Trumpet, Air Solenoid Operated

ALTERNATOR PULLEY 2.4" Diameter for Increased Alternator Output at Idle; for Fire Truck Application With International Engines, Must Include Fire Truck Identity Code

SOLENOID, AIR for Customer Use; Provides (1) Normally Closed Pilot Air Source, Approx. 4 CFM, Includes Latched Switch in Cab; Air Available Only With Key in "Ignition" or "Accessory" Position; Air Will Exhaust with Key in "Off" Position

WINDSHIELD WIPER SPD CONTROL Force Wipers to Slowest Intermittent Speed When Park Brake Set and Wipers Left on for a Predetermined Time

HEADLIGHTS Halogen; Composite Aero Design for Two Light System; Includes Daytime Running Lights

CLEARANCE/MARKER LIGHTS (5) {Truck Lite} Amber LED Lights, Flush Mounted on Cab or Sunshade

HEADLIGHTS ON W/WIPERS Headlights Will Automatically Turn on if Windshield Wipers are turned on

STARTING MOTOR {Delco Remy 39MT} 12 Volt; Gear Reduced, With Thermal Over-Crank Protection

INDICATOR, LOW COOLANT LEVEL With Audible Alarm

INDICATOR, BATTERY WARNING Green BATTERY ON Indicator
CIRCUIT BREAKERS Manual-Reset (Main Panel) SAE Type III With Trip Indicators.

TURN SIGNALS, FRONT LED, Includes LED Side Marker Lights, Mounted on Fender

BATTERY DISCONNECT SWITCH, for Cab Power Loads, Cab Mounted, Disconnects Door Power, Dome Lights and Auxiliary Power; Locks with Padlock

GRILLE Chrome

FRONT END Tilting, Fiberglass, With Three Piece Construction

GRILLE EMBER SCREEN Mounted to Grille and Cowl Tray to Keep Hot Embers out of Engine.

PAINT SCHEMATIC, PT-1 Single Color, Design 100

PAINT IDENTITY, PT-2 Single Color, Instruction No. 932. Wheels
PAINT TYPE Base Coat/Clear Coat, 1-2 Tone

KEYS - ALL ALIKE Fleet - Includes Ignition and Cab Door Keys

CLUTCH Omit Item (Clutch & Control)

ENGINE, DIESEL {Navistar N9} EPA 2010, SCR, 330 HP @ 2000 RPM, 950 lb-ft Torque @ 1200 RPM, 2200 RPM Governed Speed, 330 Peak HP (Max)

: ANTI-FREEZE Red Extended Life Coolant; -40 Degrees F/ -40 Degrees C;

: COLD STARTING EQUIPMENT Intake Manifold Electric Grid Heater with Engine ECM Control

: CRUISE CONTROL Electronic; Controls Integral to Steering Wheel

: ENGINE OIL DRAIN PLUG Magnetic

: ENGINE SHUTDOWN Electric, Key Operated

: FUEL FILTER Included with Fuel/Water Separator

: FUEL/WATER SEPARATOR Fuel/Water Separator and Fuel Filter in a Single Assembly

: OIL FILTER, ENGINE Spin-On Type

FAN DRIVE {Horton Drivemaster} Direct Drive Type, Two Speed With Residual Torque Device for Disengaged Fan Speed



RADIATOR Aluminum; 2-Row, Cross Flow, Over Under System, 1045 SqIn Louvered, With 373 SqIn CAC, With In Tank Oil Cooler

FEDERAL EMISSIONS EPA, OBD and GHG Certified for Calendar Year 2015; N9 & N10 Engines

THROTTLE, HAND CONTROL Engine Speed Control; Electronic
ENGINE CONTROL, REMOTE MOUNTED Provision for; Includes Wiring for Body Builder Installation of PTO Controls; With Ignition Switch Control
ENGINE WATER COOLER {Sen-Dure} Auxiliary, For Use With Fire Trucks

EMISSION COMPLIANCE Engine Shutdown System Exempt Vehicles
TRANSMISSION, AUTOMATIC {Allison 3000EVS_P} 5th Generation Controls; Close Ratio, 5-Speed; With Overdrive, Includes Oil Level Sensor, With Provision for PTO,
TRANSMISSION SHIFT CONTROL {Allison} Push-Button Type; for Allison 3000 & 4000 Series
TRANSMISSION OIL Synthetic; 29 thru 42 Pints

ALLISON SPARE INPUT/OUTPUT for Emergency Vehicle Series (EVS), 127/198 Includes J1939 Based Auto Neutral; Fire/Pumper, Tank, Aerial/Ladder

AXLE, REAR, SINGLE {Dana Spicer S26-190} Single Reduction, 26,000-lb Capacity, R Wheel Ends .

SUSPENSION, RR, SPRING, SINGLE Vari-Rate; 31,000-lb Capacity, With 4500 lb Auxiliary Spring

FUEL TANK Top Draw; Non-Polished Aluminum, 24" Diam., 50 U.S. Gal
DEF TANK 5 U.S. Gal. Capacity; Frame Mounted Outside Left Rail, Under Cab

CAB Conventional

: CLEARANCE/MARKER LIGHTS (5) Flush Mounted
: CUP HOLDERS Two Cup Holders, Located in Lower Center of Instrument Panel
: DOME LIGHT, CAB Rectangular, Door Activated and Push On-Off at Light Lens
: GLASS, ALL WINDOWS Tinted
: GRAB HANDLE, CAB INTERIOR (1) "A" Pillar Mounted, Passenger Side
: GRAB HANDLE, CAB INTERIOR (2) Front of "B" Pillar Mounted, One Each Side
: STEP (4) Two Steps Per Door

GRAB HANDLE, CAB INTERIOR (2) Safety Yellow

GAUGE CLUSTER English With English Electronic Speedometer
: GAUGE CLUSTER (5) Engine Oil Pressure, Water Temperature, Fuel, Tachometer, Voltmeter
: ODOMETER DISPLAY, Miles, Trip Miles, Engine Hours, Trip Hours, Fault Code Readout
: WARNING SYSTEM Low Fuel, Low Oil Pressure, High Engine Coolant Temp, and Low Battery Voltage

SEATBELT WARNING PREWIRE Includes Seat Belt Switches

GAUGE, OIL TEMP, ALLISON TRAN

GAUGE, AIR CLEANER RESTRICTION {Filter-Minder} With Black Bezel Mounted in Instrument Panel

IP CLUSTER DISPLAY On Board Diagnostics Display of Fault Codes in Gauge Cluster

GAUGE, DEF FLUID LEVEL

GRAB HANDLE (2) Chrome Towel Bar Type With Anti-Slip Rubber Inserts; for Cab Entry, Mounted Left and Right, Each Side at "B" Pillar

MIRRORS (2) {Lang Mekra} Rectangular, Power Both Sides, Thermostatically Controlled Heated Heads, LED Clearance Lights, Bright Finish Heads and Arms, with Black Brackets, Breakaway Type, 7.55" x 14.1" Integral Convex Both Sides, 102" Inside Spacing

SEAT BELT All Red; 1 to 3



AIR CONDITIONER {Blend-Air} With Integral Heater & Defroster
: HEATER HOSES Premium
CAB INTERIOR TRIM Premium
: "A" PILLAR COVER Molded Plastic
: CAB INTERIOR TRIM PANELS Cloth Covered Molded Plastic, Full Height; All Exposed Interior Sheet Metal is Covered.
: CAB SOUND INSULATION Includes Dash and Engine Cover Insulators
: CONSOLE, OVERHEAD Molded Plastic; With Dual Storage Pockets with Retainer Nets, CB Radio
: COURTESY LIGHT (2) Mounted In Front Map Pocket Left and Right Side
: DOOR TRIM PANELS with Cloth Insert on Bolster Driver and Passenger Doors
: FLOOR COVERING Rubber, Black
: GAUGE, TEMPERATURE, AMBIENT Includes Wiring and Sensor With Display Unit Mounted in Cluster
: HEADLINER Soft Padded Cloth
: INSTRUMENT PANEL TRIM Molded Plastic with Black Center Section
: STORAGE POCKET, DOOR (2) Molded Plastic , Full-Length;
: SUN VISOR (3) Padded Vinyl: 2 Moveable (Front-to-Side) Primary Visors, Driver Side with Vanity Mirror and Toll Ticket Strap, plus 1 Auxiliary Visor (Front Only), Driver Side

CAB REAR SUSPENSION Air Bag Type

WHEELS, FRONT DISC; 22.5" Painted To Match Cab, 2-Hand Hole, 10-Stud (285.75MM BC) Hub Piloted,
WHEELS, REAR DUAL DISC; 22.5" Painted To Match Cab, 2-Hand Hole, 10-Stud (285.75MM BC) Hub Piloted.

(4) TIRE, REAR 12R22.5 G282 MSD (GOODYEAR) 481 rev/mile, load range H, 16 ply

(2) TIRE, FRONT 12R22.5 G661 HSA (GOODYEAR) 484 rev/mile, load range H, 16 ply

REAR AXLE TOP SPEED

The rear axle/s will be geared for a vehicle top speed in accordance with NFPA sections 4.15.2 and 4.15.3.

INTERNATIONAL SAE J2433 ROLLOVER TESTING

The International chassis will comply with SAE J2422 Cab Roof Strength Evaluation. The Cab to Chassis Mounting System will remain attached to the vehicle chassis and in an orientation similar to its original position when subjected to 20g deceleration load in the forward direction.

SEATS INC DRIVER & OFFICER SEATS

A Seats Inc, NFPA compliant, air ride driver seat and a air ride type SCBA officer bucket seat will be installed in place of the International air ride driver's seat and officer two (2) men bench seat.

SCBA BRACKETS

One (1) Zico ULLH bottle brackets and restraint strap assembly will be provided.

BUMPER

The front bumper will be as provided by the chassis manufacturer.

FUEL TANK TREAD PLATE

The step type fuel tank will be overlaid with polished aluminum tread plate. This will include the top, front and both ends. Step areas will be provided for access to the cab.

The battery box will be overlaid with polished aluminum tread plate. The cover of this box will be easily removable for inspection of the batteries.



ANTENNA INSTALLATION

One (1) antenna mounting base model #MATM with 17' of coaxial cable will be provided and installed on the cab roof. The attached antenna wire will be run to the right side cab dash area.

TIRE PRESSURE MONITORING DEVICES

Each tire will be equipped with an LED tire alert pressure management system (Vecsafe equal) that will monitor tire pressure. A chrome plated brass sensor will be provided on the valve stem of each tire.

COMMERCIAL CHASSIS ELECTRICAL SYSTEM

The commercial chassis electrical system will be provided as furnished by the original manufacturer. A customized interface will be provided and designed, so as not to disturb any of the required chassis functions.

12 VOLT ELECTRICAL SYSTEM TESTING

The apparatus low voltage electrical system will be tested and certified by KME. The certification will be provided with the apparatus. All tests will be performed with air temperature between 0°F and 100°F.

INTERNATIONAL MULTIPLEXED ELECTRICAL SYSTEM

The electrical system for the entire apparatus will feature the International® Diamond Logic® Electrical System. At the heart of International® Diamond Logic™ electrical system is the Electronic System Controller (ESC) which functions as the gatekeeper or central processor. The Diamond Logic® Electrical System allows fully customizable logic to carry out functions which up until now required hard-wired circuits and component. The use of the system will enable KME to reduce; if not eliminate; conventional circuit interlock and power supply components for all body builder installed functions as specified by the customer.

CHASSIS DIAGNOSTICS SYSTEM

Diagnostic ports will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches will allow engine and ABS systems to provide blink codes should a problem exist.

BATTERY DISCONNECT SWITCH

The chassis batteries will be wired in parallel to a single 12 volt electrical system, controlled through a heavy duty master disconnect switch.

120 VOLT SHORELINE CONNECTION - "SUPER" AUTO EJECT

One (1) Kussmaul "Super" Auto Eject model 091-55-20-120, automatic, 120 volt, 20 amp shoreline disconnect will be provided for the on board, 110 volt battery charging systems.

The disconnect will be equipped with a NEMA 5-20 P male receptacle, which will automatically eject the shoreline when the vehicle starter is energized.

SHORELINE POWER INLET PLATE

A shoreline power receptacle information plate will be permanently affixed at or near the power inlet.

BATTERY CHARGER SYSTEM

A Kussmaul model # 091-170-12, "Auto Charge 12 HO" high output, fully automatic battery charger will be provided for maintaining the vehicle battery system.

"DO NOT MOVE APPARATUS" WARNING LIGHT WITH AUDIBLE ALARM



A 1" round, red flashing warning light with an integral audible alarm, will be functionally located in the cab to signal when an unsafe condition is present.

This light will be activated through the parking brake switch to signal when the parking brake is released. This light will be labeled "DO NOT MOVE TRUCK".

LED LICENSE PLATE LIGHT - REAR

One (1) Tecniq model #L10 LED license plate light will be provided above the mounting position of the license plate.

TAIL, STOP, TURN AND BACK-UP LIGHTS

Two (2) Code 3, 65STR 4" x 6", red LED combination tail and stop lights, will be mounted one each side at the rear of the body.

Two (2) Code 3, 65STA 4" x 6", amber LED arrow turn signal lights, will be mounted one each side, on a vertical plane with the tail/stop lights.

Two (2) Code 3, 65RV 4" x 6", white LED backup lights, will be mounted one each side, on a vertical plane with the turn/tail/stop signals.

The lights will be mounted in order, from top to bottom, as described above.

BODY STEP LIGHTS

Polished stainless steel, TecNiq Eon 3-LED horizontal surface mounted body step lights will be provided and controlled with marker light actuation.

DUNNAGE AREA LIGHTING

Two (2) stainless steel, TecNiq Eon 3-LED horizontal surface mounted lights will be provided in the dunnage area to provide adequate illumination of this area.

DECK LIGHTS / WORK LIGHTS

Two (2) 6" Unity model AG chrome plated LED deck lights will be provided and mounted on the rear stanchions, one (1) each side.

SCENE LIGHTS - REAR OF BODY

Two (2) Code 3 #79SCBZ LED scene lights will be provided, one on each side of the rear body panel.

SCENE LIGHTS - DRIVER SIDE OF BODY

Two (2) Code 3 #79SCBZ LED scene lights will be provided. The scene lights will be installed one rearward and one forward on the driver side of the body

SCENE LIGHTS - OFFICER SIDE OF BODY

Two (2) Code 3 #79SCBZ LED scene lights will be provided. The scene lights will be installed one rearward and one forward on the officer side of the body.

GROUND LIGHTS - CAB

One (1) JW Speaker 880 XD ground light will be provided under each side cab door entrance step, two (2) total.

Each light will illuminate an area at a minimum 30" outward from the edge of the vehicle.



12 VOLT BODY ELECTRICAL SYSTEM

All electrical lines in the body will be protected by automatic circuit breakers. All lines will be color and function coded every 3", easy to identify, oversized for the intended loads and installed in accordance with a detailed diagram. A complete wiring diagram will be supplied with the apparatus.

Heavy duty loom will be used for the entire length.

All electrical equipment will be installed to conform to the latest federal standards as outlined in NFPA 1901.

BODY ELECTRICAL JUNCTION COMPARTMENT

A weather resistant electric junction compartment will be provided within the body or pump enclosure, depending on vehicle configuration. This compartment will provide an easily accessible enclosure to house all of the body wiring junction points, terminal strips, solenoids, etc.

PUMP ENCLOSURE WORK LIGHTS

Two (2) Grote model #61171 LED lights will be provided inside the pump enclosure providing a minimum of 20 candlepower illumination. Each light will have their own independent switch incorporated into the light head.

AMDOR LUMA BAR COMPARTMENT LIGHTS - LED

Each individual, equipment storage compartment will be equipped with the AMDOR Luma Bar LED light fixture mounted on the forward (or rearward) vertical door frame.

NFPA AUDIBLE AND LIGHTING WARNING PACKAGE

The following warning light package will include all of the minimum warning light and actuation requirements for the current revision of the NFPA 1901 Fire Apparatus Standard.

The entire warning light package will be actuated with a single warning light switch located on the cab switch panel. The wiring for the warning light package will engage all of the lights required for "Clearing Right of Way" mode when the vehicle parking brake is not engaged. An automatic control system will be provided to switch the warning lights to the "Blocking Right of Way" mode when the vehicle parking brake is engaged.

NFPA ZONE A, UPPER

A Code 3 2758NFPA P1 "RX 2700 Prizm II Series", 58" LED cab roof warning light bar will be furnished and rigidly mounted on top of the cab roof.

- Red Upper Lenses
- Clear Lower Lenses
- Six Forward Facing Red - Eight LED Reflector Prizm II Modules
- Four Corners Red - Twelve LED Reflector Prizm II Modules.

NFPA ZONE C, UPPER

Two (2) Code 3 A18-** Arch LED beacon lights will be mounted one (1) each side at the rear of the body. The lights will be mounted so the warning signal faces at 45° to the longitudinal axis of the vehicle in order to comply with NFPA standards in both Zone C and B/D Upper.

NFPA ZONES B & D REAR, UPPER

The lighting requirement for this area is covered by the lights noted in Zone "C" - Upper.



NFPA ZONES B & D FRONT, UPPER

The lighting requirement for this area is covered by the lights noted in Zone "A" - Upper.

NFPA ZONE A, LOWER

Two (2) Code 3 45BZ* LED light heads will be provided and installed one (1) each side.

NFPA ZONE C, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed; one (1) each side directly below the DOT stop, tail, turn and backup lights.

NFPA ZONES B & D FRONT, LOWER

Two (2) Code 3 LXEX1F-* LED light heads will be provided and installed one (1) each side.

The lower zone B & D warning lights will be mounted on the sides of the commercial chassis hood at or forward of the centerline of the front axle.

NFPA ZONES B & D MIDSHIP, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.

NFPA ZONES B & D REAR, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.

WARNING LIGHT SYSTEM CERTIFICATION

The warning light system specified above will not exceed a combined total amperage draw of 45 AMPS with all lights activated in either the "Clearing Right of Way" or the "Blocking Right of Way" mode.

The warning light system will be certified by the light system manufacturer, to meet all of the requirements in the current revision of the NFPA 1901 Fire Apparatus Standard.

BACK-UP ALARM

A Code 3, model # CA278, 87dBA back-up alarm, will be provided and installed at the rear of the apparatus under the tailboard. The back-up alarm will activate automatically when the transmission is placed in reverse gear and the ignition is "on".

AIR HORNS

Two (2) chrome plated air horns will be at the front of the vehicle. The air horns will be mounted in full compliance with NFPA-1901. The supply lines will be dual 1/4" lines with equal distance from each horn. Each air horn will be mounted, one (1) each side, on the side of the hood.

An air horn/electric DOT horn selector switch will be furnished on the dash for the drivers steering horn button.

ELECTRONIC SIREN

One (1) Whelen # 295SLSA1, 100 watt electronic siren will be provided.

One (1) Whelen, model # SP123BMC with chrome plated ABS outer flange, siren speakers will be provided, recessed in the front bumper and wired to the electronic siren.

PUMP

- **WATEROUS CX -125, 1250 GPM, Single Stage**



The pump must deliver the rated capacity at the pressure listed below:

- 100% of rated capacity at 150 PSI. net pump pressure
- 100% of rated capacity at 165 PSI. net pump pressure
- 70% of rated capacity at 200 PSI. net pump pressure
- 50% of rated capacity at 250 PSI. net pump pressure.

PUMP ASSEMBLY

The pump will be of a size and design to mount on the chassis rails of commercial and custom truck chassis, and have the capacity of 1250 gallons per minute.

IMPELLER SHAFT

The impeller shaft will be stainless steel, accurately ground to size, and supported at the drive end by oil or grease lubricated, anti-friction bearings for rigid and precise support.

PUMP IMPELLER

The impeller will be bronze, accurately balanced, of mixed flow design with reverse flow labyrinth-type wear rings.

MECHANICAL PUMP SEALS

The drive shafts will be equipped with self-adjusting, maintenance free mechanical shaft seals.

PUMP IMPELLER

The impeller will be bronze, accurately balanced, of mixed flow design with reverse flow labyrinth-type wear rings that resist water bypass and loss of efficiency due to wear.

PUMP TRANSMISSION

The pump transmission will be all aluminum "C20" model, rigidly attached to the pump body assembly and be of latest design incorporating a high strength involute tooth-form Hy-Vo chain drive.

PUMP RATIO

The pump ratio will be selected by the KME to give maximum performance with the engine and transmission selected.

KME will supply at time of delivery copies of the pump manufacturer's certification of hydrostatic testing, the engine manufacturer's current certified brake horsepower curve.

PUMP SHIFT CONTROL

The drive unit will be equipped with a power shift. The shifting mechanism will be a heat treated, hard anodized aluminum power cylinder with stainless steel shaft.

The pump shift control, pump engaged light and ok to pump indicator light will be provided utilizing the International multi-plex system. They will be located in the lower left switch panel.

This control will be electronically interlocked through the International multi-plex system to prevent inadvertent activation or de-activation. The pump shift switch will also serve as the manual lock up switch; in case of air pressure lose.



TRANSMISSION LOCK

The automatic transmission furnished in the chassis will have a lock-up assembly which brings the transmission to direct drive and prevents the transmission from shifting gears while in the pumping mode.

MAIN PUMP MOUNTS

Extra heavy duty pump mounting brackets will be furnished.

PUMP MANIFOLDS

A custom made suction and discharge manifold will be constructed from stainless steel

PUMP PRESSURE CONTROL SYSTEM

The apparatus will be equipped with a Fire Research PumpBoss model# PBA400 pressure governor and monitoring display kit. The control knob will be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center.

The governor will operate in two control modes, pressure and RPM. A throttle ready LED will light when the interlock signal is recognized. The governor will start in pressure mode and set the engine RPM to idle. In pressure mode the governor will automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor will maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor will limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features will include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

An Akron Model 59 intake relief valve system will be plumbed on the suction side of the pump to comply fully with NFPA-1901 requirements.

PUMP CERTIFICATION

The pump will be third party performance tested to meet the requirements of NFPA-1901 by Underwriters Laboratories (UL).

PRIMING PUMP

The priming pump will be a Trident air primer system.

MASTER DRAIN VALVE

A rotary type, 12 port master drain valve will be provided and controlled at the lower portion of the side pump panel.

INDIVIDUAL BLEEDERS AND DRAINS

All lines will drain through the master drain valve or will be equipped with individual drain valves, easily accessible and labeled.

One (1) individual "Innovative Control" lift up drain valve will be furnished for each 1-1/2" or larger discharge port and each 2-1/2" gated auxiliary suction.

PUMP MODULE

The pump module will be a self-supported structure mounted independently from the body and chassis cab.

DUNNAGE AREA

A dunnage area will be provided above the pump enclosure for equipment mounting and storage. This area will be furnished with a removable 3/16" aluminum tread plate floor and will be enclosed on the sides.



SUCTION INLETS

Two (2) 6" N.S.T. suction inlets will be provided, one on the driver side pump panel and one on the officer side pump panel. A removable strainer will be installed on each inlet.

The main pump suction inlets will be furnished with a short suction end, terminating with only the suction threads protruding through the side panel to minimize the distance an exterior appliance protrudes beyond the pump panel.

A 6" NST chrome plated long handle pressure vented cap will be installed on each main inlet of the pump.

AUXILIARY SIDE SUCTION

One (1) 2-1/2" auxiliary suction will be provided at the driver side pump panel, to the rear of the main inlet. The 2-1/2" auxiliary suction will terminate with a removable strainer, chrome plated 2-1/2" NST female swivel with a chrome plated plug and retaining chain.

An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the driver's side rear auxiliary suction.

All side gated inlet valves will be recess mounted behind the side pump panels or body panels.

TANK TO PUMP

One (1) 4" tank to pump line will be piped through the front bulkhead of the tank with a 90 degree elbow down into the tank sump. This line will be plumbed directly into the rear of the pump suction manifold for maximum efficiency.

A check valve will be provided to prevent accidental pressurization of the water tank through the pump connection.

An Akron Brass 3" Generation II Swing-Out™ Valve will be provided between the pump suction manifold and the water tank.

TANK FILL

One (1) 2" gated full flow pump to tank refill line controlled at the pump panel will be provided. A deflector shield inside the tank will be furnished.

An Akron Brass 2" Generation II Swing-Out™ Valve will be provided between the pump discharge manifold and the water tank.

DRIVER'S SIDE MAIN DISCHARGE #1 AND #2

Two (2) discharges will be provided and located at the driver's side pump panel. The driver's side discharges # 1 and #2 will terminate with NST threads, through the left panel above the main pump intake.

An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the driver's side #1 and #2 discharges.

The discharge valves will be equipped with a straight 2 1/2" NST adapter that will be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

A 2 1/2 " NST chrome plated pressure vented cap will be installed on driver's side #1 and #2 discharges.

The driver's side # 1 and #2 discharges will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge



OFFICER'S SIDE MAIN DISCHARGE #1

A discharge will be provided and located at the officer's side pump panel. The officer's side discharges #1 will terminate with NST threads.

An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the officer's side #1 discharge.

The discharge valve will be equipped with a straight 2 1/2" NST adapter that will be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

A 2 1/2" NST chrome plated pressure vented cap will be installed on officer's side # 1 discharge.

The officer's side # 1 discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

OFFICER'S SIDE MAIN DISCHARGE #2

A discharge will be provided and located at the officer's side pump panel. The officer's side discharges #2 will terminate with NST threads.

An Akron Brass 4" Heavy Duty Swing-Out™ Valve will be provided for the officer's side #2 discharge. The discharge valve will be equipped with a straight 4" NST adapter.

A 4" NSTF X 4" Storz Kocheck SKE-R 30° adapter with cap will be provided on the officer's side #2 discharge.

The officer's side #2 discharge valve will be gated with an Akron Hand wheel controlled, inline valve. The valve will be controlled at the pump operator's panel with a chrome plated hand wheel and mechanical valve position indicator.

The officer's side #2 discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

DRIVER SIDE REAR DISCHARGE

A 2 1/2" NST rear discharge will be provided at the rear of the vehicle, plumbed from the pump.

The rear discharge will terminate on the rear body panel, on the driver side of the body.

The driver side rear discharge pipe will be equipped with a chrome 2 1/2" NSTM thread adapter.

The driver side rear discharge will be plumbed utilizing 2 1/2" schedule 10 stainless steel piping, 45 degree elbows and a limited number of 90 degree sweep elbows.

An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the driver's side rear discharge.

One (1) 2 1/2" NST chrome plated pressure vented cap will be installed at the driver side rear discharge.

The driver side rear discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

DECK GUN DISCHARGE

A deck gun discharge will be plumbed from the pump to an area on top of the vehicle.

The deck gun discharge will be located in the dunnage area above the pump module on the officer's side of the vehicle.

The deck gun discharge pipe will terminate with 3" NPT threads.

The deck gun discharge will be plumbed utilizing 3" schedule 10 stainless steel piping, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to the deck gun location.



An Akron Brass 3" Generation II Swing-Out™ Valve will be provided for the deck gun discharge.

The deck gun discharge will be equipped with a 2 ½" diameter Innovative Controls pressure gauge.

TFT MANUAL DECK GUN

A TFT Hurricane monitor will be supplied and mounted on the deck gun discharge of the unit to provide the maximum travel clearance. A TFT model "MASTER STREAM" 1000 GPM nozzle will be supplied with the deck gun.

HORIZONTAL CROSSLAY #1 AND #2

Two (2) crosslay hose beds will be provided and plumbed from the pump in a transverse design, located above the pump enclosure for quick attack deployment. The crosslay hose bed flooring will be designed to be removable, constructed from brushed finish, perforated aluminum material.

Crosslay #1 and #2 will be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 200 feet of 1-3/4" fire hose.

The crosslay discharge will terminate below the hosebed floor with a 1 1/2" NSTM chicksan swivel adapter.

The crosslay #1 and #2 discharge will be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to crosslay hose bed.

An Akron Brass 2" Generation II Swing-Out™ Valve will be provided for the crosslay #1 and #2 discharge.

The crosslay #1 and #2 discharge will be equipped with a 2 ½" diameter Innovative Controls pressure gauge. .

PUMP ENCLOSURE HOSEBED HOSE RETENTION

A vinyl cross lay cover will be provided. It will be securely fastened at the front with snaps and Velcro at the rear, with straps to secure each end flap.

PUMP PANEL - SIDE MOUNT

The pump operator's control panel will be located on the driver side of the apparatus. The pump enclosure side panels will be completely removable and designed for easy access and servicing.

The left side operator's panel, gauge panel, right side pump panel and right side access door will be fabricated from 12-gauge 304L stainless steel with a #4, (150/180 grit), standard brushed finish.

A full width, vertically hinged gauge access panel will be provided at the operator's position. Chrome plated positive locks will be provided along with chain holders to prevent the front of the gauge panel from coming in contact with other panels when open.

The officer's side pump panel will be split, vertically hinged, to provide complete access to the pump and plumbing on the officer side of the pump enclosure. The panels will be equipped with stainless steel hinges and secured with push type locks to hold the panels closed.

Stainless steel machine screws and lock washers will be used to hold these panels in position. The panels will be easily removable to provide complete access to the pump for major service.

CAPS AND ADAPTERS SAFETY TETHER

All applicable discharge and suction caps, plugs and adapters will be equipped with chrome plated ball chain and secured to the vehicle.



A high polished trim plate will be provided around each discharge port and suction inlet opening to allow accessibility to the respective valve for service and repairs.

COLOR CODED IDENTIFICATION TAGS

Color coded identification tags will be provided for all gauges, controls, connections, switches, inlets and outlets.

PUMP OPERATOR'S PANEL LIGHT SHIELDS

The pump operator's panel will be equipped with a light shield that will be full width of the control panel, and will be positioned to cover the lights and prevent glare.

The light shield will be equipped with two (2) 20" Amdor Luma Bar H2O super bright led strip lights.

One (1) light under the operator's panel light shield will be actuated when fire pump is engaged in addition to the pump engaged light.

The officer's side pump panel and running board will be illuminated by four (4) TecNiq Eon, 3-LED illumination lights mounted in horizontal stainless steel bezels and mounting gaskets.

PUMP OPERATOR'S PANEL

Particular attention is to be given to functional arrangement of all controls. The pump operator's panel will accommodate the following:

- All discharge valve controls
- Auxiliary engine cooler controls
- Water tank suction control valve
- Pump primer valve
- Engine throttle control
- Master compound and pressure vacuum gauges
- Individual discharge gauges
- Pump shift engaged indicator light
- Water tank water level indicator
- Engine tachometer
- Engine oil pressure gauge with audible alarm
- Engine water temperature gauge with audible alarm
- Low voltage light and audible alarm
- Pump serial No. plate
- Master pump drain valve
- Individual drains
- Voltmeter
- Pump panel air horn actuation button labeled "EVACUATION"
- Fire Research "Pump Boss" pressure governor control.

MASTER GAUGES

One (1) 4" diameter pressure gauge (labeled: "PRESSURE") and one (1) 4" diameter compound vacuum gauge (labeled: "INTAKE") will be provided. The master gauges will be Innovative Controls glycerin filled.

ENGINE COOLER

An auxiliary cooler or heat exchanger will be installed in the engine compartment between the engine and the chassis radiator.



TANK LEVEL GAUGE

A Fire Research, model #WLA300-A00, "TANKVISION" gauge that shows the actual volume of water in the tank will be provided on the pump operator's panel.

WATER TANK

The water tank will have a capacity of 750 gallons, constructed from Poly material.

WATER TANK CONSTRUCTION

The Poly water tank will be constructed of PT3 polypropylene material. This material will be a non-corrosive stress relieved thermoplastic and UV stabilized for maximum protection.

WATER CAPACITY CERTIFICATION

All tanks will be tested and certified as to capacity on a calibrated and certified tilting scale.

WATER TANK LID

The tank cover will be constructed of 1/2" thick PT3 polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary.

WATER TANK FILL TOWER AND OVERFLOW AND VENT PIPE

The tank will have a combination vent and manual fill tower. The fill tower will be constructed of 1/2" PT3 polypropylene and will be a minimum dimension of 8" x 8" outer perimeter.

The fill tower will be fitted with an integral 4" I.D. schedule 40 P.V.C. combination overflow/vent pipe running from the fill tower through the tank to a 4" coupling flush mounted into the bottom of the tank to allow water to overflow behind the chassis rear axle.

The tank sump will be a minimum of 10" wide x 10" long x 3" deep. An anti-swirl plate will be mounted inside the sump, approximately 1" above the bottom of the sump. A 3" drain plug will be provided.

WATER TANK MOUNTING ALL "T" TANKS - PUMPER

The tank will rest on the body cross members spaced a maximum of 22" apart, and will be insulated from these cross members with a minimum of 3/8" nylon webbing or 1/2" rubber, 2-1/2" wide. The tank will sit cradle-mounted using four (4) corner angles of 6 x 6 x 4 x 0.250 welded directly to the body cross members.

APPARATUS BODY DESIGN CONSTRUCTION

The body side and compartment assemblies will be designed and assembled to provide maximum strength and durability under all operating conditions.

Special attention will be taken to minimize corrosion on all fabricated parts and structural members of the body. All bolt-on components will be provided with a dissimilar metals isolation barrier to prevent electric corrosion.

The body assembly will be an all-welded configuration.

COMPARTMENT TOPS

Compartment ceilings will be a fully welded design as part of the body construction process.

The top of the welded in compartment ceiling will be overlaid with aluminum treadplate to provide an NFPA compliant stepping surface.



Compartment tops over all side compartments will have a flange formed to provide protection against water runoff.

BODY AND COMPARTMENT FABRICATION - 3/16" ALUMINUM

All compartment panels and body side sheets will be fabricated entirely of 3/16" aluminum (5052-H32). Each side compartment assembly will be both plug welded and stitch welded to ensure proper weld penetration on all panels while avoiding the possible warping caused by a full seam weld.

SUB STRUCTURE - ALUMINUM

The body sub structure will be an all welded configuration utilizing a combination of 3" x 1-1/2" 6061-T6 thick walled structural tubing and 6061 structural channel.

This design will provide storage capacity in each side compartment for a minimum of 500 lbs of equipment, and a minimum of 1000 lbs of equipment in the rear step compartment.

The fire body will be 100" wide to provide the maximum amount of usable hose bed and compartment space. The side body compartments will be 29" deep in any full depth areas, and 14" deep in any split depth areas.

BODY FENDER

The body fender will be 64" long, this will allow for the suspension and related components to be contained within the fender, preventing any intrusion into the body compartment storage area.

DRIVER SIDE BODY COMPARTMENTATION

One full height/split depth compartment will be provided forward of the rear wheels. The compartment dimensions will be 27" wide x 68" tall x 29" deep in the lower 30" tall area, and 14" deep in the upper 38" tall area.

One high side compartment will be provided above the rear wheels. The compartment dimensions will be 64" wide x 37" high x 14" deep.

One full height/split depth compartment will be provided behind the rear wheels. The compartment dimensions will be 46" wide x 68" tall x 29" deep in the lower 30" tall area, and 14" deep in the upper 38" tall area.

The driver side compartments will provide approximately 80 cubic feet of storage space.

OFFICER SIDE BODY COMPARTMENTATION

One low side compartment will be provided forward of the rear wheels. The compartment dimensions will be 27" wide x 32" tall x 29" deep.

One low side compartment will be provided behind the rear wheels. The compartment dimensions will be 46" wide x 32" tall x 29" deep.

The officer side compartments will provide approximately 39 cubic feet of storage space.

REAR STEP COMPARTMENT

An equipment storage compartment will be provided on the rear of the body at the rear step area. The rear step compartment will be 42" Wide x 40" High x 29" Deep.

The rear step compartment will provide approximately 28 cubic feet of storage space. The rear step compartment will be equipped with a rollup style door.



EXTENDED REAR STEP - TAPERED CORNERS

The extended rear step will be 12" deep, extended beyond the body compartments. The step will be 100" wide, with tapered corners for better clearance.

HOSE BED (72" WIDE)

The hose bed will be located directly above the booster tank and will be free from all sharp objects such as bolts, nuts, etc., to avoid damage to fire hose.

The hose bed side walls will be approximately 2" thick, this will provide a mounting surface for devices like warning lights and scene lights.

HOSE BED CAPACITY

The hose bed will provide a minimum of 30 cubic feet hose storage area for 2 ½" or larger fire hose to meet NFPA 1901 minimum pumper hose storage requirement.

The apparatus weight analysis will be based on 800' of 2 ½" hose unless otherwise specified.

Flooring to be constructed from extruded aluminum and be properly spaced for ventilation. The flooring will be smooth and free from sharp edges to avoid hose damage.

One (1) fully adjustable 3/16", aluminum hose bed partition will be provided. Partition will be easily adjustable by means of channels located at the front and rear of the hose bed.

VINYL HOSE BED COVER - 1/4 TURN FASTENERS

A hose bed cover will be provided and installed. The cover will be made from 22 ounce; heavy-duty vinyl coated polyester fabric (TXN 226). A weighted flap will be furnished on the rear of the cover with two (2) bungee cords.

COMPARTMENT DOORS

The compartment doors will be flush type with the outer skin fabricated from 3/16" (5052 H32) aluminum.

The 2" thick compartment doors will reduce the overall specified compartment depth by 2".

COMPARTMENT DOOR HINGES

Hinges will be full length polished stainless steel piano type. The hinges will be mounted with stainless steel hardware.

COMPARTMENT DOOR SEALS

Enclosed body compartment doors will be equipped with a closed cell gasket. The gasket material will be EPDM to provide a gasket resistant to weather, temperature extremes, and aging.

COMPARTMENT DOOR LATCHES – ROTARY WITH D-RINGS

Externally latched body doors will be equipped with stainless steel D-ring handles.

Rotary door latches will be provided for all full height body doors, which will incorporate rotary latches at the top and bottom of all externally latched single or double doors.

The blank door of a double door configuration will have rotary latches at the top and bottom of each door with the latch release lever accessible thru the door frame, which eliminates the need to reach inside the compartment to release the door.



COMPARTMENT DOOR STAY ARMS

Eberhard gas shock type door hold open devices will be provided for each vertically and horizontally hinged door.

SWEEP-OUT COMPARTMENT FLOORS

Compartment floors will be welded to the compartment walls and have a sweep out design for easy cleaning.

COATED FASTENERS

All exterior fasteners will be coated stainless steel screws. Screw threads will be coated with reusable, self-locking, sealing material to provide vibration resistance. Screw heads will be coated with a sealing element to prevent galvanic corrosion between dissimilar metals.

COMPARTMENT LOUVERS

Ventilation between compartments to atmosphere will be provided and located to avoid water entry into compartments.

BODY RUB RAILS

Sacrificial aluminum tread plate rub rails will be mounted at the base of the body, extend outward a minimum 3/4", downward 2" and flange inward 1". Rub rails will be designed so as not to damage the body side panels on initial impact and to provide for ease of replacement.

RUNNING BOARD STEPS

The driver and officer running board steps will be fabricated of 3/16" polished aluminum tread plate. The running boards will not form any part of the compartment design, and will be bolted into place with a minimum 1/2" clearance gap between any panel to facilitate water runoff.

INTERMEDIATE REAR STEP

An eight (8) inch deep, bolt on intermediate rear step, fabricated from 3/16" aluminum tread plate, will be installed. The step will be approximately 8" deep x 48" wide.

GRAB RAILS

All hand rails will be 1-1/4" outer diameter, knurled bright anodized aluminum extrusion, designed to meet NFPA 1901 requirements.

Molded gaskets will be installed between the handrail stanchion castings and body surfaces to prevent electrolytic reaction between dissimilar metals and to protect paint.

Grab rails will be provided at the following specified locations.

Two (2) vertical rails will be mounted on the rear edge of the beavertails, one (1) each side.
One (1) horizontal, full width handrail will be installed on the rear, below the level of the hose bed.

FOLDING STEPS

Cast Products model SP4401-1-CH-A large folding step(s) with RG0005 gasket, with a textured chrome plate finish will be provided on driver side body rear to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).



Additional steps will be provided on officer side body rear to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface

REAR WHEEL WELL LINERS

Fully removable, one piece, bolt-in, aluminum rear wheel well liner and fenderette will be provided.

REAR MUD FLAPS

Heavy duty mud flaps will be provided behind the rear wheels.

REAR TOW EYES

Two (2) painted tow eyes will be furnished on the rear of the vehicle. The tow eyes will be made from plate steel and will be bolted directly to the chassis frame rails with grade 8 bolts and will extend below the body.

ADJUSTABLE SHELVING

Compartment shelving will be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports. Shelving will be vertically adjustable with spring nuts in aluminum strut channel.

Adjustable shelves will be located as follows:

- One (1) in the driver side front compartment
- One (1) in the officer side front compartment
- One (1) in the driver side rear compartment
- One (1) in the officer side rear compartment
- One (1) in the rear step compartment

LADDER MOUNTING BRACKETS

Ladder mounting brackets will be a Cast Products #FA0030-5. The brackets will be mounted on tracking on the officer side body side panel with spring actuated holders.

PIKE POLE STORAGE

Two (2) pike pole tubes will be provided. Each pike pole holder will be labeled to indicate the pike pole length. The pike pole tubes will be mounted on the ladder rack.

SUCTION HOSE STORAGE

The suction hoses will be located on the body side panels, one (1) on the officer side and one (1) on the driver side of the apparatus.

HOSE TROUGH

Two (2) polished, extruded aluminum adjustable hose troughs will be provided. Two (2) Velcro hose holders will be furnished on each trough.

LOOSE EQUIPMENT

- 1 - Pint of touch up paint for each color
- Bag of assorted stainless steel nuts and bolts
- One (1) Alco-Lite model PEL-24; 24', aluminum, two (2) section extension ladder will be provided.
- One (1) Alco-Lite model PRL-14; 14', aluminum, straight roof ladder with folding hooks will be provided.

- One (1) Alco-Lite model FL-10; 10', folding, aluminum, attic ladder will be provided.
- Two (2) 10 foot sections of six (6) inch PVC lightweight suction hose will be furnished.



- One (1) 6" NST, Red Head 140-60001 barrel type strainer will be. A compartment mounting bracket will also be provided.
- Two (2) ZICO #SAC-44 folding wheel chocks will be mounted.

PAINT, PREPARATION AND FINISH

The PPG Delta, Low V.O.C., polyurethane finishing system, or equal, will be utilized. A "Clear Coat" paint finish will be supplied.

All removable items, such as brackets, compartment doors, etc. will be painted separately to insure finish paint behind mounted items.

BODY PRIMER & PREPARATION

All exposed welds will be ground smooth for final finishing of areas to be painted.

BODY FINISH PAINT

The body will be finish sanded and prepared for final paint. Upon completion of final preparation, the body will be painted utilizing the highest quality, state of the art, low V.O.C., polyurethane base paint. Finish paint will be applied in multiple coats to ensure proper paint coverage with a high gloss finish.

The inside and underside areas of the complete body assembly will be painted black using a PPG Delta System, prior to the installation of the body on the chassis or torque box. The body paint finish will be PPG Delta System in a single color, to match customer furnished paint codes and requirements.

COMPARTMENT PAINT

The interior of the compartments will be finish painted job color with a scuff resistant webbing type paint.

FENDER STORAGE COMPARTMENT PAINT

The interior of the fender storage compartments will be finished painted job color.

CHASSIS CAB PAINT

The commercial cab exterior will be finish painted in a single color by the chassis manufacturer.

WHEEL PAINT

The chassis wheels will be painted as provided by the commercial chassis manufacturer.

TOUCH-UP PAINT

One (1) pint of each exterior paint color for touch-up purposes will be supplied when the apparatus is delivered to the end user.

FINALIZATION & DETAILING

Prior to delivery the vehicle, the interior and exterior be cleaned and detailed.

RUST PROOFING

The entire unit will be thoroughly rust proofed utilizing rustproof and sound deadening materials applied in manufacturer recommended application procedures.

LETTERING



Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the cab driver's and officer's doors per the fire department requirements.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the area of the cab above the windshield per the fire department requirements.

Scotch-Cal without drop shadow lettering will be provided on the front BUMPER per the fire department requirements.

Scotch-Cal without drop shadow lettering will be provided on the REAR COMPARTMENT DOOR per the fire department requirements.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the body side sheet per the fire department requirements.

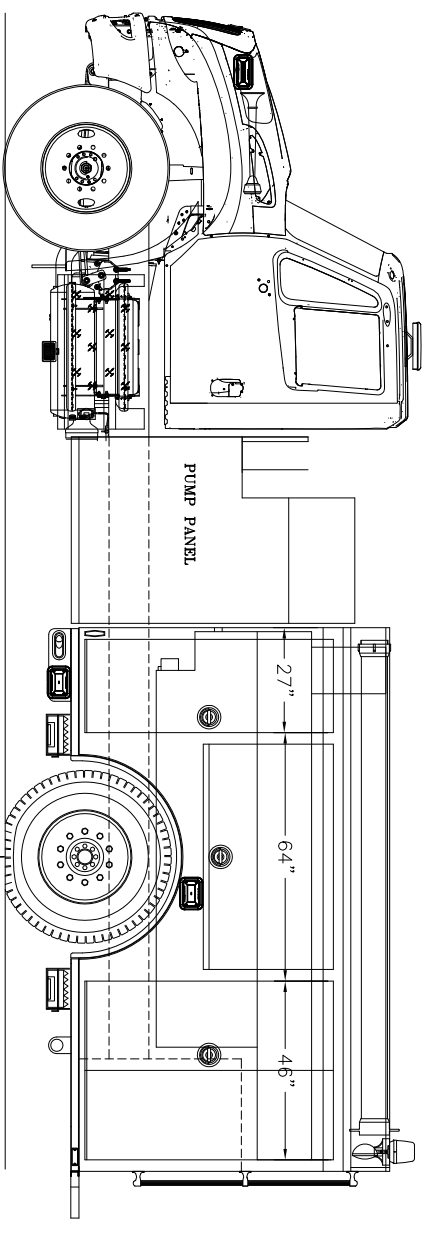
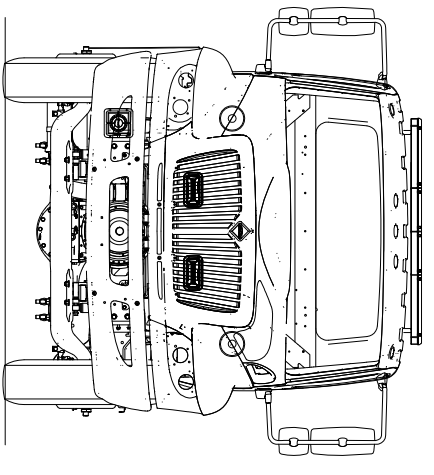
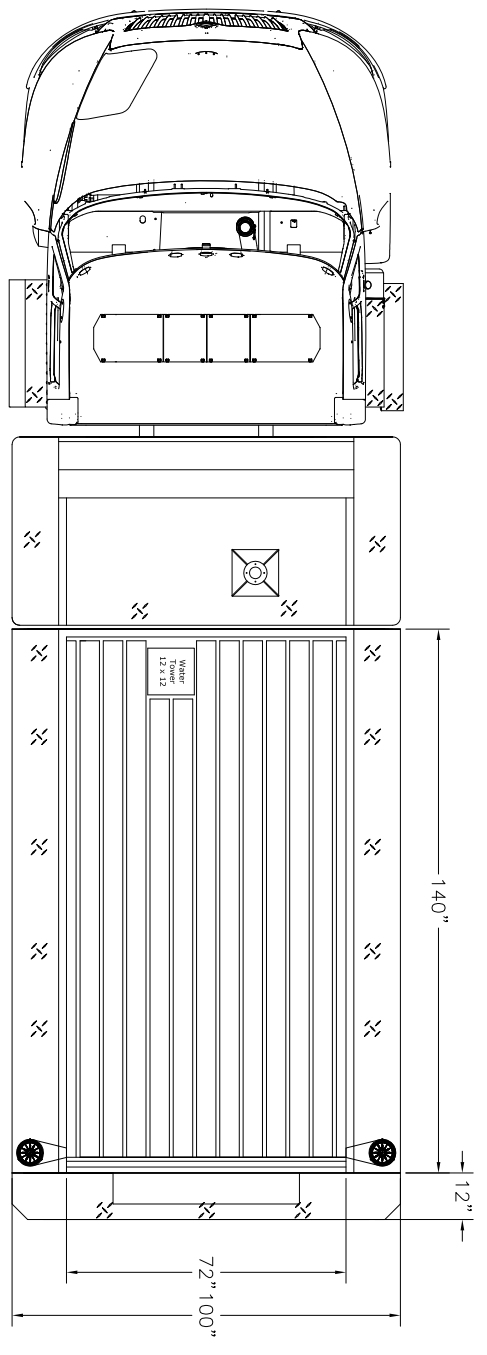
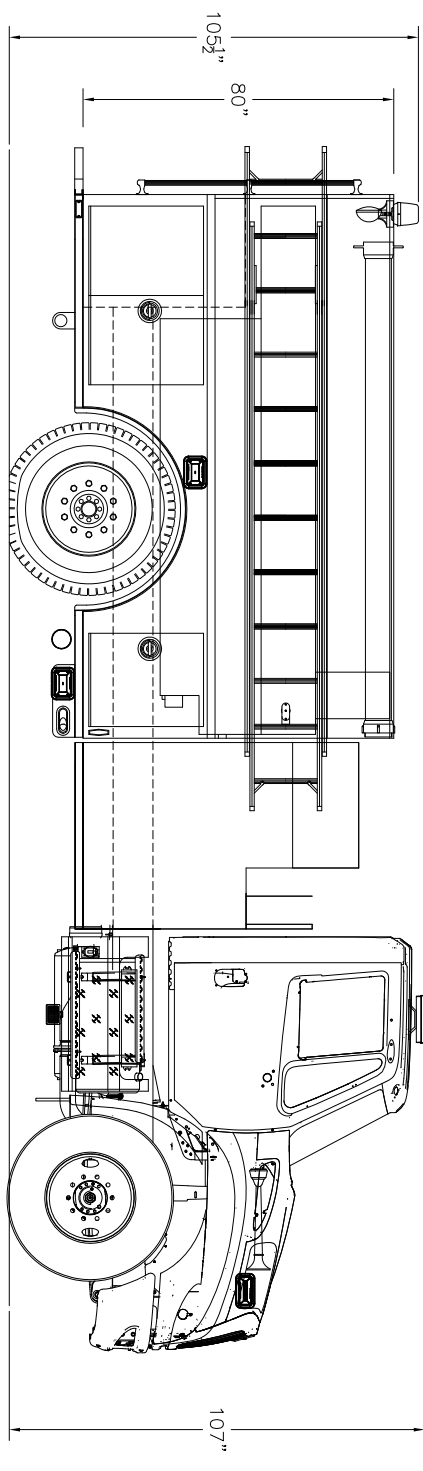
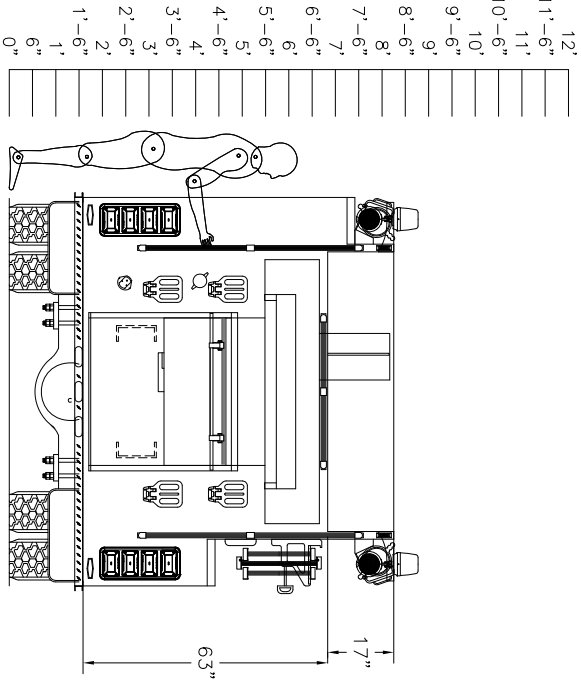
SCOTCH-LITE STRIPE

A four (4) inch high "Scotch-Lite" stripe will be provided. The stripe will be applied on a minimum of 60 percent of each side of the unit, 60 percent on the rear of the unit and 40 percent on the front of the unit.

REAR CHEVRON STRIPING

At least 50% of the rear facing vertical surface will be covered with alternating strips of reflective striping.

The striping will be 6" Diamond Grade Scotch-Lite.



----- CHASSIS -----

CHASSIS: INTL 4400 SBA 4X2
 CAB: 2 DOOR
 ENGINE: N9 330 HP
 TRANSMISSION: ALLISON 3000 EVS P
 FRONT AXLE: 14,000 LB
 REAR AXLE: 26,000 LB

----- PUMP -----

PUMP: WATEROUS CX 1250 GPM SINGLE STAGE
 INTAKES
 DRIVER SIDE: 6" & 2-1/2"
 OFFICER SIDE: 6"
 FRONT: N/A
 REAR: N/A
 DISCHARGES
 DRIVER SIDE: (2) 2-1/2"
 OFFICER SIDE: (1) 4" & (1) 2 1/2"
 FRONT: N/A
 REAR: (1) 2, 1/2" DS
 DECK GUN: (1) 3" DECK GUN OS DUNNAGE AREA
 OTHER: (2) 1-3/4" CROSSLAYS

----- TANK -----

TANK: POLY
 WATER: 750 GALLONS
 FOAM: N/A
 EXTRA FILLS: N/A
 DUMPS: N/A

----- BODY -----

BODY TYPE: 140" FLEX SHORT
 MATERIAL: 3/16" ALUMINUM
 COMPARTMENTATION
 DRIVER SIDE: FULL HEIGHT/SPLIT DEPTH
 OFFICER SIDE: LOW SIDE
 HOSEBED
 DIVIDERS: ONE (1)
 HOSE LOAD: MINIMUM

----- MISC. -----

GENERATOR: N/A
 FOAM SYSTEM: N/A

CUSTOMER APPROVAL:

NAME:
 TITLE:
 DATE:

THIS DRAWING IS A GENERAL CONFIGURATION AND MAY NOT NECESSARILY REFLECT ALL CONTRACTUAL REQUIREMENTS. CONTRACT SPECIFICATIONS SHALL PREVAIL OVER DRAWING

SYM	DATE	REVISION DESCRIPTION	APP'D
A		PROPOSAL	ZZ

SALES ENGINEER : T.B.D.



KOVATCH MOBILE EQUIPMENT
 ONE INDUSTRIAL COMPLEX - NESHOBING, PA 16840

DATE: 11/05/2015 SCALE: 1"=24" DWG SIZE: D DRAWN BY: J.J.M. APPROVED BY:

KME COMMERCIAL PUMPER
 FCAM COMMERCIAL BASIC
 PROPOSAL



PROPOSAL FOR A KME

MID RANGE COMMERCIAL

CHASSIS

PUMPER

MAPC/FCAM 2



QUOTATION

Metropolitan Area Planning Council
 Lorraine See
 60 TemplePlace
 6th Floor Reception
 Boston, Ma 02111
 617-933-0766

Bulldog Fire Apparatus
 Ken Franks
 17 Winter Street
 Woodville, MA 01784
 508-435-4200
 kfranks@bulldogfa.com

Sales Rep: **Terms:**
 FCAM COMMERCIAL MID RANGE 2015 Final Draft
 MAPC/FCAM-2

Drawing #:
Est. Delivery Date: // **Penalty:**

Customer PO #:
Customer #:
QPF #:

Quote No: 10030-0035
 11/11/2015 14:00:04

PART NO	DESCRIPTION	QTY	ID
QUOTE DATA VERSION: 1014.0150- 2015 DATA SET			
02-00-0060	PROPOSED BY - BULLDOG FIRE APPARATUS	1	KME
04-00-0000	PROPOSED - GENERAL INFORMATION - NFPA 1901	1	KME
04-00-0033	PROPOSED - COMPLETION INFO	1	KME
04-00-0040	PROPOSED - FMVSS CERTIFICATION	1	KME
04-00-0060	PROPOSED - RECORDS	1	KME
04-00-0100	PROPOSED - GENERAL CONSTRUCTION	1	KME
04-00-0120	PROPOSED - SINGLE LINE RESPONSIBILITY	1	KME
04-00-0130	PROPOSED - PRODUCT LIABILITY - \$30,000,000.00	1	KME
04-00-0193	PROPOSED - PAINT PERFORMANCE CERTIFICATION	1	KME
04-00-0490	PROPOSED - PRICES & PAYMENTS	1	KME
04-00-0540	PROPOSED - BOND REQUIREMENTS	1	KME
04-00-0560	PROPOSED - PERFORMANCE BOND	1	KME
04-00-0580	PROPOSED - NON-COLLUSION AGREEMENT	1	KME
04-00-0630	PROPOSED - MATERIAL & WORKMANSHIP	1	KME
04-00-0660	PROPOSED - CONTRACT SPECIALIST	1	KME
04-00-0680	PROPOSED - APPROVAL DRAWING	1	KME
04-00-0820	ACCOMMODATIONS FOR ONE (1) DEALER PERSONNEL	1	DLR
04-00-1200	PROPOSED - DELIVERY	1	KME
04-00-1215	PROPOSED - INSTRUCTION MANUALS, TWO (2) SETS - CD	1	KME
04-00-1215	POWERPOINT DELIVERY - PROPOSAL FCAM	1	DLR
04-00-1300	PROPOSED - VEHICLE FLUIDS PLATE	1	KME
04-00-1320	PROPOSED - PRINCIPAL APPARATUS DIMENSIONS & GVWR	1	KME
04-00-1430	PROPOSED - KME OWNERSHIP	1	KME
04-00-1445	PROPOSED - UNIT BUILT AT HEADQUARTERS	1	KME
04-00-1500	PROPOSED - MANUFACTURE GENERATED EXACT BLUEPRINT WITH BID	1	KME
04-00-1521	PROPOSED - KME and BULLDOG FAMA MEMBERSHIP	1	
04-00-1540	PROPOSED - MANUFACTURED IN THE UNITED STATES	1	KME
04-00-1550	PROPOSED - ISO 9001 QUALITY MANAGEMENT SYSTEM	1	KME
04-00-1605	PROPOSED - AMP DRAW REPORT	1	KME
04-00-1700	PROPOSED - COOPERATIVE PURCHASING	1	KME
07-00-0045	"PUMPER FIRE APPARATUS" NFPA 2009 CHAPTERS OF COMPLIANCE	1	KME
08-00-0000	VEHICLE DATA PLATE DESCRIPTION	1	KME
14-00-0000	NFPA ROLLOVER STABILITY GENERAL STATEMENT	1	KME
AA-00-002A	SERVICE CENTER - PROPOSAL FCAM	1	DLR
AC-05-0170	<2> PUMPER - INTL 4400 SA SBA - 4DR 4X2, 40GVW - 14F/26R	1	KME
AC-05-6800	VEHICLE TOP SPEED - INTERNATIONAL - 2009 NFPA STATEMENT	1	KME
AC-05-6900	INTERNATIONAL SAE J2433 ROLLOVER TESTING	1	KME

PART NO	DESCRIPTION	QTY	ID
AC-05-9030	INT - COMMERCIAL CHASSIS STANDARD FRONT BUMPER	1	KME
AC-05-9295	INT - WHEEL TRIM KITS, CHROME BABY MOONS/LUG NUT COVERS - SA	1	KME
AC-05-9350	INT - COVER FUEL TANK WITH TREAD PLATE OVERLAY	1	KME
AC-05-9355	INT - COVER BATTERY BOX WITH TREAD PLATE OVERLAY	1	KME
AC-05-9360	INT - COVER OFFICER CAB STEP WITH TREAD PLATE OVERLAY	1	KME
AC-05-9365	INT - COVER DRIVER CAB STEP WITH TREAD PLATE OVERLAY	1	KME
AC-05-9380	INT - CENTER CONSOLE FOR NAVISTAR 4 DOOR - BRUSHED	1	KME
AC-05-9395	INT - INSTALL STANDARD #MATM ANTENNA	1	KME
AC-05-9600	INT - TIRE PRESSURE MONITORING - LED VALVE STEM CAPS - SIX TIRES	1	KME
AC-10-0010	KUSSMAUL AUTO AIR EJECT INLET WITH WATERPROOF KIT	1	KME
AC-10-0070	YELLOW COVER FOR KUSSMAUL AIR-EJECT RECEPTACLE, #091-55YW	1	KME
AC-10-1020	AIR EJECT LOCATION - DRIVER'S STEP WELL	1	KME
BA-02-8355	<2> HEADER, FLEX SERIES PUMPER (COMMERCIAL)	1	KME
BA-06-9327	**** AKRON/WELDON VDR/SEAT BELT SYS. INCLUDED IN INTERNATIONAL CHASSIS SPEC	1	KME
BA-06-9330	AKRON/WELDON VDR DOWNLOAD HARNESS	1	KME
BE-01-0050	COMMERCIAL CHASSIS ELECTRICAL SYSTEM DESCRIPTION	1	KME
BE-01-0200	12 VOLT ELECTRICAL SYSTEM TESTING - ALL UNITS	1	KME
BE-05-0330	DIAMOND LOGIC MULTI-PLEX SYSTEM, INTERNATIONAL CHASSIS ONLY	1	KME
BE-05-0900	CHASSIS DIAGNOSTICS SYSTEM	1	KME
BE-15-1500	BATTERY DISCONNECT SWITCH, ALL UNITS	1	KME
BE-20-1630	120 VOLT 20 AMP SUPER AUTO EJECT FOR BATT CHARGER - COMMERCIAL	1	KME
BE-20-1715	SHORELINE RECEPTACLE LABEL - NFPA	1	KME
BE-20-1720	RED COVER FOR KUSSMAUL AUTO-EJECT RECEPTACLE, #091-55RD	1	KME
BE-20-1760	SHORELINE LOCATION - DRIVER'S STEP WELL	1	KME
BE-20-1810	KUSSMAUL MODEL 12HO, 20AMP, BATTERY CHARGER	1	KME
BF-00-5000	DOOR OPEN INDICATOR W/ INTEGRAL AUDIBLE ALARM	1	KME
BF-01-1060	12 VOLT POWER PORT LOCATED NEAR OFFICER	1	KME
BF-01-3040	ROUND USB CHARGING PORT LOCATED NEAR OFFICER	1	KME
BF-01-6080	12 VOLT POWER AND GROUND CIRCUIT, IN REAR CREW AREA	1	KME
BF-20-0380	**** ALTERNATE FLASHING HEADLIGHT SYSTEM (WIG-WAGS) SELECTED ****	1	KME
BG-00-0470	COMMERCIAL CHASSIS MARKER LIGHTS AND REFLECTORS	1	KME
BG-00-1610	TRUCK-LITE MARKER/TURN LIGHTS @ EA SIDE OF BODY	1	KME
BG-00-1660	TRUCK-LITE MARKER LIGHTS @ REAR OF BODY	1	KME
BG-00-1800	TRUCK-LITE DOT AMBER REFLECTORS @ SIDE OF BODY	1	KME
BG-00-1810	TRUCK-LITE DOT RED REFLECTORS @ REAR OF BODY	1	KME
BG-00-2915	TECNIQ #L10 LED LICENSE PLATE LIGHT @ DS REAR OF BODY	1	KME
BG-02-2532	CODE 3, #65 LED BRAKE, REVERSE, & TURN W/ QUAD HOUSING	1	KME
BH-04-1130	BODY STEP LIGHTS, TECNIQ EON 3 LED, ALL DEVICES	2	KME
BH-05-1625	DUNNAGE AREA LIGHTING, TECNIQ EON 3 LED	1	KME
BH-05-2017	UNITY LED SPOTLIGHTS ON REAR BODY STANCHIONS	1	KME
BH-10-7010	FRC SPECTRA 900 LED SCENE LIGHTS ON REAR OF BODY	1	KME
BH-10-7045	FRC SPECTRA 900 LED SCENE LIGHTS ON DRIVER SIDE OF BODY	1	KME
BH-10-7055	FRC SPECTRA 900 LED SCENE LIGHTS ON OFFICER SIDE OF BODY	1	KME
BH-10-8020	CONTROL SWITCH IN CAB FOR REAR OF BODY LIGHTS	1	KME
BH-10-8080	CONTROL SWITCH IN CAB FOR DRIVER SIDE OF BODY LIGHTS	1	KME
BH-10-8100	CONTROL SWITCH IN CAB FOR OFFICER SIDE OF BODY LIGHTS	1	KME
BH-11-1210	NFPA (4) TECNIQ #E10 LED GROUND LIGHTS, BELOW CAB DOORS	1	KME
BH-12-2100	FRC BROW LIGHT, EVOLUTION LED, 155W12V, (1) ABOVE WINDSHIELD	1	KME
BH-14-0020	CONTROL SWITCH IN CAB FOR LIGHT(S) ABOVE WINDSHIELD	1	KME
BI-00-0300	PUMPER BODY ELECTRICAL SYSTEM	1	KME
BI-00-0305	PUMPER BODY JUNCTION COMPARTMENT	1	KME
BJ-00-5110	PUMP ENCLOSURE WORK LIGHTS - GROTE LED	1	KME
BJ-00-5150	ENGINE COMPARTMENT WORK LIGHTS - PETERSON	1	KME
BJ-02-0450	COMPT. LIGHTS, AMDOR LUMA BAR LED LIGHTING - DUAL	7	KME
BL-95-0000	NFPA COMPLIANT WARNING LIGHT PACKAGE - ALL UNITS	1	KME
BL-95-0100	LIGHT PACKAGE ACTUATION/CONTROLS - ALL UNITS	1	KME
BL-98-0000	WARNING LIGHT FLASH PATTERN - NFPA FLASH PATTERN	1	KME
BM-00-0210	CODE 3 UPPER PACKAGE - COMMERCIAL PUMPER	1	KME
BM-02-0096	A-UPPER, CODE 3 LED DF58ANFPA1, DEFENDER 58" TRICORE BAR	1	KME
BM-02-1055	C-UPPER, CODE 3 ARCH LED BEACONS - 180° SOLID COLOR	1	KME
BM-02-2000	B/D-UPPER REAR, COVERED BY LIGHTS IN ZONE C-UPPER	1	KME
BM-02-3000	B/D-UPPER FRONT, COVERED BY LIGHTS IN ZONE A-UPPER	1	KME
BM-07-0210	CODE 3 LOWER PACKAGE - COMMERCIAL PUMPER	1	KME
BM-09-0018	A-LOWER FRONT, CODE 3 65 SERIES LED	1	KME
BM-09-0100	A-LOWER FRONT MOUNTING, COMMERCIAL CHASSIS	1	KME

PART NO	DESCRIPTION	QTY	ID
BM-09-1014	C-LOWER REAR, CODE 3 65 SERIES LED	1	KME
BM-09-2008	B/D-LOWER FRONT, CODE 3 LED X SINGLE SERIES	1	KME
BM-09-2100	B/D-LOWER FRONT MOUNTING, COMMERCIAL CHASSIS	1	KME
BM-09-3006	B/D-LOWER MID, CODE 3 65 SERIES LED	1	KME
BM-09-4006	B/D-LOWER REAR, CODE 3 65 SERIES LED	1	KME
BM-15-0000	LIGHT PACKAGE NFPA CERTIFICATION - ALL UNITS	1	KME
BM-16-0100	ALTERNATE FLASHING HEADLIGHT SYSTEM (WIG-WAGS)	1	KME
BW-00-0560	CODE 3, #CA278, BACK-UP ALARM - 87DBA	1	KME
BW-00-5001	DUAL CHROME AIR HORNS (COMMERCIAL)	1	KME
BW-00-5125	DUAL AIR HORNS SIDE MOUNT ON HOOD, 1-DS & 1-OS	1	KME
BW-00-5200	AIR HORN CTRL - FOOT FOR OFFICER & STEERING WHEEL FOR DRIVER	1	KME
BW-01-0110	SIREN, WHELEN #295SLSA1, 100W	1	KME
BW-01-1000	ONE (1) WHELEN SP123BMC SPEAKER	1	KME
BW-02-0002	FEDERAL Q2B SIREN @ CAB FRONT (COMMERCIAL CHASSIS)	1	KME
BW-02-0030	Q2B MOUNT - SEMI-RECESSED INTO DRIVER'S SIDE OF BUMPER	1	KME
BW-02-2000	SIREN CONTROL - FLOOR SWITCH, DRIVER AND OFFICER	1	KME
DC-00-2335	WATEROUS CSU-C20-1500 SINGLE STAGE PUMP	1	KME
DC-01-4600	WATEROUS PUMP PACKING	1	KME
DC-01-6210	WATEROUS "C20" PUMP DRIVE UNIT, ALL WATEROUS MID-SHIP PUMPS	1	KME
DC-01-6490	PUMP RATIO (HALE, WATEROUS OR DARLEY)	1	KME
DC-01-6800	*** MUST UPGRADE PUMP SHIFT TO INTERNATIONAL VERSION ***	1	KME
DC-01-8140	WATEROUS - INTERNATIONAL PUMP SHIFT	1	KME
DC-01-9020	TRANSMISSION LOCK-UP (HALE, WATEROUS OR DARLEY)	1	KME
DC-02-1900	PUMP MOUNTS - MID-SHIP PUMPS	1	KME
DC-02-1995	PUMP INSTALLATION - COMMERCIAL	1	KME
DC-05-1225	FIRE RESEARCH "IN CONTROL" TGA-300 PRESSURE GOVERNOR	1	KME
DC-05-1295	TASK FORCE TIPS #A18 SERIES INTAKE RELIEF VALVE	1	KME
DC-05-2500	PUMP UL CERTIFICATION - 750 GPM & UP	1	KME
DC-05-3680	TRIDENT "MANUAL" AIR PRIMING SYSTEM	1	KME
DC-05-5110	ROTARY MASTER DRAIN VALVE	1	KME
DC-05-5400	DRAINS/BLEEDER "INNOVATIVE CONTROLS" LIFT UP @ ALL 1-1/2" OR LARGER	1	KME
DC-05-5500	SYNFLEX SUCTION, DISCHARGE, PRESSURE AND CONTROL LINES	1	KME
DC-10-2202	SIDE MOUNT PUMP MODULE, PUMPER	1	KME
DC-10-2500	PUMP MODULE - STEEL CONSTRUCTION	1	KME
DC-10-2770	SIDE MOUNT DUNNAGE AREA	1	KME
DC-14-3210	WATEROUS MAIN SUCTION INLETS 6" NST, 1500 GPM CSU PUMP	1	KME
DC-14-5300	SHORT NECK MAIN PUMP SUCTION INLETS - DS & OS	1	KME
DC-14-5560	6" NST MAIN PUMP SUCTION PRESSURE VENTED CAPS (2)	1	KME
	HEADER - AUXILIARY SUCTION/S - PUMPER	1	KME
DC-20-1000	2 1/2" AUX. SIDE SUCTION @ DS PANEL TO REAR OF MAIN INLET	1	KME
DC-20-1100	2 1/2" AKRON #8800 S.S. BALL VALVE, DS REAR AUX SUCTION	1	KME
DC-20-1200	SWING CONTROL @ VALVE, DS REAR AUX SUCTION	1	KME
DC-20-9500	BEHIND PANEL MOUNT	1	KME
DC-25-1410	TANK TO PUMP - 3" VALVE - PUMPER	1	KME
DC-25-3110	3" AKRON #8800 SERIES - S.S. BALL, VALVE, TANK TO PUMP	1	KME
DC-25-5110	3" PUSH/PULL CONTROL FOR TANK TO PUMP	1	KME
DC-30-2100	TANK FILL LINE 2" FROM PUMP - SIDE MOUNT	1	KME
DC-30-2300	2" AKRON #8800 SERIES - S.S. BALL TANK FILL, SIDE MOUN	1	KME
DC-30-6500	PUSH/PULL CONTROL FOR TANK FILL	1	KME
	DRIVER'S SIDE #1 MAIN DISCHARGE	1	KME
DC-35-0010	DS MAIN DISCHARGE #1 - SIDE MOUNT	1	KME
DC-35-0110	2 1/2" AKRON #8800 SERIES - S.S. BALL, DS #1, SIDE MOUNT	1	KME
DC-35-1815	DS #1 DISCH - 2 1/2" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-35-2010	2 1/2" NST PRESSURE VENTED CAP - DS DISCHARGE #1	1	KME
DC-35-2410	PUSH/PULL CONTROL FOR DS DISCHARGE #1 -SIDE MOUNT	1	KME
DC-35-3110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DS DISCHARGE #1	1	KME
	DRIVER'S SIDE #2 MAIN DISCHARGE	1	KME
DC-35-5010	DS MAIN DISCHARGE #2 - SIDE MOUNT	1	KME
DC-35-5110	2 1/2" AKRON #8800 SERIES - S.S. BALL, DS #2, SIDE MOUNT	1	KME
DC-35-6815	DS #2 DISCH - 2 1/2" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-35-7010	2 1/2" NST PRESSURE VENTED CAP - DS DISCHARGE #2	1	KME
DC-35-7410	PUSH/PULL CONTROL FOR DS DISCHARGE #2 -SIDE MOUNT	1	KME
DC-35-8110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DS DISCHARGE #2	1	KME
	OFFICER'S SIDE #1 MAIN DISCHARGE	1	KME
DC-39-0010	OS MAIN DISCHARGE #1 - SIDE MOUNT	1	KME

PART NO	DESCRIPTION	QTY	ID
DC-39-0110	2 1/2" AKRON #8800 SERIES - S.S. BALL, OS #1, SIDE MOUNT	1	KME
DC-39-1815	OS #1 DISCH - 2 1/2" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-39-2010	2 1/2" NST PRESSURE VENTED CAP - OS DISCHARGE #1	1	KME
DC-39-2410	PUSH/PULL CONTROL FOR OS DISCHARGE #1 -SIDE MOUNT	1	KME
DC-39-3110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- OS DISCHARGE #1	1	KME
	OFFICER'S SIDE #2 MAIN DISCHARGE	1	KME
DC-39-5010	OS MAIN DISCHARGE #2 - SIDE MOUNT	1	KME
DC-39-5080	**** WATEROUS PUMP LDH DISCHARGE PORT ****	1	KME
DC-39-5130	4" AKRON #8840 VALVE, OS #2, SIDE MOUNT	1	KME
DC-39-6865	OS #2 DISCH - 4" STRAIGHT NST	1	KME
DC-39-7045	DELETE 4" NST CAP - OS DISCHARGE #2	1	KME
DC-39-7315	4" NSTF X 4" STORZ KOCEK SKE-R 30° ADAPTER WITH CAP OS	1	KME
DC-39-7810	AKRON HANDWHEEL GEAR VALVE CONTROL, OS DISCHARGE #2	1	KME
DC-39-8110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- OS DISCHARGE #2	1	KME
	DRIVER REAR DISCHARGE	1	KME
DC-43-0405	DS REAR DISCHARGE 2 1/2" NST THREADS - PUMPER	1	KME
DC-43-0850	DS REAR DISCHARGE TERMINATE @ DS REAR BODY PANEL	1	KME
DC-43-0915	2 1/2" NST MALE THREADS ON DS REAR DISCHARGE	1	KME
DC-43-1015	DS REAR DISCHARGE, PLUMBING, 2 1/2" STAINLESS STEEL PIPING	1	KME
DC-43-1220	2 1/2" AKRON #8800 SERIES - S.S. BALL, VALVE DS REAR D	1	KME
DC-43-1610	PUSH/PULL 1/4 TURN CONTROL FOR DS REAR DISCHARGE	1	KME
DC-43-2120	2 1/2" NST DS REAR DISCHARGE PRESSURE VENTED CAP	1	KME
DC-43-2510	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DS REAR DIS	1	KME
	OFFICER SIDE REAR DISCHARGE	1	KME
DC-43-4405	OS REAR DISCHARGE 2 1/2" NST THREADS - PUMPER	1	KME
DC-43-4850	OS REAR DISCHARGE TERMINATE @ OS REAR BODY PANEL	1	KME
DC-43-4915	2 1/2" NST MALE THREADS ON OS REAR DISCHARGE	1	KME
DC-43-5015	OS REAR DISCHARGE, PLUMBING, 2 1/2" STAINLESS STEEL PIPING	1	KME
DC-43-5220	2 1/2" AKRON #8800 SERIES - S.S. BALL, VALVE OS REAR DISCHAR	1	KME
DC-43-5610	PUSH/PULL 1/4 TURN CONTROL FOR OS REAR DISCHARGE	1	KME
DC-43-6120	2 1/2" NST OS REAR DISCHARGE PRESSURE VENTED CAP	1	KME
DC-43-6510	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- OS REAR DIS	1	KME
	DECK GUN DISCHARGE	1	KME
DC-45-0310	DECK GUN DISCHARGE - PUMPER	1	KME
DC-45-0820	DECK GUN DISCH TERMINATE @ CENTER OF DUNNAGE	1	KME
DC-45-0915	3" NPT MALE THREADS ON DECK GUN DISCHARGE	1	KME
DC-45-0950	3" TFT MANUAL EXTEND-A-GUN (18") PIPE - MODEL # XG18**.**	1	KME
DC-45-1005	DECK GUN DISCHARGE - OVA HEIGHT NOT EXCEED TALLEST POINT	1	KME
DC-45-1125	DECK GUN DISCHARGE, PLUMBING, 3" STAINLESS STEEL PIPING	1	KME
DC-45-1230	3" AKRON #8800 SERIES - S.S. BALL, VALVE DECK GUN DISC	1	KME
DC-45-1610	PUSH/PULL 1/4 TURN CONTROL FOR DECK GUN DISCHARGE	1	KME
DC-45-2210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DECK GUN DISCH	1	KME
DC-45-3205	TFT "HURRICANE" MANUAL DECK GUN	1	KME
DC-45-3250	TFT "MASTER STREAM" 1000 GPM MANUAL NOZZLE	1	KME
	CROSSLAY #1 DISCHARGE	1	KME
DC-47-0600	CROSSLAY #1, 1 1/2" - PUMPER	1	KME
DC-47-1110	CROSSLAY #1 CAPACITY - 200' OF 1 3/4" HOSE	1	KME
DC-47-1410	CROSSLAY #1 - DOUBLE STACK HOSE DESIGN	1	KME
DC-47-1510	1 1/2" NST CHICKSAN SWIVEL - CROSSLAY #1	1	KME
DC-47-2110	CROSSLAY #1, PLUMBING, 2" STAINLESS STEEL PIPING	1	KME
DC-47-2210	2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY #1, DISCH	1	KME
DC-47-2610	PUSH/PULL 1/4 TURN CONTROL CROSSLAY #1	1	KME
DC-47-3210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS - CROSSLAY #1	1	KME
	CROSSLAY #2 DISCHARGE	1	KME
DC-47-5600	CROSSLAY #2, 1 1/2" - PUMPER	1	KME
DC-47-6110	CROSSLAY #2 CAPACITY - 200' OF 1 3/4" HOSE	1	KME
DC-47-6410	CROSSLAY #2 - DOUBLE STACK HOSE DESIGN	1	KME
DC-47-6510	1 1/2" NST CHICKSAN SWIVEL - CROSSLAY #2	1	KME
DC-47-7110	CROSSLAY #2, PLUMBING, 2" STAINLESS STEEL PIPING	1	KME
DC-47-7210	2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY #2,	1	KME
DC-47-7610	PUSH/PULL 1/4 TURN CONTROL CROSSLAY #2	1	KME
DC-47-8210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS - CROSSLAY #2	1	KME
DC-50-6750	LOWERED CROSSLAYS	1	KME
DC-50-7005	FRONT HINGED CROSSLAY HOSE BED COVER,TRDPLT	1	KME
DC-50-7020	VINYL END FLAPS FOR ALUMINUM TRDPLT X-LAY COVER	1	KME

