

# **ROCKDALE COUNTY, GEORGIA**

**January 3, 2018**

## **FIRE TRUCK**

**INVITATION TO BID  
No. 17-53**



**ROCKDALE COUNTY FINANCE DEPARTMENT  
PROCUREMENT DIVISION  
958 MILSTEAD AVENUE  
CONYERS, GA 30012  
770-278-7552**

**INTRODUCTION:**

This is an Invitation to Bid (ITB) for the purchase of **Fire Truck** in Rockdale County. Instructions for preparation and submission of a bid are contained in this packet. Bids must be typed or printed in ink.

Rockdale County provides equal opportunity for all businesses and does not discriminate against any person or business because of race, color, religion, sex, national origin, and handicap or veterans status. This policy ensures all segments of the business community have access to supplying the goods and services needed by Rockdale County.

**PURCHASING CONTACT FOR THIS REQUEST:**

All questions concerning this ITB and all questions arising subsequent to award are to be addressed to the Purchasing Division via email to Meagan Porph, Buyer, at [meagan.porch@rockdalecountyga.gov](mailto:meagan.porch@rockdalecountyga.gov) or the following address:

Rockdale County Finance Department  
Purchasing Division  
Attn: Meagan Porph  
958 Milstead Avenue  
Conyers, GA 30012  
Phone: (770) 278-7557, Fax (770) 278-8910  
E-mail: [meagan.porch@rockdalecountyga.gov](mailto:meagan.porch@rockdalecountyga.gov)

To maintain a "level playing field", and to assure that all bidders receive the same information, bidders are requested **NOT** to contact anyone other than the contact above until after the award of the contract. Doing so could result in disqualification of the bidder.

**BID COPIES FOR EVALUATION:**

Five (5) hard copies and one (1) original hard copy and one (1) CD or Flash Drive in Adobe PDF format will be required for review purposes. (*Original must be clearly marked "Original" and the Copies clearly marked "Copies."*). CD's that are blank or have incorrect information on them will not be acceptable and may be justification for disqualification. Check your disk(s) to ensure that they have the appropriate material on it before submitting.

All bid materials must be completed and enclosed in a sealed envelope prior to submittal. The ITB number must be clearly written on the outside of the envelope. **Incomplete, incorrect, unsealed, unmarked, or improperly submitted bids may be rejected.**

**DUE DATE:**

Sealed bids will be received at the Rockdale County Finance Department, Procurement Division, 958 Milstead Avenue, Conyers, GA 30012 no later than **2:00 P.M., local time, Thursday, February 1, 2018**. Bids received after this time will not be accepted. Bidders are not required to attend bid opening.

**PRE-BID CONFERENCE:**

There will be a **MANDATORY** Pre-Bid Conference held at **Rockdale County Fire Department Headquarters, 1496 Rockbridge Road NW, Conyers, GA 30012 at 10 A.M., local time, Wednesday, January 17, 2018**. Any questions and/or misunderstandings that may arise from this ITB may be asked and answered at the pre-bid conference; however, oral responses are not authoritative. Bidders are encouraged to review the ITB before attending the pre-bid conference. Questions received after the pre-bid conference must be submitted in writing to [meagan.porch@rockdalecountyga.gov](mailto:meagan.porch@rockdalecountyga.gov) or at the above address. *Any contractor who intends to submit a Bid is*

required to attend this meeting.

**QUESTIONS AND CLARIFICATIONS:**

All questions and/or requests for clarifications concerning this ITB must be submitted to the Purchasing Division via email to [meagan.porch@rockdalecountyga.gov](mailto:meagan.porch@rockdalecountyga.gov) or at the above address no later than **2:00 p.m., local time, on Thursday, January 25, 2018**. It shall be the Bidders responsibility to seek clarification as early as possible prior to the due date and time. Written responses from the County to the questions it receives will be in an addendum and posted to the County's website at [www.rockdalecountyga.gov](http://www.rockdalecountyga.gov), under Bid Opportunities. Questions or requests for clarifications received after this deadline will not receive a response.

**ADDENDA:**

Answers to questions submitted that materially change the conditions and specifications of this ITB will be issued in an addendum and posted to the County's website at [www.rockdalecountyga.gov](http://www.rockdalecountyga.gov) under Bid Opportunities. Any discussions or documents will be considered non-binding unless incorporated and issued in an addendum.

**It is the bidder's responsibility to check the Rockdale County website at [www.rockdalecountyga.gov](http://www.rockdalecountyga.gov), under Bid Opportunities for any addenda that may be issued, prior to submitting a bid for this ITB.**

**WARRANTY AND / OR GUARANTY:**

The bidder will state below or will furnish a separate letter attachment which fully explains the condition of Warranty and/or Guaranty. If no Warranty and/or Guaranty is applicable, it must be so stated. NOTE: Failure to respond to the requirement of this paragraph may result in the bid being non-responsive.

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**QUALIFICATIONS OF OFFERORS:**

Bidders must have a current business license from their home office jurisdiction and provide a copy of that license with the submittal of their bid response. Rockdale County vendors doing business in Rockdale County must have a current Rockdale County Business License.

Bids from any offeror that is in default on the payment of any taxes, license fees, or other monies due to Rockdale County will not be accepted.

**SILENCE OF SPECIFICATIONS**

The apparent silence of these specifications and any supplemental specifications as to any details, or the omission from it of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail and that only materials of first quality and correct type, size and design are to be used. All workmanship is to be first quality. All interpretations of this specification shall be made upon the basis of this statement, with County interpretation to prevail.

**OPTION TO AUDIT**

Successful bidder will be required to maintain complete records during the life of the contract and for a period of one year after completion of the contract. Such records are to be made available to the County if officially requested, to be audited by a designated County auditing staff. In such audits reveal overcharges and/or undercharges, such will be adjusted and compensation made by either party to correct charges.

**TORT IMMUNITY:**

No officer, employee, or agent of the County acting within the scope of his/her employment or function shall be held personally liable in tort or named as a defendant in any action for injury or damage suffered because of any act, event, or failure to act.

**PROPRIETARY INFORMATION:**

Careful consideration should be given before submitting confidential information to Rockdale County. The Georgia Open Records Act permits public scrutiny of most materials collected as part of this process. Please clearly mark any information that is considered a trade secret, as defined by the Georgia Trade Secrets Act of 1990, O.C.G.A. §10-1-760 et seq., as trade secrets are exempt from disclosure under the Open Records Act. Rockdale County does not guarantee the confidentiality of any information not clearly marked as a trade secret.

**AWARD OF CONTRACT:**

The Rockdale County Procurement Office and/or Evaluation Committee make a recommendation for award. The Board of Commissioners will make the actual award of the contract and has the authority to award the contract to a company different than the company recommended by the Procurement Office and/or Evaluation Committee. Rockdale County reserves the right to make no awards, multiple awards, one award for all items; or whatever the County deems to be in its best interest.

**SELECTION PROCESS:**

The Rockdale County Procurement Office and/or Evaluation Committee make a recommendation for award. The Board of Commissioners will make the actual award of the contract and has the authority to award the contract to a company different than the company recommended by the Purchasing Department and/or Evaluation Committee.

This is a past performance/quality/price trade-off source selection in which competing offeror's past and present performance history and product quality will be evaluated on a basis approximately equal to price. Award will be made to the responsible offeror whose bid represents the best value after evaluation in accordance with the factors listed below. Rockdale County Board of Commissioners may reject any or all bids if such action is in the county's interest.

Rockdale County may evaluate bids and award a contract without discussions with offerors. Therefore, the offeror's initial bid should contain the offeror's best terms from a price and technical standpoint. The County reserves the right to conduct discussions if the County later determines them to be necessary.

**INSURANCE:**

Before starting any work, the successful contractor must furnish to Rockdale County certificate(s) of insurance from companies doing business in Georgia. The Company shall maintain in full force and effect the following insurance during the term of the Agreement:

Coverages:	Limits of Liability:
Workers' Compensation	Statutory
Employers' Liability	\$1,000,000.00
Bodily Injury Liability	\$1,000,000.00 each occurrence
except Automobile	\$1,000,000.00 aggregate
Property Damage Liability	\$1,000,000.00 each occurrence
except Automobile	\$1,000,000.00 aggregate
Personal & Advertising Injury Limit	\$1,000,000.00
Products / Completed Ops.	\$2,000,000.00 aggregate
Automobile Bodily Injury	\$1,000,000.00 each person
Liability	\$1,000,000.00 each occurrence
Automobile Property Damage	\$1,000,000.00 each occurrence
Liability	
Professional Liability/General Liability	\$1,000,000.00

All insurance shall be provided by an insurer(s) acceptable to the County, and shall provide for thirty (30) days prior notice of cancellation to the County. Upon contract award, Contractor shall deliver to the County a certificate or policy of insurance evidencing Contractor's compliance with this paragraph. Contractor shall abide by all terms and conditions of the insurance and shall do nothing to impair or invalidate the coverage.

Rockdale, GA shall be named as Additional Insured under any General Liability, Business Auto and Umbrella Policies using ISO Additional Insured Endorsement forms CG 2010 or its equivalent. Coverage shall apply as Primary and non-contributory with Waiver of Subrogation in favor of Rockdale County, Georgia.

The insurance carrier must have a minimum rating of A or higher as determined by the rating firm A.M. Best.

Certificates to contain policy number, policy limits and policy expiration date of all policies issued in accordance with this contract.

Certificates are to be issued to:

Rockdale County, Georgia  
958 Milstead Avenue  
Conyers, GA 30012

**BONDS:**

Rockdale County shall request the following for bids/proposals in excess of Fifty Thousand Dollars (\$50,000.00).

**BID BOND**

Each bid shall include a bid bond in the amount of five percent (5%) of the total bid amount as guarantee that the bidder shall not withdraw the bid for 120 days after the scheduled bid opening. If awarded the contract, Bidders shall enter a written agreement with Rockdale County in accordance with the bid.

**PERFORMANCE BOND**

Upon execution and delivery of the contract, the bidder shall furnish Rockdale County a performance bond for the full amount of the contract. Maintenance provisions of the bond shall remain in effect for a period of twelve (12) months after acceptance of the work by the County. The surety shall be a reputable bonding company authorized to transact business in the State of Georgia.

**PAYMENT BOND**

Upon execution and delivery of the contract, the bidder shall furnish Rockdale County a payment bond for the full amount of the contract. Maintenance provisions of the bond shall remain in effect for a period of twelve (12) months after acceptance of the work by the County. The surety shall be a reputable bonding company authorized to transact business in the State of Georgia.

All sureties of bonds for Rockdale County must be licensed to do business in the State of Georgia and must be listed on the Department of Treasury Federal Register.

**PERMITS:**

The awarded contractor will be responsible for acquiring any permits that are required for this project/purchase. Rockdale County will waive fees on all permits issued by Rockdale County.

**ILLEGAL IMMIGRATION REFORM AND ENFORCEMENT ACT OF 2011**

Vendors submitting a Qualification package in response to this ITB must complete the Contractor Affidavit under O.C.G.A. §13-10-91(b)(1) which is provided with the ITB package to verify compliance with the Illegal Immigration Reform and Enforcement Act of 2011.

- A. The form must be signed by an authorized officer of the contractor or their authorized agent.
- B. The form must be notarized.
- C. The contractor will be required to have all subcontractors and sub-subcontractors who are engaged to complete physical performance of services under the final contract executed between the County and the contractor complete the appropriate subcontractor and sub-subcontractor affidavits and return them to the County a minimum of five (5) days prior to any work being accomplished by said subcontractor or sub-subcontractor. Format for this affidavit can be provided to the contractor if necessary.

## **ENERGY EFFICIENT, RECYCLING, AND WASTE REDUCTION PURCHASING POLICY**

Policy #R-2015-08 includes the following language:

The Rockdale County Board of Commissioners only purchases energy star rated equipment and appliances that are economically responsible and reduce resource consumption and waste within federal, state, and local laws. The County will only purchase recycled copy, computer, and fax paper with at least 30 percent recycled content.

A copy of the policy may be viewed and downloaded by visiting the website at [www.rockdalecountyga.gov](http://www.rockdalecountyga.gov), under Bid Opportunities, and scrolling down to the bottom of the page.

## **INFORMATION TECHNOLOGY DISCLOSURES**

This section is intended to obtain a full disclosure from the responder of all requirements related to the use of Information Technology for the successful implementation and operational readiness of the proposed solution. This disclosure should include all computer hardware, software, and network connectivity requirements that are needed.

Software that provides built-in data archiving mechanisms for all documents and files, and that can also be programmed to reflect State-defined retention schedules will receive preference.

Information must include:

- Point of Contact for Technical follow up (Name, title, email address, phone number)
- System Hosting (Cloud-based or Rockdale County Data Center)
- Compute requirements (server, workstations, field devices – Mfg and Model)
- Storage requirements (Mfg and Model, estimated 1<sup>st</sup> year requirement, estimated rate of growth, total capacity in Gb required for initial 2 years)
- Platforms involved – list all (Windows, iOS, Android, Linux, etc.)
- Scanners, cameras, monitors, printers (Mfg and Model)
- Software requirements (utilities, DB scripts, applications, – Name and Developer)
- High-level diagram of the solution (Host, Storage, DBs, Applications, Interfaces to other applications)

The Total Solution Cost should include all I.T. costs, plus (2) years of Maintenance (Support) Costs of all applications and equipment.

Responses must contain Payment Terms based on project-defined deliverables that include Project Plan Approval, Installation, Training, and Testing – both Systems and End-to-End (E2E) testing.

All systems that have been designated as “live”, “in use”, or “in Production” must follow the Change Management Procedures of the County in order for any subsequent changes to be approved, scheduled, and implemented. These procedures call for testing and adequate proof of testing.

## **LIQUIDATED DAMAGES**

Time is of the essence and is an essential element of this Contract, and the Contractor shall pay to the County, not as a penalty, but as liquidated damages, the sum of \$100.00 for each calendar day that there is default of completing the Work within the time limit named herein. If the Contractor abandons the Contract before commencement of the Work or defaults in completion of all the Work after commencement thereof, the Contractor

shall be liable for such liquidated damages. These fixed liquidated damages are not established as a penalty but are calculated and agreed upon in advance by the County and the Contractor due to the uncertainty and impossibility of making a determination as to the actual and consequential damages incurred by the County and the general public of Rockdale County, Georgia as a result of the failure on the part of the Contractor to complete the Work on time. Such liquidated damages referred to herein are intended to be and are cumulative and shall be in addition to every other remedy now or hereafter enforceable at law, in equity, by statute, or under the Contract.

**GENERAL INFORMATION:****RECEIPT OF BID:**

No bids received after said time or at any place other than the time and place as stated in the notice shall be considered. No responsibility shall attach to Rockdale County for the premature opening of a bid not properly addressed and identified.

**WITHDRAWAL OF BID:**

A bidder may withdraw his bid before the bid due date, without prejudice to the bidder, by submitting a written request of withdrawal to the Rockdale County Procurement Office.

**REJECTION OF BID:**

Rockdale County may reject any and all bids and must reject a bid of any party who has been delinquent or unfaithful in any formal contract with Rockdale County. Also, the right is reserved to waive any irregularities or informalities in any bid in the proposing procedure. Rockdale County shall be the sole judge as to which bid is best, and in ascertaining this, will take into consideration the business integrity, financial resources, facilities for performing the work, and experience in similar operations of the various bidders.

**STATEMENT OF EXPERIENCE AND QUALIFICATIONS:**

The bidder may be required, upon request, to prove to the satisfaction of Rockdale County that he/she has the skill, experience, necessary facilities and ample financial resources to perform the contract(s) in a satisfactory manner and within the required time. If the available evidence of competency of any bidder is not satisfactory, the bid of such bidder may be rejected. The successful bidder is required to comply with and abide by all applicable federal and state laws in effect at the time the contract is awarded.

**NON-COLLUSION AFFIDAVIT:**

By submitting a bid, the bidder represents and warrants that such bid is genuine and not sham or collusive or made in the interest or in behalf of any person not therein named, that the bidder has not directly or indirectly induced or solicited any other bidder to put in a sham bid, or any other person, firm or corporation to refrain from proposing and that the bidder has not in any manner sought by collusion to secure to that bidder any advantage over any other bidder.

**INTEREST OF:**

By submitting a bid, the bidder represents and warrants that a Commissioner, Administrator, employee, nor any other person employed by Rockdale County has, in any manner, an interest, directly or indirectly, in the bid or in the contract which may be made under it, or in any expected profits to arise therefrom.

**DOCUMENTS DEEMED PART OF THE CONTRACT:**

The notice, invitation to bidders, general conditions, and instructions for bidders, special conditions, specifications, bid, and addenda, if any, will be deemed part of the contract.

**GOVERNING LAWS:**

This contract is made under and shall be governed and construed in accordance with the laws of the State of Georgia.

**ERRORS AND OMISSIONS:**

The vendor shall not take advantage of any errors or omissions in this Bid Request, and shall promptly notify Rockdale County of any omissions or errors found in this document.

**STANDARD INSTRUCTIONS:**

1. The instructions contained herein shall be construed as a part of any bid invitation and/or specifications issued by Rockdale County and must be followed by each bidder.
2. The written specifications contained in this bid shall not be changed or superseded except by written addendum from Rockdale County. Failure to comply with the written specifications for this bid may result in disqualification by Rockdale County.
3. All goods and materials shall be F.O.B. Destination Conyers, Georgia and no freight or postage charges will be paid by Rockdale County unless such charges are included in the bid price.
4. The following **ITB# 17-53** must be written clearly on the outside of each bid envelope in order to avoid prior opening in error.
5. All bids must be received and in-hand at bid due date and time. Each bidder assumes the responsibility for having his/her bid received at the designated time and place of bid due date. Bids received after the stated time and date may be subject to rejection without consideration, regardless of postmark. Rockdale County accepts no responsibility for mail delivery.
6. Unless otherwise stated, all bids submitted shall be valid and may not be withdrawn for a period of 120 days from the due date.
7. Each bid form submitted must include the name of the business, mailing address, the name, title and signature of the person submitting the bid. When submitting a bid to Rockdale County the first page of your bid package should be the bid form listing the price, delivery date, etc., unless the bid form is requested to be in a separate envelope.
8. Rockdale County reserves the right to accept a bid that is not the lowest price if, in the County's judgment, such bid is in the best interest of the County and the public. The County reserves the right to reject any and all bids.
9. Telephone, Email or Facsimile bids will not be accepted.
10. No sales tax will be charged on any orders except for contracts that include construction materials being purchased through a third party.

Federal I.D. #58-6000882  
Sales Tax Exempt #58-800068K
11. If applicable, completed questionnaires must be signed manually. Rockdale County reserves the right to accept or reject any bid on the basis of incomplete or inaccurate answers to the questionnaire.
12. If applicable, warranty information shall be provided.
13. Bidders shall state delivery time after receiving order.
14. Bidders shall identify any subcontractors, and include an explanation of the service or product that they may provide.

**BID SPECIFICATIONS:**

The specifications are as follows and on the attached pages:

**General:**

Purchase Price shall include delivery, F.O.B. Rockdale County, Conyers, GA 30012.

Include any brochures and specifications that pertain to the equipment that you are proposing.

List any options and the cost for the options separately.

Warranty information must be provided with the submittal of bid.

All manuals associated with the equipment must be delivered with the equipment at no additional charge to Rockdale County. Manuals included but not limited to: Electrical, Pump, Wiring, Mechanical, Operational, Parts, Service, etc.

**Technical:**

The attached specifications that are listed are "desired" specifications based on the current product knowledge of Rockdale County. The purpose of this Bid Request is to review and evaluate other similar alternatives that could meet the County's needs. Any reference to a particular vendor or their product specifications is for descriptive purposes only and will not alter the competitiveness of this Bid Request.

## BID FORM – ITB No. 17-53

Instructions: Complete all THREE parts of this bid form.

### PART I: Bid Summary

Complete the information below. If you wish to submit more than one brand, make a photocopy of this Bid Form.

1.	<b>Lump Sum</b>	\$
2.		\$
3.		\$
4.		\$
5.		\$
6.		\$

### PART II: Addenda Acknowledgements (if applicable)

Each vendor is responsible for determining that all addenda issued by the Rockdale County Finance Department – Purchasing Division have been received before submitting a bid.

Addenda	Date Vendor Received	Initials
"1"		
"2"		
"3"		
"4"		
"5"		
"6"		

### PART III: Vendor Information:

Vendor Name	
Address	
Telephone	
E-Mail	
Representative (print name)	
Signature of Representative	
Date Submitted	

**ROCKDALE COUNTY BOARD OF COMMISSIONERS**  
**NON-COLLUSION AFFIDAVIT OF VENDOR**

State of \_\_\_\_\_)

County of \_\_\_\_\_)

\_\_\_\_\_, being first duly sworn, deposes and says that:

(1) He/She is \_\_\_\_\_ (owner, partner officer, representative, or agent) of \_\_\_\_\_, the Vendor that has submitted the attached ITB;

(2) He/She is fully informed respecting the preparation and contents of the attached ITB and of all pertinent circumstances respecting such ITB;

(3) Such ITB is genuine and is not a collusive or sham ITB;

(4) Neither the said Vendor nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affidavit, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Vendor, firm or person to submit a collusive or sham ITB in connection with the Contract for which the attached ITB has been submitted or refrain from proposing in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Vendor, firm or person to fix the price or prices in the attached ITB or of any other Vendor, or to fix any overhead, profit or cost element of the proposing price or the proposing price of any other Vendor, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against Rockdale County or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached ITB are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Vendor or any of its agents, representatives, owners, employees, or parties in interest, including this affidavit.

