This Purchase Agreement (together with all attachments referenced herein, the "Agreement"), made and entered into by and between Front Range Fire Apparatus ("Company"), and Town of Castle Rock, a Colorado Municipal Corporation ("Customer") is effective as of the date specified in Section 3 hereof.

1. Definitions.
   a. **"Product"** means the fire apparatus and any associated equipment manufactured or furnished for the Customer by Company pursuant to the Specifications.
   b. **"Specifications"** means the general specifications, technical specifications, training, and testing requirements for the Product contained in the Company Proposal for the Product prepared in response to the Customer's request for proposal.
   c. **"Company Proposal"** means the proposal provided by Company attached as Exhibit C prepared in response to the Customer's request for proposal.
   d. **"Delivery"** means the date Company is prepared to make physical possession of the Product available to the Customer.
   e. **"Acceptance"** The Customer shall have the opportunity, as described in Section 8(b) below, to inspect the Product for substantial conformance with the material Specifications; unless Company receives a Notice of Defect within the time frame described in Section 8(b), the Product will be deemed to be in conformance with the Specifications and accepted by the Customer.

2. Purpose. This Agreement sets forth the terms and conditions of Company's sale of the Product to the Customer.

3. Term of Agreement. This Agreement will become effective on the date it is signed and approved by both Customer and Company ("Effective Date") and, unless earlier terminated pursuant to the terms of this Agreement, it will terminate upon the Customer's Acceptance and payment in full of the Purchase Price, with the exception of insurance coverage agreed by the parties as stated in the Company Proposal, which will be provided by both the Company and manufacturer for three (3) years following acceptance of the product, and any applicable warranties. All insurance requirements are set forth in the Company Proposal.

4. Purchase and Payment. The Customer agrees to purchase the Product specified on Exhibit A for the total purchase price of $2,713,831.00 ("Purchase Price"). Prices are in U.S. funds. In no event shall payment to Company under this Agreement exceed $2,713,831.00, unless authorized in writing by Customer.

5. Future Changes. Various state or federal regulatory agencies (e.g. NFPA, DOT, EPA) may require changes to the Specifications and/or the Product and in any such event any resulting cost increases incurred to comply therewith will be added to the Purchase Price to be paid by the Customer. In addition, any future drive train upgrades (engine, transmission, axles, etc.), or any other specification changes have not been calculated into our annual increases and will be provided at additional cost. To the extent practicable, Company will document and itemize any such price increases for the Customer. Notwithstanding any other provision in this Agreement, the payment of any price increases in fiscal year 2025 and thereafter is contingent upon the appropriation of funds by Customer's governing body. If Customer's governing body fails to appropriate sufficient monies to provide for the payment of such price increases (hereinafter referred to as an "Event of Non-Appropriation"), the Agreement shall terminate on the final day preceding the date of the beginning of the first fiscal year for which funds are not appropriated. The Town's only obligation in the event of termination for an Event of Non-Appropriation shall be payment of fees and expenses incurred up to and including the effective date of termination. Termination of this Agreement due to an Event of Non-Appropriation shall not trigger the cancellation fee set forth in Section 7 below, nor shall it be considered a default by Customer under Section 13 below.

6. Agreement Changes. The Customer may request that Company incorporate a change to the Products or the Specifications for the Products by delivering a change order to Company; provided, however, that any such change order must be in writing and include a description of the proposed change sufficient to permit Company to evaluate the feasibility of such change ("Change Order"). Within [seven (7) business days] of receipt of a Change Order, Company will inform the Customer in writing of the feasibility of the Change Order, the earliest possible implementation date for the Change Order, of any increase or decrease in the Purchase Price resulting from such Change Order, and of any effect on production scheduling or Delivery resulting from such Change Order. Company shall not be liable to the Customer for any delay in performance or Delivery arising from any such Change Order. A Change Order is only effective when counter-signed by Company's authorized representative.

7. Cancellation/Termination. In the event this Agreement is cancelled or terminated by Customer before completion for any other reason than an Event of Non-Appropriation under Section 5 above, Company may charge a cancellation fee. The following charge schedule based on costs incurred may be applied: (a) 10% of the Purchase Price after order is accepted and entered by Company; (b) 20% of the Purchase Price after completion of approval drawings, and; (c) 30% of the Purchase Price upon any material requisition. The cancellation fee will increase accordingly as costs are incurred as the order progresses through engineering and into manufacturing. Company endeavors to mitigate any such costs through the sale of such Product to another purchaser; however, Customer shall remain liable for the difference between the

Purchase Price and, if applicable, the sale price obtained by Company upon sale of the Product to another purchaser, plus any costs incurred by Company to conduct any such sale.