PART NO	DESCRIPTION	QTY	ID
DC-50-7070	END FLAP COVER RED IN COLOR	1	KME
DD-65-0710	SIDE MOUNT PUMP PANEL - PUMPER	1	KME
DD-65-4115	SIDE MOUNT PANELS - 12 GAUGE BRUSHED STAINLESS STEEL	1	KME
DD-65-4710	VERTICALLY HINGED GAUGE PANEL - SIDE MOUNT	1	KME
DD-65-4810	OFFICER SIDE VERTICALLY HINGED PUMP ACCESS DOOR - SIDE MOUNT	1	KME
DD-65-5150	PANEL FASTENERS	1	KME
DD-65-5510	CAPS AND ADAPTERS SAFETY TETHER - BALL CHAIN	1	KME
DD-65-8820	PUMP PANEL DISCH./SUCTION TRIM PLATES, HIGH POLISHED	1	KME
DD-65-9000	DISCHARGE GAUGE TRIM BEZELS	1	KME
DD-65-9110	IDENTIFICATION PLATES	1	KME
DD-66-0100	PUMP OPERATOR'S PANEL LIGHT SHIELD	1	KME
DD-66-0110	AMDOR LUMA BAR H2O SUPER BRIGHT LED - LIGHT SHIELD	1	KME
DD-66-2100	OS PUMP PANEL LIGHTING	1	KME
DD-66-2130	TECNIQ EON 3 LED LIGHTS - OS PUMP PANEL	1	KME
	PUMP OPERATOR'S PANEL - SIDE MOUNT, PUMPER	1	KME
DD-70-2150	AIR HORN CONTROL BUTTON ON PUMP PANEL	1	KME
DD-70-2334	FIRE RESEARCH "IN CONTROL" PRESSURE GOVENOR CONTROL @ PANEL	1	KME
DD-70-2410	PUMP PRESSURE & VACUUM TEST PORTS @ PANEL	1	KME
DD-70-4120	MASTER PRESSURE & COMPOUND GAUGES - 4" NOMINAL GAUGES	1	KME
DD-70-4220	4" INNOVATIVE CONTROLS MASTER PRESSURE AND COMPOUND GAUGES	1	KME
DD-70-4680	PRESSURE & COMPOUND GAUGE RANGES - SINGLE STAGE	1	KME
DD-70-4900	AUXILIARY ENGINE COOLER	1	KME
DD-72-0410	FIRE RES - TANK VISION #WLA300-A00 LED WATER TANK GAUGE - PRIMARY	1	KME
DD-72-1300	FIRE RES WATER LEVEL - 1/4" NPT PRESS TRANS @ BOTTOM TANK	1	KME
DE-15-0750	TANK 750 GAL POLY - PUMPERS & RESCUE PUMPERS	1	KME
DE-16-1000	WATER TANK CONSTRUCTION POLY	1	KME
DE-16-2000	WATER TANK LID POLY	1	KME
DE-16-2100	WATER TANK FILL TOWER POLY	1	KME
DE-16-3000	WATER TANK 4" OVERFLOW & VENT PIPE	1	KME
DE-16-4000	WATER TANK SUMP	1	KME
DE-16-5000	WATER TANK SUMP CONNECTION; ONE (1) FRONT	1	KME
DE-16-5100	WATER TANK 3" SUMP DRAIN	1	KME
DE-16-6000	WATER TANK FLANGES/OUTLETS - PUMPER	1	KME
DE-16-7000	WATER TANK MOUNTING ALL "T" TANKS - PUMPER	1	KME
JB-02-0100	APPARATUS BODY GENERAL DESCRIPTION (PUMPER)	1	KME
JB-02-0500	COMPARTMENT TOPS (STEPPING SURFACE TOPS)	1	KME
JB-02-0600	DRIP MOLDING (HINGED DOORS)	1	KME
JB-02-0700	REAR BODY PANEL	1	KME
JB-05-0200	BODY MATERIAL: 3/16" ALUMINUM	1	KME
JB-05-0210	BODY SUB FRAME - ALUMINUM	1	KME
JB-10-0100	100" WIDE BODY - 29" DEEP COMPARTMENTS	1	KME
JB-10-1000	64" WIDE FENDER - CUSTOM	1	KME
JB-10-2200	FENDER WITH STORAGE OPTIONS (CUSTOM)	1	KME
JB-10-3030	DRIVER FORWARD FENDER - TRIPLE STORAGE SLOT	1	KME
JB-10-4010	DRIVER REARWARD FENDER - NO STORAGE SELECTED	1	KME
JB-10-5030	OFFICER FORWARD FENDER - TRIPLE STORAGE SLOT	1	KME
JB-10-6010	OFFICER REARWARD FENDER - NO STORAGE SELECTED	1	KME
JB-10-7110	FENDER STORAGE COMPARTMENTS - POLISHED DOORS	1	KME
JB-15-0100	SHORT PUMPER BODY (ACCOMMODATES UP TO 1000 GALLON TANK)	1	KME
JB-15-3130	FLEX SHORT - DS FULL HEIGHT/SPLIT DEPTH	1	KME
JB-16-3130	FLEX SHORT - OS FULL HEIGHT/SPLIT DEPTH	1	KME
JB-17-0100	REAR STEP COMPARTMENT - FULL WIDTH, STANDARD HEIGHT	1	KME
JB-17-0400	REAR STEP COMPARTMENT - FULL SIDE WALLS	1	KME
JB-17-0510	REAR STEP COMPARTMENT - ROLLUP DOOR	1	KME
JB-18-0100	HINGED DOOR BODY	1	KME
JB-20-0240	EXTENDED REAR STEP - 12 D X 100 W - TAPERED ENDS	1	KME
JB-25-0100	STANDARD BED - STANDARD COMPT CAPS (72")	1	KME
JB-25-0300	NFPA MINIMUM HOSEBED CAPACITY	1	KME
JB-25-1000	HOSEBED FLOORING - ALUMINUM SLATS	1	KME
JB-25-1110	TWO (2) - 3/16" ADJUSTABLE HOSEBED PARTITIONS	1	KME
JB-25-1400	HOSEBED COVER - VINYL WITH QUARTER TURNS	1	KME
JB-25-1600	HYPALON MATERIAL COLOR - RED	1	KME
TF-10-0600	2" THICK COMPARTMENT DOORS - FLAT RECESSED DOORS	1	KME
TF-10-1900	BRUSHED FINISHED DOOR PANS - 2" THICK DOORS	1	KME
TF-10-2720	DOOR HINGE FOR FLUSH HINGED DOORS	1	KME

PART NO	DESCRIPTION	QTY	ID
TF-10-2820	DOOR SEAL FOR FLUSH HINGED DOORS	1	KME
TF-10-2940	ROTARY LATCHES WITH D-RING HANDLES	1	KME
TF-10-3150	GAS SHOCK ON HORIZONTALLY & VERTICALLY HINGED DOORS	1	KME
TF-10-6005	SWEEP-OUT COMPARTMENTS (NON-AERIALS)	1	KME
TF-11-0610	COATED FASTENERS	1	KME
TF-11-0622	COMPARTMENT LOUVERS (29" DEEP BODIES)	1	KME
TF-11-0640	ACCESS PANELS (29" DEEP BODIES)	1	KME
TF-11-0900	TREAD PLATE OVERLAY, FRONT OF SIDE COMPTS (NON-WRAP AROUND)	1	KME
TF-11-2015	CAST ALUMINUM SIDE MOUNTED REAR STANCHIONS	1	KME
TF-11-3030	BODY RUB RAILS, TREAD PLATE	1	KME
TF-12-1005	RUNNING BOARD STEPS (NON-AERIALS)	1	KME
TF-12-5010	INTERMEDIATE REAR STEP, 8" x 48" BOLT-ON	1	KME
TF-13-5190	GRAB RAILS, KNURLED ALUMINUM EXTRUSION	1	KME
TF-13-5200	TWO (2) VERTICAL RAILS ON REAR	1	KME
TF-13-5210	ONE (1) HANDRAIL, BELOW HOSE BED LEVEL	1	KME
TF-13-5260	HANDRAIL ABOVE PUMP PANEL, EACH SIDE	1	KME
TF-13-7360	CAST PRODUCTS CHROME FOLDING STEP(S), BODY FRONT, DS	1	KME
TF-13-7460	CAST PRODUCTS CHROME FOLDING STEP(S), BODY FRONT, OS	1	KME
TF-13-7560	CAST PRODUCTS CHROME FOLDING STEP(S), BODY REAR, DS	1	KME
TF-13-7660	CAST PRODUCTS CHROME FOLDING STEP(S), BODY REAR, OS	1	KME
TF-13-9000	SAFETY SIGNS (NFPA REQUIRED)	1	KME
TF-14-1800	FLEX FENDERETTE/LINER - ONE PIECE	1	KME
TF-14-2100	WHEEL WELL LINERS w/ FENDERETTE (ONE PIECE UNIT) - ALUMINUM	1	KME
TF-14-5000	REAR MUD FLAPS	1	KME
TF-14-6510	PAINTED REAR TOW EYES, BELOW BODY	1	KME
TJ-04-1030	1/2 DEPTH ADJUSTABLE SHELF DESCRIPTION - PUMPER	1	KME
TJ-04-3055	1/2 DEPTH ADJUSTABLE SHELF, DRIVER FRONT COMPARTMENT	1	KME
TJ-04-3060	1/2 DEPTH ADJUSTABLE SHELF, OFFICER FRONT COMPARTMENT	1	KME
TJ-04-3065	1/2 DEPTH ADJUSTABLE SHELF, DRIVER REAR COMPARTMENT	1	KME
TJ-04-3070	1/2 DEPTH ADJUSTABLE SHELF, OFFICER REAR COMPARTMENT	1	KME
TJ-05-1030	ADJUSTABLE SHELF DESCRIPTION - PUMPER	1	KME
TJ-05-3055	ADJUSTABLE SHELF, DRIVER FRONT COMPARTMENT	1	KME
TJ-05-3060	ADJUSTABLE SHELF, OFFICER FRONT COMPARTMENT	1	KME
TJ-05-3065	ADJUSTABLE SHELF, DRIVER REAR COMPARTMENT	1	KME
TJ-05-3070	ADJUSTABLE SHELF, OFFICER REAR COMPARTMENT	1	KME
TJ-10-1030	250#, FLOOR MOUNTED, ROLLOUT TRAY DESCRIPTION - PUMPER	1	KME
TJ-10-1230	ROLLOUT TRAY, REAR STEP COMPARTMENT	1	KME
TL-03-0000	120/240 VOLT ELECTRICAL SYSTEM TESTING	1	KME
TL-05-2000	SMART POWER PTO/HYD GEN, HR-6 SERIES, 6200 WATT	1	KME
TL-05-2900	SMART POWER HOT SHIFT PTO	1	KME
TL-05-7100	WARRANTY - SMART POWER HR 6-30 PTO/HYD GENERATORS	1	KME
TL-08-9990	UL LINE VOLTAGE TESTING	1	KME
TL-09-1110	GEN LOCATION OFFICER SIDE ABOVE PUMP ENCLOSURE -PUMPER	1	KME
TL-10-1100	TWELVE (12) SPACE, 125 AMP MAIN LUG LOAD CENTER	1	KME
TL-10-2045	TEN (10) STANDARD BREAKERS	1	KME
TL-10-5040	LOCATE BREAKER PANEL DRIVER SIDE FRONT COMPARTMENT	1	KME
TL-15-1000	120 & 240 VOLT WIRING METHODS	1	KME
TL-15-1530	NEMA 5-20 DUPLEX RECEPTACLES REAR WHEEL WELLS	1	KME
TN-00-9500	SIDE OF WATER TANK LADDER STORAGE (OFFICER SIDE)	1	KME
TN-01-2050	ALCO-LITE LADDER COMPLIMENT	1	KME
TN-02-1170	ALCO-LITE PEL-24 24' 2-SECTION EXTENSION LADDER (ALUM)	1	KME
TN-02-2515	ALCO-LITE PRL-14 14' ROOF LADDER W/FOLDING HOOKS (ALUM)	1	KME
TN-02-8010	ALCO-LITE FL-10 10' FOLDING ATTIC LADDER (ALUM)	1	KME
TN-10-0520	PIKE POLE TUBE(S) - PUMPERS	2	KME
TN-10-0730	LOCATION PIKE POLE TUBE(S) - IN LADDER STORAGE COMPARTMENT	2	KME
TN-15-0525	SUCTION HOSE STORAGE SIDE OF BODY (1-OFFICER, 1-DRIVER)	1	KME
TN-15-1005	SUCTION HOSE TROUGH	2	KME
TN-15-2235	TWO (2) 10' SECTIONS OF 6" LIGHTWEIGHT SUCTION HOSE	1	KME
TN-15-3500	SAFETY NOTE FOR PVC SUCTION HOSE	1	KME
TN-16-0210	6" NST, RED HEAD BARREL STRAINER W/MTG BKT	1	KME
TN-16-2000	DELETE HYDRANT ADAPTER	1	KME
TN-20-0005	ADDITIONAL ITEMS SHIPPED WITH VEHICLE, ALL NON-AERIALS	1	KME
TN-35-1015	TWO (2) ZICO #SAC-44 FOLDING WHEEL CHOCKS, (2) MTD DRIVER SIDE	1	KME
UA-00-1100	GENERAL PAINT DESCRIPTION - ALL	1	KME
UA-00-1270	GENERAL PRIMER & PREP DESCRIPTION - PUMPER	1	KME

PART NO	DESCRIPTION	QTY	ID
UA-00-1470	GENERAL FINISH PAINT DESCRIPTION - PUMPER	1	KME
UA-00-2755	BODY BUFFING & FINISH - PUMPER	1	KME
UA-03-0150	INSIDE/UNDERSIDE BODY PAINTED BLACK - PUMPER	1	KME
UA-03-0450	CMPT INT W/ MULTISPEC, WHITE MARBLE STONE - PUMPER	1	KME
UA-03-0950	SINGLE COLOR BODY PAINT SCHEME - PUMPER	1	KME
UA-03-2120	PUMPHOUSE & PLUMBING PAINTED BLACK - PUMPER	1	KME
UA-03-3000	FENDER COMPARTMENT INTERIOR - JOB COLOR	1	KME
UA-04-0133	INTL 4-DR TWO TONE AS APPROVED BY CHASSIS MFG.	1	KME
UA-04-0640	COMMERCIAL CAB PAINT FINISH - INTERNATIONAL	1	KME
UA-04-0700	COMMERCIAL CHASSIS WHEEL AND HUB PAINT - AS PROVIDED	1	KME
UA-06-2200	PINT OF TOUCH-UP PAINT	1	KME
UA-06-2535	FINALIZATION & DETAILING - PUMPER	1	KME
UA-06-2850	RUSTPROOFING WARRANTY, TEN (10) YEAR	1	KME
UA-12-1200	GOLDLEAF W/ DROP SHADOW LETTERING ON FRONT CAB DOORS	1	DLR
UA-12-1255	CUSTOM LETTERING ON FRONT CAB DOORS	1	DLR
UA-12-1740	GOLDLEAF W/ DROP SHADOW LETTERING ON CREW CAB DOORS	1	DLR
UA-12-1795	CUSTOM LETTERING ON CREW CAB DOORS	1	DLR
UA-12-2600	SCOTCH-CAL W/O DROP SHADOW LETTERING ON FRONT BUMPER	1	DLR
UA-12-2700	GOLDLEAF W/ DROP SHADOW LETTERING ON FRONT OF CAB	1	DLR
UA-12-2755	CUSTOM LETTERING ON FRONT BUMPER	1	DLR
UA-12-3600	SCOTCH-CAL W/O DROP SHADOW LETTERING ON REAR COMPARTMENT DOOR	1	DLR
UA-12-3755	CUSTOM LETTERING ON REAR DOOR	1	DLR
UA-50-0500	NFPA REQUIRED SCOTCH-LITE STRIPING - PUMPER	1	KME
UA-50-0515	6" SCOTCH-LITE STRIPE ON CAB AND BODY - PUMPER	1	KME
UA-58-5100	WHITE SCOTCH-LITE	1	KME
UA-80-6000	REAR CHEVRON STRIPING	1	KME
UA-80-6002	50% VERTICAL SURFACE	1	KME
UA-80-6050	6" 50% REAR SCOTCH-LITE DIAMOND GRADE CHEVRON STRIPING	1	KME
UA-80-6075	RED & FLUORESCENT YELLOW GREEN DIAMOND GRADE SCOTCH-LITE	1	KME
W6-00-0050	PROPOSED - BASE INTERNATIONAL WARRANTY, 4000 SERIES CHASSIS	1	KME
W6-00-0129	PROPOSED - COMMERCIAL CHASSIS - 5 YEAR NEW PRODUCT WARRANTY	1	
W6-00-0330	PROPOSED - 10 YEAR BODY STRUCTURAL WARRANTY	1	KME
W6-00-0410	PROPOSED - 10 YEAR BODY CORROSION WARRANTY, USE W/COMM CHASS	1	KME
W6-00-0450	PROPOSED - PAINT FINISH WARRANTY, TEN (10) YEAR	1	KME
W6-00-0490	PROPOSED - 10 YEAR STAINLESS STEEL PIPING WARRANTY	1	KME
W6-00-0710	PROPOSED - LIFETIME POLY TANK WARRANTY - ALL TANKS	1	KME
W6-00-0820	PROPOSED - WATEROUS 5 YEAR PUMP WARRANTY (PARTS & LABOR)	1	KME
W6-00-0827	WATEROUS FCAM 10 YR WARRANTY CORRECTION	1	
W6-00-1153	DEALER PROVIDES WARRANTY TRANSPORT PROP and REQ	1	DLR
W6-00-1340	PROPOSED - AKRON HEAVY DUTY VALVE - 10 YEAR WARRANTY	1	KME
WA-00-0040	"PUMPER FIRE APPARATUS" NFPA 2009 STATEMENT OF EXCEPTIONS	1	KME



Amps/Weight Report

Metropolitan Area Planning Council
 Lorraine See
 60 TemplePlace
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 617-933-0766

Bulldog Fire Apparatus
 Ken Franks
 17 Winter Street
 Woodville, MA 01784
 508-435-4200
 kfranks@bulldogfa.com

Quote No: 10030-0035
1 MODEL: 00DEVICE22 COMMERCIAL PUMPER
2 LETTER: LETTER 21 LETTERING & STRIPING, PUMPER
3 COMP ACC: 000COMP006 COMPARTMENT ACCESSORIES PUMPER
4 AC/ELEC: 000AC022 COMMERCIAL PUMPER GEN/ELEC AC
5 MISC EQU: 000EQUIP02 MISC AND LOOSE EQUIPMENT (PUMPER)
6 WARRANTY: WARNTY-08 COMMERCIAL PUMPER WARRANTY PACKAGE
SPECIAL: 00000001 SPECIAL, QUOTE OVERRIDE
DEALER: Dealer Parts

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PART NO	S	DESCRIPTION	QTY	RESP	SCENE	IT
AC-05-0170	X	<2> PUMPER - INTL 4400 SA SBA - 4DR 4X2, 40GVW - 14F/26R	1	39.00	33.00	0.00
BF-00-5000		DOOR OPEN INDICATOR W/ INTEGRAL AUDIBLE ALARM	1	0.00	0.00	1.00
BG-00-1610		TRUCK-LITE MARKER/TURN LIGHTS @ EA SIDE OF BODY	1	0.60	0.20	0.00
BG-00-1660		TRUCK-LITE MARKER LIGHTS @ REAR OF BODY	1	0.30	0.30	0.00
BG-00-2915		TECNIQ #L10 LED LICENSE PLATE LIGHT @ DS REAR OF BODY	1	0.10	0.10	0.00
BG-02-2532		CODE 3, #65 LED BRAKE, REVERSE, & TURN W/ QUAD HOUSING	1	3.00	2.00	0.00
BH-04-1130		BODY STEP LIGHTS, TECNIQ EON 3 LED, ALL DEVICES	2	0.00	0.40	0.00
BH-05-1625		DUNNAGE AREA LIGHTING, TECNIQ EON 3 LED	1	0.00	0.20	0.00
BH-05-2017		UNITY LED SPOTLIGHTS ON REAR BODY STANCHIONS	1	0.00	0.00	5.00
BH-10-7010		FRC SPECTRA 900 LED SCENE LIGHTS ON REAR OF BODY	1	0.00	12.00	0.00
BH-10-7045		FRC SPECTRA 900 LED SCENE LIGHTS ON DRIVER SIDE OF BODY	1	0.00	12.00	0.00
BH-10-7055		FRC SPECTRA 900 LED SCENE LIGHTS ON OFFICER SIDE OF BODY	1	0.00	12.00	0.00
BH-11-1210		NFPA (4) TECNIQ #E10 LED GROUND LIGHTS, BELOW CAB DOORS	1	0.00	2.80	0.00
BH-12-2100		FRC BROW LIGHT, EVOLUTION LED, 155W12V, (1) ABOVE WINDSHIELD	1	0.00	13.00	0.00
BJ-00-5110		PUMP ENCLOSURE WORK LIGHTS - GROTE LED	1	0.00	0.00	1.20
BJ-00-5150		ENGINE COMPARTMENT WORK LIGHTS - PETERSON	1	0.00	0.00	2.90
BJ-02-0450		COMPT. LIGHTS, AMDOR LUMA BAR LED LIGHTING - DUAL	7	0.00	9.80	0.00
BM-02-0096		A-UPPER, CODE 3 LED DF58ANFPA1, DEFENDER 58" TRICORE BAR	1	12.00	12.00	0.00
BM-02-1055		C-UPPER, CODE 3 ARCH LED BEACONS - 180° SOLID COLOR	1	3.70	3.70	0.00
BM-09-0018		A-LOWER FRONT, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-1014		C-LOWER REAR, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-2008		B/D-LOWER FRONT, CODE 3 LED X SINGLE SERIES	1	0.40	0.40	0.00
BM-09-3006		B/D-LOWER MID, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-4006		B/D-LOWER REAR, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BW-00-0560		CODE 3, #CA278, BACK-UP ALARM - 87DBA	1	0.00	0.00	0.50
BW-00-5001		DUAL CHROME AIR HORNS (COMMERCIAL)	1	0.20	0.00	0.00
BW-01-0110		SIREN, WHELEN #295SLSA1, 100W	1	9.00	0.00	0.00
BW-02-0002		FEDERAL Q2B SIREN @ CAB FRONT (COMMERCIAL CHASSIS)	1	0.00	0.00	100.0
DC-05-1225		FIRE RESEARCH "IN CONTROL" TGA-300 PRESSURE GOVERNOR	1	2.00	2.00	0.00
DD-66-0110		AMDOR LUMA BAR H2O SUPER BRIGHT LED - LIGHT SHIELD	1	0.00	1.00	0.00
DD-66-2130		TECNIQ EON 3 LED LIGHTS - OS PUMP PANEL	1	0.00	0.60	0.00
DD-72-0410		FIRE RES - TANK VISION #WLA300-A00 LED WATER TANK GAUGE - PRIMARY	1	0.20	0.20	0.00
TL-05-2000		SMART POWER PTO/HYD GEN, HR-6 SERIES, 6200 WATT	1	0.00	22.00	0.00
Totals				74.50	143.7	110.6



PROPOSAL

Bulldog Fire Apparatus is pleased to offer the proposed vehicle to meet the intent of the fire department specifications. KME Fire Apparatus is a leading manufacturer in custom and commercial fire fighting vehicles.

Questions or concerns pertaining to this proposal can be answered by contacting the following KME representative:

Jeff Mazza
Bulldog Fire Apparatus
PO Box 58
17 Winter Street
Woodville, MA 01784

Phone: (877) 644-2707 / (508) 435-4054
Fax: (508) 435-0250

Email: jmazza@bulldogfa.com
Web: www.bulldogfireapparatus.com

GENERAL INFORMATION

The proposed apparatus WILL be constructed to withstand the severe and continuous use encountered during emergency fire fighting services. The apparatus WILL be of the latest type, carefully designed and constructed with due consideration to the nature and distribution of the load to be sustained.

The proposed chassis WILL be certified by KME as conforming to all applicable Federal Motor Vehicle Safety Standards (FMVSS) in effect at the date of contract.

KME WILL be responsible for preparing and maintaining a record file of parts and assemblies used to manufacture the proposed apparatus. These records WILL be maintained in KME's factory for a minimum of twenty (20) years. The purchaser WILL have access to any and all documents contained in this file upon official written request.

GENERAL CONSTRUCTION

The proposed apparatus, assemblies, subassemblies, component parts, etc., WILL be designed and constructed with the due consideration to the nature and distribution of the load to be sustained and to the general character of the service to which the apparatus is subjected to when placed in service. All parts of the apparatus WILL be designed with a factor of safety, which is equal to or greater than that which is considered standard and acceptable for this class of equipment in fire fighting service. All parts of the proposed apparatus WILL be strong enough to withstand general service under full load. The apparatus WILL be so designed that the various parts are readily accessible for lubrication, inspection, adjustment and repair.

PRODUCT LIABILITY INSURANCE

KME provides liability and facility insurance equaling \$30,000,000.00, which is one of the highest available in the fire industry. Reference attached documentation.

PRICES AND PAYMENTS

The bid price WILL be F.O.B. Destination, on a delivered and accepted basis at the Fire Department. Total price on KME's proposal sheet WILL include all items listed in these specifications.

BOND REQUIREMENTS

KME's bonding company WILL meet the following requirements:



- An acceptable surety as outlined by the United States Department of Treasury on their most recent Federal Register at a limit of at least \$10,000,000;
- A.M. Best rating of "A" or better with a financial rating of at least "VIII"; and licensed as a surety in the Commonwealth of Massachusetts.

PERFORMANCE BOND

A performance bond WILL be supplied by the KME upon acceptance of the signed sales contract for the apparatus. The performance bond WILL be for an amount equal to the full contract price (i.e. 100% bond).

NON-COLLUSIVE BIDDING CERTIFICATION

By submission of this bid, KME and each person signing on behalf of KME, certifies, under penalty of perjury, that to the best of their knowledge and belief:

- The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for purpose of restricting competition, as to any matter relating to sell prices with any other bidder or any competitor.
- Unless otherwise required by law, the prices that have been quoted in this bid have not been knowingly disclosed by KME and WILL not knowingly be disclosed by KME prior to opening, directly or indirectly, to any other bidder or to any competitor
- No attempt has been made by KME to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition.
- That all requirements of the law including amendatory provisions as to non-collusive bidding have been complied with.

MATERIAL AND WORKMANSHIP

All equipment furnished WILL be guaranteed to be new and of current manufacture, to meet all requirements of purchaser's specifications.

CONTRACT SPECIALIST

KME WILL designate an in house individual to perform KME's contract specialist functions.

APPROVAL DRAWING

A detailed drawing of the apparatus will be provided to the purchaser for approval before construction begins.

INSPECTION VISIT

Provision has been made in this proposal for one (1) KME representative to make one (1) factory inspection trip to KME's facility.

DELIVERY

A qualified and responsible representative of KME WILL deliver the apparatus to the Fire Department.

DELIVERY AND FAMILIARIZATION

Upon delivery a KME certified delivery engineer will come to the Fire Department to demonstrate the unit to the Department and familiarize Department personnel with the apparatus. There will be an **AS BUILT** PowerPoint presentation of the specific apparatus as delivered, that covers each and every control and feature of the unit. The program WILL be delivered to each Department shift and maintenance personnel as the Department may request. A copy of the PowerPoint program, will be provided to the Department for future use.

INSTRUCTION MANUALS/DRAWINGS, SCHEMATIC



KME will supply at time of delivery, two (2) CD copies of a complete operation and service manual covering the complete apparatus as delivered and accepted.

VEHICLE FLUIDS PLATE

As required by NFPA-1901, KME will affix a permanent plate in the driver's compartment specifying the quantity and type of the following fluids used in the vehicle:

KME PROPOSED DIMENSIONS:

- OVERALL LENGTH: 355"
- OVERALL WIDTH: 100"
- OVERALL HEIGHT: 109"
- WHEELBASE: 222"
- MINIMUM FRONT G.A.W.R.: 14,000 lbs.
- MINIMUM REAR G.A.W.R.: 26,000 lbs.
- MINIMUM TOTAL G.V.W.R.: 40,000 lbs.

KME WILL include the principal dimensions, front G.A.W.R., rear G.A.W.R., and total G.V.W.R. of the proposed apparatus.

PRIMARY PLANT CONSTRUCTION

In order to insure top quality construction, maximum assembly line and engineering communication and the highest level of manufacturing supervision the entire apparatus WILL be built at KME's (headquarters) manufacturing facility in Nesquehoning, PA.

QUALITY MANAGEMENT

KME is certified ISO 9001 at all company locations.

AMP DRAW REPORT

KME will provide with their bid proposal and at the time of delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

GENERAL APPARATUS DESCRIPTION "PUMPER"

The unit will be designed to conform fully to the "Pumper Fire Apparatus" requirements as stated in the NFPA 1901 Standard (2009 Revision),.

CHASSIS DATA LABELS

Data labels will be provided as required by NFPA 1901.

ROLLOVER STABILITY

The apparatus will meet the criteria defined in 4.13.1 for rollover stability as defined in the 2009 NFPA Standard for Automotive Fire Apparatus.

KME REGIONAL SERVICE CENTER

The KME New England Regional Service Center is Bulldog Fire Apparatus of Hopkinton, Massachusetts. This location is about 26 miles West of Boston, near the intersection of Interstate 495 and the Mass Pike. The center is totally dedicated to the service of fire apparatus and fire apparatus only and is fully authorized by KME to conduct all levels of repair and service. The capabilities of the service center include:

- Authorized pump service for both Hale and Waterous
- Full hydraulic service



Full 12 volt electrical service to include multiplexed systems
Full 120/240 volt service
Full chassis and running gear service
Complete body shop and paint facility which includes:

50 foot environmentally certified, heated and humidity controlled down draft paint booth, Full time body shop and paint staff, Secured paint storage area, Computer operated paint color matching and mixing system.

Metal fabrication center which includes:

A 10 x 12 shear, Press Brake, Apron Brake, Finger brake, Modern MIG, TIG welding equipment, Plasma cutter, Machining center, Pump and piping center, Parts Department and 6 EVT Certified Mechanics.

Bulldog maintains a 15 service bay indoor shop with an area of approximately 25,000 square feet (which includes sufficient indoor heated space to permit the storage of the Fire Department's apparatus inside whenever in the center's possession). No outside storage is permitted at Bulldog. The center provides a full time staff of experienced technicians with all of the required equipment to provide modern, accurate and efficient service. The Center may be reached at our email address of pmazza@bulldogfa.com or by phone (877) 644-2707.

The staff includes five six (6) EVT level II technicians, two (2) Commonwealth licensed Motor Vehicle Damage Appraisers and three (3) road service vehicles. The Bulldog service center offers same day turn around for scheduled maintenance and part delivery within 24 hours.

In addition, KME maintains full factory service centers in Latham, New York (near Albany) - (800) 394-5593 and at the factory in Nesquehoning, PA.

CHASSIS

Base Chassis, Model 4400 SBA 4X2 with 205.00 Wheelbase, 94.00 CA, and 75.00 Axle to Frame.

FRAME RAILS Heat Treated Alloy Steel (120,000 PSI Yield); 10.375" x 3.705" x 0.438" (
BUMPER, FRONT Full Width, Aerodynamic, Chrome Plated Steel; 0.142" Material Thickness

AXLE, FRONT NON-DRIVING {Meritor MFS-14-143A} Wide Track, I-Beam Type, 14,000-lb Capacity
SPRINGS, FRONT AUXILIARY Rubber
SUSPENSION, FRONT, SPRING Parabolic, Taper Leaf; 14,000-lb Capacity; With Shock Absorbers
BRAKE SYSTEM, AIR Dual System for Straight Truck Applications
: BRAKE LINES Color and Size Coded Nylon
: GAUGE, AIR PRESSURE (2) Air 1 and Air 2 Gauges; Located in Instrument Cluster
: PARKING BRAKE CONTROL Yellow Knob, Located on Instrument Panel
: SLACK ADJUSTERS, FRONT Automatic
: SLACK ADJUSTERS, REAR Automatic
AIR BRAKE ABS {Bendix AntiLock Brake System} Full Vehicle Wheel Control System (4-Channel)

AIR DRYER {Bendix AD-9} With Heater

BRAKE CHAMBERS, FRONT AXLE {Bendix} 20 SqIn
BRAKE CHAMBERS, REAR AXLE {Bendix EverSure} 30/30 Spring Brake
BRAKES, FRONT, AIR CAM S-Cam; 16.5" x 5.0"; Includes 20 Sq. In.
BRAKES, REAR, AIR CAM S-Cam; 16.5" x 7.0"; Includes 30/30 Sq.In. Spring Actuated Parking Brake

AIR COMPRESSOR {Bendix Tu-Flo 750} 16.5 CFM Capacity

STEERING COLUMN Tilting and Telescoping
STEERING GEAR {Sheppard HD94} Power

EXHAUST SYSTEM Switchback Horizontal Aftertreatment Device, Frame Mounted Right Side Under Cab; for use with Single Long Horizontal Tail Pipe, Frame Mounted Right Side Back of Cab



ENGINE COMPRESSION BRAKE for Navistar N9/10 I6 Engines; Electronically Activated

TAIL PIPE Horizontal, Exits Right Side Outside of Body, At Rear Wheels

SWITCH, FOR EXHAUST 3 Position, Momentary, Lighted Momentary, ON/CANCEL, Center Stable.

ELECTRICAL SYSTEM 12-Volt, Standard Equipment

: DATA LINK CONNECTOR For Vehicle Programming and Diagnostics In Cab

: HAZARD SWITCH Push On/Push Off, Located on Top of Steering Column Cover

: HEADLIGHT DIMMER SWITCH Integral with Turn Signal Lever

: JUMP START STUD Located on Positive Terminal of Outermost Battery

: PARKING LIGHT Integral with Front Turn Signal and Rear Tail Light

: STARTER SWITCH Electric, Key Operated

: WINDSHIELD WIPER SWITCH 2-Speed with Wash and Intermittent Feature (5 Pre-Set Delays), Integral with Turn Signal Lever

: WINDSHIELD WIPERS Single Motor, Electric, Cowl Mounted

: WIRING, CHASSIS Color Coded and Continuously Numbered

POWER SOURCE Cigar Type Receptacle without Plug and Cord

ALTERNATOR {Leece-Neville 14931PAH} Brush Type, 12 Volt 320 Amp. Capacity, Pad Mount

BATTERY SYSTEM {International} Maintenance-Free, (3) 12-Volt 1950CCA Total

RADIO AM/FM/WB/Clock/3MM Auxiliary Input, with Multiple Speakers, With CD Player

DATA RECORDER/SEATBELT INDICATOR Includes Display Mounted in Overhead Console

STOP-LIGHT WIRING MODIFIED Stop-Lights Turned on When Engine Compression Brake is Activated

POWER SOURCE, TERMINAL TYPE 2-Post

ALTERNATOR PULLEY 2.4" Diameter for Increased Alternator Output at Idle; for Fire Truck Application

SOLENOID, AIR for Customer Use; Provides (2) Normally Closed Pilot Air Source, Approx. 4 CFM, Includes Latched Switch in Cab; Air Available Only With Key in "Ignition" or "Accessory" Position; Air WILL Exhaust with Key in "Off" Position

WINDSHIELD WIPER SPD CONTROL Force Wipers to Slowest Intermittent Speed When Park Brake Set and Wipers Left on for a Predetermined Time

HEADLIGHTS Halogen; Composite Aero Design for Two Light System; Includes Daytime Running Lights

CLEARANCE/MARKER LIGHTS (5) {Truck Lite} Amber LED Lights, Flush Mounted on Cab or Sunshade

HEADLIGHTS ON W/WIPERS Headlights WILL Automatically Turn on if Windshield Wipers are turned on

STARTING MOTOR {Delco Remy 39MT} 12 Volt; Gear Reduced, With Thermal Over-Crank Protection

INDICATOR, LOW COOLANT LEVEL With Audible Alarm

INDICATOR, BATTERY WARNING Green BATTERY ON Indicator.

CIRCUIT BREAKERS Manual-Reset (Main Panel) SAE Type III With Trip Indicators.

TURN SIGNALS, FRONT LED, Includes LED Side Marker Lights, Mounted on Fender

BATTERY DISCONNECT SWITCH for Cab Power Loads, Cab Mounted, Disconnects Door Power, Dome Lights and Auxiliary Power; Locks with Padlock

GRILLE Chrome

FRONT END Tilting, Fiberglass, With Three Piece Construction

GRILLE EMBER SCREEN Mounted to Grille and Cowl Tray to Keep Hot Embers out of Engine and



PAINT SCHEMATIC, PT-1 Single Color, Design 100
PAINT IDENTITY, PT-2 Single Color, Instruction No. 932. Wheels
PAINT TYPE Base Coat/Clear Coat, 1-2 Tone

KEYS - ALL ALIKE Fleet - Includes Ignition and Cab Door Keys

ENGINE, DIESEL {Navistar N9} EPA 2010, SCR, 330 HP @ 2000 RPM, 950 lb-ft Torque @ 1200 RPM, 2200 RPM Governed Speed, 330 Peak HP (Max)
: AIR COMPRESSOR AIR SUPPLY LINE Naturally-Aspirated (Air Brake Chassis Only)
: ANTI-FREEZE Red Extended Life Coolant; -40 Degrees F/ -40 Degrees C; for MaxxFlex and Navistar Engines
: COLD STARTING EQUIPMENT Intake Manifold Electric Grid Heater with Engine ECM Control
: CRUISE CONTROL Electronic; Controls Integral to Steering Wheel
: ENGINE OIL DRAIN PLUG Magnetic
: ENGINE SHUTDOWN Electric, Key Operated
: FUEL FILTER Included with Fuel/Water Separator
: FUEL/WATER SEPARATOR Fuel/Water Separator and Fuel Filter in a Single Assembly;
: GOVERNOR Electronic
: OIL FILTER, ENGINE Spin-On Type

FAN DRIVE {Horton Drivemaster} Direct Drive Type, Two Speed With Residual Torque Device.
RADIATOR Aluminum; 2-Row, Cross Flow, Over Under System, 1045 SqIn Louvered, With 373 SqIn CAC, With In Tank Oil Cooler

FEDERAL EMISSIONS EPA, OBD and GHG Certified for Calendar Year 2015; N9 & N10 Engines

: GAUGE, AIR CLEANER RESTRICTION Air Cleaner Mounted

THROTTLE, HAND CONTROL Engine Speed Control for PTO; Electronic, Stationary Pre-Set, Two Speed Settings.
ENGINE CONTROL, REMOTE MOUNTED Provision for; Includes Wiring for Body Builder Installation of PTO Controls; With Ignition Switch Control. ENGINE WATER COOLER {Sen-Dure} Auxiliary, For Use With Fire Trucks

EMISSION COMPLIANCE Engine Shutdown System Exempt Vehicles
TRANSMISSION, AUTOMATIC {Allison 3000EVS_P} 5th Generation Controls; Close Ratio, 5-Speed; With Overdrive, Includes Oil Level Sensor, With Provision for PTO.
TRANSMISSION SHIFT CONTROL {Allison} Push-Button Type; for Allison 3000 & 4000 Series
TRANSMISSION OIL Synthetic; 29 thru 42 Pints

ALLISON SPARE INPUT/OUTPUT for Emergency Vehicle Series (EVS), 127/198 Includes J1939 Based Auto Neutral; Fire/Pumper.

AXLE, REAR, SINGLE {Dana Spicer S26-190} Single Reduction, 26,000-lb Capacity, R Wheel Ends .

SUSPENSION, RR, SPRING, SINGLE Vari-Rate; 31,000-lb Capacity, With 4500 lb Auxiliary Spring

FUEL TANK Top Draw; D Style, Non Polished Aluminum, 19" Deep, 50 U.S. Gal., 189 L Capacity, with Quick Connect Outlet.

DEF TANK 7 U.S. Gal. 26.5L Capacity

CAB Conventional 6-Man Crew Cab

: CLEARANCE/MARKER LIGHTS (5) Flush Mounted

: CUP HOLDERS Two Cup Holders, Located in Lower Center of Instrument Panel

: DOME LIGHT, CAB Rectangular, Door Activated and Push On-Off at Light Lens,

: GLASS, ALL WINDOWS Tinted

: GRAB HANDLE, CAB INTERIOR (1) "A" Pillar Mounted, Passenger Side

: GRAB HANDLE, CAB INTERIOR (2) Front of "B" Pillar Mounted, One Each Side

: GRAB HANDLE, CAB INTERIOR (4) Two Each Side, Rear Door Mounted at Hinge Side and "C" Pillar Mounted

: STEP (8) Two Steps Per Door

GRAB HANDLE, CAB INTERIOR (4) Safety Yellow, Crew Cab

GAUGE CLUSTER English With English Electronic Speedometer



: GAUGE CLUSTER (5) Engine Oil Pressure, Water Temperature, Fuel, Tachometer, Voltmeter
: ODOMETER DISPLAY, Miles, Trip Miles, Engine Hours, Trip Hours, Fault Code Readout
: WARNING SYSTEM Low Fuel, Low Oil Pressure, High Engine Coolant Temp, and Low Battery Voltage

SEATBELT WARNING PREWIRE Includes Seat Belt Switches and Seat Sensors for all Belted Positions in the Cab and a Harness Routed to the Center of the Dash for the Aftermarket Installation of the Data Recorder and Seatbelt Indicator Systems, for 4 to 6 Seat Belts

GAUGE, OIL TEMP, ALLISON TRAN
GAUGE, AIR CLEANER RESTRICTION {Filter-Minder} With Black Bezel Mounted in Instrument Panel
IP CLUSTER DISPLAY On Board Diagnostics Display of Fault Codes in Gauge Cluster
GAUGE, DEF FLUID LEVEL

SEAT, DRIVER {Seats, Inc. Universal Series} 911, NFPA Compliant, Air Suspension, High Back Vinyl with Covered Back and International Logo on Head Rest
Includes

SEAT, REAR {Seats, Inc. Universal Series} 911, NFPA Compliant, Three Individual Seats on one Riser, Non-Suspension, High Back for SCBA, Vinyl.

SEAT, PASSENGER {Seats, Inc. Universal Series} 911, NFPA Compliant, Non-Suspension, High Back for SCBA.

GRAB HANDLE (2) Chrome Towel Bar Type With Anti-Slip Rubber Inserts; for Cab Entry, Mounted Left and Right, Each Side at "B" Pillar

GRAB HANDLE, ADDITIONAL EXT (2) Chrome; Towel Bar Type With Anti-Slip Rubber Inserts; Mounted Left and Right Side on Exterior Rear of Rear Doors, With Crew Cab

MIRRORS (2) {Lang Mekra} Rectangular, Power Both Sides, Thermostatically Controlled Heated Heads, LED Clearance Lights, Bright Finish Heads and Arms, with Black Brackets, Breakaway Type, 7.55" x 14.1" Integral Convex Both Sides, 102" Inside Spacing

ACCESS, CAB Driver & Passenger Sides, With Two Temporary Steps on the Passenger side, for Conventional Cab

AIR CONDITIONER {Blend-Air} With Integral Heater & Defroster
: HEATER HOSES Premium
: HOSE CLAMPS, HEATER HOSE Mubea Constant Tension Clamps

INSTRUMENT PANEL Center Section, Flat Panel
CAB INTERIOR TRIM Premium; for Crew Cab
: "A" PILLAR COVER Molded Plastic
: CAB INTERIOR TRIM PANELS Cloth Covered Molded Plastic, Full Height; All Exposed Interior Sheet Metal is Covered Except for the
Following: with a Two-Man Passenger Seat or with a Full Bench Seat the Back Panel is Completely Void of Covering
: CAB SOUND INSULATION Includes Dash and Engine Cover Insulators
: CONSOLE, OVERHEAD Molded Plastic; With Dual Storage Pockets with Retainer Nets,
: COURTESY LIGHT (4) Mounted In Front and Rear Map Pockets - Left and Right Sides
: DOOR TRIM PANELS with Cloth Insert on Bolster Driver and Passenger Doors
: FLOOR COVERING Rubber, Black
: GAUGE, TEMPERATURE, AMBIENT Includes Wiring and Sensor With Display Unit Mounted in Cluster
: HEADLINER Soft Padded Cloth
: INSTRUMENT PANEL TRIM Molded Plastic with Black Center Section
: STORAGE POCKET, DOOR (2) Molded Plastic , Full-Length;
: SUN VISOR (3) Padded Vinyl: 2 Moveable (Front-to-Side) Primary Visors, Driver Side with Vanity Mirror and Toll Ticket Strap, plus 1 Auxiliary Visor (Front Only), Driver Side

CAB REAR SUSPENSION Air Bag Type

WHEELS, FRONT DISC; 22.5" Painted To Match Cab , 2-Hand Hole, 10-Stud (285.75MM BC) Hub Piloted.



WHEELS, REAR DUAL DISC; 22.5" Painted To Match Cab, 2-Hand Hole, 10-Stud (285.75MM BC) Hub Piloted.
WHEEL SEALS, FRONT {International} Oil-Lubricated Wheel Bearings

(4) TIRE, REAR 12R22.5 G282 MSD (GOODYEAR) 481 rev/mile, load range H, 16 ply

(2) TIRE, FRONT 12R22.5 G661 HSA (GOODYEAR) 484 rev/mile, load range H, 16 ply

REAR AXLE TOP SPEED

The rear axle/s will be geared for a vehicle top speed in accordance with NFPA sections 4.15.2 and 4.15.3.

INTERNATIONAL SAE J2433 ROLLOVER TESTING

The International chassis will comply with SAE J2422 Cab Roof Strength Evaluation. The Cab to Chassis Mounting System will remain attached to the vehicle chassis and in an orientation similar to its original position when subjected to 20g deceleration load in the forward direction. Components in the mounting system may become distorted or broken but never dislodge from the original mounting location.

BUMPER

The front bumper will be as provided by the chassis manufacturer.

WHEEL TRIM KITS

Wheel trim kits consisting of chrome baby moon hubcaps and chrome lug nut covers will be installed on the front and rear axles of the single rear axle chassis.

FUEL TANK AND BATTERY BOX TREAD PLATE

The step type fuel tank will be overlaid with polished aluminum tread plate. This will include the top, front and both ends. Step areas will be provided for access to the cab.

The battery box will be overlaid with polished aluminum tread plate. The cover of this box will be easily removable for inspection of the batteries.

DRIVER AND OFFICER SIDE CAB STEP AREA TREAD PLATE

The driver and officer side cab step area will be overlaid with polished aluminum tread plate.

CENTER CONSOLE

A center console fabricated from 1/8" aluminum will be furnished and will be located between the driver and officer's seats.

The forward area of the console will have a mounting surface for emergency lighting switch panels and/or electronic siren control boxes within reach of the driver or officer. In addition, the console will be equipped with two (2) map/notebook storage pockets at the rear of the console.

ANTENNA INSTALLATION

One (1) antenna mounting base model #MATM with 17' of coaxial cable will be provided and installed on the cab roof. The attached antenna wire(s) will be run to the right side cab dash area.

TIRE PRESSURE MONITORING DEVICES

Each tire will be equipped with an LED tire alert pressure management system (Vecsafe equal) that will monitor tire pressure. A chrome plated brass sensor will be provided on the valve stem of each tire.

AUXILIARY AIR INLET/AUTO EJECT



A Kussmaul Auto Air Eject #091-28 inlet will be provided on the driver side of the cab, The air eject will be located in the driver's cab step well.

COMMERCIAL CHASSIS ELECTRICAL SYSTEM

The commercial chassis electrical system will be provided as furnished by the original manufacturer. A customized interface will be provided and designed, so as not to disturb any of the required chassis functions.

INTERNATIONAL MULTIPLEXED ELECTRICAL SYSTEM

The electrical system for the entire apparatus will feature the International® Diamond Logic® Electrical System.

At the heart of International® Diamond Logic™ electrical system is the Electronic System Controller (ESC) which functions as the gatekeeper or central processor.

The Diamond Logic® Electrical System allows fully customizable logic to carry out functions which up until now required hard-wired circuits and component. The use of the system will enable KME to reduce; if not eliminate; conventional circuit interlock and power supply components for all body builder installed functions as specified by the customer.

CHASSIS DIAGNOSTICS SYSTEM

Diagnostic ports will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership.

BATTERY DISCONNECT SWITCH

The chassis batteries will be wired in parallel to a single 12 volt electrical system, controlled through a heavy duty master disconnect switch.

120 VOLT SHORELINE CONNECTION - "SUPER" AUTO EJECT

One (1) Kussmaul "Super" Auto Eject model 091-55-20-120, automatic, 120 volt, 20 amp shoreline disconnect will be provided for the on board, 110 volt battery charging systems.

The disconnect will be equipped with a NEMA 5-20 P male receptacle, which will automatically eject the shoreline when the vehicle starter is energized.

SHORELINE POWER INLET PLATE

A shoreline power receptacle information plate will be permanently affixed at or near the power inlet.

BATTERY CHARGER SYSTEM

A Kussmaul model # 091-170-12, "Auto Charge 12 HO" high output, fully automatic battery charger will be provided for maintaining the vehicle battery system.

"DO NOT MOVE APPARATUS" WARNING LIGHT WITH AUDIBLE ALARM

A 1" round, red flashing warning light with an integral audible alarm, will be functionally located in the cab to signal when an unsafe condition is present. This light will be activated through the parking brake switch to signal when the parking brake is released. This light will be labeled "DO NOT MOVE TRUCK".

12 VOLT POWER

One (1) 12 volt power port accessory outlet will be installed in the cab of the truck for the fire departments accessory devices.



One (1) round USB charging port will be installed in the cab of the truck for the fire departments accessory devices. Each port will have two (2) USB connections and will have a 5 volt, 2.1 amp max output.

A dedicated 12 volt power and ground circuit will be provided in the rear crew area.

LED LICENSE PLATE LIGHT - REAR

One (1) Tecniq model #L10 LED license plate light will be provided above the mounting position of the license plate.

TAIL, STOP, TURN AND BACK-UP LIGHTS

Two (2) Code 3, 65STR 4" x 6", red LED combination tail and stop lights, will be mounted one each side at the rear of the body.

Two (2) Code 3, 65STA 4" x 6", amber LED arrow turn signal lights, will be mounted one each side, on a vertical plane with the tail/stop lights.

Two (2) Code 3, 65RV 4" x 6", white LED backup lights, will be mounted one each side, on a vertical plane with the turn/tail/stop signals.

Two (2) Code 3 65STK4 mounting flanges, installed one (1) on each side, will be provided to mount the lights described above in one common mounting flange. The fourth opening will be for the lower rear warning lights.

BODY STEP LIGHTS

Polished stainless steel, TecNiq Eon 3-LED horizontal surface mounted body step lights will be provided and controlled with marker light actuation.

Two (2) stainless steel, TecNiq Eon 3-LED horizontal surface mounted lights will be provided in the dunnage area to provide adequate illumination of this area.

DECK LIGHTS / WORK LIGHTS

Two (2) 6" Unity model AG chrome plated LED deck lights will be provided and mounted on the rear stanchions, one (1) each side.

SCENE LIGHTS

Two (2) Fire Research Spectra 900 LED scene lights will be provided, one on each side of the rear body panel.

Two (2) Fire Research Spectra 900 LED scene lights will be provided. The scene lights will be installed one rearward and one forward on the driver side of the body.

Two (2) Fire Research Spectra 900 LED scene lights will be provided. The scene lights will be installed one rearward and one forward on the officer side of the body.

GROUND LIGHTS - CAB

One (1) TecNiq LED, 6" long ground light with stainless steel mounting bracket, will be provided under each side cab door entrance step, four (4) total.

ROOF MOUNT 155W LED BROW LIGHT - ABOVE WINDSHIELD

Fire Research Evolution LED model FCA800-V15 contour roof mount light will be installed. The Evolution brow mounted flood light will be located above the windshield in the center of the cab. A switch will be provided in the cab warning light switch console to turn the light(s) above windshield on and off.

12 VOLT BODY ELECTRICAL SYSTEM



All electrical lines in the body will be protected by automatic circuit breakers, All lines will be color and function coded every 3", easy to identify, oversized for the intended loads and installed in accordance with a detailed diagram. Heavy duty loom will be used for the entire length.

All electrical equipment will be installed to conform to the latest federal standards as outlined in NFPA 1901.

BODY ELECTRICAL JUNCTION COMPARTMENT

A weather resistant electric junction compartment will be provided within the body or pump enclosure, depending on vehicle configuration.

PUMP AND ENGINE ENCLOSURE WORK LIGHTS

Two (2) Grote model #61171 LED lights will be provided inside the pump enclosure.

Two (2) Peterson model #M391 lights will be provided inside the engine enclosure.

AMDOR LUMA BAR COMPARTMENT LIGHTS - LED

Each individual, equipment storage compartment will be equipped with the AMDOR Luma Bar LED light fixture mounted one each side of the forward (and rear) vertical door frame.

NFPA AUDIBLE AND LIGHTING WARNING PACKAGE

The following warning light package will include all of the minimum warning light and actuation requirements for the current revision of the NFPA 1901 Fire Apparatus Standard.

The entire warning light package will be actuated with a single warning light switch located on the cab switch panel. The wiring for the warning light package will engage all of the lights required for "Clearing Right of Way" mode when the vehicle parking brake is not engaged. An automatic control system will be provided to switch the warning lights to the "Blocking Right of Way" mode when the vehicle parking brake is engaged.

NFPA ZONE A, UPPER

A Code 3 DF58ANFPA1 "Defender Tri-Core Series", 58" LED cab roof warning light bar will be furnished and rigidly mounted on top of the cab roof.

- Clear Lenses with a Black Top
- Eight Forward Facing Red - TriCore 6 LED Red Modules
- Four Corners – TriCore 6 LED Red Modules

NFPA ZONE C, UPPER

Two (2) Code 3 A18-*** Arch LED beacon lights will be mounted one (1) each side at the rear of the body. The lights will be mounted so the warning signal faces at 45° to the longitudinal axis of the vehicle in order to comply with NFPA standards in both Zone C and B/D Upper.

NFPA ZONES B & D REAR, UPPER

The lighting requirement for this area is covered by the lights noted in Zone "C" - Upper.

NFPA ZONES B & D FRONT, UPPER

The lighting requirement for this area is covered by the lights noted in Zone "A" - Upper.

NFPA ZONE A, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.

NFPA ZONE C, LOWER



Two (2) Code 3 65BZ* LED light heads will be provided and installed; one (1) each side directly below the DOT stop, tail, turn and backup lights.

NFPA ZONES B & D FRONT, LOWER

Two (2) Code 3 LEX1F-* LED light heads will be provided and installed one (1) each side.

NFPA ZONES B & D MIDSHIP, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.

NFPA ZONES B & D REAR, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.

WARNING LIGHT SYSTEM CERTIFICATION

The warning light system specified above will not exceed a combined total amperage draw of 45 AMPS with all lights activated in either the "Clearing Right of Way" or the "Blocking Right of Way" mode.

The warning light system will be certified by the light system manufacturer, to meet all of the requirements in the current revision of the NFPA 1901 Fire Apparatus Standard.

ALTERNATING FLASHING HEADLIGHT SYSTEM

An alternating flashing wig-wag system, wired to the apparatus headlights, will be installed.

BACK-UP ALARM

A Code 3, model # CA278, 87dBA back-up alarm, will be provided and installed at the rear of the apparatus.

AIR HORNS

Two (2) chrome plated air horns will be at the front of the vehicle. Each air horn will be mounted, one (1) each side, on the side of the hood.

ELECTRONIC SIREN

One (1) Whelen # 295SLSA1, 100 watt electronic siren will be provided.

One (1) Whelen, model # SP123BMC with chrome plated ABS outer flange, siren speakers will be provided, recessed in the front bumper and wired to the electronic siren.

FEDERAL Q2B MECHANICAL SIREN

One (1) Federal Model #Q2B mechanical siren will be provided to provide audible warning. The 2B siren will be semi-recessed into the bumper on the driver's side. Two (2) floor mounted foot switches will be provided, one (1) for the officer and one (1) for the driver. A siren brake button will be provided near the driver's position.

PUMP

- **WATEROUS CSU-C20,1500 G.P.M., SINGLE-STAGE**

The pump will be of single-stage construction and will comply with all applicable requirements of the latest standards for automotive fire apparatus of the National Fire Protection Association, NFPA-1901 and will have a rated capacity of 1500 gpm.

The pump must deliver the percentage of rated capacity at the pressure listed below:

- 100% of rated capacity at 150 P.S.I. net pump pressure
- 100% of rated capacity at 165 P.S.I. net pump pressure



- 70% of rated capacity at 200 P.S.I. net pump pressure
- 50% of rated capacity at 250 P.S.I. net pump pressure.

PUMP CONSTRUCTION

The pump body will be close-grained gray iron and must be horizontally split in two sections for easy removal of the impeller shaft assembly. Pump body halves will be bolted together on a single horizontal face to minimize chance of leakage and facilitate reassemble.

Discharge manifold will be cast as an integral part of the pump body assembly and will provide at least three full 3-1/2 inch openings for ultimate flexibility in providing various discharge outlets for maximum efficiency.

IMPELLER SHAFT

The Impeller shaft will be heat-treated stainless steel.

PUMP IMPELLER

The impeller will be bronze, accurately balanced of mixed flow design with reverse flow labyrinth-type wear rings. The impeller will have flame plated hubs. Wear rings will be bronze

BEARINGS

Three deep-groove, anti-friction ball bearings will be located outside the pumping chamber, which will give support and proper alignment to the impeller shaft assembly. The bearings will be oil or grease lubricated, completely separated from the water being pumped, and will be protected by seal housings, flinger rings and oil seals.

PUMP PACKING

Stuffing boxes will be equipped with two-piece glands to permit adjustment or replacement of packing without disturbing the pump. Lantern rings will be located at the inner end of the stuffing boxes the all ring can be removed without removal of the lantern rings. Water will be fed into the stuffing box lantern rings for proper lubrication and cooling when the pump is operating.

PUMP TRANSMISSION

The pump transmission will be all aluminum "C20" model, rigidly attached to the pump body assembly and be of latest design incorporating a high strength involute tooth-form Hy-Vo chain drive.

PUMP RATIO

The pump ratio will be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.

KME will supply at time of delivery copies of the pump manufacturer's certification of hydrostatic testing, the engine manufacturer's current certified brake horsepower curve.

PUMP SHIFT CONTROL

The drive unit will be equipped with a power shift. The shifting mechanism will be a heat treated, hard anodized aluminum power cylinder with stainless steel shaft.

The pump shift control, pump engaged light and ok to pump indicator light will be provided utilizing the International multi-plex system. They will be located in the lower left switch panel.

This control will be electronically interlocked through the International multi-plex system to prevent inadvertent activation or de-activation.



TRANSMISSION LOCK

The automatic transmission furnished in the chassis will have a lock-up assembly which brings the transmission to direct drive and prevents the transmission from shifting gears while in the pumping mode.

MAIN PUMP MOUNTS

Extra heavy duty pump mounting brackets will be furnished.
Pumps which are not mounted directly to the frame WILL not be considered. Under no circumstance will the pump function as a frame cross member.

FIRE RESEARCH "IN-CONTROL" PRESSURE GOVERNOR

The apparatus will be equipped with a Fire Research InControl series TGA300 pressure governor and monitoring display kit will be installed.

The program will store the accumulated operating hours for the pump and engine to be displayed with the push of a button

Inputs to the control panel from the pump discharge and intake pressure sensors will be electrical. The discharge pressure display will show pressures from 0 to 600 psi. The intake pressure display will show pressures from -30 in. Hg to 600 psi.

The governor will operate in two control modes, pressure and RPM. A throttle ready LED will light when the interlock signal is recognized. The governor will start in pressure mode and set the engine RPM to idle. In pressure mode the governor will automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor will maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor will limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features will include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

An Task Force Tips relief valve will be provided to comply fully with NFPA-1901 requirements.

PUMP CERTIFICATION

The pump will be third party performance tested to meet the requirements of NFPA-1901. By Underwriters Laboratories (UL).

PRIMING PUMP

The priming pump will be a Trident air primer system.

MASTER DRAIN VALVE

A rotary type, 12 port master drain valve will be provided and controlled at the lower portion of the side pump panel.

INDIVIDUAL BLEEDERS AND DRAINS

All lines will drain through the master drain valve or will be equipped with individual drain valves, easily accessible and labeled.

One (1) individual "Innovative Control" lift up drain valve will be furnished for each 1-1/2" or larger discharge port and each 2-1/2" gated auxiliary suction.

PUMP MODULE

The pump module will be a self-supported structure mounted independently from the body and chassis cab.

DUNNAGE AREA



A dunnage area will be provided above the pump enclosure for equipment mounting and storage. This area will be furnished with a removable 3/16" aluminum tread plate floor and will be enclosed on the sides.

SUCTION INLETS

Two (2) 6" N.S.T. suction inlets will be provided, one on the driver side pump panel and one on the officer side pump panel. A removable strainer will be installed on each inlet.

The main pump suction inlets will be furnished with a short suction end, terminating with only the suction threads protruding through the side panel to minimize the distance an exterior appliance protrudes beyond the pump panel.

A 6" NST chrome plated long handle pressure vented cap will be installed on each main inlet of the pump.

AUXILIARY SIDE SUCTION

One (1) 2-1/2" auxiliary suction will be provided at the driver side pump panel, to the rear of the main inlet. The 2-1/2" auxiliary suction will terminate with a removable strainer, chrome plated 2-1/2" NST female swivel with a chrome plated plug and retaining chain.

An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the driver's side rear auxiliary suction.

All side gated inlet valves will be recess mounted behind the side pump panels or body panels.

TANK TO PUMP

One (1) 4" tank to pump line will be piped through the front bulkhead of the tank with a 90 degree elbow down into the tank sump. This line will be plumbed directly into the rear of the pump suction manifold for maximum efficiency.

A check valve will be provided to prevent accidental pressurization of the water tank through the pump connection.

An Akron Brass 3" Generation II Swing-Out™ Valve will be provided between the pump suction manifold and the water tank.

TANK FILL

One (1) 2" gated full flow pump to tank refill line controlled at the pump panel will be provided. A deflector shield inside the tank will be furnished.

An Akron Brass 2" Generation II Swing-Out™ Valve will be provided between the pump discharge manifold and the water tank.

DRIVER'S SIDE MAIN DISCHARGE #1 AND #2

Two (2) discharges will be provided and located at the driver's side pump panel. The driver's side discharges # 1 and #2 will terminate with NST threads, through the left panel above the main pump intake.

An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the driver's side # 1 and #2 discharges.

The discharge valves will be equipped with a straight 2 1/2" NST adapter that will be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

A 2 1/2" NST chrome plated pressure vented cap will be installed on driver's side # 1 and #2 discharges.

The driver's side # 1 and #2 discharges will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.



OFFICER'S SIDE MAIN DISCHARGE #1

A discharge will be provided and located at the officer's side pump panel. The officer's side discharges #1 will terminate with NST threads, through the officer's side panel above the main pump intake.

An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the officer's side #1 discharge.

The discharge valve will be equipped with a straight 2 1/2" NST adapter that will be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

A 2 1/2" NST chrome plated pressure vented cap will be installed on officer's side # 1 discharge.

The officer's side # 1 discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

OFFICER'S SIDE MAIN DISCHARGE #2

A discharge will be provided and located at the officer's side pump panel. The officer's side discharges #2 will terminate with NST threads, through the officer's side panel above the main pump intake.

An Akron Brass 4" Heavy Duty Swing-Out™ Valve will be provided for the officer's side #2 discharge.

The discharge valve will be equipped with a straight 4" NST adapter.

A 4" NSTF X 4" Storz Kochek SKE-R 30° adapter with cap will be provided on the officer's side #2 discharge.

The officer's side #2 discharge valve will be gated with an Akron Hand wheel controlled, inline valve. The valve will be controlled at the pump operator's panel with a chrome plated hand wheel and mechanical valve position indicator.

The officer's side #2 discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

DRIVER SIDE REAR DISCHARGE

A 2 1/2" NST rear discharge will be provided at the rear of the vehicle, plumbed from the pump.

The rear discharge will terminate on the rear body panel, on the driver side of the body.

The driver side rear discharge pipe will be equipped with a chrome 2 1/2" NSTM thread adapter.

The driver side rear discharge will be plumbed utilizing 2 1/2" schedule 10 stainless steel piping.

An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the driver's side rear discharge. The valve will have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

One (1) 2 1/2" NST chrome plated pressure vented cap will be installed at the driver side rear discharge.

The driver side rear discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

OFFICER SIDE REAR DISCHARGE

A 2 1/2" NST rear discharge will be provided at the rear of the vehicle, plumbed from the pump.

The rear discharge will terminate on the rear body panel, on the officer side of the body.

The officer side rear discharge pipe will be equipped with a chrome 2 1/2" NSTM thread adapter.

The officer side rear discharge will be plumbed utilizing 2 1/2" schedule 10 stainless steel piping.



An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the officer's side rear discharge.

One (1) 2 1/2" NST chrome plated pressure vented cap will be installed at the officer side rear discharge.

The officer side rear discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

DECK GUN DISCHARGE

A deck gun discharge will be plumbed from the pump to an area on top of the vehicle. The deck gun piping will be firmly supported and braced.

The deck gun discharge will be located in the center of the dunnage area above the pump module.

The deck gun discharge pipe will terminate with 3" NPT threads.

The discharge pipe will be outfitted with a TFT (18") Extend-A-Gun, part # XG18**-**. The Extend-A-Gun will be wired to the hazard light on the cab dash.

The deck gun piping will be designed so the overall height of the deck gun in the mounted/stowed position does not exceed the tallest point on the cab/body.

The deck gun discharge will be plumbed utilizing 3" schedule 10 stainless steel piping.

An Akron Brass 3" Generation II Swing-Out™ Valve will be provided for the deck gun discharge.

The deck gun discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

TFT MANUAL DECK GUN

A TFT Hurricane monitor will be supplied and mounted on the deck gun discharge.

A TFT model "MASTER STREAM" 1000 GPM nozzle will be supplied with the deck gun.

HORIZONTAL CROSSLAY #1 AND #2

A crosslay hose bed will be provided and plumbed from the pump in a transverse design, located above the pump enclosure for quick attack deployment.

Crosslay #1 and #2 will be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 200 feet of 1-3/4" fire hose.

Crosslay #1 and #2 hosebed will be designed to accommodate the fire hose in a double stack configuration.

The crosslay discharges will terminate below the hosebed floor with a 1 1/2" NSTM chicksan swivel adapter.

The crosslay #1 and #2 discharges will be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose.

An Akron Brass 2" Generation II Swing-Out™ Valve will be provided for the crosslay #1 and #2 discharges.

The crosslay #1 and #2 discharges will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

PUMP ENCLOSURE HOSEBED HOSE RETENTION

A 3/16" polished aluminum tread plate cross lay cover will be provided with a full length stainless steel hinge at the front of the cover.



Vinyl flaps will be provided at each side of the transverse cross lay compartment secured to the tread plate cross lay cover by quarter turn fasteners, and equipped with a strap to each end.

PUMP PANEL - SIDE MOUNT

The pump operator's control panel will be located on the driver side of the apparatus. The pump enclosure side panels will be completely removable and designed for easy access and servicing.

The left side operator's panel, gauge panel, right side pump panel and right side access door will be fabricated from 12-gauge 304L stainless steel with a #4, (150/180 grit), standard brushed finish.

A full width, vertically hinged gauge access panel will be provided at the operator's position. Chrome plated positive locks will be provided along with chain holders to prevent the front of the gauge panel from coming in contact with other panels when open.

The officer's side pump panel will be split, vertically hinged, to provide complete access to the pump and plumbing on the officer side of the pump enclosure. The panels will be equipped with stainless steel hinges and secured with push type locks to hold the panels closed.

Stainless steel machine screws and lock washers will be used to hold these panels in position. The panels will be easily removable to provide complete access to the pump for major service.

CAPS AND ADAPTERS SAFETY TETHER

All applicable discharge and suction caps, plugs and adapters will be equipped with chrome plated ball chain and secured to the vehicle.

A high polished trim plate will be provided around each discharge port and suction inlet opening to allow accessibility to the respective valve for service and repairs.

COLOR CODED IDENTIFICATION TAGS

Color coded identification tags will be provided for all gauges, controls, connections, switches, inlets and outlets.

PUMP OPERATOR'S PANEL LIGHT SHIELDS

The pump operator's panel will be equipped with a light shield that will be full width of the control panel, and will be positioned to cover the lights and prevent glare.

The light shield will be equipped with the following lights:

- Two (2) 20" Amdor Luma Bar H2O super bright led strip lights.

One (1) light under the operator's panel light shield will be actuated when fire pump is engaged in addition to the pump engaged light.

The officer's side pump panel and running board will be illuminated by the following lights:

- Four (4) TecNiq Eon, 3-LED illumination lights mounted in horizontal stainless steel bezels and mounting gaskets.

PUMP OPERATOR'S PANEL

Particular attention is to be given to functional arrangement of all controls. The pump operator's panel will accommodate the following:

- All discharge valve controls
- Auxiliary engine cooler controls

- Water tank suction control valve
 - Pump primer valve
 - Engine throttle control
 - Master compound vacuum and pressure gauges
 - Individual discharge gauges
 - Pump shift engaged indicator light
 - Water tank water level indicator
 - Engine tachometer
 - Engine oil pressure gauge with audible alarm
 - Engine water temperature gauge with audible alarm
 - Low voltage light and audible alarm
 - Speed counter (Underwriters)
 - Master pump drain valve
 - Individual drains
 - Voltmeter
- Pump panel air horn actuation button labeled "EVACUATION" in white letters with a red background.
 - Fire Research #TGA300 "IN CONTROL" pressure governor control.

MASTER GAUGES

One (1) 4" diameter pressure gauge (labeled: "PRESSURE") and one (1) 4" diameter compound vacuum gauge (labeled: "INTAKE") will be provided.

ENGINE COOLER

An auxiliary cooler or heat exchanger will be installed in the engine compartment between the engine and the chassis radiator.

TANK LEVEL GAUGE

A Fire Research, model #WLA300-A00, "TANKVISION" gauge that shows the actual volume of water in the tank will be provided on the pump operator's panel.

WATER TANK

The water tank will have a capacity of 750 gallons, constructed from Poly material.

WATER TANK CONSTRUCTION

The Poly water tank will be constructed of PT3 polypropylene material. This material will be a non-corrosive stress relieved thermoplastic and UV stabilized for maximum protection.

WATER CAPACITY CERTIFICATION

All tanks will be tested and certified as to capacity on a calibrated and certified tilting scale. Each tank will be weighed empty and full to provide precise fluid capacity. Each Poly-Tank's III is delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight.

WATER TANK LID

The tank cover will be constructed of 1/2" thick PT3 polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary.

WATER TANK FILL TOWER AND OVERFLOW/VENT PIPE

The tank will have a combination vent and manual fill tower. The fill tower will be constructed of 1/2" PT3 polypropylene and will be a minimum dimension of 8" x 8" outer perimeter. The fill tower will be blue in color indicating that it is a water-only fill tower.



The fill tower will be fitted with an integral 4" I.D. schedule 40 P.V.C. combination overflow/vent pipe running from the fill tower through the tank to a 4" coupling flush mounted into the bottom of the tank to allow water to overflow behind the chassis rear axle.

The tank sump will be a minimum of 10" wide x 10" long x 3" deep. An anti-swirl plate will be mounted inside the sump, approximately 1" above the bottom of the sump.

A 3" drain plug will be provided.

WATER TANK MOUNTING ALL "T" TANKS - PUMPER

The tank will rest on the body cross members spaced a maximum of 22" apart, and will be insulated from these cross members with a minimum of 3/8" nylon webbing or 1/2" rubber, 2-1/2" wide. The tank will sit cradle-mounted using four (4) corner angles of 6 x 6 x 4 x 0.250 welded directly to the body cross members.

APPARATUS BODY DESIGN CONSTRUCTION

The body side and compartment assemblies will be designed and assembled to provide maximum strength and durability under all operating conditions.

Special attention will be taken to minimize corrosion on all fabricated parts and structural members of the body. All bolt-on components will be provided with a dissimilar metals isolation barrier to prevent electric corrosion.

The body assembly will be an all-welded configuration.

COMPARTMENT TOPS

Compartment ceilings will be a fully welded design as part of the body construction process.

The top of the welded in compartment ceiling will be overlaid with aluminum treadplate to provide an NFPA compliant stepping surface.

Compartment tops over all side compartments will have a flange formed to provide protection against water runoff. For bodies with wide hosebeds or coffin compartments a secondary extruded drop molding will be provided above the compartments.

BODY AND COMPARTMENT FABRICATION - 3/16" ALUMINUM

All compartment panels and body side sheets will be fabricated entirely of 3/16" aluminum (5052-H32). Each side compartment assembly will be both plug welded and stitch welded to ensure proper weld penetration on all panels while avoiding the possible warping caused by a full seam weld.

SUB STRUCTURE - ALUMINUM

The body sub structure will be an all welded configuration utilizing a combination of 3" x 1-1/2" 6061-T6 thick walled structural tubing and 6061 structural channel.

This design will provide storage capacity in each side compartment for a minimum of 500 lbs of equipment, and a minimum of 1000 lbs of equipment in the rear step compartment.

The fire body will be 100" wide to provide the maximum amount of usable hose bed and compartment space. The side body compartments will be 29" deep in any full depth areas, and 14" deep in any split depth areas.

BODY FENDER

The body fender will be 64" long, this will allow for the suspension and related components to be contained within the fender, preventing any intrusion into the body compartment storage area.

DRIVER SIDE - FRONT SECTION OF FENDER



A storage compartment will be inserted into the fender to provide a storage area for three (3) customer supplied SCBA cylinders (or fire extinguishers of similar size).

OFFICER SIDE - FRONT SECTION OF FENDER

A storage compartment will be inserted into the fender to provide a storage area for three (3) customer supplied SCBA cylinders (or fire extinguishers of similar size).

FENDER STORAGE DOORS

The fender storage area(s) will be enclosed by a hinged door fabricated from mirror finish stainless steel. The back side of the door will have a section of nylatron installed to protect the door surface from the items stored in the compartment. Each door will be tied into the compartment door ajar/do not move apparatus warning system.

DRIVER SIDE BODY COMPARTMENTATION

One full height/split depth compartment will be provided forward of the rear wheels. The compartment dimensions will be 27" wide x 68" tall x 29" deep in the lower 30" tall area, and 14" deep in the upper 38" tall area.

One high side compartment will be provided above the rear wheels. The compartment dimensions will be 64" wide x 37" high x 14" deep.

One full height/split depth compartment will be provided behind the rear wheels. The compartment dimensions will be 46" wide x 68" tall x 29" deep in the lower 30" tall area, and 14" deep in the upper 38" tall area.

The driver side compartments will provide approximately 80 cubic feet of storage space.

OFFICER SIDE BODY COMPARTMENTATION

One full height/split depth compartment will be provided forward of the rear wheels. The compartment dimensions will be 27" wide x 68" tall x 29" deep in the lower 30" tall area, and 14" deep in the upper 38" tall area.

One high side compartment will be provided above the rear wheels. The compartment dimensions will be 64" wide x 37" high x 14" deep.

One full height/split depth compartment will be provided behind the rear wheels. The compartment dimensions will be 46" wide x 68" tall x 29" deep in the lower 30" tall area, and 14" deep in the upper 38" tall area.

The officer side compartments will provide approximately 80 cubic feet of storage space.

REAR STEP COMPARTMENT

An equipment storage compartment will be provided on the rear of the body at the rear step area. The rear step compartment will be 42" Wide x 40" High x 29" Deep.

The rear step compartment will provide approximately 28 cubic feet of storage space.

The rear step compartment will be equipped with a rollup style door.

EXTENDED REAR STEP - TAPERED CORNERS

The extended rear step will be 12" deep, extended beyond the body compartments. The step will be 100" wide, with tapered corners for better clearance.

HOSE BED (72" WIDE)

The hose bed will be located directly above the booster tank and will be free from all sharp objects such as bolts, nuts, etc., to avoid damage to fire hose.



The hose bed side walls will be approximately 2" thick, this will provide a mounting surface for devices like warning lights and scene lights.

The hose bed will provide a minimum of 30 cubic feet hose storage area for 2 ½" or larger fire hose to meet NFPA 1901 minimum pumper hose storage requirement.

The apparatus weight analysis will be based on 800' of 2 ½" hose unless otherwise specified.

Flooring to be constructed from extruded aluminum and be properly spaced for ventilation. The flooring will be smooth and free from sharp edges to avoid hose damage.

Two (2) fully adjustable 3/16", aluminum hose bed partition will be provided. Partition will be easily adjustable by means of channels located at the front and rear of the hose bed.

VINYL HOSE BED COVER - 1/4 TURN FASTENERS

A hose bed cover will be provided and installed. The cover will be made from 22 ounce; heavy-duty vinyl coated polyester fabric (TXN 226).

The cover will be secured to the body flange with quarter-turn fasteners. A weighted flap will be furnished on the rear of the cover with two (2) bungee cords.

COMPARTMENT DOORS

The compartment doors will be flush type with the outer skin fabricated from 3/16" (5052 H32) aluminum.

The 2" thick compartment doors will reduce the overall specified compartment depth by 2".

COMPARTMENT DOOR HINGES

Hinges will be full length polished stainless steel piano type. The hinges will be mounted with stainless steel hardware.

COMPARTMENT DOOR SEALS

Enclosed body compartment doors will be equipped with a closed cell gasket. The gasket material will be EPDM to provide a gasket resistant to weather, temperature extremes, and aging.

COMPARTMENT DOOR LATCHES – ROTARY WITH D-RINGS

Externally latched body doors will be equipped with stainless steel D-ring handles.

Rotary door latches will be provided for all full height body doors, which will incorporate rotary latches at the top and bottom of all externally latched single or double doors.

The blank door of a double door configuration will have rotary latches at the top and bottom of each door with the latch release lever accessible thru the door frame, which eliminates the need to reach inside the compartment to release the door.

COMPARTMENT DOOR STAY ARMS

Eberhard gas shock type door hold open devices will be provided for each vertically and horizontally hinged door.

SWEEP-OUT COMPARTMENT FLOORS

Compartment floors will be welded to the compartment walls and have a sweep out design for easy cleaning.



COATED FASTENERS

All exterior fasteners will be coated stainless steel screws. Screw threads will be coated with reusable, self-locking, sealing material to provide vibration resistance. Screw heads will be coated with a sealing element to prevent galvanic corrosion between dissimilar metals.

COMPARTMENT LOUVERS

Ventilation between compartments to atmosphere will be provided and located to avoid water entry into compartments.

BODY PROTECTION PANELS

The front face of the side compartments, next to the driver and officer pump panels will be overlaid with full height aluminum tread plate protection panels. The overlays will cover the front face of the compartments only.

BODY RUB RAILS

Sacrificial aluminum tread plate rub rails will be mounted at the base of the body, extend outward a minimum 3/4", downward 2" and flange inward 1". Rub rails will be designed to bolt to the body from the bottom side of the compartment area, so as not to damage the body side panels on initial impact and to provide for ease of replacement.

RUNNING BOARD STEPS

The driver and officer running board steps will be fabricated of 3/16" polished aluminum tread plate. The running boards will not form any part of the compartment design, and will be bolted into place with a minimum 1/2" clearance gap between any panel to facilitate water runoff.

INTERMEDIATE REAR STEP

An eight (8) inch deep, bolt on intermediate rear step, fabricated from 3/16" aluminum tread plate, will be installed. The step will be approximately 8" deep x 48" wide.

GRAB RAILS

All hand rails will be 1-1/4" outer diameter, knurled bright anodized aluminum extrusion, designed to meet NFPA 1901 requirements.

Molded gaskets will be installed between the handrail stanchion castings and body surfaces to prevent electrolytic reaction between dissimilar metals and to protect paint.