\_\_\_\_\_  
(Signed)

\_\_\_\_\_  
(Title)

Subscribed and Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20

Name \_\_\_\_\_

Title \_\_\_\_\_

My commission expires (Date)

**ROCKDALE COUNTY BOARD OF COMMISSIONERS  
NON-COLLUSION AFFIDAVIT OF SUB-CONTRACTOR**

State of \_\_\_\_\_ )

County of \_\_\_\_\_ )

\_\_\_\_\_, being first duly sworn, deposes and says that:

(1) He/She is \_\_\_\_\_ (owner, partner officer, representative, or agent) of \_\_\_\_\_, the sub-contractor that has submitted the attached ITB;

(2) He/She is fully informed respecting the preparation and contents of the attached ITB and of all pertinent circumstances respecting such ITB;

(3) Such ITB is genuine and is not a collusive or sham ITB;

(4) Neither the said sub-contractor nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affidavit, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Vendor, firm or person to submit a collusive or sham ITB in connection with the Contract for which the attached ITB has been submitted or refrain from proposing in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Vendor, firm or person to fix the price or prices in the attached ITB or of any other Vendor, or to fix any overhead, profit or cost element of the proposing price or the proposing price of any other Vendor, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against Rockdale County or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached RFP are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the sub-contractor or any of its agents, representatives, owners, employees, or parties in interest, including this affidavit.

\_\_\_\_\_  
(Signed)

\_\_\_\_\_  
(Title)

Subscribed and Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

Name \_\_\_\_\_

Title \_\_\_\_\_

My commission expires (Date)

## Contractor Affidavit under O.C.G.A. §13-10-91(b)(1)

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. §13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services on behalf of (name of public employer) has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. §13-10-91. Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. §13-10-91(b). Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

\_\_\_\_\_  
Federal Work Authorization User Identification Number

\_\_\_\_\_  
Date of Authorization

\_\_\_\_\_  
Name of Contractor

\_\_\_\_\_  
Name of Project

\_\_\_\_\_  
Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on \_\_\_\_\_, \_\_\_\_, 201\_\_ in \_\_\_\_\_(city), \_\_\_\_\_(state).

\_\_\_\_\_  
Signature of Authorized Officer or Agent

\_\_\_\_\_  
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME  
ON THIS THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 201\_\_.

\_\_\_\_\_  
NOTARY PUBLIC  
My Commission Expires: \_\_\_\_\_

**Subcontractor Affidavit under O.C.G.A. § 13-10-91(b)(3)**

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract with (name of contractor) on behalf of (name of public employer) has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned subcontractor will continue to use the federal work authorization program throughout the contract period and the undersigned subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the subcontractor with the information required by O.C.G.A. § 13-10-91(b). Additionally, the undersigned subcontractor will forward notice of the receipt of an affidavit from a sub-subcontractor to the contractor within five business days of receipt. If the undersigned subcontractor receives notice that a sub-subcontractor has received an affidavit from any other contracted sub-subcontractor, the undersigned subcontractor must forward, within five business days of receipt, a copy of the notice to the contractor. Subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

\_\_\_\_\_  
Federal Work Authorization User Identification Number

\_\_\_\_\_  
Date of Authorization

\_\_\_\_\_  
Name of Subcontractor

\_\_\_\_\_  
Name of Project

\_\_\_\_\_  
Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on \_\_\_\_\_, \_\_\_\_, 201\_\_ in \_\_\_\_\_(city), \_\_\_\_\_(state).

\_\_\_\_\_  
Signature of Authorized Officer or Agent

\_\_\_\_\_  
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME  
ON THIS THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 201\_\_.

\_\_\_\_\_  
NOTARY PUBLIC  
My Commission Expires: \_\_\_\_\_

## Sub-subcontractor Affidavit under O.C.G.A. §13-10-91(b)(4)

By executing this affidavit, the undersigned sub-subcontractor verifies its compliance with O.C.G.A. §13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract for (name of subcontractor or sub-subcontractor with whom such sub-subcontractor has privity of contract) and (name of contractor) on behalf of (name of public employer) has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. §13-10-91. Furthermore, the undersigned sub-subcontractor will continue to use the federal work authorization program throughout the contract period and the undersigned sub-subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the sub-subcontractor with the information required by O.C.G.A. §13-10-91(b). The undersigned sub-subcontractor shall submit, at the time of such contract, this affidavit to (name of subcontractor or sub-subcontractor with whom such sub-subcontractor has privity of contract). Additionally, the undersigned sub-subcontractor will forward notice of the receipt of any affidavit from a sub-subcontractor to (name of subcontractor or sub-subcontractor with whom such sub-subcontractor has privity of contract). Sub-subcontractors hereby attest that its federal work authorization user identification number and date of authorization are as follows:

\_\_\_\_\_  
Federal Work Authorization User Identification Number

\_\_\_\_\_  
Date of Authorization

\_\_\_\_\_  
Name of Sub-Subcontractor

\_\_\_\_\_  
Name of Project

\_\_\_\_\_  
Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on \_\_\_\_\_, \_\_\_\_, 201\_\_ in \_\_\_\_\_(city), \_\_\_\_\_(state).

\_\_\_\_\_  
Signature of Authorized Officer or Agent

\_\_\_\_\_  
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME  
ON THIS THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 201\_\_.

\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires: \_\_\_\_\_

### Affidavit Verifying Status for County Public Benefit Application

By executing this affidavit under oath, as an applicant for the award of a contract with Rockdale, County Georgia, I \_\_\_\_\_ . [Name of natural person applying on behalf of individual, business, corporation, partnership, or other private entity] am stating the following as required by O.C.G.A. Section 50-36-1:

1) \_\_\_\_\_ I am a United States citizen

**OR**

2) \_\_\_\_\_ I am a legal permanent resident 18 years of age or older or I am an otherwise qualified alien or non-immigrant under the Federal Immigration and Nationality Act 18 years of age or older and lawfully present in the United States.\*

In making the above representation under oath, I understand that any person who knowingly and willfully makes a false, fictitious, or fraudulent statement or representation in an affidavit shall be guilty of a violation of Code Section 16-10-20 of the Official Code of Georgia.

\_\_\_\_\_  
Signature of Applicant:

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name:

\* \_\_\_\_\_  
Alien Registration number for non-citizens

SUBSCRIBED AND SWORN  
BEFORE ME ON THIS THE  
\_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public  
My commission Expires:

**\*Note:** O.C.G.A. § 50-36-1(e)(2) requires that aliens under the federal Immigration and Nationality Act, Title 8 U.S.C., as amended, provide their registration number. Because legal permanent residents are included in the federal definition of "alien", legal permanent residents must also provide their alien registration number. Qualified aliens that do not have an alien registration number may supply another identifying number below.

\_\_\_\_\_

## CONTRACTOR'S QUALIFICATION STATEMENT AND QUESTIONNAIRE

**NAME OF PROPOSED CONTRACTOR:** \_\_\_\_\_

### **I. INSTRUCTIONS**

- A. All questions are to be answered in full. If copies of other documents will answer the question completely, they may be attached and clearly labeled. If additional space is needed, additional pages may be attached and clearly labeled.
- B. The owner, Rockdale County, Georgia, its agents and representatives, shall be entitled to contact each and every reference listed in response to this questionnaire, and each entity referenced in any response to any question in this questionnaire. By completing this questionnaire, the contractor expressly agrees that any information concerning the contractor in possession of said entities and references may be made available to the owner.
- C. Only complete and accurate information shall be provided by the contractor. The contractor hereby warrants that, to the best of its knowledge and belief, the responses contained herein are true, accurate, and complete. The contractor also acknowledges that the owner is relying on the truth and accuracy of the responses contained herein. If it is later discovered that any material information given in response to a question was provided by the contractor, knowing it was false, it shall constitute grounds for immediate termination or rescission by the owner of any subsequent agreement between the owner and the contractor. The owner shall also have and retain any other remedies provided by law.
- D. The completed form shall be submitted with contractor's proposals.
- E. This form, its completion by the contractor, and its use by the contractor, and its use by the owner, shall not give rise to any liability on the part of the owner to the contractor or any third party or person.

### **II. GENERAL BACKGROUND**

- A. Current address of contractor: \_\_\_\_\_  
\_\_\_\_\_
- B. Previous Name or address of contractor: \_\_\_\_\_  
\_\_\_\_\_
- C. Current president or CEO and years in position: \_\_\_\_\_
- D. Number of permanent employees: \_\_\_\_\_
- E. Name and address of affiliated companies: \_\_\_\_\_  
\_\_\_\_\_

### **III. FINANCIAL STATUS**

- A. Please attach financial statements for the past three years for which they are complete. If such statements are not available, please furnish the following information:

1. LAST COMPLETE FISCAL YEAR:

- A. Revenues (Gross) \_\_\_\_\_
- B. Expenditures (Gross) \_\_\_\_\_
- C. Overhead & Admin (Gross) \_\_\_\_\_
- D. Profit (Gross) \_\_\_\_\_

2. YEAR PRIOR TO "1" ABOVE:

- A. Revenues (Gross) \_\_\_\_\_
- B. Expenditures (Gross) \_\_\_\_\_
- C. Overhead & Admin (Gross) \_\_\_\_\_
- D. Profit (Gross) \_\_\_\_\_

3. YEAR PRIOR TO "2" ABOVE:

- A. Revenues (Gross) \_\_\_\_\_
- B. Expenditures (Gross) \_\_\_\_\_
- C. Overhead & Admin (Gross) \_\_\_\_\_
- D. Profit (Gross) \_\_\_\_\_

**B. BANKRUPTCIES**

1. Has the Contractor, or any of its parents or subsidiaries, ever had a Bankruptcy Petition filed in its name, voluntarily or involuntarily? (If yes, specify date, circumstances, and resolution).

\_\_\_\_\_  
 \_\_\_\_\_

2. Has any Majority Shareholder ever had a Bankruptcy Petition filed in his/her name, voluntarily or involuntarily? (If yes, specify date, circumstances, and resolution).

\_\_\_\_\_  
 \_\_\_\_\_

**C. BONDING**

1. What is the Contractor's current bonding capacity? \_\_\_\_\_

2. What is the value of the Contractor's work currently under contract? \_\_\_\_\_

**IV. COMPANY EXPERIENCE – SIMILAR PROJECTS**

A. List three projects of reasonably similar nature, scope, and duration performed by your company in the last five years, specifying, where possible, the name and last known address of each owner of those projects:

**Reference/Project #1:**

Name and Address:

\_\_\_\_\_  
 \_\_\_\_\_

Date of Construction/Project:

---

---

Type of Construction/Project:

---

Contract Price:

---

Owner contact info:

---

---

---

Architect/Engineer contact info:  
(if applicable)

---

---

---

**Reference/Project #2:**

Name and Address:

---

---

---

Date of Construction/Project:

---

Type of Construction/Project:

---

Contract Price:

---

Owner contact info:

---

---

---

Architect/Engineer contact info:  
(if applicable)

---

---

---

**Reference/Project #3:**

Name and Address:

---

---

---

Date of Construction/Project:

---

Type of Construction/Project:

---

Contract Price:

---

Owner contact info:

---

Architect/Engineer contact info:  
(if applicable)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**V. ARBITRATIONS, LITIGATIONS, AND OTHER PROCEEDINGS**

Has your company been involved in any construction arbitration demands filed by, or against, you in the last five years? \_\_\_\_\_

Has your company been involved in any construction-related lawsuits (other than labor or personal injury litigation) filed by, or against, you in the last five years? \_\_\_\_\_

Has your company been involved in any lawsuits, proceedings, or hearings initiated by the National Labor Relations Board or similar state agency in the past seven years? \_\_\_\_\_

Has your company been involved in any lawsuits, proceedings, or hearings initiated by the Occupational Safety and Health Administration concerning the project safety practices of the Contractor in the last seven years? \_\_\_\_\_

Has your company be involved in any lawsuits, proceedings, or hearings initiated by the Internal Revenue Service, or any state revenue department, concerning the tax liability of the Contractor (other than audits) in the last seven years? \_\_\_\_\_

Have any criminal proceedings or investigations been brought against the Contractor in the last ten years? \_\_\_\_\_

If you answered yes to any of the questions above, please identify the nature of the claim, the amount in dispute, the parties, and the ultimate resolution of the proceeding (attach documentation if needed):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**VI. COMMENTS**

Please list any additional information that you believe would assist the Owner in evaluating the possibility of using the Contractor on this Project. You may attach such additional information as an Exhibit to this Statement and Questionnaire.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I certify to the Owner that the information and responses provided on this Questionnaire are true, accurate and complete. The Owner, or its designated representative, may contact any entity or reference listed in this Questionnaire. Each entity or reference may make any information concerning the Contractor available to the Owner, or its designated representative.

Contractor:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title

Sworn to and subscribed before me  
This \_\_\_\_\_ day of \_\_\_\_\_

\_\_\_\_\_  
Signature

Notary Public

My Commission Expires:

# Work Order (Sample)

## ID / IQ CONCRETE WORK UNIT PRICE CONTRACT

**Rockdale County Contract Number: C-2017-**

Date: \_\_\_\_\_ Project Name: \_\_\_\_\_

Work Order No.: \_\_\_\_\_ Work Order Amount: \$ \_\_\_\_\_

### SCOPE OF SERVICES:

Set forth in the attached scope for \_\_\_\_\_

### SCHEDULE:

Time to complete performance of the Service is the date for completion.

### COMPENSATION:

Owner's payment obligation under this Work Order is as follows:

The Firm Fixed Price for the Services is \_\_\_\_\_ Dollars (\$ \_\_\_\_\_).

The Estimated Cost for the Services is \_\_\_\_\_ Dollars (\$ \_\_\_\_\_). Applicable billing rates are set forth in the contract documents or as follows:

Labor Category(ies)

Rate

**OTHER:** {Insert info here}

By the signature below, the parties acknowledge that they shall be bound by the terms of this Work Order, including the attachments hereto, and that the undersigned are authorized to enter into this Work Order.

Rockdale County, Georgia

Date: \_\_\_\_\_

By: \_\_\_\_\_

(Signature)

Name: \_\_\_\_\_

(Print Name)

Title: \_\_\_\_\_

Contractor.

Date: \_\_\_\_\_

By: \_\_\_\_\_

(Signature)

Name: \_\_\_\_\_

(Print Name)

Title: \_\_\_\_\_

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## **INTENT OF SPECIFICATIONS**

It is the intent of these specifications to clearly describe the furnishing and delivery to the Purchaser, a complete apparatus equipped as specified. The primary objective of these specifications is to obtain the most acceptable apparatus for service in the Fire Department. These specifications cover specific requirements as to the type of construction and tests the apparatus must conform, together with certain details as to finish, material preferences, equipment and appliances with which the successful bidder must conform.

The design of the apparatus must embody the latest approved automotive design practices. The workmanship must be of the highest quality in its respective field. Special consideration shall be given to service access to areas needing periodic maintenance, ease of operation, and symmetrical proportions. Construction must be heavy-duty and ample safety factors must be provided to carry loads as specified. The construction method employed will be in such a manner as to allow ready removal of any component for service or repair.

The apparatus shall conform to the National Fire Protection Association Standard for Automotive Fire Apparatus, number 1901, in its most recent edition, unless otherwise specified in this document. Only the specified firefighting support equipment listed in these specifications shall be provided.

The apparatus shall further conform to all Federal Motor Vehicle Safety Standards. **No exception.**

Each bidder shall furnish satisfactory evidence of their ability to design, engineer, and construct the apparatus specified and shall state the location of the factory producing the apparatus. They shall also substantiate they are in a position to render prompt and proper service and to furnish replacement parts for the apparatus.

Each bid must be accompanied by a set of detailed contractor's specifications consisting of a detailed description of the apparatus and equipment proposed. All bid proposal specifications must be in the same sequence as the advertised specification for ease of comparison. These specifications shall include size, location, type, and model of all component parts being furnished. Detailed information shall be provided on the materials used to construct all facets of the apparatus body. Any bidder who fails to submit detailed construction specifications, or who photo copies and submits these specifications as their own construction details will be considered non-responsive and shall render their proposal ineligible for award. **No exception.**

It shall be the responsibility of the bidder to assure that their proposal arrives at the location and time indicated. Late proposals, telegrams, facsimile, or telephone bids will not be considered. **No exception.**

## **STATEMENT OF EXCEPTIONS TO NFPA 1901**

If, at the time of delivery, the apparatus manufacturer is not in compliance, a statement of exceptions must be provided as follows:

- The specific standard affected.

- A statement describing why the manufacturer is not in compliance.
- A description of the remedy, and who the responsible party is.

The document must be signed by an officer of the company, and an authorized agent of the purchaser. NO EXCEPTIONS

### **DELIVERY REQUIREMENTS**

The bidder shall state the time required for delivery of the completed unit on the proposal page. The completed unit shall be delivered to the purchaser with full instructions and training provided to Fire Department personnel on operation, care and maintenance of apparatus at the purchaser's location.

The apparatus shall be completely equipped as per these specifications upon arrival and on completion of the required tests shall be ready for immediate service in the fire department of the purchaser. Any and all alterations required at the scene of delivery to comply with these specifications must be done at the contractor's expense.

### **QUALITY AND WORKMANSHIP**

The design of the apparatus must embody the latest approved automotive engineering practices.

The workmanship must be the highest quality in its respective field. Special consideration shall be given to the following points: Accessibility to various areas requiring periodic maintenance, ease of operation (including both pumping and driving) and symmetrical proportions.

Construction must be rugged and ample safety factors must be provided to carry loads as specified and to meet both on and off road requirements and speed as set forth under "Performance Test and Requirements."

### **PERFORMANCE TESTS AND REQUIREMENTS**

A road test shall be documented with the apparatus fully loaded and a continuous run of ten (10) miles or more shall be made under all driving conditions, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts, and rear axles shall run quietly and free from abnormal vibration or noise throughout the operating range of the apparatus. The apparatus, when loaded, shall be approximately 66% on the rear axle. The successful bidder shall furnish a weight certification showing weight on the front and rear axle, and the total weight of the completed apparatus at the time of delivery.

- a. The apparatus must be capable of accelerating to 30 MPH from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed engine RPM.
- b. The service brakes shall be capable of stopping the fully loaded vehicle within 35 feet from a speed of 25

MPH on a level concrete highway.

c. The apparatus, fully loaded, shall be capable of obtaining a speed of 50 MPH on a level highway with the engine not exceeding 95% of its governed RPM (fullload).

d. The apparatus shall be tested and approved by a qualified testing agency in accordance with their standard practices for pumping engines.

e. The contractor shall furnish copies of the Pump Manufacturer's Certification of Hydrostatic Test (if applicable), the Engine Manufacturer's current Certified Brake Horsepower Curve and the Manufacturer's Record of Construction Details.

### **FAILURE TO MEET TESTS**

In the event the apparatus fails to meet the test requirements of these specifications on the first trial, a second trial may be made at the option of the bidder within thirty (30) days of the date of the first trials. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Permission to keep and/or store the apparatus in any building owned or occupied by the purchaser shall not constitute acceptance of same.

### **EXCEPTIONS TO SPECIFICATIONS**

The following specifications shall be strictly adhered to. **Exceptions shall be considered if they are deemed equal to or superior to the specifications, provided they are fully explained on a separate page entitled "EXCEPTIONS TO SPECIFICATIONS."** Exceptions shall be listed by page and paragraph.

**Failure to denote exceptions in the above manner shall result in immediate rejection of the proposal. In addition a general statement taking "TOTAL EXCEPTION" to the specifications shall result in immediate rejection of bid.**

### **GENERAL CONSTRUCTION**

The apparatus shall be designed and the equipment mounted with due consideration to distribution of load between the front and rear axles so that all specified equipment, including filled water tank, a full complement of personnel and fire hose shall be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the International Association of Fire Chiefs and National Fire Association (or American Insurance Association). Certified Laboratories certificate shall be submitted by the manufacturer. Weight of apparatus shall meet all federal axle load laws.

### **PURCHASER RIGHTS**

The Purchaser reserves the right to accept or reject any bid. The purchaser also reserves the right to award in their best interest and reserves the right to waive any formalities.

## **U.S.A. MANUFACTURER**

The entire apparatus shall be assembled within the borders of the Continental United States to insure more readily available parts (without added costs and delays caused by tariffs and customs) and service, as well as protecting the purchaser should legal action ever be required.

## **MANUFACTURER'S EXPERIENCE**

Each manufacturer shall have been in business making similar apparatus for a minimum of ten (10) years.