8. Delivery, Inspection and Acceptance. (a) Delivery. Delivery of the Product is scheduled to be within 51.0 to 54.0 months of the Effective Date of this Agreement, F.O.B. Pierce's plant, Appleton, Wisconsin. Risk of loss shall pass to Customer upon Delivery. (b) Inspection and Acceptance. Upon Delivery, Customer shall have fifteen (15) days within which to inspect the Product for substantial conformance to the material Specifications, and in the event of substantial non-conformance to the material Specifications to furnish Company with written notice sufficient to permit Company to evaluate such non- conformance ("Notice of Defect"). Any Product not in substantial conformance to material Specifications shall be remedied by Company within thirty (30) days from the Notice of Defect. In the event Company does not receive a Notice of Defect within fifteen (15) days of Delivery, Product will be deemed to be in conformance with Specifications and accepted by Customer.

9. Persistent Inflationary Environment. If the Producer Price Index of Components for Manufacturing [www.bls.gov Series ID: WPUID6 l l 2] ("PPI") has increased at a compounded annual growth rate of 5.0% or more between the month Pierce accepts our order ("Order Month") and a month 14 months prior to the then predicted Ready For Pickup date ("Evaluation Month"), then pricing may be updated in an amount equal to the increase in **PPI** over 5.0% for each year or fractional year between the Order Month and the Evaluation Month. The seller will document any such updated price for the customer's approval before proceeding and provide an option to cancel the order.

10. Notice. Any required or permitted notices hereunder must be given in writing at the address of each party set forth below, or to such other address as either party may substitute by written notice to the other in the manner contemplated herein, by one of the following methods: hand delivery; registered, express, or certified mail, return receipt requested, postage prepaid; or nationally-recognized private express courier:

Company	Customer
Front Range Fire Apparatus	Town of Castle Rock
7600 Miller Ct	100 N. Wilcox
Frederick, CO 80504	Castle Rock, CO 80104

11. Standard Warranty. Any applicable manufacturer warranties are attached hereto as Exhibit B and made a part hereof. Any additional warranties must be expressly approved in writing by Company's authorized representative.

a. Disclaimer. OTHER THAN AS EXPRESSLY SET FORTH IN THIS AGREEMENT, INCLUDING ALL WARRANTIES DESCRIBED IN THE COMPANY PROPOSAL, NEITHER COMPANY, ITS PARENT COMPANY, AFFILIATES, SUBSIDIARIES, LICENSORS OR SUPPLIERS, THEIR RESPECTIVE OFFICERS, DIRECTORS, EMPLOYEES, SHAREHOLDERS, AGENTS OR REPRESENTATIVES, MAKE ANY EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE PRODUCTS PROVIDED HEREUNDER OR OTHERWISE REGARDING THIS AGREEMENT, WHETHER ORAL OR WRITTEN, EXPRESS, IMPLIED OR STATUTORY. WITHOUT LIMITING THE FOREGOING, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANT ABILITY, THE IMPLIED WARRANTY AGAINST INFRINGEMENT, AND THE IMPLIED WARRANTY OR CONDITION OF FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED AND DISCLAIMED. STATEMENTS MADE BY SALES REPRESENTATIVES OR IN PROMOTIONAL MATERIALS DO NOT CONSTITUTE WARRANTIES.

b. Exclusions of Incidental and Consequential Damages. In no event shall Company be liable for consequential, incidental or punitive damages incurred by Customer or any third party in connection with any matter arising out of or relating to this Agreement, or the breach thereof, regardless of whether such damages arise out of breach of warranty, tort, contract, strict liability, statutory liability, indemnity, whether resulting from non-delivery or from Company's own negligence, or otherwise. As stated in the Company Proposal, the Company will defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.

12. Force Majeure. Company shall not be responsible nor deemed to be in default on account of delays in performance due to causes which are beyond Company's control which make Company's performance impracticable, including but not limited to civil wars, insurrections, strikes, riots, fires, storms, floods, other acts of nature, explosions, earthquakes, accidents, any act of government, delays in transportation, inability to obtain necessary labor supplies or manufacturing facilities, allocation regulations or orders affecting materials, equipment, facilities or completed products, failure to obtain any required license or certificates, acts of God or the public enemy or terrorism, failure of transportation, epidemics, quarantine restrictions, failure of vendors (due to causes similar to those within the scope of this clause) to perform their contracts or labor troubles causing cessation, slowdown, or interruption of work.

13. Default. The occurrence of one or more of the following shall constitute a default under this Agreement: (a) the Customer fails to pay when due any amounts under this Agreement or to perform any of its obligations under this Agreement; (b) Company fails to perform any of its obligations under this Agreement; (c) either party becomes insolvent or become subject to a bankruptcy or insolvency proceedings; (d) any representation made by either party to induce the other to enter into this Agreement is false in any material respect; (e) the Customer dissolves, merges, consolidates or transfers a substantial portion of its property to another entity; or (f) the Customer is in default or has breached any other contract or agreement with Company.