GRAB RAIL LOCATIONS:

Grab rails will be provided at the following specified locations.

Two (2) vertical rails will be mounted on the rear edge of the beavertails, one (1) each side.

One (1) horizontal, full width handrail will be installed on the rear, below the level of the hose bed.

Two (2) vertical handrails will be mounted above each pump panel, (1) each side.

FOLDING STEPS

Cast Products model SP4401-1-CH-A large folding step(s) with RG0005 gasket, with a textured chrome plate finish will be provided on driver side body front to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface.



Additional steps will be provided on officer side body front to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).

Cast Products model SP4401-1-CH-A large folding step(s) with RG0005 gasket, with a textured chrome plate finish will be provided on driver side body rear to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).

FOLDING STEP(S) - BODY REAR OFFICER SIDE

Cast Products model SP4401-1-CH-A large folding step(s) with RG0005 gasket, with a textured chrome plate finish will be provided on officer side body rear to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).

REAR WHEEL WELL LINERS

Fully removable, one piece, bolt-in, aluminum rear wheel well liner and fenderette will be provided.

REAR MUD FLAPS

Heavy duty mud flaps will be provided behind the rear wheels.

REAR TOW EYES

Two (2) painted tow eyes will be furnished on the rear of the vehicle. The tow eyes will be made from plate steel and will be bolted directly to the chassis frame rails with grade 8 bolts and will extend below the body.

HALF DEPTH ADJUSTABLE SHELVING

Compartment shelving will be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports. Shelving will be vertically adjustable with spring nuts in aluminum strut channel.

Half depth adjustable shelves will be located as follows:

- One (1) in the driver side front compartment
- One (1) in the officer side front compartment
- One (1) in the driver side rear compartment
- One (1) in the officer side rear compartment

ADJUSTABLE SHELVING

Compartment shelving will be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports. Shelving will be vertically adjustable with spring nuts in aluminum strut channel.

Adjustable shelves will be located as follows:

- One (1) in the driver side front compartment
- One (1) in the officer side front compartment
- One (1) in the driver side rear compartment
- One (1) in the officer side rear compartment

SLIDE OUT FLOOR MOUNT SHELVING

Slide out floor mount compartment shelving will be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports attached to #250 rated slides. Slide out floor mount shelving will have gas shocks to hold the tray in and out.

Slide out floor mount shelving will be provided as follows:

- One (1) in the rear step compartment



120/240 VOLT ELECTRICAL SYSTEM TESTING

All line voltage wiring and permanently connected devices and equipment will be subjected to a dielectric voltage withstand test of 900 volts for one minute. The test will be conducted between live parts and the neutral conductor and between live parts and the vehicle frame with any switches in the circuits closed. The test will be conducted after all bodywork has been completed. The dielectric tester will have a minimum 500 VA transformer with a sinusoidal output voltage that can be verified.

OPERATIONAL TESTING

The KME will perform the following operation test and will certify that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order.

The generator will be started from a cold start condition and the line voltage electrical system will be loaded to 100 percent of the nameplate voltage rating.

The following items will be monitored and documented every 15 minutes:

- The cranking time until the generator starts and runs.
- The voltage, frequency, and amperes at continuous full rated load.
- The generator oil pressure, water temperature, transmission temperature, hydraulic temperature, and the battery rate charge, as applicable.
- The ambient temperature and altitude.

The generator will operate at 100 percent of its nameplate wattage for a minimum of two (2) hours.

HYDRAULIC GENERATOR

Smart Power 6 kW Heavy Rescue Series Hydraulic Generator

A Smart Power, model HR-6, 6200 watt hydraulic generator will be provided.

The generator system will come with a standard 5 year/1,000 hour fully transferable warranty from KME.

The unit will come equipped with: generator tray assembly (which includes the generator, hydraulic motor, cooler, fan, electronics package, 10 micron spin-on fluid filter and reservoir), axial piston hydraulic pump with pressure compensated control, and Command and Control Center (CCC) display with all required wiring harnesses. The CCC will be an interactive operator control center, equipped with smart touch solid state buttons, with displays for voltage, frequency, amperage, hour meter, service reminders, operator warnings, system faults and diagnostics. Standard electronics package will include smart start engagement to reduce mechanical stress, precise voltage and frequency control, cold start system, automatic load and temperature compensation, integrated diagnostics system, and other automated control features to protect system, vehicle and operator.

The generator tray assembly will be delivered with the cooler/fan assembly mounted such that the hot air is exhausted straight up, through an NFPA approved walking grate.

The wiring from the generator to the breaker box will be type SO with suffix WA flexible cable.

Ratings and Capacity*

- Rating: 7500 watts peak - 6200 watts continuous
- Volts: 120/240 volts
- Phase: Single, 4 wire
- Frequency: 60 Hz
- Amperage: 46 amps @ 120 volts or 23 amps @ 240 volts
- Engine speed at engagement: Standard soft start feature allows for any speed engagement
- Operation range: 880 to 3120 RPM



Testing

The generator will be tested in accordance with all current NFPA 1901 standards.

GENERATOR PTO

A hot shift PTO will be provided on the transmission for the Smart Power generator. The PTO will be controlled from the cab. The control will include a PTO engagement switch and a PTO engaged indicator light.

LINE VOLTAGE ELECTRICAL SYSTEM CERTIFICATION

When the unit successfully meets all the requirements outlined in NFPA 1901, 2009 Edition, UL will issue a Certificate of Automotive Fire Apparatus Examination and Test stating the unit's compliance with the required line voltage section of NFPA.

GENERATOR LOCATION

The generator will be mounted above the pump enclosure on the officer side.

120/240 VOLT LOAD CENTER

The generator output line conductors will be wired from the generator output connections to a Square D, model #QO112L125G breaker panel. The breaker panel will be equipped with a properly sized main breaker using two (2) of the twelve (12) spaces which leaves a total of ten (10) available spaces.

The generator output conductors will be sized to 115% of the main breaker rating and will be installed as indicated in the wiring section.

Ten (10) appropriately sized, 120 volt, circuit breakers will be provided.

120/240 VOLT WIRING METHODS

Wiring/conduit will not be attached to any chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components or low voltage wiring.

All wiring will be securely clamped within 6 inches of any junction box and at a minimum of every 24 inches of run.

All power supply assembly conductors, including neutral and grounding conductors, will have an equivalent ampere rating and will be sized to carry not less than 115% of the main breaker rating.

All Type SO or Type SEO cable not installed in a compartment will be installed in wire loom. Where Type SO or Type SEO cable penetrates a metal surface, a rubber or plastic grommet or bushing will be provided.

The installation of all 120/240 wiring will meet the current NFPA-1901 Standards.

120/240 VOLT WIRING IDENTIFICATION

All line voltage conductors located inside the main breaker panel box will be individually and permanently identified. When pre-wiring for future power wiring installations, the non-terminated ends will be labeled showing function and wire size.

120/240 VOLT GROUNDING

The neutral conductor of the power source will be bonded to the vehicle frame only at the power source.

The grounded current carrying conductor (neutral) will be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor will be colored white or gray.



In addition to the bonding required for the lower voltage return current, each body and driving/crew compartment enclosure will be bonded to the vehicle frame by a copper conductor. The conductor will have a minimum amperage rating of 115 percent of the name plate current rating of the power source specification label.

120/240 VOLT CIRCUIT BREAKER / RECEPTACLE INSTALLATION

The system will be installed by highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators. The equipment will be the type as designed for mobile type installations subject to vibration, moisture and severe continuous usage.

120/240 VOLT RECEPTACLE INSTALLATIONS

Any receptacle installed in a wet location must be a minimum of 24 inches above the ground and provided with an approved wet location cover.

One (1) 120 volt, NEMA 5-20, 20 amp, duplex straight blade receptacle with a grey thermoplastic, corrosion resistant, weatherproof cover will be installed at each side of the of the rear wheel well panels. (Total of two (2))

LADDER STORAGE

The ground ladders will be stored vertically next to the water tank, behind the side body compartments, on the officer side of the apparatus.

To secure the ground ladders, a hinged rear access door will be provided and tied into the "Do Not Move Apparatus" warning system.

PIKE POLE STORAGE

Two (2) pike pole tube(s) will be provided. The pike pole tube(s) will be mounted in the ladder storage compartment.

SUCTION HOSE STORAGE

The suction hoses will be located on the body side panels, one (1) on the officer side and one (1) on the driver side of the apparatus.

HOSE TROUGH

Two (2) polished, extruded aluminum adjustable hose trough(s) will be provided to accommodate the suction hoses. Two (2) Velcro hose holders will be furnished on each trough.

LOOSE EQUIPMENT

The following items will be provided and shipped loose with the completed apparatus at the time of delivery:

- 1 - Pint of touch up paint for each color
- 1 -Bag of assorted stainless steel nuts and bolts

GROUND LADDERS

The following Alco-Lite ground ladder complement will be provided:

- One (1) Alco-Lite model PEL-24; 24', aluminum, two (2) section extension ladder will be provided.
- One (1) Alco-Lite model PRL-14; 14', aluminum, straight roof ladder with folding hooks will be provided.
- One (1) Alco-Lite model FL-10; 10', folding, aluminum, attic ladder will be provided.

Two (2) 10 foot sections of six (6) inch PVC lightweight suction hose will be furnished.



NOTE: All PVC suction hoses are strictly drafting hoses and must not be used on hydrants or in pressure applications, as serious personal injury or death may occur.

One (1) 6" NST, Red Head 140-60001 barrel type strainer will be provided. A compartment mounting bracket will also be provided.

Two (2) ZICO #SAC-44 folding wheel chocks will be mounted forward of the rear wheels on the driver side below the side running board compartments.

PAINT, PREPARATION AND FINISH

The PPG Delta, Low V.O.C., polyurethane finishing system, or equal, will be utilized. A "Clear Coat" paint finish will be supplied.

All removable items, such as brackets, compartment doors, etc. will be painted separately to insure finish paint behind mounted items.

BODY PRIMER & PREPARATION

All exposed welds will be ground smooth for final finishing of areas to be painted.

BODY FINISH PAINT

The body will be finish sanded and prepared for final paint. Upon completion of final preparation, the body will be painted utilizing the highest quality, state of the art, low V.O.C., polyurethane base paint. Finish paint will be applied in multiple coats to ensure proper paint coverage with a high gloss finish.

The inside and underside areas of the complete body assembly will be painted black using a PPG Delta System, prior to the installation of the body on the chassis. The body paint finish will be PPG Delta System in a single color, to match customer furnished paint codes and requirements.

COMPARTMENT PAINT

The interior of the compartments will be finish painted with Multispec #7247 White Marble Stone scuff resistant paint to provide a protective application over all of the compartment interior surfaces.

FENDER STORAGE COMPARTMENT PAINT

The interior of the fender storage compartments will be finish painted job color.

CHASSIS CAB PAINT

The commercial cab exterior will be finish painted in a two tone color scheme by the chassis manufacturer.

TOUCH-UP PAINT

One (1) pint of each exterior color paint for touch-up purposes will be supplied when the apparatus is delivered to the end user.

FINALIZATION & DETAILING

Prior to delivery the vehicle, the interior and exterior be cleaned and detailed.

RUST PROOFING

The entire unit will be thoroughly rust proofed utilizing rustproof and sound deadening materials applied in manufacturer recommended application procedures.



LETTERING

The sales representative will supply all gold leaf or equal lettering, decals, special emblems and non NFPA required striping.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the cab driver's and officer's doors per the fire department requirements.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the cab crew doors per the fire department requirements.

Scotch-Cal without drop shadow lettering will be provided on the front BUMPER per the fire department requirements.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the front of the cab per the fire department requirements.

Scotch-Cal without drop shadow lettering will be provided on the REAR COMPARTMENT DOOR per the fire department requirements.

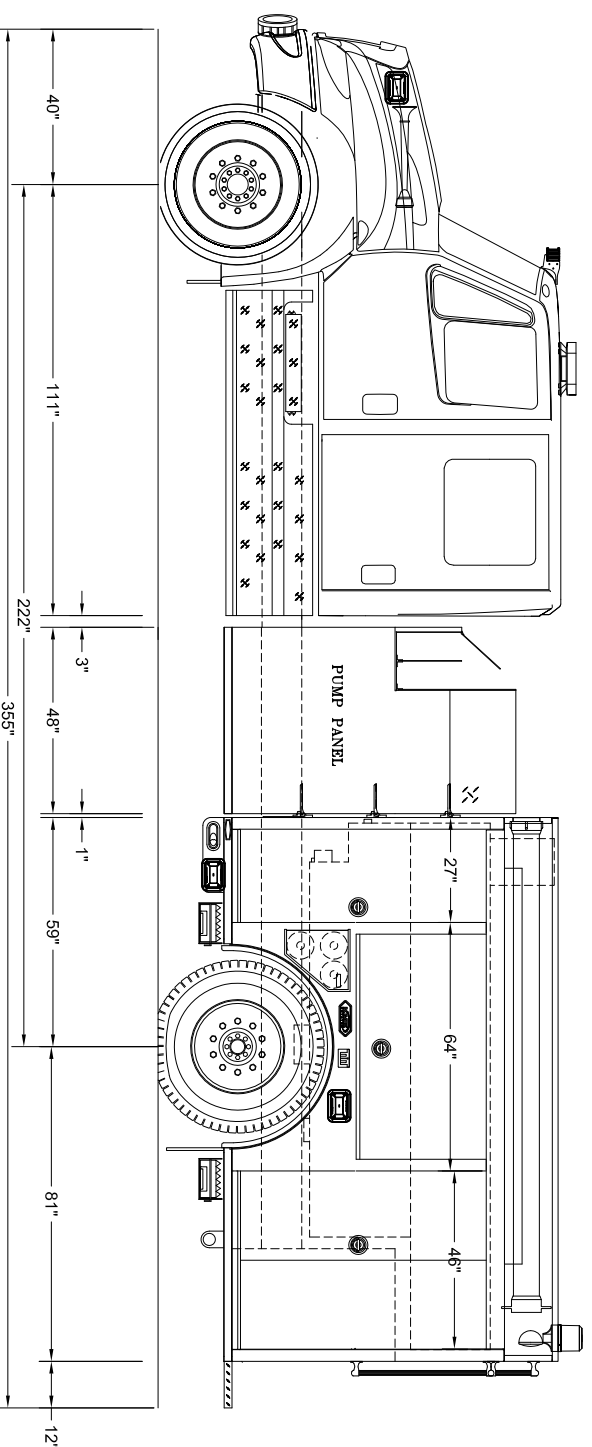
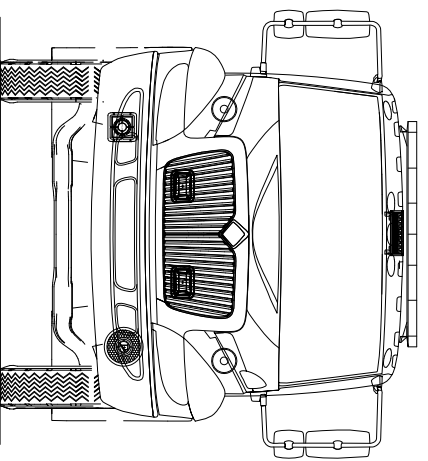
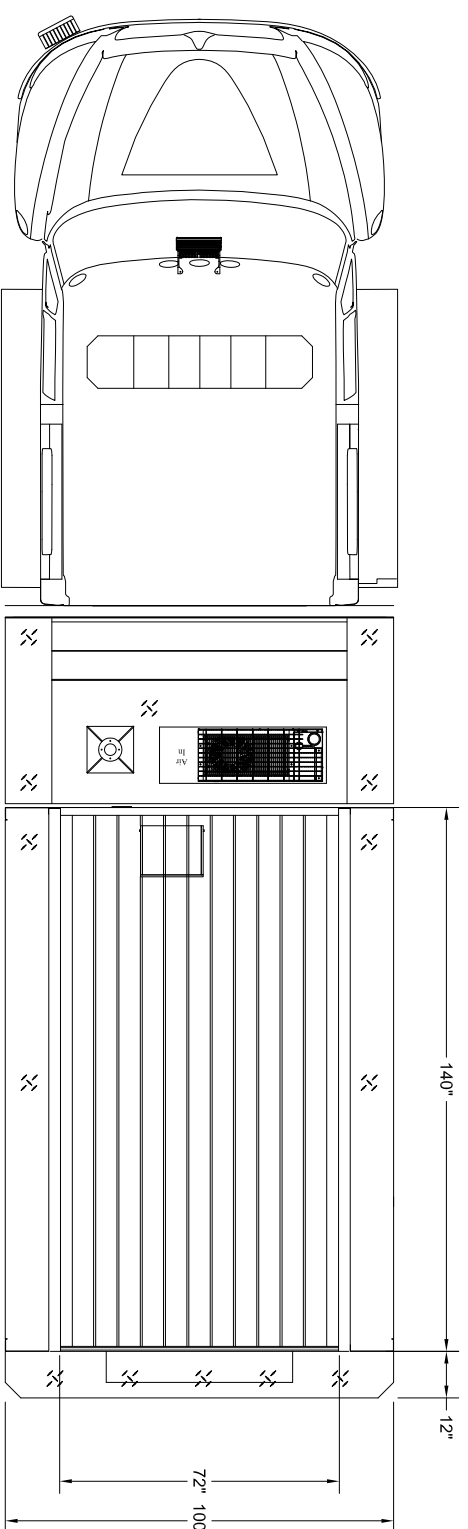
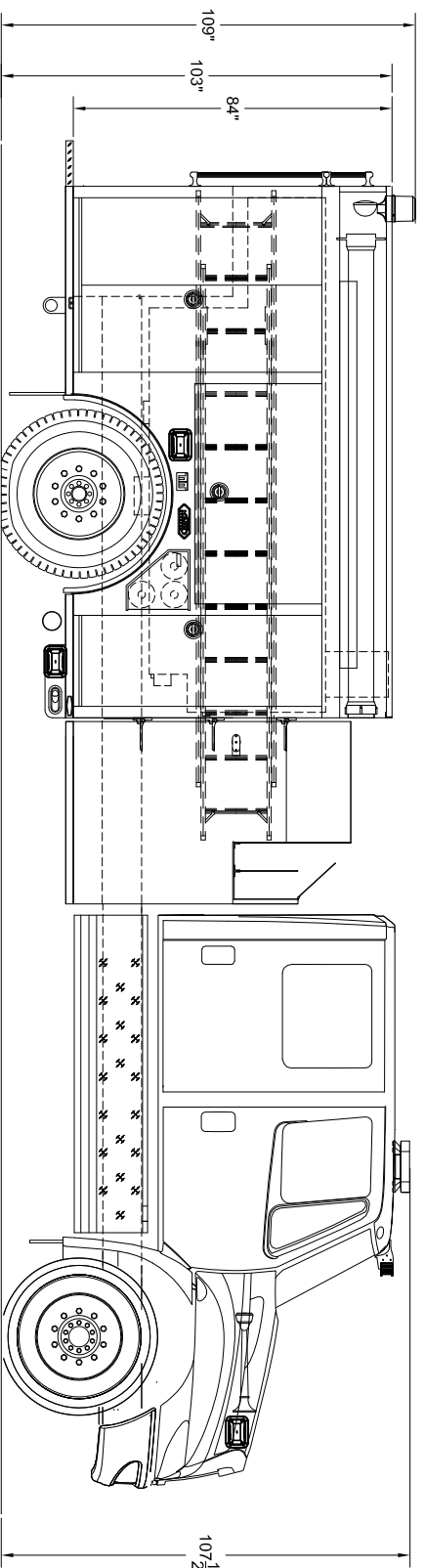
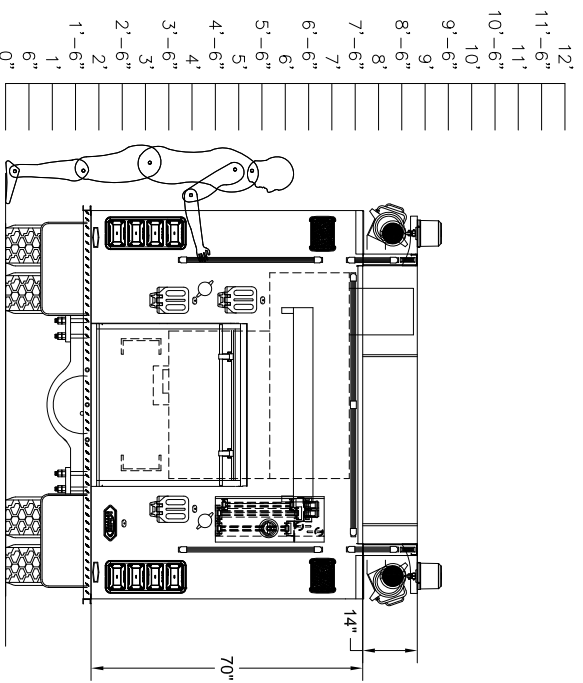
SCOTCH-LITE STRIPE

A six (6) inch high "Scotch-Lite" stripe will be provided. The stripe will be applied on a minimum of 60 percent of each side of the unit, 60 percent on the rear of the unit and 40 percent on the front of the unit.

REAR CHEVRON STRIPING

At least 50% of the rear facing vertical surface will be covered with alternating strips of reflective striping.

The striping will be 6" Diamond Grade Scotch-Lite.



----- CHASSIS -----

CHASSIS: INTL 4400 SBA 4X2
 CAB: 4 DOOR
 ENGINE: N9 330 HP
 TRANSMISSION: 3000 EVS P
 FRONT AXLE: 14,000#
 REAR AXLE: 26,000#

----- PUMP -----

PUMP: WATEROUS CSU-C20-1500 GPM SINGLE STAGE
 INTAKES
 DRIVER SIDE: 6" & 2-1/2"
 OFFICER SIDE: 6"
 FRONT: N/A
 REAR: N/A
 DISCHARGES
 DRIVER SIDE: (2) 2-1/2"
 OFFICER SIDE: (1) 2-1/2" & (1) 4"
 FRONT: N/A
 REAR: (2) 2, 1/2"
 DECK GUN: (1) 3, 1/2"
 OTHER: (2) 1-3/4" CROSSLAYS
 N/A

----- TANK -----

TANK: POLY
 WATER: 750 GALLONS
 FOAM: N/A
 EXTRA FILLS: N/A
 DUMPS: N/A

----- BODY -----

BODY TYPE: 140" FLEX SHORT
 MATERIAL: 3/16" ALUMINUM
 COMPARTMENTATION
 DRIVER SIDE: FULL HEIGHT/SPLIT DEPTH
 OFFICER SIDE: FULL HEIGHT/SPLIT DEPTH
 HOSEBED
 DIVIDERS: TWO (2) MINIMUM
 HOSE LOAD:

----- MISC. -----

GENERATOR: SMART POWER HR-6 PTO/HYD
 FOAM SYSTEM: N/A

CUSTOMER APPROVAL:

NAME:
 TITLE:
 DATE:

THIS DRAWING IS A GENERAL CONFIGURATION AND MAY NOT NECESSARILY REFLECT ALL CONTRACTUAL REQUIREMENTS. CONTRACT SPECIFICATIONS SHALL PREVAIL OVER DRAWING

A	PROPOSAL		ZZ
SYM	DATE	REVISION DESCRIPTION	APP'D
SALES ENGINEER : T.B.D.			



KOVATCH MOBILE EQUIPMENT
 ONE INDUSTRIAL COMPLEX - NISSAUBOHUNG, PA 16240

DATE: 11/05/2015 SCALE: 1"=24" DWG SIZE: D DRAWN BY: J.J.M. APPROVED BY:

KME COMMERCIAL PUMPER
 FCAM COMMERCIAL MID RANGE
 PROPOSAL



**PROPOSAL FOR A KME
HIGH END COMMERCIAL
CHASSIS PUMPER
MAPC/FCAM 3
2015**



QUOTATION

Metropolitan Area Planning Council
 Lorraine See
 60 TemplePlace
 6th Floor Reception
 Boston, Ma 02111
 617-933-0766

Bulldog Fire Apparatus
 Ken Franks
 17 Winter Street
 Woodville, MA 01784
 508-435-4200
 kfranks@bulldogfa.com

Sales Rep: **Terms:**
 FCAM HIGH END COMMERCIAL PUMPER 2015
 Final Draft MAPC/FCAM-3

Drawing #:
Est. Delivery Date: // **Penalty:**

Customer PO #:
Customer #:
QPF #:

Quote No: 10031-0033
 11/11/2015 13:44:17

PART NO	DESCRIPTION	QTY	ID
QUOTE DATA VERSION: 1014.0150- 2015 DATA SET			
02-00-0060	PROPOSED BY - BULLDOG FIRE APPARATUS	1	KME
04-00-0000	PROPOSED - GENERAL INFORMATION - NFPA 1901	1	KME
04-00-0033	PROPOSED - COMPLETION INFO	1	KME
04-00-0040	PROPOSED - FMVSS CERTIFICATION	1	KME
04-00-0060	PROPOSED - RECORDS	1	KME
04-00-0100	PROPOSED - GENERAL CONSTRUCTION	1	KME
04-00-0120	PROPOSED - SINGLE LINE RESPONSIBILITY	1	KME
04-00-0130	PROPOSED - PRODUCT LIABILITY - \$30,000,000.00	1	KME
04-00-0193	PROPOSED - PAINT PERFORMANCE CERTIFICATION	1	KME
04-00-0490	PROPOSED - PRICES & PAYMENTS	1	KME
04-00-0540	PROPOSED - BOND REQUIREMENTS	1	KME
04-00-0560	PROPOSED - PERFORMANCE BOND	1	KME
04-00-0580	PROPOSED - NON-COLLUSION AGREEMENT	1	KME
04-00-0630	PROPOSED - MATERIAL & WORKMANSHIP	1	KME
04-00-0660	PROPOSED - CONTRACT SPECIALIST	1	KME
04-00-0680	PROPOSED - APPROVAL DRAWING	1	KME
04-00-0820	ACCOMMODATIONS FOR ONE (1) DEALER PERSONNEL	1	DLR
04-00-1200	PROPOSED - DELIVERY	1	KME
04-00-1215	PROPOSED - INSTRUCTION MANUALS, TWO (2) SETS - CD	1	KME
04-00-1215	POWERPOINT DELIVERY - PROPOSAL FCAM	1	DLR
04-00-1300	PROPOSED - VEHICLE FLUIDS PLATE	1	KME
04-00-1320	PROPOSED - PRINCIPAL APPARATUS DIMENSIONS & GVWR	1	KME
04-00-1430	PROPOSED - KME OWNERSHIP	1	KME
04-00-1445	PROPOSED - UNIT BUILT AT HEADQUARTERS	1	KME
04-00-1500	PROPOSED - MANUFACTURE GENERATED EXACT BLUEPRINT WITH BID	1	KME
04-00-1521	PROPOSED - KME and BULLDOG FAMA MEMBERSHIP	1	KME
04-00-1540	PROPOSED - MANUFACTURED IN THE UNITED STATES	1	KME
04-00-1550	PROPOSED - ISO 9001 QUALITY MANAGEMENT SYSTEM	1	KME
04-00-1605	PROPOSED - AMP DRAW REPORT	1	KME
04-00-2465	PROPOSED - UL TESTING OF FOAM SYSTEM	1	KME
07-00-0045	"PUMPER FIRE APPARATUS" NFPA 2009 CHAPTERS OF COMPLIANCE	1	KME
08-00-0000	VEHICLE DATA PLATE DESCRIPTION	1	KME
14-00-0000	NFPA ROLLOVER STABILITY GENERAL STATEMENT	1	KME
AA-00-002A	SERVICE CENTER - PROPOSAL FCAM	1	DLR
AC-05-0170	<2> PUMPER - INTL 4400 SA SBA - 4DR 4X2, 40GVW - 14F/26R	1	KME
AC-05-6800	VEHICLE TOP SPEED - INTERNATIONAL - 2009 NFPA STATEMENT	1	KME
AC-05-6900	INTERNATIONAL SAE J2433 ROLLOVER TESTING	1	KME

PART NO	DESCRIPTION	QTY	ID
AC-05-7100	INT ACC - POWER WINDOWS AND DOOR LOCKS - 4 DOOR CAB	1	KME
AC-05-7150	INT ACC - POLISHED ALUM. FRONT WHEELS - 22.5 X 8.25	1	KME
AC-05-7180	INT ACC - POLISHED ALUM. REAR WHEELS - 22.5 X 8.25 - SA	1	KME
AC-05-7240	INT ACC - ENGINE BRAKE I.P.O. EXHAUST BRAKE	1	KME
AC-05-9040	INT - SIXTEEN (16) INCH FRONT BUMPER EXTENSION	1	KME
AC-05-9050	INT - ONE (1) HOSE WELL AT CENTER OF BUMPER EXT.	1	KME
AC-05-9060	INT - TWO (2) VELCRO STRAPS ON CENTER WELL	1	KME
AC-05-9295	INT - WHEEL TRIM KITS, CHROME BABY MOONS/LUG NUT COVERS - SA	1	KME
AC-05-9340	INT - FUEL LINE SHUT OFF VALVE	1	KME
AC-05-9350	INT - COVER FUEL TANK WITH TREAD PLATE OVERLAY	1	KME
AC-05-9355	INT - COVER BATTERY BOX WITH TREAD PLATE OVERLAY	1	KME
AC-05-9360	INT - COVER OFFICER CAB STEP WITH TREAD PLATE OVERLAY	1	KME
AC-05-9365	INT - COVER DRIVER CAB STEP WITH TREAD PLATE OVERLAY	1	KME
AC-05-9380	INT - CENTER CONSOLE FOR NAVISTAR 4 DOOR - BRUSHED	1	KME
AC-05-9395	INT - INSTALL STANDARD #MATM ANTENNA	1	KME
AC-05-9600	INT - TIRE PRESSURE MONITORING - LED VALVE STEM CAPS - SIX TIRES	1	KME
AC-10-0010	KUSSMAUL AUTO AIR EJECT INLET WITH WATERPROOF KIT	1	KME
AC-10-0070	YELLOW COVER FOR KUSSMAUL AIR-EJECT RECEPTACLE, #091-55YW	1	KME
AC-10-1020	AIR EJECT LOCATION - DRIVER'S STEP WELL	1	KME
BA-06-9327	**** AKRON/WELDON VDR/SEAT BELT SYS. INCLUDED IN INTERNATIONAL CHASSIS SPEC	1	KME
BA-06-9330	AKRON/WELDON VDR DOWNLOAD HARNESS	1	KME
BE-01-0050	COMMERCIAL CHASSIS ELECTRICAL SYSTEM DESCRIPTION	1	KME
BE-01-0200	12 VOLT ELECTRICAL SYSTEM TESTING - ALL UNITS	1	KME
BE-05-0330	DIAMOND LOGIC MULTI-PLEX SYSTEM, INTERNATIONAL CHASSIS ONLY	1	KME
BE-05-0900	CHASSIS DIAGNOSTICS SYSTEM	1	KME
BE-15-1500	BATTERY DISCONNECT SWITCH, ALL UNITS	1	KME
BE-20-1630	120 VOLT 20 AMP SUPER AUTO EJECT FOR BATT CHARGER - COMMERCIAL	1	KME
BE-20-1715	SHORELINE RECEPTACLE LABEL - NFPA	1	KME
BE-20-1720	RED COVER FOR KUSSMAUL AUTO-EJECT RECEPTACLE, #091-55RD	1	KME
BE-20-1760	SHORELINE LOCATION - DRIVER'S STEP WELL	1	KME
BE-20-2020	KUSSMAUL MODEL 1200, 40AMP W/ 120 VAC 125PSI AIR COMP.	1	KME
BE-20-3220	KUSSMAUL AUTO DRAIN ACHP - 120V	1	KME
BF-00-5000	DOOR OPEN INDICATOR W/ INTEGRAL AUDIBLE ALARM	1	KME
BF-01-1060	12 VOLT POWER PORT LOCATED NEAR OFFICER	1	KME
BF-01-3040	ROUND USB CHARGING PORT LOCATED NEAR OFFICER	1	KME
BF-01-6080	12 VOLT POWER AND GROUND CIRCUIT, IN REAR CREW AREA	1	KME
BF-15-3600	OPTIMO REAR VISION/GPS CAMERA SYSTEM, 7.0" COLOR LCD	1	KME
BF-15-4505	REAR VISION MONITOR MOUNTED ON CAB CEILING	1	KME
BG-00-0470	COMMERCIAL CHASSIS MARKER LIGHTS AND REFLECTORS	1	KME
BG-00-1610	TRUCK-LITE MARKER/TURN LIGHTS @ EA SIDE OF BODY	1	KME
BG-00-1660	TRUCK-LITE MARKER LIGHTS @ REAR OF BODY	1	KME
BG-00-1800	TRUCK-LITE DOT AMBER REFLECTORS @ SIDE OF BODY	1	KME
BG-00-1810	TRUCK-LITE DOT RED REFLECTORS @ REAR OF BODY	1	KME
BG-00-2915	TECNIQ #L10 LED LICENSE PLATE LIGHT @ DS REAR OF BODY	1	KME
BG-02-2532	CODE 3, #65 LED BRAKE, REVERSE, & TURN W/ QUAD HOUSING	1	KME
BH-04-1130	BODY STEP LIGHTS, TECNIQ EON 3 LED, ALL DEVICES	2	KME
BH-05-1625	DUNNAGE AREA LIGHTING, TECNIQ EON 3 LED	1	KME
BH-05-2017	UNITY LED SPOTLIGHTS ON REAR BODY STANCHIONS	1	KME
BH-11-0500	NFPA (4) JW SPEAKER LED RECTANGLE GROUND LIGHTS, BELOW CAB DOORS	1	KME
BH-12-5000	HIVIZ FIRETECH 46" BROW LIGHT, 180W12V LED, (1) ABOVE WINDSHIELD	1	KME
BH-14-0022	CONTROL SWITCHES IN CAB FOR LIGHT ABOVE WINDSHIELD - HIVIZ	1	KME
BH-20-0000	WIRE UPGRADE FOR 12V HIGH AMP LIGHT - (1) BROW LIGHT	1	KME
BI-00-0300	PUMPER BODY ELECTRICAL SYSTEM	1	KME
BI-00-0305	PUMPER BODY JUNCTION COMPARTMENT	1	KME
BJ-00-5110	PUMP ENCLOSURE WORK LIGHTS - GROTE LED	1	KME
BJ-00-5160	ENGINE COMPARTMENT WORK LIGHTS - GROTE LED	1	KME
BJ-02-0450	COMPT. LIGHTS, AMDOR LUMA BAR LED LIGHTING - DUAL	7	KME
BL-08-0603	(2) 12 VOLT SPECTRA LED Q15 SURFACE MTD. LIGHTS DRIVER SIDE OF BODY	1	KME
BL-08-0608	(2) 12 VOLT SPECTRA LED Q15 SURFACE MTD. LIGHTS OFFICER SIDE OF BODY	1	KME
BL-08-0613	(2) 12 VOLT SPECTRA LED Q15 SURFACE MTD. LIGHTS REAR OF BODY	1	KME
BL-15-7030	CONTROL SWITCH IN CAB FOR REAR OF BODY LIGHTS	1	KME
BL-15-7035	CONTROL SWITCH ON PUMP PANEL FOR REAR OF BODY LIGHTS	1	KME
BL-15-7040	CONTROL SWITCH IN CAB FOR OFFICER SIDE OF BODY LIGHTS	1	KME
BL-15-7045	CONTROL SWITCH ON PUMP PANEL FOR OFFICER SIDE OF BODY LIGHTS	1	KME
BL-15-7050	CONTROL SWITCH IN CAB FOR DRIVER SIDE OF BODY LIGHTS	1	KME

PART NO	DESCRIPTION	QTY	ID
BL-15-7055	CONTROL SWITCH ON PUMP PANEL FOR DRIVER SIDE OF BODY LIGHTS	1	KME
BL-15-9030	WIRE UPGRADE FOR 12V HIGH AMP LIGHTS - DRIVER SIDE OF BODY	1	KME
BL-15-9040	WIRE UPGRADE FOR 12V HIGH AMP LIGHTS - OFFICER SIDE OF BODY	1	KME
BL-15-9060	WIRE UPGRADE FOR 12V HIGH AMP LIGHTS - REAR OF BODY SURF/REC LIGHTS	1	KME
BL-95-0000	NFPA COMPLIANT WARNING LIGHT PACKAGE - ALL UNITS	1	KME
BL-95-0100	LIGHT PACKAGE ACTUATION/CONTROLS - ALL UNITS	1	KME
BL-98-0000	WARNING LIGHT FLASH PATTERN - NFPA FLASH PATTERN	1	KME
BM-00-0210	CODE 3 UPPER PACKAGE - COMMERCIAL PUMPER	1	KME
BM-02-0082	A-UPPER, CODE 3 LED 2758NFPA P1, RX 2700 58" PRIZM II BAR	1	KME
BM-02-1065	C-UPPER, CODE 3 ARCH LED BEACONS - 1/2 WARNING, 1/2 HOSE BED LIGHT	1	KME
BM-02-2000	B/D-UPPER REAR, COVERED BY LIGHTS IN ZONE C-UPPER	1	KME
BM-02-3000	B/D-UPPER FRONT, COVERED BY LIGHTS IN ZONE A-UPPER	1	KME
BM-07-0210	CODE 3 LOWER PACKAGE - COMMERCIAL PUMPER	1	KME
BM-09-0018	A-LOWER FRONT, CODE 3 65 SERIES LED	1	KME
BM-09-0100	A-LOWER FRONT MOUNTING, COMMERCIAL CHASSIS	1	KME
BM-09-1014	C-LOWER REAR, CODE 3 65 SERIES LED	1	KME
BM-09-2008	B/D-LOWER FRONT, CODE 3 LED X SINGLE SERIES	1	KME
BM-09-2100	B/D-LOWER FRONT MOUNTING, COMMERCIAL CHASSIS	1	KME
BM-09-3006	B/D-LOWER MID, CODE 3 65 SERIES LED	1	KME
BM-09-4006	B/D-LOWER REAR, CODE 3 65 SERIES LED	1	KME
BM-15-0000	LIGHT PACKAGE NFPA CERTIFICATION - ALL UNITS	1	KME
BM-30-1005	CODE 3 LEDX 41" - "NARROW STICK" LIGHT AT REAR OF BODY	1	KME
BW-00-0560	CODE 3, #CA278, BACK-UP ALARM - 87DBA	1	KME
BW-00-5001	DUAL CHROME AIR HORNS (COMMERCIAL)	1	KME
BW-00-5120	DUAL AIR HORNS RECESSED IN FRONT BUMPER, 1-DS & 1-OS	1	KME
BW-00-5200	AIR HORN CTRL - FOOT FOR OFFICER & STEERING WHEEL FOR DRIVER	1	KME
BW-01-0110	SIREN, WHELEN #295LSA1, 100W	1	KME
BW-01-1000	ONE (1) WHELEN SP123BMC SPEAKER	1	KME
BW-02-0002	FEDERAL Q2B SIREN @ CAB FRONT (COMMERCIAL CHASSIS)	1	KME
BW-02-0010	Q2B MOUNT - LOCATED ON TOP OF DRIVER'S SIDE OF BUMPER	1	KME
BW-02-2000	SIREN CONTROL - FLOOR SWITCH, DRIVER AND OFFICER	1	KME
DC-00-2335	WATEROUS CSU-C20-1500 SINGLE STAGE PUMP	1	KME
DC-01-4600	WATEROUS PUMP PACKING	1	KME
DC-01-6210	WATEROUS "C20" PUMP DRIVE UNIT, ALL WATEROUS MID-SHIP PUMPS	1	KME
DC-01-6490	PUMP RATIO (HALE, WATEROUS OR DARLEY)	1	KME
DC-01-8140	WATEROUS - INTERNATIONAL PUMP SHIFT	1	KME
DC-01-9020	TRANSMISSION LOCK-UP (HALE, WATEROUS OR DARLEY)	1	KME
DC-02-1900	PUMP MOUNTS - MID-SHIP PUMPS	1	KME
DC-02-1995	PUMP INSTALLATION - COMMERCIAL	1	KME
DC-05-1226	FIRE RESEARCH "IN CONTROL" TGA-400 PRESSURE GOVERNOR	1	KME
DC-05-1295	TASK FORCE TIPS #A18 SERIES INTAKE RELIEF VALVE	1	KME
DC-05-2500	PUMP UL CERTIFICATION - 750 GPM & UP	1	KME
DC-05-3680	TRIDENT "MANUAL" AIR PRIMING SYSTEM	1	KME
DC-05-5110	ROTARY MASTER DRAIN VALVE	1	KME
DC-05-5400	DRAINS/BLEEDER "INNOVATIVE CONTROLS" LIFT UP @ ALL 1-1/2" OR LARGER	1	KME
DC-05-5500	SYNFLEX SUCTION, DISCHARGE, PRESSURE AND CONTROL LINES	1	KME
DC-10-2202	SIDE MOUNT PUMP MODULE, PUMPER	1	KME
DC-10-2500	PUMP MODULE - STEEL CONSTRUCTION	1	KME
DC-10-2770	SIDE MOUNT DUNNAGE AREA	1	KME
DC-14-3210	WATEROUS MAIN SUCTION INLETS 6" NST, 1500 GPM CSU PUMP	1	KME
DC-14-5300	SHORT NECK MAIN PUMP SUCTION INLETS - DS & OS	1	KME
DC-14-5560	6" NST MAIN PUMP SUCTION PRESSURE VENTED CAPS (2)	1	KME
	HEADER - AUXILIARY SUCTIONS - PUMPER	1	KME
DC-20-1000	2 1/2" AUX. SIDE SUCTION @ DS PANEL TO REAR OF MAIN INLET	1	KME
DC-20-1100	2 1/2" AKRON #8800 S.S. BALL VALVE, DS REAR AUX SUCTION	1	KME
DC-20-1200	SWING CONTROL @ VALVE, DS REAR AUX SUCTION	1	KME
DC-20-9500	BEHIND PANEL MOUNT	1	KME
DC-25-1410	TANK TO PUMP - 3" VALVE - PUMPER	1	KME
DC-25-3110	3" AKRON #8800 SERIES - S.S. BALL, VALVE, TANK TO PUMP	1	KME
DC-25-5110	3" PUSH/PULL CONTROL FOR TANK TO PUMP	1	KME
DC-30-2100	TANK FILL LINE 2" FROM PUMP - SIDE MOUNT	1	KME
DC-30-2300	2" AKRON #8800 SERIES - S.S. BALL TANK FILL, SIDE MOUN	1	KME
DC-30-6500	PUSH/PULL CONTROL FOR TANK FILL	1	KME
	DRIVER'S SIDE #1 MAIN DISCHARGE	1	KME
DC-35-0010	DS MAIN DISCHARGE #1 - SIDE MOUNT	1	KME

PART NO	DESCRIPTION	QTY	ID
DC-35-0110	2 1/2" AKRON #8800 SERIES - S.S. BALL, DS #1, SIDE MOUNT	1	KME
DC-35-1815	DS #1 DISCH - 2 1/2" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-35-2010	2 1/2" NST PRESSURE VENTED CAP - DS DISCHARGE #1	1	KME
DC-35-2410	PUSH/PULL CONTROL FOR DS DISCHARGE #1 -SIDE MOUNT	1	KME
DC-35-3110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DS DISCHARGE #1	1	KME
	DRIVER'S SIDE #2 MAIN DISCHARGE	1	KME
DC-35-5010	DS MAIN DISCHARGE #2 - SIDE MOUNT	1	KME
DC-35-5110	2 1/2" AKRON #8800 SERIES - S.S. BALL, DS #2, SIDE MOUNT	1	KME
DC-35-6815	DS #2 DISCH - 2 1/2" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-35-7010	2 1/2" NST PRESSURE VENTED CAP - DS DISCHARGE #2	1	KME
DC-35-7410	PUSH/PULL CONTROL FOR DS DISCHARGE #2 -SIDE MOUNT	1	KME
DC-35-8110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DS DISCHARGE #2	1	KME
	OFFICER'S SIDE #1 MAIN DISCHARGE	1	KME
DC-39-0010	OS MAIN DISCHARGE #1 - SIDE MOUNT	1	KME
DC-39-0110	2 1/2" AKRON #8800 SERIES - S.S. BALL, OS #1, SIDE MOUNT	1	KME
DC-39-1815	OS #1 DISCH - 2 1/2" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-39-2010	2 1/2" NST PRESSURE VENTED CAP - OS DISCHARGE #1	1	KME
DC-39-2410	PUSH/PULL CONTROL FOR OS DISCHARGE #1 -SIDE MOUNT	1	KME
DC-39-3110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- OS DISCHARGE #1	1	KME
	OFFICER'S SIDE #2 MAIN DISCHARGE	1	KME
DC-39-5010	OS MAIN DISCHARGE #2 - SIDE MOUNT	1	KME
DC-39-5080	**** WATEROUS PUMP LDH DISCHARGE PORT ****	1	KME
DC-39-5130	4" AKRON #8840 VALVE, OS #2, SIDE MOUNT	1	KME
DC-39-6865	OS #2 DISCH - 4" STRAIGHT NST	1	KME
DC-39-7045	DELETE 4" NST CAP - OS DISCHARGE #2	1	KME
DC-39-7315	4" NSTF X 4" STORZ KOCHEK SKE-R 30° ADAPTER WITH CAP OS	1	KME
DC-39-7545	4" AKRON #9323 ELECTRIC VALVE CONTROL FOR OS DISCHARGE #2	1	KME
DC-39-8110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- OS DISCHARGE #2	1	KME
	DRIVER REAR DISCHARGE	1	KME
DC-43-0405	DS REAR DISCHARGE 2 1/2" NST THREADS - PUMPER	1	KME
DC-43-0850	DS REAR DISCHARGE TERMINATE @ DS REAR BODY PANEL	1	KME
DC-43-0915	2 1/2" NST MALE THREADS ON DS REAR DISCHARGE	1	KME
DC-43-1015	DS REAR DISCHARGE, PLUMBING, 2 1/2" STAINLESS STEEL PIPING	1	KME
DC-43-1220	2 1/2" AKRON #8800 SERIES - S.S. BALL, VALVE DS REAR D	1	KME
DC-43-1610	PUSH/PULL 1/4 TURN CONTROL FOR DS REAR DISCHARGE	1	KME
DC-43-2120	2 1/2" NST DS REAR DISCHARGE PRESSURE VENTED CAP	1	KME
DC-43-2510	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DS REAR DIS	1	KME
	OFFICER SIDE REAR DISCHARGE	1	KME
DC-43-4405	OS REAR DISCHARGE 2 1/2" NST THREADS - PUMPER	1	KME
DC-43-4850	OS REAR DISCHARGE TERMINATE @ OS REAR BODY PANEL	1	KME
DC-43-4915	2 1/2" NST MALE THREADS ON OS REAR DISCHARGE	1	KME
DC-43-5015	OS REAR DISCHARGE, PLUMBING, 2 1/2" STAINLESS STEEL PIPING	1	KME
DC-43-5220	2 1/2" AKRON #8800 SERIES - S.S. BALL, VALVE OS REAR DISCHARGE	1	KME
DC-43-5610	PUSH/PULL 1/4 TURN CONTROL FOR OS REAR DISCHARGE	1	KME
DC-43-6120	2 1/2" NST OS REAR DISCHARGE PRESSURE VENTED CAP	1	KME
DC-43-6510	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- OS REAR DIS	1	KME
	DECK GUN DISCHARGE	1	KME
DC-45-0310	DECK GUN DISCHARGE - PUMPER	1	KME
DC-45-0820	DECK GUN DISCH TERMINATE @ CENTER OF DUNNAGE	1	KME
DC-45-0915	3" NPT MALE THREADS ON DECK GUN DISCHARGE	1	KME
DC-45-0950	3" TFT MANUAL EXTEND-A-GUN (18") PIPE - MODEL # XG18**	1	KME
DC-45-1005	DECK GUN DISCHARGE - OVA HEIGHT NOT EXCEED TALLEST POINT	1	KME
DC-45-1125	DECK GUN DISCHARGE, PLUMBING, 3" STAINLESS STEEL PIPING	1	KME
DC-45-1230	3" AKRON #8800 SERIES - S.S. BALL, VALVE DECK GUN DISC	1	KME
DC-45-1610	PUSH/PULL 1/4 TURN CONTROL FOR DECK GUN DISCHARGE	1	KME
DC-45-2210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DECK GUN DISCH	1	KME
DC-45-3200	TFT MODEL #XFC-52 CROSSFIRE MANUAL DECK GUN KIT	1	KME
	FRONT DISCHARGE	1	KME
DC-46-0400	#1 FRONT DISCHARGE 1 1/2" - PUMPER	1	KME
DC-46-0910	1 1/2" NST CHICKSAN SWIVEL @ TOP CNTR FRONT BUMPER #1 DISCHARGE	1	KME
DC-46-1010	#1 FRONT DISCHARGE, PLUMBING, 2" STAINLESS STEEL PIPING	1	KME
DC-46-1210	2" AKRON #8800 SERIES - S.S. BALL, VALVE FRONT #1 DISCHARGE	1	KME
DC-46-1610	PUSH/PULL 1/4 TURN CONTROL FOR FRONT #1 DISCHARGE	1	KME
DC-46-2110	1 1/2" NST FRONT #1 DISCHARGE PRESSURE VENTED CAP	1	KME
DC-46-2210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS - FRONT #1 DISCHARGE	1	KME

PART NO	DESCRIPTION	QTY	ID
	CROSSLAY #1 DISCHARGE	1	KME
DC-47-0600	CROSSLAY #1, 1 1/2" - PUMPER	1	KME
DC-47-1110	CROSSLAY #1 CAPACITY - 200' OF 1 3/4" HOSE	1	KME
DC-47-1410	CROSSLAY #1 - DOUBLE STACK HOSE DESIGN	1	KME
DC-47-1510	1 1/2" NST CHICKSAN SWIVEL - CROSSLAY #1	1	KME
DC-47-2110	CROSSLAY #1, PLUMBING, 2" STAINLESS STEEL PIPING	1	KME
DC-47-2210	2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY #1, DISCH	1	KME
DC-47-2610	PUSH/PULL 1/4 TURN CONTROL CROSSLAY #1	1	KME
DC-47-3210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS - CROSSLAY #1	1	KME
	CROSSLAY #2 DISCHARGE	1	KME
DC-47-5600	CROSSLAY #2, 1 1/2" - PUMPER	1	KME
DC-47-6110	CROSSLAY #2 CAPACITY - 200' OF 1 3/4" HOSE	1	KME
DC-47-6410	CROSSLAY #2 - DOUBLE STACK HOSE DESIGN	1	KME
DC-47-6510	1 1/2" NST CHICKSAN SWIVEL - CROSSLAY #2	1	KME
DC-47-7110	CROSSLAY #2, PLUMBING, 2" STAINLESS STEEL PIPING	1	KME
DC-47-7210	2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY #2,	1	KME
DC-47-7610	PUSH/PULL 1/4 TURN CONTROL CROSSLAY #2	1	KME
DC-47-8210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS - CROSSLAY #2	1	KME
DC-50-6750	LOWERED CROSSLAYS	1	KME
DC-50-7005	FRONT HINGED CROSSLAY HOSE BED COVER,TRDPLT	1	KME
DC-50-7020	VINYL END FLAPS FOR ALUMINUM TRDPLT X-LAY COVER	1	KME
DC-50-7070	END FLAP COVER RED IN COLOR	1	KME
DC-70-108A	FOAM SYSTEM PVC PIPING - 1 INCH FROM FOAM SOURCE TO SYSTEM	1	KME
DC-70-4820	WATEROUS ADVANTUS 3 CLASS "A and/or B" FOAM SYSTEM	1	KME
DC-70-5010	INJECTION SYSTEM PLUMBING - UP TO 500 GPM	1	KME
DC-70-5510	INJECTION SYSTEM DISCHARGE/S - ADVANTUS 3, UP TO 500 GPM	1	KME
DC-70-6110	INJECTION FOAM SYSTEM INSTALLED ON CROSSLAY #1	1	KME
DC-70-6115	INJECTION FOAM SYSTEM INSTALLED ON CROSSLAY #2	1	KME
DC-70-6145	INJECTION FOAM SYSTEM INSTALLED ON FRONT DISCHARGE	1	KME
DC-70-9000	FOAM TANK - 1901 REQUIREMENT	1	KME
DC-80-0005	NO CLASS A FOAM SELECTED	1	KME
DC-80-0205	NO CLASS B FOAM SELECTED	1	KME
DD-65-0710	SIDE MOUNT PUMP PANEL - PUMPER	1	KME
DD-65-4125	SIDE MOUNT PANELS - BLACK LINE-X COATED	1	KME
DD-65-4710	VERTICALLY HINGED GAUGE PANEL - SIDE MOUNT	1	KME
DD-65-4810	OFFICER SIDE VERTICALLY HINGED PUMP ACCESS DOOR - SIDE MOUNT	1	KME
DD-65-5150	PANEL FASTENERS	1	KME
DD-65-5510	CAPS AND ADAPTERS SAFETY TETHER - BALL CHAIN	1	KME
DD-65-8820	PUMP PANEL DISCH./SUCTION TRIM PLATES, HIGH POLISHED	1	KME
DD-65-9000	DISCHARGE GAUGE TRIM BEZELS	1	KME
DD-65-9110	IDENTIFICATION PLATES	1	KME
DD-66-0200	PUMP OPERATOR'S PANEL, FULL WIDTH LIGHT SHIELD/STEP	1	KME
DD-66-0210	AMDOR LUMA BAR H2O SUPER BRIGHT LED - LIGHT SHIELD/STEP	1	KME
DD-66-2300	OS PUMP PANEL, FULL WIDTH LIGHT SHIELD/STEP	1	KME
DD-66-2310	AMDOR LUMA BAR H2O SUPER BRIGHT LED - LIGHT SHIELD/STEP	1	KME
	PUMP OPERATOR'S PANEL - SIDE MOUNT, PUMPER	1	KME
DD-70-2150	AIR HORN CONTROL BUTTON ON PUMP PANEL	1	KME
DD-70-2335	FIRE RESEARCH "IN CONTROL" PRESSURE GOVERNOR CONTROL @ PANEL	1	KME
DD-70-2410	PUMP PRESSURE & VACUUM TEST PORTS @ PANEL	1	KME
DD-70-4120	MASTER PRESSURE & COMPOUND GAUGES - 4" NOMINAL GAUGES	1	KME
DD-70-4130	**** CONSIDER DELETING MASTER GAUGES - IN GOVERNOR DISPLAY ****	1	KME
DD-70-4220	4" INNOVATIVE CONTROLS MASTER PRESSURE AND COMPOUND GAUGES	1	KME
DD-70-4680	PRESSURE & COMPOUND GAUGE RANGES - SINGLE STAGE	1	KME
DD-70-4900	AUXILIARY ENGINE COOLER	1	KME
DD-72-0410	FIRE RES - TANK VISION #WLA300-A00 LED WATER TANK GAUGE - PRIMARY	1	KME
DD-72-1300	FIRE RES WATER LEVEL - 1/4" NPT PRESS TRANS @ BOTTOM TANK	1	KME
DD-74-0410	FIRE RES - TANK VISION #WLA360-A00 LED FOAM GAUGE - TANK "A"	1	KME
DD-74-1300	FIRE RES FOAM LEVEL - 1/4" NPT PRESS TRANS @ BOTTOM TANK "A"	1	KME
DE-15-1000	TANK 1000 GAL POLY - PUMPERS	1	KME
DE-15-5020	INTEGRAL FOAM TANK, 20 GAL. - PUMPER, TANK "A"	1	KME
DE-16-1000	WATER TANK CONSTRUCTION POLY	1	KME
DE-16-2000	WATER TANK LID POLY	1	KME
DE-16-2110	WATER TANK FILL TOWER POLY (TANK CAPACITY 1000-1250)	1	KME
DE-16-3000	WATER TANK 4" OVERFLOW & VENT PIPE	1	KME
DE-16-4000	WATER TANK SUMP	1	KME

PART NO	DESCRIPTION	QTY	ID
DE-16-5000	WATER TANK SUMP CONNECTION; ONE (1) FRONT	1	KME
DE-16-5100	WATER TANK 3" SUMP DRAIN	1	KME
DE-16-6000	WATER TANK FLANGES/OUTLETS - PUMPER	1	KME
DE-16-7000	WATER TANK MOUNTING ALL "T" TANKS - PUMPER	1	KME
JB-02-0100	APPARATUS BODY GENERAL DESCRIPTION (PUMPER)	1	KME
JB-02-0500	COMPARTMENT TOPS (STEPPING SURFACE TOPS)	1	KME
JB-02-0600	DRIP MOLDING (HINGED DOORS)	1	KME
JB-02-0700	REAR BODY PANEL	1	KME
JB-05-0200	BODY MATERIAL: 3/16" ALUMINUM	1	KME
JB-05-0210	BODY SUB FRAME - ALUMINUM	1	KME
JB-10-0100	100" WIDE BODY - 29" DEEP COMPARTMENTS	1	KME
JB-10-1000	64" WIDE FENDER - CUSTOM	1	KME
JB-10-2200	FENDER WITH STORAGE OPTIONS (CUSTOM)	1	KME
JB-10-3030	DRIVER FORWARD FENDER - TRIPLE STORAGE SLOT	1	KME
JB-10-4060	DRIVER REARWARD FENDER - DOUBLE STORAGE SLOT	1	KME
JB-10-5030	OFFICER FORWARD FENDER - TRIPLE STORAGE SLOT	1	KME
JB-10-6030	OFFICER REARWARD FENDER - TRIPLE STORAGE SLOT	1	KME
JB-10-7110	FENDER STORAGE COMPARTMENTS - POLISHED DOORS	1	KME
JB-15-0100	SHORT PUMPER BODY (ACCOMMODATES UP TO 1000 GALLON TANK)	1	KME
JB-15-3130	FLEX SHORT - DS FULL HEIGHT/SPLIT DEPTH	1	KME
JB-16-3130	FLEX SHORT - OS FULL HEIGHT/SPLIT DEPTH	1	KME
JB-17-0100	REAR STEP COMPARTMENT - FULL WIDTH, STANDARD HEIGHT	1	KME
JB-17-0400	REAR STEP COMPARTMENT - FULL SIDE WALLS	1	KME
JB-17-0510	REAR STEP COMPARTMENT - ROLLUP DOOR	1	KME
JB-18-0100	HINGED DOOR BODY	1	KME
JB-20-0240	EXTENDED REAR STEP - 12 D X 100 W - TAPERED ENDS	1	KME
JB-25-0100	STANDARD BED - STANDARD COMPT CAPS (72")	1	KME
JB-25-0300	NFPA MINIMUM HOSEBED CAPACITY	1	KME
JB-25-1000	HOSEBED FLOORING - ALUMINUM SLATS	1	KME
JB-25-1110	TWO (2) - 3/16" ADJUSTABLE HOSEBED PARTITIONS	1	KME
JB-25-1510	HOSEBED COVER - LOCK-N-LOAD SLIDING COVER	1	KME
JB-25-1590	VINYL FLAPS AT REAR EDGE OF TREADPLATE COVER	1	KME
JB-25-1600	HYPALON MATERIAL COLOR - RED	1	KME
TF-10-0600	2" THICK COMPARTMENT DOORS - FLAT RECESSED DOORS	1	KME
TF-10-1900	BRUSHED FINISHED DOOR PANS - 2" THICK DOORS	1	KME
TF-10-2720	DOOR HINGE FOR FLUSH HINGED DOORS	1	KME
TF-10-2820	DOOR SEAL FOR FLUSH HINGED DOORS	1	KME
TF-10-2940	ROTARY LATCHES WITH D-RING HANDLES	1	KME
TF-10-3150	GAS SHOCK ON HORIZONTALLY & VERTICALLY HINGED DOORS	1	KME
TF-10-6005	SWEEP-OUT COMPARTMENTS (NON-AERIALS)	1	KME
TF-11-0610	COATED FASTENERS	1	KME
TF-11-0622	COMPARTMENT LOUVERS (29" DEEP BODIES)	1	KME
TF-11-0640	ACCESS PANELS (29" DEEP BODIES)	1	KME
TF-11-0900	TREAD PLATE OVERLAY, FRONT OF SIDE COMPTS (NON-WRAP AROUND)	1	KME
TF-11-2015	CAST ALUMINUM SIDE MOUNTED REAR STANCHIONS	1	KME
TF-11-3035	BODY RUB RAILS, BRUSHED STAINLESS STEEL	1	KME
TF-12-1005	RUNNING BOARD STEPS (NON-AERIALS)	1	KME
TF-12-5010	INTERMEDIATE REAR STEP, 8" x 48" BOLT-ON	1	KME
TF-13-5190	GRAB RAILS, KNURLED ALUMINUM EXTRUSION	1	KME
TF-13-5200	TWO (2) VERTICAL RAILS ON REAR	1	KME
TF-13-5210	ONE (1) HANDRAIL, BELOW HOSE BED LEVEL	1	KME
TF-13-5260	HANDRAIL ABOVE PUMP PANEL, EACH SIDE	1	KME
TF-13-7370	CAST PRODUCTS CHROME LIGHTED FOLDING STEP(S), BODY FRONT, DS	1	KME
TF-13-7470	CAST PRODUCTS CHROME LIGHTED FOLDING STEP(S), BODY FRONT, OS	1	KME
TF-13-7570	CAST PRODUCTS CHROME LIGHTED FOLDING STEP(S), BODY REAR, DS	1	KME
TF-13-7670	CAST PRODUCTS CHROME LIGHTED FOLDING STEP(S), BODY REAR, OS	1	KME
TF-13-9000	SAFETY SIGNS (NFPA REQUIRED)	1	KME
TF-14-1800	FLEX FENDERETTE/LINER - ONE PIECE	1	KME
TF-14-2100	WHEEL WELL LINERS w/ FENDERETTE (ONE PIECE UNIT) - ALUMINUM	1	KME
TF-14-5000	REAR MUD FLAPS	1	KME
TF-14-6510	PAINTED REAR TOW EYES, BELOW BODY	1	KME
TJ-04-1030	1/2 DEPTH ADJUSTABLE SHELF DESCRIPTION - PUMPER	1	KME
TJ-04-3055	1/2 DEPTH ADJUSTABLE SHELF, DRIVER FRONT COMPARTMENT	1	KME
TJ-04-3060	1/2 DEPTH ADJUSTABLE SHELF, OFFICER FRONT COMPARTMENT	1	KME
TJ-04-3065	1/2 DEPTH ADJUSTABLE SHELF, DRIVER REAR COMPARTMENT	1	KME

PART NO	DESCRIPTION	QTY	ID
TJ-04-3070	1/2 DEPTH ADJUSTABLE SHELF, OFFICER REAR COMPARTMENT	1	KME
TJ-05-1030	ADJUSTABLE SHELF DESCRIPTION - PUMPER	1	KME
TJ-05-3055	ADJUSTABLE SHELF, DRIVER FRONT COMPARTMENT	1	KME
TJ-05-3060	ADJUSTABLE SHELF, OFFICER FRONT COMPARTMENT	1	KME
TJ-05-3065	ADJUSTABLE SHELF, DRIVER REAR COMPARTMENT	1	KME
TJ-05-3070	ADJUSTABLE SHELF, OFFICER REAR COMPARTMENT	1	KME
TJ-10-1030	250#, FLOOR MOUNTED, ROLLOUT TRAY DESCRIPTION - PUMPER	1	KME
TJ-10-1230	ROLLOUT TRAY, REAR STEP COMPARTMENT	1	KME
TL-03-0000	120/240 VOLT ELECTRICAL SYSTEM TESTING	1	KME
TL-05-2000	SMART POWER PTO/HYD GEN, HR-6 SERIES, 6200 WATT	1	KME
TL-05-2900	SMART POWER HOT SHIFT PTO	1	KME
TL-05-7100	WARRANTY - SMART POWER HR 6-30 PTO/HYD GENERATORS	1	KME
TL-08-9990	UL LINE VOLTAGE TESTING	1	KME
TL-09-1110	GEN LOCATION OFFICER SIDE ABOVE PUMP ENCLOSURE -PUMPER	1	KME
TL-10-1100	TWELVE (12) SPACE, 125 AMP MAIN LUG LOAD CENTER	1	KME
TL-10-2045	TEN (10) STANDARD BREAKERS	1	KME
TL-10-5040	LOCATE BREAKER PANEL DRIVER SIDE FRONT COMPARTMENT	1	KME
TL-15-1000	120 & 240 VOLT WIRING METHODS	1	KME
TL-20-1010	ONE (1) HANNAY #ECR-1618-17-18, 120 VOLT ELECTRIC CORD REEL	1	KME
TL-20-2000	CORD REEL LOCATION DRIVER SIDE ABOVE PUMP ENCLOSURE	1	KME
TL-20-2400	CIRCUIT BREAKER REQUIREMENTS FOR CORD REELS	1	KME
TL-20-2455	REWIND SWITCH - ON COMPARTMENT WALL	1	KME
TL-20-2510	STAINLESS STEEL, 4 WAY ROLLER ASSEMBLY	1	KME
TL-20-2550	BALL STOP ON END OF CABLE	1	KME
TL-20-2745	200' OF 10/3 YELLOW CABLE FOR ONE (1) 120 VOLT REEL	1	KME
TL-20-4650	AKRON (20 TWIST) ELEC J-BOX END OF CABLE	1	KME
TL-20-8200	ALUMINUM TREAD PLATE JUNCTION BOX HOLDER, PER EACH	1	KME
TN-00-9500	SIDE OF WATER TANK LADDER STORAGE (OFFICER SIDE)	1	KME
TN-01-2050	ALCO-LITE LADDER COMPLIMENT	1	KME
TN-02-1170	ALCO-LITE PEL-24 24' 2-SECTION EXTENSION LADDER (ALUM)	1	KME
TN-02-2515	ALCO-LITE PRL-14 14' ROOF LADDER W/FOLDING HOOKS (ALUM)	1	KME
TN-02-8010	ALCO-LITE FL-10 10' FOLDING ATTIC LADDER (ALUM)	1	KME
TN-10-0520	PIKE POLE TUBE(S) - PUMPERS	1	KME
TN-10-0730	LOCATION PIKE POLE TUBE(S) - IN LADDER STORAGE COMPARTMENT	1	KME
TN-15-0525	SUCTION HOSE STORAGE SIDE OF BODY (1-OFFICER, 1-DRIVER)	1	KME
TN-15-1005	SUCTION HOSE TROUGH	2	KME
TN-15-2235	TWO (2) 10' SECTIONS OF 6" LIGHTWEIGHT SUCTION HOSE	1	KME
TN-15-3500	SAFETY NOTE FOR PVC SUCTION HOSE	1	KME
TN-16-0210	6" NST, RED HEAD BARREL STRAINER W/MTG BKT	1	KME
TN-16-2000	DELETE HYDRANT ADAPTER	1	KME
TN-20-0005	ADDITIONAL ITEMS SHIPPED WITH VEHICLE, ALL NON-AERIALS	1	KME
UA-00-1100	GENERAL PAINT DESCRIPTION - ALL	1	KME
UA-00-1270	GENERAL PRIMER & PREP DESCRIPTION - PUMPER	1	KME
UA-00-1470	GENERAL FINISH PAINT DESCRIPTION - PUMPER	1	KME
UA-00-2755	BODY BUFFING & FINISH - PUMPER	1	KME
UA-03-0150	INSIDE/UNDERSIDE BODY PAINTED BLACK - PUMPER	1	KME
UA-03-0650	LINE-X COMPARTMENT INTERIORS - PUMPER	1	KME
UA-03-0685	LIGHT GRAY LINE-X COMPARTMENT COLOR	1	KME
UA-03-0950	SINGLE COLOR BODY PAINT SCHEME - PUMPER	1	KME
UA-03-2120	PUMPHOUSE & PLUMBING PAINTED BLACK - PUMPER	1	KME
UA-03-3030	FENDER COMPARTMENT INTERIOR - LIGHT GRAY LINE-X	1	KME
UA-04-0133	INTL 4-DR TWO TONE AS APPROVED BY CHASSIS MFG.	1	KME
UA-04-0640	COMMERCIAL CAB PAINT FINISH - INTERNATIONAL	1	KME
UA-04-0700	COMMERCIAL CHASSIS WHEEL AND HUB PAINT - AS PROVIDED	1	KME
UA-06-2200	PINT OF TOUCH-UP PAINT	1	KME
UA-06-2535	FINALIZATION & DETAILING - PUMPER	1	KME
UA-06-2850	RUSTPROOFING WARRANTY, TEN (10) YEAR	1	KME
UA-12-1200	GOLDLEAF W/ DROP SHADOW LETTERING ON FRONT CAB DOORS	1	DLR
UA-12-1255	CUSTOM LETTERING ON FRONT CAB DOORS	1	DLR
UA-12-1740	GOLDLEAF W/ DROP SHADOW LETTERING ON CREW CAB DOORS	1	DLR
UA-12-1795	CUSTOM LETTERING ON CREW CAB DOORS	1	DLR
UA-12-2600	SCOTCH-CAL W/O DROP SHADOW LETTERING ON FRONT BUMPER	1	DLR
UA-12-2700	GOLDLEAF W/ DROP SHADOW LETTERING ON FRONT OF CAB	1	DLR
UA-12-2755	CUSTOM LETTERING ON FRONT BUMPER	1	DLR
UA-12-3600	SCOTCH-CAL W/O DROP SHADOW LETTERING ON REAR COMPARTMENT DOOR	1	DLR



Amps/Weight Report

Metropolitan Area Planning Council
 Lorraine See
 60 TemplePlace
 6th Floor Reception
 Boston, Ma 02111
 617-933-0766

Bulldog Fire Apparatus
 Ken Franks
 17 Winter Street
 Woodville, MA 01784
 508-435-4200
 kfranks@bulldogfa.com

Quote No: 10031-0034
1 MODEL: 00DEVICE22 COMMERCIAL PUMPER
2 LETTER: LETTER 21 LETTERING & STRIPING, PUMPER
3 COMP ACC: 000COMP006 COMPARTMENT ACCESSORIES PUMPER
4 AC/ELEC: 000AC022 COMMERCIAL PUMPER GEN/ELEC AC
6 WARRANTY: WARNTY-08 COMMERCIAL PUMPER WARRANTY PACKAGE
SPECIAL: 00000001 SPECIAL, QUOTE OVERRIDE
DEALER: Dealer Parts

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PART NO	S	DESCRIPTION	QTY	RESP	SCENE	IT
AC-05-0170	X	<2> PUMPER - INTL 4400 SA SBA - 4DR 4X2, 40GVW - 14F/26R	1	39.00	33.00	0.00
AC-05-7100		INT ACC - POWER WINDOWS AND DOOR LOCKS - 4 DOOR CAB	1	0.00	0.00	3.00
BF-00-5000		DOOR OPEN INDICATOR W/ INTEGRAL AUDIBLE ALARM	1	0.00	0.00	1.00
BG-00-1610		TRUCK-LITE MARKER/TURN LIGHTS @ EA SIDE OF BODY	1	0.60	0.20	0.00
BG-00-1660		TRUCK-LITE MARKER LIGHTS @ REAR OF BODY	1	0.30	0.30	0.00
BG-00-2915		TECNIQ #L10 LED LICENSE PLATE LIGHT @ DS REAR OF BODY	1	0.10	0.10	0.00
BG-02-2532		CODE 3, #65 LED BRAKE, REVERSE, & TURN W/ QUAD HOUSING	1	3.00	2.00	0.00
BH-04-1130		BODY STEP LIGHTS, TECNIQ EON 3 LED, ALL DEVICES	2	0.00	0.40	0.00
BH-05-1625		DUNNAGE AREA LIGHTING, TECNIQ EON 3 LED	1	0.00	0.20	0.00
BH-05-2017		UNITY LED SPOTLIGHTS ON REAR BODY STANCHIONS	1	0.00	0.00	5.00
BH-11-0500		NFPA (4) JW SPEAKER LED RECTANGLE GROUND LIGHTS, BELOW CAB DOORS	1	0.00	5.20	0.00
BH-12-5000		HIVIZ FIRETECH 46" BROW LIGHT, 180W12V LED, (1) ABOVE WINDSHIELD	1	0.00	15.00	0.00
BJ-00-5110		PUMP ENCLOSURE WORK LIGHTS - GROTE LED	1	0.00	0.00	1.20
BJ-00-5160		ENGINE COMPARTMENT WORK LIGHTS - GROTE LED	1	0.00	0.00	1.20
BJ-02-0450		COMPT. LIGHTS, AMDOR LUMA BAR LED LIGHTING - DUAL	7	0.00	9.80	0.00
BL-08-0603		(2) 12 VOLT SPECTRA LED Q15 SURFACE MTD. LIGHTS DRIVER SIDE OF BODY	1	0.00	26.00	0.00
BL-08-0608		(2) 12 VOLT SPECTRA LED Q15 SURFACE MTD. LIGHTS OFFICER SIDE OF BODY	1	0.00	26.00	0.00
BL-08-0613		(2) 12 VOLT SPECTRA LED Q15 SURFACE MTD. LIGHTS REAR OF BODY	1	0.00	26.00	0.00
BM-02-0082		A-UPPER, CODE 3 LED 2758NFPA P1, RX 2700 58" PRIZM II BAR	1	10.00	10.00	0.00
BM-02-1065		C-UPPER, CODE 3 ARCH LED BEACONS - 1/2 WARNING, 1/2 HOSE BED LIGHT	1	7.50	7.50	0.00
BM-09-0018		A-LOWER FRONT, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-1014		C-LOWER REAR, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-2008		B/D-LOWER FRONT, CODE 3 LED X SINGLE SERIES	1	0.40	0.40	0.00
BM-09-3006		B/D-LOWER MID, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-4006		B/D-LOWER REAR, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-30-1005		CODE 3 LEDX 41" - "NARROW STICK" LIGHT AT REAR OF BODY	1	4.00	4.00	0.00
BW-00-0560		CODE 3, #CA278, BACK-UP ALARM - 87DBA	1	0.00	0.00	0.50
BW-00-5001		DUAL CHROME AIR HORNS (COMMERCIAL)	1	0.20	0.00	0.00
BW-01-0110		SIREN, WHELEN #295SLSA1, 100W	1	9.00	0.00	0.00
BW-02-0002		FEDERAL Q2B SIREN @ CAB FRONT (COMMERCIAL CHASSIS)	1	0.00	0.00	100.0
DC-05-1226		FIRE RESEARCH "IN CONTROL" TGA-400 PRESSURE GOVERNOR	1	2.00	2.00	0.00
DC-39-7545		4" AKRON #9323 ELECTRIC VALVE CONTROL FOR OS DISCHARGE #2	1	0.00	0.00	6.00
DC-70-4820		WATEROUS ADVANTUS 3 CLASS "A and/or B" FOAM SYSTEM	1	0.00	45.00	0.00
DD-66-0210		AMDOR LUMA BAR H2O SUPER BRIGHT LED - LIGHT SHIELD/STEP	1	0.00	1.00	0.00
DD-66-2310		AMDOR LUMA BAR H2O SUPER BRIGHT LED - LIGHT SHIELD/STEP	1	0.00	1.00	0.00
DD-72-0410		FIRE RES - TANK VISION #WLA300-A00 LED WATER TANK GAUGE - PRIMARY	1	0.20	0.20	0.00
DD-74-0410		FIRE RES - TANK VISION #WLA360-A00 LED FOAM GAUGE - TANK "A"	1	0.20	0.20	0.00
TF-13-7370		CAST PRODUCTS CHROME LIGHTED FOLDING STEP(S), BODY FRONT, DS	1	0.00	0.60	0.00
TF-13-7470		CAST PRODUCTS CHROME LIGHTED FOLDING STEP(S), BODY FRONT, OS	1	0.00	0.60	0.00
TF-13-7570		CAST PRODUCTS CHROME LIGHTED FOLDING STEP(S), BODY REAR, DS	1	0.00	0.60	0.00
TF-13-7670		CAST PRODUCTS CHROME LIGHTED FOLDING STEP(S), BODY REAR, OS	1	0.00	0.60	0.00
TL-05-2000		SMART POWER PTO/HYD GEN, HR-6 SERIES, 6200 WATT	1	0.00	22.00	0.00
TL-20-1010		ONE (1) HANNAY #ECR-1618-17-18, 120 VOLT ELECTRIC CORD REEL	1	0.00	0.00	36.00
Totals				80.50	243.9	153.9



PROPOSAL

Bulldog Fire Apparatus is pleased to offer the proposed vehicle to meet the intent of the fire department specifications. KME Fire Apparatus is a leading manufacturer in custom and commercial fire fighting vehicles.

Questions or concerns pertaining to this proposal can be answered by contacting the following KME representative:

Jeff Mazza
Bulldog Fire Apparatus
PO Box 58
17 Winter Street
Woodville, MA 01784

Phone: (877) 644-2707 / (508) 435-4054
Fax: (508) 435-0250

Email: jmazza@bulldogfa.com
Web: www.bulldogfireapparatus.com

GENERAL INFORMATION

The proposed apparatus will be constructed to withstand the severe and continuous use encountered during emergency fire fighting services. The apparatus will be of the latest type, carefully designed and constructed with due consideration to the nature and distribution of the load to be sustained.

The proposed chassis will be certified by KME as conforming to all applicable Federal Motor Vehicle Safety Standards (FMVSS) in effect at the date of contract.

KME will be responsible for preparing and maintaining a record file of parts and assemblies used to manufacture the proposed apparatus. These records will be maintained in KME's factory for a minimum of twenty (20) years. The purchaser will have access to any and all documents contained in this file upon official written request.

GENERAL CONSTRUCTION

The proposed apparatus, assemblies, subassemblies, component parts, etc., will be designed and constructed with the due consideration to the nature and distribution of the load to be sustained and to the general character of the service to which the apparatus is subjected to when placed in service. All parts of the apparatus will be designed with a factor of safety, which is equal to or greater than that which is considered standard and acceptable for this class of equipment in fire fighting service. All parts of the proposed apparatus will be strong enough to withstand general service under full load. The apparatus will be so designed that the various parts are readily accessible for lubrication, inspection, adjustment and repair.

PRODUCT LIABILITY INSURANCE

KME provides liability and facility insurance equaling \$30,000,000.00, which is one of the highest available in the fire industry. Reference attached documentation.

PRICES AND PAYMENTS

The bid price will be F.O.B. Destination, on a delivered and accepted basis at the Fire Department.

Total price on KME's proposal sheet will include all items listed in these specifications.

BOND REQUIREMENTS

KME's bonding company will meet the following requirements:



- an acceptable surety as outlined by the United States Department of Treasury on their most recent Federal Register at a limit of at least \$10,000,000;
- A.M. Best rating of "A" or better with a financial rating of at least "VIII"; and licensed as a surety in the Commonwealth of Massachusetts.

PERFORMANCE BOND

A performance bond will be supplied by the KME upon acceptance of the signed sales contract for the apparatus. The performance bond will be for an amount equal to the full contract price (i.e. 100% bond).

NON-COLLUSIVE BIDDING CERTIFICATION

By submission of this bid, KME and each person signing on behalf of KME certifies, under penalty of perjury, that to the best of their knowledge and belief:

- The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for purpose of restricting competition, as to any matter relating to sell prices with any other bidder or any competitor.
- Unless otherwise required by law, the prices that have been quoted in this bid have not been knowingly disclosed by KME and will not knowingly be disclosed by KME prior to opening, directly or indirectly, to any other bidder or to any competitor
- No attempt has been made by KME to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition.
- That all requirements of the law including amendatory provisions as to non-collusive bidding have been complied with.

MATERIAL AND WORKMANSHIP

All equipment furnished will be guaranteed to be new and of current manufacture, to meet all requirements of purchaser's specifications.

CONTRACT SPECIALIST

KME will designate an in house individual to perform KME's contract specialist functions.