## **ELIMINATION OF DIVIDED RESPONSIBILITY**

It is required that each bidder produce both the chassis and complete apparatus. To eliminate divided responsibility and service, the chassis and body must be manufactured by the same Company. Manufacturer shall state the number of years the Company has been producing their own chassis and body. Manufacturer shall state compliance with the paragraph. NO EXCEPTIONS.

## **FAMA COMPLIANCE**

Manufacturer must be a current member of the Fire Apparatus Manufacturer's Association.

## **SERVICE REQUIREMENTS**

It is required that the manufacturer operate a service facility within 175 miles of Conyers, Georgia. Each bidder must state the address and miles from Conyers, Georgia and capabilities of their nearest service center. Each bidder shall supply, with their proposal, detailed information on the bidder's ability to perform routine and emergency service on the apparatus after delivery. Detailed information shall be provided on service facilities, personnel, service vehicles, and the type and nature of repair work the bidder is able to provide. Bidder shall state the number of miles from the Purchaser's facility to the nearest fully staffed repair facility operated by the bidder. It is the intent of the Purchaser to assure that parts and service are readily available for the equipment specified. Service capabilities will be one of the criteria for award of this contract.

## **FUTURE PURCHASES AND "TAG ON" ORDERS**

The successful bidder shall accept "tag on" orders to this bid proposal for a period not to exceed three (3) years from the bid opening date. The successful bidder shall honor the priced quoted for a period of 120 days from the date of the bid opening. For the remainder of the year (245 days), the bidder shall agree to an economic price escalation of 1.5%. Future years beyond the initial first year shall have an economic price escalation of 3% as a normal course of business. Items outside the normal course shall include changes legislated by Federal, State or Local Governments that impact the cost to manufacture the truck. In addition, changes to NFPA 1901 that require additional cost shall be borne by the purchaser. These may include, but

are not limited to changes that affect the major vendors of the fire apparatus industry such as pump manufacturer, seat manufacturer, electrical power supplies (generators) and power-train (engine & transmission).

The bidder shall honor the "tag on" order from any municipality within the United States or Canada.

### **CONFIGURATION OF "TAG ON" ORDERS**

In many cases the entity wishing to "tag on" to an existing order may require their apparatus to be configured differently from the original proposed apparatus. The bidder shall allow changes to the configuration within good engineering guidelines. The changes will be subject to current pricing in effect at the time of order. For example, a different engine may be required. This shall be considered a "change order" and the purchase price shall be adjusted up or down depending on the current option price.

### **BID SEQUENCE**

**For ease of evaluation, all bid proposals shall be submitted in the same order as the fire department's specification. NO EXCEPTIONS.**

### **PROPOSAL DRAWING**

A general layout drawing depicting the apparatus layout and appearance shall be provided with the bid. The drawing shall consist of left side, right side, frontal, rear and top elevation views. Apparatus equipped with a fire pump, shall have a general layout view of the pump operators panel scaled the same as the elevation views. The drawing shall be a depiction of the actual apparatus proposed and not of a generic similar product.

### **APPROVAL DRAWING**

After the award of bid and pre-construction conference, a detailed layout drawing depicting the apparatus layout and appearance including any changes agreed upon shall be provided for customer review and signature. The drawing will become part of the contract documents. The drawing shall consist of left side, right side, frontal, rear and top elevation views. Apparatus equipped with a fire pump, shall have a general layout view of the pump operators panel scaled the same as the elevation views.

### **INSPECTION TRIPS**

There shall be three trips to the manufacture's facility. 1. Preconstruction 2. Midterm (approximately 50%) 3. Final inspection. The bidder shall provide all meals, lodging and transportation for three (3) people from Rockdale County Fire & Rescue.

### **SEVERE DUTY CUSTOM FIRETRUCK CHASSIS**

A Severe Duty Cab and Chassis system specifically designed for the fire service shall be provided. The chassis shall be manufactured in the factory of the bidder. The chassis shall be designed and manufactured for heavy duty service with adequate strength and capacity of all components for the intended load to be sustained and the type of service required.

There shall be no divided responsibility in the production of the apparatus. The apparatus shall be warranted by the OEM. NO EXCEPTION

### **WHEELBASE**

The approximate wheelbase should be 176".

### **DOUBLE FRAME RAILS**

The chassis frame shall be design utilizing industry accepted engineering best practices. The frame shall be specifically designed for fire apparatus use.

A lifetime warranty shall be provided, per manufacturer's written statement.

### **FRONT TOW EYES, BELOW BUMPER**

There shall be two front tow eyes with 3" diameter holes attached directly to the chassis frame, accessible below the front bumper.

### **TOW EYES, PAINTED FINISH**

The front tow eyes shall be painted to match the color of the chassis frame.

### **REAR TOW EYES**

There shall be two tow eyes attached directly to the chassis frame rail and shall be chromate acid etched for superior corrosion resistance and painted to match the chassis.

## **STEERING**

The cramp angle shall be approximately 45 degrees providing very tight turningability.

## **DRIVELINE**

The driveline shall consist of Spicer 1710 series dual grease fitting universal joints with "Half-Round" end yokes. The drive shaft shall be built with a heavy-duty steel tube 4.095" outside diameter x .180 wall thickness. The shafts shall be dynamically balanced prior to installation into the chassis. A splined slip joint shall be provided in each shaft assembly. Universal joints shall be extended life. There shall be two (2) Zerk fittings in each universal joint assembly so the joint can be greased without turning the shaft.

## **ENGINE**

Cummins Diesel L 9, 450 H.P. @ 2100 R.P.M., 1250 ft. lb. Torque @ 1400 R.P.M.

Displacement: 8.9 liter displacement.

Cylinders: 6

Bore: 4.49" (114mm)

Stroke: 5.69" (145mm)

## **AIR COMPRESSOR**

The air compressor shall be an 18.7 CFM engine driven Wabco.

## **LUBE OIL**

Lube oil cooler, and a full flow lube oil filter shall be provided.

## **STARTER**

A 12-volt starter shall be provided, controlled by a switch on the left lower cab dash.

## **EXHAUST SYSTEM**

The engine exhaust system shall include the following components:

Diesel Particulate Filter (DPF)

Diesel Oxidation Catalyst (DOC)

Diesel Exhaust Fluid (DEF)

Selective Catalytic Reduction Filter (SCR)

The SCR catalyst utilizes the DEF fluid, which consists of urea and purified water, to convert NOx into nitrogen and water. This will meet or exceed 2017 EPA emissions requirements.

The engine exhaust system shall be horizontal design constructed from heavy-duty truck components. The exhaust tubing shall be stainless steel to the DPF through to the SCR aluminized steel from the SCR to the exhaust tip. A heavy duty stainless steel bellows tube shall be used to isolate the exhaust system from the engine. The system shall be equipped with single canister consisting of a Diesel Oxidation Catalyst (DOC) and a Diesel Particulate Filter (DPF), and shall be mounted under the right side frame rail, meeting the specific engine manufacturer's specifications and current emission level requirements. The outlet shall be directed to the forward side of the rear wheels, exiting the right side with a heavy duty heat diffuser. The heat diffuser shall prevent the exhaust temperature from exceeding 851 deg. F during a regeneration cycle. A heat- absorbing sleeve shall be provided on the exhaust pipe in the engine compartment area to reduce the heat, protect the alternator, and also to protect personnel while servicing the engine compartment. Must meet EPA standards.

## **AFTER TREATMENT SYSTEM**

To meet EPA requirements of Particulate output, a DPF (Diesel Particulate Filter) is used. To meet EPA requirements of Nitrous Oxide output an SCR (Selective Catalytic Reduction) system utilizing DEF (Diesel Exhaust Fluid) is used.

## **ON-BOARD DIAGNOSTIC (OBD) SYSTEM**

The engine shall be equipped with an on-board diagnostic (OBD) system which shall monitor emissions-related engine systems and components and alert the operator of any malfunctions. The OBD system is designed to further enhance the engine and operating system by providing early detection of emission-related faults. The engine control unit (ECU) will manage smart sensors located throughout the engine and after-treatment system. The system shall monitor component verification and sensor operation. There shall be warning lights located in the dash instrument panel to alert the operator of a malfunction. A data port shall be provided under the driver's side dash for the purpose of code reading and troubleshooting. All communication shall be provided through the J1939 data link.

## **ENGINE WARRANTY**

The engine shall have a five (5) year or 100,000 mile warranty and approval by Cummins Diesel for Full Engine Coverage Plan (RVF) – which is their most complete engine coverage plan, which includes EGR components installation in the chassis. There shall be no deductible for the first two years. A one hundred dollar deductible shall apply for service beginning the third year.

## **AIR CLEANER/INTAKE**

The engine air intake and filter shall be designed in accordance with the engine manufacturer's recommendations. It shall be 99.9% effective in removing airborne contaminants when tested per the industry standard SAE J726 procedure and offer a dirt holding capacity of at least 3.0 gm/cfm of fine dust (tested per SAE J726) offering superior engine protection.

The air filter shall be located at the front of the apparatus and shall be at least 66" above the ground, to allow fording deep water in an emergency situation.

An ember separator shall be provided in the engine air intake meeting, the requirements of NFPA 1901.

An Air Restriction warning light shall be provided and located on the cab dash.

## **PRIMARY FUEL FILTER/WATER SEPARATOR**

A Cummins approved Fleetguard FS1065 fuel filter/water separator shall be remote mounted to the chassis frame rail.

## **SECONDARY FUEL FILTER**

A Cummins approved Fleetguard FF63009 fuel filter will be remote mounted to the rear of the engine.

## **TRANSMISSION**

The chassis shall be equipped with a Generation 5 Allison EVS3000 six (6) speed automatic transmission. It shall be programmed five (5) speed, sixth gear locked out, for fire apparatus vocation, in concert with the specified engine.

The transmission is communicated on the J-1939 through the communication port. The fifth gear shall be an overdrive ratio, permitting the vehicle to reach its top speed at the engine's governed speed. The dipstick is dipped in a rubber coating for ease in checking oil level when hot.

The chassis to transmission wiring harness shall utilize Metri-Pack 280 connectors with triple lip silicone seals and clip-type positive seal connections to protect electrical connections from contamination without the use of coatings.

Ratings: Max Input (HP) 450

Max Input (Torque) 1255 (lb ft)

Max Turbine (Torque) 1700 (lb ft)

Mechanical Ratios: 1<sup>st</sup> - 3.49:1

2<sup>nd</sup> - 1.86:1

3<sup>rd</sup> - 1.41:1

4<sup>th</sup> - 1.00:1

5<sup>th</sup> - 0.75:1

Reverse - -5.03:1

## **AUTOMATIC SHIFT TO NEUTRAL**

The transmission shall be programmed to comply with NFPA 1901 and automatically shift to neutral upon application of the parking brake.

## **ENGINE BRAKE**

One (1) Jacobs engine brake shall be installed to assist in slowing and controlling the vehicle as required by NFPA 1901 for vehicles with gross vehicle weight ratings (GVWR) of 36,000 lbs. or greater. An on-off control switch and a high-medium-low selector switch shall be mounted in the cab accessible to the driver.

When activated, the Jacobs engine brake shall cut off the flow of fuel to the cylinders and alter the timing of the exhaust valves. This shall transform the engine into a high-pressure air compressor, driven by the wheels, and the horsepower absorbed by the engine in this mode shall slow the vehicle. The selector switch allows the driver to select the amount of retarding power.

When the on-off switch is in the "on" position, the engine brake shall be automatically applied whenever the accelerator is in the idle position and the automatic transmission is in the lock-up mode. If the accelerator is depressed or if the on-off switch is placed in the "off" position, the engine brake shall immediately release and allow the engine to return to its normal function.

### **TRANSMISSION COOLER**

The apparatus transmission shall be equipped with a Liquid-To-Liquid remote mounted cooler with aluminum internal components. The cooler shall be encased in aluminum housing and mounted for accessibility and ease of service.

### **TRANSMISSION FLUID**

The transmission shall come filled with Castrol TranSynd™ Synthetic Transmission Fluid or approved equal meeting the Allison TES-295 specification. NO EXCEPTION.

### **TRANSMISSION SHIFTER**

An Allison "Touch Pad" shift selector shall be mounted to the right of the driver on the engine cover accessible to the driver. The shift position indicator shall be indirectly lit for nighttime operation.

### **COOLING SYSTEM**

The cooling system shall be designed to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the engine, transmission manufacturer's requirements and EPA regulations.

The complete cooling system shall be mounted in a manner to isolate the system from vibration and stress. The individual cores shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress to the adjoining core(s).

The cooling system shall be comprised of a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components shall include a surge tank, a charge air cooler, bolted to the top of the radiator to maximize cooling, recirculation shields, a shroud, a fan, and required tubing. All components shall consist of an individually sealed system.

## **RADIATOR**

The radiator shall be a cross-flow design constructed completely of aluminum with welded side tanks. The radiator shall be bolted to the bottom of the charge air cooler to allow a single depth core, thus allowing a more efficient and serviceable cooling system.

The radiator shall be equipped with a drain cock to drain the coolant for serviceability. The drain cock shall be located at the lowest point of the aluminum cooling system to maximize draining of the system.

## **CHARGE AIR COOLER**

The charge air cooler shall be of a cross-flow design and constructed completely of aluminum with extruded tanks. The charge air cooler shall be bolted to the top of the radiator to allow a single depth core.

## **COOLANT**

The cooling system shall be filled with a 50/50 mix. The coolant makeup shall contain ethylene glycol and de-ionized water to prevent the coolant from freezing to a temperature of  $-34$  degrees F.

## **HOSES & CLAMPS**

High quality hoses shall be provided for all engine coolant lines.

All radiator hose clamps shall be spring loaded stainless steel constant torque hose clamps for all main hose connections to prevent leaks. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance.

## **FAN**

The engine cooling system shall incorporate a heavy-duty composite fan insuring maximum air flow and dynamic balance. It shall provide the highest cooling efficiently while producing the lowest amount of noise. This robust yet light-weight fan results in less wear and stress on motors and bearings.

A shroud and recirculation shield system shall be used to ensure air that has passed through the radiator is not drawn through again.

The fan tip to radiator core clearance shall be kept at a minimal distance to increase the efficiency of the fan and reduce fan blast noise.

## **FAN CLUTCH**

A fan clutch shall be provided that shall allow the cooling fan to operate only when needed. The fan shall remain continuously activated when the truck is placed in pump gear.

## **SURGE TANK**

The cooling system shall be equipped with an aluminum surge tank. The surge tank shall house a low coolant probe and sight glass to monitor the coolant level. Low coolant shall be alarmed with the check engine light. The surge tank shall be equipped with a dual seal cap that meets the engine manufacturer's pressure requirements, and system design requirements.

The tank shall allow for expansion and to remove entrained air from the system. There shall also be an extended fill neck to prevent system overflow and encroachment of expansion air space. Baffling shall be installed in the tank to prevent agitated coolant from being drawn into the engine cooling system.

## **FUEL TANK**

The chassis shall be equipped with a 65-gallon fuel tank. The fuel tank shall be certified to meet FMVSS 393.67 tests. It shall also maintain engine manufacturer's recommended expansion room of 5%.

The tank shall be designed to be easily removed. The tank shall be equipped with anti-surge baffles.

The fuel lines shall be nylon braid reinforced fuel hose with brass fittings. The lines shall be carefully routed along the inside of the frame rails. All fuel lines are covered in high temperature rated split plastic loom. Single suction and return fuel lines shall be provided.

The fuel tank shall be mounted in a saddle with a barrier between the tank and the saddle. The bottom of the fuel tank shall contain a 1/2" drain plug.

## **FUEL FILL**

The fuel tank shall be equipped with a 2-1/4" filler neck assembly with a 3/4" vent located on the driver's side of the truck. A fuel fill cap attached with a lanyard shall be provided.

## **FUEL COOLER**

Installed on the apparatus fuel system shall be an Air-To-Liquid aluminum fuel cooler. The fuel cooler shall be located in the lowest module of the cooling system.

### **DIESEL EXHAUST FLUID TANK**

The exhaust system shall include a molded cross linked polyethylene tank. The tank shall have a capacity of 5 usable gallons and shall be mounted on the left side of the chassis frame.

The DEF tank fill neck shall accept only a 19mm dispensing nozzle versus the standard 22mm diesel fuel dispensing nozzle to prevent cross contamination. The DEF tank cap shall be blue in color to further prevent cross contamination.

A placard shall accompany fill location noting DEF specifications.

### **ALTERNATOR**

A 360 ampere Niehoff alternator shall be provided. The alternator shall be serpentine belt driven.

A low voltage alarm, audible and visual, shall be provided.

### **BATTERIES**

The battery system shall be a single system consisting of five negative ground, 12 volt Group 31 MHD batteries, cranking performance of 950 CCA each with total of 4750 amps, 185 minute reserve capacity with 25 ampere draw at 80 degrees Fahrenheit. Warranty shall be accepted nationwide.

The batteries shall be installed in a vented battery box with a removable cover to protect the batteries from road dirt and moisture. The battery cover shall be secured with four "T" handle rubber hold downs to provide easy access for maintenance and inspection. Stainless steel hardware will be used for installation. The batteries are to be placed on dri-deck and secured with a fiberglass hold down. The batteries shall be wired directly to starter motor and alternator.

The battery cables shall be appropriate gauge for required amperage draw. Battery cable terminals shall be soldering dipped, color-coded and labeled on heat shrink tubing with a color-coded rubber boot protecting the terminals from corrosion.

### **BATTERY JUMPER TERMINAL**

There shall be one set (two studs) of battery jumper terminals located by the battery box under the cab. The terminals shall have plastic color-coded covers. Each terminal shall be tagged to indicate positive/negative.

### **120V SHORELINE INLET & AUTO EJECT**

The apparatus shall be equipped with a 120V shoreline inlet to provide power to the battery charger from an external source. The inlet shall include a Kussmaul 091-55-120 Super 20 Auto Eject featuring a 12 volt solenoid which shall eject the shoreline cord away from vehicle path upon sensing engine start. After ejection, a weatherproof cover shall snap into position over inlet.

A 20 amp connector shall be provided and shipped loose for connecting the external shoreline cord to the inlet.

### **120-VOLT OUTLET OFF SHORELINE**

Two (2) 120-volt outlets with weatherproof cover shall be provided. All 120 volt wiring shall be installed in liquid tight conduit. The outlets shall be wired off the shoreline connection.

(1) Outlet shall be mounted in the driver side EMS compartment.

(1) Outlet shall be mounted in the officer side EMS compartment.

Final details shall be discussed at the pre-construction conference.

### **BATTERY CHARGER and AIR COMPRESSOR**

A battery charger and air compressor with automatic battery charger shall be installed.

The battery charger shall be completely automatic with an output of 0-40 amps @ 12 volts DC and an input current requirement of 10 amps @ 120 volts AC.

A air compressor with automatic battery conditioner shall be installed. The battery conditioner is completely automatic with a 0-40 amp output to maintain the charge in the battery system. The air compressor shall be powered by a 12 volt DC output from the battery charger and has an output of .30 cfm at 80 PSI. A pressure switch senses the system pressure and operates the compressor whenever the pressure in the air brake system drops below a pre-determined level.

### **FRONT AXLE**

A Meritor™ non-driving, front steer axle with a capacity to meet the weight and design performance requirements shall be provided.

### **SUSPENSION (FRONT)**

The front suspension shall be a variable rate taper-leaf design, 54" long and 4" wide. Long life, maintenance free, urethane bushed spring shackles shall be utilized. All spring and suspension mounting shall be attached directly to frame with high strength fasteners.

### **ENHANCED FRONT SUSPENSION SYSTEM**

The front suspension shall have the handling, stability, and ride quality enhanced by the use of a Ride Tech auxiliary spring system and Koni high performance shock absorbers.

This system shall utilize three stage, urethane auxiliary springs, and high performance gas filled shock absorbers to control the deflection of the leaf springs, and dampen vibration normally transmitted to the chassis. This maintenance free system will be custom tuned to the apparatus gross weight rating for maximum performance, while maintaining a soft compliant ride.

A (3) three year 36,0000 mile warranty will be provided by the manufacturer.

**A front end alignment shall be completed included in the bid price by bidder after the vehicle reaches Rockdale County, Georgia and before final acceptance.**

### **FRONT TIRES**

Front tires shall be Michelin G291 highway tread, single tubeless type with a capacity to meet the weight and design performance requirements shall be provided.

### **REAR AXLE**

The rear axle shall be a Meritor™ RS-24-160 single reduction drive axle with a capacity of 24,000 lbs. The axles shall be hub piloted, 10 studs, furnished with oil seals.

### **TOP SPEED**

The top speed shall be approximately 68 MPH.

### **SUSPENSION (REAR)**

A 24000 lb. air ride rear suspension shall be provided. The suspension shall be a dual air spring design equipped with dual height control valves to maintain proper ride height. To reduce axle stress and maintain axle position and pinion angle the suspension design shall incorporate three torque rods. The ground rating of the suspension shall be 24,000 pounds.

### **REAR TIRES**

Rear tires shall be Michelin G661 highway tread, dual tubeless type with a capacity to meet the weight and design performance requirements shall be provided.