14. Manufacturer's Statement of Origin. It is agreed that the manufacturer's statement of origin ("MSO") for the Product covered by this Agreement shall remain in the possession of Company until the entire Purchase Price has been paid. If more than one Product is covered by this Agreement, then the MSO for each individual Product shall remain in the possession of Company until the Purchase Price for that Product has been paid in full. In case of any default in payment, Company may take full possession of the Product, and any payments that have been made shall be applied as payment for the use of the Product up to the date of taking possession.

15. Independent Contractors. The relationship of the parties established under this Agreement is that of independent contractors and neither party is a partner, employee, agent, or joint venture of or with the other.

16. Assignment. Neither party may assign its rights and obligations under this Agreement unless it has obtained the prior written approval of the other party.

17. Governing Law; Jurisdiction. Without regard to any conflict of laws provisions, this Agreement is to be governed by and under the laws of the state of Colorado.

18. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, and all of which together shall be deemed to constitute one and the same instrument. Each of the Parties hereto shall be entitled to rely upon counterpart of the instrument executed by the other Party and sent by electronic mail.

19. Entire Agreement. This Agreement shall be the exclusive agreement between the parties for the Product. Additional or different terms proposed by the Customer shall not be applicable, unless accepted in writing by Company's authorized representative. No change in, modification of, or revision of this Agreement shall be valid unless in writing and signed by by both parties.

20. Conflict. In the event of a conflict between the Customer Specifications and the Company Proposal, the Company Proposal shall control. In the event there is a conflict between the Company Proposal and this Agreement, the Company Proposal shall control.

21. Colorado Governmental Immunity Act. The Parties understand and agree that the Town is relying on, and does not waive or intend to waive by any provision of this contract, the monetary limitations (presently $424,00 per person, $1,195,000 for two or more persons, per occurrence) or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act,§ 24-10-101, *et seq.,* C.R.S., as from time to time amended, or otherwise available to Town, its officers, or its employees.

Accepted and agreed to:

FRONT RANGE FIRE APPARATUS.

Name: Dave Dawette

Title: President

Date: 10/13/2025

CUSTOMER: TOWN OF CASTLE ROCK

ATTEST:

Lisa Anderson, Town Clerk

TOWN OF CASTLE ROCK

Jason Gray, Mayor

Approved as to form:

Michael J. Hyman, Town Attorney

Approved as to content:

Norris W. Croom, **III,** Fire Chief of Castle Rock

EXHIBIT A

PURCHASE DETAIL FORM
Company

Date: 08/22/2025

Customer Name: Town of Castle Rock

Quantity	Chassis Type	Body Type	Price
2	Velocity	Engine	$2,713,831.00
			$
			$
			$
			$

100% Pre-Payment Discount Deduct ($380,000.00)

Warranty Period: All Standard Warranties.

Training Requirements: Provided By Front Range Fire Apparatus

Other Matters: Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current information. Delivery updates will be made available, and a final firm delivery date will be provided as soon as possible.

This contract is available for inter-local and other municipal corporations to utilize with the option of adding or deleting any manufacturer available options, including chassis models. Any addition or deletion may affect the unit price.

Payment Terms: $2,333,831.00 Net 30 Days of signed contract, and Owner's receipt and acceptance of the performance Bond in accordance with the specification.

[NOTE: If deferred payment arrangements are required, the Customer must make such financial arrangements through a financial institution acceptable to Company.] To the extent permitted by law, all taxes, excises and levies that Company may be required to pay or collect by reason of any present or future law or by any governmental authority based upon the sale, purchase, delivery, storage, processing, use, consumption, or transportation of the Product sold by Company to the Customer shall be for the account of the Customer and shall be added to the Purchase Price. All delivery prices or prices with freight allowance are based upon prevailing freight rates and, in the event of any increase or decrease in such rates, the prices on all unshipped Product will be increased or decreased accordingly. Delinquent payments shall be subject to a carrying charge of 1.5 percent per month or such lesser amount permitted by law. Company will not be required to accept payment other than as set forth in this Agreement. However, to avoid a late charge assessment in the event of a dispute caused by a substantial nonconformance with material Specifications (other than freight), the Customer may withhold up to five percent (5%) of the Purchase Price until such time that Company substantially remedies the nonconformance with material Specifications, but no longer than sixty (60) days after Delivery. If the disputed amount is the freight charge, the Customer may withhold only the amount of the freight charge until the dispute is settled, but no longer than sixty (60) days after Delivery.