APPROVAL DRAWING

A detailed drawing of the apparatus will be provided to the Metropolitan Area Planning Council for approval before construction begins.

INSPECTION VISITS

Provision has been made in this proposal for one (1) KME representative to make one (1) factory inspection trip to KME's facility.

DELIVERY

A qualified and responsible representative of KME will deliver the apparatus to the Fire Department.

INSTRUCTION MANUALS/DRAWINGS, SCHEMATIC

KME will supply at time of delivery, two (2) CD copies of a complete operation and service manual covering the complete apparatus as delivered and accepted.

DELIVERY AND FAMILIARIZATION

Upon delivery a KME certified delivery engineer will come to the Fire Department to demonstrate the unit to the Department and familiarize Department personnel with the apparatus. there will be an **AS BUILT** PowerPoint presentation of the specific apparatus as delivered, that covers each and every control and feature of the unit. The



program will be delivered to each Department shift and maintenance personnel as the Department may request. A copy of the PowerPoint program, will be provided to the Department for future use.

VEHICLE FLUIDS PLATE

As required by NFPA-1901, KME will affix a permanent plate in the driver's compartment specifying the quantity and type of the following fluids used in the vehicle:

KME PROPOSED DIMENSIONS:

- OVERALL LENGTH: 371"
- OVERALL WIDTH: 100"
- OVERALL HEIGHT: 113.5"
- WHEELBASE: 222"
- MINIMUM FRONT G.A.W.R.: 14,000 lbs.
- MINIMUM REAR G.A.W.R.: 26,000 lbs.
- MINIMUM TOTAL G.V.W.R.: 40,000 lbs.

KME will include the principal dimensions, front G.A.W.R., rear G.A.W.R., and total G.V.W.R. of the proposed apparatus.

PRIMARY PLANT CONSTRUCTION

In order to insure top quality construction, maximum assembly line and engineering communication and the highest level of manufacturing supervision the entire apparatus will be built at KME's (headquarters) manufacturing facility in Nesquehoning, PA.

QUALITY MANAGEMENT

KME is certified ISO 9001 at all company locations.

AMP DRAW REPORT

KME will provide with their bid proposal and at the time of delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

FOAM PROPORTIONING SYSTEM CERTIFICATION

When the unit successfully meets all the requirements outlined in NFPA 1901, 2009 Edition, UL will issue a Certificate of Automotive Fire Apparatus Examination and Test stating the unit's compliance with the required foam proportioning section of NFPA.

GENERAL APPARATUS DESCRIPTION "PUMPER"

The unit will be designed to conform fully to the "Pumper Fire Apparatus" requirements as stated in the NFPA 1901 Standard (2009 Revision)

CHASSIS DATA LABELS

Data labels will be provided as required by NFPA 1901.

ROLLOVER STABILITY

The apparatus will meet the criteria defined in 4.13.1 for rollover stability as defined in the 2009 NFPA Standard for Automotive Fire Apparatus.

KME REGIONAL SERVICE CENTER



The KME New England Regional Service Center is Bulldog Fire Apparatus of Hopkinton, Massachusetts. This location is about 26 miles West of Boston, near the intersection of Interstate 495 and the Mass Pike. The center is totally dedicated to the service of fire apparatus and fire apparatus only and is fully authorized by KME to conduct all levels of repair and service. The capabilities of the service center include:

- Authorized pump service for both Hale and Waterous
- Full hydraulic service
- Full 12 volt electrical service to include multiplexed systems
- Full 120/240 volt service
- Full chassis and running gear service
- Complete body shop and paint facility which includes:
 - 50 foot environmentally certified, heated and humidity controlled down draft paint booth
 - Full time body shop and paint staff
 - Secured paint storage area
 - Computer operated paint color matching and mixing system
- Metal fabrication center which includes:

- 10 x 12 shear, press brake, Apron Brake, Finger brake

Modern MIG, TIG welding equipment, Plasma cutter, Machining center, Pump and piping center, Parts Department and 6 EVT Certified Mechanics

Bulldog maintains a 15 service bay indoor shop with an area of approximately 25,000 square feet (which includes sufficient indoor heated space to permit the storage of the Fire Department's apparatus inside whenever in the center's possession). No outside storage is permitted at Bulldog. The center provides a full time staff of experienced technicians with all of the required equipment to provide modern, accurate and efficient service. The Center may be reached at our email address of pmazza@bulldogfa.com or by phone (877) 644-2707.

The staff includes five six (6) EVT level II technicians, two (2) Commonwealth licensed Motor Vehicle Damage Appraisers and three (3) road service vehicles. The Bulldog service center offers same day turn around for scheduled maintenance and part delivery within 24 hours.

In addition, KME maintains full factory service centers in Latham, New York (near Albany) - (800) 394-5593 and at the factory in Nesquehoning, PA.

CHASSIS

Base Chassis, Model 4400 SBA 4X2 with 205.00 Wheelbase, 94.00 CA, and 75.00 Axle to Frame.

FRAME RAILS Heat Treated Alloy Steel (120,000 PSI Yield); 10.375" x 3.705" x 0.438"
BUMPER, FRONT Full Width, Aerodynamic, Chrome Plated Steel; 0.142" Material Thickness

AXLE, FRONT NON-DRIVING {Meritor MFS-14-143A} Wide Track, I-Beam Type, 14,000-lb Capacity

SPRINGS, FRONT AUXILIARY Rubber

SUSPENSION, FRONT, SPRING Parabolic, Taper Leaf; 14,000-lb Capacity; With Shock Absorbers

Includes

BRAKE SYSTEM, AIR Dual System for Straight Truck Applications

: GAUGE, AIR PRESSURE (2) Air 1 and Air 2 Gauges; Located in Instrument Cluster

: PARKING BRAKE CONTROL Yellow Knob, Located on Instrument Panel

: SLACK ADJUSTERS, FRONT Automatic

: SLACK ADJUSTERS, REAR Automatic

AIR BRAKE ABS {Bendix AntiLock Brake System} Full Vehicle Wheel Control System (4-Channel)

AIR DRYER {Bendix AD-9} With Heater

BRAKE CHAMBERS, FRONT AXLE {Bendix} 20 SqIn

BRAKE CHAMBERS, REAR AXLE {Bendix EverSure} 30/30 Spring Brake

BRAKES, FRONT, AIR CAM S-Cam; 16.5" x 5.0"; Includes 20 Sq. In.

BRAKES, REAR, AIR CAM S-Cam; 16.5" x 7.0"; Includes 30/30 Sq.In. Spring Actuated Parking Brake

AIR COMPRESSOR {Bendix Tu-Flo 750} 16.5 CFM Capacity



STEERING COLUMN Tilting and Telescoping
STEERING GEAR {Sheppard HD94} Power

EXHAUST SYSTEM Switchback Horizontal Aftertreatment Device, Frame Mounted Right Side Under Cab; for use with Single Long Horizontal Tail Pipe, Frame Mounted Right Side Back of Cab

ENGINE COMPRESSION BRAKE for Navistar N9/10 I6 Engines; Electronically Activated

TAIL PIPE Horizontal, Exits Right Side Outside of Body, At Rear Wheels

SWITCH, FOR EXHAUST 3 Position, Momentary, Lighted Momentary, ON/CANCEL, Center Stable.
ELECTRICAL SYSTEM 12-Volt, Standard Equipment

Includes

- : DATA LINK CONNECTOR For Vehicle Programming and Diagnostics In Cab
- : HAZARD SWITCH Push On/Push Off, Located on Top of Steering Column Cover
- : HEADLIGHT DIMMER SWITCH Integral with Turn Signal Lever
- : JUMP START STUD Located on Positive Terminal of Outermost Battery
- : PARKING LIGHT Integral with Front Turn Signal and Rear Tail Light
- : STARTER SWITCH Electric, Key Operated
- : STOP, TURN, TAIL & B/U LIGHTS Dual, Rear, Combination with Reflector
- : WINDSHIELD WIPER SWITCH 2-Speed with Wash and Intermittent Feature (5 Pre-Set Delays),: WINDSHIELD WIPERS Single Motor, Electric, Cowl Mounted
- : WIRING, CHASSIS Color Coded and Continuously Numbered

POWER SOURCE Cigar Type Receptacle without Plug and Cord

ALTERNATOR {Leece-Neville 14931PAH} Brush Type, 12 Volt 320 Amp. Capacity, Pad Mount

BATTERY SYSTEM {International} Maintenance-Free, (3) 12-Volt 1950CCA Total

RADIO AM/FM/WB/Clock/3MM Auxiliary Input, with Multiple Speakers, With CD Player

DATA RECORDER/SEATBELT INDICATOR Includes Display Mounted in Overhead Console

STOP-LIGHT WIRING MODIFIED Stop-Lights Turned on When Engine Compression Brake is Activated

ALTERNATOR PULLEY 2.4" Diameter for Increased Alternator Output at Idle; for Fire Truck Application

SOLENOID, AIR for Customer Use; Provides (2) Normally Closed Pilot Air Source, Approx. 4 CFM, Includes Latched Switch in Cab; Air Available Only With Key in "Ignition" or "Accessory" Position; Air Will Exhaust with Key in "Off" Position

WINDSHIELD WIPER SPD CONTROL Force Wipers to Slowest Intermittent Speed When Park Brake Set and Wipers Left on for a Predetermined Time

HEADLIGHTS Halogen; Composite Aero Design for Two Light System; Includes Daytime Running Lights

CLEARANCE/MARKER LIGHTS (5) {Truck Lite} Amber LED Lights, Flush Mounted on Cab or Sunshade

HEADLIGHTS ON W/WIPERS Headlights Will Automatically Turn on if Windshield Wipers are turned on

STARTING MOTOR {Delco Remy 39MT} 12 Volt; Gear Reduced, With Thermal Over-Crank Protection

INDICATOR, LOW COOLANT LEVEL With Audible Alarm

INDICATOR, BATTERY WARNING Green BATTERY ON Indicator.

CIRCUIT BREAKERS Manual-Reset (Main Panel) SAE Type III With Trip Indicators.

TURN SIGNALS, FRONT LED, Includes LED Side Marker Lights, Mounted on Fender



BATTERY DISCONNECT SWITCH for Cab Power Loads, Cab Mounted, Disconnects Door Power, Dome Lights and Auxiliary Power; Locks with Padlock

GRILLE Chrome
FRONT END Tilting, Fiberglass, With Three Piece Construction

GRILLE EMBER SCREEN Mounted to Grille and Cowl Tray to Keep Hot Embers out of Engine

PAINT SCHEMATIC, PT-1 Single Color, Design 100

PAINT IDENTITY, PT-2 Single Color, Instruction No. 932. Wheels

PAINT TYPE Base Coat/Clear Coat, 1-2 Tone

KEYS - ALL ALIKE Fleet - Includes Ignition and Cab Door Keys

ENGINE, DIESEL {Navistar N9} EPA 2010, SCR, 330 HP @ 2000 RPM, 950 lb-ft Torque @ 1200 RPM, 2200 RPM Governed Speed, 330 Peak HP (Max)

: ANTI-FREEZE Red Extended Life Coolant; -40 Degrees F/ -40 Degrees C;
: COLD STARTING EQUIPMENT Intake Manifold Electric Grid Heater with Engine ECM Control
: CRUISE CONTROL Electronic; Controls Integral to Steering Wheel
: ENGINE OIL DRAIN PLUG Magnetic
: ENGINE SHUTDOWN Electric, Key Operated
: FUEL FILTER Included with Fuel/Water Separator
: FUEL/WATER SEPARATOR Fuel/Water Separator and Fuel Filter in a Single Assembly;
: OIL FILTER, ENGINE Spin-On Type

FAN DRIVE {Horton Drivemaster} Direct Drive Type, Two Speed With Residual Torque Device

RADIATOR Aluminum; 2-Row, Cross Flow, Over Under System, 1045 SqIn Louvered, With 373 SqIn CAC, With In Tank Oil Cooler

FEDERAL EMISSIONS EPA, OBD and GHG Certified for Calendar Year 2015; N9 & N10 Engines

THROTTLE, HAND CONTROL Engine Speed Control for PTO; Electronic, Stationary Pre-Set, Two Speed Settings;

ENGINE CONTROL, REMOTE MOUNTED Provision for; Includes Wiring for Body Builder Installation of PTO Controls; With Ignition Switch Control

ENGINE WATER COOLER {Sen-Dure} Auxiliary, For Use With Fire Trucks

EMISSION COMPLIANCE Engine Shutdown System Exempt Vehicles

TRANSMISSION, AUTOMATIC {Allison 3000EVS_P} 5th Generation Controls; Close Ratio, 5-Speed; With Overdrive, Includes Oil Level Sensor, With Provision for PTO.

TRANSMISSION SHIFT CONTROL {Allison} Push-Button Type; for Allison 3000 & 4000 Series

TRANSMISSION OIL Synthetic; 29 thru 42 Pints

ALLISON SPARE INPUT/OUTPUT for Emergency Vehicle Series (EVS), 127/198 Includes J1939 Based Auto Neutral; Fire/Pumper

AXLE, REAR, SINGLE {Dana Spicer S26-190} Single Reduction, 26,000-lb Capacity, R Wheel Ends.

SUSPENSION, RR, SPRING, SINGLE Vari-Rate; 31,000-lb Capacity, With 4500 lb Auxiliary Spring

FUEL TANK Top Draw; D Style, Non Polished Aluminum, 19" Deep, 50 U.S. Gal.

DEF TANK 7 U.S. Gal. Capacity.

CAB Conventional 6-Man Crew Cab

: CLEARANCE/MARKER LIGHTS (5) Flush Mounted



: CUP HOLDERS Two Cup Holders, Located in Lower Center of Instrument Panel
: DOME LIGHT, CAB Rectangular, Door Activated and Push On-Off at Light Lens,
: GLASS, ALL WINDOWS Tinted
: GRAB HANDLE, CAB INTERIOR (1) "A" Pillar Mounted, Passenger Side
: GRAB HANDLE, CAB INTERIOR (2) Front of "B" Pillar Mounted, One Each Side
: GRAB HANDLE, CAB INTERIOR (4) Two Each Side, Rear Door Mounted at Hinge Side and "C" Pillar Mounted
: STEP (8) Two Steps Per Door

GRAB HANDLE, CAB INTERIOR (4) Safety Yellow, Crew Cab

GAUGE CLUSTER English With English Electronic Speedometer
: GAUGE CLUSTER (5) Engine Oil Pressure, Water Temperature , Fuel, Tachometer, Voltmeter
: ODOMETER DISPLAY, Miles, Trip Miles, Engine Hours, Trip Hours, Fault Code Readout
: WARNING SYSTEM Low Fuel, Low Oil Pressure, High Engine Coolant Temp, and Low Battery Voltage

SEATBELT WARNING PREWIRE Includes Seat Belt Switches and Seat Sensors for all Belted Positions.
GAUGE, OIL TEMP, ALLISON TRAN

GAUGE, AIR CLEANER RESTRICTION {Filter-Minder} With Black Bezel Mounted in Instrument Panel

IP CLUSTER DISPLAY On Board Diagnostics Display of Fault Codes in Gauge Cluster

GAUGE, DEF FLUID LEVEL

SEAT, DRIVER {Seats, Inc. Universal Series} 911, NFPA Compliant, Air Suspension.
SEAT, REAR {Seats, Inc. Universal Series} 911, NFPA Compliant, Three Individual Seats on one Riser, Non-Suspension, High Back for SCBA,
SEAT, PASSENGER {Seats, Inc. Universal Series} 911, NFPA Compliant, Non-Suspension, High Back for SCBA,

GRAB HANDLE (2) Chrome Towel Bar Type With Anti-Slip Rubber Inserts; for Cab Entry, Mounted Left and Right, Each Side at "B" Pillar

GRAB HANDLE, ADDITIONAL EXT (2) Chrome; Towel Bar Type With Anti-Slip Rubber Inserts; Mounted Left and Right Side on Exterior Rear of Rear Doors, With Crew Cab

MIRRORS (2) {Lang Mekra} Rectangular, Power Both Sides, Thermostatically Controlled Heated Heads, LED Clearance Lights.

ACCESS, CAB Driver & Passenger Sides, With Two Temporary Steps on the Passenger side, for Conventional Cab

AIR CONDITIONER {Blend-Air} With Integral Heater & Defroster

Includes

: HEATER HOSES Premium

CAB INTERIOR TRIM Premium; for Crew Cab

: "A" PILLAR COVER Molded Plastic

: CAB INTERIOR TRIM PANELS Cloth Covered Molded Plastic, Full Height; All Exposed Interior Sheet Metal is

: CAB SOUND INSULATION Includes Dash and Engine Cover Insulators

: CONSOLE, OVERHEAD Molded Plastic; With Dual Storage Pockets with Retainer Nets,

: COURTESY LIGHT (4) Mounted In Front and Rear Map Pockets - Left and Right Sides

: DOOR TRIM PANELS with Cloth Insert on Bolster Driver and Passenger Doors

: FLOOR COVERING Rubber, Black

: GAUGE, TEMPERATURE, AMBIENT Includes Wiring and Sensor With Display Unit Mounted in Cluster

: HEADLINER Soft Padded Cloth

: INSTRUMENT PANEL TRIM Molded Plastic with Black Center Section

: STORAGE POCKET, DOOR (2) Molded Plastic, Full-Length; Driver and Passenger Doors

: SUN VISOR (3) Padded Vinyl: 2 Moveable (Front-to-Side) Primary Visors, Driver Side with Vanity Mirror and Toll

Ticket Strap, plus 1 Auxiliary Visor (Front Only), Driver Side

CAB REAR SUSPENSION Air Bag Type



WHEELS, FRONT DISC; 22.5" Painted To Match Cab , 2-Hand Hole, 10-Stud Hub Piloted
WHEELS, REAR DUAL DISC; 22.5" Painted To Match Cab, 2-Hand Hole, 10-Stud Hub Piloted
WHEEL SEALS, FRONT {International} Oil-Lubricated Wheel Bearings

(4) TIRE, REAR 12R22.5 G282 MSD (GOODYEAR) 481 rev/mile, load range H, 16 ply
(2) TIRE, FRONT 12R22.5 G661 HSA (GOODYEAR) 484 rev/mile, load range H, 16 ply

REAR AXLE TOP SPEED

The rear axle/s will be geared for a vehicle top speed in accordance with NFPA sections 4.15.2 and 4.15.3.

INTERNATIONAL SAE J2433 ROLLOVER TESTING

The International chassis will comply with SAE J2422 Cab Roof Strength Evaluation. The Cab to Chassis Mounting System will remain attached to the vehicle chassis and in an orientation similar to its original position when subjected to 20g deceleration load in the forward direction.

POWER WINDOWS AND DOOR LOCKS

The cab will be equipped with power windows and power door locks for all doors. Control switches will be located in the door trim panels.

POLISHED ALUMINUM FRONT WHEELS

The front wheels will be 22.5 x 8.25 polished aluminum, hub piloted, disc type.

POLISHED ALUMINUM REAR WHEELS

All rear wheels will be 22.5 x 8.25 polished aluminum, hub piloted disc type.

ENGINE BRAKE

The engine will be equipped with a compression brake to automatically slow the vehicle when the accelerator pedal is in the "off" position. This brake will be controlled by switches mounted on the dash in a convenient location for the driver.

BUMPER EXTENSION

A 12" high, 96" wide, two (2) ribbed, bright finish stainless steel front bumper will be provided. The front bumper will be extended approximately sixteen (16) inches. A polished aluminum tread plate (3/16") gravel shield with end caps will be installed.

STORAGE WELL

One (1) storage well constructed of 1/8" aluminum will be installed in the gravel shield. This storage well will be center mounted between the chassis frame rails.

WHEEL TRIM KITS

Wheel trim kits consisting of chrome baby moon hubcaps and chrome lug nut covers will be installed on the front and rear axles of the single rear axle chassis.

FUEL LINE SHUTOFF VALVE

A fuel line shutoff valve will be furnished.

FUEL TANK AND BATTERY BOX TREAD PLATE



The step type fuel tank and the battery box will be overlaid with polished aluminum tread plate. This will include the top, front and both ends. Step areas will be provided for access to the cab.

CAB STEP AREA TREAD PLATE

The driver and officer side cab step area will be overlaid with polished aluminum tread plate.

CENTER CONSOLE

A center console fabricated from 1/8" aluminum will be furnished and will be located between the driver and officer's seats.

ANTENNA INSTALLATION

One (1) antenna mounting base model #MATM with 17' of coaxial cable will be provided and installed on the cab roof. The attached antenna wire will be run to the right side cab dash area.

TIRE PRESSURE MONITORING DEVICES

Each tire will be equipped with an LED tire alert pressure management system (Vecsafe equal) that will monitor tire pressure. A chrome plated brass sensor will be provided on the valve stem of each tire.

AUXILIARY AIR INLET/AUTO EJECT

A Kussmaul Auto Air Eject #091-28 inlet will be provided on the driver side of the cab, exact location to be determined at a later date. The Air Eject will be mounted using a Kussmaul Weatherproof Adapter Kit #091-28AK.

COMMERCIAL CHASSIS ELECTRICAL SYSTEM

The commercial chassis electrical system will be provided as furnished by the original manufacturer. A customized interface will be provided and designed, so as not to disturb any of the required chassis functions

12 VOLT ELECTRICAL SYSTEM TESTING

The apparatus low voltage electrical system will be tested and certified by KME. The certification will be provided with the apparatus. All tests will be performed with air temperature between 0°F and 100°F.

INTERNATIONAL MULTIPLEXED ELECTRICAL SYSTEM

The electrical system for the entire apparatus will feature the International® Diamond Logic® Electrical System.

At the heart of International® Diamond Logic™ electrical system is the Electronic System Controller (ESC) which functions as the gatekeeper or central processor.

The Diamond Logic® Electrical System allows fully customizable logic to carry out functions which up until now required hard-wired circuits and component. The use of the system will enable KME to reduce; if not eliminate; conventional circuit interlock and power supply components for all body builder installed functions as specified by the customer.

CHASSIS DIAGNOSTICS SYSTEM

Diagnostic ports will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership

BATTERY DISCONNECT SWITCH



The chassis batteries will be wired in parallel to a single 12 volt electrical system, controlled through a heavy duty master disconnect switch.

120 VOLT SHORELINE CONNECTION - "SUPER" AUTO EJECT

One (1) Kussmaul "Super" Auto Eject model 091-55-20-120, automatic, 120 volt, 20 amp shoreline disconnect will be provided for the on board, 110 volt battery charging systems. The disconnect will be equipped with a NEMA 5-20 P male receptacle,

SHORELINE POWER INLET PLATE

A shoreline power receptacle information plate will be permanently affixed at or near the power inlet

The shoreline receptacle will be located in the driver's cab step well.

BATTERY CHARGER / AIR COMPRESSOR SYSTEM

A Kussmaul model #091-187-12-REMOTE, "Auto Charge 1200" high output, fully automatic battery charger will be provided.

A Kussmaul 091-9HP air compressor will maintain the air pressure in the chassis air brake system.

A Kussmaul # 091-9-090 Auto Drain ACHP will be installed to protect the Auto Pump from built up moisture.

"DO NOT MOVE APPARATUS" WARNING LIGHT WITH AUDIBLE ALARM

A 1" round, red flashing warning light with an integral audible alarm, will be functionally located in the cab to signal when an unsafe condition is present. This light will be activated through the parking brake switch to signal when the parking brake is released. This light will be labeled "DO NOT MOVE TRUCK".

12 VOLT POWER PORTS

One (1) 12 volt power port accessory outlet(s) will be installed in the cab of the truck for the fire departments accessory devices.

One (1) round USB charging port(s) will be installed in the cab of the truck for the fire departments accessory devices.

A dedicated 12 volt power and ground circuit will be provided in the rear crew area.

REAR VISION CAMERA/GPS SYSTEM

An Optimo rear vision camera/GPS system model # GPS-7101 will be provided to allow the driver to visually see the rear of the apparatus while in the cab. The rear vision camera will be wired to automatically activate when the chassis transmission is placed in reverse.

LED LICENSE PLATE LIGHT - REAR

One (1) Tecniq model #L10 LED license plate light will be provided.

TAIL, STOP, TURN AND BACK-UP LIGHTS

Two (2) Code 3, 65STR 4" x 6", red LED combination tail and stop lights, will be mounted one each side at the rear of the body.

Two (2) Code 3, 65STA 4" x 6", amber LED arrow turn signal lights, will be mounted one each side, on a vertical plane with the tail/stop lights.

Two (2) Code 3, 65RV 4" x 6", white LED backup lights, will be mounted one each side, on a vertical plane with the turn/tail/stop signals.



Two (2) Code 3 65STK4 mounting flanges, installed one (1) on each side, will be provided to mount the lights described above in one common mounting flange. The fourth opening will be for the lower rear warning lights.

BODY STEP LIGHTS

Polished stainless steel, TecNiq Eon 3-LED horizontal surface mounted body step lights will be provided.

DUNNAGE AREA LIGHTING

Two (2) stainless steel, TecNiq Eon 3-LED horizontal surface mounted lights will be provided.

DECK LIGHTS / WORK LIGHTS

Two (2) 6" Unity model AG chrome plated LED deck lights will be provided and mounted on the rear stanchions, one (1) each side.

GROUND LIGHTS

One (1) JW Speaker 880 XD ground light will be provided under each side cab door entrance step, four (4) total.

LED BROW LIGHT - ABOVE WINDSHIELD

One (1) HiViz LEDs "FireTech" Scene light model FT-B-46-W will be provided.

The light will be adjustable vertically up to 15 degrees. Mounting will be possible in any direction while still meeting NFPA 1901 compliance requirements.

Three (3) switches will be provided in the cab warning light switch console to control the individual lighting circuits of the HiViz FireTech LED brow light.

12 VOLT BODY ELECTRICAL SYSTEM

All electrical lines in the body will be protected by automatic circuit breakers, All lines will be color and function coded every 3", easy to identify, oversized for the intended loads and installed in accordance with a detailed diagram. A complete wiring diagram will be supplied with the apparatus. Heavy duty loom will be used for the entire length. All electrical equipment will be installed to conform to the latest federal standards as outlined in NFPA 1901.

BODY ELECTRICAL JUNCTION COMPARTMENT

A weather resistant electric junction compartment will be provided within the body or pump enclosure, depending on vehicle configuration.

PUMP AND ENGINE ENCLOSURE WORK LIGHTS

Two (2) Grote model #61171 LED lights will be provided inside the pump and engine enclosure.

AMDOR LUMA BAR COMPARTMENT LIGHTS - LED

Each individual, equipment storage compartment will be equipped with the AMDOR Luma Bar LED light fixture mounted one each side of the forward (and rear) vertical door frame.

SURFACE MOUNTED 155W SPECTRA LED FLOODLIGHTS

Two (2) Fire Research Spectra LED model SPA260-Q15 surface mounted lights will be installed, one rearward and one forward on the driver side of the body.

Two (2) Fire Research Spectra LED model SPA260-Q15 surface mounted lights will be installed, one rearward and one forward on the officer side of the body.



Two (2) Fire Research Spectra LED model SPA260-Q15 surface mounted lights will be installed, one (1) each side on the rear face of the body.

NFPA AUDIBLE AND LIGHTING WARNING PACKAGE

The following warning light package will include all of the minimum warning light and actuation requirements for the current revision of the NFPA 1901 Fire Apparatus Standard.

The entire warning light package will be actuated with a single warning light switch located on the cab switch panel. The wiring for the warning light package will engage all of the lights required for "Clearing Right of Way" mode when the vehicle parking brake is not engaged. An automatic control system will be provided to switch the warning lights to the "Blocking Right of Way" mode when the vehicle parking brake is engaged.

NFPA ZONE A, UPPER

A Code 3 2758NFPA P1 "RX 2700 Prizm II Series", 58" LED cab roof warning light bar will be furnished and rigidly mounted on top of the cab roof.

- Red Upper Lenses
- Clear Lower Lenses
- Six Forward Facing Red - Eight LED Reflector Prizm II Modules
- Four Corners Red - Twelve LED Reflector Prizm II Modules.

NFPA ZONE C, UPPER

Two (2) Code 3 A36-*S Arch LED beacon/hose bed lights will be mounted one (1) each side at the rear of the body.

NFPA ZONES B & D REAR, UPPER

The lighting requirement for this area is covered by the lights noted in Zone "C" - Upper.

NFPA ZONES B & D FRONT, UPPER

The lighting requirement for this area is covered by the lights noted in Zone "A" - Upper.

NFPA ZONE A, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.

NFPA ZONE C, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed; one (1) each side directly below the DOT stop, tail, turn and backup lights.

NFPA ZONES B & D FRONT, LOWER

Two (2) Code 3 LXEX1F-* LED light heads will be provided and installed one (1) each side.

The lower zone B & D warning lights will be mounted on the sides of the commercial chassis hood

NFPA ZONES B & D MIDSHIP, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.

NFPA ZONES B & D REAR, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.



WARNING LIGHT SYSTEM CERTIFICATION

The warning light system specified above will not exceed a combined total amperage draw of 45 AMPS with all lights activated in either the "Clearing Right of Way" or the "Blocking Right of Way" mode.

The warning light system will be certified by the light system manufacturer, to meet all of the requirements in the current revision of the NFPA 1901 Fire Apparatus Standard

ARROW STICK WARNING LIGHT

One (1) Code 3 LEDX, "Narrow Stik" Model #NASL839, 41" rear directional light will be installed on the rear of the body.

BACK-UP ALARM

A Code 3, model # CA278, 87dba back-up alarm, will be provided and installed.

AIR HORNS

Two (2) chrome plated air horns will be at the front of the vehicle. Each air horn will be recessed in the front bumper, one (1) on the driver's side and one (1) on the officer's side.

ELECTRONIC SIREN

One (1) Whelen # 295SLSA1, 100 watt electronic siren will be provided

One (1) Whelen, model # SP123BMC with chrome plated ABS outer flange, siren speakers will be provided.

FEDERAL Q2B MECHANICAL SIREN

One (1) Federal Model #Q2B mechanical siren will be provided to provide audible warning.

The Q2B siren will be pedestal mounted on top of the extended bumper on the driver's side.

PUMP

• WATEROUS CSU-C20, 1500 G.P.M., SINGLE-STAGE

The pump will be of single-stage construction and will comply with all applicable requirements of the latest standards for automotive fire apparatus of the National Fire Protection Association, NFPA-1901 and will have a rated capacity of 1500 gpm.

The pump will deliver the percentage of rated capacity at the pressure listed below:

- 100% of rated capacity at 150 P.S.I. net pump pressure
- 100% of rated capacity at 165 P.S.I. net pump pressure
- 70% of rated capacity at 200 P.S.I. net pump pressure
- 50% of rated capacity at 250 P.S.I. net pump pressure.

PUMP CONSTRUCTION

The pump body will be close-grained gray iron and will be horizontally split in two sections for easy removal of the impeller shaft assembly. Pump body halves will be bolted together on a single horizontal face to minimize chance of leakage and facilitate reassemble.

IMPELLER SHAFT

The Impeller shaft will be heat-treated stainless steel.

PUMP IMPELLER



The impeller will be bronze, accurately balanced of mixed flow design with reverse flow labyrinth-type wear rings. The impeller will have flame plated hubs

BEARINGS

Three deep-groove, anti-friction ball bearings will be located outside the pumping chamber.

PUMP PACKING

Stuffing boxes will be equipped with two-piece glands.

PUMP TRANSMISSION

The pump transmission will be all aluminum "C20" model, rigidly attached to the pump body assembly and be of latest design incorporating a high strength involute tooth-form Hy-Vo chain drive

PUMP RATIO

The pump ratio will be selected by the KME to give maximum performance

PUMP SHIFT CONTROL

The drive unit will be equipped with a power shift. The shifting mechanism will be a heat treated, hard anodized aluminum power cylinder with stainless steel shaft.

The pump shift control, pump engaged light and ok to pump indicator light will be provided utilizing the International multi-plex system. They will be located in the lower left switch panel.

This control will be electronically interlocked through the International multi-plex system to prevent inadvertent activation or de-activation.

TRANSMISSION LOCK

The automatic transmission furnished in the chassis will have a lock-up assembly which brings the transmission to direct drive and prevents the transmission from shifting gears while in the pumping mode.

MAIN PUMP MOUNTS

Extra heavy duty pump mounting brackets will be furnished.

FIRE RESEARCH "IN-CONTROL" PRESSURE GOVERNOR

The apparatus will be equipped with a Fire Research InControl series TGA400 pressure governor and monitoring display kit will be installed.

The program will store the accumulated operating hours for the pump and engine to be displayed with the push of a button.

The governor will operate in two control modes, pressure and RPM. A throttle ready LED will light when the interlock signal is recognized. The governor will start in pressure mode and set the engine RPM to idle. In pressure mode the governor will automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor will maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor will limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features will include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

INTAKE RELIEF VALVE

A Task Force Tips relief valve will be provided.

PUMP CERTIFICATION



The pump will be third party performance tested to meet the requirements of NFPA-1901 by Underwriters Laboratories (UL).

PRIMING PUMP

The priming pump will be a Trident air primer system.

MASTER DRAIN VALVE

A rotary type, 12 port master drain valve will be provided and controlled at the lower portion of the side pump panel.

INDIVIDUAL BLEEDERS AND DRAINS

All lines will drain through the master drain valve or will be equipped with individual drain valves, easily accessible and labeled.

One (1) individual "Innovative Control" lift up drain valve will be furnished for each 1-1/2" or larger discharge port and each 2-1/2" gated auxiliary suction.

PUMP MODULE

The pump module will be a self-supported structure mounted independently from the body and chassis cab.

DUNNAGE AREA

A dunnage area will be provided above the pump enclosure for equipment mounting and storage. This area will be furnished with a removable 3/16" aluminum tread plate floor and will be enclosed on the sides.

SUCTION INLETS

Two (2) 6" N.S.T. suction inlets will be provided, one on the driver side pump panel and one on the officer side pump panel. A removable strainer will be installed on each inlet.

The main pump suction inlets will be furnished with a short suction end, terminating with only the suction threads protruding through the side panel to minimize the distance an exterior appliance protrudes beyond the pump panel.

A 6" NST chrome plated long handle pressure vented cap will be installed on each main inlet of the pump.

AUXILIARY SIDE SUCTION

One (1) 2-1/2" auxiliary suction will be provided at the driver side pump panel, to the rear of the main inlet. The 2-1/2" auxiliary suction will terminate with a removable strainer, chrome plated 2-1/2" NST female swivel with a chrome plated plug and retaining chain.

An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the driver's side rear auxiliary suction.

All side gated inlet valves will be recess mounted behind the side pump panels or body panels.

TANK TO PUMP

One (1) 4" tank to pump line will be piped through the front bulkhead of the tank with a 90 degree elbow down into the tank sump. This line will be plumbed directly into the rear of the pump suction manifold for maximum efficiency. A check valve will be provided to prevent accidental pressurization of the water tank through the pump connection. An Akron Brass 3" Generation II Swing-Out™ Valve will be provided between the pump suction manifold and the water tank.



TANK FILL

One (1) 2" gated full flow pump to tank refill line controlled at the pump panel will be provided.

An Akron Brass 2" Generation II Swing-Out™ Valve will be provided between the pump discharge manifold and the water tank.

DRIVER'S SIDE MAIN DISCHARGES #1 AND #2

Two (2) discharges will be provided and located at the driver's side pump panel. The driver's side discharges # 1 and #2 will terminate with NST threads, through the left panel above the main pump intake.

An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the driver's side #1 and #2 discharges.

The discharge valves will be equipped with a straight 2 1/2" NST adapter that will be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

A 2 1/2" NST chrome plated pressure vented cap will be installed on driver's side #1 and #2 discharge.

The driver's side # 1 and #2 discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

OFFICER'S SIDE MAIN DISCHARGE #1

A discharge will be provided and located at the officer's side pump panel. The officer's side discharges #1 will terminate with NST threads, through the officer's side panel above the main pump intake.

An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the officer's side #1 discharge.

The discharge valve will be equipped with a straight 2 1/2" NST adapter that will be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

A 2 1/2" NST chrome plated pressure vented cap will be installed on officer's side # 1 discharge.

The officer's side # 1 discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

OFFICER'S SIDE MAIN DISCHARGE #2

A discharge will be provided and located at the officer's side pump panel. The officer's side discharges #2 will terminate with NST threads, through the officer's side panel above the main pump intake.

An Akron Brass 4" Heavy Duty Swing-Out™ Valve will be provided for the officer's side #2 discharge.

The discharge valve will be equipped with a straight 4" NST adapter.

A 4" NSTF X 4" Storz Kochek SKE-R 30° adapter with cap will be provided on the officer's side #2 discharge.

The officer's side #2 discharge Akron ball valve will be equipped with an Akron Brass Style 9323 electric Valve Controller. The controller will have up to three preset locations that can be user set and easily recalled upon each use. The officer's side #2 discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

DRIVER SIDE REAR DISCHARGE

A 2 1/2" NST rear discharge will be provided at the rear of the vehicle, plumbed from the pump.

The rear discharge will terminate on the rear body panel, on the driver side of the body.

The driver side rear discharge pipe will be equipped with a chrome 2 1/2" NSTM thread adapter.



The driver side rear discharge will be plumbed utilizing 2 1/2" schedule 10 stainless steel piping.

An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the driver's side rear discharge.

One (1) 2 1/2" NST chrome plated pressure vented cap(s) will be installed at the driver side rear discharge.

The driver side rear discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

OFFICER SIDE REAR DISCHARGE

A 2 1/2" NST rear discharge will be provided at the rear of the vehicle, plumbed from the pump.

The rear discharge will terminate on the rear body panel, on the officer side of the body.

The officer side rear discharge pipe will be equipped with a chrome 2 1/2" NSTM thread adapter.

The officer side rear discharge will be plumbed utilizing 2 1/2" schedule 10 stainless steel piping,

An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the officer's side rear discharge.

One (1) 2 1/2" NST chrome plated pressure vented cap will be installed at the officer side rear discharge.

The officer side rear discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

DECK GUN DISCHARGE

A deck gun discharge will be plumbed from the pump to an area on top of the vehicle. The deck gun discharge will be located in the center of the dunnage area above the pump module.

the deck gun discharge pipe will terminate with 3" NPT threads.

To improve the operation range of the deck gun, the discharge pipe will be outfitted with a TFT (18") Extend-A-Gun, part # XG18**-**. The Extend-A-Gun will be wired to the hazard light on the cab dash.

The deck gun discharge will be plumbed utilizing 3" schedule 10 stainless steel piping.

An Akron Brass 3" Generation II Swing-Out™ Valve will be provided for the deck gun discharge.

The deck gun discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

TFT MANUAL DECK GUN

A TFT model #XFC-52 deck gun package which will include the Safe-Tak ground base with dual 2-1/2" inlets, the Cross Fire monitor top, one (1) set of quad stack tips, one (1) Master Stream 1000 GPM. automatic nozzle, stream straightener and a ground base compartment mounting bracket.

FRONT DISCHARGE

A 1 1/2" front #1 discharge will be plumbed to the front bumper of the vehicle.

The front #1 discharge will terminate on the top center of the front bumper extension gravel shield with a chrome 1 1/2" NSTM chicksan swivel adapter.

The front #1 discharge will be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose.

An Akron Brass 2" Generation II Swing-Out™ Valve will be provided for the front #1 discharge.

A 1 1/2" NST chrome plated pressure vented cap will be installed the front #1 discharge.

The front #1 discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.



HORIZONTAL CROSSLAY #1 AND #2

A crosslay hose bed will be provided and plumbed from the pump in a transverse design, located above the pump enclosure for quick attack deployment. .

Crosslay #1 and #2 will be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 200 feet of 1-3/4" fire hose.

Crosslay #1 and #2 hosebed will be designed to accommodate the fire hose in a double stack configuration.

The crosslay discharges will terminate below the hosebed floor with a 1 1/2" NSTM chicksan swivel adapter.

The crosslay #1 and #2 discharge will be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose.

An Akron Brass 2" Generation II Swing-Out™ Valve will be provided for the crosslay #1 and #2 discharge.

The crosslay #1 discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

PUMP ENCLOSURE HOSEBED HOSE RETENTION

A 3/16" polished aluminum tread plate cross lay cover will be provided with a full length stainless steel hinge at the front of the cover.

Vinyl flaps will be provided at each side of the transverse cross lay compartment secured to the tread plate cross lay cover by quarter turn fasteners, and equipped with a strap to each end.

FOAM PIPING - 1 INCH

All foam concentrate plumbing from the tank or auxiliary foam inlet to the foam system components will be PVC.

The foam system piping will incorporate a check valve to prevent water from entering the foam tank; the discharge piping will also include a check valve to prevent foam solution from back feeding into the discharge side of the pump. Individual discharge piping will be as specified for each discharge.

The complete foam system will be tested in accordance with NFPA-1901.

WATEROUS ADVANTUS 3 FOAM SYSTEM

The apparatus will be equipped with an automatic microprocessor controlled, conductivity based, direct injection, discharge side foam proportioning system. The installed system will be capable of accurately proportioning all commercially available Class A foam concentrates and most Class B foam concentrates.

A 16-bit mixed signal microcontroller with 60 kB flash memory, 2 kB RAM and 12-bit analog to digital converter will be utilized to receive input from the incoming water conductivity probe, flowmeter and foam solution conductivity probe, compare values and control the foam pump motor, providing accurate injection into the foam process manifold per the operator selected mix ratio.

FOAM SYSTEM OPERATION INTERFACE TERMINAL

The system will be equipped with an operator interface terminal (OIT) which will be mounted on the pump operators' panel.

FOAM SYSTEM FLOWMETER

A paddlewheel-type flowmeter will be installed in the process manifold upstream of the foam injection point and will be connected to the microcontroller



FOAM PUMP

A 12 volt electric motor driven Hydra-Cell positive displacement foam concentrate pump, rated at 3 GPM (11.3 LPM) at 150 psi (10 BAR) and with operating pressures up to 450 psi, will be installed in a suitable, serviceable location. The pump will be self priming and capable of drawing foam concentrate from reservoirs or containers which are located below the pump inlet.

Accurate concentration proportioning can be achieved, based on the following water flows:

- 1000 GPM water 0.3% concentration
- 600 GPM water 0.5% concentration
- 300 GPM water 1.0% concentration
- 100 GPM water 3.0% concentration
- 50 GPM water 6.0% concentration

FOAM SYSTEM LOW TANK LEVEL SWITCH

A Waterous # 4190000 low tank level float switch will be installed in each foam concentrate tank

FOAM SYSTEM PROCESS MANIFOLD 2", 2.5" or 3" ID

The foam system process manifold will be constructed of Schedule 10 316 stainless steel. The process manifolds, with all associated components installed, will have the following flow ratings at 150

PSI:

- 2" 300 GPM
- 2.5" 500 GPM
- 3" 1000 GPM

The foam system will be plumbed to the following discharge/s through the discharge piping or manifold system:

- Crosslay #1 discharge.
- Crosslay #2 discharge.
- Front discharge.

PUMP PANEL - SIDE MOUNT

The pump operator's control panel will be located on the driver side of the apparatus. The pump enclosure side panels will be completely removable and designed for easy access and servicing.

The left side operator's panel, gauge panel, right side pump panel and right side access door will be fabricated from 1/8" aluminum, coated with black Line-X material. The Line-X material will provide a heavy duty textured finish.

A full width, vertically hinged gauge access panel will be provided at the operator's position. Chrome plated positive locks will be provided along with chain holders to prevent the front of the gauge panel from coming in contact with other panels when open.

The officer's side pump panel will be split, vertically hinged, to provide complete access to the pump and plumbing on the officer side of the pump enclosure. The panels will be equipped with stainless steel hinges and secured with push type locks to hold the panels closed.

Stainless steel machine screws and lock washers will be used to hold these panels in position. The panels will be easily removable to provide complete access to the pump for major service.

CAPS AND ADAPTERS SAFETY TETHER



All applicable discharge and suction caps, plugs and adapters will be equipped with chrome plated ball chain and secured to the vehicle.

A high polished trim plate will be provided around each discharge port and suction inlet opening to allow accessibility to the respective valve for service and repairs.

COLOR CODED IDENTIFICATION TAGS

Color coded identification tags will be provided for all gauges, controls, connections, switches, inlets and outlets.

PUMP OPERATOR'S PANEL LIGHT SHIELD AND STEPS

The pump operator's panel will be equipped with a light shield/step that will be full width of the control panel, and will be positioned to cover the lights and prevent glare. The light shield will be fabricated from aluminum tread plate, which will also serve as a step. The step will be a minimum of 8" deep X the width of the pump panel.

The light shield will be equipped with the following lights: Two (2) 20" Amdor Luma Bar H2O super bright led strip lights. One (1) light under the operator's panel light shield will be actuated when fire pump is engaged in addition to the pump engaged light.

The officer side pump panel will be equipped with a light shield/step that will be full width of the panel, and will be positioned to cover the lights and prevent glare. The light shield will be fabricated from aluminum tread plate, which will also serve as a step. The step will be a minimum of 8" deep X the width of the pump panel.

The light shield will be equipped with the following lights: Two (2) 20" Amdor Luma Bar H2O super bright led strip lights.

PUMP OPERATOR'S PANEL

Particular attention is to be given to functional arrangement of all controls. The pump operator's panel will accommodate the following:

- All discharge valve controls
- Auxiliary engine cooler controls
- Water tank suction control valve
- Pump primer valve
- Engine throttle control
- Master compound vacuum and master pressure gauge
- Individual discharge gauges
- Pump shift engaged indicator light
- Water tank water level indicator
- Engine tachometer
- Engine oil pressure gauge with audible alarm
- Engine water temperature gauge with audible alarm
- Low voltage light and audible alarm
- Speed counter (Underwriters)
- Master pump drain valve
- Individual drains
- Voltmeter
- Pump panel air horn actuation button labeled "EVACUATION"
- Fire Research #TGA400 "IN CONTROL" pressure governor control.

MASTER GAUGES

One (1) 4" diameter pressure gauge (labeled: "PRESSURE") and one (1) 4" diameter compound vacuum gauge (labeled: "INTAKE") will be provided.



ENGINE COOLER

An auxiliary cooler or heat exchanger will be installed in the engine compartment between the engine and the chassis radiator.

TANK LEVEL GAUGE

A Fire Research, model #WLA300-A00, "TANKVISION" gauge that shows the actual volume of water in the tank will be provided on the pump operator's panel.

FOAM TANK LEVEL GAUGE - FOAM TANK "A"

A Fire Research, model #WLA360-A00, "TANKVISION" gauge that shows the actual volume of foam in the tank will be provided on the pump operator's panel.

WATER TANK

The water tank will have a capacity of 1000 gallons, constructed from Poly material.

FOAM TANK "A"

In addition to the water capacity of the tank, a 20 gallon integral foam storage area will be built into the water tank. The foam tank will have a latched fill tower, properly labeled as the foam fill point. A valved drain will be provided.

WATER TANK CONSTRUCTION

The Poly water tank will be constructed of PT3 polypropylene material. This material will be a non-corrosive stress relieved thermoplastic and UV stabilized for maximum protection.

WATER CAPACITY CERTIFICATION

All tanks will be tested and certified as to capacity on a calibrated and certified tilting scale.

WATER TANK LID

The tank cover will be constructed of 1/2" thick PT3 polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary.

WATER TANK FILL TOWER/ OVERFLOW AND VENT PIPE

The tank will have a combination vent and manual fill tower. The fill tower will be constructed of 1/2" PT3 polypropylene and will be a minimum dimension of 12" x 12" outer perimeter. The fill tower will be blue in color indicating that it is a water-only fill tower.

The fill tower will be fitted with an integral 4" I.D. schedule 40 P.V.C. combination overflow/vent pipe running from the fill tower through the tank to a 4" coupling flush mounted into the bottom of the tank to allow water to overflow behind the chassis rear axle. The tank sump will be a minimum of 10" wide x 10" long x 3" deep. An anti-swirl plate will be mounted inside the sump, approximately 1" above the bottom of the sump. A 3" drain plug will be provided.

WATER TANK MOUNTING ALL "T" TANKS - PUMPER

The tank will rest on the body cross members spaced a maximum of 22" apart, and will be insulated from these cross members with a minimum of 3/8" nylon webbing or 1/2" rubber, 2-1/2" wide. The tank will sit cradle-mounted using four (4) corner angles of 6 x 6 x 4 x 0.250 welded directly to the body cross members.

APPARATUS BODY DESIGN CONSTRUCTION



The body side and compartment assemblies will be designed and assembled to provide maximum strength and durability under all operating conditions.

Special attention will be taken to minimize corrosion on all fabricated parts and structural members of the body. All bolt-on components will be provided with a dissimilar metals isolation barrier to prevent electric corrosion. The body assembly will be an all-welded configuration.

COMPARTMENT TOPS

Compartment ceilings will be a fully welded design as part of the body construction process.

The top of the welded in compartment ceiling will be overlaid with aluminum treadplate to provide an NFPA compliant stepping surface.

Compartment tops over all side compartments will have a flange formed to provide protection against water runoff.

BODY AND COMPARTMENT FABRICATION - 3/16" ALUMINUM

All compartment panels and body side sheets will be fabricated entirely of 3/16" aluminum (5052-H32). Each side compartment assembly will be both plug welded and stitch welded to ensure proper weld penetration on all panels while avoiding the possible warping caused by a full seam weld.

SUB STRUCTURE - ALUMINUM

The body sub structure will be an all welded configuration utilizing a combination of 3" x 1-1/2" 6061-T6 thick walled structural tubing and 6061 structural channel.

The fire body will be 100" wide to provide the maximum amount of usable hose bed and compartment space. The side body compartments will be 29" deep in any full depth areas, and 14" deep in any split depth areas.

BODY FENDER

The body fender will be 64" long, this will allow for the suspension and related components to be contained within the fender, preventing any intrusion into the body compartment storage area.

DRIVER SIDE – FENDER STORAGE

A storage compartment will be inserted into the fender to provide a storage area for three (3) customer supplied SCBA cylinders (or fire extinguishers of similar size).

A storage compartment will be inserted into the fender to provide a storage area for two (2) customer supplied SCBA cylinders (or fire extinguishers of similar size).

OFFICER SIDE – FENDER STORAGE

A storage compartment will be inserted into the fender to provide a storage area for three (3) customer supplied SCBA cylinders (or fire extinguishers of similar size).

A storage compartment will be inserted into the fender to provide a storage area for three (3) customer supplied SCBA cylinders (or fire extinguishers of similar size).

FENDER STORAGE DOORS

The fender storage area(s) will be enclosed by a hinged door fabricated from mirror finish stainless steel.

DRIVER SIDE BODY COMPARTMENTATION



One full height/split depth compartment will be provided forward of the rear wheels. The compartment dimensions will be 27" wide x 68" tall x 29" deep in the lower 30" tall area, and 14" deep in the upper 38" tall area.

One high side compartment will be provided above the rear wheels. The compartment dimensions will be 64" wide x 37" high x 14" deep.

One full height/split depth compartment will be provided behind the rear wheels. The compartment dimensions will be 46" wide x 68" tall x 29" deep in the lower 30" tall area, and 14" deep in the upper 38" tall area.

The driver side compartments will provide approximately 80 cubic feet of storage space.

OFFICER SIDE BODY COMPARTMENTATION

One full height/split depth compartment will be provided forward of the rear wheels. The compartment dimensions will be 27" wide x 68" tall x 29" deep in the lower 30" tall area, and 14" deep in the upper 38" tall area.

One high side compartment will be provided above the rear wheels. The compartment dimensions will be 64" wide x 37" high x 14" deep.

One full height/split depth compartment will be provided behind the rear wheels. The compartment dimensions will be 46" wide x 68" tall x 29" deep in the lower 30" tall area, and 14" deep in the upper 38" tall area.

The officer side compartments will provide approximately 80 cubic feet of storage space.

REAR STEP COMPARTMENT

An equipment storage compartment will be provided on the rear of the body at the rear step area. The rear step compartment will be 42" Wide x 40" High x 29" Deep.

The rear step compartment will provide approximately 28 cubic feet of storage space.

The rear step compartment will be equipped with a rollup style door.

EXTENDED REAR STEP - TAPERED CORNERS

The extended rear step will be 12" deep, extended beyond the body compartments. The step will be 100" wide, with tapered corners for better clearance.

HOSE BED (72" WIDE)

The hose bed will be located directly above the booster tank and will be free from all sharp objects such as bolts, nuts, etc., to avoid damage to fire hose.

The hose bed side walls will be approximately 2" thick, this will provide a mounting surface for devices like warning lights and scene lights.

HOSE BED CAPACITY

The hose bed will provide a minimum of 30 cubic feet hose storage area for 2 ½" or larger fire hose to meet NFPA 1901 minimum pumper hose storage requirement.

The apparatus weight analysis will be based on 800' of 2 ½" hose unless otherwise specified.

Flooring to be constructed from extruded aluminum and be properly spaced for ventilation. The flooring will be smooth and free from sharp edges to avoid hose damage.

Two (2) fully adjustable 3/16", aluminum hose bed partition will be provided. Partition will be easily adjustable by means of channels located at the front and rear of the hose bed.



HOSE BED COVER, ALUMINUM TREAD PLATE ROLLING/LIFT UP COVER

The cover will be a polished aluminum tread plate combination roller/lift-up style cover. The rear half of the cover will roll back over the forward half of the cover on channel tracks and sealed ball bearing nylon coated rollers. When rolled open, the entire cover will be capable of being lifted up on a stainless steel piano hinge installed across the front of the body.

The cover will lock in the closed position. The lift portion will be assisted and supported by positive locking gas charged struts on each side of the cover.

VINYL FLAPS

Two (2) vinyl flaps at the rear of the tread plate hose bed cover. They will be secured to the hose bed cover with quarter turn fasteners and to the rear body with bungee cords.

COMPARTMENT DOORS

The compartment doors will be flush type with the outer skin fabricated from 3/16" (5052 H32) aluminum. The 2" thick compartment doors will reduce the overall specified compartment depth by 2".

COMPARTMENT DOOR HINGES

Hinges will be full length polished stainless steel piano type. The hinges will be mounted with stainless steel hardware.

COMPARTMENT DOOR SEALS

Enclosed body compartment doors will be equipped with a closed cell gasket. The gasket material will be EPDM to provide a gasket resistant to weather, temperature extremes, and aging.

COMPARTMENT DOOR LATCHES – ROTARY WITH D-RINGS

Externally latched body doors will be equipped with stainless steel D-ring handles.

Rotary door latches will be provided for all full height body doors, which will incorporate rotary latches at the top and bottom of all externally latched single or double doors.

The blank door of a double door configuration will have rotary latches at the top and bottom of each door with the latch release lever accessible thru the door frame, which eliminates the need to reach inside the compartment to release the door.

COMPARTMENT DOOR STAY ARMS

Eberhard gas shock type door hold open devices will be provided for each vertically and horizontally hinged door.

SWEEP-OUT COMPARTMENT FLOORS

Compartment floors will be welded to the compartment walls and have a sweep out design for easy cleaning.

COATED FASTENERS

All exterior fasteners will be coated stainless steel screws. Screw threads will be coated with reusable, self-locking, sealing material to provide vibration resistance. Screw heads will be coated with a sealing element to prevent galvanic corrosion between dissimilar metals.

COMPARTMENT LOUVERS

Ventilation between compartments to atmosphere will be provided and located to avoid water entry into compartments.



BODY PROTECTION PANELS

The front face of the side compartments, next to the driver and officer pump panels will be overlaid with full height aluminum tread plate protection panels. The overlays will cover the front face of the compartments only.

BODY RUB RAILS (BRUSHED STAINLESS STEEL)

Sacrificial, brushed finish, stainless steel rub rails will be mounted at the base of the body, extend outward a minimum 3/4", downward 2" and flange inward 1". Rub rails will be designed so as not to damage the body side panels on initial impact and to provide for ease of replacement.

RUNNING BOARD STEPS

The driver and officer running board steps will be fabricated of 3/16" polished aluminum tread plate. The running boards will not form any part of the compartment design, and will be bolted into place with a minimum 1/2" clearance gap between any panel to facilitate water runoff.

INTERMEDIATE REAR STEP

An eight (8) inch deep, bolt on intermediate rear step, fabricated from 3/16" aluminum tread plate, will be installed. The step will be approximately 8" deep x 48" wide.

GRAB RAILS

All hand rails will be 1-1/4" outer diameter, knurled bright anodized aluminum extrusion, designed to meet NFPA 1901 requirements.

Molded gaskets will be installed between the handrail stanchion castings and body surfaces to prevent electrolytic reaction between dissimilar metals and to protect paint.

Grab rails will be provided at the following specified locations.

- Two (2) vertical rails will be mounted on the rear edge of the beavertails, one (1) each side.
- One (1) horizontal, full width handrail will be installed on the rear, below the level of the hose bed.
- Two (2) vertical handrails will be mounted above each pump panel, (1) each side.

FOLDING STEP(S) - BODY

Cast Products model SP4401-1-CH-A-BL LED lighted large folding step(s) with RG0005 gasket, with a textured chrome plate finish will be provided on driver side body front.

Cast Products model SP4401-1-CH-A-BL LED lighted large folding step(s) with RG0005 gasket, with a textured chrome plate finish will be provided on officer side body front.

Cast Products model SP4401-1-CH-A-BL LED lighted large folding step(s) with RG0005 gasket, with a textured chrome plate finish will be provided on driver side body rear.

Cast Products model SP4401-1-CH-A-BL LED lighted large folding step(s) with RG0005 gasket, with a textured chrome plate finish will be provided on officer side body rear

Each step will have an LED light at the top and bottom of each step to illuminate the stepping areas.

REAR WHEEL WELL LINERS

Fully removable, one piece, bolt-in, aluminum rear wheel well liner and fenderette will be provided.

REAR MUD FLAPS

Heavy duty mud flaps will be provided behind the rear wheels.



REAR TOW EYES

Two (2) painted tow eyes will be furnished on the rear of the vehicle. The tow eyes will be made from plate steel and will be bolted directly to the chassis frame rails with grade 8 bolts and will extend below the body.

HALF DEPTH ADJUSTABLE SHELVING

Compartment shelving will be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports. Shelving will be vertically adjustable with spring nuts in aluminum strut channel.

Half depth adjustable shelves will be located as follows:

- One (1) in the driver side front compartment
- One (1) in the officer side front compartment
- One (1) in the driver side rear compartment
- One (1) in the officer side rear compartment

ADJUSTABLE SHELVING

Compartment shelving will be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports. Shelving will be vertically adjustable with spring nuts in aluminum strut channel.

Adjustable shelves will be located as follows:

- One (1) in the driver side front compartment
- One (1) in the officer side front compartment
- One (1) in the driver side rear compartment
- One (1) in the officer side rear compartment

SLIDE OUT FLOOR MOUNT SHELVING

Slide out floor mount compartment shelving will be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports attached to #250 rated slides. Slide out floor mount shelving will have gas shocks to hold the tray in and out.

Slide out floor mount shelving will be provided as follows:

- One (1) in the rear step compartment

LADDER STORAGE

The ground ladders will be stored vertically next to the water tank, behind the side body compartments, on the officer side of the apparatus.

To secure the ground ladders, a hinged rear access door will be provided and tied into the "Do Not Move Apparatus" warning system.

PIKE POLE STORAGE

One (1) pike pole tube(s) will be provided. Each holder will be accessible from the rear of the apparatus. Each pike pole holder will be labeled to indicate the pike pole length. The pike pole tube(s) will be mounted in the ladder storage compartment.

SUCTION HOSE STORAGE

The suction hoses will be located on the body side panels, one (1) on the officer side and one (1) on the driver side of the apparatus.

HOSE TROUGH



Two (2) polished, extruded aluminum adjustable hose trough(s) will be provided to accommodate the suction hoses. Two (2) Velcro hose holders will be furnished on each trough.

120/240 VOLT ELECTRICAL SYSTEM TESTING

All line voltage wiring and permanently connected devices and equipment will be subjected to a dielectric voltage withstand test of 900 volts for one minute. The test will be conducted between live parts and the neutral conductor and between live parts and the vehicle frame with any switches in the circuits closed. The test will be conducted after all bodywork has been completed. The dielectric tester will have a minimum 500 VA transformer with a sinusoidal output voltage that can be verified.

OPERATIONAL TESTING

The apparatus manufacturer will perform the following operation test and will certify that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order.

The generator will be started from a cold start condition and the line voltage electrical system will be loaded to 100 percent of the nameplate voltage rating.

The following items will be monitored and documented every 15 minutes:

- The cranking time until the generator starts and runs.
- The voltage, frequency, and amperes at continuous full rated load.
- The generator oil pressure, water temperature, transmission temperature, hydraulic temperature, and the battery rate charge, as applicable.
- The ambient temperature and altitude.

The generator will operate at 100 percent of its nameplate wattage for a minimum of two (2) hours.

HYDRAULIC GENERATOR

Smart Power 6 kW Heavy Rescue Series Hydraulic Generator

A Smart Power, model HR-6, 6200 watt hydraulic generator will be provided.

The generator tray assembly will be delivered with the cooler/fan assembly mounted such that the hot air is exhausted straight up, through an NFPA approved walking grate.

Ratings and Capacity*

- Rating: 7500 watts peak - 6200 watts continuous
- Volts: 120/240 volts
- Phase: Single, 4 wire
- Frequency: 60 Hz
- Amperage: 46 amps @ 120 volts or 23 amps @ 240 volts
- Engine speed at engagement: Standard soft start feature allows for any speed engagement
- Operation range: 880 to 3120 RPM

Testing

The generator will be tested in accordance with all current NFPA 1901 standards.

GENERATOR PTO

A hot shift PTO will be provided on the transmission for the Smart Power generator. The PTO will be controlled from the cab. The control will include a PTO engagement switch and a PTO engaged indicator light.

LINE VOLTAGE ELECTRICAL SYSTEM CERTIFICATION



When the unit successfully meets all the requirements outlined in NFPA 1901, 2009 Edition, UL will issue a Certificate of Automotive Fire Apparatus Examination and Test stating the unit's compliance with the required line voltage section of NFPA.

GENERATOR LOCATION

The generator will be mounted above the pump enclosure on the officer side.

120/240 VOLT LOAD CENTER

The generator output line conductors will be wired from the generator output connections to a Square D, model #QO112L125G breaker panel. The breaker panel will be located on the rear wall of the driver side front compartment.

120/240 VOLT WIRING METHODS

Wiring/conduit will not be attached to any chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components or low voltage wiring. All wiring will be installed at a minimum of 12 inches away from any exhaust piping and a minimum of 6 inches from any fuel lines.

All wiring will be securely clamped within 6 inches of any junction box and at a minimum of every 24 inches of run. All power supply assembly conductors, including neutral and grounding conductors, will have an equivalent amperage rating and will be sized to carry not less than 115% of the main breaker rating.

All Type SO or Type SEO cable not installed in a compartment will be installed in wire loom. Where Type SO or Type SEO cable penetrates a metal surface, a rubber or plastic grommet or bushing will be provided.

The installation of all 120/240 wiring will meet the current NFPA-1901 Standards .

120/240 VOLT WIRING IDENTIFICATION

All line voltage conductors located inside the main breaker panel box will be individually and permanently identified. When pre-wiring for future power wiring installations, the non-terminated ends will be labeled showing function and wire size.

120/240 VOLT GROUNDING

The neutral conductor of the power source will be bonded to the vehicle frame only at the power source. The grounded current carrying conductor (neutral) will be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor will be colored white or gray. In addition to the bonding required for the lower voltage return current, each body and driving/crew compartment enclosure will be bonded to the vehicle frame by a copper conductor. The conductor will have a minimum amperage rating of 115 percent of the name plate current rating of the power source specification label.

120/240 VOLT CIRCUIT BREAKER / RECEPTACLE INSTALLATION

The system will be installed by highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators.

ELECTRIC CABLE REEL

One (1) Hannay Model #ECR-1618-17-18, 120 volt, electric rewind cord reel will be provided and wired to the breaker panel.

The cord reel will be mounted above the pump enclosure on the driver side.

One (1) reel rewind switch(s) will be provided on the compartment wall

One (1) Hannay 4-way stainless steel roller assembly will be provided.

One (1) cable ball stop will be installed on the cable .

Two hundred (200) feet of Type SO yellow 10/3 heavy duty electric cable will be provided on the reel.



One (1) AKRON Model EJB, four (4) outlet junction box with four (4) NEMA L5-20R twist-lock receptacles direct wired on the end of the cable will be provided.
One (1) holder constructed from 1/8" aluminum tread plate will be provided for each cord reel junction box.

LOOSE EQUIPMENT

- Two (2) 10 foot sections of six (6) inch PVC lightweight suction hose will be furnished.
- One (1) Alco-Lite model PEL-24; 24', aluminum, two (2) section extension ladder will be provided.
- One (1) Alco-Lite model PRL-14; 14', aluminum, straight roof ladder with folding hooks will be provided.
- One (1) Alco-Lite model FL-10; 10', folding, aluminum, attic ladder will be provided.
- One (1) 6" NST, Red Head 140-60001 barrel type strainer will be provided. A mounting bracket will also be provided.
- 1 - Pint of touch up paint for each color
- 1 - Bag of assorted stainless steel nuts and bolts

PAINT, PREPARATION AND FINISH

The PPG Delta, Low V.O.C., polyurethane finishing system, or equal, will be utilized. A "Clear Coat" paint finish will be supplied. All removable items, such as brackets, compartment doors, etc. will be painted separately to insure finish paint behind mounted items.

BODY PRIMER & PREPARATION

All exposed welds will be ground smooth for final finishing of areas to be painted.

BODY FINISH PAINT

The body will be finish sanded and prepared for final paint. Upon completion of final preparation, the body will be painted utilizing the highest quality, state of the art, low V.O.C., polyurethane base paint. Finish paint will be applied in multiple coats to ensure proper paint coverage with a high gloss finish.

The inside and underside areas of the complete body assembly will be painted black using a PPG Delta System, prior to the installation of the body on the chassis. The body paint finish will be PPG Delta System in a single color, to match customer furnished paint codes and requirements.

COMPARTMENT PAINT

The interior of the body compartments will be painted with Line-X material.

FENDER STORAGE COMPARTMENT PAINT

The interior of the fender storage compartments will be finish painted with Light Gray Line-X paint

CHASSIS CAB PAINT

The commercial cab exterior will be finish painted in a two tone color scheme by the chassis manufacturer

TOUCH-UP PAINT

One (1) pint of each exterior color paint for touch-up purposes will be supplied when the apparatus is delivered to the end user.

FINALIZATION & DETAILING

Prior to delivery the vehicle, the interior and exterior be cleaned and detailed.

RUST PROOFING



The entire unit will be thoroughly rust proofed utilizing rustproof and sound deadening materials applied in manufacturer recommended application procedures.

LETTERING

The sales representative will supply all gold leaf or equal lettering, decals, special emblems and non NFPA required striping.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the cab driver's and officer's doors per the fire department requirements.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the cab crew doors per the fire department requirements.

Scotch-Cal without drop shadow lettering will be provided on the front BUMPER per the fire department requirements.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the front of the cab per the fire department requirements.

Scotch-Cal without drop shadow lettering will be provided on the REAR COMPARTMENT DOOR per the fire department requirements.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the body side sheet per the fire department requirements.

SCOTCH-LITE STRIPE

A six (6) inch high "Scotch-Lite" stripe will be provided. The stripe will be applied on a minimum of 60 percent of each side of the unit, 60 percent on the rear of the unit and 40 percent on the front of the unit.

A six (6) inch simple "Z" effect will be incorporated into the Scotch-Lite scheme on the body.

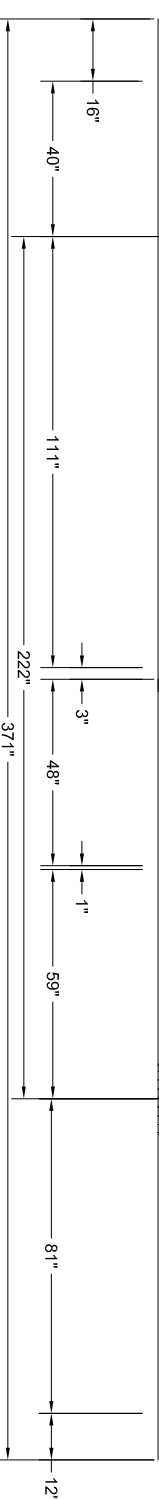
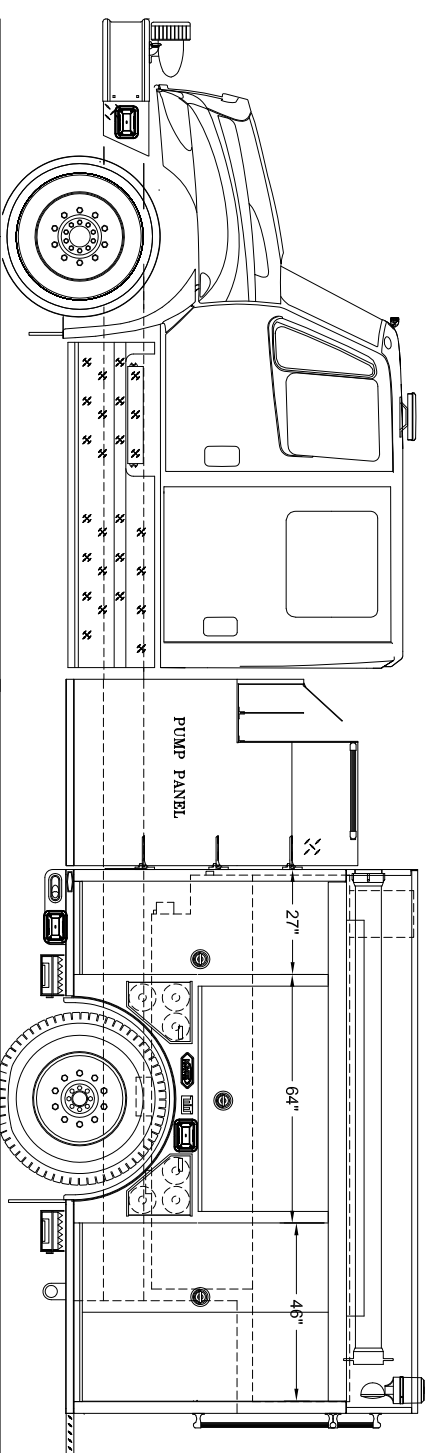
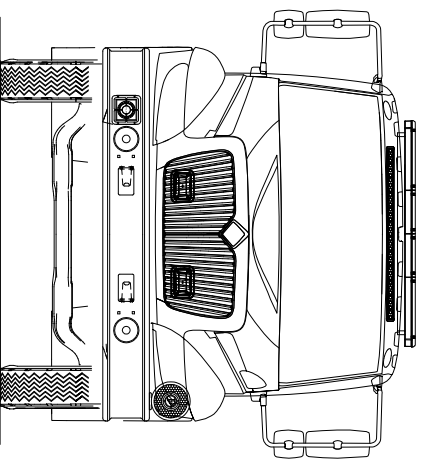
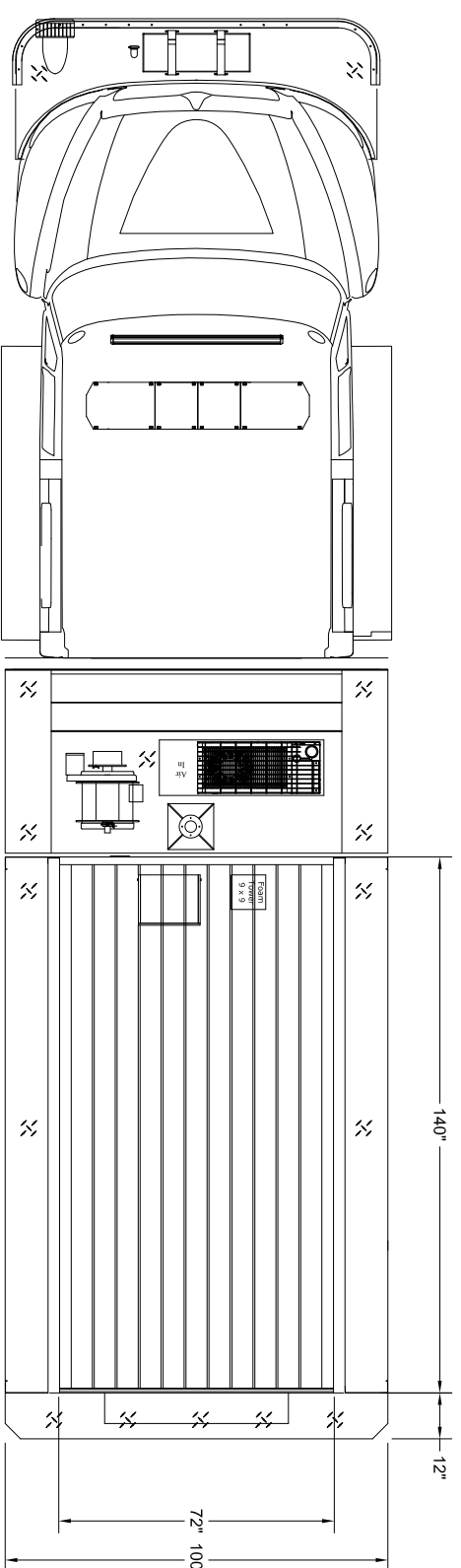
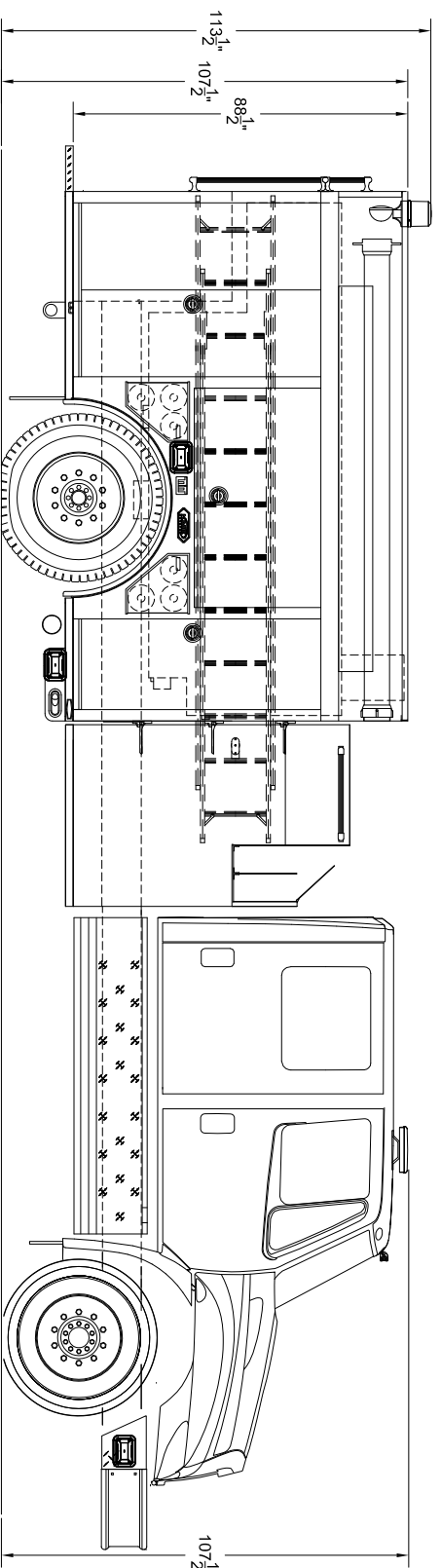
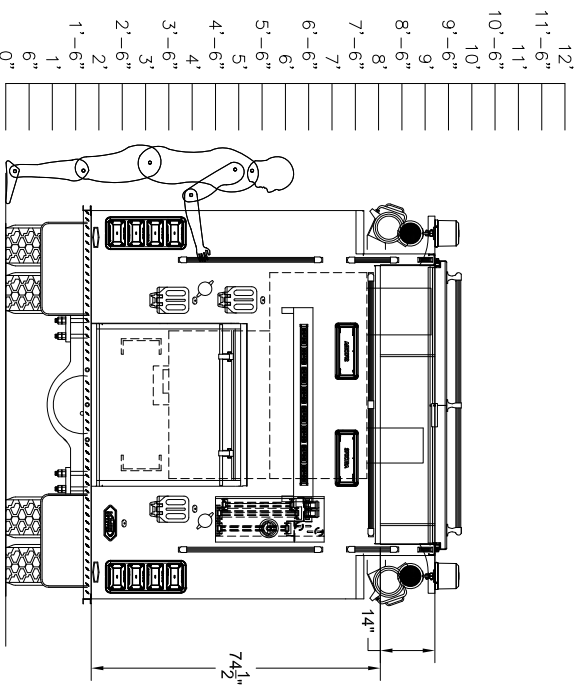
SCOTCH-LITE ACCENT STRIPES

A 1" high Scotch-Lite material accent stripe will be incorporated into the Scotch-Lite scheme to border the primary Scotch-Lite stripe on the top and bottom edges.

REAR CHEVRON STRIPING

At least 50% of the rear facing vertical surface will be covered with alternating strips of reflective striping.

The striping will be 6" Diamond Grade Scotch-Lite.



----- CHASSIS -----

CHASSIS: INTL 4400 SBA 4X2
 CAB: 4 DOOR
 ENGINE: N9 330 HP
 TRANSMISSION: 3000 EVS P
 FRONT AXLE: 14,000#
 REAR AXLE: 26,000#

----- PUMP -----

PUMP: WATEROUS CSU-C20-1500 GPM SINGLE STAGE
 INTAKES
 DRIVER SIDE: 6" & 2-1/2"
 OFFICER SIDE: 6"
 FRONT: N/A
 REAR: N/A
 DISCHARGES
 DRIVER SIDE: (2) 2-1/2" & (1) 4"
 OFFICER SIDE: (1) 2-1/2"
 FRONT: (1) 1-1/2"
 REAR: (2) 2-1/2"
 DECK GUN: (1) 3"
 OTHER: (2) 1-3/4" CROSSLAYS
 N/A
 N/A

----- TANK -----

TANK: POLY
 WATER: 1,000 GALLONS
 FOAM: 20 GALLONS
 EXTRA FILLS: N/A
 DUMPS: N/A

----- BODY -----

BODY TYPE: 140" FLEX SHORT
 MATERIAL: 3/16" ALUMINUM
 COMPARTMENTATION
 DRIVER SIDE: FULL HEIGHT/SPLIT DEPTH
 OFFICER SIDE: FULL HEIGHT/SPLIT DEPTH
 HOSERED
 DIVIDERS: TWO (2) MINIMUM
 HOSE LOAD:

----- MISC. -----

GENERATOR: SMART POWER HR-6 PTO/HYD
 FOAM SYSTEM: WATEROUS ADVANTUS 3

CUSTOMER APPROVAL:

NAME: _____
 TITLE: _____
 DATE: _____

THIS DRAWING IS A GENERAL CONFIGURATION AND MAY NOT NECESSARILY REFLECT ALL CONTRACTUAL REQUIREMENTS. CONTRACT SPECIFICATIONS SHALL PREVAIL OVER DRAWING

SYM	DATE	REVISION DESCRIPTION	APP'D
A		PROPOSAL	ZZ
SALES ENGINEER : T.B.D.			