## **TIRE PRESSURE MONITOR**

LED tire pressure sensor shall be provided for each wheel. The pressure sensor shall indicate if a particular tire is not properly inflated. A total of six (6) indicators shall be provided.

## **WHEELS**

The front and rear wheels shall be aluminum.

## **HUB COVERS**

Polished stainless steel hub covers shall be provided for the front and rear axle.

## **LUG NUT CAPS**

Chrome plated lug nut caps shall be provided for the front and rear wheels.

## **FRONT MUD FLAPS**

Hard rubber mud flaps shall be provided for front tires.

## **REAR MUD FLAPS**

Hard rubber mud flaps shall be provided for rear tires.

## **AIR DISC BRAKES**

The apparatus shall be equipped with Arvin Meritor DiscPlus EX225 Air Disc Brakes. Each disc brake assembly shall include one (1) 17" vented rotor, one (1) lightweight hub, one (1) twin-piston caliper, and two (2) quick-change pads.

## **AIR BRAKE SYSTEM**

The vehicle shall be equipped with air-operated brakes. The system shall meet or exceed the design and performance requirements of current FMVSS-121 and test requirements of current NFPA 1901 standards.

Each wheel shall have a separate brake chamber. A dual treadle valve shall split the braking power between the front and rear systems.

All main brake lines shall be color-coded nylon type protected in high temperature rated split plastic loom. The brake hoses from frame to axle shall have spring guards on both ends to prevent wear and crimping as they move with the suspension. All fittings for brake system plumbing shall be 'Compression Style' brass.

A Meritor Wabco System Saver 1200 air dryer shall be provided.

The air system shall be provided with a rapid build-up feature, designed to meet current NFPA 1901 requirements. The system shall be designed so the vehicle can be moved within 60 seconds of startup. The quick build up system shall provide sufficient air pressure so that the apparatus has no brake drag and is able to stop under the intended operating conditions following the 60-second buildup time. The vehicle shall not be required to have a separate on-board electrical air compressor or shoreline hookup to meet this requirement.

Four (4) supply tanks shall be provided. One air reservoir shall serve as a wet tank and a minimum of one tank shall be supplied for each the front and rear axles. A Schrader fill valve shall be mounted in the front of the driver's step well.

A spring actuated air release emergency/parking brake shall be provided on the rear axle. One (1) parking brake control shall be provided and located on the engine hood within easy reach of the driver and the officer. The parking brake shall automatically apply at  $35 \pm 10$  PSI reservoir pressure. A Meritor WABCO IR-2 Inversion Relay Valve, supplied by both the Primary and Secondary air systems, shall be used to activate the parking brake and to provide parking brake modulation in the event of a primary air system failure. Accessories plumbed from the air system shall go through a pressure protection valve and to a manifold so that if accessories fail they shall not interfere with the air brake system.

A guard shall be provided over the parking brake knob.

**All air fittings through the chassis shall be 'Compression Style' fittings in lieu of push/pull. NO EXCEPTION.**

#### **CENTRAL LOCATION FOR AIR TANK DRAINS**

The air brake system shall have all the air tank drain valves located in a customer specified location on the apparatus.

**All air fittings through the chassis shall be 'Compression Style' fittings in lieu of push/pull. NO EXCEPTION.**

#### **AIR OUTLET**

One (1) air chuck shall be provided at a customer specified location. The system shall tie into the wet tank of the brake system and include an 85-psi pressure protection valve in the outlet line to prevent the brake system from losing all air.

Note: Purchaser to specify type of hose fitting.

## **ELECTRONIC STABILITY CONTROL SYSTEM**

An Arvin Meritor / Wabco Electronic Stability Control (ESC) system shall be provided and installed. The ESC system continually monitors the vertical acceleration, and yaw (horizontal plain rotation) of the vehicle, and compares it to a critical threshold where vehicle rollover may occur. When the critical threshold is met, the ESC shall intervene by reducing engine torque and engaging the engine retarder, while automatically applying both the steering and drive axle brakes as needed. In many cases, activation occurs before the driver is even aware it is needed.

## **AIR BRAKING ABS SYSTEM**

A Wabco ABS system shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to axles and all electrical connections shall be environmentally sealed from water and weather and be vibration resistant.

The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall sense approaching wheel lock and instantly modulate brake pressure up to 5 times per second to prevent wheel lock-up. Each wheel shall be individually controlled. To improve field performance, the system shall be equipped with a dual circuit design. The system circuits shall be configured in a diagonal pattern. Should a malfunction occur, that circuit shall revert to normal braking action. A warning light at the driver's instrument panel shall indicate malfunction to the operator.

The system shall consist of a sensor clip, sensor, electronic control unit and solenoid control valve. The sensor clip shall hold the sensor in close proximity to the tooth wheel. An inductive sensor consisting of a permanent magnet with a round pole pin and coil shall produce an alternating current with a frequency proportional to wheel speed. The unit shall be sealed, corrosion-resistant and protected from electro-magnetic interference. The electronic control unit shall monitor the speed of each wheel sensor and a microcomputer shall evaluate wheel slip in milliseconds.

**All air fittings through the chassis shall be 'Compression Style' fittings in lieu of push/pull. NO EXCEPTION.**

## **AUTOMATIC SLIP RESPONSE**

The Rockwell/Wabco 4 Channel Anti-lock braking system shall be provided. The system shall be supplied with (ASR) Automatic slip response. The ASR controls slip under acceleration.

### **AUTOMATIC TIRE CHAIN SYSTEM**

The apparatus shall be equipped with an On-Spot brand Automatic Tire Chain System.

There will be one driver's side and one passenger's side chain unit.

A continuous duty solenoid shall be provided and activated by the dashboard switch, which opens and allows compressed air to flow to the chain units. Compressed air will be delivered to the solenoid from the vehicle's air tank. The solenoid shall be mounted on the frame rail or cross member in close proximity of the chain units. This air/electric solenoid shall be 12-volts and draw no more than 1 ampere of current. Electrical wire shall be in accordance with NFPA 1901.

A 12-volt dashboard switch shall be provided so that the operator may engage the chains from the driver's seat. The switch shall be lighted to indicate when the chains are engaged. The switch shall come complete with a switch guard to avoid accidental engagement of the automatic chains. The switch guard shall be properly labeled. A dashboard sticker with operating instructions shall be provided.

### **MISCELLANEOUS CHASSIS EQUIPMENT**

Fluid capacity plate affixed below driver's seat.

Chassis filter part number plate affixed below driver's seat.

Maximum rated tire speed plaque near driver.

Tire pressure label near each wheel location.

Cab occupancy capacity label affixed next to transmission shifter.

Do not wear helmet while riding plaque for each seating position.

NFPA compliant seat belt and standing warning plates provided.

### **ALUMINUM CAB**

The cab shall be a full tilt 6-person cab designed specifically for the fire service and manufactured by the chassis builder. Apparatus cabs that are not manufactured by the apparatus manufacturer shall not be acceptable.

### **CAB DESIGN**

The bidder shall specify in detail cab construction methods including materials and sizes.

The apparatus chassis shall be of an engine forward, fully enclosed tilt cab design. There shall be four (4) side entry doors.

The cab shall be of a fully open design with no divider wall or window separating the front and rear cab sections. The cab shall be designed in a manner that allows for the optimum forward facing vision for crew.

The cab shall be constructed of high strength aluminum plate with aluminum framing.

The framework shall be of a welded construction that fully unitizes the structural frame of the cab.

The structural extrusion framework shall support and distribute the forces and stresses imposed by the chassis and cab loads and shall not rely on the sheet metal skin for any structural integrity.

### **CAB SUB-FRAME**

The cab shall be mounted to a sub-frame, and shall be isolated from the chassis to minimize stresses caused by chassis twisting and body movements. This substructure shall be completely independent of the apparatus cab. The sub frame shall be painted to match the primary chassis color.

The sub-frame shall be mounted to the chassis through the use of two front pivot points, and two (2) hydraulically activated cab latches, to secure the rear.

### **CAB DIMENSIONS**

The cab shall be designed to satisfy the following approximate width and length dimensions:

Cab Width (excluding mirrors) 94"

Total Cab Length (excluding bumper) 130"

### **ROOF DESIGN**

The cab shall be of a flat roof design.

### **FENDER CROWNS**

Polished stainless steel or aluminum front axle fenderettes with full depth radius wheel well liners shall be provided.

### **CAB INSULATION**

The exterior walls, doors, and ceiling of the cab shall be insulated from the heat and cold, and to further reduce noise levels inside the cab. The cab interior sound levels shall not exceed 90 decibels at 45 mph in all cab seat positions. NO EXCEPTIONS

## **EXTERIOR GLASS**

The cab windshield shall be of a two piece curved design utilizing tinted, laminated, automotive approved safety glass. The window shall be held in place by an extruded rubber molding. The cab shall be finished painted prior to the window installation.

## **SUN VISORS**

There shall be a visor located at both the driver and officer positions, recessed in a molded form for a flush finish.

## **CAB STEPS**

All steps shall be covered with material that meets or exceeds the NFPA requirements for stepping surfaces. Steps under the front cab doors shall not interfere with approach angle.

## **STEP LIGHTS**

A white LED light shall illuminate each interior cab step. These lights shall illuminate whenever the battery switch is on and the cab door is opened.

## **CAB STRUCTURAL INTEGRITY**

The cab of the apparatus shall be designed and so attached to the vehicle as to eliminate, to the greatest possible extent, the risk of injury to the occupants in the event of an accident.

The apparatus cab shall be tested to specific load and impact tests with regard to the protection of occupants of a commercial vehicle.

A test shall be conducted to evaluate the frontal impact strength of the apparatus cab to conform to the test J2420 and the "United Nations Regulation 29, Annex 3, paragraph 4, (Test A). A second test shall be conducted to evaluate the roof strength of the apparatus cab to conform to the Society Of Automotive Engineers (SAE) SAE J2422/SAE J2420 and "United Nations Regulation 29, Annex 3, paragraph 5, (Test B) and SAE J2420. The evaluation shall consist of the requirements imposed by ECE Regulation 29, Paragraph 5.

The test shall be conducted by a certified independent third party testing institution.

A letter stating successful completion of the above test on the brand of cab being supplied shall be included in the bid. There shall be "no exception" to this requirement.

### **SEAT BELT TESTING**

The seat belt anchorage system shall be tested to meet FMVSS 207 Section 4.2a and FMVSS 210 section 4.2. Testing shall be conducted by an independent third party product evaluation company.

A copy of the certification letter shall be supplied with the bid documents.

### **CAB TILT SYSTEM**

An electrically powered hydraulic cab tilt system shall be provided, and shall lift the cab to an angle of 42-45 degrees, exposing the engine and accessories for fluid checks and service work. The system shall be interlocked to only operate when the parking brake is set.

The lift system shall be comprised of two (2) hydraulic lift cylinders, an electrically driven hydraulic pump, and a control switch. The hydraulic pump shall be located to be easily accessible when the cab is tilted. A mechanical locking system consisting of an air operated actuator and a heavy duty safety latch will be provided to ensure the cab remains in the raised position in the event of a hydraulic failure. Additionally, each of the hydraulic lift cylinders shall incorporate a check valve, and velocity fuses that will activate should a sudden drop in pressure be detected. The cab tilt controls shall be interlocked to the parking brake to ensure the cab will not move, unless the parking brake is set. The cab tilt controls will consist of a momentary raise/lower switch and a two position cab safety lockswitch.

The hydraulic lift cylinders will be connected to the cab sub-frame, and not directly to the cab. NO EXCEPTIONS

### **MANUAL CAB LIFT**

There shall be a manually operated hydraulic pump for tilting the cab in case the main pump should fail.

### **CAB DOORS**

The bidder shall specify in detail cab door construction methods including materials and sizes.

The cab doors shall be equipped with heavy-duty door latching hardware, which complies with FMVSS 206. The door latch mechanism shall utilize control cable linkage for positive operation. A rubber coated nylon web doorstop shall be provided.

All openings in the cab shall be grommeted or equipped with rubber boots to seal the cab from extraneous noise and moisture.

The cab doors shall be designed to satisfy the following minimum opening and step area dimensions:

Door Opening:

Front	36" x 71"
Rear	33" x 73"

## **POWER WINDOWS**

All four cab entry doors shall have power windows. Each door shall be individually operated and the driver's position shall have master control over all windows. All four windows shall roll down completely.

## **WINDSHIELD WIPERS**

Two (2) black anodized finish two speed synchronized electric windshield wiper system. Dual motors with positive parking. System includes large dual arm wipers with built in washer system. One (1) master control works the wiper, washer and intermittent wipe features. Washer bottle is a remote fill with a 4 quart capacity.

The windshield wipers shall be interlocked with the Parking Brake. If the Parking Brake is set (active), the windshield wipers shall be non-active.

## **CAB HANDRAILS**

There shall be a 18- 24" long, handrail provided and installed, at each cab entrance. The handrails shall be constructed of type 304 stainless steel 1.25 inch diameter tubing with bright finish and knurled gripping surface. Mounting flanges shall be constructed from 7 gauge, .180 thick, stainless sheet. Each grab rail shall have 90 degree returns to flanges. The ends of grab rail shall pass through the flanges and be welded to form one structural unit. The handrails shall be mounted using 1.25" SS Hex bolts, with a barrier rubber gasket at each flange.

Sufficient space shall allow for a gloved hand to firmly grip the rail.

There shall be two (2) rubber coated grab handles provided and mounted on the interior of the cab, one each side, on the windshield post for ingress assistance. The handrail on the driver's side shall be approximately 11" long and the handrail on the officer's side shall be approximately 18" long.

## **MIRRORS**

Two (2) Lang Mekra 300 Series smooth chrome plated Aero style main and convex mirrors shall be installed on each side of the vehicle. The main mirror shall be 4-way remote adjustable with heat, 7" x 16" 2nd surface chromed flat glass. The convex shall be 6" x 8" 2nd surface chromed 400 mm radius glass. Each mirror housing assembly shall be constructed of lightweight textured chrome ABS with on truck glass and housing back cover replacement. The glass shall include a safety adhesive backing to keep broken glass in place. The mirror assembly shall be supported by a "C" loop bracket constructed of polished stainless steel tube utilizing two point mounting reducing vibration of mirror glass during normal vehicle operation. The lower section of the holder shall include a spring loaded single detent position 20 degrees forward with easy return to operating position without refocusing.

## **GRILLE**

The front of the cab shall be equipped with a polished stainless steel grille with sufficient area to allow proper airflow into the cooling system and engine compartment. Plastic chrome plated grilles shall not be acceptable.

## **BUMPER**

There shall be a 10-12" high double rib polished stainless steel wrap-around bumper provided at the front of the apparatus. Laser cut perforated grilles shall be incorporated into the bumper and located at the outboard section of the bumper for the air horns and at the center for the siren speaker. The bumper shall be mounted to a reinforcement plate constructed of 1/4" x 10" x 70" carbon steel. A gravel shield shall be provided, constructed of .188" aluminum diamond plate. The bumper extension shall be approximately 18-24".

## **BUMPER SIDES**

The sides of the bumper shall be finished with diamond plate.

## **STORAGE WELL COMPARTMENT**

There shall be a hose well compartment located in the center of the front bumper. The compartment shall run the full width of the bumper and measure approximately 75" wide x 10" long x 5" deep at the ends and 12" deep in the center. The compartment shall be constructed of .125" smooth aluminum plate.

## **DIAMOND PLATE BUMPER LID**

There shall be a 1/8" diamond plate cover with latches provided for the front bumper trough. The cover shall have a 2" rise to accommodate the storage well requirements. The front lid shall be held open with a pneumatic shock.

## **AIR HORNS**

Two (2) Grover 2040 Stuttertone chrome plated, air horns shall be recess mounted or through front bumper, one each side.

## **FOOT SWITCH, DRIVER'S SIDE**

A foot switch for the air horns shall be provided on the driver's side.

## **FOOT SWITCH, OFFICER'S SIDE**

A foot switch for the air horns shall be provided on the officer's side.

### **LANYARD CONTROL FOR AIR HORNS**

The air horns shall be activated by a split "Y" lanyard in cab ceiling.

### **ELECTRONIC SIREN**

One (1) Whelen 295HFS2 electronic siren shall be installed at the cab instrument panel complete with noise canceling microphone. The remote control head shall be flush mounted in a location specified by the fire department.

### **SIREN SPEAKER**

Two (2) Whelen SA314B 100 watt weatherproof siren speaker shall be provided and wired to the electronic siren.

### **SPEAKER MOUNTING**

The electronic siren speaker(s) shall be installed behind the main cab grille or bumper.

### **FEDERAL Q2B SIREN**

There shall be a Federal Q2B-NN siren installed in the center of the cab grille or in the bumper. The siren shall be securely mounted and activated by means of a solenoid and shall include a brake.

### **FOOT SWITCH, DRIVER'S SIDE**

A foot switch for the mechanical siren shall be provided on the driver's side.

### **FOOT SWITCH, OFFICER'S SIDE**

A foot switch for the mechanical siren shall be provided on the officer's side.

### **CAB EXTERIOR LIGHTING**

Exterior lighting and reflectors shall meet or exceed Federal Motor Vehicle Safety Standards and National Fire Protection Association requirements.

## **HEADLIGHTS**

The front low and high beam headlights shall be J.W. Speaker model 8800 LED, rectangular shaped, quad style installed in custom rectangular shaped stainless steel housings on the front of the cab.

An additional pair of rectangular shaped stainless steel housings shall be installed on the front of the cab above the headlight housings. Each housing shall accommodate two (2) forward-facing warning lights and a side-facing turn signal.

## **ALTERNATING HEAD LAMP**

The headlights shall have an alternating flash feature for emergency response use.

## **FRONT TURN SIGNALS**

There shall be two Whelen 400 Series LED rectangular amber turn signal lights mounted one each side in the front of the headlight housing and one mounted on each side of the warning light housing.

## **CAB INTERIOR**

The interior finished and materials shall be of severe duty and high quality. The intent of the purchaser is to have a low maintenance and long life interior finish. The bidder shall describe in detail the materials and components used.

## **INTERIOR DOOR PANELS**

The interior of the cab entry doors shall have a 304 brushed stainless steel scuff plate, contoured to the door, from the door window sill down.

## **REFLECTIVE MATERIAL, STRIPE, INTERIOR CAB DOORS**

The apparatus shall have reflective striping affixed to the inside of each cab door to meet NFPA standards. The striping shall be plainly visible to oncoming traffic when the doors are in the open position.

## **CAB DOOR WARNING LIGHTING [QTY 4]**

Four (4) Whelen WIONSMCA Surface mount amber warning lights shall be installed. One (1) light shall be installed on the inside of each door. The light shall be switched to operate when the door is open. The lights shall be plainly visible to oncoming traffic when the doors are in the open position.

## **CAB FLOOR COVERING**

The cab interior floor shall be covered with rubberized material to provide a rugged but cosmetically pleasing stepping surface throughout the cab. The floor covering shall provide superior durability and resistance against foreign objects as well as normal wear and tear.

### **ENGINE ENCLOSURE (SMALL PROFILE)**

An integral, formed aluminum and composite engine enclosure shall be provided. The engine enclosure shall be contoured and blended in an aesthetically pleasing manner with the interior dash and flooring of the cab. The enclosure shall be kept as low as possible, to maximize space and increase crew comfort.

The enclosure shall be constructed to provide high strength, low weight, and superior heat and sound deadening qualities.

Additionally, the underside of the engine enclosure shall be insulated and provide maximum sound control.

### **CENTER CONSOLE**

There shall be a storage console installed on the engine enclosure between the driver and officer. The console shall be constructed from smooth aluminum and shall be coated with the same finish as the engine enclosure. The console shall measure approximately 23" long X 11.375" wide X 8.125" high. The console shall have a 13" long storage area in the center that shall be divided into five (5) separate areas with four (4) fixed vertical dividers. The dividers shall be spaced 2.125" apart for map book storage. A Velcro strap shall be installed front to rear to secure the map books. Each outboard area of the console shall have one (1) stainless steel cup holder and one (1) approximately 5.5" long X 4.75" wide X 3.5" high open storage area.

### **ENGINE HOOD LIGHTS**

An LED work light shall be installed in the engine enclosure with an individual switch located on the base of the light.

### **COMPUTER TRAY**

There shall be a slide-out tray in front of the officer's seat for a laptop computer or other use. 12V power and a ground shall be provided.

### **INSTRUMENT PANEL**

The main dash shroud, which covers the area directly in front of the driver from the doorpost to the engine hood, shall be custom molded and covered with a non-glare material.

The gauges shall have built-in self-diagnostics and red warning lights to alert the driver of any problems. All gauges and controls shall be backlit for night vision and identified for function. All main gauges and warning lights shall be visible to the driver through the steering wheel. All gauges shall have English dominant language.

## **MASTER BATTERY & IGNITION SWITCH**

The vehicle shall be equipped with a keyless ignition, with a three (3)-position Master Battery rocker switch, "Off/ACC/On" and a two (2)-position Engine Start rocker switch, "Off/Start".

## **DIESEL PARTICULATE FILTER CONTROLS**

There shall be two (2) controls for the diesel particulate filter. One control shall be for regeneration and one control shall be to inhibit engine regeneration.