THIS PURCHASE DETAIL FORM IS EXPRESSLY SUBJECT TO THE PURCHASE AGREEMENT TERMS AND CONDITIONS BETWEEN COMPANY AND Town of Castle Rock WHICH TERMS AND CONDITIONS ARE HEREBY INCORPORATED IN, AND MADE PART OF, THIS PURCHASE DETAIL FORM AS THOUGH EACH PROVISION WERE SEPARATELY SET FORTH HEREIN, EXCEPT TO THE EXTENT OTHERWISE STATED OR SUPPLEMENTED BY COMPANY HEREIN.

EXHIBITB

WARRANTY

SEE PROPOSAL NUMBER 1413 DATED 08/22/2025 BY FRONT RANGE FIRE APPARATUS FOR TOWN OF CASTLE ROCK, CASTLE ROCK, COLORADO FOR ALL APPLICABLE WARRANTIES.

CON-2025-0511

EXHIBITC

COMPANY PROPOSAL

SEE PROPOSAL NUMBER 1413 DATED 08/22/2025 BY FRONT RANGE FIRE APPARATUS FOR TOWN OF CASTLE ROCK, CASTLE ROCK, COLORADO.

FRONT RANGE FIRE APPARATUS

7600 Miller Court
Frederick, CO 80504
303-449-9911
1-800-334-9911
www.FrontRangeFire.com

DUANE DOUCETTE
303-304-6118
DuaneD@frontrangefire.com

PROPOSAL FOR FURNISHING FIRE APPARATUS

August 22, 2025

Town of Castle Rock
100 N. Wilcox Street
Castle Rock, CO 80104

The undersigned is prepared to manufacture for you, upon an order being placed by you, for final acceptance by Front Range Fire Apparatus., at its home office in Frederick, Colorado, the apparatus and equipment herein named and for the following prices:

Two (2) Pierce Velocity Engines (HGAC FS12-23) **$2,713,831.00**
Per the attached proposal
Delivery is approximately 51.0 to 54.0 Months

Prepayment Options

Chassis Pre-Payment ($1,398,163.00) **Deduct ($41,945.00)**
(4 months prior to delivery)

100% Pre-Payment ($2,333,831.00) **Deduct ($380,000.00)**
Due within Net 30 Days of signed contract

Total $ _____

Said apparatus and equipment are to be built and shipped in accordance with the specifications hereto attached, delays due to strikes, war, or intentional conflict, failures to obtain chassis, materials, or other causes beyond our control not preventing, within about 51.0 to 54.0 months after receipt of this order and the acceptance thereof at our office at Frederick, Colorado, and to be delivered to you Castle Rock, CO.

The specifications herein contained shall form a part of the final contract, and are subject to changes desired by the purchaser, provided such alterations are interlined prior to the acceptance by the company of the order to purchase, and provided such alterations do not materially affect the cost of the construction of the apparatus.

The proposal for fire apparatus conforms with all Federal Department of Transportation (DOT) rules and regulations in effect at the time of bid, and with all National Fire Protection Association (NFPA) Guidelines for Automotive Fire Apparatus as published at the time of bid, except as modified by customer specifications. Any increased costs incurred by first party because of future changes in or additions to said DOT or NFPA standards will be passed along to the customers as an addition to the price set forth above.

Unless accepted within 30 days from date, the right is reserved to withdraw this proposition.

Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current information. Delivery updates will be made available, and a final firm delivery date will be provided as soon as possible.

Pierce

FRONT RANGE
FIRE APPARATUS

PROPOSAL FOR FURNISHING FIRE APPARATUS

Persistent Inflationary Environment:

If the Producer Price Index of Components for Manufacturing [www.bls.gov Series ID: WPUID6112] ("PPI") has increased at a compounded annual growth rate of 5.0% or more between the month Pierce accepts our order ("Order Month") and a month 14 months prior to the then predicted Ready For Pickup date ("Evaluation Month"), then pricing may be updated in an amount equal to the increase in PPI over 5.0% for each year or fractional year between the Order Month and the Evaluation Month.

The seller will document any such updated price for the customer's approval before proceeding and provide an option to cancel the order.

TOWN OF CASTLE ROCK

By: _____

Name:_____

Title: _____

FRONT RANGE FIRE APPRATUS.