KOVATCH MOBILE EQUIPMENT
 ONE INDUSTRIAL COMPLEX - NISSUBOHONG, PA 18240

DIMENSIONS ARE APPROXIMATE & MAY VARY DUE TO BUILD ADJUSTMENTS
 DATE: 11/06/2015 SCALE: 1"=24" DWG SIZE: D DRAWN BY: J.J.M. APPROVED BY:

KME COMMERCIAL PUMPER
 FCAM COMMERCIAL HIGH END
 PROPOSAL



**PROPOSAL FOR A KME
MIDDLE RANGE CUSTOM
PUMPER**

MAPC/FCAM 4

2015



QUOTATION

Metropolitan Area Planning Council
 Lorraine See
 60 TemplePlace
 6th Floor Reception
 Boston, Ma 02111
 617-933-0766

Bulldog Fire Apparatus
 PO Box 58
 17 Winter Street
 Woodville, MA 01784
 877-644-2707
 508-435-0250
 lmurphy@bulldogfa.com

Sales Rep: **Terms:**
 FCAM MIDDLE-RANGE CUSTOM PUMPER - 2016
 Final Draft MAPC/FCAM -4

Drawing #:
Est. Delivery Date: // **Penalty:**
Customer PO #:
Customer #:
QPF #:

Quote No: 10028-0035
 11/10/2015 15:59:39

PART NO	DESCRIPTION	QTY	ID
== CUSTOM PUMPER WARRANTY PACKAGE - 1014.015 10/14/15 ==			
QUOTE DATA VERSION: 1014.0150- 2015 DATA SET			
INDEX OF PART NUMBERS			
02-00-0060	PROPOSED BY - BULLDOG FIRE APPARATUS	1	KME
04-00-0000	PROPOSED - GENERAL INFORMATION - NFPA 1901	1	KME
04-00-0033	PROPOSED - COMPLETION INFO	1	KME
04-00-0040	PROPOSED - FMVSS CERTIFICATION	1	KME
04-00-0060	PROPOSED - RECORDS	1	KME
04-00-0080	PROPOSED - TOP OF THE LINE CHASSIS NON-MULTIPLEX	1	KME
04-00-0100	PROPOSED - GENERAL CONSTRUCTION	1	KME
04-00-0120	PROPOSED - SINGLE LINE RESPONSIBILITY	1	KME
04-00-0130	PROPOSED - PRODUCT LIABILITY - \$30,000,000.00	1	KME
04-00-0193	PROPOSED - PAINT PERFORMANCE CERTIFICATION	1	KME
04-00-0490	PROPOSED - PRICES & PAYMENTS	1	KME
04-00-0540	PROPOSED - BOND REQUIREMENTS	1	KME
04-00-0560	PROPOSED - PERFORMANCE BOND	1	KME
04-00-0580	PROPOSED - NON-COLLUSION AGREEMENT	1	KME
04-00-0630	PROPOSED - MATERIAL & WORKMANSHIP	1	KME
04-00-0660	PROPOSED - CONTRACT SPECIALIST	1	KME
04-00-0680	PROPOSED - APPROVAL DRAWING	1	KME
04-00-0820	ACCOMMODATIONS FOR ONE (1) DEALER PERSONNEL FCAM	1	DLR
04-00-1200	PROPOSED - DELIVERY	1	KME
04-00-1215	PROPOSED - INSTRUCTION MANUALS, TWO (2) SETS - CD	1	KME
04-00-1215	POWERPOINT DELIVERY - PROPOSAL FCAM	1	DLR
04-00-1300	PROPOSED - VEHICLE FLUIDS PLATE	1	KME
04-00-1320	PROPOSED - PRINCIPAL APPARATUS DIMENSIONS & GVWR	1	KME
04-00-1430	PROPOSED - KME OWNERSHIP	1	KME
04-00-1445	PROPOSED - UNIT BUILT AT HEADQUARTERS	1	KME
04-00-1500	PROPOSED - MANUFACTURE GENERATED EXACT BLUEPRINT WITH BID	1	KME
04-00-1540	PROPOSED - MANUFACTURED IN THE UNITED STATES	1	KME
04-00-1550	PROPOSED - ISO 9001 QUALITY MANAGEMENT SYSTEM	1	KME
04-00-1570	PROPOSED - NFPA TREAD PLATE CERTIFICATION	1	KME
04-00-1605	PROPOSED - AMP DRAW REPORT	1	KME
04-00-1700	PROPOSED - COOPERATIVE PURCHASING	1	KME
07-00-0045	"PUMPER FIRE APPARATUS" NFPA 2009 CHAPTERS OF COMPLIANCE	1	KME
08-00-0000	VEHICLE DATA PLATE DESCRIPTION	1	KME
14-00-0000	NFPA ROLLOVER STABILITY GENERAL STATEMENT	1	KME

PART NO	DESCRIPTION	QTY	ID
AA-00-002A	SERVICE CENTER - PROPOSAL FCAM	1	DLR
BA-00-3000	SEAT AND SEAT BELT ANCHOR TESTING	1	KME
BA-00-4100	CUSTOM PUMPER	1	KME
BA-00-4640	<1> 100" - PREDATOR "PANTHER", PUMPER -SINGLE AXLE	1	KME
BA-02-8330	<2> HEADER, CHALLENGER PUMPER (CUSTOM)	1	KME
	**** HEADER - 100" PREDATOR "PANTHER" CAB ****	1	KME
BA-04-0835	PREDATOR "PANTHER" CAB - BASE, 100"	1	KME
BA-04-0850	PREDATOR CAB - BASE - ALUMINUM CONSTRUCTION	1	KME
BA-04-0990	PREDATOR 100" - CRASH TESTING	1	KME
BA-04-0995	PREDATOR 100" - 120,000# ROOF & SIDE TESTING	1	KME
BA-04-1600	PREDATOR 100" "PANTHER" - MFD CAB LENGTH (DIM - 62 1/2")	1	KME
BA-04-4110	10" RAISED ROOF - 100" PREDATOR "PANTHER"	1	KME
BA-04-5000	CAB ROOF DRIP RAIL 100" PREDATOR/PANTHER	1	KME
BA-05-0635	BARRIER HEIGHT CAB DOORS, 100" "PANTHER"	1	KME
BA-05-0675	CAST ANTI-SLIP ENTRY STEPS FOR REDUCED LENGTH CAB DOORS - PANTHER	1	KME
BA-05-1015	PREDATOR DOOR LATCHES, HD LOOP STYLE LATCH - BARRIER HEIGHT DOORS	1	KME
BA-05-1035	LOCKING CAB DOOR , OUT + IN, LOOP STYLE LATCH	1	KME
BA-05-1103	WINDOWS, MANUAL HAND CRANK STYLE - 100"	1	KME
BA-05-1130	DOOR WINDOW TRIM EXTRUSION, 4 - DOOR	1	KME
BA-05-1325	FULL HEIGHT INTERIOR DOOR PANELS - BRUSH ALUM, 4 - DOOR	1	KME
BA-05-1510	SCOTCHLITE MATERIAL ON INTERIOR OF DOOR PANEL 4-DOORS	1	KME
BA-05-2415	WINDSHIELD, 100" PREDATOR "PANTHER" CAB	1	KME
BA-05-2425	WINDSHIELD WIPERS & WASHERS - 100" PREDATOR	1	KME
BA-05-2465	SIDE VIEWING WINDOWS NON-SLIDING - PREDATOR "PANTHER"	1	KME
BA-05-2500	DARK TINT WINDOWS, SIDE VIEWING, REAR DOORS & REAR WALL	1	KME
BA-05-2600	GRAB RAILS EXTERIOR, KNURLED ALUMINUM EXTRUSION	1	KME
BA-05-2675	PREDATOR "PANTHER" INTERIOR GRAB HANDLES - WHEELABRATED	1	KME
BA-05-2725	FRONT CAB GRILLE - SHAPED PERFORATED POLISHED STAINLESS, 100" PRED, SS, PANTHER	1	KME
BA-05-2825	SIDE CAB GRILLES -SHAPED SHAPED PERFORATED POLISHED STAINLESS, 100" PRED, SS, PA	1	KME
BA-05-2900	ALUMINUM CAB WHEEL LINERS	1	KME
BA-05-2910	ALUMINUM CAB FENDERETTES	1	KME
BA-05-3000	FRONT MUD FLAPS	1	KME
BA-05-3500	VELVAC MIRRORS " WEST COAST" HEATED / REMOTE - W/CONVEX SPOT	1	KME
BA-05-3501	VELVAC WEST COAST MIRROR INSTALLATION	1	KME
BA-05-5155	INTERIOR TRIM, 100" PREDATOR "PANTHER" - GRAY DURAWEAR	1	KME
BA-05-5185	CUSTOM CAB INTERIOR PAINT - JOB COLOR	1	KME
BA-05-5245	PREDATOR REAR INTERIOR CAB WALL, GRAY DURAWEAR "PANTHER"	1	KME
BA-05-5530	STORAGE COMPARTMENTS UNDER FRONT SEATS - 100" PREDATOR	1	KME
BA-05-5610	BARYFOL FLOORING	1	KME
BA-05-5840	ENGINE ENCLOSURE 100" PREDATOR "PANTHER" (ABS)	1	KME
BA-05-5860	ENGINE ENCLOSURE MATERIAL - ALUMINUM CAB	1	KME
BA-05-5890	REDUCED LENGTH ENGINE ENCLOSURE	1	KME
BA-05-5915	HD SOUNDPROOFING/ INSULATION PACKAGE UNDER ENGINE ENCLOSURE - PANTHER	1	KME
BA-05-7000	SUN VISORS, PREDATOR CAB, DARK POLYCARBONATE	1	KME
BA-06-0400	DELETED - TOP ROLLOVER PROTECTION SYSTEM	1	KME
BA-06-3220	DRIVERS SEAT, BOSTROM EX8 SIERRA ELECTRIC BASE - ABTS	1	KME
BA-06-3630	OFFICERS SEAT, BOSTROM 450 SCBA, ABTS, FIXED	1	KME
BA-06-3930	BOSTROM "SECUREALL" SCBA BOTTLE BRACKET - OFFICER'S SEAT	1	KME
	"PANTHER" CAB - REAR FACING BOSTROM SEATS - NON ROLLTEK	1	KME
BA-06-4110	BOSTROM 450 SCBA ABTS REAR FACING, OUTBOARD, DS	1	KME
BA-06-4195	BOSTROM "SECUREALL" SCBA BOTTLE BRACKET - OUTBOARD, DS	1	KME
BA-06-4210	BOSTROM 450 SCBA ABTS REAR FACING, OUTBOARD, OS	1	KME
BA-06-4295	BOSTROM "SECUREALL" SCBA BOTTLE BRACKET - OUTBOARD, OS	1	KME
	"PANTHER" MFD CAB - FORWARD FACING BOSTROM SEATS - NON ROLLTEK	1	KME
BA-06-8005	BOSTROM SEATING MATERIAL, GRAY TWEED DURAWEAR	1	KME
BA-06-8055	NO SCBA PARADE COVERS SUPPLIED	1	KME
BA-06-9070	AKRON/WELDON SEAT BELT WARNING SYSTEM - UP TO 6 SEATS	1	KME
BA-06-9115	FOUR (4) SEATING POSITIONS	1	KME
BA-06-9320	AKRON/WELDON VEHICLE DATA RECORDER	1	KME
BA-06-9330	AKRON/WELDON VDR DOWNLOAD HARNESS	1	KME
BA-07-7010	STANDARD #MATM RADIO ANTENNA INSTALLED	1	KME
BA-08-0252	DASH & CENTER CONSOLE - 100" PREDATOR "PANTHER" (ABS PLASTIC)	1	KME
BA-08-0290	INSTRUMENT PANEL, 100" PREDATOR "PANTHER" WIDE ABS	1	KME
BA-08-0315	DIESEL EXHAUST FLUID LEVEL GAUGE	1	KME
BA-08-0320	ENGINE COMPRESSION BRAKE CONTROLS	1	KME

PART NO	DESCRIPTION	QTY	ID
BA-08-1220	INDICATOR CLUSTER, 100" PREDATOR	1	KME
BA-08-1235	"ATC DISABLED" INDICATOR CLUSTER	1	KME
BA-08-1240	"ATC ACTIVE" INDICATOR CLUSTER	1	KME
BA-08-1600	!!!! NO CENTER DASH SWITCH PANEL EXTENSION/MODULE PROVIDED !!!!	1	KME
BA-08-1810	AUXILIARY SWITCH PANEL - LOWER DASH AREA	1	KME
BA-08-1900	PUMP SHIFT CONTROL ON LOWER LEFT DASH PANEL	1	KME
BA-08-2703	FLAT DASH IN FRONT OF OFFICER (ABS), 100" PREDATOR	1	KME
BA-08-3350	HEATER/ DEFROSTER & ACCESS, PREDATOR "PANTHER" 10" RR	1	KME
BA-08-3450	AIR CONDITIONING - PANTHER OVERHEAD AIR CONDITIONING SYSTEM	1	KME
BA-08-6780	CLIMATE CONTROL SYSTEM - CONTROLS ABOVE DRIVER - PANTHER	1	KME
BA-08-9000	CAB TILT SYSTEM & OPTIONS	1	KME
BA-08-9110	PARKING BRAKE/CAB TILT INTERLOCK	1	KME
BA-09-5600	110,000 PSI FRAME: SINGLE MAIN RAIL - PANTHER	1	KME
BA-10-0055	BUMPER 12" PAINTED STEEL BUMPER - ALL CABS	1	KME
BA-10-0320	6" FRONT BUMPER EXTENSION W/GRAVEL SHIELD "PANTHER"	1	KME
BA-10-2010	TWO (2) PAINTED TOW HOOKS BELOW FRONT BUMPER	1	KME
BA-14-0120	18,000# FRONT AXLE MERITOR MFS-18-133A-N	1	KME
BA-14-1100	MERITOR "S" CAM BRAKES 16.5" X 6" FRONT AXLE, W/AUTO SLACK ADJUSTERS	1	KME
BA-14-2010	SUSPENSION FRONT - 18,000# RATING	1	KME
BA-14-2110	FRONT AXLE SHOCK ABSORBERS - MONROE "MAGNUM - 70"	1	KME
BA-14-5130	27,000# REAR AXLE MERITOR RS-26-185	1	KME
BA-14-6510	16.5" X 7" S-CAM BRAKES - MERITOR REAR AXLE, W/ AUTO SLACK	1	KME
BA-15-2810	VEHICLE TOP SPEED - 2009 NFPA STATEMENT	1	KME
BA-15-4420	SPRING REAR SUSPENSION, SINGLE REAR AXLE (31,000#)	1	KME
BA-20-1020	BRAKE SYSTEM, CHASSIS - PANTHER	1	KME
BA-20-1100	ABS BRAKING FOR SINGLE REAR AXLE CHASSIS	1	KME
BA-20-1200	AUTO TRACTION CONTROL (ATC) FOR ABS SYSTEM SINGLE REAR AXLE	1	KME
BA-20-1500	AIR RESERVOIRS 4700 CU IN SA, BASE	1	KME
BA-20-2005	AUTOMATIC MOISTURE EJECTOR ON THE PRIMARY TANK	1	KME
BA-20-2025	1/4 TURN DRAIN VALVES ON ALL AIR TANKS	1	KME
BA-20-3010	ROCKWELL/WABCO SYSTEM SAVER #1200, AIR DRYER HEATED	1	KME
BA-20-5000	COLOR CODED SYNIFLEX BRAKE LINES - SA	1	KME
BA-20-5500	AIR COMPRESSOR -WABCO 18.7 CFM- STD. FOR ALL CUMMINS ENGINES	1	KME
BA-20-5810	BRAKE TREADLE VALVE	1	KME
BA-20-6000	PARKING BRAKE CONTROL - NEAR DRIVER	1	KME
	HEADER, WHEELS, 18,000 FRONT AXLE - STEEL - 22.5 X 9	1	KME
BA-25-1000	FRONT WHEELS, STEEL DISC TYPE, 22.5 X 9, 18,000#	1	KME
BA-25-1015	FRONT WHEELS, LUG AND HUB TRIM (STEEL WHEELS)	1	KME
BA-25-2010	FRONT, GOODYEAR 315/80R22.5 L 19,450# G670RV HIGHWAY - 75MPH	1	KME
BA-25-2400	GOODYEAR - FIRE SERVICE RATING - TIRE RESTRICTIONS	1	KME
	HEADER, TIRES & WHEELS, 27,000 SINGLE REAR AXLE	1	KME
BA-25-5000	REAR WHEELS, STEEL DISC TYPE, 22.5 X 8.25, SA	1	KME
BA-25-5035	REAR WHEELS, LUG AND HUB TRIM, SA (STEEL)	1	KME
BA-25-6050	REAR, GDYR 12R22.5 H 29,020# G622 RSD TRACTION - 75MPH, SA	1	KME
BA-25-7400	GOODYEAR - FIRE SERVICE RATING - TIRE RESTRICTIONS	1	KME
BA-25-9900	TIRE PRESSURE MONITORING - LED VALVE STEM CAPS - SIX TIRES	1	KME
	**** 100" - HEADER, ENGINE & ENGINE COMPONENTS "PANTHER"	1	KME
BA-30-6140	CUMMINS ISL9 450 HP @ 2100 RPM, TQ 1250 lb-ft @ 1400 - PANTHER WIDE	1	KME
BA-30-9810	PROPOSED - ENGINE CERTIFICATION CUSTOM CHASSIS	1	KME
BA-32-0040	COOLING/RADIATOR, 100" PANTHER - WIDE	1	KME
BA-32-0070	ENGINE COOLANT FILTER - CUMMINS ISC - ISX	1	KME
BA-32-0085	COOLING SYSTEM CRITERIA	1	KME
BA-32-0100	TRANSMISSION COOLER	1	KME
BA-32-0120	RADIATOR SKID PLATE	1	KME
BA-32-0180	CHARGED AIR COOLER (STACK MOUNT), 100" PREDATOR CAB	1	KME
BA-32-0240	COOLANT FAN, W/CLUTCH - CUMMINS ISC/ISL	1	KME
BA-32-0340	HEATER AND COOLANT HOSES/PIPING	1	KME
BA-33-0020	SECONDARY BRAKING - ENGINE COMPRESSION BRAKE	1	KME
BA-33-0145	FAST IDLE ON DASH FOR ALL ELECTRONIC ENGINES - NON SMART WHEEL	1	KME
BA-33-0160	ENGINE AIR CLEANER	1	KME
BA-33-0180	SPARK ARRESTOR	1	KME
BA-33-0200	ACCELERATOR PEDAL - FLOOR MOUNT	1	KME
BA-33-0250	REMOTE THROTTLE & INTERLOCK HARNESS	1	KME
BA-40-0100	ALLISON 3000EVS TRANS. - COMPRESSION BRAKE	1	KME
BA-40-0650	FIVE (5) SPEED AUTOMATIC TRANSMISSION - 3000 SERIES	1	KME

PART NO	DESCRIPTION	QTY	ID
BA-40-0700	ALLISON TRANSMISSIONS, ELECTRONIC TOUCH PAD SHIFTER IN CAB	1	KME
BA-40-0855	TRANSMISSION OIL LEVEL SENSOR	1	KME
BA-40-0860	ALLISON PARK TO NEUTRAL	1	KME
BA-40-0910	ALLISON PRESELECT PROGRAMMING	1	KME
BA-40-0920	PRESELECT PROGRAMMED FOR 4TH GEAR	1	KME
BA-40-4710	TES-389 TRANS FLUID 3000EVS TRANSMISSION	1	KME
BA-45-0100	DRIVE LINES DANA-SPICER #1710 SERIES	1	KME
BA-49-0100	DIESEL EXHAUST FLUID TANK - 5 GALLON	1	KME
BA-50-0110	EXHAUST SYSTEM - DPF & SCR SYSTEM - INLINE SYSTEM	1	KME
BA-50-0155	ALUMINIZED STEEL EXHAUST TAILPIPE/OUTLET OS - DPF + SCR SYSTEM	1	KME
BA-50-2500	FUEL SYSTEM	1	KME
BA-50-2505	FUEL TANK - 50 GALLON, STEEL	1	KME
BA-50-2625	FUEL LINES - SYNTHETIC RUBBER / PLASTIC HOSE	1	KME
BA-50-2645	CUMMINS FUEL-WATER SEPARATOR	1	KME
BA-50-2700	FUEL POCKET, LEFT SIDE REAR WHEEL WELL PANEL	1	KME
BA-50-5000	STEERING - SINGLE SHEPPARD #M110, POWER STEERING GEAR	1	KME
BA-50-7015	STEERING COLUMN - BASE "PANTHER"	1	KME
BA-50-7050	18" STEERING WHEEL	1	KME
BA-50-9000	ROAD SAFETY KITS	1	KME
BE-01-0020	PREDATOR "PANTHER" CHASSIS ELECTRICAL SYSTEM DESCRIPTION	1	KME
BE-01-0120	PREDATOR "PANTHER" CHASSIS WIRING INSTALLATION	1	KME
BE-01-0150	DIRECT BATTERY GROUNDING STRAP - PREDATOR	1	KME
BE-01-0153	EMI/RFI PROTECTION	1	KME
BE-01-0205	PREDATOR 12 VOLT ELECTRICAL SYSTEM TESTING	1	KME
BE-05-0323	I/C LOAD MANAGED ELECTRICAL SYSTEM - 100" PREDATOR "PANTHER"	1	KME
BE-05-0900	CHASSIS DIAGNOSTICS SYSTEM	1	KME
BE-05-1160	VOLTAGE MONITORING SYSTEM - 12 VOLT	1	KME
BE-05-1165	INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM	1	KME
BE-05-1170	SEQUENCER	1	KME
BE-05-1175	ELECTRICAL HARNESS INSTALLATION - 12 VOLT	1	KME
BE-10-0487	DELCO REMY 40SI, 320 AMP BRUSHLESS ALTERNATOR	1	KME
BE-15-0600	BATTERIES - THREE (3) EXIDE GROUP 31, "PANTHER/TALON", 925CCA	1	KME
BE-15-1110	PREDATOR BATTERY STORAGE, STEEL, DS-3 BATTERIES "PANTHER/TALON"	1	KME
BE-15-1500	BATTERY DISCONNECT SWITCH, ALL UNITS	1	KME
BE-15-1555	COLE HERSEE BATTERY JUMPER STUDS, DS BATTERY BOX	1	KME
BE-20-1635	120 VOLT 20 AMP SUPER AUTO EJECT FOR BATT CHARGER - CUSTOM	1	KME
BE-20-1715	SHORELINE RECEPTACLE LABEL - NFPA	1	KME
BE-20-1720	RED COVER FOR KUSSMAUL AUTO-EJECT RECEPTACLE, #091-55RD	1	KME
BE-20-1750	SHORELINE LOCATION - ADJACENT TO DRIVER'S DOOR	1	KME
BE-20-2020	KUSSMAUL MODEL 1200, 40AMP W/ 120 VAC 125PSI AIR COMP.	1	KME
BE-20-3220	KUSSMAUL AUTO DRAIN ACHP - 120V	1	KME
BF-00-0310	PREDATOR "PANTHER" SWITCH CONSOLE CENTER DASH - NON MULTIPLEX	1	KME
BF-00-0515	WELDON #8080-8000-13 WHITE/RED LED INTERIOR LIGHTS (4)	1	KME
BF-00-5005	DOOR OPEN INDICATOR W/ INTEGRAL AUDIBLE ALARM "PANTHER"	1	KME
BF-01-6000	12 VOLT POWER AND GROUND CIRCUIT FOR ACCESSORIES IN DASH	1	KME
BF-20-0060	DUAL HEADLIGHTS, LED, PREDATOR - PETERSON - DUAL BEZELS	1	KME
BF-20-0320	DAYTIME RUNNING LIGHTS, ALL CABS	1	KME
BG-00-0055	DUAL MODULE w/ CODE 3 65STA LED TURN SIGNAL & REQ WARN LIGHT	1	KME
BG-00-0450	CUST PUMP/TANK/RES CHASSIS LED MARKER LIGHTS	1	KME
BG-00-1200	WHELEN LED MARKER LIGHTS @ TOP FRONT ROOF EDGE OF CAB	1	KME
BG-00-1600	TRUCK-LITE MARKER LIGHTS @ EA SIDE OF CAB, ADJACENT TO DRIVER DOOR	1	KME
BG-00-1610	TRUCK-LITE MARKER/TURN LIGHTS @ EA SIDE OF BODY	1	KME
BG-00-1660	TRUCK-LITE MARKER LIGHTS @ REAR OF BODY	1	KME
BG-00-1800	TRUCK-LITE DOT AMBER REFLECTORS @ SIDE OF BODY	1	KME
BG-00-1810	TRUCK-LITE DOT RED REFLECTORS @ REAR OF BODY	1	KME
BG-00-2915	TECNIQ #L10 LED LICENSE PLATE LIGHT @ DS REAR OF BODY	1	KME
BG-02-2532	CODE 3, #65 LED BRAKE, REVERSE, & TURN W/ QUAD HOUSING	1	KME
BH-04-1040	CAB STEP LIGHTS, INNOVATIVE LIGHTING LED, ALL DEVICES	4	KME
BH-04-1125	BODY STEP LIGHTS, INNOVATIVE LIGHTING LED, ALL DEVICES	2	KME
BH-05-1620	DUNNAGE AREA LIGHTING, INNOVATIVE LED	1	KME
BH-05-2017	UNITY LED SPOTLIGHTS ON REAR BODY STANCHIONS	1	KME
BH-11-0810	NFPA (4) AMDOR H2O LED GROUND LIGHTS, BELOW CAB DOORS	1	KME
BI-00-0300	PUMPER BODY ELECTRICAL SYSTEM	1	KME
BI-00-0305	PUMPER BODY JUNCTION COMPARTMENT	1	KME
BJ-00-5100	PUMP ENCLOSURE WORK LIGHTS - PETERSON	1	KME

PART NO	DESCRIPTION	QTY	ID
BJ-00-5150	ENGINE COMPARTMENT WORK LIGHTS - PETERSON	1	KME
BJ-02-0400	COMPT. LIGHTS, AMDOR LUMA BAR LED LIGHTING - SINGLE	6	KME
BL-95-0000	NFPA COMPLIANT WARNING LIGHT PACKAGE - ALL UNITS	1	KME
BL-95-0100	LIGHT PACKAGE ACTUATION/CONTROLS - ALL UNITS	1	KME
BL-98-0000	WARNING LIGHT FLASH PATTERN - NFPA FLASH PATTERN	1	KME
BM-00-0208	CODE 3 UPPER PACKAGE - CUSTOM PUMPER	1	KME
BM-02-0086	A-UPPER, CODE 3 LED 2780NFPA P1, RX 2700 80" PRIZM II BAR	1	KME
BM-02-1050	C-UPPER, CODE 3 ARCH LED BEACONS - 360° SOLID COLOR	1	KME
BM-02-2000	B/D-UPPER REAR, COVERED BY LIGHTS IN ZONE C-UPPER	1	KME
BM-02-3000	B/D-UPPER FRONT, COVERED BY LIGHTS IN ZONE A-UPPER	1	KME
BM-07-0208	CODE 3 LOWER PACKAGE - CUSTOM PUMPER	1	KME
BM-09-0018	A-LOWER FRONT, CODE 3 65 SERIES LED	1	KME
BM-09-0098	A-LOWER FRONT MOUNTING, CUSTOM CHASSIS	1	KME
BM-09-1014	C-LOWER REAR, CODE 3 65 SERIES LED	1	KME
BM-09-2006	B/D-LOWER FRONT, CODE 3 65 SERIES LED	1	KME
BM-09-2098	B/D-LOWER FRONT MOUNTING, CUSTOM CHASSIS	1	KME
BM-09-3006	B/D-LOWER MID, CODE 3 65 SERIES LED	1	KME
BM-09-4006	B/D-LOWER REAR, CODE 3 65 SERIES LED	1	KME
BM-15-0000	LIGHT PACKAGE NFPA CERTIFICATION - ALL UNITS	1	KME
BW-00-0510	CHASSIS SINGLE ELECTRIC (DOT) HORN	1	KME
BW-00-0560	CODE 3, #CA278, BACK-UP ALARM - 87DBA	1	KME
BW-01-0300	SIREN, CODE 3 #3672	1	KME
BW-01-1100	ONE (1) CODE 3, #FM100C SPEAKER	1	KME
DC-00-2310	WATEROUS CS-C20-1250 SINGLE STAGE PUMP	1	KME
DC-01-4600	WATEROUS PUMP PACKING	1	KME
DC-01-5180	WATEROUS PUMP IMPELLER (SINGLE STAGE)	1	KME
DC-01-6210	WATEROUS "C20" PUMP DRIVE UNIT, ALL WATEROUS MID-SHIP PUMPS	1	KME
DC-01-6490	PUMP RATIO (HALE, WATEROUS OR DARLEY)	1	KME
DC-01-7140	WATEROUS AIR SHIFT	1	KME
DC-01-8615	WATEROUS PUMP SHIFT INDICATOR LIGHTS	1	KME
DC-01-9020	TRANSMISSION LOCK-UP (HALE, WATEROUS OR DARLEY)	1	KME
DC-02-1900	PUMP MOUNTS - MID-SHIP PUMPS	1	KME
DC-02-1990	PUMP INSTALLATION - CUSTOM	1	KME
DC-05-1225	FIRE RESEARCH "IN CONTROL" TGA-300 PRESSURE GOVERNOR	1	KME
DC-05-1295	TASK FORCE TIPS #A18 SERIES INTAKE RELIEF VALVE	1	KME
DC-05-2500	PUMP UL CERTIFICATION - 750 GPM & UP	1	KME
DC-05-3680	TRIDENT "MANUAL" AIR PRIMING SYSTEM	1	KME
DC-05-5110	ROTARY MASTER DRAIN VALVE	1	KME
DC-05-5420	DRAINS/BLEEDER "CLASS ONE" 1/4 TURN @ ALL 1-1/2" OR LARGER	1	KME
DC-05-5500	SYNFLEX SUCTION, DISCHARGE, PRESSURE AND CONTROL LINES	1	KME
DC-05-6220	WATEROUS ANODE BLOCKS - 2 TOTAL	1	KME
DC-10-2202	SIDE MOUNT PUMP MODULE, PUMPER	1	KME
DC-10-2500	PUMP MODULE - STEEL CONSTRUCTION	1	KME
DC-10-2770	SIDE MOUNT DUNNAGE AREA	1	KME
DC-14-3110	WATEROUS MAIN SUCTION INLETS 6" NST, 1250 GPM CS PUMP	1	KME
DC-14-5300	SHORT NECK MAIN PUMP SUCTION INLETS - DS & OS	1	KME
DC-14-5560	6" NST MAIN PUMP SUCTION PRESSURE VENTED CAPS (2)	1	KME
	HEADER - AUXILIARY SUCTION/S - PUMPER	1	KME
DC-20-1000	2 1/2" AUX. SIDE SUCTION @ DS PANEL TO REAR OF MAIN INLET	1	KME
DC-20-1100	2 1/2" AKRON #8800 S.S. BALL VALVE, DS REAR AUX SUCTION	1	KME
DC-20-1200	SWING CONTROL @ VALVE, DS REAR AUX SUCTION	1	KME
DC-20-9500	BEHIND PANEL MOUNT	1	KME
DC-25-1410	TANK TO PUMP - 3" VALVE - PUMPER	1	KME
DC-25-3110	3" AKRON #8800 SERIES - S.S. BALL, VALVE, TANK TO PUMP	1	KME
DC-25-5110	3" PUSH/PULL CONTROL FOR TANK TO PUMP	1	KME
DC-30-2100	TANK FILL LINE 2" FROM PUMP - SIDE MOUNT	1	KME
DC-30-2300	2" AKRON #8800 SERIES - S.S. BALL TANK FILL, SIDE MOUN	1	KME
DC-30-6500	PUSH/PULL CONTROL FOR TANK FILL	1	KME
	DRIVER'S SIDE #1 MAIN DISCHARGE	1	KME
DC-35-0010	DS MAIN DISCHARGE #1 - SIDE MOUNT	1	KME
DC-35-0110	2 1/2" AKRON #8800 SERIES - S.S. BALL, DS #1, SIDE MOUNT	1	KME
DC-35-1815	DS #1 DISCH - 2 1/2" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-35-2010	2 1/2" NST PRESSURE VENTED CAP - DS DISCHARGE #1	1	KME
DC-35-2420	AKRON RACK & SECTOR CONTROL HANDLE - DS DISCHARGE #1	1	KME
DC-35-3110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DS DISCHARGE #1	1	KME

PART NO	DESCRIPTION	QTY	ID
OFFICER'S SIDE #1 MAIN DISCHARGE		1	KME
DC-39-0010	OS MAIN DISCHARGE #1 - SIDE MOUNT	1	KME
DC-39-0110	2 1/2" AKRON #8800 SERIES - S.S. BALL, OS #1, SIDE MOUNT	1	KME
DC-39-1815	OS #1 DISCH - 2 1/2" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-39-2010	2 1/2" NST PRESSURE VENTED CAP - OS DISCHARGE #1	1	KME
DC-39-2460	PUSH/PULL 1/4 TURN CONTROL FOR OS DISCHARGE #1	1	KME
DC-39-3110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- OS DISCHARGE #1	1	KME
OFFICER'S SIDE #2 MAIN DISCHARGE		1	KME
DC-39-5010	OS MAIN DISCHARGE #2 - SIDE MOUNT	1	KME
DC-39-5080	**** WATEROUS PUMP LDH DISCHARGE PORT ****	1	KME
DC-39-5120	3" AKRON #8800 SERIES - S.S. BALL, VALVE OS #2, SIDE MOUNT	1	KME
DC-39-6830	OS #2 DISCH - 3" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-39-7025	DELETE 3" NST CAP - OS DISCHARGE #2	1	KME
DC-39-7250	3" NSTF X 4" STORZ KOCHEK S37S STRAIGHT ADAPTER WITH CAP OS DIS	1	KME
DC-39-7460	PUSH/PULL 1/4 TURN CONTROL FOR OS DISCHARGE #2	1	KME
DC-39-8110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- OS DISCHARGE #2	1	KME
DS HOSE BED DISCHARGE		1	KME
DC-44-0405	DS HOSE BED DISCHARGE 2 1/2" NST THREADS - PUMPER	1	KME
DC-44-0810	DS HOSE BED DISCH TERMINATE @ FLOOR LEVEL FRONT	1	KME
DC-44-0920	2 1/2" NST MALE THREADS ON DS HOSE BED DISCHARGE	1	KME
DC-44-1025	DS HOSE BED DISCHARGE, PLUMBING, 2 1/2" STAINLESS STEEL PIPING	1	KME
DC-44-1220	2 1/2" AKRON #8800 SERIES - S.S. BALL, VALVE DS HOSE BED DIS	1	KME
DC-44-1610	PUSH/PULL 1/4 TURN CONTROL FOR DS HOSE BED DISCHARGE	1	KME
DC-44-2130	2 1/2" NST DS HOSE BED DISCHARGE PRESSURE VENTED CAP	1	KME
DC-44-2210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DS HOSE BED DISCH	1	KME
DECK GUN DISCHARGE		1	KME
DC-45-0310	DECK GUN DISCHARGE - PUMPER	1	KME
DC-45-0825	DECK GUN DISCH TERMINATE @ CENTER TOP MOUNT PANEL	1	KME
DC-45-0915	3" NPT MALE THREADS ON DECK GUN DISCHARGE	1	KME
DC-45-1005	DECK GUN DISCHARGE - OVA HEIGHT NOT EXCEED TALLEST POINT	1	KME
DC-45-1125	DECK GUN DISCHARGE, PLUMBING, 3" STAINLESS STEEL PIPING	1	KME
DC-45-1230	3" AKRON #8800 SERIES - S.S. BALL, VALVE DECK GUN DISC	1	KME
DC-45-1610	PUSH/PULL 1/4 TURN CONTROL FOR DECK GUN DISCHARGE	1	KME
DC-45-2210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DECK GUN DISCH	1	KME
CROSSLAY #1 DISCHARGE		1	KME
DC-47-0600	CROSSLAY #1, 1 1/2" - PUMPER	1	KME
DC-47-1110	CROSSLAY #1 CAPACITY - 200' OF 1 3/4" HOSE	1	KME
DC-47-1420	CROSSLAY #1 - SINGLE STACK HOSE DESIGN	1	KME
DC-47-1510	1 1/2" NST CHICKSAN SWIVEL - CROSSLAY #1	1	KME
DC-47-2110	CROSSLAY #1, PLUMBING, 2" STAINLESS STEEL PIPING	1	KME
DC-47-2210	2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY #1, DISCH	1	KME
DC-47-2610	PUSH/PULL 1/4 TURN CONTROL CROSSLAY #1	1	KME
DC-47-3210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS - CROSSLAY #1	1	KME
CROSSLAY #2 DISCHARGE		1	KME
DC-47-5600	CROSSLAY #2, 1 1/2" - PUMPER	1	KME
DC-47-6110	CROSSLAY #2 CAPACITY - 200' OF 1 3/4" HOSE	1	KME
DC-47-6420	CROSSLAY #2 - SINGLE STACK HOSE DESIGN	1	KME
DC-47-6510	1 1/2" NST CHICKSAN SWIVEL - CROSSLAY #2	1	KME
DC-47-7110	CROSSLAY #2, PLUMBING, 2" STAINLESS STEEL PIPING	1	KME
DC-47-7210	2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY #2,	1	KME
DC-47-7610	PUSH/PULL 1/4 TURN CONTROL CROSSLAY #2	1	KME
DC-47-8210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS - CROSSLAY #2	1	KME
DC-50-7015	VINYL CROSS LAY COVER	1	KME
DC-50-7030	CROSSLAY COVER RED IN COLOR	1	KME
DD-65-0710	SIDE MOUNT PUMP PANEL - PUMPER	1	KME
DD-65-4115	SIDE MOUNT PANELS - 12 GAUGE BRUSHED STAINLESS STEEL	1	KME
DD-65-4710	VERTICALLY HINGED GAUGE PANEL - SIDE MOUNT	1	KME
DD-65-4810	OFFICER SIDE VERTICALLY HINGED PUMP ACCESS DOOR - SIDE MOUNT	1	KME
DD-65-5150	PANEL FASTENERS	1	KME
DD-65-5510	CAPS AND ADAPTERS SAFETY TETHER - BALL CHAIN	1	KME
DD-65-8820	PUMP PANEL DISCH./SUCTION TRIM PLATES, HIGH POLISHED	1	KME
DD-65-9000	DISCHARGE GAUGE TRIM BEZELS	1	KME
DD-65-9110	IDENTIFICATION PLATES	1	KME
DD-66-0200	PUMP OPERATOR'S PANEL, FULL WIDTH LIGHT SHIELD/STEP	1	KME
DD-66-0210	AMDOR LUMA BAR H2O SUPER BRIGHT LED - LIGHT SHIELD/STEP	1	KME

PART NO	DESCRIPTION	QTY	ID
DD-66-2100	OS PUMP PANEL LIGHTING	1	KME
DD-66-2130	TECNIQ EON 3 LED LIGHTS - OS PUMP PANEL	1	KME
	PUMP OPERATOR'S PANEL - SIDE MOUNT, PUMPER	1	KME
DD-70-2334	FIRE RESEARCH "IN CONTROL" PRESSURE GOVENOR CONTROL @ PANEL	1	KME
DD-70-2410	PUMP PRESSURE & VACUUM TEST PORTS @ PANEL	1	KME
DD-70-4120	MASTER PRESSURE & COMPOUND GAUGES - 4" NOMINAL GAUGES	1	KME
DD-70-4220	4" INNOVATIVE CONTROLS MASTER PRESSURE AND COMPOUND GAUGES	1	KME
DD-70-4680	PRESSURE & COMPOUND GAUGE RANGES - SINGLE STAGE	1	KME
DD-70-4900	AUXILIARY ENGINE COOLER	1	KME
DD-72-0410	FIRE RES - TANK VISION #WLA300-A00 LED WATER TANK GAUGE - PRIMARY	1	KME
DD-72-1300	FIRE RES WATER LEVEL - 1/4" NPT PRESS TRANS @ BOTTOM TANK	1	KME
DE-15-1000	TANK 1000 GAL POLY - PUMPER	1	KME
DE-16-1000	WATER TANK CONSTRUCTION POLY	1	KME
DE-16-2000	WATER TANK LID POLY	1	KME
DE-16-2110	WATER TANK FILL TOWER POLY (TANK CAPACITY 1000-1250)	1	KME
DE-16-3000	WATER TANK 4" OVERFLOW & VENT PIPE	1	KME
DE-16-4000	WATER TANK SUMP	1	KME
DE-16-5000	WATER TANK SUMP CONNECTION; ONE (1) FRONT	1	KME
DE-16-5100	WATER TANK 3" SUMP DRAIN	1	KME
DE-16-6000	WATER TANK FLANGES/OUTLETS - PUMPER	1	KME
DE-16-7000	WATER TANK MOUNTING ALL "T" TANKS - PUMPER	1	KME
JA-00-0570	APPARATUS BODY GENERAL DESCRIPTION (CHALLENGER)	1	KME
JA-10-0520	BODY 3/16" ALUMINUM; CHALLENGER-RS	1	KME
JA-20-5010	SUPER STRUCTURE FOR ALUMINUM BODIES	1	KME
JM-00-1000	CHALLENGER; RS FAMILY	1	KME
JM-10-0020	CHALLENGER, RS-H (1030 MAX COMBINED TANK CAPACITY)	1	KME
TF-10-0600	2" THICK COMPARTMENT DOORS - FLAT RECESSED DOORS	1	KME
TF-10-1900	BRUSHED FINISHED DOOR PANS - 2" THICK DOORS	1	KME
TF-10-2720	DOOR HINGE FOR FLUSH HINGED DOORS	1	KME
TF-10-2820	DOOR SEAL FOR FLUSH HINGED DOORS	1	KME
TF-10-2935	ROTARY LATCHES WITH EZ-GRAB MALTESE HANDLES	1	KME
TF-10-3150	GAS SHOCK ON HORIZONTALLY & VERTICALLY HINGED DOORS	1	KME
TF-10-6005	SWEEP-OUT COMPARTMENTS (NON-AERIALS)	1	KME
TF-10-7030	BEAVERTAIL DESCRIPTION, CHALLENGER BODIES	1	KME
TF-11-0603	COMPARTMENT TOPS (CHALLENGER)	1	KME
TF-11-0610	COATED FASTENERS	1	KME
TF-11-0622	COMPARTMENT LOUVERS (29" DEEP BODIES)	1	KME
TF-11-0640	ACCESS PANELS (29" DEEP BODIES)	1	KME
TF-11-1530	REAR BODY PANEL DESCRIPTION (FLUSHBACK/CHALLENGER/PRO)	1	KME
TF-11-2015	CAST ALUMINUM SIDE MOUNTED REAR STANCHIONS	1	KME
TF-11-3045	BODY RUB RAILS, C-CHANNEL	1	KME
TF-12-1005	RUNNING BOARD STEPS (NON-AERIALS)	1	KME
TF-12-3525	REAR STEP - RECESSED 12"D X 42"W (FLATBACK)	1	KME
TF-12-7800	ISOLATED REAR STEP COMPARTMENT - CHALLENGER RS/FB	1	KME
TF-12-8010	ROLL-UP REAR STEP COMPARTMENT DOOR	1	KME
TF-13-5190	GRAB RAILS, KNURLED ALUMINUM EXTRUSION	1	KME
TF-13-5200	TWO (2) VERTICAL RAILS ON REAR	1	KME
TF-13-5210	ONE (1) HANDRAIL, BELOW HOSE BED LEVEL	1	KME
TF-13-7560	CAST PRODUCTS CHROME FOLDING STEP(S), BODY REAR, DS	1	KME
TF-13-7660	CAST PRODUCTS CHROME FOLDING STEP(S), BODY REAR, OS	1	KME
TF-13-9000	SAFETY SIGNS (NFPA REQUIRED)	1	KME
TF-14-2100	WHEEL WELL LINERS w/ FENDERETTE (ONE PIECE UNIT) - ALUMINUM	1	KME
TF-14-3110	FOUR (4) SCBA BOTTLE STORAGE COMPARTMENTS	1	KME
TF-14-5000	REAR MUD FLAPS	1	KME
TF-14-6510	PAINTED REAR TOW EYES, BELOW BODY	1	KME
TF-15-1605	HOSE BED, CHALLENGER RS-10	1	KME
TF-15-1910	ALUMINUM HOSE BED FLOORING - PUMPER	1	KME
TF-15-2800	TWO (2) - 3/16" ADJUSTABLE HOSE BED PARTITIONS	1	KME
TF-15-3110	HOSE BED COVER, VINYL WITH QTR TURNS	1	KME
TF-15-3190	HYPALON MATERIAL RED IN COLOR	1	KME
TJ-05-1030	ADJUSTABLE SHELF DESCRIPTION - PUMPER	1	KME
TJ-05-3055	ADJUSTABLE SHELF, DRIVER FRONT COMPARTMENT	1	KME
TJ-05-3060	ADJUSTABLE SHELF, OFFICER FRONT COMPARTMENT	1	KME
TJ-05-3065	ADJUSTABLE SHELF, DRIVER REAR COMPARTMENT	1	KME
TJ-05-3070	ADJUSTABLE SHELF, OFFICER REAR COMPARTMENT	1	KME

PART NO	DESCRIPTION	QTY	ID
TN-00-9010	CAST ALUMINUM LADDER MOUNTING BRACKETS (OFFICER SIDE)	1	KME
TN-01-2050	ALCO-LITE LADDER COMPLIMENT	1	KME
TN-02-1170	ALCO-LITE PEL-24 24' 2-SECTION EXTENSION LADDER (ALUM)	1	KME
TN-02-2515	ALCO-LITE PRL-14 14' ROOF LADDER W/FOLDING HOOKS (ALUM)	1	KME
TN-02-8010	ALCO-LITE FL-10 10' FOLDING ATTIC LADDER (ALUM)	1	KME
TN-15-0525	SUCTION HOSE STORAGE SIDE OF BODY (1-OFFICER, 1-DRIVER)	1	KME
TN-15-1005	SUCTION HOSE TROUGH	2	KME
TN-15-2235	TWO (2) 10' SECTIONS OF 6" LIGHTWEIGHT SUCTION HOSE	1	KME
TN-15-3500	SAFETY NOTE FOR PVC SUCTION HOSE	1	KME
TN-16-0210	6" NST, RED HEAD BARREL STRAINER W/MTG BKT	1	KME
TN-20-0005	ADDITIONAL ITEMS SHIPPED WITH VEHICLE, ALL NON-AERIALS	1	KME
	**** HEADER, LOOSE EQUIPMENT - PUMPER	1	KME
TN-35-1015	TWO (2) ZICO #SAC-44 FOLDING WHEEL CHOCKS, (2) MTD DRIVER SIDE	1	KME
UA-00-1100	GENERAL PAINT DESCRIPTION - ALL	1	KME
UA-00-1270	GENERAL PRIMER & PREP DESCRIPTION - PUMPER	1	KME
UA-00-1470	GENERAL FINISH PAINT DESCRIPTION - PUMPER	1	KME
UA-00-2755	BODY BUFFING & FINISH - PUMPER	1	KME
UA-03-0150	INSIDE/UNDERSIDE BODY PAINTED BLACK - PUMPER	1	KME
UA-03-0350	JOB COLOR COMPARTMENT INT W/SPATTER PAINT - PUMPER	1	KME
UA-03-0950	SINGLE COLOR BODY PAINT SCHEME - PUMPER	1	KME
UA-03-2120	PUMPHOUSE & PLUMBING PAINTED BLACK - PUMPER	1	KME
UA-03-3000	FENDER COMPARTMENT INTERIOR - JOB COLOR	1	KME
UA-05-0055	CUSTOM CAB PRIMER & PREP - PANTHER	1	KME
UA-05-0075	CUSTOM FINISH PAINT & PREP - PANTHER	1	KME
UA-05-0105	SINGLE COLOR CUSTOM CAB PAINT SCHEME	1	KME
UA-05-0350	CUSTOM CAB BUFFING & FINISH	1	KME
UA-05-0365	CUSTOM CAB INTERIOR PAINT - JOB COLOR	1	KME
UA-05-0400	CUSTOM CHASSIS GLOSS BLACK COLOR FRAME RAILS	1	KME
UA-05-0502	CUSTOM CHASSIS WHEEL AND HUB PAINT - SINGLE AXLE "PANTHER"	1	KME
UA-06-2110	PAINT CODE, SINGLE COLOR, FILL IN BLANKS	1	KME
UA-06-2200	PINT OF TOUCH-UP PAINT	1	KME
UA-06-2535	FINALIZATION & DETAILING - PUMPER	1	KME
UA-06-2850	RUSTPROOFING WARRANTY, TEN (10) YEAR	1	KME
UA-12-0200	DEALER TO SUPPLY LETTERING & DECALS	1	KME
UA-12-1200	GOLDLEAF W/ DROP SHADOW LETTERING ON FRONT CAB DOORS	1	DLR
UA-12-1255	CUSTOM LETTERING ON FRONT CAB DOORS	1	DLR
UA-12-1740	GOLDLEAF W/ DROP SHADOW LETTERING ON CREW CAB DOORS	1	DLR
UA-12-1795	CUSTOM LETTERING ON CREW CAB DOORS	1	DLR
UA-12-2175	GOLDLEAF W/ DROP SHADOW LETTERING ABOVE WINDSHIELD	1	DLR
UA-12-2600	SCOTCH-CAL W/O DROP SHADOW LETTERING ON FRONT BUMPER	1	DLR
UA-12-2700	GOLDLEAF W/ DROP SHADOW LETTERING ON FRONT OF CAB	1	DLR
UA-12-2755	CUSTOM LETTERING ON FRONT BUMPER	1	DLR
UA-12-3100	GOLDLEAF W/ DROP SHADOW LETTERING ON CAB SIDE PANEL	1	DLR
UA-12-3155	CUSTOM LETTERING ON CAB SIDE PANEL	1	DLR
UA-12-3600	SCOTCH-CAL W/O DROP SHADOW LETTERING ON REAR COMPARTMENT DOOR	1	DLR
UA-12-3755	CUSTOM LETTERING ON REAR DOOR	1	DLR
UA-50-0500	NFPA REQUIRED SCOTCH-LITE STRIPING - PUMPER	1	KME
UA-50-0515	6" SCOTCH-LITE STRIPE ON CAB AND BODY - PUMPER	1	KME
UA-58-5100	WHITE SCOTCH-LITE	1	KME
UA-80-6000	REAR CHEVRON STRIPING	1	KME
UA-80-6002	50% VERTICAL SURFACE	1	KME
UA-80-6050	6" 50% REAR SCOTCH-LITE DIAMOND GRADE CHEVRON STRIPING	1	KME
UA-80-6075	RED & FLUORESCENT YELLOW GREEN DIAMOND GRADE SCOTCH-LITE	1	KME
W6-00-000J	PROPOSED - KME WARRANTY, STARTING ON DELIVERY DATE	1	KME
W6-00-0035	REQ - 5 YEAR WARRANTY - CUSTOM CHASSIS	1	
W6-00-003	PROPOSED - 5 YEAR WARRANTY - BASE WITH CUSTOM CHASSIS	1	KME
W6-00-0160	PROPOSED - 10 YEAR CUMMINS ISC / ISL - EXTENDED WARRANTY	1	KME
W6-00-0210	PROPOSED - 5 YEAR ALLISON EVS TRANSMISSION WARRANTY	1	KME
W6-00-0220	PROPOSED - 3 YEAR COOLING SYSTEM WARRANTY - CUSTOM	1	KME
W6-00-0230	PROPOSED - LIFETIME FRAMERAIL WARRANTY	1	KME
W6-00-0242	PROPOSED - SHEPPARD STEERING GEAR STANDARD - THREE YEAR WARRANTY	1	KME
W6-00-0254	PROPOSED - 5 YEAR MERITOR FRONT AXLE - WARRANTY	1	KME
W6-00-0258	PROPOSED - 5 YEAR MERITOR SINGLE AXLE REAR - WARRANTY	1	KME
W6-00-0270	PROPOSED - 3 YEAR MERITOR ABS - WARRANTY	1	KME
W6-00-0320	PROPOSED - 10 YEAR CAB STRUCTURAL WARRANTY	1	KME



Amps/Weight Report

Metropolitan Area Planning Council
 Lorraine See
 60 TemplePlace
 6th Floor Reception
 Boston, Ma 02111
 617-933-0766

Bulldog Fire Apparatus
 PO Box 58
 17 Winter Street
 Woodville, MA 01784
 877-644-2707
 508-435-0250
 lmurphy@bulldogfa.com

Quote No: 10028-0035
1 MODEL: 00DEVICE12 CUSTOM PUMPER
2 LETTER: LETTER 21 LETTERING & STRIPING, PUMPER
3 COMP ACC: 000COMP006 COMPARTMENT ACCESSORIES PUMPER
5 MISC EQU: 000EQUIP02 MISC AND LOOSE EQUIPMENT (PUMPER)
6 WARRANTY: WARENTY-07 CUSTOM PUMPER WARRANTY PACKAGE
SPECIAL: 00000001 SPECIAL, QUOTE OVERRIDE
DEALER: Dealer Parts

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PART NO	S	DESCRIPTION	QTY	RESP	SCENE	IT
BA-05-2425		WINDSHIELD WIPERS & WASHERS - 100" PREDATOR	1	0.00	0.00	11.00
BA-06-3220		DRIVERS SEAT, BOSTROM EX8 SIERRA ELECTRIC BASE - ABTS	1	0.00	0.00	4.00
BA-08-0290		INSTRUMENT PANEL, 100" PREDATOR "PANTHER" WIDE ABS	1	1.00	1.00	0.00
BA-08-1220		INDICATOR CLUSTER, 100" PREDATOR	1	1.00	1.00	0.00
BA-08-1810		AUXILIARY SWITCH PANEL - LOWER DASH AREA	1	0.00	0.00	0.10
BA-08-1900		PUMP SHIFT CONTROL ON LOWER LEFT DASH PANEL	1	0.00	0.00	0.10
BA-08-3350		HEATER/ DEFROSTER & ACCESS, PREDATOR "PANTHER" 10" RR	1	26.00	26.00	0.00
BA-08-9000		CAB TILT SYSTEM & OPTIONS	1	0.00	0.00	150.0
BA-20-1100		ABS BRAKING FOR SINGLE REAR AXLE CHASSIS	1	2.00	0.00	0.00
BA-20-1200		AUTO TRACTION CONTROL (ATC) FOR ABS SYSTEM SINGLE REAR AXLE	1	2.00	0.00	0.00
BA-20-2005		AUTOMATIC MOISTURE EJECTOR ON THE PRIMARY TANK	1	0.00	0.00	3.50
BA-20-3010		ROCKWELL/WABCO SYSTEM SAVER #1200, AIR DRYER HEATED	1	0.00	0.00	7.60
BA-30-6140		CUMMINS ISL9 450 HP @ 2100 RPM, TQ 1250 lb-ft @ 1400 - PANTHER WIDE	1	5.00	5.00	0.00
BA-33-0020		SECONDARY BRAKING - ENGINE COMPRESSION BRAKE	1	0.00	0.00	0.50
BA-40-0100		ALLISON 3000EVS TRANS. - COMPRESSION BRAKE	1	2.00	2.00	0.00
BA-40-0650		FIVE (5) SPEED AUTOMATIC TRANSMISSION - 3000 SERIES	1	2.00	2.00	0.00
BA-50-2500		FUEL SYSTEM	1	6.00	6.00	0.00
BA-50-2645		CUMMINS FUEL-WATER SEPARATOR	1	0.00	0.00	6.00
BE-10-0487		DELCO REMY 40SI, 320 AMP BRUSHLESS ALTERNATOR	1	0.00	0.00	0.10
BF-00-0515		WELDON #8080-8000-13 WHITE/RED LED INTERIOR LIGHTS (4)	1	2.00	2.00	0.00
BF-00-5005		DOOR OPEN INDICATOR W/ INTEGRAL AUDIBLE ALARM "PANTHER"	1	0.00	0.00	1.00
BF-20-0060		DUAL HEADLIGHTS, LED, PREDATOR - PETERSON - DUAL BEZELS	1	5.40	5.40	0.00
BG-00-0055		DUAL MODULE w/ CODE 3 65STA LED TURN SIGNAL & REQ WARN LIGHT	1	0.50	0.00	0.00
BG-00-1200		WHELEN LED MARKER LIGHTS @ TOP FRONT ROOF EDGE OF CAB	1	1.10	1.10	0.00
BG-00-1600		TRUCK-LITE MARKER LIGHTS @ EA SIDE OF CAB, ADJACENT TO DRIVER DOOR	1	0.10	0.10	0.00
BG-00-1610		TRUCK-LITE MARKER/TURN LIGHTS @ EA SIDE OF BODY	1	0.60	0.20	0.00
BG-00-1660		TRUCK-LITE MARKER LIGHTS @ REAR OF BODY	1	0.30	0.30	0.00
BG-00-2915		TECNIQ #L10 LED LICENSE PLATE LIGHT @ DS REAR OF BODY	1	0.10	0.10	0.00
BG-02-2532		CODE 3, #65 LED BRAKE, REVERSE, & TURN W/ QUAD HOUSING	1	3.00	2.00	0.00
BH-04-1040		CAB STEP LIGHTS, INNOVATIVE LIGHTING LED, ALL DEVICES	4	0.00	0.80	0.00
BH-04-1125		BODY STEP LIGHTS, INNOVATIVE LIGHTING LED, ALL DEVICES	2	0.00	0.40	0.00
BH-05-1620		DUNNAGE AREA LIGHTING, INNOVATIVE LED	1	0.00	0.20	0.00
BH-05-2017		UNITY LED SPOTLIGHTS ON REAR BODY STANCHIONS	1	0.00	0.00	5.00
BH-11-0810		NFPA (4) AMDOR H2O LED GROUND LIGHTS, BELOW CAB DOORS	1	0.00	0.80	0.00
BJ-00-5100		PUMP ENCLOSURE WORK LIGHTS - PETERSON	1	0.00	0.00	2.90
BJ-00-5150		ENGINE COMPARTMENT WORK LIGHTS - PETERSON	1	0.00	0.00	2.90
BJ-02-0400		COMPT. LIGHTS, AMDOR LUMA BAR LED LIGHTING - SINGLE	6	0.00	4.20	0.00
BM-02-0086		A-UPPER, CODE 3 LED 2780NFPA P1, RX 2700 80" PRIZM II BAR	1	10.00	8.00	0.00
BM-02-1050		C-UPPER, CODE 3 ARCH LED BEACONS - 360° SOLID COLOR	1	7.50	7.50	0.00

PART NO	S	DESCRIPTION	QTY	RESP	SCENE	IT
BM-09-0018		A-LOWER FRONT, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-1014		C-LOWER REAR, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-2006		B/D-LOWER FRONT, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-3006		B/D-LOWER MID, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-4006		B/D-LOWER REAR, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BW-00-0510		CHASSIS SINGLE ELECTRIC (DOT) HORN	1	0.00	0.00	4.00
BW-00-0560		CODE 3, #CA278, BACK-UP ALARM - 87DBA	1	0.00	0.00	0.50
BW-01-0300		SIREN, CODE 3 #3672	1	8.00	0.00	0.00
DC-01-8615		WATEROUS PUMP SHIFT INDICATOR LIGHTS	1	0.00	0.00	0.50
DC-05-1225		FIRE RESEARCH "IN CONTROL" TGA-300 PRESSURE GOVERNOR	1	2.00	2.00	0.00
DD-66-0210		AMDOR LUMA BAR H2O SUPER BRIGHT LED - LIGHT SHIELD/STEP	1	0.00	1.00	0.00
DD-66-2130		TECNIQ EON 3 LED LIGHTS - OS PUMP PANEL	1	0.00	0.60	0.00
DD-72-0410		FIRE RES - TANK VISION #WLA300-A00 LED WATER TANK GAUGE - PRIMARY	1	0.20	0.20	0.00
Totals				92.80	84.90	199.7



PROPOSAL

Bulldog Fire Apparatus is pleased to offer the proposed vehicle to meet the intent of the fire department specifications. KME Fire Apparatus is a leading manufacturer in custom and commercial fire fighting vehicles.

Questions or concerns pertaining to this proposal can be answered by contacting the following KME representative:

Jeff Mazza

Bulldog Fire Apparatus

PO Box 58

17 Winter Street

Woodville, MA 01784

Phone: (877) 644-2707 / (508) 435-4054

Cell: (617) 784-8422

Fax: (508) 435-0250

Email: kmesales@bulldogfa.com

Web: www.bulldogfireapparatus.com

GENERAL INFORMATION

The proposed apparatus will be constructed to withstand the severe and continuous use encountered during emergency fire fighting services. The apparatus will be of the latest type, carefully designed and constructed with due consideration to the nature and distribution of the load to be sustained. All items of these proposal specifications will conform to the National Fire Protection Association Pamphlet No. 1901, latest edition. The proposed chassis will be certified by KME as conforming to all applicable Federal Motor Vehicle Safety Standards (FMVSS) in effect at the date of contract. KME will be responsible for preparing and maintaining a record file of parts and assemblies used to manufacture the proposed apparatus. These records will be maintained in KME's factory for a minimum of twenty (20) years. The purchaser will have access to any and all documents contained in this file upon official written request.

GENERAL CONSTRUCTION

The proposed apparatus, assemblies, subassemblies, component parts, etc., will be designed and constructed with the due consideration to the nature and distribution of the load to be sustained and to the general character of the service to which the apparatus is subjected to when placed in service. All parts of the apparatus will be designed with a factor of safety, which is equal to or greater than that which is considered standard and acceptable for this class of equipment in fire fighting service. All parts of the proposed apparatus will be strong enough to withstand general service under full load.

PRODUCT LIABILITY INSURANCE

KME provides liability and facility insurance equaling \$30,000,000.00, which is one of the highest available in the fire industry. Reference attached documentation.

PRICES AND PAYMENTS

The bid price will be F.O.B. Destination, on a delivered and accepted basis at the Fire Department. Total price on KME's proposal sheet will include all items listed in these specifications.

BOND REQUIREMENTS

KME's bonding company will meet the following requirements:

- An acceptable surety as outlined by the United States Department of Treasury on their most recent Federal Register at a limit of at least \$10,000,000;
- A.M. Best rating of "A" or better with a financial rating of at least "VIII"; and licensed as a surety in the Commonwealth of Massachusetts.

PERFORMANCE BOND

A performance bond will be supplied by the KME upon acceptance of the signed sales contract for the apparatus. The performance bond will be for an amount equal to the full contract price (i.e. 100% bond).

NON-COLLUSIVE BIDDING CERTIFICATION

By submission of this bid, KME and each person signing on behalf of KME certifies, under penalty of perjury, that to the best of their knowledge and belief:



- The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for purpose of restricting competition, as to any matter relating to sell prices with any other bidder or any competitor.
- Unless otherwise required by law, the prices that have been quoted in this bid have not been knowingly disclosed by KME and will not knowingly be disclosed by KME prior to opening, directly or indirectly, to any other bidder or to any competitor
- No attempt has been made by KME to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition.
- That all requirements of the law including amendatory provisions as to non-collusive bidding have been complied with.

MATERIAL AND WORKMANSHIP

All equipment furnished will be guaranteed to be new and of current manufacture, to meet all requirements of purchaser's specifications.

CONTRACT SPECIALIST

KME will designate an in house individual to perform KME's contract specialist functions. The contract specialist will provide a single point interface between the purchaser and KME on all matters concerning the contract.

APPROVAL DRAWING

A detailed drawing of the apparatus will be provided to the Metropolitan Area Planning Council for approval before construction begins.

INSPECTION VISIT

Accommodations have been included for one (1) dealer representative to make a factory inspection trip.

INSTRUCTION MANUALS/DRAWINGS, SCHEMATIC

KME will supply at time of delivery, two (2) CD copies of a complete operation and service manual covering the complete apparatus as delivered and accepted.

DELIVERY AND FAMILIARIZATION

Upon delivery a KME certified delivery engineer will come to the Fire Department to demonstrate the unit to the Department and familiarize Department personnel with the apparatus. There will be an **AS BUILT** PowerPoint presentation of the specific apparatus as delivered, that covers each and every control and feature of the unit. The program will be delivered to each Department shift and maintenance personnel. A copy of the PowerPoint program will be provided to the Department for future use.

VEHICLE FLUIDS PLATE

As required by NFPA-1901, KME will affix a permanent plate in the driver's compartment specifying the quantity and type of the following fluids used in the vehicle

KME PROPOSED DIMENSIONS:

- OVERALL LENGTH: 344"
- OVERALL WIDTH: 100"
- OVERALL HEIGHT: 114"
- WHEELBASE: 179"
- MINIMUM FRONT G.A.W.R.: 18,000 lbs.
- MINIMUM REAR G.A.W.R.: 27,000 lbs.
- MINIMUM TOTAL G.V.W.R.: 45,000 lbs.

KME will include the principal dimensions, front G.A.W.R., rear G.A.W.R., and total G.V.W.R. of the proposed apparatus.

PRIMARY PLANT CONSTRUCTION

In order to insure top quality construction, maximum assembly line and engineering communication and the highest level of manufacturing supervision the entire apparatus will be built at KME's (headquarters) manufacturing facility in Nesquehoning, PA.



PROPOSAL BLUEPRINT

KME is providing a scaled drawing of the specific apparatus being proposed WITH THE BID. The drawing has been generated by KME's engineering department in order to maintain the accuracy of the drawing.

QUALITY MANAGEMENT

KME is certified ISO 9001 at all company locations.

STEPPING, STANDING, & WALKING SURFACES

All stepping, standing, and walking surfaces on the body will meet NFPA #1901 anti-slip standards. Aluminum tread plate utilized for stepping, standing, and walking surfaces will be Alcoa No-Slip type.

AMP DRAW REPORT

KME will provide with their bid proposal and at the time of delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

GENERAL APPARATUS DESCRIPTION "PUMPER"

The unit will be designed to conform fully to the "Pumper Fire Apparatus" requirements as stated in the NFPA 1901 Standard (2009 Revision).

CHASSIS DATA LABELS

Data labels will be provided as required by NFPA Standard 1901

ROLLOVER STABILITY

The apparatus will meet the criteria defined in 4.13.1 for rollover stability as defined in the 2009 NFPA Standard for Automotive Fire Apparatus.

KME REGIONAL SERVICE CENTER

The KME New England Regional Service Center is Bulldog Fire Apparatus of Hopkinton, Massachusetts. This location is about 26 miles West of Boston, near the intersection of Interstate 495 and the Mass Pike. The center is totally dedicated to the service of fire apparatus and fire apparatus only and is fully authorized by KME to conduct all levels of repair and service. The capabilities of the service center include:

Authorized pump service for both Hale and Waterous

Full hydraulic service

Full 12 volt electrical service to include multiplexed systems

Full 120/240 volt service

Full chassis and running gear service

Complete body shop and paint facility which includes:

50 foot environmentally certified, heated and humidity controlled down draft paint booth, Full time body shop and paint staff, Secured paint storage area, Computer operated paint color matching and mixing system

Metal fabrication center which includes:

10 x 12 shear, Press Brake, Apron Brake, Finger brake, Modern MIG and TIG welding equipment, Plasma cutter, Machining center, Pump and piping center, Parts Department

Bulldog maintains a 15 service bay indoor shop with an area of approximately 25,000 square feet (which includes sufficient indoor heated space to permit the storage of the Fire Department's apparatus inside whenever in the center's possession). No outside storage is permitted at Bulldog. Aerial service capability includes the capacity to fully extend a 100 foot aerial device inside the shop in order that work may be conducted in a clean controlled environment in any weather condition. The center provides a full time staff of experienced technicians with all of the required equipment to provide modern, accurate and efficient service. The Center may be reached at our email address of pmazza@bulldogfa.com or by phone (877) 644-2707.

The staff includes five six (6) EVT level II technicians, two (2) Commonwealth licensed Motor Vehicle Damage Appraisers and three (3) road service vehicles. The Bulldog service center offers same day turn around for scheduled maintenance and part delivery within 24 hours.

In addition, KME maintains full factory service centers in Latham, New York (near Albany) - (800) 394-5593 and at the factory in Nesquehoning, PA.



SEAT BELT ANCHOR TESTING

Each seat belt anchor will be tested to withstand 3,000lbs of pull on both the lap and shoulder belt in accordance with FMVSS 210 section 4.2.

SEAT MOUNTING TESTING

Each seat mounting position will be tested to withstand 20G's of force in accordance with FMVSS 207 section 4.2(c). Both tests will be performed and verified at a third party testing and evaluation center.

"PREDATOR™ PANTHER" CAB TYPE

• **FULL TILT WITH CONTOUR WINDSHIELD**

The cab will be a custom tilt style, built specifically for fire service. The cab will be a cab over engine design, with integral tilt mechanism and engine access from inside the cab. Cab will be designed, fabricated, assembled in its entirety, and installed on the frame rails in the KME factory.

CAB MATERIAL - ALUMINUM

The cab will be fabricated from 5052-H 32 aluminum alloy, utilizing the minimum material thickness as follows:

- Cab side panels, Cab roof, Forward cab front sheet, Interior cab panels, Other panels
0.125 thick (1/8")
- Cab doors
0.1875 thick (3/16")
- Engine enclosure side panels
0.250 thick (1/4")

CAB - BASE CONSTRUCTION

Cab sub-frame will be a welded assembly fabricated of 6063 structural aluminum alloy. The cab will be of entirely welded construction. The front cab wall will be of double wall type construction, featuring an inner and outer panel.

CRASH TESTING CERTIFICATION

To ensure the safety of the cab occupants and cab integrity, proof of third party testing will be provided. The cab will be certified for SAEJ2422 side impact, SAEJ2420 with ECER29 cab front impact, and ECER29 cab roof strength.

ROOF AND SIDE LOAD TESTING

The cab design will include additional third party testing to ensure the safety of the cab occupants and cab integrity, proof of third party testing will be provided. The cab will be certified for SAEJ2422 side impact, SAEJ2420 with ECER29 cab front impact, and ECER29 cab roof strength. KME will provide proof that third party testing has been conducted to prove a static roof and a static side-load test has been completed. In these tests, a 120,000 pound static load was first applied to the roof. This test was followed by applying the same 120,000 pound static load to the side of the cab. These tests will be conducted per the SAE J2422, Cab Roof Strength Evaluation, protocol and the ECE R29, Uniform provisions concerning the approval of vehicles with regard to the protection of occupants of the cab of a commercial vehicle, protocol.

DIMENSIONS - MEDIUM FOUR DOOR STYLE CAB

The cab will be fully enclosed, capable of comfortably seating six (6) firefighters in full fire fighting turnout gear, cab over engine design, with integral tilt mechanism and engine access on top of the doghouse.

Minimum Cab Dimensions:

- Overall width
100"
- Inside width across ceiling
92"
- Front area floor to ceiling
63"
- Top of front seat to ceiling
44" (depending upon seat type)
- Seat back to steering wheel
22" (depending upon seat type)
- Inside width (door to engine enclosure)
24" (driver's side, at floor)
- Inside width (door to engine enclosure)
20-1/2" (officer's side, at floor)
- Crew seat area width
92"
- Outer crew seat risers to rear wall
42"
- Centerline front axle to back of cab
62-1/2"
- Floor to top of engine enclosure
29 1/2"



- Centerline axle to front of cab 74"

Glass Area Dimensions:

- Windshield (Contour) 3,422 sq. in.
- Front door window, retractable 743 sq. in. each
- Rear door window, retractable 875 sq. in. each
- Fixed side windows 620 sq. in. each

Cab Entry Door Width Dimensions

- Forward door opening 40" wide
- Rear door opening 37" wide

Cab Entry Step Dimensions

- Forward door recessed step 32" wide x 9" deep
- Rear door recessed step 32" wide x 9" deep

Cab Entry Door Height Dimensions

- Forward door opening 76-1/4" high
- Rear door opening 85-1/4" high

CAB ROOF

The cab roof over the rear crew area will be raised ten (10) inches higher than the front driver and officer area. The front face of the raised roof section will be sloped at a 45 degree angle, creating a streamlined interface with the standard, lower, forward roof section. This design will allow for additional interior height in the rear crew area.

- Crew area floor to ceiling 64"
- Top of crew seat to ceiling 46" (depending upon seat type)

BARRIER HEIGHT CAB DOORS

Four (4) side-opening doors will be provided. The cab doors will be shortened to the floorboard level, thus leaving an exposed step well area at each cab entrance. The cab doors will be totally aluminum construction with an extruded aluminum frame and an aluminum outer door skin. The forward cab door opening will be a minimum of 40" wide, and the rear cab door opening will be a minimum of 37" wide. There will be a heavy duty piano type stainless steel hinge on each door of a minimum pin diameter of 5/16" . Hinges will be slotted for ease of horizontal and vertical adjustment. There will be a cab door seal and the doors will close flush with the side of the cab. A heavy-duty 2 1/2" wide reinforced rubber strap will be utilized to prevent the cab doors from opening greater than 90 degrees.

CAST OPEN GRATE STEPS

The front and rear entrance steps will be a minimum of 9" deep. Each step will be a cast aluminum, open grate style step fabricated by Cast Products Inc. with a polished aluminum outer surface.

DOOR LATCHES

A semi-recessed chrome plated pull handle, capable of operating with a gloved hand, will be provided on the exterior of each cab door. Heavy-duty, bright finish cast paddle latches will be provided on the interior of each cab door.

LOCKING CAB DOORS

Each exterior cab door will be equipped with keyed locks. The cab doors will be capable of being locked from the outside with a key and from the inside with a control in each interior paddle latch.

DOOR WINDOWS

Each side cab door will have a tinted retractable window operated by a hand crank mechanism. The window track will be designed into the door frame extrusion, which will be extruded with a track groove to house a window track and seal.

DOOR WINDOW TRIM



Each side cab door window will be designed with a custom extruded trim plate, which will conform to the perimeter of the window opening in each door. The trim plate will extend from the edge of the door skin to the window and will have a silver anodized finish.

INNER DOOR PANELS

The cab door interior panels will be covered with a one piece, full height, brushed aluminum panel for ease of maintenance. The panel will be 1/8" aluminum with a brushed finish and will be designed to allow easy access to the inner door.

WINDSHIELD/GLASS

A two piece, symmetrical, safety glass windshield will be provided on the cab for the driver and officer providing a clear viewing area. The windshields will be full width to the center of the front cab support for each side and provide the occupants with a panoramic view. To provide enhanced peripheral vision on each side of the cab, the windshield and cab structure will be designed with radius corners, which provide a minimum of 8" of glass area, measured from the glass face to the side edge near the door post. The windshield will be a contour design with 3422 sq. in. of area for improved visibility and style. The windshield glass will be designed so it can be used on either the driver or officer side.

WINDSHIELD WIPERS AND WASHER

Dual, electric operated, pantographic type windshield wipers will be provided. One (1) electric drive motor will be provided for each wiper. Wipers will have "HI/LO" and "INTERMITTENT" operating speeds. "HI/LO" speeds. "INTERMITTENT" operation will be controlled by a twist switch within the control on the steering column. The wipers will be of the self-parking type. Windshield washers will be electric operated wet-arm type with a 3/4 gallon washer fluid reservoir, mounted inside the engine enclosure and readily accessible through the engine hatch at the rear of the engine enclosure. The washer control will be integral with the intermittent wiper control switch.

WINDSHIELD WIPER DURABILITY CERTIFICATION

Windshield wipers will survive testing in excess of 3 million cycles in accordance with section 6.2 of SAE J198 "Windshield Wiper Systems – Trucks, Buses and Multipurpose Vehicles".

CAB SIDE VIEWING WINDOWS

A fixed, tinted window with 620 sq. in. of glass area will be provided on each side of the cab behind the forward cab doors. This window will be the same height as the window in the rear cab door for maximum visibility.

DARK TINTED REAR WINDOW GLASS

The windshield and the forward cab door glass will be provided with standard DOT green automotive tint. The side cab windows to the rear of the front doors, the rear cab door windows and any rear viewing windows will be equipped with a dark automotive tint.

GRAB HANDLES

Four (4) 1-1/4" diameter x 28" long, knurled bright anodized aluminum handrails will be provided, one (1) at each cab door entrance. Formed rubber gaskets will be provided between each stanchion base and the cab surface.

INTERIOR GRAB RAILS

Grab rails will be provided to assist in entry and exiting of the cab. Each grab rail will be a cast aluminum "D" style handle that will have a wheelabrated finish and will be located in the following locations:

- One (1) 11" long, horizontally mounted, on each front cab door on the upper interior door panel
- One (1) 12" long, vertically mounted, on the officer's side "A" post
- One (1) 11" long, horizontally mounted, on each rear cab door on the interior door panel
- One (1) 30" long, horizontally mounted, on each rear cab door, located approximately 8" above the bottom of the window opening

FRONT CAB GRILL

A shaped mirror finished stainless steel grille will be installed to allow for maximum air flow to the charge air cooler and the radiator.



AIR INTAKE/OUTLET

Two (2) shaped, mirror finished stainless steel air inlets/outlets will be provided horizontally above the wheel well opening, one on each side of the cab. The grilles will be equipped with a mesh screen to serve as a secondary ember separator. The left side inlet, used for the air intake to the air cleaner, will be equipped with dual ember separators for separating burning embers from the air intake system. No part of the air intake system for the engine will be lower than the top of the frame rails to ensure the vehicle can navigate pooled water without any part of the air intake system being exposed to water when the vehicle is stopped or in motion.

CAB WHEEL WELL LINERS

The front cab wheel wells will be equipped with fully removable, bolt-in, aluminum inner wheel well liners. The liners will extend full depth into the truck frame.

CAB FENDERETTES

The cab wheel well openings will be trimmed with replaceable, bolt-in, polished aluminum fenderettes. Dissimilar metal tape and black vinyl trim molding will be used where the cab and fender meet.

FRONT MUD FLAPS

Heavy duty, black rubber type mud flaps will be provided behind the front wheels.

VELVAC WEST COAST MIRRORS WITH 2010 HEADS and 6" CONVEX

Two (2) Velvac West Coast style 2010 mirrors will be furnished, one 708211-4 and one 708212-4 on each front cab door. Each mirror will have a 16 x 8 flat glass head mounted in a polished 300 series stainless steel outer shell and a heavy duty ABS inner housing. Both heads will be electrically heated and motorized. Two (2) 6" diameter stainless steel convex mirrors will also be furnished, one on each lower loop of the mounting bracket. Both heads will be electrically heated and controlled by switching provided by the mirror manufacturer. Both mirror heads will be controlled from the driver's seating position.

INTERIOR CAB TRIM

The forward overhead panel will be a fabricated aluminum module painted to match the interior. This module will contain the integrated windshield defroster/heater. The headliner and rear cab wall will utilize Gray Durawear material, with padding underneath, to provide additional insulation. The interior metal surfaces of the cab will be finish painted the same color as the main exterior color. The interior rear wall of the cab will be covered with Gray Durawear for durability and will match the other areas of the cab.

UNDER SEAT STORAGE COMPARTMENTS

There will be a compartment provided under each front seat. Each compartment will be accessible from the front of the seat riser when the door is opened.

BARYFOL FLOORING

The floor of the driver's compartment and the floor of the crew area will be lined with BARYFOL vinyl composite flooring to comply with NFPA noise and heat requirements. The material utilized for this application will be certified to meet the NFPA 1901, 2009 revision for anti-slip walking surfaces.

ENGINE ENCLOSURE

The forward portion of the engine enclosure will be covered with a three (3) piece ABS plastic module. To allow maximum "elbow room" for the driver and officer, the forward portion of the engine enclosure will feature a contour shape. The engine enclosure will not significantly obstruct the driver's vision in any direction. The engine enclosure will be insulated to protect from heat and sound. The noise insulation will keep the DBA level within the limits stated in the current NFPA series 1900 pamphlet. A hinged access door will be provided in the top rearward portion of the engine enclosure. The door will allow access to the engine oil, transmission fluid, power steering fluid level dipsticks and the windshield washer fluid reservoir. The enclosure will be an integral part of the cab structure, which will be constructed from a minimum of .25" 5052-H32 aluminum. This material will be welded to the floor subframe on each side of the cab and will extend from the very front of the cab to the rear of the engine enclosure.