## **INSTRUMENTATION & CONTROLS**

Instrumentation on dash panel in front of the driver:

- Tachometer/hour meter with high exhaust system regeneration temperature, and instrument malfunction indicators
- Speedometer/odometer with built in turn signal, high beam, and re-settable trip odometer
- Voltmeter
- Diesel fuel gauge
- DEF (Diesel Exhaust Fluid) gauge
- Engine oil pressure
- Transmission temperature
- Engine temperature
- Primary air pressure
- Secondary air pressure

Indicators and warning lights in front of the driver:

- Parking brake engaged
- Low air with buzzer
- Antilock brake warning
- Check transmission
- Transmission temperature
- Upper power indicator
- Seat belt
- Engine temperature
- Low oil indicator
- Low voltage indicator
- Air filter restriction light
- Low coolant indicator
- High idle indicator
- Power on indicator
- Check engine
- Stop engine

- Check engine MIL lamp
- DPF indicator
- High exhaust temperature
- Wait to start

Other indicator and warning lights (if applicable):

- Differential locked
- PTO (s) engaged
- Auto-slip response
- Retarder engaged
- Retarder temperature
- ESC indicator

Controls located on main dash panel in front of the driver:

- Master power disconnect with ignition switch
- Engine start switch
- Headlight switch
- Windshield wiper/washer switch
- Differential lock switch (if applicable)
- Dimmer switch for backlighting

Controls included in steering column:

- Horn button
- Turn signal switch
- Hi-beam low-beam switch
- 4-way flasher switch
- Tilt-telescopic steering wheel controls

### **CENTER CONTROL CONSOLE**

There shall be an ergonomically designed center control console.

Controls located in the console conveniently accessible to the driver:

- Transmission shifter
- Pump shift control with OK TO PUMP and PUMP ENGAGED lights
- Remote mirror control
- Illuminated rocker switches to control high idle, Jacob's brake, siren/horn, siren brake, master emergency, and other customer specified components

- 12V power point (if applicable)

Controls located in the console conveniently accessible to the driver and the officer (center):

- Parking brake control with a guard to prevent accidental engagement

Controls located in the console conveniently accessible to the officer:

- Illuminated rocker switches to control customer specified components that are easily reachable to the officer and do not allow for compromise of the driver's view, and eliminate the need for foot switches
- Surface to recess siren head, radio head, or other desired items as space permits
- 12V power point (if applicable)

Driving compartment warning labels shall include:

- HEIGHT OF VEHICLE
- OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION
- DO NOT USE AUXILIARY BRAKING SYSTEMS ON WET OR SLIPPERY ROADS
- EXIT WARNINGS

Additional labels included:

- COMPUTER CODE SWITCH
- ABS CODE SWITCH
- FLUID DATA TAG
- CHASSIS DATA TAG

#### **OVERHEAD CONTROL CONSOLE**

There shall be a panel located to the right of the driver that shall be designated for defroster, heat, and air conditioning controls (if specified).

The center overhead panel shall be designated for up to seven (7) door ajar indicators. Upon releasing the apparatus parking brake, one or more of these lights shall automatically illuminate (flash) when any of the following conditions occur that may cause damage if the apparatus is moved: cab or compartment door is open; ladder or equipment rack is not stowed; stabilizer system deployed; any other device has not been properly stowed.

There shall be a panel to the left of the officer as well as two (2) directly above the officer. These panels shall have no cutouts, unless otherwise specified by the customer.

#### **ENGINE WARNING SYSTEM**

An engine warning system shall be provided to monitor engine conditions such as low oil pressure, high engine temperature and low coolant level. Warning indication shall include a STOP ENGINE (red) light with audible buzzer activation and a CHECK ENGINE (amber) light

## **CHASSIS WIRING**

All chassis wiring shall have XL high temperature crosslink insulation. All wiring shall be color-coded, and the function and number stamped at 3" intervals on each wire. All wiring shall be covered with high temperature rated split loom for easy access to wires when trouble shooting. All electrical connectors and main connectors throughout the chassis shall be treated to prevent corrosion.

## **MASTER ELECTRICAL PANEL**

The main chassis breaker panel shall be wired through the master disconnect solenoid and controlled by the three-position ignition rocker switch.

The breaker panel shall include up to 22 ground switched relays with circuit breaker protection. An integrated electrical sub-panel shall be provided and interfaced to the body and chassis through an engineered wire harness system.

Twelve (12) 20-ampere relays and one (1) 70-ampere relay shall be provided for cab light bar and other electrical items. If the option for a mechanical siren has been selected two (2) additional relays shall be provided.

Up to two (2) additional relay boards with circuit breaker protection shall be provided for additional loads as required. Each board shall contain four (4) relays. The relay boards shall be configured to trip with input from switch of positive-negative or load manager by moving the connector on the board (no tools required).

All relay boards shall be equipped with a power-on indicator light (red), input indicator light (green) and power output indicator light (red).

Up to twenty-three (23) additional automatic reset circuit breakers for non-switched loads that are remotely switched (ie: heater fans, hood lights, etc.) shall be provided.

All relays and circuit breakers on the relay boards shall be pull-out/push-in replaceable.

All circuit breakers on the relay boards shall be 20 ampere automatic reset which can be doubled or tripled for 40 or 60-ampere capacity.

The system shall utilize Deutsch DRC weather resistant connectors at the breaker panel, toe board and main dash connections.

All internal wire end terminals, including locking connectors, shall be mechanically affixed to the wire ends by matching terminal crimping presses to assure the highest quality terminations.

All internal splices shall be ultrasonically welded connections and all internal wiring shall be high temperature GXL type wire that is protected by wiring duct wherever possible.

All switches shall be ground controlled; no power going through any rocker switch.

Any switch controlling a relay in the breaker panel shall be capable of being set to function only when the parking brake is set. All relays shall be tagged with the function that the relay is controlling.

### **PUMP SHIFT MODULE**

A pump shift module with indicating lights shall be located within easy reach of the driver. A gear lockup shall be provided to hold the transmission in direct drive for pump operation.

### **LOAD MANAGER**

Load manager shall have the ability to sequence loads on and off. It shall also be able to shed 8 loads when the vehicle is stationary, starting at 12.7 volts lowest priority load to be shed, then respectively at 12.6, 12.4, 12.2, 12.0, 11.8, 11.4 and 11.0 volts DC. Any load that has been shed shall be off for a minimum of five minutes, and then if voltage has rebounded above shed voltage, the shed load shall automatically come on. There shall also be an indicator panel alongside the rocker switches, which indicate power is on, battery warning and fast idle. Battery warning indicator shall flash at a rate proportional to the voltage discharge rate.

### **AUTOMATIC HIGH IDLE ACTIVATION**

The load management system shall be capable of activating the apparatus high idle system when the system voltage drops below 12.3 volts DC. The system shall raise engine speed for a minimum of five minutes until voltage exceeds 13.0 volt DC. The load management system shall activate the high idle feature before any devices are automatically shed OFF. The high idle function request from the load management device shall function only if the appropriate interlocks are present; that is, control of the high idle system is monitored and shall be superseded by the state of the interlock control module. The automatic high idle system shall be deactivated whenever the brake pedal is pressed, and shall remain inactive for two minutes thereafter to allow an operator to override the high idle function and return the engine to idle before PTO engagement.

### **HIGH IDLE**

The engine shall have a "high idle" switch on the dash that shall maintain an engine RPM of 1,000. The switch shall be installed at the cab instrument panel for activation/deactivation. The "high idle" mode shall become operational only when the parking brake is on and the truck transmission is in neutral.

### **AUXILIARY POWER POINT**

One (1) 12-volt 20-ampere auxiliary lighter socket type plug-ins shall be provided in the cab.

## **USB POWER POINTS**

Two (2) 12-volt dual port USB power points shall be provided in the cab.

## **CAB ACCESSORY FUSE PANEL**

The fuse panel shall consist of six (6) battery hot and six (6) ignition switch circuits. Each circuit shall be capable of 10-ampere 12- volt power and total output of 50-amps. The fuse panel shall be capable of powering accessories such as hand held spotlights, radio chargers, hand lantern chargers and other miscellaneous 12-volt electrical components.

## **POWER & GROUND STUDS, OVERHEAD COMMAND CONSOLE**

There shall be a set three (3) threaded power studs provided in the cab's overhead Command Console for future installation of two-way radios.

The studs shall be wired as follows:

- One (1) 12-volt 60-amp, direct to the battery
- One (1) 12-volt 30-amp controlled by the ignition switch
- One (1) 12-volt 125-amp ground

## **POWER & GROUND STUDS, LOWER COMMAND CONSOLE**

There shall be a set three (3) threaded power studs provided in the cab's lower Command Console for future installation of two-way radios.

The studs shall be wired as follows:

- One (1) 12-volt 60-amp, direct to the battery
- One (1) 12-volt 30-amp controlled by the ignition switch
- One (1) 12-volt 125-amp ground

## **SPARE FUSE BLOCK**

An additional fuse block shall be installed in the cab as part of the electrical system for future installation of rechargeable equipment and/or hand lights. The location shall be determined during the pre-construction conference.

## **VEHICLE DATA RECORDER**

An Akron / Weldon vehicle data recorder as required by the 2009 edition of NFPA 1901 shall be installed. Vehicle data shall be sampled at the rate of 1 second per 48 hours, and 1 minute per 100 engine hours.

Free software is available to allow the fire department to collect the data as needed.

### **LIGHTING CAB INTERIOR**

Interior lighting shall be provided inside the front of the cab for passenger safety. Two (2) ceiling mounted combination red/clear LED dome lights with a push button on/off switch in the light lens. One light shall be located over each the officer and driver's position. The lights shall also activate from the open door switch located in each cab doorjamb.

### **LIGHTING CREW CAB INTERIOR**

Interior lighting shall be provided inside the crew cab for passenger safety. Two (2) ceiling mounted combination red/clear LED dome lights with a push button on/off switch in the light lens shall be provided. The lights shall also activate from the open door switch located in each cab doorjamb.

### **HEAVY DUTY HEATER/DEFROSTER/AIR CONDITIONER**

There shall be a minimum 80,000 cool BTU and 65,000 heat BTU single unit, heater/air conditioner mounted over the engine cover. The unit shall be mounted in center of the cab on the engine hood/enclosure. Unit shall have a shutoff valve at the right side of the frame, next to the engine. Airflow of the heater/air conditioner shall be a minimum 1200 CFM. To achieve maximum cooling, a TM-31 Compressor (19.1 cu. in.) will be used.

The defroster/heater shall be a minimum of 35,000 BTU and shall be a separate unit mounted over the windshield. There shall be eight (8) louvers/diffusers to direct to windshield and door glass. Airflow of the defroster/heater shall be a minimum 350 CFM.

The condenser shall be roof mounted and have 80,000 BTU rating. The unit shall include two fan motors. Airflow of the condenser shall be a minimum 2250 CFM. (This roof-mounted condenser shall work at full rated capacity at an idle with no engine heat problems.)

### **HEATER/DEFROSTER/AIR CONDITIONING CONTROLS**

The heater/defroster/air conditioning shall be located in the center of the apparatus cab within reach of the driver and officer. The controls shall be illuminated for easy locating in dark conditions. The controls shall be located in such a way that the driver will not be forced to turn away from the road to make climate control adjustments. Control of all heater/defroster/air conditioning functions for the entire apparatus cab shall be achieved through these controls.

### **FLOORBOARD HEATING DUCT**

There shall be ductwork to the floor of the cab, facing forward to provide heat for the front of cab floor area.

### **DEFROSTER DIFFUSER**

A molded diffuser made of durable ABS plastic ductwork system shall be provided. It shall be form fitted and shall attach to the cab's overhead defroster unit to provide temperature controlled air to the windshields.

Air flow of up to 280 cfm is balanced and directed across the entire windshield for optimum defrosting capability in all types of weather.

### **TOOL MOUNTING PLATE**

There shall be a 3/16" smooth aluminum plate installed on top of the heat/ air conditioning unit for use in mounting of equipment. The plate shall measure approximately 25" wide x 19.5" long and shall be spaced up 1". The mounting plate shall feature beveled edges on the front and rear for a finished appearance. The plate shall be coated with the same finish as the heat/air conditioning unit and shall be secured with screws for easy replacement.

Metal deflectors shall be provided for the hood mounted heat/A/C unit.

### **DRIVER'S SEAT**

A H.O. Bostrom Sierra high back ABTS seat with air suspension shall be provided for the driver. The seat shall be equipped with a red 3-point shoulder harness with lap belt. The seat shall have fore/aft adjustment and shall be upholstered with heavy duty Durawear material.

### **HELMET STORAGE**

The helmet for the above seat shall be stored in a universal style helmet bracket. The bracket shall be constructed from aluminum that shall be painted with Zolatone gray/black rubberized texture paint. The bracket shall feature a tab which shall secure the D-ring on the helmet. An adjustable strap shall secure the helmet to the bracket. The bracket shall be located as space permits. A placard shall be provided visible to the riding position warning that injury may occur if helmets are worn while seated.

### **OFFICER'S SEAT**

An H.O. Bostrom Tanker 450 high back ABTS seat shall be provided for the officer. The seat shall be equipped with a red 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly. The seat shall be upholstered with heavy duty Durawear material. SCBA storage shall be provided in the seat.

### **UNDER SEAT STORAGE COMPARTMENT**

There shall be an open storage area under the officer's seat, accessible from the front. The storage area shall be approximately 19.5" wide x 14.375" high x 21.75" deep. The lower rear portion of the compartment shall be tapered to accommodate the wheel well and wiring chase. The opening shall be approximately 15.5" wide x 10.5" high.

### **HELMET STORAGE**

The helmet for the above seat shall be stored in a universal style helmet bracket. The bracket shall be constructed from aluminum that shall be painted with Zolatone gray/black rubberized texture paint. The bracket shall feature a tab which shall secure the D-ring on the helmet. An adjustable strap shall secure the helmet to the bracket. The bracket shall be located as space permits. A placard shall be provided visible to the riding position warning that injury may occur if helmets are worn while seated.

### **EMS CABINET, REAR FACING**

There shall be a cabinet constructed of .125 aluminum plate and painted to match the interior of the cab. The cabinet dimensions shall be approximately 21" wide x 22" deep x 39" high. The cabinet shall come complete with a locking roll up door and two adjustable shelves. Strip lighting shall be provided in the cabinet. The location of the cabinet shall be in place of the rear facing crew seat behind the driver.

### **EMS CABINET, REAR FACING**

There shall be a cabinet constructed of .125 aluminum plate and painted to match the interior of the cab. The cabinet dimensions shall be approximately 21" wide x 18" deep x 39" high. The cabinet shall come complete with a locking roll up door and two adjustable shelves. Strip lighting shall be provided in the cabinet. The location of the cabinet shall be in place of one of the rear facing crew seats behind the officer.

### **CREW SEAT – DRIVER'S SIDE, FORWARD FACING, INBOARD**

One (1) H.O. Bostrom Tanker 300CT ABTS SCBA flip-up base seat shall be installed in the driver's side forward-facing inboard position. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly. The seat shall be upholstered with heavy duty Durawear material on the main contact surfaces. The sides shall be upholstered with heavy duty vinyl.

### **HELMET STORAGE**

The helmet for the above seat shall be stored in a compartment. A placard shall be provided visible to the riding position warning that injury may occur if helmets are worn while seated.

### **CREW SEAT – OFFICER'S SIDE, FORWARD FACING, INBOARD**

One (1) H.O. Bostrom Tanker 300CT ABTS SCBA flip-up base seat shall be installed in the officer's side forward-facing inboard position. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly. The seat shall be upholstered with heavy duty Durawear material on the main contact surfaces. The sides shall be upholstered with heavy duty vinyl.

### **HELMET STORAGE**

The helmet for the above seat shall be stored in a compartment. A placard shall be provided visible to the riding position warning that injury may occur if helmets are worn while seated.

### **SCBA BRACKETS**

Each SCBA seat in the cab shall feature an H.O. Bostrom SecureAll self-contained breathing apparatus (SCBA) locking system. The seat back shall include a bracket which shall be capable of storing most U.S. and

international SCBA brands and sizes while in transit or for storage. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters; adjustment points shall utilize similar hardware and adjustments shall be made with one tool.

The bracket shall be adjustable to compensate for different cylinder lengths without the use of tools. The adjustment shall be made by raising a lever and moving the top clamp vertically.

The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the tank in-place for a safe and comfortable fit in seat cavity. Fire fighters shall simply push the SCBA unit against the pivot arm to engage the patented auto-locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions.

The locking system shall include a release handle integrated into the seat cushion for quick and easy release and to eliminate the need for straps or pull cords which might interfere with other SCBA equipment.

### **SEAT BELT WARNING SYSTEM**

An Akron / Weldon seat belt warning system shall be provided, and shall monitor each seating position. Each seat shall be supplied with a sensor that, in conjunction with the display module located on the dash, shall determine when the seat belt was fastened and if the seat is occupied. An icon shall represent that the seat is properly occupied. An audible and visual alarm shall be activated if the seat is occupied and/or the belt is not fastened in the proper sequence.

### **CREW SEAT COMPARTMENT**

A compartment shall be provided under the forward facing crew seats on the back wall of the cab. The compartment shall be full through, with an access door on each side, accessible from the side of the crew cab doors.

### **Exterior Cab Compartment**

The compartments to the rear sides of the cab are to be designed with a pass through that extends fully from the driver side compartment to the officer side compartment. It will be constructed out of 1/8" aluminum and will be incorporated into the design of any other options along the rear wall of the cab as necessary to allow the pass through to fully extend to the opposite side of the cab. The pass through opening shall be a minimum of 11" high and 11" wide on both the driver and officer side of the truck.

### **ANTENNA MOUNTING**

There shall be provisions included to mount two (2) customer supplied radio antennas in the cab roof with the coax cable run to the radio mounting area. The radio location shall be determined at the pre-construction meeting.

### **COMMUNICATION SYSTEM**

A five (5) position Fire Com model 3010 intercom system will be provided in the cab. The five positions include: driver, officer, two crew seats, and pump panel. The driver and officer positions will be interfaced

with radio.

**Items Provided:**

One (1) Model 3010 Intercom

Two (2) Model UH-10 Head sets for driver and officer (radio interface)

Two (2) Model UH-20 Head sets for crew (intercom only)

One (1) Model UH-20 Head sets at the pump panel (intercom only)

Four (4) Model HM-10 Plug modules

One (1) Model PP-20 Weatherproof plug module at the pump panel

One (1) Model HE-150 15' coiled extension cable for the pump panel connection.

**VOYAGER, 3 CAMERA SYSTEM**

Provided and mounted on the apparatus shall be One (1) HD Voyager® 7" Color Sealed, Weatherproof/Dustproof LCD Monitor (AOM713WP); One (1) Rugged Color Camera, 130° Viewing Angle, LED Low light Assist (VCCS130); One (1) Right Color Side Body Camera, 110° Viewing Angle w/ Housing (VCCSIDRCM); One (1) Left Color Side Body Camera, 110° Viewing Angle w/ Housing (VCCSIDLCM); One (1) 50' Camera Cable to LCD Monitor (CEC50); One (1) 15' Camera Cable to LCD Monitor (CEC15); One (1) 15' Camera Cable to LCD Monitor (CEC15); One (1) 6" Double Knuckle Monitor Mount (72706).

**PUMP RATING**

The fire pump shall be rated at 2000 GPM.

**FIRE PUMP HALE QMAX-200**

Fire pump shall be midship mounted. The fire pump shall be of the double suction single stage centrifugal type, carefully designed in accordance with good modern practice.

The pump shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI.

The pump body shall be horizontally split, on a single plane, casing type with removable lower casing for easy removal of the entire impeller assembly including wear rings and bearings from beneath the pump without disturbing piping or the mounting of the pump in the chassis.

All moving parts in contact with water shall be of high quality bronze or stainless steel. Easily replaceable bronze labyrinth wear rings shall be provided. Discharge passage shall be designed to accomplish uniform pressure readings as the actual pump pressure. The rated capacity of the fire pump shall be 2000 gallons per minute in accordance with NFPA# 1901.

The pump shaft shall be rigidly supported by three bearings for a minimum deflection. One high lead bronze sleeve bearing shall be located immediately adjacent to the impeller (on side opposite the drive unit). The sleeve bearing shall be lubricated by a force fed, automatic lubrication system, pressure balanced to exclude foreign material. The remaining bearings shall be heavy-duty type, deep groove ball bearings and shall be splash lubricated.

The drive unit shall be designed of ample capacity for lubricating reserve and to maintain the proper operating temperature. Pump drive unit shall be of sufficient size to withstand up to 16,000 lbs. ft. torque of the engine in both road and pump operating conditions.

The gearbox drive shafts shall be heat treated chrome nickel steel input and output shafts shall be at least 2- 3/4" in diameter, on both the input and output shafts. They shall withstand the full torque of the engine in both road and pump operating conditions.