By: _____

Name:_____

Title: SALES REPRESENTATIVE

Option List

8/22/2025

Customer:	Castle Rock Fire Department	**Bid Number:**	1413
Representative	Doucette, Duane	**Job Number:**	
Organization:	Front Range Fire Apparatus, Ltd	**Number of Units:**	2
Requirements Manager:		**Bid Date:**	08/22/2025
Description:	Pumper, Med Alum, Velocity 2nd Gen	**Stock Number:**	
Body:	Pumper, Medium, Aluminum, 2nd Gen	**Price Level:**	53 (Current: 53)
Chassis:	Velocity Chassis (Big Block), 2010	**Lane:**	Lane 2

Line	Option	Type	Option Description	Qty
1	0766611		Boiler Plates, Pumper Fire Department/Customer - Castle Rock Fire Department Operating/In conjunction W-Service Center - Operating Miles - 75 Miles Number of Fire Dept/Municipalities - 25 Bidder/Sales Organization - Front Range Fire Apparatus Delivery - Delivery representative Dealership/Sales Organization, Service - Front Range Fire Apparatus	1
2	0661794		Single Source Compliance	1
3	0584456		Manufacture Location, Appleton, Wisconsin	1
4	0584452		RFP Location: Appleton, Wisconsin	1
5	0588609		Vehicle Destination, US	1
6	0670275		Unit to be Similar in some Aspects, Excluding Pump Panel Fill in Blank - 39791 Job pics in 32374 - Stage 7 folder: S:\FAE-SHARE\Dept\Job E-Folders\32000-32999\32374\Stage 7 - Graphics & Photos\FASC	1
7	0816491		Comply NFPA 1900 Changes Effective Jan 1, 2024, With Exceptions	1
8	0533347		Pumper/Pumper with Aerial Device Fire Apparatus	1
9	0588611		Vehicle Certification, Pumper	1
10	0661778		Agency, Apparatus Certification, Pumper/Tanker, U.L.	1
11	0816495		Certification, Vehicle Inspection Program, NFPA 1900	1
12	0620362		Consortium, HGAC	1
13	0537375		Unit of Measure, US Gallons	1
14	0030006		Bid Bond Not Requested	1
15	0816571		Performance Bond, 100% with 25% Warranty Bond, 1 Yr, and Payment Bond, PPI Terms	1
16	0000007		Approval Drawing	1
17	0002928		Electrical Diagrams	1
18	0564202		Velocity Chassis (Big Block), 2010	1
19	0021007		Maximum Overall Height Size - Size - 128 inches same as 30369	1
20	0000110		Wheelbase Wheelbase - Wheelbase - 207.50"	1
21	0000070		GVW Rating GVW rating - GVW rating - 49,800 lbs.	1
22	0000203		Frame Rails, 13.38 x 3.50 x .375, Qtm/AXT/Imp/Vel	1
23	0020018		Frame Liner Not Req'd	1
24	0508849		Axle, Front, Oshkosh TAK-4, Non Drive, 22,800 lb, Imp/Vel	1
25	0010427		Suspension, Front TAK-4, 22,800 lb, Qtm/AXT/Imp/Vel/Enf/SFR	1
26	0087572		Shock Absorbers, KONI, TAK-4, Qtm/AXT/Imp/Vel/Enf	1
27	0000322		Oil Seals, Front Axle	1
28	0899288		Tires, Front, Goodyear, Armor MAX MSA, 425/65R22.50, 20 ply, Fire Service Speed	1
29	0019611		Wheels, Front, Alcoa, 22.50" x 12.25", Aluminum, Hub Pilot	1
30	0530466		Axle, Rear, Meritor RS26-185, 27,000 lb, Imp/Vel	1
31	0544253		Top Speed of Vehicle, 68 MPH /109 KPH	1
32	0555351		Suspen, Rear, Hendrickson FMX 272 EX, Air Ride, 27,000 lb	1
33	0000485		Oil Seals, Rear Axle	1
34	0000482		Driver Controlled Differential Lock, Single Axle	1
35	0824971		Tires, Rear, Goodyear, G622 RSD, 12R22.50, 16 ply, Single	1
36	0019625		Wheels, Rear, Alcoa, 22.50" x 8.25", Aluminum, Hub Pilot, Single	1