ADDITIONAL ENGINE ENCLOSURE INSULATION

Premium soundproofing/insulation material, Barymat BTRLAX3-14BY will be installed in the engine enclosure. To ensure a clean, smooth surface, this material will be retained by flat aluminum panels fastened to studs that are welded to cab as needed. These panels will be removable.



SUN VISORS

To provide maximum protection for the driver and officer, two (2) dark polycarbonate sun visors will be mounted in the cab overhead on each side.

DRIVERS SEAT

The driver's seat will be a H. O. Bostrom Sierra EX8 high back bucket ABTS LH seat. The seat will have a tapered and padded seat cushion with lumbar support. The seat will have an eight inch fore and aft adjustment, a 2 inch height adjustment, front of seat tilt, rear of seat tilt and a reclining seat back. All seat movements will be electrically controlled from a control panel on the forward lower edge of the seat. The seat will be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly.

OFFICERS SEAT

The officer's seat will be a H. O. Bostrom Tanker 450 ABTS RH series fixed base SCBA seat. The seat will have a tapered and padded seat cushion with lumbar support. The seat will include a SCBA storage area with integral headrest. The seat will be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly.

The officer's seat will include a H. O. BOSTROM Secure All™ SCBA Locking System. The bracket system will be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The standard release handle will be integrated into the seat cushion for quick and easy release and will eliminate the need for straps or pull cords to interfere with other SCBA equipment.

REAR FACING, OUTBOARD, DRIVER SIDE SEAT

The driver's side outboard rear facing crew seat will be a H. O. Bostrom Tanker 450 ABTS RH series fixed base SCBA seat. The seat will have a tapered and padded seat cushion with lumbar support. The seat will include a SCBA storage area with integral headrest. The seat will be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly. The driver's side rear facing outboard seat will include a H. O. BOSTROM Secure All™ SCBA Locking System. The standard release handle will be integrated into the seat cushion for quick and easy release and will eliminate the need for straps or pull cords to interfere with other SCBA equipment.

REAR FACING, OUTBOARD, OFFICER SIDE SEAT

The officer's side outboard rear facing crew seat will be a H. O. Bostrom Tanker 450 ABTS LH series fixed base SCBA seat. The seat will have a tapered and padded seat cushion with lumbar support. The seat will include a SCBA storage area with integral headrest. The seat will be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly. The officer's side rear facing outboard seat will include a H. O. BOSTROM Secure All™ SCBA Locking System. The standard release handle will be integrated into the seat cushion for quick and easy release and will eliminate the need for straps or pull cords to interfere with other SCBA equipment.

SEAT UPHOLSTERY MATERIAL

The seats will be upholstered with heavy duty gray tweed Durawear material as provided by Bostrom.

SEAT BELT CUSHION SENSORS AND BELT SENSORS

The apparatus will be equipped with an Akron/Weldon seat belt warning system. The system will consist of a Seat Belt module, dash mounted display and an audible alarm.

VEHICLE DATA RECORDER

An Akron/Weldon Vehicle Data Recorder (VDR) system will be provided. The system will include an NFPA compliant "Black Box" with reporting software that will be capable of data storage to coincide with the NFPA requirements.

ANTENNA INSTALLATION

One (1) antenna mounting base model #MATM with 17' of coaxial cable will be provided and installed on the lower cab roof, behind the light bar.

DASH & CENTER CONSOLE

The driver and officer side dash, along with the center dash, will be covered with a custom formed ABS overlay to create an ergonomically designed interior to be user friendly and functional for the driver and officer.



The dash gauge panel will be a custom formed ABS pewter gray wrap-around design for improved visibility. A full complement of gauges will be provided in custom formed bezels. The starter and ignition switches will also be integrated into the upper left portion of the gauge panel for easier access. All warning lights and indicators will be located in the gauge itself or in the lower center portion. Each gauge will be equipped with an international symbol that is easily recognizable, denoting the system being monitored. Instrumentation will be backlit for easy identification when activated. The transmission gear selector will be located on the left side of the center dash assembly, toward the driver for easy access.

DRIVER'S DASHBOARD PANEL

The main instrument panel will be centered in front of the driver and will be mechanically fastened to the main dash assembly. The panel will be made of custom formed ABS that will contain the primary gauges, an instrument warning light cluster and the ignition and engine start switches. Additional auxiliary control switches and instruments (if applicable) will be located within the dash panel and overhead panel located near the driver's position.

INDICATOR CLUSTER

The driver's dashboard panel will consist of Ametek gauges, an 18 item instrument warning light cluster and a 16 item, dead front type alarm panel.

AUXILIARY SWITCH PANEL - LOWER DASH AREA

An auxiliary lower dash panel will be capable of housing five (5) guarded type rocker switches. Examples of the switches that will be installed in this area are automatic chains, fan clutch override, ATC, inter-axle diff lock, electric fuel pump, all wheel drive, etc.

OFFICER DASH

There will be a flat surface area in front of the officer for use with such items as a lap top computer.

CAB HEATER/DEFROSTER

A SGM heater/defroster, rated at 45,200 BTU/HR will be provided, with a minimum 350 CFM total air flow. The unit will supply heat to the cab and provide windshield defrosting through adjustable louvers. The heater/defroster will be mounted in the center overhead console area, near the windshield. Control will be located on the front of the heater/defroster unit.

PANTHER OVERHEAD AIR CONDITIONING SYSTEM

A climate-control system will be provided for total cab environmental comfort. This system will be able to provide heat and cooling capabilities to various areas in the cab. The system will consist of one (1) evaporator unit mounted in the center overhead of the cab and a roof mounted condenser. This system will provide conditioned air for the front and rear area of the cab.

ROOF MOUNT CONDENSER

A 12-volt, roof top, single condenser will be strategically positioned on the cab roof so as not to interfere with any emergency lighting systems. Mounting design will enable easy servicing of all components and unit replacement if necessary. The evaporator unit will be covered with an ergonomically designed painted aluminum cover to provide maximum headroom and a pleasing appearance.

CAB TILT ASSEMBLY

A hydraulic cab lift system will be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. A "CAB NOT LATCHED" indicator will be provided in the cab dash-warning cluster. The cab tilt control will be equipped with an interlock that will disable the cab tilt system in the event the parking brake is not applied.

CHASSIS FRAME ASSEMBLY

The chassis frame will be fabricated in its entirety at the KME facility. The frame will consist of two (2) channels fastened together by cross members. All structural fasteners used in the frame will be Grade 8 hardware. Hardened steel washers will be used under all bolt heads and nuts to avoid stress concentrations. Each main frame rail will be 10-1/4" x 4" x 3/8", fabricated from Domex™ 110,000 PSI minimum yield steel, with a minimum section modulus of 18.396 cu in and a resisting bending moment (RBM) of 2,023,560 inch pounds. The frame rails will be drilled "together" (back to back) on a frame drilling machine with an internally cooled drill bit in order to minimize the



deviation in hole diameter or location. Frames are built for the specific apparatus under construction so that no unnecessary holes or modifications are made to the frame assembly.

PAINTED STEEL FRONT BUMPER

A 12" high, 101" wide, painted steel front bumper will be provided. The bumper will be constructed from a minimum of .135 gauge steel, which will be designed with 45-degree welded corners and a 2" flange on the top and bottom.

BUMPER EXTENSION

The bumper will be extended 6" with a polished aluminum tread plate gravel shield enclosing the top and ends. Two (2) front painted tow hooks will be fastened directly to the frame, below the front bumper. The tow hooks will be fastened with grade 8 bolts and nuts.

FRONT AXLE

Front axle will be a Meritor MFS-18-133 A-N and will be rated at 18,000 lbs.

FRONT BRAKES

Brakes will be "S" Cam 16.5" x 6" and will be full air actuated with automatic slack adjusters.

FRONT SUSPENSION

Front suspension will be progressive rate front leaf springs. The spring will be permanently pinned at the front and have a shackle double pinned mounting at the rear.

FRONT SHOCK ABSORBERS

The front suspension system will be equipped with Monroe, model "Magnum - 70", double acting hydraulic shock absorbers.

REAR AXLE

Rear axle will be a single, Meritor RS-26-185 with a capacity of 27,000 lbs.

REAR BRAKES

Brakes will be "S" Cam, 16-1/2" x 7" size and will be full air actuated with automatic slack adjusters.

REAR SUSPENSION

The rear suspension will be leaf type, variable rate with a 31,000 lb. rating. The main spring assembly will consist of 14 leaves with the main spring measuring 60.5" L x 3" W. There will be a rubber block helper mounted above the leaf springs, rated at 4,500 lbs.

BRAKE SYSTEM

A dual circuit, air operated braking system, meeting the design and performance requirements of FMVSS - 121 and the operating test requirements of NFPA 1901 current edition will be installed. It will be direct air type with dual air treadle in the cab. The system will be powered by an engine mounted, gear driven air compressor protected by a heated air dryer. The air system will provide a rapid air build-up feature and low-pressure protection valve with light and buzzer, designed to meet the requirements of NFPA 1901, current edition.

ABS SYSTEM

An Anti-Skid Braking System (ABS) will be provided to improve braking control and reduce stopping distance. This braking system will be fitted to all of the axles. All electrical connections will be environmentally sealed, water, weatherproof, and vibration resistant.

AUTOMATIC TRACTION CONTROL (ATC)

To further improve vehicle drive characteristics, the unit will be fitted with automatic traction control (ATC). This system will control drive wheel slip during acceleration from a resting point. An extra solenoid valve will be added to the ABS system.

BRAKE AIR RESERVOIRS

There will be a minimum of three (3) air reservoirs installed in conformance with best automotive practices. Reservoir capacity total will be a minimum of 4700 cubic inches. The air reservoirs will be color coded to match the



air lines for easy identification, ease of maintenance and troubleshooting. The reservoirs will be color coded. There will be an automatic moisture ejector provided on the primary air tank.

AIR DRYER SYSTEM

A Rockwell/Wabco System Saver 1200 heated air dryer will be furnished. An automatic moisture ejector on the primary or wet tank will also be furnished

AIR LINES

The entire chassis air system will be plumbed utilizing reinforced, Synflex air lines.

AIR COMPRESSOR

Air compressor will be a Wabco brand, minimum of 18.7 cubic feet per minute capacity. Air brake system will be the quick build up type. The air compressor discharge line will be stainless steel braid reinforced Teflon hose.

PARKING BRAKE

Parking brake will be of the spring-actuated type, mounted on the rear axle brake chambers.

WHEELS & TIRES

The front wheels will be 22.5" x 9" ten stud, hub piloted steel disc type, painted job color. The steel disc front wheels will be provided with bright nut covers and hub caps. The front tires will be Goodyear 315/80R22.5 "20 Ply" tubeless radial G 670-RV highway tread. The tires will be fire service rated up to 19,450 lbs. and will have a top speed of 75 mph when inflated to 130 psi.

The rear wheels will be 22.5" x 8.25" ten stud, hub piloted steel disc type, painted job color. The single rear axle steel disc wheels will be provided with bright nut covers and hub caps. The rear tires will be Goodyear 12R22.5 "16 Ply" tubeless radial G622 RSD traction tread. The tires will be fire service rated up to 29,020 lbs. and will have a top speed of 75 mph when inflated to 120 psi.

TIRE PRESSURE MONITORING DEVICES

Each tire will be equipped with an LED tire alert pressure management system (Vecsafe equal) that will monitor tire pressure. A chrome plated brass sensor will be provided on the valve stem of each tire.

ENGINE

Engine will be a Cummins, Model ISL9 450, diesel, turbo-charged, electronically controlled, per the following specifications.

- | | |
|---------------------|-------------------------|
| • Max. Horsepower | 450 HP @ 2100 RPM |
| • Governed Speed | 2200 RPM |
| • Peak Torque | 1250 lb. ft. @ 1400 RPM |
| • Cylinders | Six (6) |
| • Operating Cycles | Four (4) |
| • Bore & Stroke | 4.49 x 5.69 in. |
| • Displacement | 543 cu. in. |
| • Compression Ratio | 16.6:1 |

COOLING/RADIATOR

The radiator and the complete cooling system will meet or exceed NFPA and engine manufacturer cooling system standards. The radiator core will have a height of 35.92" x a width of 37.62". Supply and return tanks made of glass-reinforced nylon will be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly. The radiator will be compatible with commercial antifreeze solutions. The engine cooling system will be certified by Cummins to meet cooling index requirements for a minimum ambient temperature or 110-degrees Fahrenheit.

TRANSMISSION COOLER

A shell and tube transmission oil cooler will be provided using engine coolant to control the transmission oil temperature. The cooler will have an aluminum shell and copper tubes. The cooler will be assembled using pressed in rubber tube sheets to mechanically create a reliable seal between the coolant and the oil. No brazed, soldered, or welded connections will be used to separate the coolant from the oil.



RADIATOR SKID PLATE

The radiator installation will include a heavy-duty radiator skid plate to protect the radiator from debris or obstructions under the chassis. The skid plate will be designed so the angle of approach is not effected.

CHARGE AIR COOLER

The charge air cooler will be constructed of aluminum with cast aluminum side tanks. To not restrict air flow to the radiator, the charge air cooler will be designed to be an integral part of the radiator assembly, mounted directly on top of the radiator. Rubber isolators will be used at the mounting points to reduce transmission of vibrations.

COOLING SYSTEM FAN

The engine cooling system will incorporate a heavy duty fan, installed on the engine and include a shroud. The fan will be equipped with an air operated clutch fan, which will activate at a pre-determined temperature range.

COOLANT HOSE AND PIPING

All coolant piping will be constructed of appropriately sized powder coated steel tubing with 0.06" wall thickness and formed hose barbs. All connections between coolant pipes and chassis components will be made using appropriately sized silicone hoses or elbows, rated for use in temperatures ranging from -60°F to +350°F, and appropriately sized constant torque hose clamps. Premium Goodyear Hi-Miler® blue heater hoses will be furnished for the heater system.

ENGINE BRAKE

An engine compression brake will be furnished for increased braking capabilities. Controls will be as provided by Cummins and will be activated by releasing the throttle pedal to the idle position. The engine compression brake will have dash mounted control switches to turn the brake on or off as well as to control the operational level of the brake.

ENGINE FAST IDLE

A fast idle for the electronic controlled engine will be provided. The fast idle will be controlled by an ON/OFF switch on the dash.

SPARK ARRESTOR

A spark arrestor will be installed in the chassis air intake system. This arrestor will be mounted behind the intake grille to filter out airborne embers. The spark arrestor housing must be easily accessible when the cab is tilted.

ACCELERATOR CONTROL

A floor mount accelerator pedal will be installed on the floor in front of the driver.

TRANSMISSION

An Allison World Transmission, Model 3000 EVS electronically controlled, automatic transmission will be provided. Transmission installation will be in accordance with Allison's specification. The transmission will be readily and easily removable for repairs or replacement. The transmission will be calibrated for five (5) forward gears and one (1) reverse gear. Each gear will have the following ratios:

TRANSMISSION SHIFT SELECTOR

An illuminated, touch-pad type shift control will be mounted in the cab, convenient to the driver. Shift control will be approved by Allison.

PARK TO NEUTRAL

The transmission, upon application of the parking brake, will automatically shift into neutral.

TRANSMISSION FLUID

TES-389 transmission fluid will be utilized to fill the 3000 EVS transmission.

DIESEL EXHAUST FLUID TANK

A five (5) gallon diesel exhaust fluid (DEF) tank will be provided and installed. The tank will be mounted in the area of the battery box and will be accessible through a door in the crew area step well. A DEF fluid level sensor will be provided with the DEF tank and connected to the level gauge on the dashboard.



EXHAUST SYSTEM

The exhaust system will be installed in accordance with Cummins requirements and meet all Environmental Protection Agency and State noise level requirements. The diesel particulate filter/muffler will be fabricated from stainless steel and of a size compatible with the engine exhaust discharge. Separate "regeneration" enable and prohibit switches will be provided under the dash board on the driver's side. Each switch will be provided with a spring loaded protective cover and will be clearly marked as to function.

FUEL TANK

Fuel tank will be a minimum of fifty (50) gallon capacity. It will have a minimum fuel filler neck of 2" ID and 1/4 turn fill cap. A 1/2" minimum diameter drain plug will be provided. The tank will be fabricated from hot rolled, pickled and oiled steel. The fuel lines will be textile reinforced synthetic rubber or plastic hose that is approved for use with diesel fuel and has a minimum max temperature rating of 250° F. The lines will be sized to meet Cummins requirements, and will be carefully routed and secured along the inside of the frame rails. A fuel filter/water separator will be provided in the fuel system. A "water in fuel" indicator will be provided on the dash. A fuel fill will be provided in the left side rear wheel well area. A Cast Products heavy duty cast aluminum spring loaded hinged fill door will be provided.

STEERING SYSTEM

A power steering system will be provided utilizing a Sheppard model #M110 main steering gear on the driver side of the chassis. The steering system will be designed to maximize the turning capabilities of the front axle no matter the rating and tire size. The system will be designed utilizing an engine driven hydraulic pump, with a maximum operating pressure of 2000 PSI. Steering design will permit a maximum of 5.6 turns from stop to stop.

STEERING COLUMN

The steering column will be a "Douglas Autotech" tilt and telescope column. A lever mounted on the side of the column will control the tilt and telescope features. The steering wheel will be a two (2) spoke, vinyl padded, minimum 18" diameter, with a center hub mounted horn button.

CHASSIS ELECTRICAL SYSTEM

All electrical wiring in the chassis will be GXL cross link insulated type. Wiring is to be color coded and include function codes every three (3) inches on both sides.

WIRING HARNESS DESCRIPTION

The wiring harness contained on the chassis will be designed to utilize wires of stranded copper or copper alloy of a gauge rated to carry 125% of maximum current for which the circuit is protected without exceeding 10% voltage drop across the circuit. Wiring will be uniquely identified by color code or circuit function code, labeled at a minimum of every three (3) inches. The identification of the wiring will be referenced on a wiring diagram. All wires conform to SAEJ1127 (Battery Cable), SAEJ1128 (Low Tension Primary Cable), SAEJ1560 (Low Tension Thin Wall Primary Cable). All exposed electrical connections will be coated with "Z-Guard" to prevent corrosion.

DIRECT GROUNDING STRAPS

Direct grounding straps will be mounted to the following areas; frame to cab, frame to body and frame to pump enclosure. All exposed electrical connections will be coated with "Z-Guard 8000" to prevent corrosion.

12 VOLT ELECTRICAL SYSTEM TESTING

The apparatus low voltage electrical system will be tested and certified by KME, PER NFPA 1901.

ELECTRICAL LOAD MANAGER

The apparatus will be equipped with an Innovative Control Electrical Load Manager (ELM) for performing electrical load management. The ELM will have 16 programmable outputs to supply warning and load switching requirements.

CHASSIS DIAGNOSTICS SYSTEM

Diagnostic ports will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership.

VOLTAGE MONITOR SYSTEM



A voltage monitoring system will be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system will provide visual and audible warning when the system voltage is below or above optimum levels.

INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM

A system will be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

12 VOLT SEQUENCER

A sequencer will be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation will allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12 volt load to prolong the life of the alternator. Rear of cab Air-Conditioning and Heat will be load managed.

ALTERNATOR

There will be a Delco Remy Model 40SI, 320 amp brushless, serpentine belt driven alternator. The brushless design of the 40SI transfers magnetic fields between the rotor and stator air-gap without brushes.

BATTERY SYSTEM

Three (3) Exide #HP-31D, maintenance free batteries will be provided. These batteries will be wired in parallel to the master disconnect switch. Each battery will be rated at 925 CCA at 0° F and will have a reserve capacity of 180 minutes.

BATTERY DISCONNECT SWITCH

The chassis batteries will be wired in parallel to a single 12 volt electrical system, controlled through a heavy duty master disconnect switch. The master disconnect switch will be located within easy access of the driver upon entering or exiting the cab.

BATTERY JUMPER STUDS

A set of Cole Hersee battery jumper studs, model #46210-02 (red) and #46210-03 (black) will be provided to allow the battery system to be jump started or charged from an external source.

120 VOLT SHORELINE CONNECTION - "SUPER" AUTO EJECT

One (1) Kussmaul "Super" Auto Eject model 091-55-20-120, automatic, 120 volt, 20 amp shoreline disconnect will be provided for the on board, 120 volt battery charging systems. The disconnect will be equipped with a NEMA 5-20 P male receptacle, which will automatically eject the shoreline when the vehicle starter is energized. The mating connector will be included with the auto eject and will be provided as loose equipment. A label will be provided indicating voltage and amperage ratings.

BATTERY CHARGER / AIR COMPRESSOR SYSTEM

A Kussmaul model #091-187-12-REMOTE, "Auto Charge 1200" high output, fully automatic battery charger will be provided for maintaining the vehicle battery system. Unique electronic sensing circuits sense the true battery voltage while eliminating the need for external sense wires. Output current will be 40 amperes @ 12 volt DC.

A Kussmaul 091-9HP air compressor will maintain the air pressure in the chassis air brake system while the vehicle is not in use. The air compressor will have a rated input at 120 volts AC @ 3.5 amps and a maximum of 125 psi. A LED bar graph display will be located near the shoreline connection to monitor the battery status. A Kussmaul # 091-9-090 Auto Drain ACHP will be installed to protect the Auto Pump from built up moisture.

EMERGENCY SWITCHES

A switch control console will be provided in the center dash panel between the driver's and officer's position. This console will separate the emergency / auxiliary electrical functions from the regular chassis functions. A minimum of ten (10) rocker type switches with integral indicator lights will be provided. A master warning switch will be provided, which will allow pre-setting of emergency light switches and will have a red integral indicator light. All switches, (other than the master switch), will have switch function labeling and an amber integral indicator light.

"LED" CAB INTERIOR LIGHTING



Four (4) Akron 8080-8000-13 interior LED combination red/white dome lights will be furnished in the cab, two (2) in the forward section and two (2) in the rear crew section. Each dome light will have an integral selector switch. Each dome light will also activate when the respective, adjacent cab door is opened.

"DO NOT MOVE APPARATUS" WARNING LIGHT

A 1" round, red flashing warning light with an integral audible alarm will be functionally located in the cab to signal when an unsafe condition is present; such as an open cab or body compartment door, an extended ladder rack or any other device that may be opened, extended or deployed and might cause damage to the apparatus if it is moved. This light will be activated through the parking brake switch to signal when the parking brake is released. This light will be labeled "DO NOT MOVE TRUCK".

12 VOLT ACCESSORY CIRCUIT - CAB DASH

One (1) dedicated circuit; 12 volt, 40 Amp, power and ground on 3/8 stud and fused at battery will be provided in the cab dash. The circuit will be for future installation of radios or accessories.

HEADLIGHTS CLUSTER

Two (2) dual, Peterson LED headlight modules with a bright finish bezel will be furnished, one (1) each side, on the front of the cab. Each head light module will incorporate an individual LED low beam and a LED high beam headlight. High beam actuation will be controlled on the turn signal lever.

DAYTIME RUNNING LIGHTS

The chassis head lights will have integrated circuitry to actuate the low beam headlights at a maximum of 80 percent of capacity whenever the chassis engine is running. The daytime running lights will be interlocked with the parking brake.

SECONDARY DUAL LIGHT MODULE

Two (2) Code 3 65STA arrow shaped, amber LED turn signals will be provided, one (1) in each side of the dual light module above the headlights. The NFPA required, Zone "A" lower warning lights will be incorporated into each side dual light module noted above.

LED LICENSE PLATE LIGHT - REAR

One (1) Tecniq model #L10 LED license plate light will be provided above the mounting position of the license plate. The light will be clear in color and will have a chrome finish.

TAIL, STOP, TURN AND BACK-UP LIGHTS

Two (2) Code 3, 65STR 4" x 6", red LED combination tail and stop lights, will be mounted one each side at the rear of the body. Two (2) Code 3, 65STA 4" x 6", amber LED arrow turn signal lights, will be mounted one each side, on a vertical plane with the tail/stop lights. Two (2) Code 3, 65RV 4" x 6", white LED backup lights, will be mounted one each side, on a vertical plane with the turn/tail/stop signals. These lights will activate when the transmission is placed in reverse gear. Two (2) Code 3 65STK4 mounting flanges, installed one (1) on each side, will be provided to mount the lights described above in one common mounting flange. The fourth opening will be for the lower rear warning lights.

CAB, BODY AND DUNNAGE STEP LIGHTS

Chrome plated Innovative Lighting, 3-LED surface mounted, chassis step lights will be provided and controlled with marker light actuation. Step lights will be located to properly illuminate all chassis access steps and walkway areas. Two (2) chrome plated Innovative Lighting, 3-LED surface mounted lights will be provided in the dunnage area to provide adequate illumination of this area. Chrome plated Innovative Lighting, 3-LED surface mounted, body step lights will be provided and controlled with marker light actuation. Step lights will be located to properly illuminate all body access steps and walkway areas.

DECK LIGHTS / WORK LIGHTS

Two (2) 6" Unity model AG chrome plated LED deck lights will be provided and mounted on the rear stanchions, one (1) each side.

GROUND LIGHTS - CAB

One (1) Amdor Luma Bar H2O LED 20" ground light will be provided under each side cab door entrance step, four (4) total. The ground lights will turn on automatically with each respective door jamb switch and also by a master ground light switch in the warning light switch console.



12 VOLT BODY ELECTRICAL SYSTEM

All electrical lines in the body will be protected by automatic circuit breakers, conveniently located to permit ease of service. Flashers, heavy solenoids and other major electrical controls will be located in a central area near the circuit breakers. All lines will be color and function coded every 3", easy to identify, oversized for the intended loads and installed in accordance with a detailed diagram. A complete wiring diagram will be supplied with the apparatus. All electrical equipment will be installed to conform to the latest federal standards as outlined in NFPA 1901.

PUMP ENCLOSURE AND ENGINE COMPARTMENT WORK LIGHTS

Two (2) Peterson model #M391 lights will be provided inside the pump enclosure and two (2) more in the engine enclosure providing a minimum of 20 candlepower illumination. Each light will have their own independent switch incorporated into the light head.

AMDOR LUMA BAR COMPARTMENT LIGHTS - LED

Each individual, equipment storage compartment will be equipped with the AMDOR Luma Bar LED light fixture mounted on the forward (or rearward) vertical door frame.

NFPA AUDIBLE AND LIGHTING WARNING PACKAGE

The following warning light package will include all of the minimum warning light and actuation requirements for the current revision of the NFPA 1901 Fire Apparatus Standard. The entire warning light package will be actuated with a single warning light switch located on the cab switch panel. The wiring for the warning light package will engage all of the lights required for "Clearing Right of Way" mode when the vehicle parking brake is not engaged. An automatic control system will be provided to switch the warning lights to the "Blocking Right of Way" mode when the vehicle parking brake is engaged.

NFPA ZONE A, UPPER

A Code 3 2780NFPA P1 "RX 2700 Prizm II Series", 80" LED cab roof warning light bar will be furnished and rigidly mounted on top of the cab roof. The light bar will be equipped with the following:

- Red Upper Lenses
- Clear Lower Lenses
- Six Forward Facing Red - Eight LED Reflector Prizm II Modules
- Four Corners Red - Twelve LED Reflector Prizm II Modules

NFPA ZONE C, UPPER

Two (2) Code 3 A36-** Arch LED beacon lights will be mounted one (1) each side at the rear of the body.

NFPA ZONES B & D REAR, UPPER

The lighting requirement for this area is covered by the lights noted in Zone "C" - Upper.

NFPA ZONES B & D FRONT, UPPER

The lighting requirement for this area is covered by the lights noted in Zone "A" - Upper.

NFPA ZONE A, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.

NFPA ZONE C, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed; one (1) each side directly below the DOT stop, tail, turn and backup lights.

NFPA ZONES B & D FRONT, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.

NFPA ZONES B & D MIDSHIP, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.

NFPA ZONES B & D REAR, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.



WARNING LIGHT SYSTEM CERTIFICATION

The warning light system specified above will not exceed a combined total amperage draw of 45 AMPS with all lights activated in either the "Clearing Right of Way" or the "Blocking Right of Way" mode. The warning light system(s) will be certified by the light system manufacturer, to meet all of the requirements in the current revision of the NFPA 1901 Fire Apparatus.

ELECTRONIC SIREN

One (1) Code 3 Model #3672 V-Con electronic siren will be provided. The electronic siren and speaker will meet the NFPA required SAE certification to ensure compatibility between the siren and speaker. One (1) Code 3, model # FM100C chrome plated siren speaker will be provided, recessed in the front bumper and wired to the electronic siren.

PUMP

- **WATEROUS CS-C20, 1250 G.P.M., SINGLE STAGE**
The pump will have a rated capacity of 1250 GPM.

IMPELLER SHAFT

The Impeller shaft will be heat-treated stainless steel, ground at all critical areas, and polished under the packing. An exclusive two-piece impeller shaft will allow separation of the transmission from the pump without disassembling either component.

PUMP PACKING

Stuffing boxes will be equipped with two-piece glands to permit adjustment or replacement of packing without disturbing the pump.

PUMP IMPELLER

The impeller will be bronze, accurately balanced, of mixed flow design with reverse flow labyrinth-type wear rings that resist water bypass and loss of efficiency due to wear. Wear rings will be bronze, and will be easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.

PUMP TRANSMISSION

The pump transmission will be all aluminum "C20" model, rigidly attached to the pump body assembly and be of latest design incorporating a high strength involute tooth-form Hy-Vo chain drive.

PUMP SHIFT

The pump shift will be pneumatically operated and will incorporate a standard automotive air valve shifting mechanism for ease of maintenance and parts availability. The pump shift valve will be mounted in the cab and identified as PUMP SHIFT, and include shift instructions permanently inscribed on the pump shift switch plate.

TRANSMISSION LOCK

The automatic transmission furnished in the chassis will have a lock-up assembly which brings the transmission to direct drive and prevents the transmission from shifting gears while in the pumping mode.

FIRE RESEARCH "IN-CONTROL" PRESSURE GOVERNOR

The apparatus will be equipped with a Fire Research InControl series TGA300 pressure governor and monitoring display kit will be installed. The governor will operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation will occur when switching between modes. A throttle ready LED will light when the interlock signal is recognized. The governor will start in pressure mode and set the engine RPM to idle. In pressure mode the governor will automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor will maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor will limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features will include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

INTAKE RELIEF VALVE

A Task Force Tips relief valve will be provided.



PUMP CERTIFICATION

The pump will be third party performance tested to meet the requirements of NFPA-1901 by Underwriters Laboratories (UL).

PRIMING PUMP

The priming pump will be a Trident air primer system.

INDIVIDUAL BLEEDERS AND DRAINS

All lines will drain through the master drain valve or will be equipped with individual drain valves, easily accessible and labeled. One (1) individual "CLASS ONE" quarter turn drain valve will be furnished for each 1-1/2" or larger discharge port and each 2-1/2" gated auxiliary suction.

ANODE BLOCKS

Two (2) Waterous zinc anode blocks will be provided and located on the suction side of the pump to protect the pump from corrosion.

PUMP MODULE

The pump module will be a self-supported structure mounted independently from the body and chassis cab.

SUCTION INLETS

Two (2) 6" N.S.T. suction inlets will be provided, one on the driver side pump panel and one on the officer side pump panel. A removable strainer will be installed on each inlet.

PUMP SUCTION ENDS

The main pump suction inlets will be furnished with a short suction end, terminating with only the suction threads protruding through the side panel to minimize the distance an exterior appliance protrudes beyond the pump panel.

AUXILIARY SIDE SUCTION

One (1) 2-1/2" auxiliary suction will be provided at the driver side pump panel, to the rear of the main inlet. The 2-1/2" auxiliary suction will terminate with a removable strainer, chrome plated 2-1/2" NST female swivel with a chrome plated plug and retaining chain. An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the driver's side rear auxiliary suction. All side gated inlet valves will be recess mounted behind the side pump panels or body panels.

TANK TO PUMP

One (1) 4" tank to pump line will be piped through the front bulkhead of the tank with a 90 degree elbow down into the tank sump. A check valve will be provided to prevent accidental pressurization of the water tank through the pump connection. An Akron Brass 3" Generation II Swing-Out™ Valve will be provided between the pump suction manifold and the water tank.

TANK FILL

One (1) 2" gated full flow pump to tank refill line controlled at the pump panel will be provided. A deflector shield inside the tank will be furnished. An Akron Brass 2" Generation II Swing-Out™ Valve will be provided between the pump discharge manifold and the water tank.

DRIVER'S SIDE MAIN DISCHARGE #1

One (1) discharge will be provided and located at the driver's side pump panel. The driver's side discharge will terminate with NST threads, through the left panel above the main pump intake. An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the driver's side discharge. The discharge valve will be equipped with a straight 2 1/2" NST adapter that will be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow. 2 1/2" NST chrome plated pressure vented cap will be installed on driver's side discharge. The driver's side # 1 discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

OFFICER'S SIDE MAIN DISCHARGE #1

One (1) discharge will be provided and located at the officer's side pump panel. The officer's side discharge will terminate with NST threads, through the left panel above the main pump intake. An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the officer's side discharge. The discharge valve will be equipped with a straight 2 1/2" NST adapter that will be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.



2 1/2" NST chrome plated pressure vented cap will be installed on the officer's side discharge. The officer's side # 1 discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

OFFICER'S SIDE MAIN DISCHARGE #2

A discharge will be provided and located at the officer's side pump panel. The officer's side discharges #2 will terminate with NST threads, through the officer's side panel above the main pump intake. An Akron Brass 3" Generation II Swing-Out™ Valve will be provided for the officer's side #2 discharge. The discharge valve will be equipped with a straight 3" NST adapter that will be equipped with a 3" NST, 30-degree, chrome plated elbow. A 3" NSTF X 4" Storz Kochek S37S straight adapter with cap will be provided on the officer's side #2 discharge.

The officer's side #2 discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

DRIVER SIDE HOSE BED DISCHARGE

A 2 1/2" NST rear hose bed discharge will be plumbed to the upper front body panel, extending into the front of the hose bed. The rear hose bed discharge will terminate just above the hosebed floor, in the driver side front of the hose bed. The driver side hose bed discharge pipe will be equipped with a chrome 2 1/2" NSTM thread adapter. The driver side hose bed discharge will be plumbed utilizing 2 1/2" schedule 10 stainless steel piping, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to the rear of the vehicle. An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the driver's side hose bed rear discharge. One (1) 2 1/2" NST chrome plated pressure vented cap will be installed the driver's side hose bed discharge. The driver's side hose bed discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

DECK GUN DISCHARGE

A deck gun discharge will be plumbed from the pump to an area on top of the vehicle. The deck gun discharge will be located in the center of the dunnage area above the pump module, centered on the pump operator's panel. The piping will be positioned so the deck gun appliance is accessible from the pump operator's position. A pedestal type, 1/4" steel plate support assembly or "U" clamp will be provided to stabilize deck gun plumbing below deck gun mount flange. The deck gun discharge will be plumbed utilizing 3" schedule 10 stainless steel piping, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to the deck gun location. An Akron Brass 3" Generation II Swing-Out™ Valve will be provided for the deck gun discharge. The deck gun discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

HORIZONTAL CROSSLAYS #1 & #2

Two (2) crosslay hose beds will be provided and plumbed from the pump in a transverse design, located above the pump enclosure for quick attack deployment. The crosslay hose bed flooring will be designed to be removable, constructed from brushed finish, perforated aluminum material. The Crosslays will be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 200 feet of 1-3/4" fire hose. The crosslay discharge will terminate below the hosebed floor with a 1 1/2" NSTM chicksan swivel adapter. The crosslay discharges will be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to crosslay hose bed. An Akron Brass 2" Generation II Swing-Out™ Valve will be provided for the crosslay discharges. The crosslay discharges will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

PUMP ENCLOSURE HOSEBED HOSE RETENTION

A vinyl cross lay cover will be provided. It will be securely fastened at the front with snaps and Velcro at the rear, with straps to secure each end flap.

PUMP PANEL - SIDE MOUNT

The pump operator's control panel will be located on the driver side of the apparatus. The pump enclosure side panels will be completely removable and designed for easy access and servicing. The left side operator's panel, gauge panel, right side pump panel and right side access door will be fabricated from 12-gauge 304L stainless steel with a #4, (150/180 grit), standard brushed finish.

HINGED GAUGE PANEL

A full width, vertically hinged gauge access panel will be provided at the operator's position.

VERTICALLY HINGED, SPLIT PUMP PANEL OFFICER SIDE

The officer's side pump panel will be split, vertically hinged, to provide complete access to the pump and plumbing on the officer side of the pump enclosure. The panels will be equipped with stainless steel hinges and



secured with push type locks to hold the panels closed. The drains located on the officer's side panel will be fastened to the lower panel, which will be stationary.

COLOR CODED IDENTIFICATION TAGS

Color coded identification tags will be provided for all gauges, controls, connections, switches, inlets and outlets.

PUMP OPERATOR'S PANEL LIGHT SHIELD AND STEP

The pump operator's panel will be equipped with a light shield/step that will be full width of the control panel, and will be positioned to cover the lights and prevent glare. The light shield will be fabricated from aluminum tread plate, which will also serve as a step. The step will be a minimum of 8" deep X the width of the pump panel. The light shield will be equipped with two (2) 20" Amdor Luma Bar H2O super bright led strip lights.

OFFICER SIDE PANEL LIGHTING

The officer's side pump panel and running board will be illuminated by four (4) TecNiq Eon, 3-LED illumination lights mounted in horizontal stainless steel bezels and mounting gaskets.

MASTER GAUGES

One (1) 4" diameter pressure gauge (labeled: "PRESSURE") and one (1) 4" diameter compound vacuum gauge (labeled: "INTAKE") will be provided. The master gauges will be Innovative Controls glycerin filled. All applicable pressure gauges will have a range of 0 - 400 P.S.I., and the compound gauge will have a range of -30" - 0 - 400 P.S.I.

ENGINE COOLER

An auxiliary cooler or heat exchanger will be installed in the engine compartment between the engine and the chassis radiator. The cooler will permit the use of water from the pump for cooling the engine. The cooling will be done without mixing engine and pump water.

TANK LEVEL GAUGE

A Fire Research, model #WLA300-A00, "TANKVISION" gauge that shows the actual volume of water in the tank will be provided on the pump operator's panel.

WATER TANK

The water tank will have a capacity of 1000 gallons, constructed from Poly material.

WATER TANK CONSTRUCTION

The Poly water tank will be constructed of PT3 polypropylene material.

WATER TANK FILL TOWER

The tank will have a combination vent and manual fill tower. The fill tower will be constructed of 1/2" PT3 polypropylene and will be a minimum dimension of 12" x 12" outer perimeter. The fill tower will be blue in color indicating that it is a water-only fill tower. Inside the fill tower there will be a combination vent/overflow pipe. The vent overflow will be a minimum of schedule 40 polypropylene pipe with a minimum I.D. of that is designed to run through the tank, and will be piped to discharge water behind the rear wheels. The fill tower will be fitted with an integral 4" I.D. schedule 40 P.V.C. combination overflow/vent pipe running from the fill tower through the tank to a 4" coupling flush mounted into the bottom of the tank to allow water to overflow behind the chassis rear axle. The tank sump will be a minimum of 10" wide x 10" long x 3" deep. An anti-swirl plate will be mounted inside the sump, approximately 1" above the bottom of the sump. A 3" drain plug will be provided.

WATER TANK MOUNTING ALL "T" TANKS - PUMPER

The tank will rest on the body cross members spaced a maximum of 22" apart, and will be insulated from these cross members with a minimum of 3/8" nylon webbing or 1/2" rubber, 2-1/2" wide..

APPARATUS BODY DESIGN CONSTRUCTION

The body side and compartment assemblies will be designed and assembled to provide maximum strength and durability under all operating conditions. Special attention will be taken to minimize corrosion on all fabricated parts and structural members of the body. All bolt-on components will be provided with a dissimilar metals isolation barrier to prevent electric corrosion. The body will be completely isolated from the cab and pump module structure.



BODY AND COMPARTMENT FABRICATION - 3/16" ALUMINUM

All compartment panels and body side sheets will be entirely 3/16" aluminum (5052-H32). Each side compartment assembly will be both plug welded and stitch welded to ensure proper weld penetration on all panels while avoiding the possible warping caused by a full seam weld.

SUPER STRUCTURE - ALUMINUM

The body sub structure will be an all welded configuration utilizing a combination of 3" x 1-1/2" 6061-T6 thick walled structural tubing and 6061 structural channel. This structure will be designed to totally support the full length and width of the body and will be welded to the body side compartments by use of reinforcement plates to incorporate the compartments into an integral part of the body weldment. All stepping, standing, and walking surfaces on the body will meet NFPA #1901 anti-slip standards. Aluminum tread plate utilized for stepping, standing, and walking surfaces will be ALCOA No Slip type. Compartment floors will be welded to the compartment walls and have a sweep out design for easy cleaning. Compartment tops will be covered with polished aluminum tread plate on both sides.

DRIVER'S SIDE COMPARTMENTATION

One (1) full height/split depth compartment, with a vertically hinged single door, will be provided forward of the rear wheels. Compartment dimensions 68" high x 39" wide x 29" deep in the lower 30" high area, 14" deep in the upper 38" high area, with a door opening of 64" high x 36" wide.

One (1) high side compartment, with a horizontally hinged single door, will be provided above the rear wheels. Compartment dimensions 36" high x 64" wide by 14" deep, with a door opening of 33-1/2" high by 58" wide.

One (1) full height/split depth compartment, with a vertically hinged double door, will be provided behind the rear wheels. Compartment dimensions 68" high x 46" wide x 29" deep in the lower 30" high area, 14" deep in the upper 38" high area, with a door opening of 64" high x 46" wide.

OFFICER'S SIDE COMPARTMENTATION

One (1) low side compartment, with a vertically hinged single door, will be provided forward of the rear wheels. Compartment dimensions 32" high x 39" wide x 29" deep, with a door opening of 29-1/2" high x 36" wide.

One (1) low side compartment, with a vertically hinged double door, will be provided behind the rear wheels. Compartment dimensions 32" high x 46" wide x 29" deep, with a door opening of 29-1/2" high x 46" wide.

COMPARTMENT DOORS

The compartment doors will be flush type with the outer skin fabricated from 3/16" (5052 H32) aluminum. The door skin will have a formed flange on one (1) side used as a hinge mounting flange. The door skin will have reinforcing channels welded internally which accommodate the inner door pan mounting. Hinges will be full length polished stainless steel piano type. The hinges will be mounted with stainless steel hardware. Enclosed body compartment doors will be equipped with a closed cell gasket. The gasket material will be EPDM to provide a gasket resistant to weather, temperature extremes, and aging.

COMPARTMENT DOOR LATCHES – ROTARY WITH EASY GRAB MALTESE

Externally latched body doors will be equipped with Easy Grab Maltese door handles. Rotary door latches will be provided for all full height body doors, which will incorporate rotary latches at the top and bottom of all externally latched single or double doors. Linkages will be provided between the actuation handle and the latch mechanisms. The blank door of a double door configuration will have rotary latches at the top and bottom of each door with the latch release lever accessible thru the door frame, which eliminates the need to reach inside the compartment to release the door. Linkages will be provided between the actuation handle and the latch mechanisms.

COMPARTMENT DOOR STAY ARMS

Eberhard gas shock type door hold open devices are provided for all hinged doors.

BEAVERTAILS

The rear body beavertail area will be furnished with a squared off appearance to maximize the available compartment area, while providing added support to the rear step support structure. The beavertail panels will be assembled in conjunction with the rear body corner panels. This assembly will provide a vertical mounting surface for tail lights at the rear most portion of the body and additional storage space.



COATED FASTENERS

All exterior fasteners will be coated stainless steel screws. Screw threads will be coated with reusable, self-locking, sealing material to provide vibration resistance. Screw heads will be coated with a sealing element to prevent galvanic corrosion between dissimilar metals.

COMPARTMENT LOUVERS

Ventilation between compartments to atmosphere will be provided and located to avoid water entry into compartments.

BODY RUB RAILS

Sacrificial C-Channel style rub rails will be mounted at the base of the body, extend outward from the body. The rub rails will extend the full length of the main body. Rub rails will be designed to bolt to the body from the bottom side of the compartment area, so as not to damage the body side panels on initial impact and to provide for ease of replacement.

RUNNING BOARD STEPS

The driver and officer running board steps will be fabricated of 3/16" polished aluminum tread plate. The outside edge on each step will be fabricated with a double break, return flange. The steps will be rigidly reinforced with a heavy duty support structure. The running boards will not form any part of the compartment design, and will be bolted into place with a minimum 1/2" clearance gap between any panel to facilitate water runoff.

REAR STEP

The rear step will be twelve (12) inches deep, recessed between the rear portion of the rear side compartments. The step will be fabricated from 3/16" polished aluminum tread plate, and will be rigidly reinforced. The recessed design of the rear step will not restrict the usable space of the side compartments with a 42" wide rear step.

REAR STEP COMPARTMENT

One (1) rear step compartment 40" high x 42" wide x 26" deep will be provided with a door opening of 36" high x 40" wide. The rear step compartment door will be a roll-up door. The roll-up door will be equipped with a brushed aluminum finish.

GRAB RAILS

All hand rails will be 1-1/4" outer diameter, knurled bright anodized aluminum extrusion, designed to meet NFPA 1901 requirements. Molded gaskets will be installed between the handrail stanchion castings and body surfaces to prevent electrolytic reaction between dissimilar metals and to protect paint. Grab rails will be provided at the following specified locations.

Two (2) vertical rails will be mounted on the rear edge of the beavertails, one (1) each side.

One (1) horizontal, full width handrail will be installed on the rear, below the level of the hose bed.

FOLDING STEP(S) - BODY REAR

Cast Products model SP4401-1-CH-A large folding step(s) with RG0005 gasket, with a textured chrome plate finish will be provided on driver and officer sides body rear to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).

REAR WHEEL WELL LINERS

Fully removable, one piece, bolt-in, aluminum rear wheel well liner and fenderette will be provided. The wheel well liners will be natural metal finish and will protect the front and rear compartments and main body supports from damage.

AIR BOTTLE STORAGE COMPARTMENTS

A total of four (4) SCBA air bottle storage compartments (8" high x 8" wide x 26" deep) will be inserted into the body fender area. The compartments will be located with two (2) on the driver side and two (2) on the officer side of the rear body fender panels. The lower portion of the compartments will be non-abrasive to absorb shock and help secure the bottle.

REAR MUD FLAPS

Heavy duty mud flaps will be provided behind the rear wheels.



REAR TOW EYES

Two (2) painted tow eyes will be furnished on the rear of the vehicle. The tow eyes will be made from plate steel and will be bolted directly to the chassis frame rails with grade 8 bolts and will extend below the body. The tow eyes will be smooth and free from sharp edges, and have a minimum eyelet hole of 2-1/2". The tow eyes will be painted.

HOSE BED

The hose bed will be located directly above the booster tank and will be free from all sharp objects such as bolts, nuts, etc., to avoid damage to fire hose. The hose bed will provide approximately 93 cubic feet of hose storage area for 2 1/2" or larger fire hose, exceeding NFPA 1901 minimum pumper hose storage requirements. The hose bed depth will be 16". The apparatus weight analysis will be based on 800' of 2 1/2" hose unless otherwise specified. Flooring to be constructed from extruded aluminum and be properly spaced for ventilation. The flooring will be smooth and free from sharp edges to avoid hose damage. Two (2) fully adjustable 3/16", brushed finish, aluminum hose bed partitions will be provided. Partitions will be easily adjustable by means of Unistrut channels located at the front and rear of the hose bed. Partitions will be removable for access to the booster tank.

VINYL HOSE BED COVER - 1/4 TURN FASTENERS

A hose bed cover will be provided and installed. The cover will be made from 22 ounce; heavy-duty vinyl coated polyester fabric (TXN 226). The cover will be sewn with ultraviolet resistant thread and will have 2" wide nylon webbing sewn around the perimeter to provide additional strength. The cover will be secured to the top front body flange with quarter-turn fasteners. The cover will be secured to the side body flanges with quarter-turn fasteners. A weighted flap will be furnished on the rear of the cover with two (2) bungee cords.

ADJUSTABLE SHELVING

Compartment shelving will be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports. Shelving will be vertically adjustable with spring nuts in aluminum strut channel.

Adjustable shelves will be located as follows:

- One (1) in the driver side front compartment
- One (1) in the officer side front compartment
- One (1) in the driver side rear compartment
- One (1) in the officer side rear compartment

LADDER MOUNTING BRACKETS

Ladder mounting brackets will be a Cast Products #FA0030-5 to accommodate different ladder banked widths. The brackets will be mounted on tracking on the officer side body side panel with spring actuated holders.

GROUND LADDERS

The following Alco-Lite ground ladder complement will be provided:

- One (1) Alco-Lite model PEL-24; 24', aluminum, two (2) section extension ladder
- One (1) Alco-Lite model PRL-14; 14', aluminum, straight roof ladder with folding hooks
- One (1) Alco-Lite model FL-10; 10', folding, aluminum, attic ladder

SUCTION HOSE

The suction hoses will be located on the body side panels, one (1) on the officer side and one (1) on the driver side of the apparatus. Two (2) polished, extruded aluminum adjustable hose trough(s) will be provided to accommodate the suction hoses. Two (2) Velcro hose holders will be furnished on each trough. Two (2) 10 foot sections of six (6) inch PVC lightweight suction hose will be furnished. Couplings will include a long handle, female swivel on one end and a rocker lug male on the other end. All threads will be six (6) inch N.S.T.

STRAINER

One (1) 6" NST, Red Head 140-60001 barrel type strainer will be provided to attach to the suction hose.

LOOSE EQUIPMENT

The following items will be provided and shipped loose with the completed apparatus at the time of delivery:

- 1 - Pint of touch up paint for each color
- 1 -Bag of assorted stainless steel nuts and bolts



Two (2) ZICO #SAC-44 folding wheel chocks will be mounted forward of the rear wheels on the driver side below the side running board compartments.

PAINT, PREPARATION AND FINISH

The PPG Delta, Low V.O.C., polyurethane finishing system, or equal, will be utilized. A "Clear Coat" paint finish will be supplied to provide greater protection to the quality of the exterior paint finish. All removable items, such as brackets, compartment doors, etc. will be painted separately to insure finish paint behind mounted items. All exposed welds will be ground smooth for final finishing of areas to be painted. The compartments and doors are totally degreased and phosphatized. After final body work is completed, grinding (36 and 80 grit), and finish sanding will be used in preparation for priming.

BODY FINISH PAINT

The body will be finish sanded and prepared for final paint. Upon completion of final preparation, the body will be painted utilizing the highest quality, state of the art, low V.O.C., polyurethane base paint. Finish paint will be applied in multiple coats to ensure proper paint coverage with a high gloss finish. The inside and underside areas of the complete body assembly will be painted black using a PPG Delta System, prior to the installation of the body on the chassis. The body paint finish will be PPG Delta System in a single color, to match customer furnished paint codes and requirements. The pump enclosure and pump/plumbing within the pump enclosure will be painted black.

COMPARTMENT PAINT

The interior of the compartments will be finish painted job color with a scuff resistant webbing type paint of a contrasting color applied over the painted surfaces.

FENDER STORAGE COMPARTMENT PAINT

The interior of the fender storage compartments (if fender compartments are specified) will be finish painted job color.

CAB PRIMER, PREPARATION & FINISH PAINT

The cab primer will be a two (2) stage process. First stage will be a coating with a two part component, self etching, corrosion resistant primer to chemically bond the surface of the metal for increased adhesion. Second stage will be multiple coats of a catalyzed, two component polyurethane, primer applied for leveling of small imperfections and top coat sealing. The entire cab will be finish sanded and prepared for final paint. Upon completion of final preparation, the cab will be painted utilizing the highest quality, state of the art, low V.O.C., polyurethane base paint. Finish paint will be applied in multiple coats to ensure proper paint coverage with a high gloss finish. The cab exterior will be finish painted with PPG Delta system, single color, to match purchaser's furnished paint code. The interior metal surfaces of the cab will be finish painted the same color as the main exterior color. The chassis frame rails, suspension and axles will be painted black with a Polyurethane base paint prior to installation of any air lines or electric systems to ensure proper serviceability. The chassis wheels and hubs will be provided as painted by the original wheel and axle manufacturers.

PAINT CODES

The paint will match customer furnished paint code and layout.

TOUCH-UP PAINT

One (1) pint of each exterior color paint for touch-up purposes will be supplied when the apparatus is delivered to the end user.

RUST PROOFING

The entire unit will be thoroughly rust proofed utilizing rustproof and sound deadening materials applied in manufacturer recommended application procedures. Rust proofing will be applied during the assembly process and upon completion to insure proper coverage in all critical areas.

LETTERING

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the cab driver's and officer's doors per the fire department requirements. The design of the lettering on the cab doors will be designed to fit in the 496 sq. inches available.



Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the cab crew doors per the fire department requirements. The design of the lettering on the cab doors will be designed to fit in the 496 sq. inches available.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the area of the cab above the windshield per the fire department requirements. The design of the lettering above the windshield will be designed to fit in the 224 sq. inches available.

Scotch-Cal without drop shadow lettering will be provided on the front BUMPER per the fire department requirements. The design of the lettering on the front of the cab will be designed to fit in the 167 sq. inches available.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the front of the cab per the fire department requirements. The design of the lettering on the front of the cab will be designed to fit in the 167 sq. inches available.

Lettering provided on the front BUMPER WILL be custom height per Fire Department and engineering design.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the cab side panel per the fire department requirements. The design of the lettering on the cab side panel will be designed to fit in the 150 sq. inches available.

Scotch-Cal without drop shadow lettering will be provided on the REAR COMPARTMENT DOOR per the fire department requirements.

Lettering provided on the rear DOOR be custom height per Fire Department and engineering design.

SCOTCH-LITE STRIPE

A six (6) inch high "Scotch-Lite" stripe will be provided. The stripe will be applied on a minimum of 60 percent of each side of the unit, 60 percent on the rear of the unit and 40 percent on the front of the unit. The Scotch-Lite stripe layout will be determined by the Fire Department.

REAR CHEVRON STRIPING

At least 50% of the rear facing vertical surface will be covered with alternating strips of reflective striping. The striping will be 6" Diamond Grade Scotch-Lite. The Diamond Grade Scotch-Lite will be Red and Fluorescent Yellow Green in color.

KME WARRANTY, STARTING ON DELIVERY DATE

Warranty coverage by KME will begin on the date of delivery to the customer.

VEHICLE WARRANTY

The purchaser requires a Five (5) year new vehicle warranty to be provided, upon delivery and acceptance of the vehicle. The warranty will ensure that the vehicle has been manufactured to the contract specifications and will be free from defects in material and workmanship that may appear under normal use and service within the warranty period. The warranty may be subject to different time and mileage limitations for specific components and parts. This warranty is issued to the original purchaser of the vehicle. The warranty will not apply to tires, batteries, or other parts or components that are warranted directly by their manufacturers. The warranty will not apply to routine maintenance requirements as described in the service and operators manual. No warranty whether express, implied, statutory or otherwise including, but not limited to any warranty of merchantability or fitness for purpose will be imposed.

WARRANTY - KME CHASSIS

The proposed vehicle includes a five (5) year new vehicle warranty, upon delivery and acceptance of the vehicle. The warranty will ensure that the vehicle has been manufactured to the proposed contract specifications and will be free from defects in material and workmanship that may appear under normal use and service within the warranty period. The warranty may be subject to different time and mileage limitations for specific components and parts. This warranty is issued to the original purchaser of the vehicle. The warranty will not apply to tires, batteries, or other parts or components that are warranted directly by their manufacturers. The warranty will not apply to routine maintenance requirements as described in the service and operators manual. No warranty whether express, implied, statutory or otherwise including, but not limited to any warranty of merchantability or fitness for purpose will be imposed.

OVERALL UNIT AND CUSTOM CHASSIS

All components and parts of the vehicle are warranted for a period of five (5) years from acceptance of the vehicle, unless excluded elsewhere in this warranty or described as having longer time limitations.



ENGINE- EXTENDED WARRANTY, CUMMINS - ISC / ISL ENGINES

The Cummins engine will be warranted for a period of Ten (10) years or 200,000 miles, whichever occurs first.

- 100% parts and labor
- Complete engine coverage includes EGR components (excluding all maintenance components and accessories which bear the name of another company)
 - Maintenance components excluded from coverage include, but are not limited to: fuel injectors, fuel pump, turbocharger, air compressor, fan clutch, water pump, fan hub, fan idler pulley assembly, vibration damper, belts, hoses, belt tensioner, and thermostat.
- Major components
 - Engine cylinder block casting
 - Engine cylinder head castings and capscrews
 - Engine crankshaft forging
 - Engine camshaft forging
 - Engine connecting rods
 - Flywheel housing
 - Intake manifold castings
 - Valve covers
 - Oil cooler cover/filter heads
 - Oil pan
 - Gear cover and housing
 - Gear train gears
 - Crankshaft gear
 - Camshaft idler gear
 - Accessory drive gear
 - Fuel pump drive gear

WARRANTY - TRANSMISSION

The proposed Allison transmission will be provided with a five (5) year warranty. A copy of the Allison transmission warranty will be supplied to the purchaser to define additional details of the warranty provisions.

WARRANTY - COOLING SYSTEM - CUSTOM CHASSIS

Kovatch Mobile Equipment (KME) warrants all Cooling System Equipment components used in the construction of KME Fire Apparatus against defects and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original user-purchaser for a period of three (3) years from the date of delivery / acceptance to the original user-purchaser, whichever occurs first. This warranty applies to both purchased and fabricated, manufacturer supplied, coolant system components, and is not provided in lieu of any Vendor provided warranties. All coolant system components provided by the engine manufacturer are covered by the engine manufacturer's warranty only.

WARRANTY - CUSTOM CHASSIS FRAME RAILS

The proposed KME custom chassis frame and cross members will be warranted for an unlimited time period. A copy of KME's frame rail warranty will be supplied to define additional details of the warranty provisions.

WARRANTY - STEERING UNIT

The proposed Sheppard steering gear will be warranted for a period of three (3) years from the first date of service or 150,000 miles (241,401 kilometers), whichever occurs first. The product will be free from defects in material and workmanship under normal use in applications approved in advance by Sheppard.

WARRANTY - AXLES

The Meritor axles will be provided with a five (5) year warranty. The first two (2) years will be parts and labor; the remaining three (3) years will be parts only. Wheel seals, gaskets and wheel bearings will be covered for one year. A copy of Meritor's warranty will be supplied to define additional details of the warranty provisions. Vehicles that operate full or part time outside the United States and Canada will have a one (1) year, parts only warranty.



WARRANTY - ABS

The Meritor ABS will be provided with a three (3) year warranty, parts and labor. A copy of Meritor's warranty will be supplied to define additional details of the warranty provisions. Vehicles that operate full or part time outside the United States and Canada will have a one (1) year, parts only warranty.

WARRANTY - CAB STRUCTURE

The proposed cab will be warranted against structural defects for a period of ten (10) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

WARRANTY - BODY STRUCTURE

The proposed body will be warranted against structural defects for a period of ten (10) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

WARRANTY - CORROSION

The proposed cab and body will be warranted against rust-through or perforation, due to corrosion from within, for a period of ten (10) years. Perforation is defined as a condition in which an actual hole occurs in a sheet metal panel due to rust or corrosion from within. Surface rust or corrosion caused by chips or scratches in the paint is not covered by this warranty.

WARRANTY - PAINT

The proposed paint finish will be warranted for a period of ten (10) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

WARRANTY - LETTERING

Kovatch Mobile Equipment Corporation will provide a five (5) year warranty against defects in material and workmanship for all graphic processes. Any valid claims must be made in writing within 15 days of the determination of any defects to KME Fire Apparatus. KME Fire Apparatus will at its option make any necessary repairs either at a local authorized service center or at the factory, if required. KME Fire Apparatus will make the final decision as to where the repairs are to be made and any transportation cost are the owners responsibility, KME will at its option repair or replace any verified defects in workmanship or materials at no cost to the owner provided all the requirements of this warranty have been met. KME will not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience. THE COMPANY MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, AND SPECIFICALLY, DISCLAIMS ANY IMPLIED WARRANTY INCLUDING THE WARRANTY OF MERCHANTABILITY. KME continually strives to improve its products and therefore, reserves the right to make improvements or changes without incurring any obligations to make such changes or additions on equipment previously sold.

WARRANTY - BRIGHTWORK

Kovatch Mobile Equipment (KME) warrants all bright finish components used in the construction of KME Fire Apparatus against defects and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original user-purchaser for a period of one (1) year from the date of delivery / acceptance to the original user-purchaser, whichever occurs first. The expressed warranty excludes corrosion or degradation of bright finished components caused by damage to the component.

WARRANTY - STAINLESS STEEL PLUMBING WARRANTY

The proposed stainless steel plumbing will be warranted for a period of ten (10) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

WARRANTY - REAR SUSPENSION

KME hereby warrants to the original Buyer, that leaf spring products installed will be free of defects in material and workmanship for one (1) year. The "Warranty Period" commences on the date the original Buyer takes delivery of the product from the manufacturer.



WARRANTY - WATER TANK

The proposed water tank will be warranted by the water tank manufacturer for the "Lifetime" of the unit. A copy of the manufacturer's warranty will be supplied to define additional details of the warranty provisions.

WARRANTY - FIRE PUMP

Waterous warrants, to the original Buyer only, that products manufactured by Waterous will be free from defects in material and workmanship under normal use and service for a period of ten (10) years from the date the product is first placed in service or ten and one-half (10 1/2) years from the date of shipment by Waterous, whichever period will be the first to expire; provided the buyer notifies Waterous, in writing, of the defect in said product within the warranty period, and said product is found by Waterous to be nonconforming with the aforesaid warranty.

WARRANTY RELATED APPARATUS TRANSPORT

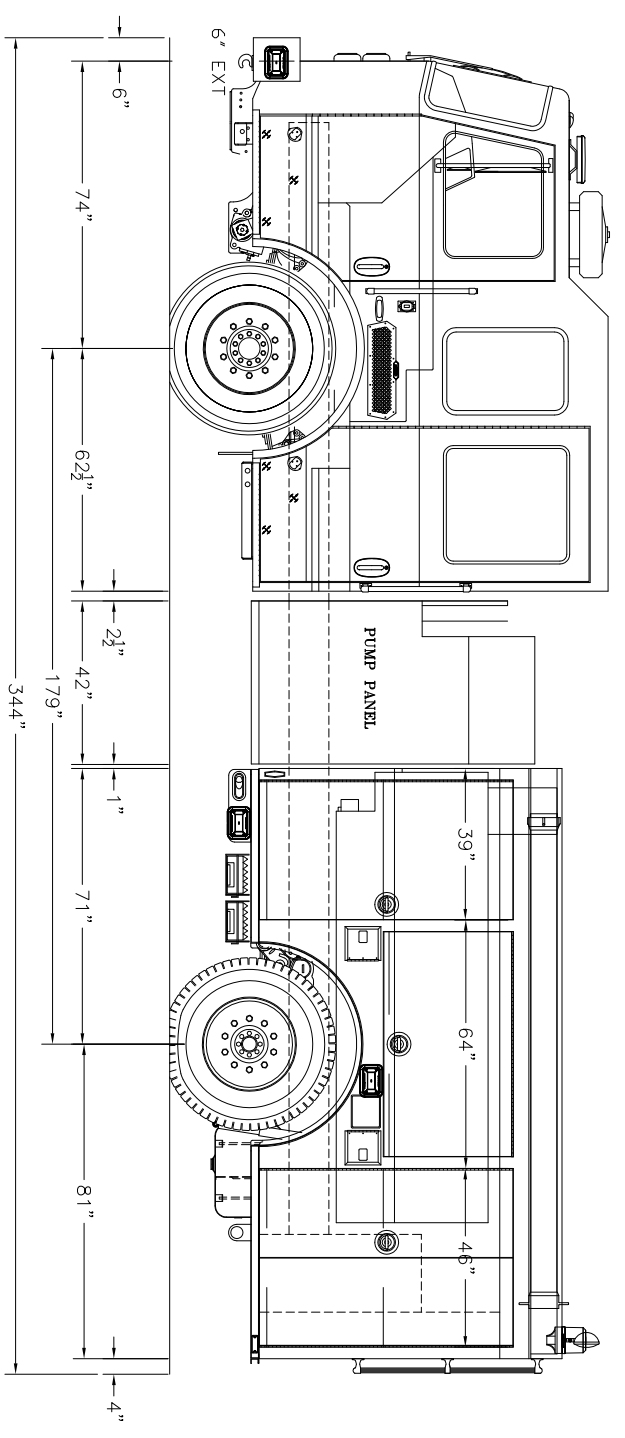
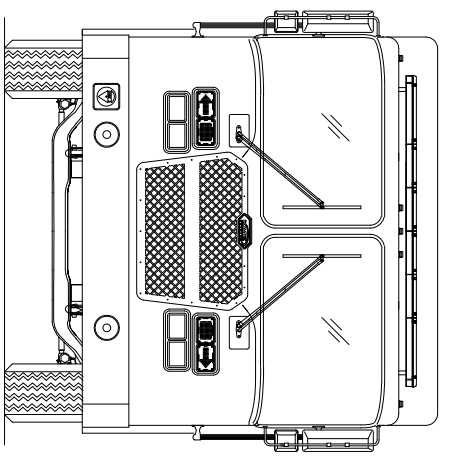
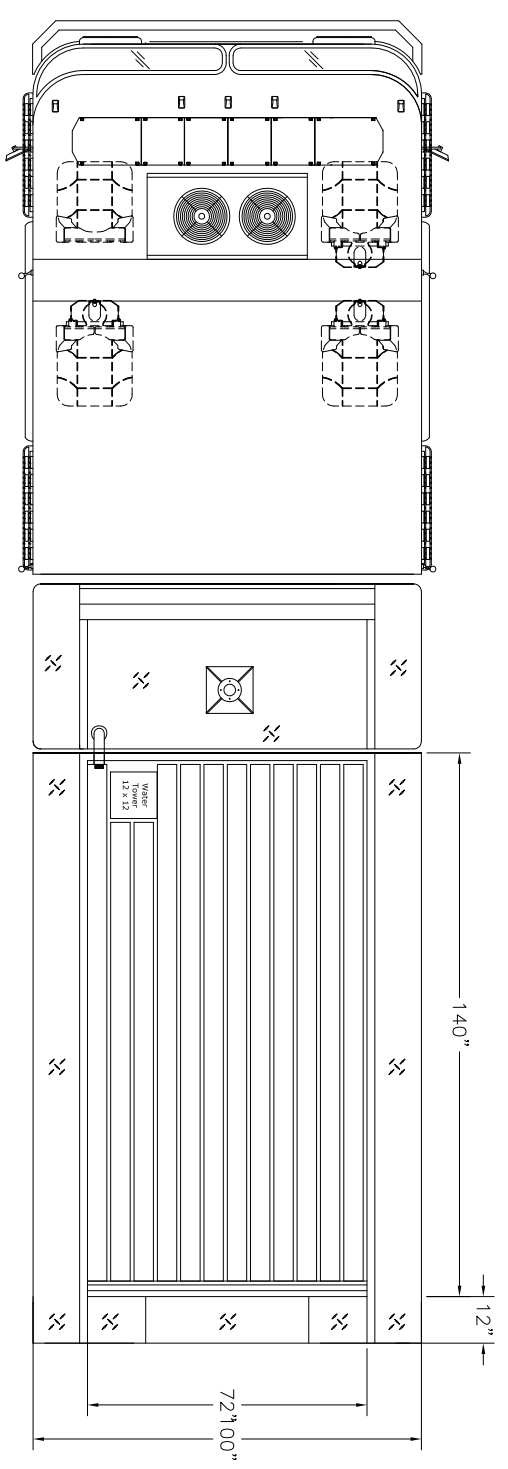
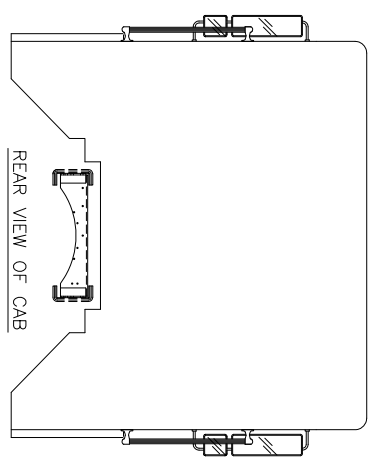
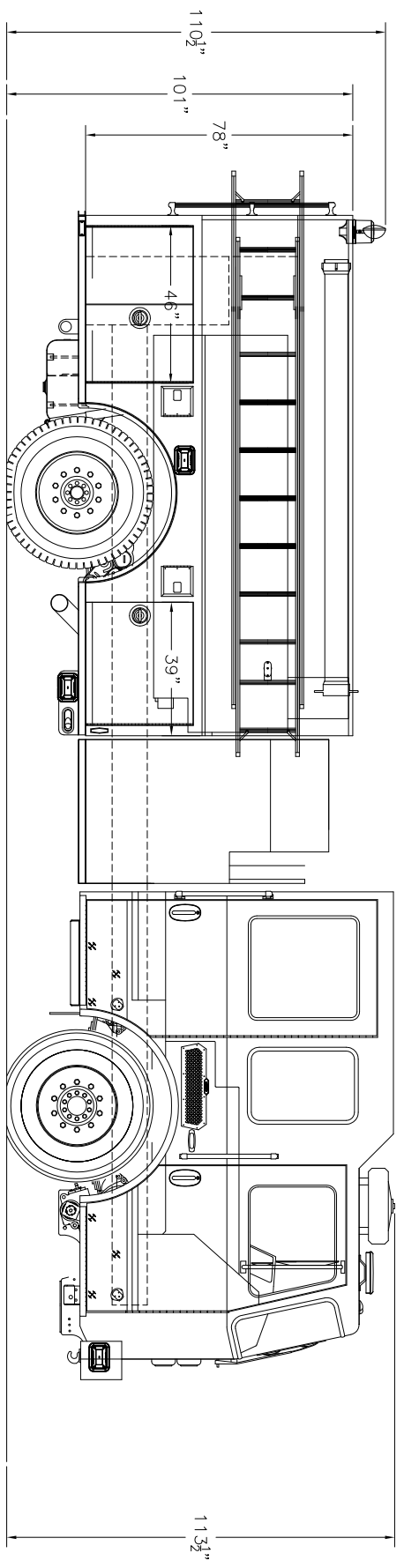
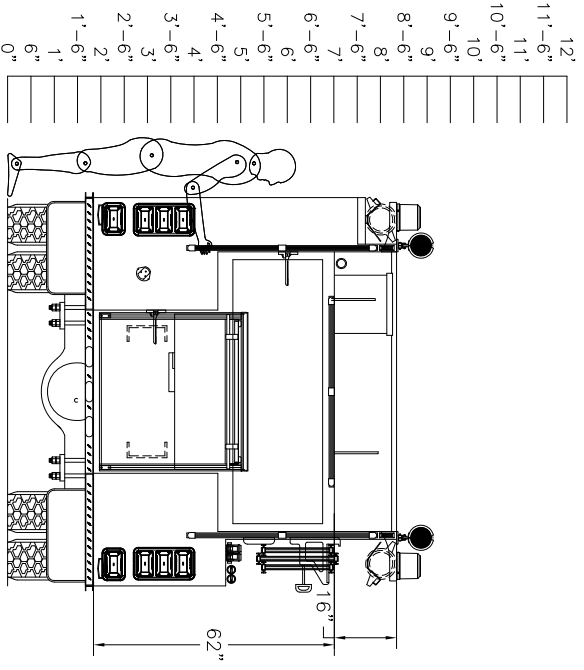
Should **any** warranty repair require transportation of the apparatus to a repair facility outside the Department's city limits, the manufacturer will provide a pickup and delivery service for the first two (2) years of warranty coverage, at no charge to the Fire Department.

WARRANTY - HEAVY DUTY VALVES

Akron Brass warrants Heavy Duty Swing-Out Valves for a period of ten (10) years after purchase against defects in material or workmanship. Akron Brass will repair or replace any Heavy Duty Swing Out Valve which fails to satisfy this warranty.

WARRANTY - SEATING

HO Bostrom will warrant each new seat manufactured, to be free from defects in materials and workmanship when delivered to the original purchaser for a period of five (5) years. Labor to remove or reinstall and transportation of defective items will not be covered by, or any allowance made for said cost under this warranty.



----- CHASSIS -----

CHASSIS: 100"W KME PANTHER MFD
 CAB: 4 DOOR 10" RH
 ENGINE: CUMMINS ISL9 450 HP
 TRANSMISSION: ALLISON 3000 EVS
 FRONT AXLE: 18,000 LB
 REAR AXLE: 27,000 LB

----- PUMP -----

PUMP: WATEROUS CS-C20-1250 GPM SINGLE STAGE
 INTAKES
 DRIVER SIDE: 6" & 2-1/2"
 OFFICER SIDE: 6"
 FRONT: N/A
 REAR: N/A
 DISCHARGES
 DRIVER SIDE: (1) 2-1/2" & (1) 3"
 OFFICER SIDE: N/A
 FRONT: (1) 2, 1/2" DS FRONT HOSE BRD
 REAR: (1) 3" DECK GUN DUNNAGE AREA
 DECK GUN: (2) 1-3/4" CROSSLAWS
 OTHER:

----- TANK -----

TANK: POLY
 WATER: 1,000 GALLONS
 FOAM: N/A
 EXTRA FILLS: N/A
 DUMPS: N/A

----- BODY -----

BODY TYPE: CHALLENGER RS
 MATERIAL: 3/16" ALUMINUM
 COMPARTMENTATION
 DRIVER SIDE: FULL HEIGHT/SPLIT DEPTH
 OFFICER SIDE: LOW SIDE
 HOSEBED
 DIVIDERS: TWO (2) RS-10
 HOSE LOAD:

----- MISC. -----

GENERATOR: N/A
 FOAM SYSTEM: N/A

CUSTOMER APPROVAL:

NAME:
 TITLE:
 DATE:

THIS DRAWING IS A GENERAL CONFIGURATION AND MAY NOT NECESSARILY REFLECT ALL CONTRACTUAL REQUIREMENTS. CONTRACT SPECIFICATIONS SHALL PREVAIL OVER DRAWING

SYM	DATE	REVISION DESCRIPTION	APP'D
A		PROPOSAL	ZZ

SALES ENGINEER : T.B.D.