The engagement of the pump transmission shall be of such design so as to permit transfer of power from road to pump operation only after vehicle is completely stopped. The pump shift shall be air actuated from the cab and have both a green "Pump Engaged" light, and a green "O.K.-To-Pump" light. A third green light shall be provided on the pump operator's panel for "Throttle Ready".

The pump drive unit shall be cast and completely manufactured and tested at the pump manufacturer's factory.

### **Gearbox Cooler**

A gearbox cooler shall be provided to maintain safe operating temperatures during prolonged pumping operations for pump rating 1500 GPM and over.

### **PUMP SEAL**

The pump shaft shall have only one packing gland located on the inlet side of the pump. It shall be of split design for ease of repacking. The packing gland must be a full circle threaded design to exert uniform pressure on the packing to prevent "cocking" and uneven packing load when it is tightened. It shall be easily adjustable by hand with a rod or screwdriver and requiring no special tools or wrenches. The packing rings shall be of a unique combination of braided graphite filament and braided synthetic packing and have sacrificial zinc foil separators to protect the pump shaft from galvanic corrosion.

### **PUMP TEST & CERTIFICATION**

The pump, when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901. The pump shall be tested at the manufacturer's facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in current NFPA 1901.

The tests shall include, at a minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank to pump flow test as outlined in current NFPA 1901.

A piping hydrostatic test shall be performed as outlined in current NFPA 1901.

The pump shall deliver the percentage of rated capacities at pressures indicated 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

A test plate, installed at the pump panel, shall provide the rated discharges and pressures together with the speed of the engine as determined by the certification test, and the no-load governed speed of the engine. A Certificate of Inspection certifying performance of the pump and all related components shall be provided at time of delivery. Additional certification documents shall include, but not limited to, Certificate of Hydrostatic Test, Electrical System Performance Test, Manufacturer's Record of Pumper Construction, and Certificate of Pump Performance from the pump manufacturer.

### **AUXILIARY COOLER**

An auxiliary cooler shall be furnished to provide additional cooling to the engine under extreme pumping conditions. Water from the pump is to be piped to the coils of the heat exchanger allowing the engine fluid to be cooled as required. **The lines shall be braided steel in lieu of plastic. NO EXCEPTIONS**

### **PUMP CONNECTIONS**

All suction and discharge lines (except pump manifolds) 1" and larger shall be heavy-duty stainless steel pipe. Where vibration or chassis flexing may damage or loosen piping or where a coupling is necessary for servicing, a flexible connection shall be furnished. All lines shall be drained by a master drain valve or a separate drain provided at the connection. All individual drain lines for discharges shall be extended with a 90 degree fitting in order to drain below the chassis frame. All water carrying gauge lines shall utilize nylon tubing.

### **TANK TO PUMP**

The booster tank shall be connected to the intake side of the pump with a check valve. The 3" tank to pump line shall run from a bottom sump into the 3" valve. To prevent damage due to chassis flexing or vibration, a short 3" flexible rubber hose coupling shall be used to connect the tank to the intake valve.

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10- year warranty covered by Akron Brass.

The valve shall be controlled by an Innovative Controls push/pull handle located at the operator's panel.

### **TANK FILL**

A 1.5" tank fill shall be provided, using a quarter turn full flow ball valve controlled from the pump operator's panel.

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a

self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall have a 10-year warranty covered by Akron Brass.

The valve shall be controlled by an Innovative Controls push/pull handle located at the operator's panel.

### **Discharge Manifold**

The pump system shall utilize a stainless steel discharge manifold system that allows a direct flow of water to discharge valves. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel to reduce corrosion.

### **Pump Shift**

The pump shift shall be pneumatically-controlled using a power shifting cylinder.

The power shift control valve shall be mounted in the cab and be labeled "PUMP SHIFT". The apparatus transmission shift control shall be furnished with a positive lever, preventing accidental shifting of the chassis transmission.

A green indicator light shall be located in the cab and be labeled "PUMP ENGAGED". The light shall not activate until the pump shift has completed its full travel into pump engagement position.

A second green indicator light shall be located in the cab and be labeled "OK TO PUMP". This light shall be energized when both the pump shift has been completed and the chassis automatic transmission has obtained converter lock-up (4th gear lock-up).

### **Pump Pressure Governor**

The apparatus shall be equipped with a Class 1 "TOTAL PRESSURE GOVERNOR" (TPG) Integrated pump control system. The TPG shall have a weatherproof color display. The TPG will operate as an engine/pump pressure governor/throttle system that is connected directly to the Electronic Control Module (ECM) mounted on the engine. The TPG is to operate as a pressure sensor (regulating) governor (PSG).

The TPG shall display engine RPM, oil pressure, engine temperature and voltage along with providing critical warnings. The warning levels for oil pressure, high engine temperature, low voltage and high voltage shall be independently programmable.

### **Test Ports**

Two (2) test plugs shall be pump panel mounted for third party testing of vacuum and pressures of the pump.

### **Speed Counter**

The test connection shall be installed on the pump panel to manually verify the vehicle engine speed displayed on the electronic tachometer.

### **Hale Intake Relief Valve**

The pump shall be equipped with a Hale stainless steel variable pressure setting suction side relief valve. It shall be designed to operate at a maximum inlet pressure of 200 psi. The valve shall be normally closed and shall limit pressures in the pumping system. When excessive intake pressures are received, the water shall be directed below the body to an area visible to the pump operator. The outlet shall terminate with a male 2-1/2" NST threaded fitting

### **Steamers, Flush+1**

The pump 6" steamer intake(s) shall be mounted approximately 1" from the pump panel to back of cap when installed. The "Flush+1" dimension can vary + or - 1-1/4" or as practicable depending on the pump module width and options selected. (Example 72" or 76" modules.)

Location: driver's side, officer's side.

### **Master Drain Valve**

A manual master drain valve shall be installed on the pump panel. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal. The master drain shall have a rubber seal to prevent water from running out on the running board.

The manual master drain valve shall have twelve (12) individual-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI.

The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.

### **Pump Cooler**

The pump shall have a 3/8" line installed from the pump discharge to the booster tank to allow a small amount of water to circulate through the pump casing in order to cool the pump during sustained periods of pump operation when water is not being discharged. The pump cooler line shall be controlled from the pump operator's panel by an Innovative Controls 1/4 turn valve with "T" handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag.

### **Pump Cooler Hose**

The pump cooler hose shall be steel braided hoses in lieu of nylon brake tubing

### **Trident Primer**

A Trident air operated priming system shall be installed. The unit shall be of all brass and stainless steel construction and designed for fire pumps of 1,250 GPM (4,600 LPM) or more. Due to corrosion exposure no aluminum or vanes shall be used in the primer design. The primer shall be three-barrel design with 3/4" NPT connection to the fire pump.

The primer shall be mounted above the pump impeller so that the priming line will automatically drain back to the pump. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass "wye" type strainer with removable stainless

steel fine mesh strainer to prevent entry of debris into the primer body.

The system shall create vacuum by using air from the chassis air brake system through a two-barrel multi-stage internal "venturi nozzles" within the primer body. The noise level during operation of the primer shall not exceed 75 Db.

### **Air Flow Requirements**

The primer shall require a minimum of 15.6 cubic foot per minute air compressor and shall be capable of meeting drafting requirements at high idle engine speed. The air supply shall be from a chassis supplied "protected" air storage tank with a pressure protection valve. The air supply line shall have a pressure protection valve set between 70 to 80 PSIG.

### **Primer Control**

The primer control shall direct air pressure from the air brake storage tank to the primer body. To prevent freezing, no water shall flow to and from the panel control.

### **Warranty**

The primer shall be covered by a five (5) year parts warranty.

### **Left Intake 2.5 Akron Valve [Qty: 2]**

Two (2) 2-1/2" suction inlets with a manually operated 2-1/2" Akron valve shall be provided on the left side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2" NST female chrome inlet swivel, and shall be equipped with a chrome plated rocker lug plug with a retainer device.

The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

A 3/4" bleeder valve assembly will be installed on the left side pump panel.

### **Front Jump Line 1.5" Akron Valve**

One (1) 1-1/2" preconnect outlet with a manually operated Akron valve shall be supplied to the extended front bumper. The preconnect shall consist of a 2" heavy duty hose coming from the pump discharge manifold to a 2" FNPT x 1-1/2" MNST mechanical swivel hose connection to permit the use of the hose from either side of the apparatus.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

An air blow-out valve shall be installed between the chassis air reservoir and the front jump line. The control shall be installed on the pump operator's panel.

The discharge shall be supplied with a Class 1 automatic 3/4" drain valve assembly. The automatic drain shall have an all-brass body with stainless steel check assembly. The drain shall normally be open and automatically close when the pressure is greater than 6 psi.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

#### **Front Bumper Discharge Swivel, Brass In Tray**

There shall be a brass swivel provided for the front bumper discharge located in hose tray center front bumper on lower back wall.

#### **Triple Crosslay Hosebed**

Three (3) crosslay hosebeds shall be provided on the pump module. The two (2) forward crosslay areas shall each have a capacity of a minimum 200' of 2.0" double-jacket fire hose. The rearward crosslay area shall have a capacity for 200 to 300' of 2.5" double-jacket fire hose. The crosslay floor and side walls shall be constructed of 3/16" (.188) smooth aluminum plate. The floor shall be slotted to prevent the accumulation of water and allow for ventilation of wet hose. Two (2) 1/4" (.25") smooth aluminum plate fixed dividers with a sanded finish shall be provided to separate the three (3) hose storage areas.

#### **Crosslay Cover**

A crosslay cover shall be provided for the crosslay storage area of the pump module. The crosslay cover shall be provided in compliance with NFPA 1901.

The crosslay cover shall be constructed from 3/16" (.187") aluminum treadplate. The cover shall include a full-length stainless steel 1/4" (0.25") rod piano-type hinge. The cover shall be hinged to open and not interfere with applicable plumbing components on the apparatus.

The crosslay cover shall include applicable grab handle(s) and two (2) hold downs to secure the cover in the closed position.

#### **Crosslay Cover Hinge**

The crosslay cover shall be hinged along the forward edge of the crosslay area.

#### **Crosslay Cover – Sides**

A pair of covers constructed of heavy duty black nylon cargo netting shall be installed over the side openings

of the apparatus crosslay. The net shall be secured with stainless steel airplane buckles. The covers shall be secured in place to comply with the latest edition of NFPA 1901.

### **1.5" Single Crosslay Akron Valve [Qty: 2]**

Two (2) single crosslay discharges shall be provided at the front area of the body. The crosslay shall include one (1) 2" brass swivel with a 1-1/2" hose connection to permit the use of hose from either side of the apparatus.

The crosslay hose bed shall consist of a 2" heavy-duty hose coming from the pump discharge manifold to the 2" swivel. The hose shall be connected to a manually operated 2" Akron valve. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: crosslay 1 & 2.

### **Single Crosslay 2.5" Akron Valve**

One (1) single crosslay discharge shall be provided at the front area of the body. The crosslay shall have one (1) 2-1/2" mechanical swivel hose connection to permit the use of the hose from either side of the apparatus.

The crosslay hose bed shall consist of a 2-1/2" heavy-duty hose coming from the pump discharge manifold to the 2-1/2" swivel. The hose shall be connected to a manually operated 2-1/2" Akron valve. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: crosslay 3.

### **Left Panel 2.5" Discharge Akron Valve[QTY 2]**

Two (2) 2-1/2" discharge outlets with a manually operated Akron valve shall be provided at the left hand side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: left side discharge 1, left side discharge 2.

### **Right Panel 2.5" Discharge Akron Valve**

One (1) 2-1/2" discharge outlet with a manually operated Akron valve shall be provided at the right side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right side discharge 2.

### **Right Rear 2.5" Discharge Akron Valve**

One (1) 2-1/2" discharge outlet with a manually operated Akron valve shall be supplied to the right rear of the apparatus by a 2-1/2" stainless steel pipe.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right rear discharge.

### **Right Panel 3" Discharge Akron Valve**

One (1) 3" discharge outlet with a manually operated Akron valve shall be provided at the right side pump panel.

The discharge shall be equipped with a device that shall not allow the valve to open or close in less than three (3) seconds.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

There shall be a 3" to 5" storz adapter provided.

Location: right side discharge 1.

### **Deck Gun 3" Discharge Akron Valve**

One (1) 3" deck gun discharge outlet with a manually operated Akron valve and 3" stainless steel pipe shall be provided above the pump compartment.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve shall be equipped with a device that limits the opening and closing speeds to comply with the current edition of NFPA 1901.

The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

### **DELUGE RISER**

A 3" deluge riser shall be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping shall be rigidly braced. The riser shall be gated and controlled from the pump operator's panel.

### **Deck Gun Location**

Deck gun piping shall be positioned dunnage pan offset to driver side. This location shall allow for optimal operation of a deck gun monitor once installed.

### **Extend-A-Gun**

A Task Force Tips 18" Extend-A-Gun model XG-18 shall be supplied for the deck gun discharge to allow for raising and lowering the deck gun monitor.

The Extend-A-Gun shall include a raised monitor sensor connected to the door ajar light.

### **Monitor**

There shall be a Task Force Tips Model XFC-52 Crossfire monitor with safety flow valve mounted above the pump. This shall be connected to the deluge riser and shall be removable. Quad stacked tips, stream shaper, master stream nozzle and truck mount shall be provided.

### **IC Push/Pull Control**

The apparatus pump panel shall be equipped with Innovative Controls Side Mount Valve Controls. The ergonomically designed ¼ turn push-pull T-handle shall be chrome-plated zinc with recessed labels for color-coding and verbiage. An anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation.

### **Bleeder Drain Valve [Qty: 10]**

Vertical lift up style, quarter turn style drain valves shall be provided for each suction inlet, or discharge outlet as specified. Each drain shall be clearly marked and color coded to match the corresponding suction or discharge.

### **Discharge/Intake Bezel**

Innovative Controls intake and/or discharge swing handle bezels shall be installed to the apparatus with mounting bolts. These bezel assemblies will be used to identify intake and/or discharge ports with color and verbiage. These bezel are designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The specified assemblies feature a chrome-plated panel-mount bezel with durable UV resistant polycarbonate inserts. These UV resistant polycarbonate graphic inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. All insert labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.

### **Storage Pan**

A storage pan shall be provided in the upper pump module area. The pan shall be constructed of 3/16" (.188") aluminum treadplate and be removable to service items in the pump module below. Holes shall be provided in the corners of the pan to facilitate drainage of water.

### **Booster Hose Reel**

An Hannay aluminum booster reel shall be installed in dunnage pan offset to officer side. The reel shall be constructed utilizing an all-aluminum welded base. Reel bushings shall be manufactured from Nylatron to insure maintenance free operation. A 12 volt electrical motor shall be provided and will rewind the reel with a chain and sprocket drive mechanism. Includes rewind switch driver's and officer's side pump panels for easy accessibility. The reel shall have a capacity of 200` of .75" booster hose. Chrome rollers and guides with nylon bushings shall be provided. Both officer and driver side of dunnage area.

All fabricated piping shall be constructed of a minimum of Schedule 10 stainless steel pipe to reduce corrosion of the lines.

### **Booster Nozzle**

A 1" TFT DS1024P nozzle shall be provided.

### **ESCUTCHEON PLATES**

The pump panel shall be equipped with color-coded removable escutcheon plates around the suction and discharge valves.

### **COLOR CODING**

Each discharge valve control, outlet, and corresponding line gauge shall be color-coded. The color-coding shall be (as applicable):

#1 Discharge - Yellow

#2 Discharge – White

#3 Discharge – Navy Blue

#4 Discharge - Black

#5 Discharge - Green

#1 Pre-Connect - Orange

#2 Pre-Connect - Red

#3 Pre-Connect - Brown

#4 Pre-Connect - Magenta

Front Bumper Line - Turquoise

Large Diameter Discharge – Yellow with White Border Left

Hose Bed Pre-Connect - Tan

Right Hose Bed Pre-Connect - Lavender

Left Rear Discharge - Olive

Right Rear Discharge – Light Blue

Deck Gun – Silver

Inlets – Burgundy Tank

Fill - Lime Green

Tank to Pump – Burgundy

### **Pump Access**

A pump service access door / or removable panel shall be provided at the front of the pump module. This access shall be large enough for easy access for pump and valve maintenance.

### **PUMP AND GAUGE PANELS, SIDE MOUNT**

The pump controls and gauges shall be located at the left side of the apparatus. The pump and gauge panels shall be flush mounted.

Pump panels on both sides shall be easily removable. The gauge and control panels shall be two separate panels for ease of maintenance. The upper gauge panel shall be hinged with a full-length stainless steel hinge held closed with a 1/4-turn latch. There shall be one (1) hinged access door as large as possible located over the right side pump panel. This door shall have a full-length stainless steel hinge and a 1/4 turn latching mechanism.

The control panel shall be laid out in a user-friendly manner. All valve controls shall have the corresponding discharge gauge located immediately adjacent to control handle to allow operator to view the discharge pressure without searching the panel.

### **PANEL FINISH**

The panels shall be constructed of brushed stainless steel for maximum protection against abrasion caused during normal use.

### **RUNNING BOARD TROUGH**

A trough shall be provided in the left side running board to hold two (2) 50-foot lengths of 3" hose. Velcro straps shall be provided to secure the hose.

### **RUNNING BOARD TROUGH**

A trough shall be provided in the right side running board to hold a 30-foot length of 5" hose. Velcro straps shall be provided to secure the hose.

### **Discharge Gauges 2.5" [Qty: 10]**

The valve discharge gauges shall be 2 ½"(63mm) diameter Innovative Controls pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40F to +160F. Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

A polished chrome-plated stainless steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels. The gauges shall display a range from 0 to 400 psi with black graphics on a white background.

#### **4" Master Pressure Gauges w/Bezel**

The master intake and master discharge gauges shall be 4"(101mm) diameter IC pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40F to +160F. Each gauge shall meet ANSI B40.1 Grade 1A requirements with an accuracy of +/- 1% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy. The two master gauges shall be installed into decorative chrome-plated zinc mounting bezel that also incorporates a test port manifold and a graphic overlay that identifies the master intake and discharge gauges, the vacuum test port, and the pressure test port. The test port manifold is solid cast brass with chrome plated plugs. The master gauges shall be installed on the pump panel no more than 6 inches apart. The gauge on the left shall be the master pump intake gauge and display a range from 30" vac to 400 psi with black graphics on a white background. The gauge on the right shall be the master pump discharge gauge and display a range from 0 to 400 psi with black graphics on a white background.

#### **FRC Water Tank Level Gauge**

Fire Research TankVision Pro model WLA300-A00 tank indicator kit shall be installed. The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.

#### **WATER TANK GAUGE**

Two (2) Whelen PSTANK LED strip lights shall be provided. The lights shall be steady burn green, blue, amber and flashing red to indicate water level in the booster tank. These lights shall be mounted high on the cab for easy visibility. Final placement will be determined at the pre-conference meeting.

## **WATER TANK**

The water tank shall be constructed of polypropylene sheet stock. This material shall be non-corrosive, stress relieved thermoplastic, black in color and U.V. stabilized for maximum protection. The tank shall be of a special configuration and is so designed to be completely independent of the body and compartments.

The tank shall be constructed with transverse and longitudinal swash partitions. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow and meet NFPA rules. All swash partitions shall interlock with one another and welded to each other as well as to the walls and floor of the tank.

The tank shall have a combination vent and fill tower. The fill tower shall be constructed of ½" thick polypropylene and shall be a minimum dimension of 8"x 8" outer perimeter. The tower shall have a ¼" thick removable screen and a hinged-type cover. Inside the fill tower, there shall be a combination vent overflow pipe. The vent overflow shall be a minimum I.D. of 4" that is designed to run through the tank, and shall be piped behind the rear wheels where specified by the purchaser so as to maximize traction.

There shall be one (1) sump standard per tank. The sump shall be constructed of ½" black polypropylene and located in the left front corner of the tank, unless specified otherwise. On all tanks that require a front suction, a schedule 40 polypropylene pipe shall be installed that will incorporate a dip tube from the front of the tank to the sump location. The sump shall have a minimum 3" FNPT threaded outlet on the bottom for a drain plug. This shall be used as a combination cleanout and drain. The tank shall have an anti-swirl plate above the dip tube.

There shall be two (2) standard tank outlets: one for tank to pump suction line and one for a tank fill line. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank. All auxiliary outlets and inlets must meet N.F.P.A. 1900 guidelines in effect at the time of manufacture.

The tank shall rest on the body cross members to adequately support the water tank per the tank manufacturer's specifications.

The tank shall be isolated from the cross members through the use of hard rubber strips with a minimum thickness ¼". Additionally, the tank shall be supported around the entire bottom outside perimeter and captured front and rear as well as side to side to prevent tank from shifting during vehicle operation.

The tank shall be completely removable without disturbing or dismantling the apparatus structure.

The tank shall come with a lifetime warranty. The tank manufacturer shall mark the tank and furnish notice that indicates proof of warranty.

## **WATER TANK CAPACITY**

The water tank shall have a capacity of 500 to 550 U.S. gallons.

### **PUMP PANEL LIGHTS, LED**

The driver's and officers side pump panels shall be illuminated by a minimum of three (3) Weldon 2631 LED lights each side.