Line	Option	Type	Option Description	Qty
37	0568081		Tire Balancing, Counteract Beads	1
38	0620570		Tire Pressure Monitoring, RealWheels, AirSecure, Valve Cap, Single Axle	1
			Qty, Tire Pressure Ind - 6	
39	0003245		Axle Hub Covers w/center hole, S/S, Front Axle	1
40	0003240		Axle Hub Covers, Rear, S/S Baby Moon (Pair)	1
41	0002045		Mud Flap, Front and Rear, Pierce Logo	1
42	0011930		Tire, "Crossfire" Air Pressure Equalization	1
43	0760675		Chains, Onspot, Automatic Tire, Custom	1
44	0544802		Chocks, Wheel, SAC-44-E, Folding, (Up to 44" Diameter Tires)	1
			Qty, Pair - 01	
45	0544806		Mounting Brackets, Chocks, SAC-44-E, Folding, Horizontal	1
			Qty, Pair - 01	
			Location, Wheel Chocks - Left Side Rear Tire, Forward	
46	0820509		ESC/ABS/ATC Wabco Brake System, Single Rear Axle, NFPA 1900/ULC	1
47	0030185		Brakes, Knorr/Bendix 17", Disc, Front, TAK-4	1
48	0509206		Brakes, Meritor, EX225, Disc Plus, Rear, Single Axle	1
49	0020784		Air Compressor, Brake, Cummins/Wabco 18.7 CFM	1
50	0000785		Brake Reservoirs, Three	1
			Paint Color, Air Tanks - Frame color	
51	0587034		Air Dryer, Bendix, AD-IP w/Heat, 2010	1
52	0000790		Brake Lines, Nylon	1
53	0000854		Air Inlet, w/Disconnect Coupling	1
			Location, Air Coupling(s) - DS Step Well, Rearward	
			Qty, Air Coupling (s) - 1	
54	0000860		Outlet, Air, with shut off valve	1
			Location, Air Coupling(s) - DS Step Well	
			Qty, Air Coupling (s) - 1	
55	0000845		Air Tank, Additional for Extra Capacity	1
			Paint Color, Air Tanks - Frame color	
56	0080815		Label, Chassis Air tanks, Stick-on, Maximum of Six (6)	1
57	0808495		Engine, Cummins X15, 525 hp, 1850 lb-ft, W/OBD, EPA 2027, Velocity	1
58	0000000	STF	Engine Contingency Adjustment - Bid 1413 Castle Rock	1
59	0730808		Filters, Remote Mounted, Oil, Fuel, X15, VEL/AXT/Enf	1
60	0001244		High Idle w/Electronic Engine, Custom	1
61	0729210		Idle Reduction, Lithium, Engine Auto Shut Down 5 min. and Auto Start	1
62	0687994		Engine Brake, Jacobs Compression Brake, Cummins Engine	1
			Switch, Engine Brake - e) Cummins Hi Med Lo	
63	0552334		Clutch, Fan, Air Actuated, Horton Drive Master	1
64	0123135		Air Intake, w/Ember separator, Imp/Vel	1
65	0814375		Exhaust System, Horizontal, Right Side	1
			Exhaust, Diffuser - 4" x 5" x 7" S/S (Premium)	
			Exhaust, Material/Finish - Aluminized Steel (Standard)	
			Location, Diffuser Termination - 2.00" Past Rub Rail (Standard)	
			Tip, Exhaust - Straight Tip (Standard)	
66	0816171		Adapter, Exhaust, Nederman, for 6" or 7" Diffuser Outlet	1
			Location - The exhaust pipe will be brought straight out from under the body. The exhaust pipe will extend a maximum of 2.00" past the body side. The diameter of the diffuser will be 7.00".	
			Anchor Plate, Nederman - 1-Piece	
67	0787999		Radiator, Impel/Velocity	1
68	0722487		Cooling Hoses, Gates Silicone and Rubber Combination, Velocity	1
69	0630617		Fuel Tank, 65 Gallon, Left Side Fill, w/ Air Suspension, Aluminum	1
			Finish, Fuel Tank - Unpainted	
70	0001129		Lines, Fuel	1
71	0595087		DEF Tank, 4.5 Gallon, LS Fill, Forward of Rear Axle	1
			Door, Material & Finish, DEF Tank - Painted Job Color	
72	0723716		Fuel Priming Pump, Electronic, Automatic, Cummins, No Swt Req'd	1
73	0582243		Shutoff Valves, Fuel Line @ Primary Filter, Cummins	1
74	0553019		Cooler, Engine Fuel, Imp/Vel, SFR/Enf	1
75	0011125		Door, Fuel Fill Painted Job Color	1
			Qty, - 01	
76	0578959		Fuel/Water Separator, Racor Inline	1