KOVATCH MOBILE EQUIPMENT
 ONE INDUSTRIAL COMPLEX - NERUSHOHUNG, PA 18240

DATE: 11/06/2015 SCALE: 1"=24" DWG SIZE: D DRAWN BY: J.J.M. APPROVED BY:

KME CUSTOM PUMPER
 FCAM MID RANGE
 PROPOSAL



PROPOSAL FOR A KME

**HIGH END CUSTOM
PUMPER**

MAPC/FCAM 5

2015



QUOTATION

Metropolitan Area Planning Council
 Lorraine See
 60 TemplePlace
 6th Floor Reception
 Boston, Ma 02111
 617-933-0766



Sales Rep: **Terms:**
 FCAM HIGH END CUSTOM PUMPER - 2016 Final
 MAPC/FCAM - 5

Drawing #:
Est. Delivery Date: // **Penalty:**

Customer PO #:
Customer #:
QPF #:

Quote No: 10328-0037
 11/10/2015 11:20:56

PART NO	DESCRIPTION	QTY	ID
	QUOTE DATA VERSION: 1014.015 - 2015 DATA SET	1	KME
	INDEX OF PART NUMBERS	1	KME
02-00-0060	PROPOSED BY - BULLDOG FIRE APPARATUS	1	KME
04-00-0000	PROPOSED - GENERAL INFORMATION - NFPA 1901	1	KME
04-00-0033	PROPOSED - COMPLETION INFO	1	KME
04-00-0040	PROPOSED - FMVSS CERTIFICATION	1	KME
04-00-0060	PROPOSED - RECORDS	1	KME
04-00-0075	PROPOSED - TOP OF THE LINE CHASSIS MULTIPLEX	1	KME
04-00-0100	PROPOSED - GENERAL CONSTRUCTION	1	KME
04-00-0120	PROPOSED - SINGLE LINE RESPONSIBILITY	1	KME
04-00-0130	PROPOSED - PRODUCT LIABILITY - \$30,000,000.00	1	KME
04-00-0193	PROPOSED - PAINT PERFORMANCE CERTIFICATION	1	KME
04-00-0490	PROPOSED - PRICES & PAYMENTS	1	KME
04-00-0540	PROPOSED - BOND REQUIREMENTS	1	KME
04-00-0560	PROPOSED - PERFORMANCE BOND	1	KME
04-00-0580	PROPOSED - NON-COLLUSION AGREEMENT	1	KME
04-00-0630	PROPOSED - MATERIAL & WORKMANSHIP	1	KME
04-00-0660	PROPOSED - CONTRACT SPECIALIST	1	KME
04-00-0680	PROPOSED - APPROVAL DRAWING	1	KME
04-00-0820	ACCOMMODATIONS FOR ONE (1) DEALER PERSONNEL FCAM	1	DLR
04-00-1200	PROPOSED - DELIVERY	1	KME
04-00-1215	PROPOSED - INSTRUCTION MANUALS, TWO (2) SETS - CD	1	KME
04-00-1215	POWERPOINT DELIVERY - PROPOSAL FCAM	1	DLR
04-00-1300	PROPOSED - VEHICLE FLUIDS PLATE	1	KME
04-00-1320	PROPOSED - PRINCIPAL APPARATUS DIMENSIONS & GVWR	1	KME
04-00-1430	PROPOSED - KME OWNERSHIP	1	KME
04-00-1445	PROPOSED - UNIT BUILT AT HEADQUARTERS	1	KME
04-00-1500	PROPOSED - MANUFACTURE GENERATED EXACT BLUEPRINT WITH BID	1	KME
04-00-1521	PROPOSED - KME and BULLDOG FAMA MEMBERSHIP	1	KME
04-00-1540	PROPOSED - MANUFACTURED IN THE UNITED STATES	1	KME
04-00-1550	PROPOSED - ISO 9001 QUALITY MANAGEMENT SYSTEM	1	KME
04-00-1570	PROPOSED - NFPA TREAD PLATE CERTIFICATION	1	KME
04-00-1605	PROPOSED - AMP DRAW REPORT	1	KME
04-00-1700	PROPOSED - COOPERATIVE PURCHASING	1	KME
07-00-0045	"PUMPER FIRE APPARATUS" NFPA 2009 CHAPTERS OF COMPLIANCE	1	KME
08-00-0000	VEHICLE DATA PLATE DESCRIPTION	1	KME
14-00-0000	NFPA ROLLOVER STABILITY GENERAL STATEMENT	1	KME
AA-00-002A	SERVICE CENTER - PROPOSAL FCAM	1	DLR

PART NO	DESCRIPTION	QTY	ID
BA-00-3000	SEAT AND SEAT BELT ANCHOR TESTING	1	KME
BA-00-4100	CUSTOM PUMPER	1	KME
BA-00-4615	<1> 100" - PREDATOR, PUMPER -SINGLE AXLE	1	KME
BA-02-8301	<2> HEADER, FLEX SERIES PUMPER (CUSTOM)	1	KME
	**** HEADER - 100" PREDATOR CAB ****	1	KME
BA-04-0805	PREDATOR CAB - BASE, 100"	1	KME
BA-04-0850	PREDATOR CAB - BASE - ALUMINUM CONSTRUCTION	1	KME
BA-04-0990	PREDATOR 100" - CRASH TESTING	1	KME
BA-04-0995	PREDATOR 100" - 120,000# ROOF & SIDE TESTING	1	KME
BA-04-1300	PREDATOR 100" - MFD CAB LENGTH (DIM - 62 1/2")	1	KME
BA-04-4000	10" RAISED ROOF - 100" PREDATOR	1	KME
BA-04-5000	CAB ROOF DRIP RAIL 100" PREDATOR/PANTHER	1	KME
BA-05-0610	BARRIER HEIGHT CAB DOORS, 100" PREDATOR "MFD, LFD & X-LFD"	1	KME
BA-05-0650	CAST ANTI-SLIP ENTRY STEPS FOR REDUCED LENGTH CAB DOORS	1	KME
BA-05-1015	PREDATOR DOOR LATCHES, HD LOOP STYLE LATCH - BARRIER HEIGHT DOORS	1	KME
BA-05-1035	LOCKING CAB DOOR, OUT + IN, LOOP STYLE LATCH	1	KME
BA-05-1103	WINDOWS, MANUAL HAND CRANK STYLE - 100"	1	KME
BA-05-1130	DOOR WINDOW TRIM EXTRUSION, 4 - DOOR	1	KME
BA-05-1310	UPPER INTERIOR DOOR PANELS - ABS, 4-DOOR	1	KME
BA-05-1410	BRUSHED ALUMINUM DOOR SCUFF PLATES, 4 - DOOR	1	KME
BA-05-1510	SCOTCHLITE MATERIAL ON INTERIOR OF DOOR PANEL 4-DOORS	1	KME
BA-05-2410	WINDSHIELD, 100" PREDATOR CAB	1	KME
BA-05-2425	WINDSHIELD WIPERS & WASHERS - 100" PREDATOR	1	KME
BA-05-2450	SIDE VIEWING WINDOWS NON-SLIDING - PREDATOR	1	KME
BA-05-2500	DARK TINT WINDOWS, SIDE VIEWING, REAR DOORS & REAR WALL	1	KME
BA-05-2600	GRAB RAILS EXTERIOR, KNURLED ALUMINUM EXTRUSION	1	KME
BA-05-2668	PREDATOR INTERIOR GRAB HANDLES - WHEELABRATED	1	KME
BA-05-2725	FRONT CAB GRILLE - SHAPED PERFORATED POLISHED STAINLESS, 100" PRED, SS, PANTHER	1	KME
BA-05-2825	SIDE CAB GRILLES - SHAPED SHAPED PERFORATED POLISHED STAINLESS, 100" PRED, SS, PA	1	KME
BA-05-2900	ALUMINUM CAB WHEEL LINERS	1	KME
BA-05-2910	ALUMINUM CAB FENDERETTES	1	KME
BA-05-3000	FRONT MUD FLAPS	1	KME
BA-05-3500	VELVAC MIRRORS " WEST COAST" HEATED / REMOTE - W/CONVEX SPOT	1	KME
BA-05-3501	VELVAC WEST COAST MIRROR INSTALLATION	1	KME
BA-05-5115	INTERIOR TRIM, 100" PREDATOR	1	KME
BA-05-5180	CUSTOM CAB INTERIOR PAINT - TEXTURED GRAY	1	KME
BA-05-5200	PREDATOR REAR INTERIOR CAB WALL, GRAY DURAWEAR UPHOLSTERY	1	KME
BA-05-5335	TREAD PLATE KICK PLATE ON LOWER INTERIOR REAR WALL	1	KME
BA-05-5530	STORAGE COMPARTMENTS UNDER FRONT SEATS - 100" PREDATOR	1	KME
BA-05-5610	BARYFOL FLOORING	1	KME
BA-05-5650	1" ACOUSTICAL INSULATION	1	KME
BA-05-5820	ENGINE ENCLOSURE 100" PREDATOR (ABS VINYL)	1	KME
BA-05-5860	ENGINE ENCLOSURE MATERIAL - ALUMINUM CAB	1	KME
BA-05-7040	SUN VISORS, 100" PREDATOR CAB, PADDED VINYL	1	KME
BA-06-0500	TOP ROLLOVER PROTECTION SYSTEM W/SLAVE SENSOR - FIVE (5) OR MORE SEATS	1	KME
BA-06-3222	DRIVERS SEAT, BOSTROM EX8 SIERRA ELECTRIC - ABTS - SIDE CURTAIN AIRBAG	1	KME
BA-06-3632	OFFICERS SEAT, BOSTROM 450 SCBA, ABTS, FIXED - SIDE CURTAIN AIRBAG	1	KME
BA-06-3930	BOSTROM "SECUREALL" SCBA BOTTLE BRACKET - OFFICER'S SEAT	1	KME
BA-06-4112	BOSTROM 450 SCBA ABTS REAR FACING, OUTBOARD, DS - SIDE CURTAIN AIRBAG	1	KME
BA-06-4195	BOSTROM "SECUREALL" SCBA BOTTLE BRACKET - OUTBOARD, DS	1	KME
BA-06-4212	BOSTROM 450 SCBA ABTS REAR FACING,OUTBOARD, OS - SIDE CURTAIN AIRBAG	1	KME
BA-06-4295	BOSTROM "SECUREALL" SCBA BOTTLE BRACKET - OUTBOARD, OS	1	KME
BA-06-8005	BOSTROM SEATING MATERIAL, GRAY TWEED DURAWEAR	1	KME
BA-06-8055	NO SCBA PARADE COVERS SUPPLIED	1	KME
BA-06-9100	CLASS ONE SEAT BELT WARNING SYSTEM - UP TO 6 POSITIONS	1	KME
BA-06-9115	FOUR (4) SEATING POSITIONS	1	KME
BA-06-9300	CLASS ONE VEHICLE DATA RECORDER	1	KME
BA-07-7010	STANDARD #MATM RADIO ANTENNA INSTALLED	1	KME
BA-08-0210	DASH & CENTER CONSOLE - 100" PREDATOR (ABS VINYL)	1	KME
BA-08-0273	INSTRUMENT PANEL, 100" PREDATOR - WIDE ABS	1	KME
BA-08-0315	DIESEL EXHAUST FLUID LEVEL GAUGE	1	KME
BA-08-0320	ENGINE COMPRESSION BRAKE CONTROLS	1	KME
BA-08-0600	INFORMATION CENTER DISPLAY ON CAB DASH FOR ES-KEY SYSTEM	1	KME
BA-08-1220	INDICATOR CLUSTER, 100" PREDATOR	1	KME
BA-08-1235	"ATC DISABLED" INDICATOR CLUSTER	1	KME

PART NO	DESCRIPTION	QTY	ID
BA-08-1240	"ATC ACTIVE" INDICATOR CLUSTER	1	KME
BA-08-1600	!!!! NO CENTER DASH SWITCH PANEL EXTENSION/MODULE PROVIDED !!!!	1	KME
BA-08-1810	AUXILIARY SWITCH PANEL - LOWER DASH AREA	1	KME
BA-08-1900	PUMP SHIFT CONTROL ON LOWER LEFT DASH PANEL	1	KME
BA-08-2703	FLAT DASH IN FRONT OF OFFICER (ABS), 100" PREDATOR	1	KME
BA-08-2905	OVERHEAD ABS PANEL, FLAT FACED, 100" PREDATOR	1	KME
BA-08-3105	HEATER/DEFROSTER & ACCESS, PREDATOR 100" - 10" RAISED ROOF	1	KME
BA-08-6800	CLIMATE CONTROL SYSTEM - CONTROLS ABOVE DRIVER	1	KME
BA-08-9000	CAB TILT SYSTEM & OPTIONS	1	KME
BA-08-9110	PARKING BRAKE/CAB TILT INTERLOCK	1	KME
BA-09-5000	110,000 PSI FRAME: SINGLE MAIN RAIL	1	KME
BA-10-0055	BUMPER 12" PAINTED STEEL BUMPER - ALL CABS	1	KME
BA-10-0110	10" FRONT BUMPER EXTENSION WITH TREAD PLATE GRAVEL SHIELD	1	KME
BA-10-0405	TREADPLATE GRAVEL SHIELD STANDARD INSTALLATION	1	KME
BA-10-2010	TWO (2) PAINTED TOW HOOKS BELOW FRONT BUMPER	1	KME
BA-14-0140	20,000# FRONT AXLE MERITOR MFS-20-133A-N	1	KME
BA-14-1100	MERITOR "S" CAM BRAKES 16.5" X 6" FRONT AXLE, W/AUTO SLACK ADJUSTERS	1	KME
BA-14-2020	SUSPENSION FRONT - 20,000# RATING	1	KME
BA-14-2110	FRONT AXLE SHOCK ABSORBERS - MONROE "MAGNUM - 70"	1	KME
BA-14-5130	27,000# REAR AXLE MERITOR RS-26-185	1	KME
BA-14-6510	16.5" X 7" S-CAM BRAKES - MERITOR REAR AXLE, W/ AUTO SLACK	1	KME
BA-15-2810	VEHICLE TOP SPEED - 2009 NFPA STATEMENT	1	KME
BA-15-4420	SPRING REAR SUSPENSION, SINGLE REAR AXLE (31,000#)	1	KME
BA-20-1000	BRAKE SYSTEM, SA CHASSIS	1	KME
BA-20-1100	ABS BRAKING FOR SINGLE REAR AXLE CHASSIS	1	KME
BA-20-1200	AUTO TRACTION CONTROL (ATC) FOR ABS SYSTEM SINGLE REAR AXLE	1	KME
BA-20-1500	AIR RESERVOIRS 4700 CU IN SA, BASE	1	KME
BA-20-2005	AUTOMATIC MOISTURE EJECTOR ON THE PRIMARY TANK	1	KME
BA-20-2025	1/4 TURN DRAIN VALVES ON ALL AIR TANKS	1	KME
BA-20-3010	ROCKWELL/WABCO SYSTEM SAVER #1200, AIR DRYER HEATED	1	KME
BA-20-5000	COLOR CODED SYNIFLEX BRAKE LINES - SA	1	KME
BA-20-5500	AIR COMPRESSOR -WABCO 18.7 CFM- STD. FOR ALL CUMMINS ENGINES	1	KME
BA-20-5810	BRAKE TREADLE VALVE	1	KME
BA-20-6000	PARKING BRAKE CONTROL - NEAR DRIVER	1	KME
BA-25-1005	FRONT WHEELS, STEEL DISC TYPE, 22.5 X 12.25, 22,500#	1	KME
BA-25-1015	FRONT WHEELS, LUG AND HUB TRIM (STEEL WHEELS)	1	KME
BA-25-2025	FRONT, GOODYEAR 385/65R22.5 J 20,050# G296 MSA MIXED - 68MPH	1	KME
BA-25-2400	GOODYEAR - FIRE SERVICE RATING - TIRE RESTRICTIONS	1	KME
	HEADER, TIRES & WHEELS, 27,000 SINGLE REAR AXLE	1	KME
BA-25-5000	REAR WHEELS, STEEL DISC TYPE, 22.5 X 8.25, SA	1	KME
BA-25-5035	REAR WHEELS, LUG AND HUB TRIM, SA (STEEL)	1	KME
BA-25-6050	REAR, GDYR 12R22.5 H 29,020# G622 RSD TRACTION - 75MPH, SA	1	KME
BA-25-7400	GOODYEAR - FIRE SERVICE RATING - TIRE RESTRICTIONS	1	KME
BA-25-9900	TIRE PRESSURE MONITORING - LED VALVE STEM CAPS - SIX TIRES	1	KME
	**** 100" - HEADER, ENGINE & ENGINE COMPONENTS	1	KME
BA-30-2200	CUMMINS ISX12 - 500 HP @ 1800 RPM TQ 1645 lb-ft @ 1100 - PREDATOR WIDE	1	KME
BA-30-9810	PROPOSED - ENGINE CERTIFICATION CUSTOM CHASSIS	1	KME
BA-32-0030	COOLING/RADIATOR, 100" PREDATOR - WIDE	1	KME
BA-32-0070	ENGINE COOLANT FILTER - CUMMINS ISC - ISX	1	KME
BA-32-0085	COOLING SYSTEM CRITERIA	1	KME
BA-32-0100	TRANSMISSION COOLER	1	KME
BA-32-0120	RADIATOR SKID PLATE	1	KME
BA-32-0180	CHARGED AIR COOLER (STACK MOUNT), 100" PREDATOR CAB	1	KME
BA-32-0245	COOLANT FAN, W/CLUTCH - CUMMINS ISX12	1	KME
BA-32-0340	HEATER AND COOLANT HOSES/PIPING	1	KME
BA-32-0420	LOW COOLANT INDICATOR LIGHT AND ALARM IN CAB	1	KME
BA-33-0020	SECONDARY BRAKING - ENGINE COMPRESSION BRAKE	1	KME
BA-33-0150	FAST IDLE CONTROL FOR ALL ELECTRONIC ENGINES - SMART WHEEL	1	KME
BA-33-0160	ENGINE AIR CLEANER	1	KME
BA-33-0180	SPARK ARRESTOR	1	KME
BA-33-0200	ACCELERATOR PEDAL - FLOOR MOUNT	1	KME
BA-33-0250	REMOTE THROTTLE & INTERLOCK HARNESS	1	KME
BA-40-0300	ALLISON 4000EVS TRANS. - COMPRESSION BRAKE	1	KME
BA-40-0660	FIVE (5) SPEED AUTOMATIC TRANSMISSION - 4000 SERIES	1	KME
BA-40-0700	ALLISON TRANSMISSIONS, ELECTRONIC TOUCH PAD SHIFTER IN CAB	1	KME

PART NO	DESCRIPTION	QTY	ID
BA-40-0855	TRANSMISSION OIL LEVEL SENSOR	1	KME
BA-40-0860	ALLISON PARK TO NEUTRAL	1	KME
BA-40-0910	ALLISON PRESELECT PROGRAMMING	1	KME
BA-40-0920	PRESELECT PROGRAMMED FOR 4TH GEAR	1	KME
BA-40-4750	TES 295 SYNTHETIC TRANS FLUID 4000EVS TRANSMISSION	1	KME
BA-45-0110	DRIVE LINES DANA-SPICER #1810 SERIES	1	KME
BA-49-0100	DIESEL EXHAUST FLUID TANK - 5 GALLON	1	KME
BA-50-0110	EXHAUST SYSTEM - DPF & SCR SYSTEM - INLINE SYSTEM	1	KME
BA-50-0155	ALUMINIZED STEEL EXHAUST TAILPIPE/OUTLET OS - DPF + SCR SYSTEM	1	KME
BA-50-2500	FUEL SYSTEM	1	KME
BA-50-2505	FUEL TANK - 50 GALLON, STEEL	1	KME
BA-50-2625	FUEL LINES - SYNTHETIC RUBBER / PLASTIC HOSE	1	KME
BA-50-2645	CUMMINS FUEL-WATER SEPARATOR	1	KME
BA-50-2690	DELETE SECONDARY ELECTRIC FUEL PUMP	1	KME
BA-50-2700	FUEL POCKET, LEFT SIDE REAR WHEEL WELL PANEL	1	KME
BA-50-5050	STEERING - DUAL SHEPPARD POWER STEERING GEARS	1	KME
BA-50-7110	STEERING COLUMN - CLOCK SPRING	1	KME
BA-50-7150	18" STEERING WHEEL - SMART WHEEL	1	KME
BA-50-7201	4FRONT - FRONTAL AIR BAG PROTECTION SYSTEM IN STEERING WHEEL	1	KME
BA-50-7331	4FRONT - FRONTAL AIR BAG PROTECTION FOR OFFICER SIDE KNEE BOLSTER	1	KME
BA-50-7333	4FRONT - FRONTAL AIR BAG PROTECTION TESTING	1	KME
BA-50-9000	ROAD SAFETY KITS	1	KME
BE-01-0005	PREDATOR CHASSIS ELECTRICAL SYSTEM DESCRIPTION	1	KME
BE-01-0105	PREDATOR CHASSIS WIRING INSTALLATION	1	KME
BE-01-0150	DIRECT BATTERY GROUNDING STRAP - PREDATOR	1	KME
BE-01-0153	EMI/RFI PROTECTION	1	KME
BE-01-0205	PREDATOR 12 VOLT ELECTRICAL SYSTEM TESTING	1	KME
BE-05-0353	CLASS-1 ES-KEY MULTI-PLEXED ELECTRICAL SYSTEM 100" PREDATOR	1	KME
BE-05-0440	CLASS-1 ES-KEY INFORMATION CENTER DISPLAY	1	KME
BE-05-0800	INTER-LOCK MODULE FOR MULTIPLEX SYSTEM	1	KME
BE-05-0900	CHASSIS DIAGNOSTICS SYSTEM	1	KME
BE-05-1160	VOLTAGE MONITORING SYSTEM - 12 VOLT	1	KME
BE-05-1165	INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM	1	KME
BE-05-1170	SEQUENCER	1	KME
BE-05-1175	ELECTRICAL HARNESS INSTALLATION - 12 VOLT	1	KME
BE-10-0487	DELCO REMY 40SI, 320 AMP BRUSHLESS ALTERNATOR	1	KME
BE-15-0680	BATTERIES - FIVE (5) EXIDE GROUP 31, 925CCA	1	KME
BE-15-1105	PREDATOR BATTERY STORAGE, STEEL, MFD, XMFD, LFD, XLFD	1	KME
BE-15-1500	BATTERY DISCONNECT SWITCH, ALL UNITS	1	KME
BE-15-1555	COLE HERSEE BATTERY JUMPER STUDS, DS BATTERY BOX	1	KME
BE-20-1635	120 VOLT 20 AMP SUPER AUTO EJECT FOR BATT CHARGER - CUSTOM	1	KME
BE-20-1715	SHORELINE RECEPTACLE LABEL - NFPA	1	KME
BE-20-1720	RED COVER FOR KUSSMAUL AUTO-EJECT RECEPTACLE, #091-55RD	1	KME
BE-20-1750	SHORELINE LOCATION - ADJACENT TO DRIVER'S DOOR	1	KME
BE-20-2020	KUSSMAUL MODEL 1200, 40AMP W/ 120 VAC 125PSI AIR COMP.	1	KME
BE-20-3220	KUSSMAUL AUTO DRAIN ACHP - 120V	1	KME
BF-00-0100	PREDATOR SWITCH CONSOLE ON DASH - MULTIPLEX SWITCHES	1	KME
BF-00-0515	WELDON #8080-8000-13 WHITE/RED LED INTERIOR LIGHTS (4)	1	KME
BF-00-5000	DOOR OPEN INDICATOR W/ INTEGRAL AUDIBLE ALARM	1	KME
BF-01-6000	12 VOLT POWER AND GROUND CIRCUIT FOR ACCESSORIES IN DASH	1	KME
BF-20-0060	DUAL HEADLIGHTS, LED, PREDATOR - PETERSON - DUAL BEZELS	1	KME
BF-20-0320	DAYTIME RUNNING LIGHTS, ALL CABS	1	KME
BG-00-0055	DUAL MODULE w/ CODE 3 65STA LED TURN SIGNAL & REQ WARN LIGHT	1	KME
BG-00-0450	CUST PUMP/TANK/RES CHASSIS LED MARKER LIGHTS	1	KME
BG-00-0550	CUST PUMP/TANK/RES BODY LED MARKER LIGHTS	1	KME
BG-00-1200	WHELEN LED MARKER LIGHTS @ TOP FRONT ROOF EDGE OF CAB	1	KME
BG-00-1600	TRUCK-LITE MARKER LIGHTS @ EA SIDE OF CAB, ADJACENT TO DRIVER DOOR	1	KME
BG-00-1610	TRUCK-LITE MARKER/TURN LIGHTS @ EA SIDE OF BODY	1	KME
BG-00-1660	TRUCK-LITE MARKER LIGHTS @ REAR OF BODY	1	KME
BG-00-1800	TRUCK-LITE DOT AMBER REFLECTORS @ SIDE OF BODY	1	KME
BG-00-1810	TRUCK-LITE DOT RED REFLECTORS @ REAR OF BODY	1	KME
BG-00-2915	TECNIQ #L10 LED LICENSE PLATE LIGHT @ DS REAR OF BODY	1	KME
BG-02-2532	CODE 3, #65 LED BRAKE, REVERSE, & TURN W/ QUAD HOUSING	1	KME
BH-04-1040	CAB STEP LIGHTS, INNOVATIVE LIGHTING LED, ALL DEVICES	4	KME
BH-04-1125	BODY STEP LIGHTS, INNOVATIVE LIGHTING LED, ALL DEVICES	2	KME

PART NO	DESCRIPTION	QTY	ID
BH-05-1620	DUNNAGE AREA LIGHTING, INNOVATIVE LED	1	KME
BH-05-2017	UNITY LED SPOTLIGHTS ON REAR BODY STANCHIONS	1	KME
BH-10-7010	FRC SPECTRA 900 LED SCENE LIGHTS ON REAR OF BODY	1	KME
BH-10-7045	FRC SPECTRA 900 LED SCENE LIGHTS ON DRIVER SIDE OF BODY	1	KME
BH-10-7055	FRC SPECTRA 900 LED SCENE LIGHTS ON OFFICER SIDE OF BODY	1	KME
BH-10-8020	CONTROL SWITCH IN CAB FOR REAR OF BODY LIGHTS	1	KME
BH-10-8080	CONTROL SWITCH IN CAB FOR DRIVER SIDE OF BODY LIGHTS	1	KME
BH-10-8100	CONTROL SWITCH IN CAB FOR OFFICER SIDE OF BODY LIGHTS	1	KME
BH-10-9000	REAR SCENE LIGHTS TO BE ACTIVATED BY REVERSE LIGHTS	1	KME
BH-11-0810	NFPA (4) AMDOR H2O LED GROUND LIGHTS, BELOW CAB DOORS	1	KME
BH-12-2100	FRC BROW LIGHT, EVOLUTION LED, 155W12V, (1) ABOVE WINDSHIELD	1	KME
BH-14-0020	CONTROL SWITCH IN CAB FOR LIGHT(S) ABOVE WINDSHIELD	1	KME
BI-00-0300	PUMPER BODY ELECTRICAL SYSTEM	1	KME
BI-00-0305	PUMPER BODY JUNCTION COMPARTMENT	1	KME
BI-00-0525	BODY ELECTRICAL HARNESS - ES-KEY	1	KME
BJ-00-5110	PUMP ENCLOSURE WORK LIGHTS - GROTE LED	1	KME
BJ-00-5160	ENGINE COMPARTMENT WORK LIGHTS - GROTE LED	1	KME
BJ-02-0450	COMPT. LIGHTS, AMDOR LUMA BAR LED LIGHTING - DUAL	7	KME
BL-95-0000	NFPA COMPLIANT WARNING LIGHT PACKAGE - ALL UNITS	1	KME
BL-95-0100	LIGHT PACKAGE ACTUATION/CONTROLS - ALL UNITS	1	KME
BL-98-0000	WARNING LIGHT FLASH PATTERN - NFPA FLASH PATTERN	1	KME
BM-00-0208	CODE 3 UPPER PACKAGE - CUSTOM PUMPER	1	KME
BM-02-0086	A-UPPER, CODE 3 LED 2780NFPA P1, RX 2700 80" PRIZM II BAR	1	KME
BM-02-1050	C-UPPER, CODE 3 ARCH LED BEACONS - 360° SOLID COLOR	1	KME
BM-02-2000	B/D-UPPER REAR, COVERED BY LIGHTS IN ZONE C-UPPER	1	KME
BM-02-3000	B/D-UPPER FRONT, COVERED BY LIGHTS IN ZONE A-UPPER	1	KME
BM-07-0208	CODE 3 LOWER PACKAGE - CUSTOM PUMPER	1	KME
BM-09-0018	A-LOWER FRONT, CODE 3 65 SERIES LED	1	KME
BM-09-0098	A-LOWER FRONT MOUNTING, CUSTOM CHASSIS	1	KME
BM-09-1014	C-LOWER REAR, CODE 3 65 SERIES LED	1	KME
BM-09-2006	B/D-LOWER FRONT, CODE 3 65 SERIES LED	1	KME
BM-09-2098	B/D-LOWER FRONT MOUNTING, CUSTOM CHASSIS	1	KME
BM-09-3006	B/D-LOWER MID, CODE 3 65 SERIES LED	1	KME
BM-09-4006	B/D-LOWER REAR, CODE 3 65 SERIES LED	1	KME
BM-15-0000	LIGHT PACKAGE NFPA CERTIFICATION - ALL UNITS	1	KME
BW-00-0510	CHASSIS SINGLE ELECTRIC (DOT) HORN	1	KME
BW-00-0560	CODE 3, #CA278, BACK-UP ALARM - 87DBA	1	KME
BW-00-5000	DUAL CHROME AIR HORNS	1	KME
BW-00-5100	DUAL AIR HORNS RECESSED IN FRONT BUMPER, STD	1	KME
BW-00-5200	AIR HORN CTRL - FOOT FOR OFFICER & STEERING WHEEL FOR DRIVER	1	KME
BW-01-0120	SIREN, WHELEN # 295HFS2, 100W - FLUSH MOUNT	1	KME
BW-01-1000	ONE (1) WHELEN SP123BMC SPEAKER	1	KME
DC-00-2335	WATEROUS CSU-C20-1500 SINGLE STAGE PUMP	1	KME
DC-01-4600	WATEROUS PUMP PACKING	1	KME
DC-01-6210	WATEROUS "C20" PUMP DRIVE UNIT, ALL WATEROUS MID-SHIP PUMPS	1	KME
DC-01-6490	PUMP RATIO (HALE, WATEROUS OR DARLEY)	1	KME
DC-01-7140	WATEROUS AIR SHIFT	1	KME
DC-01-8615	WATEROUS PUMP SHIFT INDICATOR LIGHTS	1	KME
DC-01-9020	TRANSMISSION LOCK-UP (HALE, WATEROUS OR DARLEY)	1	KME
DC-02-1900	PUMP MOUNTS - MID-SHIP PUMPS	1	KME
DC-02-1990	PUMP INSTALLATION - CUSTOM	1	KME
DC-05-1226	FIRE RESEARCH "IN CONTROL" TGA-400 PRESSURE GOVERNOR	1	KME
DC-05-1280	AKRON STYLE #59 INTAKE RELIEF VALVE	1	KME
DC-05-2500	PUMP UL CERTIFICATION - 750 GPM & UP	1	KME
DC-05-3680	TRIDENT "MANUAL" AIR PRIMING SYSTEM	1	KME
DC-05-5110	ROTARY MASTER DRAIN VALVE	1	KME
DC-05-5400	DRAINS/BLEEDER "INNOVATIVE CONTROLS" LIFT UP @ ALL 1-1/2" OR LARGER	1	KME
DC-05-5500	SYNFLEX SUCTION, DISCHARGE, PRESSURE AND CONTROL LINES	1	KME
DC-05-6220	WATEROUS ANODE BLOCKS - 2 TOTAL	1	KME
DC-10-2202	SIDE MOUNT PUMP MODULE, PUMPER	1	KME
DC-10-2500	PUMP MODULE - STEEL CONSTRUCTION	1	KME
DC-10-2770	SIDE MOUNT DUNNAGE AREA	1	KME
DC-14-3210	WATEROUS MAIN SUCTION INLETS 6" NST, 1500 GPM CSU PUMP	1	KME
DC-14-5300	SHORT NECK MAIN PUMP SUCTION INLETS - DS & OS	1	KME
DC-14-5560	6" NST MAIN PUMP SUCTION PRESSURE VENTED CAPS (2)	1	KME

PART NO	DESCRIPTION	QTY	ID
DC-20-1000	2 1/2" AUX. SIDE SUCTION @ DS PANEL TO REAR OF MAIN INLET	1	KME
DC-20-1100	2 1/2" AKRON #8800 S.S. BALL VALVE, DS REAR AUX SUCTION	1	KME
DC-20-1200	SWING CONTROL @ VALVE, DS REAR AUX SUCTION	1	KME
DC-20-9500	BEHIND PANEL MOUNT	1	KME
DC-25-1410	TANK TO PUMP - 3" VALVE - PUMPER	1	KME
DC-25-3110	3" AKRON #8800 SERIES - S.S. BALL, VALVE, TANK TO PUMP	1	KME
DC-25-5110	3" PUSH/PULL CONTROL FOR TANK TO PUMP	1	KME
DC-30-2100	TANK FILL LINE 2" FROM PUMP - SIDE MOUNT	1	KME
DC-30-2300	2" AKRON #8800 SERIES - S.S. BALL TANK FILL, SIDE MOUN	1	KME
DC-30-6500	PUSH/PULL CONTROL FOR TANK FILL	1	KME
DC-35-0010	DS MAIN DISCHARGE #1 - SIDE MOUNT	1	KME
DC-35-0110	2 1/2" AKRON #8800 SERIES - S.S. BALL, DS #1, SIDE MOUNT	1	KME
DC-35-1815	DS #1 DISCH - 2 1/2" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-35-2010	2 1/2" NST PRESSURE VENTED CAP - DS DISCHARGE #1	1	KME
DC-35-2410	PUSH/PULL CONTROL FOR DS DISCHARGE #1 -SIDE MOUNT	1	KME
DC-35-3110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DS DISCHARGE #1	1	KME
DC-35-5010	DS MAIN DISCHARGE #2 - SIDE MOUNT	1	KME
DC-35-5110	2 1/2" AKRON #8800 SERIES - S.S. BALL, DS #2, SIDE MOUNT	1	KME
DC-35-6815	DS #2 DISCH - 2 1/2" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-35-7010	2 1/2" NST PRESSURE VENTED CAP - DS DISCHARGE #2	1	KME
DC-35-7410	PUSH/PULL CONTROL FOR DS DISCHARGE #2 -SIDE MOUNT	1	KME
DC-35-8110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DS DISCHARGE #2	1	KME
	OFFICER'S SIDE #1 MAIN DISCHARGE	1	KME
DC-39-0010	OS MAIN DISCHARGE #1 - SIDE MOUNT	1	KME
DC-39-0110	2 1/2" AKRON #8800 SERIES - S.S. BALL, OS #1, SIDE MOUNT	1	KME
DC-39-1815	OS #1 DISCH - 2 1/2" STRAIGHT NST & 30-DEGREE NST ELBOW	1	KME
DC-39-2010	2 1/2" NST PRESSURE VENTED CAP - OS DISCHARGE #1	1	KME
DC-39-2410	PUSH/PULL CONTROL FOR OS DISCHARGE #1 -SIDE MOUNT	1	KME
DC-39-3110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- OS DISCHARGE #1	1	KME
	OFFICER'S SIDE #2 MAIN DISCHARGE	1	KME
DC-39-5010	OS MAIN DISCHARGE #2 - SIDE MOUNT	1	KME
DC-39-5080	**** WATEROUS PUMP LDH DISCHARGE PORT ****	1	KME
DC-39-5130	4" AKRON #8840 VALVE, OS #2, SIDE MOUNT	1	KME
DC-39-6865	OS #2 DISCH - 4" STRAIGHT NST	1	KME
DC-39-7045	DELETE 4" NST CAP - OS DISCHARGE #2	1	KME
DC-39-7315	4" NSTF X 4" STORZ KOCHEK SKE-R 30° ADAPTER WITH CAP OS	1	KME
DC-39-7810	AKRON HANDWHEEL GEAR VALVE CONTROL, OS DISCHARGE #2	1	KME
DC-39-8110	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- OS DISCHARGE #2	1	KME
	DS HOSE BED DISCHARGE	1	KME
DC-44-0405	DS HOSE BED DISCHARGE 2 1/2" NST THREADS - PUMPER	1	KME
DC-44-0810	DS HOSE BED DISCH TERMINATE @ FLOOR LEVEL FRONT	1	KME
DC-44-0920	2 1/2" NST MALE THREADS ON DS HOSE BED DISCHARGE	1	KME
DC-44-1025	DS HOSE BED DISCHARGE, PLUMBING, 2 1/2" STAINLESS STEEL PIPING	1	KME
DC-44-1220	2 1/2" AKRON #8800 SERIES - S.S. BALL, VALVE DS HOSE BED DIS	1	KME
DC-44-1610	PUSH/PULL 1/4 TURN CONTROL FOR DS HOSE BED DISCHARGE	1	KME
DC-44-2130	2 1/2" NST DS HOSE BED DISCHARGE PRESSURE VENTED CAP	1	KME
DC-44-2210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DS HOSE BED DISCH	1	KME
	DECK GUN DISCHARGE	1	KME
DC-45-0310	DECK GUN DISCHARGE - PUMPER	1	KME
DC-45-0810	DECK GUN DISCH TERMINATE @ OFFICER'S SIDE OF DUNNAGE	1	KME
DC-45-0915	3" NPT MALE THREADS ON DECK GUN DISCHARGE	1	KME
DC-45-1005	DECK GUN DISCHARGE - OVA HEIGHT NOT EXCEED TALLEST POINT	1	KME
DC-45-1125	DECK GUN DISCHARGE, PLUMBING, 3" STAINLESS STEEL PIPING	1	KME
DC-45-1230	3" AKRON #8800 SERIES - S.S. BALL, VALVE DECK GUN DISC	1	KME
DC-45-1610	PUSH/PULL 1/4 TURN CONTROL FOR DECK GUN DISCHARGE	1	KME
DC-45-2210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS- DECK GUN DISCH	1	KME
	CROSSLAY #1 DISCHARGE	1	KME
DC-47-0600	CROSSLAY #1, 1 1/2" - PUMPER	1	KME
DC-47-1110	CROSSLAY #1 CAPACITY - 200' OF 1 3/4" HOSE	1	KME
DC-47-1410	CROSSLAY #1 - DOUBLE STACK HOSE DESIGN	1	KME
DC-47-1510	1 1/2" NST CHICKSAN SWIVEL - CROSSLAY #1	1	KME
DC-47-2110	CROSSLAY #1, PLUMBING, 2" STAINLESS STEEL PIPING	1	KME
DC-47-2210	2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY #1, DISCH	1	KME
DC-47-2610	PUSH/PULL 1/4 TURN CONTROL CROSSLAY #1	1	KME
DC-47-3210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS - CROSSLAY #1	1	KME

PART NO	DESCRIPTION	QTY	ID
CROSSLAY #2 DISCHARGE		1	KME
DC-47-5600	CROSSLAY #2, 1 1/2" - PUMPER	1	KME
DC-47-6110	CROSSLAY #2 CAPACITY - 200' OF 1 3/4" HOSE	1	KME
DC-47-6410	CROSSLAY #2 - DOUBLE STACK HOSE DESIGN	1	KME
DC-47-6510	1 1/2" NST CHICKSAN SWIVEL - CROSSLAY #2	1	KME
DC-47-7110	CROSSLAY #2, PLUMBING, 2" STAINLESS STEEL PIPING	1	KME
DC-47-7210	2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY #2,	1	KME
DC-47-7610	PUSH/PULL 1/4 TURN CONTROL CROSSLAY #2	1	KME
DC-47-8210	INNOVATIVE CONTROLS LIQUID FILLED 2 1/2" PRESS GAUGE SS - CROSSLAY #2	1	KME
CROSSLAY & SPEEDLAY OPTIONS - PUMPER		1	KME
DC-50-6750	LOWERED CROSSLAYS	1	KME
DC-50-7005	FRONT HINGED CROSSLAY HOSE BED COVER,TRDPLT	1	KME
DC-50-7020	VINYL END FLAPS FOR ALUMINUM TRDPLT X-LAY COVER	1	KME
DC-50-7070	END FLAP COVER RED IN COLOR	1	KME
FOAM SYSTEM & ACCESSORIES, PUMPER		1	KME
DC-70-108A	FOAM SYSTEM PVC PIPING - 1 INCH FROM FOAM SOURCE TO SYSTEM	1	KME
DC-70-4820	WATEROUS ADVANTUS 3 CLASS "A and/or B" FOAM SYSTEM	1	KME
DC-70-5010	INJECTION SYSTEM PLUMBING - UP TO 500 GPM	1	KME
DC-70-5510	INJECTION SYSTEM DISCHARGE/S - ADVANTUS 3, UP TO 500 GPM	1	KME
DC-70-6110	INJECTION FOAM SYSTEM INSTALLED ON CROSSLAY #1	1	KME
DC-70-6115	INJECTION FOAM SYSTEM INSTALLED ON CROSSLAY #2	1	KME
DC-70-6145	INJECTION FOAM SYSTEM INSTALLED ON FRONT DISCHARGE	1	KME
DC-70-9000	FOAM TANK - 1901 REQUIREMENT	1	KME
FOAM CONCENTRATE TO BE USED WITH FOAM SYSTEM		1	KME
DC-80-0005	NO CLASS A FOAM SELECTED	1	KME
DC-80-0205	NO CLASS B FOAM SELECTED	1	KME
DD-65-0710	SIDE MOUNT PUMP PANEL - PUMPER	1	KME
DD-65-4115	SIDE MOUNT PANELS - 12 GAUGE BRUSHED STAINLESS STEEL	1	KME
DD-65-4710	VERTICALLY HINGED GAUGE PANEL - SIDE MOUNT	1	KME
DD-65-4810	OFFICER SIDE VERTICALLY HINGED PUMP ACCESS DOOR - SIDE MOUNT	1	KME
DD-65-5150	PANEL FASTENERS	1	KME
DD-65-5510	CAPS AND ADAPTERS SAFETY TETHER - BALL CHAIN	1	KME
DD-65-8820	PUMP PANEL DISCH./SUCTION TRIM PLATES, HIGH POLISHED	1	KME
DD-65-9000	DISCHARGE GAUGE TRIM BEZELS	1	KME
DD-65-9110	IDENTIFICATION PLATES	1	KME
DD-66-0100	PUMP OPERATOR'S PANEL LIGHT SHIELD	1	KME
DD-66-0110	AMDOR LUMA BAR H2O SUPER BRIGHT LED - LIGHT SHIELD	1	KME
DD-66-2100	OS PUMP PANEL LIGHTING	1	KME
DD-66-2130	TECNIQ EON 3 LED LIGHTS - OS PUMP PANEL	1	KME
PUMP OPERATOR'S PANEL - SIDE MOUNT, PUMPER		1	KME
DD-70-2335	FIRE RESEARCH "IN CONTROL" PRESSURE GOVENOR CONTROL @ PANEL	1	KME
DD-70-2410	PUMP PRESSURE & VACUUM TEST PORTS @ PANEL	1	KME
DD-70-4125	DELETE - MASTER PRESSURE & COMPOUND GAUGES	1	KME
DD-70-4680	PRESSURE & COMPOUND GAUGE RANGES - SINGLE STAGE	1	KME
DD-70-4900	AUXILIARY ENGINE COOLER	1	KME
WATER TANK LEVEL GAUGE - PUMPER		1	KME
DD-72-0410	FIRE RES - TANK VISION #WLA300-A00 LED WATER TANK GAUGE - PRIMARY	1	KME
DD-72-1300	FIRE RES WATER LEVEL - 1/4" NPT PRESS TRANS @ BOTTOM TANK	1	KME
FOAM TANK LEVEL GAUGE - FOAM TANK "A"		1	KME
DD-74-0410	FIRE RES - TANK VISION #WLA360-A00 LED FOAM GAUGE - TANK "A"	1	KME
DD-74-1300	FIRE RES FOAM LEVEL - 1/4" NPT PRESS TRANS @ BOTTOM TANK "A"	1	KME
DE-15-0750	TANK 750 GAL POLY - PUMPERS & RESCUE PUMPERS	1	KME
DE-15-5020	INTEGRAL FOAM TANK, 20 GAL. - PUMPER, TANK "A"	1	KME
DE-16-1000	WATER TANK CONSTRUCTION POLY	1	KME
DE-16-2000	WATER TANK LID POLY	1	KME
DE-16-2100	WATER TANK FILL TOWER POLY	1	KME
DE-16-3000	WATER TANK 4" OVERFLOW & VENT PIPE	1	KME
DE-16-4000	WATER TANK SUMP	1	KME
DE-16-5000	WATER TANK SUMP CONNECTION; ONE (1) FRONT	1	KME
DE-16-5100	WATER TANK 3" SUMP DRAIN	1	KME
DE-16-6000	WATER TANK FLANGES/OUTLETS - PUMPER	1	KME
DE-16-7000	WATER TANK MOUNTING ALL "T" TANKS - PUMPER	1	KME
JB-02-0100	APPARATUS BODY GENERAL DESCRIPTION (PUMPER)	1	KME
JB-02-0500	COMPARTMENT TOPS (STEPPING SURFACE TOPS)	1	KME
JB-02-0600	DRIP MOLDING (HINGED DOORS)	1	KME

PART NO	DESCRIPTION	QTY	ID
JB-02-0700	REAR BODY PANEL	1	KME
JB-05-0200	BODY MATERIAL: 3/16" ALUMINUM	1	KME
JB-05-0210	BODY SUB FRAME - ALUMINUM	1	KME
JB-10-0100	100" WIDE BODY - 29" DEEP COMPARTMENTS	1	KME
JB-10-1000	64" WIDE FENDER - CUSTOM	1	KME
JB-10-2200	FENDER WITH STORAGE OPTIONS (CUSTOM)	1	KME
JB-10-3030	DRIVER FORWARD FENDER - TRIPLE STORAGE SLOT	1	KME
JB-10-4060	DRIVER REARWARD FENDER - DOUBLE STORAGE SLOT	1	KME
JB-10-5030	OFFICER FORWARD FENDER - TRIPLE STORAGE SLOT	1	KME
JB-10-6030	OFFICER REARWARD FENDER - TRIPLE STORAGE SLOT	1	KME
JB-10-7000	FENDER STORAGE COMPARTMENTS - PAINTED DOORS	1	KME
JB-15-0200	MEDIUM PUMPER BODY (ACCOMMODATES UP TO 1250 GALLON TANK)	1	KME
JB-15-3230	FLEX MEDIUM - DS FULL HEIGHT/SPLIT DEPTH	1	KME
JB-16-3200	FLEX MEDIUM - OS LOW SIDE COMPARTMENTS	1	KME
JB-17-0100	REAR STEP COMPARTMENT - FULL WIDTH, STANDARD HEIGHT	1	KME
JB-17-0400	REAR STEP COMPARTMENT - FULL SIDE WALLS	1	KME
JB-17-0510	REAR STEP COMPARTMENT - ROLLUP DOOR	1	KME
JB-18-0100	HINGED DOOR BODY	1	KME
JB-20-0240	EXTENDED REAR STEP - 12 D X 100 W - TAPERED ENDS	1	KME
JB-25-0100	STANDARD BED - STANDARD COMPT CAPS (72")	1	KME
JB-25-0300	NFPA MINIMUM HOSEBED CAPACITY	1	KME
JB-25-1000	HOSEBED FLOORING - ALUMINUM SLATS	1	KME
JB-25-1110	TWO (2) - 3/16" ADJUSTABLE HOSEBED PARTITIONS	1	KME
JB-25-1510	HOSEBED COVER - LOCK-N-LOAD SLIDING COVER	1	KME
JB-25-1590	VINYL FLAPS AT REAR EDGE OF TREADPLATE COVER	1	KME
JB-25-1600	HYPALON MATERIAL COLOR - RED	1	KME
TF-10-0600	2" THICK COMPARTMENT DOORS - FLAT RECESSED DOORS	1	KME
TF-10-1900	BRUSHED FINISHED DOOR PANS - 2" THICK DOORS	1	KME
TF-10-2720	DOOR HINGE FOR FLUSH HINGED DOORS	1	KME
TF-10-2820	DOOR SEAL FOR FLUSH HINGED DOORS	1	KME
TF-10-2940	ROTARY LATCHES WITH D-RING HANDLES	1	KME
TF-10-3150	GAS SHOCK ON HORIZONTALLY & VERTICALLY HINGED DOORS	1	KME
TF-10-6005	SWEEP-OUT COMPARTMENTS (NON-AERIALS)	1	KME
TF-11-0610	COATED FASTENERS	1	KME
TF-11-0622	COMPARTMENT LOUVERS (29" DEEP BODIES)	1	KME
TF-11-0640	ACCESS PANELS (29" DEEP BODIES)	1	KME
TF-11-2015	CAST ALUMINUM SIDE MOUNTED REAR STANCHIONS	1	KME
TF-11-3030	BODY RUB RAILS, TREAD PLATE	1	KME
TF-12-1005	RUNNING BOARD STEPS (NON-AERIALS)	1	KME
TF-13-5190	GRAB RAILS, KNURLED ALUMINUM EXTRUSION	1	KME
TF-13-5200	TWO (2) VERTICAL RAILS ON REAR	1	KME
TF-13-5210	ONE (1) HANDRAIL, BELOW HOSE BED LEVEL	1	KME
TF-13-7560	CAST PRODUCTS CHROME FOLDING STEP(S), BODY REAR, DS	1	KME
TF-13-7660	CAST PRODUCTS CHROME FOLDING STEP(S), BODY REAR, OS	1	KME
TF-13-9000	SAFETY SIGNS (NFPA REQUIRED)	1	KME
TF-14-1800	FLEX FENDERETTE/LINER - ONE PIECE	1	KME
TF-14-2100	WHEEL WELL LINERS w/ FENDERETTE (ONE PIECE UNIT) - ALUMINUM	1	KME
TF-14-5000	REAR MUD FLAPS	1	KME
TF-14-6510	PAINTED REAR TOW EYES, BELOW BODY	1	KME
TJ-05-1030	ADJUSTABLE SHELF DESCRIPTION - PUMPER	1	KME
TJ-05-3055	ADJUSTABLE SHELF, DRIVER FRONT COMPARTMENT	1	KME
TJ-05-3060	ADJUSTABLE SHELF, OFFICER FRONT COMPARTMENT	1	KME
TJ-05-3065	ADJUSTABLE SHELF, DRIVER REAR COMPARTMENT	1	KME
TJ-05-3070	ADJUSTABLE SHELF, OFFICER REAR COMPARTMENT	1	KME
TN-00-9010	CAST ALUMINUM LADDER MOUNTING BRACKETS (OFFICER SIDE)	1	KME
TN-01-2050	ALCO-LITE LADDER COMPLIMENT	1	KME
TN-02-1170	ALCO-LITE PEL-24 24' 2-SECTION EXTENSION LADDER (ALUM)	1	KME
TN-02-2515	ALCO-LITE PRL-14 14' ROOF LADDER W/FOLDING HOOKS (ALUM)	1	KME
TN-02-8010	ALCO-LITE FL-10 10' FOLDING ATTIC LADDER (ALUM)	1	KME
TN-15-0525	SUCTION HOSE STORAGE SIDE OF BODY (1-OFFICER, 1-DRIVER)	1	KME
TN-15-1005	SUCTION HOSE TROUGH	2	KME
TN-15-2235	TWO (2) 10' SECTIONS OF 6" LIGHTWEIGHT SUCTION HOSE	1	KME
TN-15-3500	SAFETY NOTE FOR PVC SUCTION HOSE	1	KME
TN-16-0210	6" NST, RED HEAD BARREL STRAINER W/MTG BKT	1	KME
TN-16-2005	HYDRANT ADAPTER, 4-1/2" NST	1	KME

PART NO	DESCRIPTION	QTY	ID
TN-20-0005	ADDITIONAL ITEMS SHIPPED WITH VEHICLE, ALL NON-AERIALS	1	KME
	**** HEADER, LOOSE EQUIPMENT - PUMPER	1	KME
TN-35-1015	TWO (2) ZICO #SAC-44 FOLDING WHEEL CHOCKS, (2) MTD DRIVER SIDE	1	KME
UA-00-1100	GENERAL PAINT DESCRIPTION - ALL	1	KME
UA-00-1270	GENERAL PRIMER & PREP DESCRIPTION - PUMPER	1	KME
UA-00-1470	GENERAL FINISH PAINT DESCRIPTION - PUMPER	1	KME
UA-00-2755	BODY BUFFING & FINISH - PUMPER	1	KME
UA-03-0150	INSIDE/UNDERSIDE BODY PAINTED BLACK - PUMPER	1	KME
UA-03-0350	JOB COLOR COMPARTMENT INT W/SPATTER PAINT - PUMPER	1	KME
UA-03-0950	SINGLE COLOR BODY PAINT SCHEME - PUMPER	1	KME
UA-03-2120	PUMPHOUSE & PLUMBING PAINTED BLACK - PUMPER	1	KME
UA-03-3000	FENDER COMPARTMENT INTERIOR - JOB COLOR	1	KME
UA-05-0050	CUSTOM CAB PRIMER & PREP	1	KME
UA-05-0070	CUSTOM FINISH PAINT & PREP	1	KME
UA-05-0100	SINGLE COLOR CUSTOM CAB PAINT SCHEME	1	KME
UA-05-0350	CUSTOM CAB BUFFING & FINISH	1	KME
UA-05-0360	CUSTOM CAB INTERIOR PAINT - TEXTURED GRAY	1	KME
UA-05-0400	CUSTOM CHASSIS GLOSS BLACK COLOR FRAME RAILS	1	KME
UA-05-0500	CUSTOM CHASSIS WHEEL AND HUB PAINT - SINGLE AXLE	1	KME
UA-06-2110	PAINT CODE, SINGLE COLOR, FILL IN BLANKS	1	KME
UA-06-2200	PINT OF TOUCH-UP PAINT	1	KME
UA-06-2535	FINALIZATION & DETAILING - PUMPER	1	KME
UA-06-2850	RUSTPROOFING WARRANTY, TEN (10) YEAR	1	KME
UA-12-0200	DEALER TO SUPPLY LETTERING & DECALS	1	KME
UA-12-1200	GOLDLEAF W/ DROP SHADOW LETTERING ON FRONT CAB DOORS	1	DLR
UA-12-1255	CUSTOM LETTERING ON FRONT CAB DOORS	1	DLR
UA-12-1740	GOLDLEAF W/ DROP SHADOW LETTERING ON CREW CAB DOORS	1	DLR
UA-12-1795	CUSTOM LETTERING ON CREW CAB DOORS	1	DLR
UA-12-2175	GOLDLEAF W/ DROP SHADOW LETTERING ABOVE WINDSHIELD	1	DLR
UA-12-2600	SCOTCH-CAL W/O DROP SHADOW LETTERING ON FRONT BUMPER	1	DLR
UA-12-2700	GOLDLEAF W/ DROP SHADOW LETTERING ON FRONT OF CAB	1	DLR
UA-12-2755	CUSTOM LETTERING ON FRONT BUMPER	1	DLR
UA-12-3100	GOLDLEAF W/ DROP SHADOW LETTERING ON CAB SIDE PANEL	1	DLR
UA-12-3155	CUSTOM LETTERING ON CAB SIDE PANEL	1	DLR
UA-12-3600	SCOTCH-CAL W/O DROP SHADOW LETTERING ON REAR COMPARTMENT DOOR	1	DLR
UA-12-3755	CUSTOM LETTERING ON REAR DOOR	1	DLR
UA-12-5150	GOLDLEAF W/ DROP SHADOW LETTERING ON BODY SIDE SHEET	1	DLR
UA-12-5240	CUSTOM LETTERING ON BODY SIDE SHEET	1	DLR
UA-50-0500	NFPA REQUIRED SCOTCH-LITE STRIPING - PUMPER	1	KME
UA-50-0515	6" SCOTCH-LITE STRIPE ON CAB AND BODY - PUMPER	1	KME
UA-58-5100	WHITE SCOTCH-LITE	1	KME
UA-60-0215	6" SCOTCH-LITE "Z" IN STRIPE	1	KME
UA-60-0535	DUAL 1" SCOTCH-LITE ACCENT ON MAIN STRIPE	1	KME
UA-80-6000	REAR CHEVRON STRIPING	1	KME
UA-80-6002	50% VERTICAL SURFACE	1	KME
UA-80-6050	6" 50% REAR SCOTCH-LITE DIAMOND GRADE CHEVRON STRIPING	1	KME
UA-80-6075	RED & FLUORESCENT YELLOW GREEN DIAMOND GRADE SCOTCH-LITE	1	KME
W6-00-000J	PROPOSED - KME WARRANTY, STARTING ON DELIVERY DATE	1	KME
W6-00-0035	REQ - 5 YEAR WARRANTY - CUSTOM CHASSIS	1	
W6-00-003	PROPOSED - 5 YEAR WARRANTY - BASE WITH CUSTOM CHASSIS	1	KME
W6-00-0163	PROPOSED - 10 YEAR CUMMINS ISX - EXTENDED WARRANTY	1	KME
W6-00-0210	PROPOSED - 5 YEAR ALLISON EVS TRANSMISSION WARRANTY	1	KME
W6-00-0220	PROPOSED - 3 YEAR COOLING SYSTEM WARRANTY - CUSTOM	1	KME
W6-00-0230	PROPOSED - LIFETIME FRAMERAIL WARRANTY	1	KME
W6-00-0242	PROPOSED - SHEPPARD STEERING GEAR STANDARD - THREE YEAR WARRANTY	1	KME
W6-00-0254	PROPOSED - 5 YEAR MERITOR FRONT AXLE - WARRANTY	1	KME
W6-00-0258	PROPOSED - 5 YEAR MERITOR SINGLE AXLE REAR - WARRANTY	1	KME
W6-00-0270	PROPOSED - 3 YEAR MERITOR ABS - WARRANTY	1	KME
W6-00-0320	PROPOSED - 10 YEAR CAB STRUCTURAL WARRANTY	1	KME
W6-00-0330	PROPOSED - 10 YEAR BODY STRUCTURAL WARRANTY	1	KME
W6-00-0390	PROPOSED - 10 YEAR CAB & BODY CORROSION WARRANTY	1	KME
W6-00-0450	PROPOSED - PAINT FINISH WARRANTY, TEN (10) YEAR	1	KME
W6-00-0470	PROPOSED - 5 YEAR LETTERING WARRANTY	1	KME
W6-00-0483	PROPOSED - 1 YEAR BRIGHTWORK WARRANTY	1	KME
W6-00-0490	PROPOSED - 10 YEAR STAINLESS STEEL PIPING WARRANTY	1	KME



Amps/Weight Report

Metropolitan Area Planning Council
 Lorraine See
 60 TemplePlace
 6th Floor Reception
 Boston, Ma 02111
 617-933-0766



Quote No: 10328-0038
1 MODEL: 00DEVICE12 CUSTOM PUMPER
2 LETTER: LETTER 21 LETTERING & STRIPING, PUMPER
3 COMP ACC: 000COMP006 COMPARTMENT ACCESSORIES PUMPER
5 MISC EQU: 000EQUIP02 MISC AND LOOSE EQUIPMENT (PUMPER)
6 WARRANTY: WARNTY-07 CUSTOM PUMPER WARRANTY PACKAGE
DEALER: Dealer Parts

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PART NO	S	DESCRIPTION	QTY	RESP	SCENE	IT
BA-05-2425		WINDSHIELD WIPERS & WASHERS - 100" PREDATOR	1	0.00	0.00	11.00
BA-06-3222		DRIVERS SEAT, BOSTROM EX8 SIERRA ELECTRIC - ABTS - SIDE CURTAIN AIRBAG	1	0.00	0.00	4.00
BA-08-0273		INSTRUMENT PANEL, 100" PREDATOR - WIDE ABS	1	1.00	1.00	0.00
BA-08-0600		INFORMATION CENTER DISPLAY ON CAB DASH FOR ES-KEY SYSTEM	1	0.50	0.50	0.00
BA-08-1220		INDICATOR CLUSTER, 100" PREDATOR	1	1.00	1.00	0.00
BA-08-1810		AUXILIARY SWITCH PANEL - LOWER DASH AREA	1	0.00	0.00	0.10
BA-08-1900		PUMP SHIFT CONTROL ON LOWER LEFT DASH PANEL	1	0.00	0.00	0.10
BA-08-3105		HEATER/DEFROSTER & ACCESS, PREDATOR 100" - 10" RAISED ROOF	1	39.00	39.00	0.00
BA-08-9000		CAB TILT SYSTEM & OPTIONS	1	0.00	0.00	150.00
BA-20-1100		ABS BRAKING FOR SINGLE REAR AXLE CHASSIS	1	2.00	0.00	0.00
BA-20-1200		AUTO TRACTION CONTROL (ATC) FOR ABS SYSTEM SINGLE REAR AXLE	1	2.00	0.00	0.00
BA-20-2005		AUTOMATIC MOISTURE EJECTOR ON THE PRIMARY TANK	1	0.00	0.00	3.50
BA-20-3010		ROCKWELL/WABCO SYSTEM SAVER #1200, AIR DRYER HEATED	1	0.00	0.00	7.60
BA-30-2200		CUMMINS ISX12 - 500 HP @ 1800 RPM TQ 1645 lb-ft @ 1100 - PREDATOR WIDE	1	5.00	5.00	0.00
BA-32-0420		LOW COOLANT INDICATOR LIGHT AND ALARM IN CAB	1	0.00	0.00	0.30
BA-33-0020		SECONDARY BRAKING - ENGINE COMPRESSION BRAKE	1	0.00	0.00	0.50
BA-40-0300		ALLISON 4000EVS TRANS. - COMPRESSION BRAKE	1	2.00	2.00	0.00
BA-40-0660		FIVE (5) SPEED AUTOMATIC TRANSMISSION - 4000 SERIES	1	2.00	2.00	0.00
BA-50-2500		FUEL SYSTEM	1	6.00	6.00	0.00
BA-50-2645		CUMMINS FUEL-WATER SEPARATOR	1	0.00	0.00	6.00
BE-05-0353		CLASS-1 ES-KEY MULTI-PLEXED ELECTRICAL SYSTEM 100" PREDATOR	1	5.00	5.00	0.00
BE-05-0440		CLASS-1 ES-KEY INFORMATION CENTER DISPLAY	1	5.00	5.00	0.00
BE-05-0800		INTER-LOCK MODULE FOR MULTIPLEX SYSTEM	1	1.00	1.00	0.00
BE-10-0487		DELCO REMY 40SI, 320 AMP BRUSHLESS ALTERNATOR	1	0.00	0.00	0.10
BF-00-0515		WELDON #8080-8000-13 WHITE/RED LED INTERIOR LIGHTS (4)	1	2.00	2.00	0.00
BF-00-5000		DOOR OPEN INDICATOR W/ INTEGRAL AUDIBLE ALARM	1	0.00	0.00	1.00
BF-20-0060		DUAL HEADLIGHTS, LED, PREDATOR - PETERSON - DUAL BEZELS	1	5.40	5.40	0.00
BG-00-0055		DUAL MODULE w/ CODE 3 65STA LED TURN SIGNAL & REQ WARN LIGHT	1	0.50	0.00	0.00
BG-00-1200		WHELEN LED MARKER LIGHTS @ TOP FRONT ROOF EDGE OF CAB	1	1.10	1.10	0.00
BG-00-1600		TRUCK-LITE MARKER LIGHTS @ EA SIDE OF CAB, ADJACENT TO DRIVER DOOR	1	0.10	0.10	0.00
BG-00-1610		TRUCK-LITE MARKER/TURN LIGHTS @ EA SIDE OF BODY	1	0.60	0.20	0.00
BG-00-1660		TRUCK-LITE MARKER LIGHTS @ REAR OF BODY	1	0.30	0.30	0.00
BG-00-2915		TECNIQ #L10 LED LICENSE PLATE LIGHT @ DS REAR OF BODY	1	0.10	0.10	0.00
BG-02-2532		CODE 3, #65 LED BRAKE, REVERSE, & TURN W/ QUAD HOUSING	1	3.00	2.00	0.00
BH-04-1040		CAB STEP LIGHTS, INNOVATIVE LIGHTING LED, ALL DEVICES	4	0.00	0.80	0.00
BH-04-1125		BODY STEP LIGHTS, INNOVATIVE LIGHTING LED, ALL DEVICES	2	0.00	0.40	0.00
BH-05-1620		DUNNAGE AREA LIGHTING, INNOVATIVE LED	1	0.00	0.20	0.00
BH-05-2017		UNITY LED SPOTLIGHTS ON REAR BODY STANCHIONS	1	0.00	0.00	5.00
BH-10-7010		FRC SPECTRA 900 LED SCENE LIGHTS ON REAR OF BODY	1	0.00	12.00	0.00
BH-10-7045		FRC SPECTRA 900 LED SCENE LIGHTS ON DRIVER SIDE OF BODY	1	0.00	12.00	0.00
BH-10-7055		FRC SPECTRA 900 LED SCENE LIGHTS ON OFFICER SIDE OF BODY	1	0.00	12.00	0.00

PART NO	S	DESCRIPTION	QTY	RESP	SCENE	IT
BH-11-0810		NFPA (4) AMDOR H2O LED GROUND LIGHTS, BELOW CAB DOORS	1	0.00	0.80	0.00
BH-12-2100		FRC BROW LIGHT, EVOLUTION LED, 155W12V, (1) ABOVE WINDSHIELD	1	0.00	13.00	0.00
BJ-00-5110		PUMP ENCLOSURE WORK LIGHTS - GROTE LED	1	0.00	0.00	1.20
BJ-00-5160		ENGINE COMPARTMENT WORK LIGHTS - GROTE LED	1	0.00	0.00	1.20
BJ-02-0450		COMPT. LIGHTS, AMDOR LUMA BAR LED LIGHTING - DUAL	7	0.00	9.80	0.00
BM-02-0086		A-UPPER, CODE 3 LED 2780NFPA P1, RX 2700 80" PRIZM II BAR	1	10.00	8.00	0.00
BM-02-1050		C-UPPER, CODE 3 ARCH LED BEACONS - 360° SOLID COLOR	1	7.50	7.50	0.00
BM-09-0018		A-LOWER FRONT, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-1014		C-LOWER REAR, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-2006		B/D-LOWER FRONT, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-3006		B/D-LOWER MID, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BM-09-4006		B/D-LOWER REAR, CODE 3 65 SERIES LED	1	1.00	1.00	0.00
BW-00-0510		CHASSIS SINGLE ELECTRIC (DOT) HORN	1	0.00	0.00	4.00
BW-00-0560		CODE 3, #CA278, BACK-UP ALARM - 87DBA	1	0.00	0.00	0.50
BW-00-5000		DUAL CHROME AIR HORNS	1	0.20	0.00	0.00
BW-01-0120		SIREN, WHELEN # 295HFS2, 100W - FLUSH MOUNT	1	9.00	0.00	0.00
DC-01-8615		WATEROUS PUMP SHIFT INDICATOR LIGHTS	1	0.00	0.00	0.50
DC-05-1226		FIRE RESEARCH "IN CONTROL" TGA-400 PRESSURE GOVERNOR	1	2.00	2.00	0.00
DC-70-4820		WATEROUS ADVANTUS 3 CLASS "A and/or B" FOAM SYSTEM	1	0.00	45.00	0.00
DD-66-0110		AMDOR LUMA BAR H2O SUPER BRIGHT LED - LIGHT SHIELD	1	0.00	1.00	0.00
DD-66-2130		TECNIQ EON 3 LED LIGHTS - OS PUMP PANEL	1	0.00	0.60	0.00
DD-72-0410		FIRE RES - TANK VISION #WLA300-A00 LED WATER TANK GAUGE - PRIMARY	1	0.20	0.20	0.00
DD-74-0410		FIRE RES - TANK VISION #WLA360-A00 LED FOAM GAUGE - TANK "A"	1	0.20	0.20	0.00
Totals				118.7	209.2	196.6



PROPOSAL

Bulldog Fire Apparatus is pleased to offer the proposed vehicle to meet the intent of the fire department specifications. KME Fire Apparatus is a leading manufacturer in custom and commercial fire fighting vehicles. Questions or concerns pertaining to this proposal can be answered by contacting the following KME representative:

Jeff Mazza
Bulldog Fire Apparatus
PO Box 58
17 Winter Street
Woodville, MA 01784
Phone: (877) 644-2707 / (508) 435-4054
Cell: (617) 784-8422
Fax: (508) 435-0250
Email: kmesales@bulldogfa.com
Web: www.bulldogfireapparatus.com

GENERAL INFORMATION

The proposed apparatus will be constructed to withstand the severe and continuous use encountered during emergency fire fighting services. The apparatus will be of the latest type, carefully designed and constructed with due consideration to the nature and distribution of the load to be sustained. All items of these proposal specifications will conform to the National Fire Protection Association Pamphlet No. 1901, latest edition. The proposed chassis will be certified by KME as conforming to all applicable Federal Motor Vehicle Safety Standards (FMVSS) in effect at the date of contract. KME will be responsible for preparing and maintaining a record file of parts and assemblies used to manufacture the proposed apparatus. These records will be maintained in KME's factory for a minimum of twenty (20) years. The purchaser will have access to any and all documents contained in this file upon official written request.

GENERAL CONSTRUCTION

The proposed apparatus, assemblies, subassemblies, component parts, etc., will be designed and constructed with the due consideration to the nature and distribution of the load to be sustained and to the general character of the service to which the apparatus is subjected to when placed in service. All parts of the apparatus will be designed with a factor of safety, which is equal to or greater than that which is considered standard and acceptable for this class of equipment in fire fighting service. All parts of the proposed apparatus will be strong enough to withstand general service under full load.

PRODUCT LIABILITY INSURANCE

KME provides liability and facility insurance equaling \$30,000,000.00, which is one of the highest available in the fire industry. Reference attached documentation.

PRICES AND PAYMENTS

The bid price will be F.O.B. Destination, on a delivered and accepted basis at the Fire Department. Total price on KME's proposal sheet will include all items listed in these specifications.

BOND REQUIREMENTS

KME's bonding company will meet the following requirements:

- An acceptable surety as outlined by the United States Department of Treasury on their most recent Federal Register at a limit of at least \$10,000,000;
- A.M. Best rating of "A" or better with a financial rating of at least "VIII"; and licensed as a surety in the Commonwealth of Massachusetts.

PERFORMANCE BOND

A performance bond will be supplied by the KME upon acceptance of the signed sales contract for the apparatus. The performance bond will be for an amount equal to the full contract price (i.e. 100% bond).

NON-COLLUSIVE BIDDING CERTIFICATION

By submission of this bid, KME and each person signing on behalf of KME certifies, and as to its own organization, under penalty of perjury, that to the best of their knowledge and belief:



- The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for purpose of restricting competition, as to any matter relating to sell prices with any other bidder or any competitor.
- Unless otherwise required by law, the prices that have been quoted in this bid have not been knowingly disclosed by KME and will not knowingly be disclosed by KME prior to opening, directly or indirectly, to any other bidder or to any competitor
- No attempt has been made by KME to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition.
- That all requirements of the law including amendatory provisions as to non-collusive bidding have been complied with.

MATERIAL AND WORKMANSHIP

All equipment furnished will be guaranteed to be new and of current manufacture, to meet all requirements of purchaser's specifications.

CONTRACT SPECIALIST

KME will designate an in house individual to perform KME's contract specialist functions. The contract specialist will provide a single point interface between the purchaser and KME.

APPROVAL DRAWING

A detailed drawing of the apparatus will be provided to the customer for approval before construction begins.

INSPECTION VISIT

Accommodations will be for one (1) dealer representative to make a factory inspection trip are included in this proposal.

INSTRUCTION MANUALS/DRAWINGS, SCHEMATIC

KME will supply at time of delivery, two (2) CD copies of a complete operation and service manual covering the complete apparatus as delivered and accepted.

DELIVERY AND FAMILIARIZATION

Upon delivery a KME certified delivery engineer will come to the Fire Department to demonstrate the unit to the Department and familiarize Department personnel with the apparatus. There will be an **AS BUILT** PowerPoint presentation of the specific apparatus as delivered, that covers each and every control and feature of the unit. The program will be delivered to each Department shift and maintenance personnel A copy of the PowerPoint program will be provided to the Department for future use.

VEHICLE FLUIDS PLATE

As required by NFPA-1901, KME will affix a permanent plate in the driver's compartment specifying the quantity and type of the following fluids used in the vehicle:

KME PROPOSED DIMENSIONS:

- OVERALL LENGTH: 362"
- OVERALL WIDTH: 100"
- OVERALL HEIGHT: 114"
- WHEELBASE: 175"

- MINIMUM FRONT G.A.W.R.: 20,000 lbs.
- MINIMUM REAR G.A.W.R.: 27,000 lbs.
- MINIMUM TOTAL G.V.W.R.: 47,000 lbs.

KME will include the principal dimensions, front G.A.W.R., rear G.A.W.R., and total G.V.W.R. of the proposed apparatus.



PRIMARY PLANT CONSTRUCTION

In order to insure top quality construction, maximum assembly line and engineering communication and the highest level of manufacturing supervision the entire apparatus will be built at KME's (headquarters) manufacturing facility in Nesquehoning, PA.

PROPOSAL BLUEPRINT

KME is providing a scaled drawing of the specific apparatus being proposed WITH THE BID. The drawing has been generated by KME's engineering department in order to maintain the accuracy of the drawing.

QUALITY MANAGEMENT

KME is certified ISO 9001 at all company locations.

STEPPING, STANDING, & WALKING SURFACES

All stepping, standing, and walking surfaces on the body will meet NFPA #1901 anti-slip standards. Aluminum tread plate utilized for stepping, standing, and walking surfaces will be Alcoa No-Slip type.

AMP DRAW REPORT

KME will provide with their bid proposal and at the time of delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

GENERAL APPARATUS DESCRIPTION "PUMPER"

The unit will be designed to conform fully to the "Pumper Fire Apparatus" requirements as stated in the NFPA 1901 Standard (2009 Revision).

CHASSIS DATA LABELS

Data labels will be provided as required by NFPA Standard 1901.

ROLLOVER STABILITY

The apparatus will meet the criteria defined in 4.13.1 for rollover stability as defined in the 2009 NFPA Standard for Automotive Fire Apparatus.

KME REGIONAL SERVICE CENTER

The KME New England Regional Service Center is Bulldog Fire Apparatus of Hopkinton, Massachusetts. This location is about 26 miles West of Boston, near the intersection of Interstate 495 and the Mass Pike. The center is totally dedicated to the service of fire apparatus and fire apparatus only and is fully authorized by KME to conduct all levels of repair and service. The capabilities of the service center include:

- Authorized pump service for both Hale and Waterous

- Full hydraulic service

- Full 12 volt electrical service to include multiplexed systems

- Full 120/240 volt service

- Full chassis and running gear service

- Complete body shop and paint facility which includes:

 - 50 foot environmentally certified, heated and humidity controlled down draft paint booth, Full time body shop and paint staff, Secured paint storage area, Computer operated paint color matching and mixing system

 - Metal fabrication center which includes:

 - 10 x 12 shear, Press Brake, Apron Brake, Finger brake, Modern MIG and TIG welding equipment, Plasma cutter, Machining center, Pump and piping center, Parts Department

Bulldog maintains a 15 service bay indoor shop with an area of approximately 25,000 square feet (which includes sufficient indoor heated space to permit the storage of the Fire Department's apparatus inside whenever in the center's possession). No outside storage is permitted at Bulldog. The center provides a full time staff of experienced technicians with all of the required equipment to provide modern, accurate and efficient service. The Center may be reached at our email address of pmazza@bulldogfa.com or by phone (877) 644-2707.

The staff includes five six (6) EVT level II technicians, two (2) Commonwealth licensed Motor Vehicle Damage Appraisers and three (3) road service vehicles. The Bulldog service center offers same day turn around for scheduled maintenance and part delivery within 24 hours.



In addition, KME maintains full factory service centers in Latham, New York (near Albany) - (800) 394-5593 and at the factory in Nesquehoning, PA.

SEAT BELT ANCHOR TESTING

Each seat belt anchor will be tested to withstand 3,000lbs of pull on both the lap and shoulder belt in accordance with FMVSS 210 section 4.2.

SEAT MOUNTING TESTING

Each seat mounting position will be tested to withstand 20G's of force in accordance with FMVSS 207 section 4.2(c). Both tests will be performed and verified at a third party testing and evaluation center.

"PREDATOR™" CAB TYPE

- **FULL TILT WITH CONTOUR WINDSHIELD**

The cab will be a custom tilt style, built specifically for fire service. The cab will be a cab over engine design, with integral tilt mechanism and engine access from inside the cab. Cab will be designed, fabricated, assembled in its entirety, and installed on the frame in the KME factory.

CAB MATERIAL - ALUMINUM

The cab will be fabricated from 5052-H 32 aluminum alloy, utilizing the minimum material thickness as follows:

- Cab side panels, Cab roof, Forward cab front sheet , Interior cab panels, Other panels
- Cab doors 0.1875 thick (3/16")
- Engine enclosure side panels 0.250 thick (1/4")

0.125 th

CAB - BASE CONSTRUCTION

Cab sub-frame will be a welded assembly fabricated of 6063 structural aluminum alloy. The front cab wall will be of double wall type construction, featuring an inner and outer panel.

CRASH TESTING CERTIFICATION

To ensure the safety of the cab occupants and cab integrity, proof of third party testing will be provided. The cab will be certified for SAEJ2422 side impact, SAEJ2420 with ECER29 cab front impact, and ECER29 cab roof strength.

ROOF AND SIDE LOAD TESTING

The cab design will include additional third party testing to ensure the safety of the cab occupants and cab integrity, proof of third party testing will be provided. The cab will be certified for SAEJ2422 side impact, SAEJ2420 with ECER29 cab front impact, and ECER29 cab roof strength. KME will provide proof that third party testing has been conducted to prove a static roof and a static side-load test has been completed. In these tests, a 120,000 pound static load was first applied to the roof. This test was followed by applying the same 120,000 pound static load to the side of the cab. These tests will be conducted per the SAE J2422, Cab Roof Strength Evaluation, protocol and the ECE R29, Uniform provisions concerning the approval of vehicles with regard to the protection of occupants of the cab of a commercial vehicle, protocol.

DIMENSIONS - MEDIUM FOUR DOOR STYLE CAB

The cab will be fully enclosed, capable of comfortably seating six (6) fire fighters in full fire fighting turnout gear, cab over engine design, with integral tilt mechanism and engine access on top of doghouse.

Minimum Cab Dimensions:

- Overall width 100"
- Inside width across ceiling 92"
- Front area floor to ceiling 63"
- Top of front seat to ceiling 44" (depending upon seat type)
- Seat back to steering wheel 22" (depending upon seat type)
- Inside width (door to engine enclosure) 24" (driver's side, at floor)
- Inside width (door to engine enclosure) 20-1/2" (officer's side, at floor)
- Crew seat area width 92"



- Outer crew seat risers to rear wall 42"
- Centerline front axle to back of cab 62-1/2"
- Floor to top of engine enclosure 29.5"
- Centerline axle to front of cab 74"

Glass Area Dimensions:

- Windshield (Contour) 3,422 sq. in.
- Front door window, retractable 743 sq. in. each
- Rear door window, retractable 875 sq. in. each
- Fixed side windows 620 sq. in. each

Cab Entry Door Width Dimensions

- Forward door opening 40" wide
- Rear door opening 37" wide

Cab Entry Step Dimensions

- Forward door recessed step 32" wide x 9" deep
- Rear door recessed step 32" wide x 9" deep

Cab Entry Door Height Dimensions

- Forward door opening 76-1/4" high
- Rear door opening 85-1/4" high

CAB ROOF

The cab roof over the rear crew area will be raised ten (10) inches higher than the front driver and officer area. The front face of the raised roof section will be sloped at a 45 degree angle, creating a streamlined interface with the standard, lower, forward roof section. This design will allow for additional interior height in the rear crew area.

- Crew area floor to ceiling 64"
- Top of crew seat to ceiling 46" (depending upon seat type)

BARRIER HEIGHT CAB DOORS

Four (4) side-opening doors will be provided. The cab doors will be shortened to the floorboard level, thus leaving an exposed step well area at each cab entrance. The cab doors will be totally aluminum construction with an extruded aluminum frame and an aluminum outer door skin. The forward cab door opening will be a minimum of 40" wide, and the rear cab door opening will be a minimum of 37" wide. There will be a heavy duty piano type stainless steel hinge on each door of a minimum pin diameter of 5/16" . Hinges will be slotted for ease of horizontal and vertical adjustment. There will be a cab door seal and the doors will close flush with the side of the cab. A heavy-duty 2 1/2" wide reinforced rubber strap will be utilized to prevent the cab doors from opening greater than 90 degrees.

CAST OPEN GRATE STEPS

The front and rear entrance steps will be a minimum of 9" deep. Each step will be a cast aluminum, open grate style step fabricated by Cast Products Inc. with a polished aluminum outer surface.

DOOR LATCHES

A semi-recessed chrome plated pull handle, capable of operating with a gloved hand, will be provided on the exterior of each cab door. Heavy-duty, bright finish cast paddle latches will be provided on the interior of each cab door.

LOCKING CAB DOORS

Each exterior cab door will be equipped with keyed locks. The cab doors will be capable of being locked from the outside with a key and from the inside with a control in each interior paddle latch.

DOOR WINDOWS

Each side cab door will have a tinted retractable window operated by a hand crank mechanism. The window track will be designed into the door frame extrusion, which will be extruded with a track groove to house a window track and seal.



INNER CAB DOOR PANELS

The upper section of each cab door interior will have a formed ABS door panel, which will be vacuum overlaid with a soft vinyl upholstery material. The color of the panel upholstery will be gray.

DOOR SCUFF PLATES

The lower and full width portion of each door interior will have smooth brushed finished aluminum scuff plates to provide maximum wear protection. These plates will extend above the inside cab floor level when the doors are closed. Each interior cab door panel will be equipped with reflective ScotchLite material that will cover at least 96 in².

WINDSHIELD/GLASS

A two piece, symmetrical, safety glass windshield will be provided on the cab for the driver and officer providing a clear viewing area. The windshields will be full width to the center of the front cab support for each side and provide the occupants with a panoramic view. To provide enhanced peripheral vision on each side of the cab, the windshield and cab structure will be designed with radius corners, which provide a minimum of 8" of glass area, measured from the glass face to the side edge near the door post. The windshield will be a contour design with 3422 sq. in. of area for improved visibility and style. The windshield glass will be designed so it can be used on either the driver or officer side.

WINDSHIELD WIPERS AND WASHER

Dual, electric operated, pantographic type windshield wipers will be provided. One (1) electric drive motor will be provided for each wiper. Wipers will have "HI/LO" and "INTERMITTENT" operating speeds. "HI/LO" speeds will be controlled by a steering column control, within the turn signal control stem. "INTERMITTENT" operation will be controlled by a twist switch within the control on the steering column. The wipers will be of the self-parking type. There will be individual removable panels on the front face of the cab for access to the wiper motor assemblies.

WINDSHIELD WIPER DURABILITY CERTIFICATION

Windshield wipers will survive testing in excess of 3 million cycles in accordance with section 6.2 of SAE J198 "Windshield Wiper Systems – Trucks, Buses and Multipurpose Vehicles".

CAB SIDE VIEWING WINDOWS

A fixed, tinted window with 620 sq. in of glass area will be provided on each side of the cab behind the forward cab doors.

DARK TINTED REAR WINDOW GLASS

The windshield and the forward cab door glass will be provided with standard DOT green automotive tint. The side cab windows to the rear of the front doors, the rear cab door windows and any rear viewing windows will be equipped with a dark automotive tint.

GRAB HANDLES

Four (4) 1-1/4" diameter x 28" long, knurled bright anodized aluminum handrails will be provided, one (1) at each cab door entrance. Formed rubber gaskets will be provided between each stanchion base and the cab surface.

INTERIOR GRAB RAILS

Grab rails will be provided to assist in entry and exiting of the cab. Each grab rail will be a cast aluminum "D" style handle that will have a wheelabrated finish and will be located in the following locations:

- Three (3) 12" long, vertically mounted, one (1) on the officer's side of the cab interior "A" post and one (1) on each side of the cab interior on the "C" post in the crew area
- One (1) 11" long, horizontally mounted, on each front cab door on the interior door panel
- One (1) 11" long, horizontally mounted, on each rear cab door on the interior door panel
- One (1) 30" long, horizontally mounted, on each rear cab door, located approximately 8" above the bottom of the window opening.

FRONT CAB GRILL

A shaped mirror finished stainless steel grille will be installed to allow for maximum air flow to the charge air cooler and the radiator.



AIR INTAKE/OUTLET

Two (2) shaped, mirror finished stainless steel air inlets/outlets will be provided horizontally above the wheel well opening, one on each side of the cab. The grilles will be equipped with a mesh screen to serve as a secondary ember separator. The left side inlet, used for the air intake to the air cleaner, will be equipped with dual ember separators for separating burning embers from the air intake system. No part of the air intake system for the engine will be lower than the top of the frame rails to ensure the vehicle can navigate pooled water without any part of the air intake system being exposed to water when the vehicle is stopped or in motion.