### **AIR OUTLET**

Two (2) air chucks shall be provided on the pump operator's panel, one the driver's side and one on the officer's side. The system shall tie into the accessory tank of the brake system and include an 85-psi pressure protection valve in the outlet line to prevent the brake system from losing all air. A 25 ft. air hose shall be provided.

Note: Purchaser to specify type of hose fitting.

### **AIR HORN BUTTON**

A push button switch shall be provided on pump operator's panel to activate the air horns.

### **APPARATUS BODY**

The body shall be constructed of 3/16" aluminum sheet, bright aluminum diamond plate and structural aluminum extrusions. The body shall be of the modular design to allow for proper flexing of the truck chassis. The body shall be custom built and engineered for proper load distribution on the chassis. An insulator material shall be used where aluminum and steel are in contact to prevent corrosion.

The ceilings, sidewalls and floors of the body compartments shall be constructed of 3/16" smooth aluminum plate with a tensile strength range of 32,000 to 44,000 psi. Continuous fill welding shall seal compartment panels.

The body framework shall be constructed of custom-designed aluminum alloy extrusions with a tensile strength of 35,000 psi.

The compartment extrusions shall be slotted full-length on backside for uniform fitting of the aluminum plate work that forms the compartment interiors.

The extrusions shall be designed to allow unobstructed, sweep-out floors in all compartments. The front, top, and rear surfaces of body shall be covered with .125" bright aluminum diamond treadplate. The forward and rear recessed surfaces shall be flush with the corner extrusions.

The compartment tops shall extend downward over the extrusions and form a drip molding. The material shall be .125 aluminum treadplate with approved aerated service for walking.

The apparatus body shall be a separate module form the pump enclosure and shall not be fastened together in any manner.

Each compartment shall be properly vented with louvers.

### **REAR STEP COMPARTMENTATION**

A1- There shall be a compartment provided at the rear step. The compartment shall be approximately 38" wide x 49" high x 27.5" deep inside. The compartment shall be provided with Hinged Double doors.

### **COMPARTMENTATION LEFT SIDE**

L1- There shall be a compartment, ahead of the rear wheels approximately 31" wide x 66" high x 27-1/4" deep inside.

L2- There shall be a compartment above rear wheel approximately 61-1/2" wide x 36-1/2" high x 27-1/4" deep inside.

L3- There shall be a compartment behind the rear wheels approximately 53-1/2" wide x 66" high x 27-1/4" deep.

### **COMPARTMENTATION RIGHT SIDE**

R1- There shall be a compartment ahead of the rear wheels approximately 31" wide x 33" high x 27-1/4" deep.

R2- There shall be a compartment behind the rear wheels approximately 53-1/2" wide x 33" high x 27-1/4" deep.

The total available compartmentation shall total to be approximately 195 cu-ft. This space shall be available storage.

This number shall not include storage in the cab, air bottle storage in the fenders, ladder storage, or any other compartment with a special intended purpose. NO EXCEPTION.

### **BODY SUB-FRAME**

The chassis shall be fitted with a sub-frame system consisting of a series of steel plate gusseted legs, extending down and out from the chassis frame rails on each side. This system will provide additional structural support to the running boards and side compartments. A heavy-duty rear platform shall be constructed of the same material to support the rear compartments and rear step. The entire assembly will be attached to the chassis frame by a series of heavy-duty U-bolts. Self-supporting bodies will not be acceptable. NO EXCEPTIONS

### **COMPARTMENT INTERIOR - L1**

The L1 compartment on the left side of the apparatus shall include the following features:

### **ADJUSTABLE SHELF**

There shall be two (2) adjustable shelves provided and installed in the compartment. The shelf shall be fabricated of .188" aluminum plate. The shelf shall have a 2" lip on the front. The front face shall have a "swirl" finish.

### **COMPARTMENT INTERIOR - L2**

The L2 compartment on the left side of the apparatus shall include the following features:

#### **250# ADJUSTABLE SWING-OUT TOOL BOARD**

A double swing-out tool board with 250# rating shall be provided and mounted in a compartment. The tool board shall be constructed of a 1" square aluminum tubing framework with a 3/16" aluminum mounting surface on each side. The tool board shall be adjustable within the depth of the compartment. It shall be held in the open position with a pneumatic strut and in the closed position with a positive latching mechanism.

### **COMPARTMENT INTERIOR - L3**

The L3 compartment on the left side of the apparatus shall include the following features:

#### **ADJUSTABLE SHELF**

There shall be two (2) an adjustable shelves provided and installed in the compartment. The shelf shall be fabricated of .188" aluminum plate. The shelf shall have a 2" lip on the front. The front face shall have a "swirl" finish.

#### **600# SLIDE-MASTER TRAY**

There shall be a Slide-Master pullout drawer provided and installed. The drawer shall have a distributed load capacity of 600 lbs. and be capable of extending 70% of its depth. The tray shall be fabricated of .188" aluminum plate and have a formed lip that measures 2".

#### **Long Handle Tool Storage**

A long tool storage sleeve shall be supplied. The sleeve shall be constructed of 1/8" (.125) smooth aluminum. The sleeve shall be 27"H x 23"W.

The storage shall be mounted through L3/A1.

### **COMPARTMENT INTERIOR - R1**

The R1 compartment on the right side of the apparatus shall include the following features:

### **ADJUSTABLE SHELF**

There shall be an adjustable shelf provided and installed in the compartment. The shelf shall be fabricated of .188" aluminum plate.

### **COMPARTMENT INTERIOR – R2**

The R2 compartment on the right side of the apparatus shall include the following features:

#### **ADJUSTABLE SHELF**

There shall be an adjustable shelf provided and installed in the compartment. The shelf shall be fabricated of .188" aluminum plate.

### **COMPARTMENT INTERIOR - A1**

The A1 compartment on the rear of the apparatus shall include the following features:

#### **ADJUSTABLE SHELF**

There shall be an adjustable shelf provided and installed in the compartment. The shelf shall be fabricated of .188" aluminum plate.

### **1000# SLIDE-MASTER TRAY**

There shall be a Slide-Master pullout drawer provided and installed. The drawer shall have a distributed load capacity of 1,000 lbs. and be capable of extending 70% of its depth. The tray shall be fabricated of .188" aluminum plate with a 2" perimeter lip.

### **UNISTRUT**

Each compartment shall come equipped with 1.625" x .875" x .125" aluminum Unistrut channel. The Unistrut shall be securely fastened to the interior walls of the compartment.

### **ROLL-UP COMPARTMENT DOORS , COMPARTMENTS L1, L2, L3**

The apparatus body shall be equipped with R.O.M Robinson Shutter doors. The door slats shall be double wall box frame, manufactured from anodized aluminum with a satin finish. The doors shall have the following features:

- Manufactured wholly in the United States.
- Concave individual slat design to prevent loose equipment from hindering door operation.
- Co-Extruded stretch resistant inner seal between slats to prevent metal-to-metal contact and inhibit

moisture and dust penetration.

- Interlocking swaged/dimpled end shoes shall be utilized to provide a tight fitting assembly and allow for easy removal in the event of damage.
- Effective counter balancing for ease of lifting and lowering the doors.
- One-piece side rail and track to provide an unobstructed slide area and reduce the risk of binding.
- Non-abrasive replaceable water and dust barrier to keep compartment equipment clean and dry.
- A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation.
- A full width positive latch bar shall be operable with one hand, even with heavy gloves.

A door open indicator light shall be provided in the cab.

A 3M clear protective material shall be provided along the outer edge of the compartment floor to protect this area from scratches that could occur when installing or removing equipment from the compartments.

### **ROLL UP DOOR DRIP PAN/SPLASHGUARD**

The specified roller shutter doors shall be equipped with a drip pan with built in splashguard. The drip pan shall attach to the pennant plate with spring pins to allow for easy removal and cleaning. The construction of the pan shall be a corrosion resistant extruded and injection molded high impact styrene.

### **Double Compartment Door R1,R2,A1**

Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pans shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pans shall have a 90-degree bend to form an integral drip rail.

The compartment doors shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the doors to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the primary door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The secondary door shall have a dual stage rotary latch with a 750 lb rating to hold the door in the closed position. The latch shall be mounted at the top of the door. A stainless steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latch. The paddle handle shall be connected to the rotary latch by a 5/32" (.156") diameter rod. Cable actuation shall be deemed un-acceptable due to the potential for cable stretch and slippage. The striker pin shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.

Double door latch to have latch brackets fabricated from .125 aluminum smooth plate, installed with "PULL" tags #1032993 for left side and #1032294 for right side.

The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe.

The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb rating and be mounted near the top of the door (when possible).

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): R1, R2, A1

### **COMPARTMENT LIGHTING**

Each compartment shall be equipped with two (2) LED light strips which shall provide a consistent pattern to illuminate to entire compartment.

The lights shall be installed so there will be no exposed wiring and the wiring and lighting will not be damaged by equipment taken in and out of the compartment. Wire loom is not considered protection for exposed wiring. **NO EXCEPTIONS.**

### **HOSE BED**

The hose bed shall be provided with aluminum slatted flooring radiused at the edges to prevent hose damage from sharp edges. Each hose bed floor section shall be removable for easy access to the water tank.

### **BACK BOARD COMPARTMENT**

There shall be a back board compartment under the hose bed approximately 20" wide 4" tall and 84" deep. It shall have a fold down door with quarter turn latches.

### **HOSE BED COVER**

There shall be aluminum treadplate deflector located at the front of the hose bed. The intended purpose of this deflector is to direct wind out of the hose bed. There shall be a black netting across the back of the hose bed. The net shall be secured with stainless steel airplane buckles. The deflector shall be mounted with a hinge so that it rotates out of the way during hose load. Final details shall discussed at the pre-construction conference. Costing shall be included in the original bid.

### **HOSE BED DIVIDERS FRONT TO REAR**

The hose bed shall be divided by two (2) 3/16" aluminum partitions that are fully adjustable by sliding in three (3) tracks located at the front, center and rear of the hose bed. The dividers shall be located as needed.

### **HOSE BED DIVIDER FRONT OF BED**

There shall be a fixed divider in the front of the hose bed that runs from driver's side to officers side. It shall be spaced approximately 26" from the front of the hose bed, a 25" minimum inside clearance is required; This will be used as storage for foam buckets hose ramps and cribbing blocks.

## **HOSEBED LIGHTING**

Two (2) Unity P46WLC 6" LED flood lights shall be provided. One (1) shall be mounted on each side on the upper the apparatus body. The lights shall be activated by a switch inside the cab near the driver. The lights shall also have individual switches on each light head. Final location will be determined at the pre-build conference.

## **BODY HANDRAILS**

Handrails shall be constructed of type 304 stainless steel 1.25 inch diameter tubing with bright finish and knurled gripping surface. Mounting flanges shall be constructed from 7 gauge, .180 thick, stainless sheet. Each grab rail shall have 90 degree returns to flanges. The ends of grab rail shall pass through the flanges and be welded to form one structural unit. The handrails, shall be mounted using 1.25" SS Hex bolts, with a barrier rubber gasket at each flange. Sufficient space shall allow for a gloved hand to firmly grip the rail. The rails shall be located in the following areas:

(Note: These are in addition to those previously mentioned in the cab section):

There shall be one (1) vertical handrail at rear of the body one each side of the rear compartment.

There shall be two (2) handrails mounted horizontally, above the pump panel, one (1) on each side as large as possible.

## **HANDRAIL ABOVE PUMP PANEL**

Two (2) tubular hand rails shall be provided above the pump panel, (1) each side.

## **STEPS**

There shall be fold-down steps mounted on each side of the front face of body to provide access to the top of the pump module and dunnage area.

The rear of the body shall be equipped with fixed steps. The bottom step shall measure 14" x 11" to provide a stable footing position. Each additional step above shall measure 14" x 8" for clearance while climbing. Thinly fabricated aluminum steps shall not be utilized.

The quantity and location of steps and handrails shall meet the Current NFPA 1901 pamphlet in effect at the time the apparatus is ordered.

## **RUB RAILS**

The body shall be equipped with anodized aluminum channel style rub rails at the sides. Rub rails shall be spaced away from the body by 1/2" polymer spacers. The rub rails shall be polished to a bright finish.

## **ALUMINUM TREADPLATE**

All load bearing aluminum treadplate running boards shall be .155 thick bright-annealed finish. Running boards and rear step edges shall be flanged down for added strength. Running boards shall also be flanged up to form kick plates. All non-load bearing aluminum shall be .125" thick bright annealed finish. In areas where aluminum treadplate shall function as a load-bearing surface, there shall be a heavy steel sub-structure. This structure shall consist of 3" channel and 1-1/2" angle welded support. This shall assure that there shall be no flexing or cracking of running boards. The aluminum shall be insulated from the steel by closed cell foam body barrier material.

## **GRIP STRUT ON REAR STEP**

A grip strut insert shall be provided in the rear step area.

## **SCBA CYLINDER COMPARTMENTS**

### **SCBA 1 BOTTLE STORAGE**

(1) SCBA bottle storage constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

The door shall cover the recessed fuel fill if located adjacent to the SCBA storage.

U-shaped trough made out of aluminum smooth plate with rubber insert shall be provided to store SCBA bottles.

Location: driver side rear wheel well offset rearward

### **SCBA 2 BOTTLE STORAGE**

(2) SCBA bottle storage constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

The door shall cover the recessed fuel fill if located adjacent to the SCBA storage.

U-shaped troughs made out of aluminum smooth plate with rubber inserts shall be provided to store standard size SCBA bottles up to 7.25" in diameter and 24.5" in length. The troughs can also store a standard size 20lbs ABC Extinguisher or 2.5 gal Water Extinguisher in each trough.

Location: driver side rear wheel well offset forward, officer side rear wheel well offset forward, officer side rear wheel well offset rearward

### **SCBA Strap**

Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment. The straps shall be constructed from 1" nylon webbing formed in a loop. The strap(s) shall be mounted to the storage compartment ceiling directly inside the door opening at each bottle location.

### **SUCTION HOSE**

Two (2) 10 ft. lengths of 6" lightweight (KOCHEK) fire department hard suction hose with lightweight long handle couplings and pin lug male couplings shall be provided.

### **SUCTION HOSE MOUNTING**

The suction hose shall be mounted in diamond plate troughs and held in position by a Velcro strap. Stainless steel scuff plates shall be provided on the body side metal where the long handle couplings would otherwise hit the body sides.

### **STRAINER**

A 6" Kochek barrel strainer shall be provided.

### **GROUND LADDERS**

The apparatus shall be equipped with heavy duty, box type "I" beam rail, ground ladders. The ladders shall meet the requirements of NFPA 1931 to ensure proper design and that sufficient strength is available for the service intended. The ground ladders shall be constructed of aluminum with non-welded, field replaceable rung to rail connections to simplify field repairs and removable plated steel butt spurs for added strength. A full 1/2", non-rotting, poly rope shall be provided for easy ladder operation.

One (1) Alco-Lite PEL-24 24 ft. two-section aluminum extension ladder.

One (1) Alco-Lite PRL-14 14 ft. aluminum roof ladder.

One (1) Alco-Lite FL-10' 10 ft. folding ladder.

The ladders shall have lifetime Warranty against manufacturing defects.

### **SKULL SAVER**

A "Skull Saver" shall be provided on the ladders.

### **LADDER MOUNTING**

The ladders shall be mounted on brackets on the side of the body and held in place by chrome plated quick-release spring locks. The mounting brackets shall also hold two (2) long handled pike poles.

### **LICENSE PLATE BRACKET**

A Cast Products LP0013 cast aluminum license plate bracket with LED light shall be provided at the rear of the apparatus.

## **MASTER ELECTRICAL PANEL**

The main breaker panel shall be wired through the master disconnect solenoid and controlled with a three-position ignition rocker switch. Circuit breakers and flashers shall be located at officer's right side lower interior firewall with removable cover and schematic provided with notebook holder on outside cover.

A deluxe breaker panel with up to 22 ground switched relays with circuit breaker protection shall be provided.

An integrated electrical sub-panel shall be provided and interfaced to the body and chassis through an engineered wire harness system.

Twelve (12) 20-ampere and one (1) 70-ampere relay for cab lightbar and assemblies shall be provided. If the option for a mechanical siren has been selected two (2) additional relays shall be provided.

Additional four relay boards with circuit breaker protection for additional loads. Maximum two boards (8 relays) per breaker panel. All relay boards set up to trip with input from switch of positive-negative or load manager by moving connector on board (no tools needed to do this).

All relay boards shall be equipped with a power-on indicator light (red), input indicator light (green) and power output indicator light (red).

Up to 23 additional automatic reset circuit breakers for non-switched loads that are remotely switched (ie: heater fans, hood lights, etc.).

All relays and circuit breakers on the relay boards shall be pull-out/push-in replaceable.

All circuit breakers on the relay boards shall be 20 ampere automatic reset which can be doubled or tripled for 40 or 60-ampere capacity.

The system shall utilize Deutsch DRC weather resistant connectors at the breaker panel, toe board and main dash connections.

All internal wire end terminals, including locking connectors, shall be mechanically affixed to the wire ends by matching terminal crimping presses to assure the highest quality terminations.

All internal splices shall be ultrasonically welded connections and all internal wiring shall be high temperature GXL type wire that is protected by wiring duct wherever possible.

All switches shall be ground controlled; no power going through any rocker switch.

Any switch controlling a relay in the breaker panel shall be capable of being set to function only when the parking brake is set. All relays shall be tagged with the function that the relay is controlling.

## **BODY ELECTRIC SYSTEM**

All body electrical wiring in the chassis will be XLP cross link-insulated type. Wiring is to be color-coded and include function codes every three (3) inches. Wiring harnesses will be routed in protective, heat resistant loom, securely and neatly installed. Two power distribution centers will be provided in central locations for greater accessibility. The power distribution centers contain automatic thermal self-resetting breakers, power control relays, flashers, diode modules, daytime driving light module, and engine and transmission data links. All breakers and relays are utilized in circuits which amp loads are substantially lower than the respective component rating thus ensuring long component life. Power distribution centers will be composed of a system of interlocking plastic modules for ease in custom construction. The power distribution centers are function oriented. The first is to control major truck function and the second controls overhead switching and interior operations. Each module is single function coded and labeled to aid in troubleshooting. The centers also have accessory breakers and relays for future installations. All harnesses and power distribution centers will be electrically tested prior to installation to ensure the highest system reliability.

All external harness interfaces will be of a triple seal type connection to ensure a proper connection. The cab/chassis and the chassis/body connection points will be mounted in accessible locations. Complete chassis wiring schematics will be supplied with the apparatus.

The wiring harness contained on the chassis shall 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. The wiring shall be uniquely identified by color code or circuit function code, labeled at a minimum of every three (3) inches. The identification of the wiring shall 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 harnesses shall be covered with moisture resistant loom with a minimum rating of 300 Degrees Fahrenheit and a flammability rating of VW-1 as defined in UL62. The covering of jacketed cable has a minimum rating of 289 degree Fahrenheit.

All harnesses are securely installed in areas protected against heat, liquid contaminants and damage. The harness connections and terminations use a method that provides a positive mechanical and electrical connection and are in accordance to the device manufacturer's instructions. No connections within the harness utilize wire nut, insulation displacement, or insulation piercing.

All circuits conform to SAE1292. All circuits are provided with low voltage over current protective devices. These devices are readily accessible and protected against heat in excess of component rating, mechanical damage, and water spray. Star washers are not used for ground connections.

### **BACK-UP ALARM**

An Ecco model SA917 automatic self-adjusting electronic back-up alarm producing 87-112 db shall be installed at the rear between the frame rails. It shall operate whenever the transmission's reverse gear is selected.

### **STOP/TAIL/TURN/REVERSE LIGHTS**

The rear stop/tail/turn/reverse lights shall be Whelen M6 series lights installed in chrome plated M6FCV4 quad housings one (1) each side on the rear of the apparatus body. The stop/tail lights shall be LED model M6BTT located in the top position of the housing. The amber arrow turn signals shall be LED model M6T located below the stop/tail lights. The reverse lights shall be LED model M6BUW located below the turn signals. The bottom position of the housing shall accommodate a Whelen M6 series warning light.

### **LED ICC/MARKER LIGHTS**

LED type ICC/marker lights shall be provided to meet D.O.T. requirements.

### **FLEXIBLE MARKER LIGHTS**

A Britax L427.200.L12V LED flexible marker light shall be mounted on the rear lower corners of the body, one each side.

### **STEP LIGHTS**

The pump module running board area shall be illuminated by Whelen 2G 4" diameter LED lights mounted one each side on the front of the body in chrome flanges.

LED strip lighting shall be provided at the front and rear of the body to illuminate all stepping surfaces.

### **GROUND LIGHTING**

The apparatus shall be equipped with lighting capable of illumination to meet NFPA requirements. Lighting shall be provided at areas under the driver and crew riding area exits and shall be automatically activated when the exit doors are opened. The ground lights shall be Truck-lite® LED model #44042C. Lighting required in other areas such as work areas, steps and walkways shall be activated when the parking brake is applied, provided the ICC lights are on.