Line	Option	Type	Option Description	Qty
77	0801890		Trans, Allison 6th Gen, 4500 EVS P, w/Prognostics, Imp/Vel/Enf	1
78	0644809		Transmission, Shifter, 6-Spd, Push Button, 4500 EVS, 4+2 Mode, AXT/Qtm/Enf	1
			Trans, ratio - 4500 EVS, 6Spd	
79	0684459		Transmission Oil Cooler, Modine, External	1
80	0535530		Mode, Downshift, Aggressive downshift to 2nd, w/engine brake, 6 speed	1
81	0801876		Fluid, 4000 Series Trans, Allison Approved TES-668 Synthetic, IPOS, Custom **	1
82	0001375		Driveline, Spicer 1810	1
83	0669988		Steering, Sheppard M110 w/Tilt, TAK-4, Eaton Pump, w/Cooler	1
84	0001544		Not Required, Steering Assist Cylinder on Front Axle	1
85	0509230		Steering Wheel, 4 Spoke without Controls	1
86	0690274		Logo/Emblem, on Dash	1
			Text, Row (1) One - Castle	
			Text, Row (2) Two - Rock	
			Text, Row (3) Three - Fire Rescue	
87	0793614	SP	Bumper, 16" Extended, Steel Painted, 12" H, Imp/Vel	1
88	0616508		Tray, Hose, Center, 16" Bumper, Outside Air Horns, Imp/Vel	1
			Grating, Bumper extension - Grating, Aluminum	
			Capacity, Bumper Tray - 28) 25' of 5.00"	
89	0633479		Hose Restraint, Bumper Tray, Velcro Straps, Pair	1
			Qty, Pair - 01	
90	0510226		Lift & Tow Package, Imp/Vel, AXT	1
91	0766256	SP	Tow Eyes, Painted, Extended Out Front of Bumper, Black	1
92	0698960		Coating, Top Flange, Front Bumper, Outside Exterior, UL-LX Coating, Black **	1
93	0668315		Cab, Velocity FR, 7010 Raised Roof	1
94	0724207		Engine Tunnel, X12-15, MX13, Foil Insulation w/Mech Fasteners, Velocity FR	1
95	0887600		Cab Insulation, Impel/Velocity FR	1
96	0677478		Rear Wall, Exterior, Cab, Aluminum Treadplate	1
97	0199683		Cab Lift, Elec/Hyd, w/Manual Override, Unlocked Ind Light, Imp/Vel	1
98	0123176		Grille, Bright Finished, Front of Cab, Velocity	1
99	0002224		Scuffplates, S/S At Cab Door Jambs, 4-Door Cab	1
			Material Trim/Scuffplate - b) S/S, Brushed	
100	0646179		Trim, S/S, Rect Headlights, VEL/IMP	1
			Material Trim/Scuffplate - c) S/S, Polished	
			Turnsignal Covers - No Covers	
101	0087357		Molding, Chrome on Side of Cab	1
102	0521669		Mirrors, Retrac, West Coast Style, Htd/Rmt, w/Htd/Rmt Convex	1
103	0072189		Mirror, 8.00" Convex, Cab Front, Front Cross View	1
104	0667921		Door, Half-Height, Velocity FR 4-Door Cab, Raised Roof	1
			Key Model, Cab Doors - 751	
			Cab, Exterior Door Handle, Finish - 4-Door, Chrome/Black	
105	0655511		Door Panel, Brushed Stainless Steel, Impel/Velocity 4-Door Cab	1
106	0667905		Storage Pockets w/ Elastic Cover, Recessed, Overhead, Impel/Velocity FR	1
107	0667902		Controls, Electric Windows, All Cab Doors, Impel/Velocity FR	1
108	0512419		Electric Door Locks, Cab Doors, Imp/Vel	1
109	0555485		Steps, 4-Door Full Tilt Cab, Imp/Vel	1
110	0770194		Handrail, Exterior, Knurled, Alum, 4-Door Cab	1
111	0892637		Lights, Cab & Crw Cab Acs Stps, P25, LED w/Bezel, 1Lt Per Step	1
			Color, Trim - Chrome Housing	
112	0005772		Fenders, S/S on cab, w/Radius corner, 2.00" wide	1
113	0660261		Grab Hole Red Webbed, Added to Front Cab Door Webstrap	1
114	0592071		No Windows, Side of Crew Cab, Vel/Imp	1
115	0568605		Not Required, Interior Trim, No Cab Side Windows	1
116	0667980		Windows, (2), Front of Crew Cab, 10" Raised Roof, Impel/Velocity FR	1
117	0509286		Not Required, Windows Rear of Crew Cab, Imp/Vel	1
118	0558334		Not Required, Trim, Cab Rear Windows, No Rear Windows	1
119	0786293		Window Tint, Upper Crew Cab Door, Left Side, Medium Gray	1
120	0786289		Window Tint, Crew Cab Door, Left Side, Medium Gray	1
121	0786285		Window Tint, Upper Crew Cab Door, Right Side, Medium Gray	1
122	0786278		Window Tint, Crew Cab Door, Right Side, Medium Gray	1
123	0721071		Compt, Storage, 10.71 W x 30 H x 14 D, (1) Ea Side C/C, Sgl Pan, Imp/Vel	1
			Light, Aux Cab Compartments - Pierce, Horizontal, Hinged Side	
			Finish, Cab Compt/Component - Cab Interior	