CAB WHEEL WELL LINERS

The front cab wheel wells will be equipped with fully removable, bolt-in, aluminum inner wheel well liners. The liners will extend full depth into the truck frame.

CAB FENDERETTES

The cab wheel well openings will be trimmed with replaceable, bolt-in, polished aluminum fenderettes. Dissimilar metal tape and black vinyl trim molding will be used where the cab and fender meet.

FRONT MUD FLAPS

Heavy duty, black rubber type mud flaps will be provided behind the front wheels.

VELVAC WEST COAST MIRRORS WITH 2010 HEADS and 6" CONVEX

Two (2) Velvac West Coast style 2010 mirrors will be furnished, one 708211-4 and one 708212-4 on each front cab door. Each mirror will have a 16 x 8 flat glass head mounted in a polished 300 series stainless steel outer shell and a heavy duty ABS inner housing. Both heads will be electrically heated and motorized. Two (2) 6" diameter stainless steel convex mirrors will also be furnished, one on each lower loop of the mounting bracket. Both heads will be electrically heated and controlled by switching provided by the mirror manufacturer. Both mirror heads will be controlled from the driver's seating position.

INTERIOR CAB TRIM

The forward overhead panel will be covered with a three (3) piece custom formed ABS vinyl overlay, which will have integrated windshield defroster/heat vents and four (4) comfort vents. All ABS formed material panels, as well as all of the interior upholstery panels will be medium gray in color. The upholstered cab overhead and side wall portions will utilize gray Durawear upholstery with padding underneath to provide additional insulation. The interior metal surfaces of the cab will be finish painted with a textured gray paint. The interior rear wall of the cab will be covered with gray Durawear for durability and will match the other upholstered areas of the cab.

UNDER SEAT STORAGE COMPARTMENTS

There will be a compartment provided under each front seat. Each compartment will be accessible from the front of the seat riser when the door is opened.

BARYFOL FLOORING

The floor of the driver's compartment and the floor of the crew area will be lined with BARYFOL vinyl composite flooring to comply with NFPA noise and heat requirements. The material utilized for this application will be certified to meet the NFPA 1901, 2009 revision for anti-slip walking surfaces.

CAB ACOUSTICAL INSULATION

One (1) inch thick acoustical insulation will be provided on the cab roof and rear and side walls of the cab. This material will be fitted between the cab structural members and secured with adhesive to provide an insulation barrier for noise and heat.

ENGINE ENCLOSURE

The forward portion of the engine enclosure will be covered with a vinyl ABS material formed overlay to match the balance of the cab interior. The engine enclosure will be insulated to protect from heat and sound. A, hinged access door will be provided in the top rearward portion of the engine enclosure. The enclosure will be an integral part of the cab structure, which will be constructed from a minimum of .25" 5052-H32 aluminum.

SUN VISORS

Two (2) padded vinyl sun visors will be mounted in the cab overhead on each side.

ADVANCED OCCUPANT RESTRAINT SYSTEM – ROLL OVER AIR BAGS



The cab will be equipped with advanced occupant restraint systems. This system will function in the event of a side roll over and will be compatible with occupants ranging from a 5th percentile female to 95th percentile male. The roll sensor continually monitors the roll rate and angle of the vehicle, and deploys safety devices when a roll event occurs. Deployment determination is made by a combination of vehicle angle and angular rate. Vehicle deployment angle will never exceed 60 degrees. The roll sensor performs self-diagnostics each time the vehicle is started. A dash-mounted light will turn off after approximately 10 seconds if the sensor is functioning. During operation, the roll sensor monitors for proper connection to each safety device in the vehicle once per second.

DRIVERS SEAT

The driver's seat will be a H. O. Bostrom Sierra EX8, high back bucket ABTS LH seat with Side Curtain Airbag. The Side Air Curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stored position. The seat will have a tapered and padded seat cushion with lumbar support. The seat will have an eight inch fore and aft adjustment, a 2 inch height adjustment, front of seat tilt, rear of seat tilt and a reclining seat back. All seat movements will be electrically controlled from a control panel on the forward lower edge of the seat. The seat will be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly.

OFFICERS SEAT

The officer's seat will be a H. O. Bostrom Tanker 450 ABTS RH series fixed base SCBA seat with Side Curtain Airbag. The seat will be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly. The officer's seat will include a H. O. BOSTROM Secure All™ SCBA Locking System. The standard release handle will be integrated into the seat cushion for quick and easy release and will eliminate the need for straps or pull cords to interfere with other SCBA equipment.

REAR FACING, OUTBOARD, DRIVER SIDE SEAT

The driver's side outboard rear facing crew seat will be a H. O. Bostrom Tanker 450 ABTS RH series fixed base SCBA seat with Side Curtain Airbag. The seat will have a tapered and padded seat cushion with lumbar support. The seat will include a SCBA storage area with integral headrest. The Side Air Curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stored position. The driver's side rear facing outboard seat will include a H. O. BOSTROM Secure All™ SCBA Locking System.

REAR FACING, OUTBOARD, OFFICER SIDE SEAT

The officer's side outboard rear facing crew seat will be a H. O. Bostrom Tanker 450 ABTS LH series fixed base SCBA seat with Side Curtain Airbag. The seat will have a tapered and padded seat cushion with lumbar support. The seat will include a SCBA storage area with integral headrest. The Side Air Curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stored position. The seat will be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly. The officer's side rear facing outboard seat will include a H. O. BOSTROM Secure All™ SCBA Locking System.

SEAT UPHOLSTERY MATERIAL

The seats will be upholstered with heavy duty gray tweed Durawear material as provided by Bostrom.

SEAT BELT CUSHION SENSORS AND BELT SENSORS

The apparatus will be equipped with a Class 1 seat belt warning system. The system will consist of a Seat Belt module, dash mounted Icon style display and an audible alarm.

VEHICLE DATA RECORDER

A Class 1 Vehicle Data Recorder (VDR) system will be provided. The system will include an NFPA compliant "Black Box" with reporting software that will be capable of data storage to coincide with the NFPA requirements.

ANTENNA INSTALLATION

One (1) antenna mounting base model #MATM with 17' of coaxial cable will be provided and installed on the lower cab roof, behind the light bar.

DASH & CENTER CONSOLE

The driver and officer side dash, along with the center dash, will be covered with a custom formed ABS vinyl overlay to create an ergonomically designed interior to be user friendly and functional for the driver and officer. The dash gauge panel will be a custom formed ABS pewter gray wrap-around design for improved visibility. A full



complement of gauges will be provided in custom formed bezels. monitored. Instrumentation will be backlit for easy identification. The transmission gear selector and the spring brake control valve will be located on an angled section of the center dash assembly toward the driver for easy access.

All warn

DRIVERS DASHBOARD PANEL

The main instrument panel will be centered in front of the driver and will be mechanically fastened to the main dash assembly. The panel will be made of custom formed ABS that will contain the primary gauges, an instrument warning light cluster and the ignition and engine start switches. Additional auxiliary control switches and instruments (if applicable) will be located within the center or overhead panel located near the driver's position.

CLASS ONE DISPLAY

An Information Center display will be provided on the dash for the electrical Class One ES-Key multiplex system.

INDICATOR CLUSTER

The driver's dashboard panel will consist of Ametek gauges, an 18 item instrument warning light cluster and a 16 item, dead front type alarm panel.

AUXILIARY SWITCH PANEL - LOWER DASH AREA

An auxiliary lower dash panel will be capable of housing five (5) guarded type rocker switches. Examples of the switches that will be installed in this area are automatic chains, fan clutch override, ATC, inter-axle diff lock, electric fuel pump, all wheel drive, etc.

OFFICER DASH

There will be a flat surface area in front of the officer for use with such items as a lap top computer.

CENTER OVERHEAD PANEL

An overhead console with a removable pewter panel will be provided on the cab interior overhead between the driver and officer to permit installation of cab stereo, intercom systems, arrow stick controls, etc.

CLIMATE CONTROL SYSTEM

A climate-control system will be provided for total cab environmental comfort. This system will provide heat, cooling and defrost capabilities to various areas in the cab. The system will consist of a single evaporator unit, mounted in the center overhead of the cab. The controls panel will actuate the air-distribution system with air cylinders, which are to be separated from the brake system by an 85-90 psi pressure protection valve. All defrost/heating systems will be plumbed with one (1) seasonal shut-off valve mounted near the engine.

ROOF MOUNT CONDENSER

A 12-volt roof top dual condenser will be strategically positioned on the cab roof so as not to interfere with any emergency lighting systems. The condenser will be designed with high performance, long life fan assemblies. The fan motors are to be equipped with sealed housings and shaft.

CAB TILT ASSEMBLY

A hydraulic cab lift system will be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. A "CAB NOT LATCHED" indicator will be provided in the cab dash-warning cluster. The cab tilt control will be equipped with an interlock that will disable the cab tilt system in the event the parking brake is not applied.

CHASSIS FRAME ASSEMBLY

The chassis frame will be fabricated in its entirety at the KME facility. The frame will consist of two (2) channels fastened together by cross members. All structural fasteners used in the frame will be Grade 8 hardware. Hardened steel washers will be used under all bolt heads and nuts to avoid stress concentrations. Each main frame rail will be 10-1/4" x 4" x 3/8", fabricated from Domex™ 110,000 PSI minimum yield steel, with a minimum section modulus of 18.396 cu in and a resisting bending moment (RBM) of 2,023,560 inch pounds. The frame rails will be drilled "together" (back to back) on a frame drilling machine with an internally cooled drill bit in order to minimize the deviation in hole diameter or location. Frames are built for the specific apparatus under construction so that no unnecessary holes or modifications are made to the frame assembly.

PAINTED STEEL FRONT BUMPER



A 12" high, 101" wide, painted steel front bumper will be provided. The bumper will be constructed from a minimum of .135 gauge steel, which will be designed with 45-degree welded corners and a 2" flange on the top and bottom.

BUMPER EXTENSION

The bumper will be extended 10" with a polished aluminum tread plate gravel shield enclosing the top and ends. The polished aluminum tread plate gravel shield will terminate under the top bumper flange.

Two (2)

FRONT AXLE

Front axle will be a Meritor MFS-20-133 A-N, and will be rated at 20,000 lbs.

FRONT BRAKES

Brakes will be "S" Cam 16.5" x 6" and will be full air actuated with automatic slack adjusters.

FRONT SUSPENSION

Front suspension will be progressive rate front leaf springs. The spring will be permanently pinned at the front and have a shackle double pinned mounting at the rear.

FRONT SHOCK ABSORBERS

The front suspension system will be equipped with Monroe, model "Magnum - 70", double acting hydraulic shock absorbers.

REAR AXLE

Rear axle will be a single, Meritor RS-26-185 with a capacity of 27,000 lbs.

REAR BRAKES

Brakes will be "S" Cam, 16-1/2" x 7" size and will be full air actuated with automatic slack adjusters.

REAR SUSPENSION

The rear suspension will be leaf type, variable rate with a 31,000 lb. rating. The main spring assembly will consist of 14 leaves with the main spring measuring 60.5" L x 3" W. There will be a rubber block helper mounted above the leaf springs, rated at 4,500 lbs.

BRAKE SYSTEM

A dual circuit, air operated braking system, meeting the design and performance requirements of FMVSS - 121 and the operating test requirements of NFPA 1901 current edition will be installed. It will be direct air type with dual air treadle in the cab. The system will be powered by an engine mounted, gear driven air compressor protected by a heated air dryer.

ABS SYSTEM

An Anti-Skid Braking System (ABS) will be provided to improve braking control and reduce stopping distance. This braking system will be fitted to all of the axles. All electrical connections will be environmentally sealed, water, weatherproof, and vibration resistant.

AUTOMATIC TRACTION CONTROL (ATC)

To further improve vehicle drive characteristics, the unit will be fitted with automatic traction control (ATC). This system will control drive wheel slip during acceleration from a resting point. An extra solenoid valve will be added to the ABS system.

BRAKE AIR RESERVOIRS

There will be a minimum of three (3) air reservoirs installed in conformance with best automotive practices. Reservoir capacity total will be a minimum of 4700 cubic inches. The air reservoirs will be color coded to match the air lines for easy identification, ease of maintenance and troubleshooting. The reservoirs will be color coded. There will be an automatic moisture ejector provided on the primary air tank.

AIR DRYER SYSTEM

A Rockwell/Wabco System Saver 1200 heated air dryer will be furnished. An automatic moisture ejector on the primary or wet tank will also be furnished



AIR LINES

The entire chassis air system will be plumbed utilizing reinforced, Synflex air lines.

AIR COMPRESSOR

Air compressor will be a Wabco brand, minimum of 18.7 cubic feet per minute capacity. Air brake system will be the quick build up type. The air compressor discharge line will be stainless steel braid reinforced Teflon hose.

PARKING BRAKE

Parking brake will be of the spring-actuated type, mounted on the rear axle brake chambers.

WHEELS & TIRES

The front wheels will be 22.5" x 12.25" ten stud, hub piloted steel disc type, painted job color. The steel disc front wheels will be provided with bright nut covers and hub caps. The front tires will be Goodyear 385/65R22.5 "18 Ply" tubeless radial G296 MSA on/off road tread. The tires will be fire service rated up to 20,050 lbs. and will have a top speed of 68 mph when inflated to 120 psi.

The rear wheels will be 22.5" x 8.25" ten stud, hub piloted steel disc type, painted job color. The single rear axle steel disc wheels will be provided with bright nut covers and hub caps. The rear tires will be Goodyear 12R22.5 "16 Ply" tubeless radial G622 RSD traction tread. The tires will be fire service rated up to 29,020 lbs. and will have a top speed of 75 mph when inflated to 120 psi.

TIRE PRESSURE MONITORING DEVICES

Each tire will be equipped with an LED tire alert pressure management system (Vecsafe equal) that will monitor tire pressure. A chrome plated brass sensor will be provided on the valve stem of each tire.

ENGINE

Engine will be a Cummins, Model ISX12 500, diesel, turbo-charged, per the following specifications.

- | | |
|---------------------|-------------------------|
| • Max. Horsepower | 500 HP @ 1800 RPM |
| • Governed Speed | 2100 RPM |
| • Peak Torque | 1645 lb. ft. @ 1100 RPM |
| • Cylinders | Six (6) |
| • Operating Cycles | Four (4) |
| • Bore & Stroke | 5.11 x 5.91 in. |
| • Displacement | 729 cu. in. |
| • Compression Ratio | 16.6:1 |

COOLING/RADIATOR

The radiator and the complete cooling system will meet or exceed NFPA and Cummins standards. The radiator core will have a height of 35.92" x a width of 37.62". Supply and return tanks made of glass-reinforced nylon will be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly. The radiator will be compatible with commercial antifreeze solutions. The engine cooling system will be certified by Cummins to meet cooling index requirements for a minimum ambient temperature of 110-degrees Fahrenheit.

TRANSMISSION COOLER

A shell and tube transmission oil cooler will be provided using engine coolant to control the transmission oil temperature. The cooler will have an aluminum shell and copper tubes. The cooler will be assembled using pressed in rubber tube sheets to mechanically create a reliable seal between the coolant and the oil. No brazed, soldered, or welded connections will be used to separate the coolant from the oil.

RADIATOR SKID PLATE

The radiator installation will include a heavy-duty radiator skid plate to protect the radiator from debris or obstructions under the chassis. The skid plate will be designed so the angle of approach is not effected.

CHARGE AIR COOLER



The charge air cooler will be constructed of aluminum with cast aluminum side tanks. To not restrict air flow to the radiator, the charge air cooler will be designed to be an integral part of the radiator assembly, mounted directly on top of the radiator. Rubber isolators will be used at the mounting points to reduce transmission of vibrations.

COOLING SYSTEM FAN

The engine cooling system will incorporate a heavy duty fan, installed on the engine and include a shroud. The fan will be equipped with an air operated clutch fan, which will activate at a pre-determined temperature range.

COOLANT HOSE AND PIPING

All coolant piping will be constructed of appropriately sized powder coated steel tubing with 0.06" wall thickness and formed hose bars. All connections between coolant pipes and chassis components will be made using appropriately sized silicone hoses or elbows, rated for use in temperatures ranging from -60°F to +350°F, and appropriately sized constant torque hose clamps. Premium Goodyear Hi-Miler® blue heater hoses will be furnished for the heater system.

LOW COOLANT INDICATOR LIGHT AND ALARM

A low engine coolant indicator light located in the dash instrument panel will be provided. An audible alarm will be provided to warn of the low coolant condition.

ENGINE BRAKE

An engine compression brake will be furnished for increased braking capabilities. Controls will be as provided by the engine manufacturer and will be activated by releasing the throttle pedal to the idle position. The engine compression brake will have dash mounted control switches to turn the brake on or off as well as to control the operational level of the brake.

ENGINE FAST IDLE

A fast idle for the electronic controlled engine will be provided. The fast idle will be controlled by switches located on the smart wheel.

SPARK ARRESTOR

A spark arrestor will be installed in the chassis air intake system. This arrestor will be mounted behind the intake grille to filter out airborne embers.

ACCELERATOR CONTROL

A floor mount accelerator pedal will be installed on the floor in front of the driver.

TRANSMISSION

An Allison World Transmission, Model 4000 EVS electronically controlled, automatic transmission will be provided. Transmission installation will be in accordance with Allison's specification.

The transmission will be calibrated for five (5) forward gears and one (1) reverse gear.

TRANSMISSION SHIFT SELECTOR

An illuminated, touch-pad type shift control will be mounted in the cab, convenient to the driver. Shift control will be approved by Allison.

PARK TO NEUTRAL

The transmission, upon application of the parking brake, will automatically shift into neutral.

SYNTHETIC TRANSMISSION FLUID

Castrol "TRANSYND" or an equivalent synthetic TES 295 transmission fluid will be utilized to fill the 4000 EVS transmission.

DIESEL EXHAUST FLUID TANK

A five (5) gallon diesel exhaust fluid (DEF) tank will be provided and installed. The tank will be mounted in the area of the battery box and will be accessible through a door in the crew area step well.

A DEF fluid level sensor will be provided with the DEF tank and connected to the level gauge on the dashboard.

EXHAUST SYSTEM



The exhaust system will be installed in accordance with Cummins requirements and meet all Environmental Protection Agency and State noise level requirements. The diesel particulate filter/muffler will be fabricated from stainless steel and of a size compatible with the engine exhaust discharge. Separate "regeneration" enable and prohibit switches will be provided under the dash board on the driver's side. Each switch will be provided with a spring loaded protective cover and will be clearly marked as to function.

FUEL TANK

Fuel tank will be a minimum of fifty (50) gallon capacity. It will have a minimum fuel filler neck of 2" ID and 1/4 turn fill cap. A 1/2" minimum diameter drain plug will be provided. The tank will be fabricated from hot rolled, pickled and oiled steel. The fuel lines will be textile reinforced synthetic rubber or plastic hose that is approved for use with diesel fuel and has a minimum max temperature rating of 250° F. The lines will be sized to meet Cummins requirements, and will be carefully routed and secured along the inside of the frame rails. A fuel filter/water separator will be provided in the fuel system. A "water in fuel" indicator will be provided on the dash. A fuel fill will be provided in the left side rear wheel well area. A Cast Products heavy duty cast aluminum spring loaded hinged fill door will be provided.

DUAL POWER STEERING

A dual power steering system will be provided utilizing a Sheppard model #M110 main steering gear on the driver side of the chassis and a Sheppard model #M90 steering gear on the officer side of the chassis. The system will be designed utilizing an engine driven hydraulic pump, with a maximum operating pressure of 2000 PSI. Steering design will permit a maximum of 5.6 turns from stop to stop.

STEERING COLUMN

The steering column will be a "Douglas Autotech" tilt and telescope column. The steering column will be a "Smart Wheel" multiplexed steering wheel. The "Smart Wheel" will be designed so that the driver's hands never need to leave the steering wheel once the engine is running and the parking brake is released. The "Smart Wheel" steering wheel will include ten (10) multiplexed switches that control the following functions:

- Air Horn
- Q2B (If Equipped)
- Q2B Brake (If Equipped)
- Master Warning Switch
- Mic (Push to talk)
- Siren
- Auxiliary Braking
- High Idle
- Throttle Up - High Idle Function
- Throttle Down - High Idle Function

4FRONT® - FRONTAL AIR BAG PROTECTION

The cab will be equipped with a frontal impact protection system consisting of one (1) air bag in front of the driver in the steering wheel. The steering wheel air bag will be designed to protect the driver in the event of a frontal or oblique impact.

CHASSIS ELECTRICAL SYSTEM

All electrical wiring in the chassis will be GXL cross link insulated type. Wiring is to be color coded and include function codes every three (3) inches on both sides.

WIRING HARNESS DESCRIPTION

The wiring harness contained on the chassis will be designed to utilize wires of stranded copper or copper alloy of a gauge rated to carry 125% of maximum current for which the circuit is protected without exceeding 10% voltage drop across the circuit. Wiring will be uniquely identified by color code or circuit function code, labeled at a minimum of every three (3) inches. The identification of the wiring will be referenced on a wiring diagram. All wires conform to SAEJ1127 (Battery Cable), SAEJ1128 (Low Tension Primary Cable), SAEJ1560 (Low Tension Thin Wall Primary Cable).



DIRECT GROUNDING STRAPS

Direct grounding straps will be mounted to the following areas; frame to cab, frame to body and frame to pump enclosure. All exposed electrical connections will be coated with "Z-Guard 8000" to prevent corrosion.

12 VOLT ELECTRICAL SYSTEM TESTING

The apparatus low voltage electrical system will be tested and certified by KME per NFPA 1901.

ELECTRICAL MANAGEMENT SYSTEM

A Class 1 ES-Key Electrical Management System will be utilized on the chassis for all functions applicable. A modem with a RS232 computer interface and standard telephone jack used to not only program the multiplex system but also serve as a factory direct gateway into the vehicle from any Class 1 multiplex authorized service facility.

INTERLOCK INTERFACE MODULE

A Vocation Module, which is the interface between the multiplexing system and the pump system will be provided. This module will serve as the interface between the operator, engine, transmission and pumping system.

CHASSIS DIAGNOSTICS SYSTEM

Diagnostic ports will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership.

VOLTAGE MONITOR SYSTEM

A voltage monitoring system will be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system will provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm will activate if the system falls below 11.8 volts DC for more than two (2) minutes.

INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM

A system will be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

12 VOLT SEQUENCER

A sequencer will be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation will allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12 volt load to prolong the life of the alternator. Rear of cab Air-Conditioning and Heat will be load managed.

ALTERNATOR

There will be a Delco Remy Model 40SI, 320 amp brushless, serpentine belt driven alternator. The brushless design of the 40SI transfers magnetic fields between the rotor and stator air-gap without brushes.

BATTERY SYSTEM

Five (5) Exide #HP-31D, Group 31, maintenance free batteries will be provided. Each battery will be rated at 925 CCA at 0° F and will have a reserve capacity of 180 minutes.

BATTERY DISCONNECT SWITCH

The chassis batteries will be wired in parallel to a single 12 volt electrical system, controlled through a heavy duty master disconnect switch. The master disconnect switch will be located within easy access of the driver upon entering or exiting the cab.

BATTERY JUMPER STUDS

A set of Cole Hersee battery jumper studs, model #46210-02 (red) and #46210-03 (black) will be provided to allow the battery system to be jump started or charged from an external source.

120 VOLT SHORELINE CONNECTION - "SUPER" AUTO EJECT

One (1) Kussmaul "Super" Auto Eject model 091-55-20-120, automatic, 120 volt, 20 amp shoreline disconnect will be provided for the on board, 120 volt battery charging systems.



BATTERY CHARGER / AIR COMPRESSOR SYSTEM

A Kussmaul model #091-187-12-REMOTE, "Auto Charge 1200" high output, fully automatic battery charger will be provided for maintaining the vehicle battery system. Unique electronic sensing circuits sense the true battery voltage while eliminating the need for external sense wires. Output current will be 40 amperes @ 12 volt DC.

A Kussmaul 091-9HP air compressor will maintain the air pressure in the chassis air brake system while the vehicle is not in use. The air compressor will have a rated input at 120 volts AC @ 3.5 amps and a maximum of 125 psi. A LED bar graph display will be located near the shoreline connection to monitor the battery status.

EMERGENCY SWITCHES

A switch control console will be provided on the dash panel between the driver's and officer's position. This console will separate the emergency / auxiliary electrical functions from the regular chassis functions. A 1 Touch® switch panel with integral indicator lights will be provided.

A master warning switch will be provided, which will allow pre-setting of emergency light switches and will have a red integral indicator light. All switches, (other than the master switch), will have switch function labeling and an integral indicator light.

"LED" CAB INTERIOR LIGHTING

Four (4) Akron 8080-8000-13 interior LED combination red/white dome lights will be furnished in the cab, two (2) in the forward section and two (2) in the rear crew section. Each dome light will have an integral selector switch. Each dome light will also activate when the respective, adjacent cab door is opened.

"DO NOT MOVE APPARATUS" WARNING LIGHT WITH AUDIBLE ALARM

A 1" round, red flashing warning light with an integral audible alarm, will be functionally located in the cab to signal when an unsafe condition is present such as an open cab door or body compartment door, an extended ladder rack or any other device which is opened, extended or deployed which may cause damage to the apparatus if it is moved. This light will be activated through the parking brake switch to signal when the parking brake is released. This light will be labeled "DO NOT MOVE TRUCK".

12 VOLT ACCESSORY CIRCUIT - CAB DASH

One (1) dedicated circuit; 12 volt, 40 Amp, power and ground on 3/8 stud and fused at battery will be provided in the cab dash. The circuit will be for future installation of radios or accessories.

HEADLIGHTS CLUSTER

Two (2) dual, Peterson LED headlight modules with a bright finish bezel will be furnished, one (1) each side, on the front of the cab.

DAYTIME RUNNING LIGHTS

The chassis head lights will have integrated circuitry to actuate the low beam headlights at a maximum of 80 percent of capacity whenever the chassis engine is running.

SECONDARY DUAL LIGHT MODULE

Two (2) Code 3 65STA arrow shaped, amber LED turn signals will be provided, one (1) in each side of the dual light module above the headlights. Amber LED marker lights with integral reflectors will be provided on the side of the cab adjacent to the driver's door, one (1) each side.

LED LICENSE PLATE LIGHT - REAR

One (1) Tecniq model #L10 LED license plate light will be provided above the mounting position of the license plate. The light will be clear in color and will have a chrome finish.

TAIL, STOP, TURN AND BACK-UP LIGHTS

Two (2) Code 3, 65STR 4" x 6", red LED combination tail and stop lights, will be mounted one each side at the rear of the body. Two (2) Code 3, 65STA 4" x 6", amber LED arrow turn signal lights, will be mounted one each side, on a vertical plane with the tail/stop lights. Two (2) Code 3, 65RV 4" x 6", white LED backup lights, will be mounted one each side, on a vertical plane with the turn/tail/stop signals. These lights will activate when the transmission is placed in reverse gear. Two (2) Code 3 65STK4 mounting flanges, installed one (1) on each side, will



be provided to mount the lights described above in one common mounting flange. The fourth opening will be for the lower rear warning lights.

CAB, BODY AND DUNNAGE STEP LIGHTS

Chrome plated Innovative Lighting, 3-LED surface mounted, chassis step lights will be provided and controlled with marker light actuation. Step lights will be located to properly illuminate all chassis access steps and walkway areas. Chrome plated Innovative Lighting, 3-LED surface mounted, body step lights will be provided and controlled with marker light actuation. Step lights will be located to properly illuminate all body access steps and walkway areas. Two (2) chrome plated Innovative Lighting, 3-LED surface mounted lights will be provided in the dunnage area to provide adequate illumination of this area.

DECK LIGHTS / WORK LIGHTS

Two (2) 6" Unity model AG chrome plated LED deck lights will be provided and mounted on the rear stanchions, one (1) each side.

SCENE LIGHTS - REAR AND SIDES OF BODY

Two (2) Fire Research Spectra 900 LED scene lights will be provided, one on each side of the rear body panel and two (2) on each side of the body in a chrome plated flange. Each light will be 9" wide by 6 3/4" high by 1 3/4" deep and produce 7,000 lumens. In addition to the cab mounted switch for the rear scene lights, the rear scene lights will illuminate when the transmission is placed in reverse gear and the apparatus is operating as an emergency vehicle (Primary Warning switch on).

GROUND LIGHTS - CAB

One (1) Amdor Luma Bar H2O LED 20" ground light will be provided under each side cab door entrance step, four (4) total. The ground lights will turn on automatically with each respective door jamb switch and also by a master ground light switch in the warning light switch console.

ROOF MOUNT 155W LED BROW LIGHT - ABOVE WINDSHIELD

Fire Research Evolution LED model FCA800-V15 contour roof mount light will be installed. The mounting brackets will attach to the bottom of the lamp head and be machined to conform to the roof radius. Wiring will extend from a weatherproof strain relief at the rear of the lamp head.

PUMP AND ENGINE ENCLOSURE WORK LIGHTS

Two (2) Grote model #61171 LED lights will be provided inside the pump enclosure and two (2) inside the engine enclosure providing a minimum of 20 candlepower illumination. Each light will have their own independent switch incorporated into the light head.

AMDOR LUMA BAR COMPARTMENT LIGHTS - LED

Each individual, equipment storage compartment will be equipped with the AMDOR Luma Bar LED light fixture mounted one each side of the forward (and rear) vertical door frame.

NFPA AUDIBLE AND LIGHTING WARNING PACKAGE

The following warning light package will include all of the minimum warning light and actuation requirements for the current revision of the NFPA 1901 Fire Apparatus Standard. The entire warning light package will be actuated with a single warning light switch located on the cab switch panel. The wiring for the warning light package will engage all of the lights required for "Clearing Right of Way" mode when the vehicle parking brake is not engaged.

NFPA ZONE A, UPPER

A Code 3 2780NFPA P1 "RX 2700 Prizm II Series", 80" LED cab roof warning light bar will be furnished and rigidly mounted on top of the cab roof. The light bar will be equipped with the following:

- Red Upper Lenses
- Clear Lower Lenses
- Six Forward Facing Red - Eight LED Reflector Prizm II Modules
- Four Corners Red - Twelve LED Reflector Prizm II Modules

NFPA ZONE C, UPPER

Two (2) Code 3 A36-** Arch LED beacon lights will be mounted one (1) each side at the rear of the body.



NFPA ZONES B & D REAR, UPPER

The lighting requirement for this area is covered by the lights noted in Zone "C" - Upper.

NFPA ZONES B & D FRONT, UPPER

The lighting requirement for this area is covered by the lights noted in Zone "A" - Upper.

NFPA ZONE A, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.

NFPA ZONE C, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed; one (1) each side directly below the DOT stop, tail, turn and backup lights.

NFPA ZONES B & D FRONT, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.

NFPA ZONES B & D MIDSHIP, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.

NFPA ZONES B & D REAR, LOWER

Two (2) Code 3 65BZ* LED light heads will be provided and installed one (1) each side.

WARNING LIGHT SYSTEM CERTIFICATION

The warning light system above will not exceed a combined total amperage draw of 45 AMPS with all lights activated in either the "Clearing Right of Way" or the "Blocking Right of Way" mode. The warning light system will be certified by the light system manufacturer, to meet all of the requirements in the current revision of the NFPA

AIR HORNS

Two (2) chrome plated air horns will be at the front of the vehicle. Both air horns will be recessed in the front bumper. The air horns will be controlled by a foot switch on the officer's side and the steering horn button on driver's side. An air horn/electric DOT horn selector switch will be furnished on the dash for the drivers steering horn button.

ELECTRONIC SIREN AND SPEAKER

One (1) Whelen # 295HFS2, 100 watt electronic siren will be provided. The electronic siren and speaker will meet the NFPA required SAE certification to ensure compatibility between the siren and speaker. One (1) Whelen, model # SP123BMC with chrome plated ABS outer flange, siren speakers will be provided, recessed in the front bumper and wired to the electronic siren.

PUMP

- **WATEROUS CSU-C20, 1500 G.P.M. SINGLE-STAGE**

The pump will have a rated capacity of 1500 gpm.

IMPELLER SHAFT

The Impeller shaft will be heat-treated stainless steel, ground at all critical areas, and polished under the packing. An exclusive two-piece impeller shaft will allow separation of the transmission from the pump without disassembling either component.

PUMP IMPELLER

The impeller will be bronze, accurately balanced, of mixed flow design with reverse flow labyrinth-type wear rings that resist water bypass and loss of efficiency due to wear. The impeller will have flame plated hubs to assure maximum pump life and efficiency despite the presence of abrasive particles.

PUMP PACKING

Stuffing boxes will be equipped with two-piece glands to permit adjustment or replacement of packing without disturbing the pump.

PUMP TRANSMISSION



The pump transmission will be all aluminum "C20" model, rigidly attached to the pump body assembly and be of latest design incorporating a high strength involute tooth-form Hy-Vo chain drive.

PUMP SHIFT

The pump shift will be pneumatically operated and will incorporate a standard automotive air valve shifting mechanism for ease of maintenance and parts availability. The pump shift valve will be mounted in the cab and identified as PUMP SHIFT, and include shift instructions permanently inscribed on the pump shift switch plate.

TRANSMISSION LOCK

The automatic transmission furnished in the chassis will have a lock-up assembly which brings the transmission to direct drive and prevents the transmission from shifting gears while pumping.

FIRE RESEARCH "IN-CONTROL" PRESSURE GOVERNOR

The apparatus will be equipped with a Fire Research InControl series TGA400 pressure governor and monitoring display kit will be installed. The governor will operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation will occur when switching between modes. A throttle ready LED will light when the interlock signal is recognized. The governor will start in pressure mode and set the engine RPM to idle. In pressure mode the governor will automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor will maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor will limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features will include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

AKRON INTAKE RELIEF VALVE

An Akron Model 59 intake relief valve system will be plumbed on the suction side of the pump to comply fully with NFPA-1901 requirements.

PUMP CERTIFICATION

The pump will be third party performance tested to meet the requirements of NFPA-1901 by Underwriters Laboratories (UL).

PRIMING PUMP

The priming pump will be a Trident air primer system.

INDIVIDUAL BLEEDERS AND DRAINS

All lines will drain through the master drain valve or will be equipped with individual drain valves, easily accessible and labeled. One (1) individual "Innovative Control" lift up drain valve will be furnished for each 1-1/2" or larger discharge port and each 2-1/2" gated auxiliary suction.

ANODE BLOCKS

Two (2) Waterous zinc anode blocks will be provided and located on the suction side of the pump to protect the pump from corrosion.

PUMP MODULE

The pump module will be a self-supported structure mounted independently from the body and chassis cab.

SUCTION INLETS

Two (2) 6" N.S.T. suction inlets will be provided, one on the driver side pump panel and one on the officer side pump panel. A removable strainer will be installed on each inlet.

PUMP SUCTION ENDS

The main pump suction inlets will be furnished with a short suction end, terminating with only the suction threads protruding through the side panel. A 6" NST chrome plated long handle pressure vented cap will be installed on each main inlet of the pump.

AUXILIARY SIDE SUCTION

One (1) 2-1/2" auxiliary suction will be provided at the driver side pump panel, to the rear of the main inlet. The 2-1/2" auxiliary suction will terminate with a removable strainer, chrome plated 2-1/2" NST female swivel with a chrome plated plug and retaining chain. An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for



the driver's side rear auxiliary suction. All side gated inlet valves will be recess mounted behind the side pump panels or body panels.

TANK TO PUMP

One (1) 4" tank to pump line will be piped through the front bulkhead of the tank with a 90 degree elbow down into the tank sump. A check valve will be provided to prevent accidental pressurization of the water tank through the pump connection. An Akron Brass 3" Generation II Swing-Out™ Valve will be provided between the pump suction manifold and the water tank.

TANK FILL

One (1) 2" gated full flow pump to tank refill line controlled at the pump panel will be provided. A deflector shield inside the tank will be furnished. An Akron Brass 2" Generation II Swing-Out™ Valve will be provided between the pump discharge manifold and the water tank.

DRIVER'S SIDE MAIN DISCHARGES #1 AND #2

Two (2) discharges will be provided and located at the driver's side pump panel. The driver's side discharges will terminate with NST threads, through the left panel above the main pump intake. An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided for the driver's side discharges. The discharge valves will be equipped with a straight 2 1/2" NST adapter that will be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow. A 2 1/2" NST chrome plated pressure vented cap will be installed on driver's side discharges. The driver's side # 1 discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

OFFICER'S SIDE MAIN DISCHARGE #1

A discharge will be provided and located at the officer's side pump panel. The officer's side discharges #1 will terminate with NST threads, through the officer's side panel above the main pump intake. A chrome plated pressure vented cap will be installed on officer's side # 1 discharge.

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OFFICER'S SIDE MAIN DISCHARGE #2

A discharge will be provided and located at the officer's side pump panel. The officer's side discharges #2 will terminate with NST threads, through the officer's side panel above the main pump intake. A chrome plated pressure vented cap will be installed on officer's side # 2 discharge.

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DRIVER SIDE HOSE BED DISCHARGE

A 2 1/2" NST rear hose bed discharge will be plumbed to the upper front body panel, extending into the front of the hose bed. This discharge pipe will be equipped with a chrome 2 1/2" NSTM thread adapter. This discharge will be plumbed utilizing 2 1/2" schedule 10 stainless steel piping, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to the rear of the vehicle. An Akron Brass 2 1/2" Generation II Swing-Out™ Valve will be provided. One (1) 2 1/2" NST chrome plated pressure vented cap will be installed. The discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

DECK GUN DISCHARGE

A deck gun discharge will be plumbed from the pump to an area on top of the vehicle. The deck gun piping will be firmly supported and braced. The deck gun discharge will be located in the dunnage area above the pump module on the officer's side of the vehicle. The deck gun discharge pipe will terminate with 3" NPT threads. An Akron Brass 3" Generation II Swing-Out™ Valve will be provided for the deck gun discharge. The deck gun discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.

HORIZONTAL CROSSLAYS #1 AND #2

Two (2) crosslay hose beds will be provided and plumbed from the pump in a transverse design, located above the pump enclosure for quick attack deployment. The crosslay hose bed flooring will be designed to be removable, constructed from brushed finish, perforated aluminum material. The crosslays will be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 200 feet of 1-3/4" fire hose. The crosslay discharges will terminate with a 1 1/2" NSTM chicksan swivel adapter. The crosslay discharges will be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to crosslay hose bed. An Akron Brass 2" Generation II Swing-Out™ Valve will be provided for the crosslay discharges. The crosslay #1 discharge will be equipped with a 2 1/2" diameter Innovative Controls pressure gauge.



PUMP ENCLOSURE HOSEBED HOSE RETENTION

A 3/16" polished aluminum tread plate cross lay cover will be provided with a full length stainless steel hinge at the front of the cover. Vinyl flaps will be provided at each side of the transverse cross lay compartment secured to the tread plate cross lay cover by quarter turn fasteners, and equipped with a strap to each end.

FOAM PIPING - 1 INCH

The foam system piping will incorporate a check valve to prevent water from entering the foam tank; the discharge piping will also include a check valve to prevent foam solution from back feeding into the discharge side of the pump. The complete foam system will be tested in accordance with NFPA-1901.

WATEROUS ADVANTUS 3 FOAM SYSTEM

The apparatus will be equipped with an automatic microprocessor controlled, conductivity based, direct injection, discharge side foam proportioning system. The installed system will be capable of accurately proportioning all commercially available Class A foam concentrates and most Class B foam concentrates. A paddlewheel-type flowmeter will be installed in the process manifold upstream of the foam injection point and will be connected to the microcontroller. A 316 stainless steel paddlewheel with a carbide axle will be utilized for improved accuracy and long life.

FOAM PUMP

A 12 volt electric motor driven Hydra-Cell positive displacement foam concentrate pump, rated at 3 GPM (11.3 LPM) at 150 psi (10 BAR) and with operating pressures up to 450 psi (32 BAR), will be installed in a suitable, serviceable location. The pump will be self-priming and capable of drawing foam concentrate from reservoirs or containers which are located below the pump inlet. Lift time and distance will depend on product viscosity. Accurate concentration proportioning can be achieved, based on the following water flows:

- 1000 GPM water 0.3% concentration
- 600 GPM water 0.5% concentration
- 300 GPM water 1.0% concentration
- 100 GPM water 3.0% concentration
- 50 GPM water 6.0% concentration

FOAM SYSTEM LOW TANK LEVEL SWITCH

A Waterous # 4190000 low tank level float switch will be installed in each foam concentrate tank and connected to the control unit to alert the operator to low foam supply conditions. The foam system will be plumbed to the following discharge/s through the discharge piping or manifold system:

Crosslay #1 discharge.

Crosslay #2 discharge.

Front discharge.

PUMP PANEL - SIDE MOUNT

The pump operator's control panel will be located on the driver side of the apparatus. The pump enclosure side panels will be completely removable and designed for easy access and servicing. The left side operator's panel, gauge panel, right side pump panel and right side access door will be fabricated from 12-gauge 304L stainless steel with a #4, (150/180 grit), standard brushed finish.

HINGED GAUGE PANEL AND VERTICALLY HINGED, SPLIT PUMP PANEL

A full width, vertically hinged gauge access panel will be provided at the operator's position. Chrome plated positive locks will be provided along with chain holders to prevent the front of the gauge panel from coming in contact with other panels when open. The officer's side pump panel will be split, vertically hinged, to provide complete access to the pump and plumbing on the officer side of the pump enclosure. The panels will be equipped with stainless steel hinges and secured with push type locks to hold the panels closed. The drains located on the officer's side panel will be fastened to the lower panel, which will be stationary.

COLOR CODED IDENTIFICATION TAGS

Color coded identification tags will be provided for all gauges, controls, connections, switches, inlets and outlets.

PUMP OPERATOR'S PANEL LIGHT SHIELD



The pump operator's panel will be equipped with a light shield that will be full width of the control panel, and will be positioned to cover the lights and prevent glare. The light shield will be equipped with the following lights: Two (2) 20" Amdor Luma Bar H2O super bright led strip lights.

OFFICER SIDE PANEL LIGHTING

The officer's side pump panel and running board will be illuminated by the following lights: four (4) TecNiq Eon, 3-LED illumination lights mounted in horizontal stainless steel bezels and mounting gaskets.

MASTER PUMP GAUGES

The master pump intake pressure and vacuum, and the main pump discharge pressure will be indicated on the pressure governor display. All applicable pressure gauges will have a range of 0 - 400 P.S.I., and the compound gauge will have a range of -30" - 0 - 400 P.S.I.

ENGINE COOLER

An auxiliary cooler or heat exchanger will be installed in the engine compartment between the engine and the chassis radiator. The cooler will permit the use of water from the pump for cooling the engine. The cooling will be done without mixing engine and pump water.

TANK LEVEL GAUGE

A Fire Research, model #WLA300-A00, "TANKVISION" gauge that shows the actual volume of water in the tank will be provided on the pump operator's panel.

FOAM TANK LEVEL GAUGE - FOAM TANK "A"

A Fire Research, model #WLA360-A00, "TANKVISION" gauge that shows the actual volume of foam in the tank will be provided on the pump operator's panel.

WATER TANK

The water tank will have a capacity of 750 gallons, constructed from Poly material.

FOAM TANK "A"

In addition to the water capacity of the tank, a 20 gallon integral foam storage area will be built into the water tank. The foam tank will have a latched fill tower, properly labeled as the foam fill point. A valved drain will be provided.

WATER TANK CONSTRUCTION

The Poly water tank will be constructed of PT3 polypropylene material. This material will be a non-corrosive stress relieved thermoplastic and UV stabilized.

WATER TANK FILL TOWER

The tank will have a combination vent and manual fill tower. The fill tower will be constructed of 1/2" PT3 polypropylene and will be a minimum dimension of 8" x 8" outer perimeter. The fill tower will be blue in color indicating that it is a water-only fill tower. The fill tower will be fitted with an integral 4" I.D. schedule 40 P.V.C. combination overflow/vent pipe running from the fill tower through the tank to a 4" coupling flush mounted into the bottom of the tank to allow water to overflow behind the chassis rear axle. The tank sump will be a minimum of 10" wide x 10" long x 3" deep. An anti-swirl plate will be mounted inside the sump, approximately 1" above the bottom of the sump. A 3" drain plug will be provided.

WATER TANK MOUNTING ALL "T" TANKS - PUMPER

The tank will rest on the body cross members spaced a maximum of 22" apart, and will be insulated from these cross members with a minimum of 3/8" nylon webbing or 1/2" rubber, 2-1/2" wide.

APPARATUS BODY DESIGN CONSTRUCTION

The body side and compartment assemblies will be designed and assembled to provide maximum strength and durability under all operating conditions. Special attention will be taken to minimize corrosion on all fabricated parts and structural members of the body. All bolt-on components will be provided with a dissimilar metals isolation barrier to prevent electric corrosion. The body assembly will be an all-welded configuration. The body will be completely isolated from the cab and pump module structure. Compartment ceilings will be a fully welded design as part of the body construction process. The top of the welded in compartment ceiling will be overlaid with aluminum treadplate to provide an NFPA compliant stepping surface.



BODY AND COMPARTMENT FABRICATION - 3/16" ALUMINUM

All compartment panels and body side sheets will be fabricated entirely of 3/16" aluminum (5052-H32). Each side compartment assembly will be both plug welded and stitch welded to ensure proper weld penetration on all panels while avoiding the possible warping caused by a full seam weld.

SUB STRUCTURE - ALUMINUM

The body sub structure will be an all welded configuration utilizing a combination of 3" x 1-1/2" 6061-T6 thick walled structural tubing and 6061 structural channel. This structure will be designed to totally support the full length and width of the body and will be welded to the body side compartments by use of reinforcement plates to incorporate the compartments into an integral part of the body weldment.

This design will provide storage capacity in each side compartment for a minimum of 500 lbs. of equipment, and a minimum of 1000 lbs. of equipment in the rear step compartment.

FIRE BODY WIDTH

The fire body will be 100" wide to provide the maximum amount of usable hose bed and compartment space. The side body compartments will be 29" deep in any full depth areas, and 14" deep in any split depth areas.

REAR FENDER PANEL STORAGE COMPARTMENTS

A storage compartment will be inserted into the fender to provide a storage area for three (3) customer supplied SCBA cylinders (or fire extinguishers of similar size). This storage compartment will provide a minimum of 2.3 cubic feet of storage space. A storage compartment will be inserted into the fender to provide a storage area for two (2) customer supplied SCBA cylinders (or fire extinguishers of similar size). The storage area will be sized as tall and wide as possible in the fender (minimum of 15" wide x 7-3/4" tall), and will be 26" deep. The compartment will have a non-abrasive lined cradle storage area for each of the devices. This storage compartment will provide a minimum of 1.6 cubic feet of storage space. A storage compartment will be inserted into the fender to provide a storage area for three (3) customer supplied SCBA cylinders (or fire extinguishers of similar size). The storage area will be sized as tall and wide as possible in the fender (minimum of 14" wide x 15" tall with an angled floor by fender radius), and will be 26" deep. The compartment will have a non-abrasive lined cradle storage area for each of the three (3) devices. This storage compartment will provide a minimum of 2.3 cubic feet of storage space. A storage compartment will be inserted into the fender to provide a storage area for three (3) customer supplied SCBA cylinders (or fire extinguishers of similar size). The storage area will be sized as tall and wide as possible in the fender (minimum of 14" wide x 15" tall with an angled floor by fender radius), and will be 26" deep. The compartment will have a non-abrasive lined cradle storage area for each of the three (3) devices. This storage compartment will provide a minimum of 2.3 cubic feet of storage space.

DRIVER SIDE BODY COMPARTMENTATION

One full height/split depth compartment will be provided forward of the rear wheels. The compartment dimensions will be 35" wide x 68" tall x 29" deep in the lower 30" tall area, and 14" deep in the upper 38" tall area.

One high side compartment will be provided above the rear wheels. The compartment dimensions will be 64" wide x 37" high x 14" deep.

One full height/split depth compartment will be provided behind the rear wheels. The compartment dimensions will be 56" wide x 68" tall x 29" deep in the lower 30" tall area, and 14" deep in the upper 38" tall area. The driver side compartments will provide approximately 95 cubic feet of storage space.

OFFICER SIDE BODY COMPARTMENTATION

One low side compartment will be provided forward of the rear wheels. The compartment dimensions will be 35" wide x 32" tall x 29" deep.

One low side compartment will be provided behind the rear wheels. The compartment dimensions will be 56" wide x 32" tall x 29" deep. The officer side compartments will provide approximately 49 cubic feet of storage space.

REAR STEP COMPARTMENT

An equipment storage compartment will be provided on the rear of the body at the rear step area. The rear step compartment will be 42" Wide x 40" High x 29" Deep.



The rear step compartment will provide approximately 28 cubic feet of storage space. The rear step compartment will have full side panels which will isolate this storage area from the side body compartments. The rear step compartment will be equipped with a rollup style door.

EXTENDED REAR STEP - TAPERED CORNERS

The extended rear step will be 12" deep, extended beyond the body compartments. The step will be 100" wide, with tapered corners for better clearance. The step will be fabricated from 3/16" polished aluminum treadplate, and will be rigidly reinforced.

HOSE BED (72" WIDE)

The hose bed will be located directly above the booster tank and will be free from all sharp objects such as bolts, nuts, etc., to avoid damage to fire hose.

HOSE BED

The hose bed will provide a minimum of 30 cubic feet hose storage area for 2 1/2" or larger fire hose to meet NFPA 1901 minimum pumper hose storage requirement. The apparatus weight analysis will be based on 800' of 2 1/2" hose unless otherwise specified. If the hose load to be carried exceeds this minimum, the purchaser will advise the manufacturer prior to contract so adequate chassis carrying capacity can be provided. Flooring to be constructed from extruded aluminum and be properly spaced for ventilation. The flooring will be smooth and free from sharp edges to avoid hose damage.

Two (2) fully adjustable 3/16", aluminum hose bed partition will be provided. Partition will be easily adjustable by means of channels located at the front and rear of the hose bed.

HOSE BED COVER, ALUMINUM TREAD PLATE ROLLING/LIFT UP COVER

The top of the hosebed will have an NFPA compliant cover installed to secure the hose from unintentionally deploying out the top or rear of the hosebed. The cover will be a polished aluminum tread plate combination roller/lift-up style cover. The cover will be capable of supporting 250 lbs. at any single point on the cover. Two (2) vinyl flaps at the rear of the tread plate hose bed cover. They will be secured to the hose bed cover with quarter turn fasteners and to the rear body with bungee cords.

COMPARTMENT DOORS

The compartment doors will be flush type with the outer skin fabricated from 3/16" (5052 H32) aluminum. The door skin will have a formed flange on one (1) side used as a hinge mounting flange.

COMPARTMENT DOOR HINGES AND SEALS

Hinges will be full length polished stainless steel piano type. The hinges will be mounted with stainless steel hardware. Enclosed body compartment doors will be equipped with a closed cell gasket. The gasket material will be EPDM to provide a gasket resistant to weather, temperature extremes, and aging.

COMPARTMENT DOOR LATCHES – ROTARY WITH D-RINGS

Externally latched body doors will be equipped with stainless steel D-ring handles. Rotary door latches will be provided for all full height body doors, which will incorporate rotary latches at the top and bottom of all externally latched single or double doors. The blank door of a double door configuration will have rotary latches at the top and bottom of each door with the latch release lever accessible thru the door frame. Linkages will be provided between the actuation handle and the latch mechanisms.

COMPARTMENT DOOR STAY ARMS

Eberhard gas shock type door hold open devices will be provided for each vertically and horizontally hinged door.

SWEEP-OUT COMPARTMENT FLOORS

Compartment floors will be welded to the compartment walls and have a sweep out design for easy cleaning.

COATED FASTENERS

All exterior fasteners will be coated stainless steel screws. Screw threads will be coated with reusable, self-locking, sealing material to provide vibration resistance. Screw heads will be coated with a sealing element to prevent galvanic corrosion between dissimilar metals.



COMPARTMENT LOUVERS

Ventilation between compartments to atmosphere will be provided and located to avoid water entry into compartments.

BODY RUB RAILS

Sacrificial aluminum tread plate rub rails will be mounted at the base of the body, extend outward a minimum 3/4", downward 2" and flange inward 1". Rub rails will be designed to bolt to the body from the bottom side of the compartment area, so as not to damage the body side panels on initial impact and to provide for ease of replacement.

RUNNING BOARD STEPS

The driver and officer running board steps will be fabricated of 3/16" polished aluminum tread plate. The outside edge on each step will be fabricated with a double break, return flange. The steps will be rigidly reinforced with a heavy duty support structure. The running boards will not form any part of the compartment design, and will be bolted into place with a minimum 1/2" clearance gap between any panel to facilitate water runoff.

GRAB RAILS

All hand rails will be 1-1/4" outer diameter, knurled bright anodized aluminum extrusion, designed to meet NFPA 1901 requirements. Molded gaskets will be installed between the handrail stanchion castings and body surfaces to prevent electrolytic reaction between dissimilar metals and to protect paint.

GRAB RAIL LOCATIONS:

Grab rails will be provided at the following specified locations. Additional grab rails will be provided adjacent to any additional steps specified to comply with NFPA 1901.

Two (2) vertical rails will be mounted on the rear edge of the beavertails, one (1) each side.
One (1) horizontal, full width handrail will be installed on the rear, below the level of the hose bed.

FOLDING STEP(S) - BODY REAR OFFICER AND DRIVER SIDES

Cast Products model SP4401-1-CH-A large folding step(s) with RG0005 gasket, with a textured chrome plate finish will be provided on both the officer and driver side body rear to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).

REAR WHEEL WELL LINERS AND MUD FLAPS

Fully removable, one piece, bolt-in, aluminum rear wheel well liner and fenderette will be provided. The wheel well liners will be natural metal finish and will protect the front and rear compartments and main body supports from damage. Heavy duty mud flaps will be provided behind the rear wheels.

REAR TOW EYES

Two (2) painted tow eyes will be furnished on the rear of the vehicle. The tow eyes will be made from plate steel and will be bolted directly to the chassis frame rails with grade 8 bolts and will extend below the body.

ADJUSTABLE SHELVING

Compartment shelving will be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports. Shelving will be vertically adjustable with spring nuts in aluminum strut channel. Adjustable shelves will be located as follows: One (1) in the driver side front compartment, One (1) in the officer side front compartment, One (1) in the driver side rear compartment and One (1) in the officer side rear compartment

GROUND LADDERS AND MOUNTING BRACKETS

Ladder mounting brackets will be a Cast Products #FA0030-5 to accommodate different ladder banked widths. The brackets will be mounted on tracking on the officer side body side panel with spring actuated holders.

The following Alco-Lite ground ladder complement will be provided:

- One (1) Alco-Lite model PEL-24; 24', aluminum, two (2) section extension ladder
- One (1) Alco-Lite model PRL-14; 14', aluminum, straight roof ladder with folding hooks
- One (1) Alco-Lite model FL-10; 10', folding, aluminum, attic ladder

SUCTION HOSE STORAGE



The suction hoses will be located on the body side panels, one (1) on the officer side and one (1) on the driver side of the apparatus. Two (2) polished, extruded aluminum adjustable hose troughs will be provided. Two (2) Velcro hose holders will be furnished on each trough.

SUCTION HOSE

Two (2) 10 foot sections of six (6) inch PVC lightweight suction hose will be furnished (Kocheck or Firequip Maxi-Flex).

STRAINER

One (1) 6" NST, Red Head 140-60001 barrel type strainer(s) will be provided.

HYDRANT ADAPTER

A double female swivel hydrant adapter will be provided along with a screw base mounting bracket. One end will attach to the suction hose and the other end to be 4-1/2" N.S.T. thread.

LOOSE EQUIPMENT

The following items will be provided and shipped loose with the completed apparatus at the time of delivery:

- 1 - Pint of touch up paint for each color
- 1 -Bag of assorted stainless steel nuts and bolts

Two (2) ZICO #SAC-44 folding wheel chocks will be mounted forward of the rear wheels on the driver side below the side running board compartments.

PAINT, PREPARATION AND FINISH

The PPG Delta, Low V.O.C., polyurethane finishing system, or equal, will be utilized. A "Clear Coat" paint finish will be supplied to provide greater protection to the quality of the exterior paint finish.

All removable items, such as brackets, compartment doors, etc. will be painted separately to insure finish paint behind mounted items. All compartment unwelded seams exposed to high moisture environments will be sealed using permanent pliable caulking prior to finish paint. All exposed welds will be ground smooth for final finishing of areas to be painted.

BODY FINISH PAINT

The body will be finish sanded and prepared for final paint. Upon completion of final preparation, the body will be painted utilizing the highest quality, state of the art, low V.O.C., polyurethane base paint. Finish paint will be applied in multiple coats to ensure proper paint coverage with a high gloss finish. The inside and underside areas of the complete body assembly will be painted black using a PPG Delta System, prior to the installation of the body on the chassis. The body paint finish will be PPG Delta System in a single color, to match customer furnished paint codes and requirements

COMPARTMENT PAINT

The interior of the compartments will be finish painted job color with a scuff resistant webbing type paint of a contrasting color applied over the painted surfaces.

CAB PRIMER & PREPARATION AND FINISH

The cab primer will be a two (2) stage process. First stage will be a coating with a two part component, self-etching, and corrosion resistant primer to chemically bond the surface of the metal for increased adhesion. Second stage will be multiple coats of a catalyzed, two component, polyurethane primer applied for leveling of small imperfections and top coat sealing. The entire cab will be finish sanded and prepared for final paint. Upon completion of final preparation, the cab will be painted utilizing the highest quality, state of the art, low V.O.C., polyurethane base paint. Finish paint will be applied in multiple coats to ensure proper paint coverage with a high gloss finish. The cab exterior will be finish painted with PPG Delta system, single color, to match purchaser's furnished paint code.

CAB INTERIOR PAINT

The interior metal surfaces of the cab will be finish painted with a textured gray paint.

CHASSIS PAINT

The chassis frame rails, suspension and axles will be painted black with a Polyurethane base paint prior to installation of any air lines or electric systems to ensure proper serviceability.

WHEEL PAINT



The chassis wheels will be painted job color with silver trim around the perimeter.

TOUCH-UP PAINT

One (1) pint of each exterior color paint for touch-up purposes will be supplied when the apparatus is delivered to the end user.

RUST PROOFING

The entire unit will be thoroughly rust proofed utilizing rustproof and sound deadening materials applied in manufacturer recommended application procedures.

LETTERING

The sales representative will supply all gold leaf or equal lettering, decals, special emblems and non NFPA required striping.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the cab driver's and officer's doors per the fire department requirements. The design of the lettering on the cab doors will be designed to fit in the 496 sq. inches available.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the cab crew doors per the fire department requirements. The design of the lettering on the cab doors will be designed to fit in the 496 sq. inches available.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the area of the cab above the windshield per the fire department requirements. The design of the lettering above the windshield will be designed to fit in the 224 sq. inches available.

Scotch-Cal without drop shadow lettering will be provided on the front BUMPER per the fire department requirements. The design of the lettering on the front of the cab will be designed to fit in the 167 sq. inches available.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the front of the cab per the fire department requirements. The design of the lettering on the front of the cab will be designed to fit in the 167 sq. inches available.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the cab side panel per the fire department requirements. The design of the lettering on the cab side panel will be designed to fit in the 150 sq. inches available.

Scotch-Cal without drop shadow lettering will be provided on the REAR COMPARTMENT DOOR per the fire department requirements.

Lettering provided on the rear DOOR be custom height per Fire Department and engineering design.

Gold leaf, "Sign Gold", with drop shadow lettering will be provided on the body side sheet per the fire department requirements. The design of the lettering on the body side sheet will be designed to fit in the 2500 sq. inches available.

SCOTCH-LITE STRIPE

A six (6) inch high "Scotch-Lite" stripe will be provided. The stripe will be applied on a minimum of 60 percent of each side of the unit, 60 percent on the rear of the unit and 40 percent on the front of the unit. The Scotch-Lite stripe layout will be determined by the Fire Department. A six (6) inch simple "Z" effect will be incorporated into the Scotch-Lite scheme on the body. Final layout of this configuration will be determined by the Fire Department. A 1" high Scotch-Lite material accent stripe will be incorporated into the Scotch-Lite scheme to border the primary Scotch-Lite stripe on the top and bottom edges. Final layout of this configuration will be determined by the Fire Department.

REAR CHEVRON STRIPING

At least 50% of the rear facing vertical surface will be covered with alternating strips of reflective striping. The striping will be 6" Diamond Grade Scotch-Lite.

VEHICLE WARRANTY

The purchaser requires a Five (5) year new vehicle warranty to be provided, upon delivery and acceptance of the vehicle. The warranty will ensure that will be free from defects in material and workmanship that may appear under normal use and service within the warranty period. This warranty is issued to the original purchaser of the vehicle. The warranty will not apply to tires, batteries, or other parts or components that are warranted directly by their manufacturers. The warranty will not apply to routine maintenance requirements as described in the service and operators manual. No warranty whether express, implied, statutory or otherwise including, but not limited to any warranty of merchantability or fitness for purpose will be imposed.



WARRANTY - KME CHASSIS

The proposed vehicle includes a five (5) year new vehicle warranty, upon delivery and acceptance of the vehicle. The warranty will ensure that the vehicle will be free from defects in material and workmanship that may appear under normal use and service within the warranty period. This warranty is issued to the original purchaser of the vehicle.

OVERALL UNIT AND CUSTOM CHASSIS

All components and parts of the vehicle are warranted for a period of five (5) years from acceptance of the vehicle, unless excluded elsewhere in this warranty or described as having longer time limitations.

WARRANTY - EXTENDED WARRANTY, CUMMINS ISX ENGINES

The Cummins engine will be warranted for a period of Ten (10) years or 200,000 miles, whichever occurs first.

- 100% parts and labor
- Complete engine coverage includes EGR components (excluding all maintenance components and accessories which bear the name of another company)
- Maintenance components excluded from coverage include, but are not limited to: fuel injectors, fuel pump, turbocharger, air compressor, fan clutch, water pump, fan hub, fan idler pulley assembly, vibration damper, belts, hoses, belt tensioner, and thermostat. Major components
 - Engine cylinder block casting
 - Engine cylinder head castings and capscrews
 - Engine crankshaft forging
 - Engine camshaft forging
 - Engine connecting rods
 - Flywheel housing
 - Intake manifold castings
 - Valve covers
 - Oil cooler cover/filter heads
 - Oil pan
 - Gear cover and housing
 - Gear train gears
 - Crankshaft gear
 - Camshaft idler gear
 - Accessory drive gear
 - Fuel pump drive gear

WARRANTY - TRANSMISSION

The proposed Allison transmission will be provided with a five (5) year warranty. A copy of the Allison transmission warranty will be supplied to the purchaser to define additional details of the warranty provisions.

WARRANTY - COOLING SYSTEM - CUSTOM CHASSIS

Kovatch Mobile Equipment (KME) warrants all Cooling System Equipment components used in the construction of KME Fire Apparatus against defects and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original user-purchaser for a period of three (3) years from the date of delivery / acceptance to the original user-purchaser, whichever occurs first. This warranty applies to



both purchased and fabricated, manufacturer supplied, coolant system components, and is not provided in lieu of any Vendor provided warranties. All coolant system components provided by the engine manufacturer are covered by the engine manufacturer's warranty only.

WARRANTY - CUSTOM CHASSIS FRAME RAILS

The proposed KME custom chassis frame and cross members will be warranted for an unlimited time period. A copy of KME's frame rail warranty will be supplied to define additional details of the warranty provisions.

WARRANTY - STEERING UNIT

The proposed Sheppard steering gear will be warranted for a period of three (3) years from the first date of service or 150,000 miles (241,401 kilometers), whichever occurs first. The product will be free from defects in material and workmanship under normal use in applications approved in advance by Sheppard.

WARRANTY - AXLES

The Meritor axle/s will be provided with a five (5) year warranty. The first two (2) years will be parts and labor; the remaining three (3) years will be parts only. Wheel seals, gaskets and wheel bearings will be covered for one year. A copy of Meritor's warranty will be supplied to define additional details of the warranty provisions. Vehicles that operate full or part time outside the United States and Canada will have a one (1) year, parts only warranty.

WARRANTY - ABS

The Meritor ABS will be provided with a three (3) year warranty, parts and labor. A copy of Meritor's warranty will be supplied to define additional details of the warranty provisions. Vehicles that operate full or part time outside the United States and Canada will have a one (1) year, parts only warranty.

WARRANTY - CAB STRUCTURE

The proposed cab will be warranted against structural defects for a period of ten (10) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

WARRANTY - BODY STRUCTURE

The proposed body will be warranted against structural defects for a period of ten (10) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

WARRANTY - CORROSION

The proposed cab and body will be warranted against rust-through or perforation, due to corrosion from within, for a period of ten (10) years. Perforation is defined as a condition in which an actual hole occurs in a sheet metal panel due to rust or corrosion from within. Surface rust or corrosion caused by chips or scratches in the paint is not covered by this warranty.

WARRANTY - PAINT

The proposed paint finish will be warranted for a period of ten (10) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

WARRANTY - LETTERING

Kovatch Mobile Equipment Corporation will provide a five (5) year warranty against defects in material and workmanship for all graphic processes.

WARRANTY - BRIGHTWORK

Kovatch Mobile Equipment (KME) warrants all bright finish components used in the construction of KME Fire Apparatus against defects and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original user-purchaser for a period of one (1) year from the date of delivery / acceptance to the original user-purchaser, whichever occurs first.

The expressed warranty excludes corrosion or degradation of bright finished components caused by damage to the component.

WARRANTY - STAINLESS STEEL PLUMBING WARRANTY



The proposed stainless steel plumbing will be warranted for a period of ten (10) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

WARRANTY - REAR SUSPENSION

KME hereby warrants to the original Buyer, that leaf spring products installed will be free of defects in material and workmanship for one (1) year. The "Warranty Period" commences on the date the original Buyer takes delivery of the product from the manufacturer.

WARRANTY - WATER TANK

The proposed water tank will be warranted by the water tank manufacturer for the "Lifetime" of the unit. A copy of the manufacturer's warranty will be supplied to define additional details of the warranty provisions.

WARRANTY - FIRE PUMP

Waterous warrants, to the original Buyer only, that products manufactured by Waterous will be free from defects in material and workmanship under normal use and service for a period of ten (10) years from the date the product is first placed in service or ten and one-half (10 1/2) years from the date of shipment by Waterous, whichever period will be the first to expire; provided the buyer notifies Waterous, in writing, of the defect in said product within the warranty period, and said product is found by Waterous to be nonconforming with the aforesaid warranty.

WARRANTY RELATED APPARATUS TRANSPORT

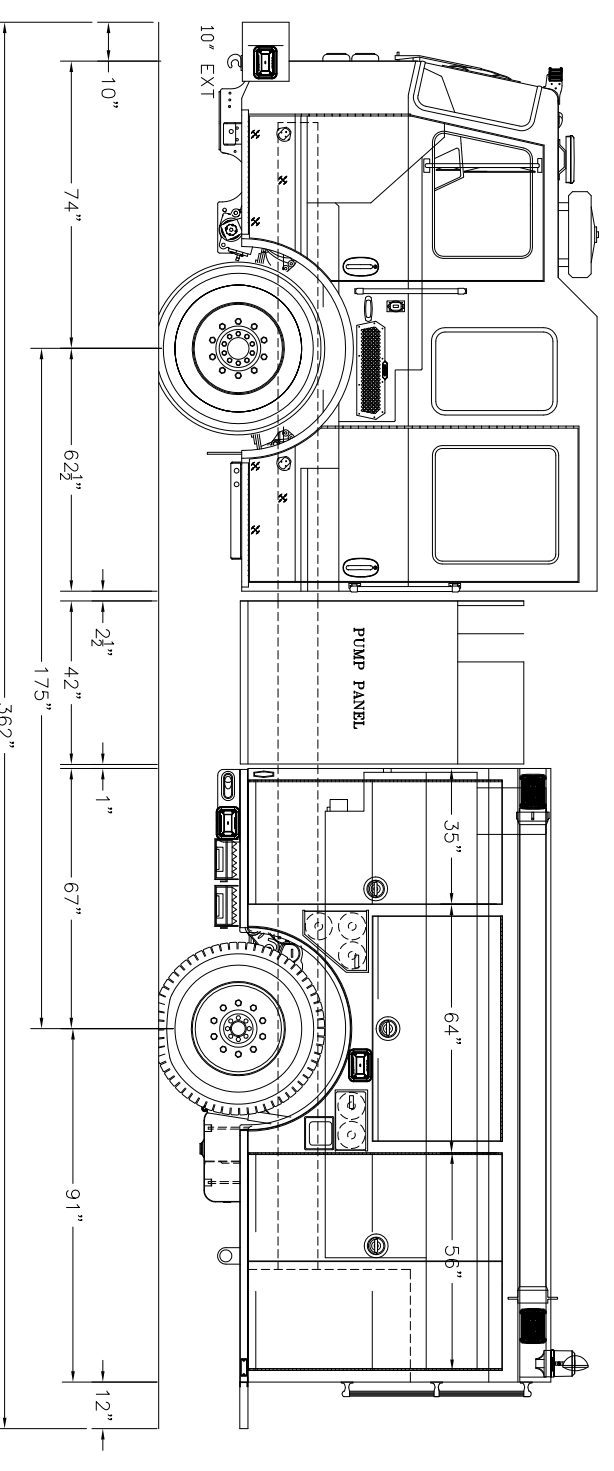
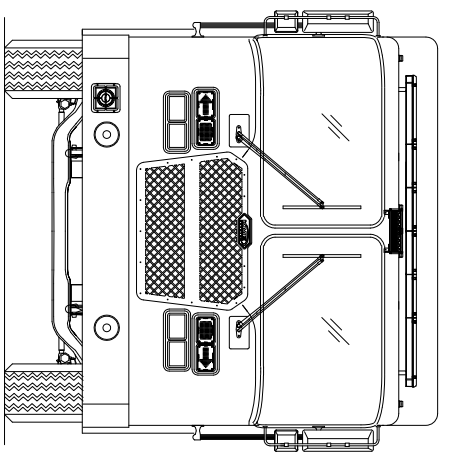
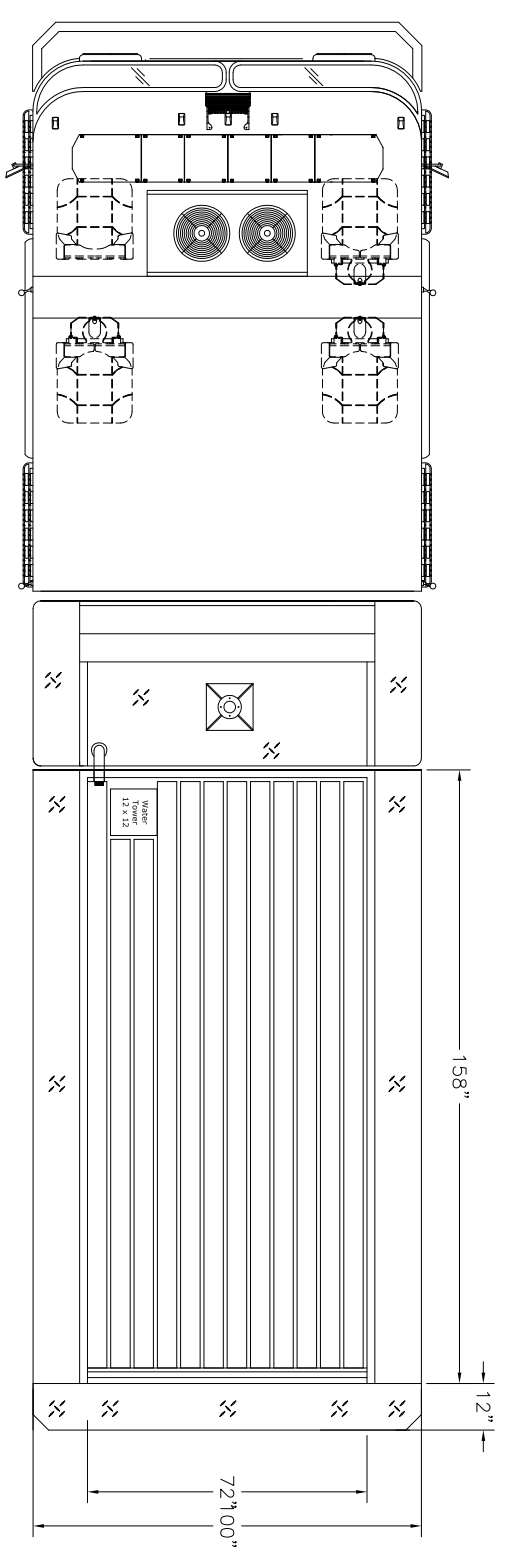
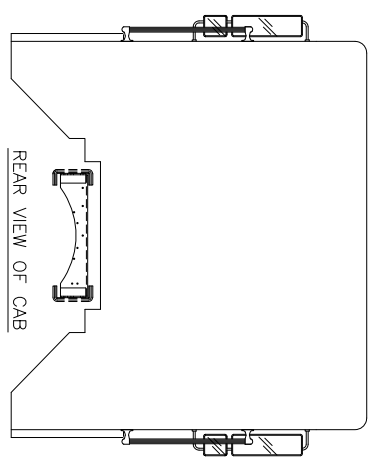
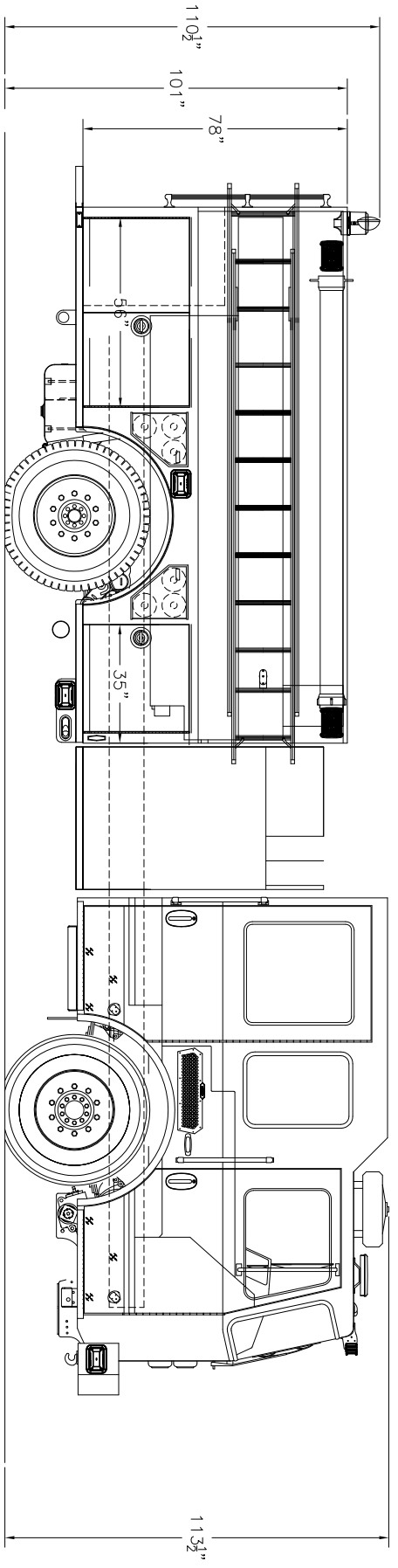
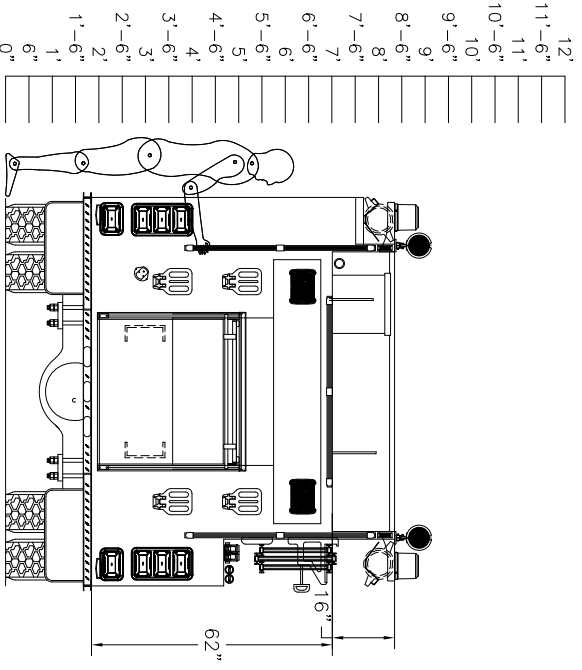
Should **any** warranty repair require transportation of the apparatus to a repair facility outside the Department's city limits, the manufacturer will provide a pickup and delivery service for the first two (2) years of warranty coverage, at no charge to the Fire Department.

WARRANTY - HEAVY DUTY VALVES

Akron Brass warrants Heavy Duty Swing-Out Valves for a period of ten (10) years after purchase against defects in material or workmanship. Akron Brass will repair or replace any Heavy Duty Swing Out Valve which fails to satisfy this warranty.

WARRANTY - SEATING

HO Bostrom will warrant each new seat manufactured, to be free from defects in materials and workmanship when delivered to the original purchaser for a period of five (5) years.



----- CHASSIS -----
 CHASSIS: 100"W KME PREDATOR MFD
 CAB: 4 DOOR 10" RR
 ENGINE: CUMMINS ISX12 500 HP
 TRANSMISSION: ALLISON 4000 EVS
 FRONT AXLE: 20,000 LB
 REAR AXLE: 27,000 LB

----- PUMP -----
 PUMP: WATEROUS CS-C20-1500 GPM SINGLE STAGE
 INTAKES:
 DRIVER SIDE: 6" & 2-1/2"
 OFFICER SIDE: 6"
 FRONT: N/A
 REAR: N/A
 DISCHARGES:
 DRIVER SIDE: (2) 2-1/2" & (1) 4"
 OFFICER SIDE: (1) 2 1/2" & (1) 4"
 FRONT: N/A
 REAR: (1) 2, 1/2" DS FRONT HOSE BED
 DECK GUN: (1) 3 DUNNAGE AREA
 OTHER: (2) 1-3/4" CROSSLAWS

----- TANK -----
 TANK: POLY
 WATER: 750 GALLONS
 FOAM: N/A
 EXTRA FILLS: N/A
 DUMPS: N/A

----- BODY -----
 BODY TYPE: 158" FLEX MEDIUM
 MATERIAL: 3/16" ALUMINUM
 COMPARTMENTATION
 DRIVER SIDE: FULL HEIGHT/SPLIT DEPTH
 OFFICER SIDE: LOW SIDE
 HOSEBED
 DIVIDERS: TWO (2) MINIMUM
 HOSE LOAD:

----- MISC. -----
 GENERATOR: N/A
 FOAM SYSTEM: N/A

CUSTOMER APPROVAL:

NAME:
 TITLE:
 DATE:

THIS DRAWING IS A GENERAL CONFIGURATION AND MAY NOT NECESSARILY REFLECT ALL CONTRACTUAL REQUIREMENTS. CONTRACT SPECIFICATIONS SHALL PREVAIL OVER DRAWING

SYM	DATE	REVISION DESCRIPTION	APP'D
A		PROPOSAL	ZZ

SALES ENGINEER : T.B.D.



KOVATCH MOBILE EQUIPMENT
 ONE INDUSTRIAL COMPLEX - NESHOBURG, PA 18840

DATE: 11/06/2015 SCALE: 1"=24" DWG SIZE: D DRAWN BY: J.J.M. APPROVED BY:

KME CUSTOM PUMPER
 FCAM HIGH END
 PROPOSAL