## **REAR WORK LIGHTS**

Two (2) Unity P46WLC 6" LED flood lights shall be provided. One (1) shall be mounted on each side on the upper rear of the apparatus body. The lights shall be activated by a switch inside the cab near the driver and when the apparatus transmission is placed in reverse. The lights shall also have individual switches on each light head.

## **OPTICAL WARNING SYSTEM**

The optical warning system shall be capable of two separate signaling modes during emergency operations. One mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right-of-way and the other mode shall signal that the apparatus is stopped and is blocking the right-of-way.

A momentary rocker switch shall be provided near the driver and labeled Master Emergency to energize all of the optical warning devices provided. A secondary momentary rocker switch shall be provided near the officer. All lights shall operate at not less than the minimum flash rate per minute as specified by NFPA.

## **UPPER LEVEL WARNING DEVICES**

The upper level shall be divided into zones A (front), B (officer's side), C (rear) and D (driver's side).

Zone A (front) shall have one (1) Whelen Freedom IV 72" Model F4N7QLED light bar, with fourteen (14) LED modules. The light bar shall have two (2) end red LED modules, two (2) corner red LED modules, eight (8) forward-facing red LED modules and two (2) forward-facing white LED modules. The light bar shall have all clear outer lenses. The light bar shall be installed on the cab roof as far forward as possible with two (2) MK8H 5" cast aluminum risers.

Zone B (officer's side) shall be covered by the module from the light bar and the rear beacon.

Zone C (rear) shall have two (2) Whelen Model MCFLED2\* Micro Freedom LED beacons installed one (1) each side on the upper rear of the apparatus. Each beacon shall feature two (2) rear-facing corner LED modules.

Zone D (driver's side) shall be covered by the module from the light bar and the rear beacon.

## **LOWER LEVEL WARNING DEVICES**

The lower level shall be divided into zones A (front), B (officer's side), C (rear) and D (driver's side). Zone A (front) shall have four (4) Whelen M6 series model M6\* Super LED warning lights.

The lights shall be installed two (2) each side on the front of the cab in the warning light housings.

Zone B (officer's side) shall have two (2) Whelen M6 series model M6\* Super LED warning lights and one (1) Whelen ION T-Series TLI\* Super LED warning light.

The lights shall be installed one (1) near the front corner of the apparatus, one (1) near the rear axle, and one (1) near the rear corner of the apparatus.

Zone C (rear) shall have two (2) Whelen M6 Series model M6\* Super LED warning lights installed one (1) each side on the lower rear of the apparatus.

Zone D (driver's side) shall have two (2) Whelen M6 series model M6\* Super LED warning lights and one (1) Whelen ION T-Series TLI\* Super LED warning light.

The lights shall be installed one (1) near the front corner of the apparatus, one (1) near the rear axle, and one (1) near the rear corner of the apparatus.

#### **ADDITIONAL WARNING LIGHT BARS**

There shall be (2) additional Whelen Freedom IV 21" LED light bars, Model F4MINI, each with five (5) LED modules. Each light bar shall have one (1) end red LED module, two (2) corner red LED modules, and two (2) forward-facing white LED modules. The light bars shall have all clear outer lenses. The light bars shall be installed on the cab roof each with two (2) MK8H 5" cast aluminum risers.

#### **ADDITIONAL WARNING LIGHTS**

There shall be (2) additional Whelen M6 Series model M6\* Super LED warning lights installed on the apparatus.

#### **TRAFFIC ADVISOR**

One (1) Whelen TAM65 36" LED traffic advisor shall be installed at the rear of the apparatus. The advisor shall have six (6) amber TIR6 Super LED light heads. A diamond plate lip shall be installed above the traffic advisor to protect it from hose couplings. The TACTL5 control head shall be mounted in a location specified by the fire department.

#### **WHELEN PIONEER PLUS LED BROW LIGHT**

A Whelen model PFP2 LED brow light shall be provided. The light shall be mounted at the front of the cab. The light shall be controlled from a switch in the cab.

## **WHELEN PIONEER PLUS SURFACE MOUNT SCENE LIGHT**

There shall be a pair of Whelen Pioneer Surface Mount Scene lights mounted on the cab of the apparatus, (1) ea side. The lights shall be mounted to a switch above the driver labeled LEFT SCENE and RIGHT SCENE. The lights shall be Whelen Pioneer Plus™ Model # PCPSM2C. The 154 watt +12v DC dual Pioneer lightheads shall incorporate Super-LED® combination flood/spot light installed in ABS Cicolac™ resin surface mount housing. The surface mount housing will be chrome plated. The PCPSM2C configuration shall consist of 24 white Super-LEDs for the spot light with a specialized spot reflector on the bottom, 48 white Super-LEDs in the flood light with a clear optic collimator/metalized reflector assembly on the top, and a clear non-optic polycarbonate lens. The Pioneer flood/spot light shall have 16,000 usable lumens. The PCPSM2C new combination optic design projects light directly down at 5° and producing illumination to the side of the vehicle arching upward to a 90° pattern of light.

The lens assembly shall utilize a liquid injected molded silicone gasket to be resistant to water, moisture, dust, and other environmental conditions. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The PCPSM2C shall be vibration resistant. The Pioneer™ PC boards shall be conformal coated for additional protection. One breathable membrane patch shall be installed on the rear of the housing to maintain a consistent internal pressure. The PCPSM2C shall have extended LED operation with low current consumption and low operating temperature.

The PCPSM2C shall be furnished with a 2' 2/C 18GA unterminated Heyco® cable. The Pioneer shall have the ability to flash as a secondary warning light in the "Clearing Right of Way" mode when installed with an external flasher, model number PFLASH, purchased separately. The Pioneer shall be SAE 1113-42 compliant and Class 5 testing for EMI. The PCPSM2C is covered by a five year factory warranty. The PCPSM2C shall have built-in nylon screw grommets eliminating galvanic corrosion. The surface mount Pioneer requires no body cut-out. The PCPSM2C shall have a uniquely designed molded two part silicone grommet to seal the 1" wire entry into the body.

Voltage: +12v DC

Size: H=6.37", W=", D=1.72

Amp Draw: 12 Amps Lens Color: Clear

## **GENERATOR**

The apparatus shall be equipped with a complete electrical power generation system. A Smart Power hydraulic 8.0 KW generator shall be provided and installed. The generator and wiring shall conform to present National Electric Codes as outlined in the National Fire Protection Association Standards.

The output of the generator shall be controlled by an internal hydraulic system. An electrical instrument gauge panel shall be provided for the operator to monitor and control all electrical operations and output. The generator shall be powered by a transmission power take off unit, through a hydraulic pump and motor.

The generator shall be operable anytime that the apparatus engine is running and meeting the minimum range of 950 RPM's.

## **BREAKER BOX**

A circuit breaker box shall be provided with eight (8) spaces for breakers which shall be provided as needed. All wiring shall be installed in liquid tight conduit.

## **BREAKER PANEL**

The breaker panel shall be located in the L1 Compartment and shall meet all requirements set forth by the National Electrical Code and NFPA guidelines.

## **120-VOLT OUTLET [QTY 4]**

Four (4) 20 amp, 110 volt NEMA L5-20 twist lock receptacles with a weatherproof cover plates shall be installed as specified by the department.

Location: driver side rear body, officer side rear body, driver side wheel well, officer side wheel well. The final location to be determined at pre-build conference.

## **TRIPOD MOUNTED LED SCENE LIGHT**

One (1) Fire Research Spectra MS LED Scene Light model SPA100-T14-603 Tripod lamphead shall be provided. The lamphead mounting arm shall terminate in 3/4" NPT threads. Wiring shall extend from the lamphead mounting arm bottom.

The lamphead shall have 36 ultra-bright white LEDs, 30 for flood lighting and 6 to provide a spot light beam pattern. It shall operate at 120 volts AC, draw 1.4 amps, and generate 14,000 lumens of light. The lamphead shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamphead angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamphead shall be no more than 6 1/2" high by 8 3/4" wide by 3 1/4" deep and have a heat resistant handle. The lamphead and mounting arm shall be powder coated. The LED scene light shall be for fire service use.

The light shall be mounted on the rear of the apparatus on the left side of the body. The final location to be determined at the pre-construction conference.

## **CORROSION REDUCTION POLICY**

The manufacturer shall have in place a formal corrosion reduction program and assembly procedures designed for reducing and eliminating the possibility of corrosion. It is understood that fire apparatus will operate in harsh environments. At the time of the bid the apparatus manufacturer shall show proof of a corrosion policy. Failure to submit this information could be grounds for rejection. If a formal policy is not in place explain in your bid how your firm will take the necessary steps for corrosion reduction. There will be no exception to this requirement.

In addition to a formal program the manufacture shall show proof of testing corrosion reduction

processes to ASTM B117. A copy of recent test shall be included in the bid.

### **Frame Rails**

The chassis frame rails shall be coated with a high performance, two component, reinforced inorganic zinc rich primer with a proven cathodic protection makeup preferably Cathacoat 302HB. The surface shall be clean and free of all salts, chalk and oils prior to application. Were the primer has been broken during the frame assembly process the area shall be touch up to reestablish the seal. Prior to finish paint a second primer Devran 201 shall be applied. Once the assembly of the frame is complete and the second primer is applied the entire assembly shall be covered with high quality top coat paint preferably Imron 5000 or equal. The manufacturer shall submit with the bid a copy of the product brochure and or description of the primer to be used.

### **Electro Plating**

Steel and Iron brackets such as the pump module bracket shall be Zinc plated to protect against corrosion. Plating shall be in accordance with ASTM B663. The apparatus manufacturer shall list all components with plating.

### **Fasteners**

In any area that a stainless steel screw or bolt head is to come in contact with aluminum or steel, painted or non-painted, the fastener shall have the underside of the head pre-coated with nylon. The nylon coating shall act as a barrier between the fastener head and the metal or painted surface.

Screw or bolt taped into the metal shall be pre-coated with a Threadlocker type material pre-applied on the threads.

When bolting together stainless steel the manufacturer shall use a pan-head bolt with nylon coating under the head, a stainless washer with a rubber backing, and a Stover flange nut to secure the bolt.

When mounting aluminum components such as a step to the apparatus body. The manufacturer shall use stainless washers with rubber backing. All mounted components shall have a barrier material between the two surfaces.

All rivet type fasteners shall be of the same material being secured.

Whenever possible, pre-drill and tap all holes for mounting components such as lights, steps and hand rails prior to the paint process to reduce the corrosion opportunity. If a hole must be drilled into a previously painted surface, re-establish the paint barrier around the hole and use a flange-type nutsert with a gasket under the flange.

Where possible, minimize the number of stainless trim screws in aluminum. Structural tape and or adhesive shall be used where possible for mounting trim to the body or cab.

If a pre-treated screw or bolt is not available, hand apply Dynatex Boltlocker or Theadlocker on the threads of the screw, bolt or nutsert. This will help seal threads from moisture and help prevent the fasteners from loosening.

If lubricant is used when tapping the hole, clean out the lubricant and the shavings before applying blue Threadlocker into the hole.

### **Barrier Tape**

Barrier tape shall be used on the backsides of all lights, trim pieces, or other components when bolting them to the apparatus; also when attaching stainless steel over an aluminum surface or when attaching aluminum treadplate to the stainless steel. All instances of dis-similar metals contacting each other require the addition of barrier tape between the metals where contact is made.

Before applying the tape, be sure the metal surface is clean from oil or dirt by cleaning the surface with a 50/50 mix of alcohol and water or similar solvent.

### **Gaskets**

Gaskets shall be used under all snaps, loops and fasteners for such items as for hose bed covers. Reestablish paint seal around the mounting hole edges after drilling.

Mounting with Threadlocker coating shall be used.

Flat washers with rubber backing shall be used behind all lights that have stainless screws.

#### **Rollup Doors**

1 3/4" X 1/16" barrier tape shall be used on the frame opening to act as barrier between the aluminum door rail and the painted door opening surface.

Use a paint stick around the holes after drilling and tapping. In mounting the rails, use screws with the nylon under the head and Threadlocker on the threads for mounting the doorframes.

Install barrier tape to the painted surface where the trim is located on top of the door opening.

#### **Hinged Doors**

Barrier tape shall be applied to the painted surface of the body and on the painted hinge side of the door. On the hinge side, mount tape out toward the edge to space over the barrel of the hinge, being sure to not touch the door.

Make sure the hinge fits into the extrusion frame with no corner weld beads interfering with the door fit. Do not put the hinge in a bind or cause the stainless steel hinge to touch the aluminum. Install the doors using a truss head bolt with the nylon coating under the head and Threadlocker on the threads.

#### **Painting Steel**

The manufacturer shall wipe any oil residue dry, remove any rust and remove weld slag or smoke. Clean the surface with solvent before painting. Prime with one even coat of black Color primer, and then spray a topcoat over the primer for the finish coat. After bolts are tightened to the proper torque, touch up the

bolt area and ends of the bolts with primer or cold galvanizing coating.

#### Mounting Emergency Lights and Options

All emergency lights, accessory mountings, Kussmaul covers, and 110 outlet boxes mounted to the body should be mounted with pre-coated Threadlocker and nylon under the head screws or bolts to minimize corrosion between dissimilar metals.

#### Electrical Grounding

Grounding straps shall be installed consisting of a minimum 2-gauge strap bolted to the chassis frame.

A ground cable from the cab to the right side frame rail.

From the alternator to the right side frame rail.

From the pump module frame to the right side truck frame.

From the pump mount to the truck frame rail.

From the body module to the right side truck frame.

Proper grounding will help eliminate ground loop problems throughout the truck, reducing the possibility for electrolysis and corrosion to occur. Provide clean connection points on all ground connections, (remove paint where applicable), and spray or brush on electrical sealer as necessary.

#### **SALT SPRAY TESTING**

Salt spray test shall be used to confirm the relative resistance to corrosion of coated and uncoated metallic specimens, when exposed to a salt spray climate at an elevated temperature. Test specimens shall be placed in an enclosed chamber and exposed to a continuous indirect spray of neutral (pH 6.5 to 7.2) salt water solution, which falls-out on to the specimens at a rate of 1.0 to 2.0 ml/80cm<sup>2</sup>/hour, in a chamber temperature of +35C. This climate shall be maintained under constant steady state conditions.

#### **Method**

Salt fog testing shall be performed by placing samples in a test cabinet that has been designed in accordance with Paragraph 4 (Apparatus) of ASTM B117 and operated in accordance with Paragraph 10 (Conditions) of ASTM B117.

A 5% salt solution, prepared by dissolving sodium chloride into water that meets the requirements of ASTM D1193 Specification for Reagent Water, Type IV is supplied to the chamber. At the time the samples are placed into test, the cabinet should be pre-conditioned to the operating temperature of 35°C and fogging a 5% salt solution at the specified rate. The fog collection rate is determined by placing a minimum of two 80 sq. cm. funnels inserted into measuring cylinders graduated in ml. inside the chamber. One collection device shall be located nearest the nozzle and one in the farthest corner.

#### **Orientation**

Unless otherwise agreed upon, the samples are placed at a 15-30 degree angle from vertical or tested in the "installed" position. This orientation allows the condensation to run down the specimens and minimizes condensation pooling. Overcrowding of samples within the cabinet should be avoided. An important aspect of the test is the utilization of a free-falling mist, which uniformly settles on the test samples. Samples

should be placed in the chamber so that condensation does not drip from one to another.

#### Test durations

Test durations shall be 500 hours except for sample rotation and daily monitoring of collection rates, the cabinet should remain closed for the duration of the test.

### **PAINTING**

All exposed metal surfaces not chrome plated, polished stainless steel or bright aluminum tread plate shall be thoroughly cleaned and prepared for painting. All irregularities in painted surfaces shall be rubbed down and all seams shall be caulked before the application of the finish coat.

All removable items such as brackets, compartment doors, door hinges, trim, etc. shall be removed and painted separately to insure finish paint behind all mounted items. Body assemblies that cannot be finish painted after assembly shall be finish painted before assembly. Both aluminum and steel surfaces to be painted shall be primed with a two (2)-component primer which is compatible with the finish coat. The apparatus shall be finish painted with a polyurethane base/clear system. "No Exception"

A barrier gasket/washer of "High Density Closed Cell Urethane Foam" shall be used behind all lights, handrails, door hardware and any miscellaneous items such as stainless steel snaps, hooks, washers and acorn nuts. The gaskets/washers shall be coated with pressure sensitive acrylic adhesive. All screws used to penetrate painted surfaces shall be pre-treated/coated under the head with nylon and the threads shall have pre-coat #80. This procedure shall be strictly adhered to for corrosion prevention and damage to the finish painted surfaces.

The following paint process shall be

#### utilized: Surface Preparation:

1. Wash surface thoroughly with mild detergent.
2. Clean and de-grease with Prep-Sol 3812S.
3. Sand and feather edge using 400 grit or finer on a dual action sander.
4. Remove sanding dust with a cleaner compatible with polyurethane base coat/clear coat final finish.

#### Substrate treatment:

1. Use a Metal Conditioner followed with a Conversion Coating product.

#### Priming:

1. Use a priming 615S pretreatment.
2. Use a self etching primer applied to achieve a 1.5 mil dft minimum.
3. Use Prime N Seal sealer compatible with polyurethane base coat.

#### Color Coat:

1. Apply polyurethane base coat 1-2 mil dft minimum.

Clear coat:

1. Apply polyurethane clear coat 2 mil dft minimum.

### **PAINT-TWO TONE CAB**

The cab exterior surfaces shall be two (2) colors. The paint break line shall be at the bottom of the windshield.

### **BODY COMPARTMENT DOOR PAINT**

Roll up doors shall not be painted

Hinged doors R1 and R2 shall be painted the body color.

Hinged door A1 shall be diamond plate.

### **PAINTED FRAME**

The frame rails and body subframe shall be painted glossy black.

### **STRIPING/LETTERING**

Lettering and striping shall match the Rockdale County Fleet. A graphics proof shall be provided for final approval. Final details to be discussed at the pre-construction conference. Costing shall be included in the bid price.

### **CHEVRON STRIPING, REAR BODY OUTBOARD, ORAFOL REFLEXITE**

The apparatus shall have 6" red and yellow reflective Orafol Reflexite Chevron style striping affixed to the outboard rear body panels. The striping will be set in a manner to have the effect of an inverted "V" shape. The stripe will travel low to high from the outside to the inside.

### **Stay Back 500 Feet Sign**

Sign shall be 4" x 30" smooth aluminum plate. Rear facing portion of plate to be covered in white vinyl and shall have black reflective lettering that shall read `STAY BACK 500 FEET`. The sign shall be securely attached to the rear of the apparatus.

### **MISCELLANEOUS EQUIPMENT FURNISHED**

1 pt. touch-up paint

A bag of stainless steel nuts and bolts, as used in the construction of the apparatus.

## **WHEEL CHOCKS**

Two (2) Ziamatic #SAC-44 folding wheel chocks with SQCH-44H holders shall be provided. The wheel chocks shall be located in an area close to the rear axles easily accessible from the side of the apparatus.

## **COMPUTER PACKAGE: CUMMINS & ALLISON SOFTWARE**

There shall be a computer package included in the bid.

Package includes Dell Inspiron 15 Computer with wireless mouse, Cummins Insite Software and all required data cables. Package to also include Allison Transmission software.

Final details to be discussed at the pre-construction conference. Cost for the package shall be included in the bid package.

## **OPERATION AND SERVICE MANUALS**

Complete "Operation and Service" manuals shall be supplied with the completed apparatus, one (1) printed copy and one (2) CD. Service manual instructions shall include service, maintenance and troubleshooting for major and minor components of the truck. The apparatus manufacturer shall supply part numbers for major components (i.e. Engine, Axles, Transmission, Pump, etc.). A table of contents, hydraulic, air brake and overall apparatus wiring schematics shall be included.

A video demonstration DVD on the operation of the truck shall be supplied with the manuals.

Additional operator and maintenance manual(s) shall be provided.

Special manual(s) shall be provided.

## **WIRING SCHEMATIC**

Three (3) CD's containing wiring diagrams of the apparatus shall be provided at the time of final inspection.

## **WARRANTIES**

The following warranties shall be supplied:

1. The apparatus shall be warranted to be free from mechanical defects in workmanship for a period of three (3) years or 40,000 miles, whichever comes first. The apparatus shall be covered for parts and labor costs associated with repairs for a period three (3) years or 40,000 miles, whichever comes first.
2. Life-time warranty on the frame.
3. Life-time warranty on the water tank.
4. Ten (10) year warranty on paint.
5. Ten (10) body structural warranty
6. Ten (10) year cab structural warranty
7. Manufacturers Warranties for all major components.

Detailed warranty documents shall be included for complete coverage on each of these warranties.

A detailed list specifying all items not included in the three year bumper to bumper warranty shall be included. Any items not listed shall be considered covered for the three year period.

## **MANUFACTURING & LOCATIONS**

The apparatus will be manufactured in facilities wholly owned and operated by the company. A complete stock of service parts, and service shall be provided on a 24 hours around the clock basis. The company shall maintain parts and service for a minimum period of twenty (20) years on each apparatus model manufactured.