Line	Option	Type	Option Description	Qty
123			Door, Cab Exterior Cabinet - Single Pan, (2), D-Ring, Locking #751 Door, Exterior Stop - 2-Web Strap	
124	0661471		Holder, Pike Pole, Vertical Mount, Cab Exterior Location - Install on the passengers side on the back of the cab between the push up light and the outside edge of the rear cab corner reference photo in the Stage 3 Job Folder File 7 Photo's If unsure, mount at pick-up. Qty, - 1	1
125	0798371		Web Strap, 2" Heavy Duty Black Nylon, Velcro, Each Location - on top of center forward facing cabinet Qty, - 03	3
126	0647090	SP	Mounting Provisions, 3/16" Alum, Full Engine Tunnel, Sides Flanged, Vel/Imp Mounting Provision Spacing - .75" Material Finish, Cab Interior - Painted	1
127	0748671		Cab Interior, Vinyl, Velocity FR, CARE Color, Cab Interior Vinyl/Fabric - Endure Vinyl - Red	1
128	0667943		Cab Interior, Paint Color, Impel/Velocity FR Color, Cab Interior Paint - d) red	1
129	0509532		Floor, Rubber Padded Cab & Crew Cab, Imp/Vel	1
130	0741239		HVAC, Heavy-Duty, Impel/Velocity FR, CARE Paint Color, A/C Condenser - Painted to Match Cab Roof HVAC System, Filter Access - Tool Free Panel Auxiliary Cab Heater - Both	1
131	0032085		Fans, Window Defrost, Two (2), Location Feature Location - each side on the overhead console	1
132	0639675		Sun Visor, Smoked Lexan, AXT, Imp/Vel, SFR/Enf Sun Visor Retention - No Retention	1
133	0548173		Grab Handles, Driver and Passenger Door Post, Imp/Vel	1
134	0012527		Lights, Engine Compt, (2), All Custom Chassis	1
135	0122516		Fluid Check Access, Imp/Vel Latch, Door, Storage - Lift and Turn Latch, Flush	1
136	0782864	SP	Box, Storage, Aluminum, Latex Gloves, Vertical Mount Location - ship loose/mount at final Qty, - 04	4
137	0778167	SP	Map box, 4 bin/30 Deg Slant, Mount Vertical, Cup Holder, Storage, Qty Qty, - 02	2
138	0583042		Side Roll and Frontal Impact Protection	1
139	0622619		Seating Capacity, 4 Belted Seats	1
140	0697008		Seat, Driver, Pierce PS6, Base, Air Ride, High Back, Safety, PRIMARY	1
141	0587668		Seat, Officer, Pierce PS6, Base, SCBA, Safety, PRIMARY	1
142	0510037		Radio Compartment, Below Officer Seat, Imp/Vel	1
143	0887714	SP	Cabinet, Rear Facing, LS, 24 W x 34 H x 30.5 D, Radius Sp Web, Ext Acc, Imp/Vel Light, Short Cabinet - Pierce, Exterior, Right Side Scuffplate, Material/Finish - S/S, Polished Material Finish, Shelf - Painted - Cab Interior Shelf/Tray, Cabinet - (1) Shelf, Adjustable, 0.75" Flange Down Door, Cab Exterior Cabinet - Double Pan, Locking #751 Door, Exterior Stop - Web Strap Louvers, Cabinet - 0-No Louvers	1
144	0102783		Not Required, Seat, Rr Facing C/C, Center	1
145	0887715	SP	Cabinet, Rear Facing, RS, 21.5 W x 34 H x 26.5 D, Radius Sp Web, Ext Acc,Imp/Vel Light, Short Cabinet - Pierce, Exterior, Right Side Scuffplate, Material/Finish - S/S, Polished Material Finish, Shelf - Painted - Cab Interior Shelf/Tray, Cabinet - (1) Shelf, Adjustable, 0.75" Flange Down Door, Cab Exterior Cabinet - Double Pan, Locking #751 Door, Exterior Stop - Web Strap Louvers, Cabinet - 0-No Louvers	1
146	0823117	SP	Seat, Fwd Fcng C/C, LS Otbrd, PS6, Base, SCBA, 17" Btm,Safety,3" Inbrd,SECONDARY	1
147	0725071	SP	Cabinet, Fwd Fcng, Ctr, 34 W x 58 H x 24 D, Roll, Imp/Vel False Floor, EMS Cabinet - No False Floor	1

Line	Option	Type	Option Description	Qty
147			Light, Short Cabinet - Pierce, Interior, Right Side and Pierce, Interior, Left Side	
			Material Finish, Shelf - Painted - Cab Interior	
			Shelf/Tray, Cabinet - (1) Shelf, Adjustable, 0.75" Flange Down and (1) Tray, Adj, Slide-Out, 1.00" Down Lip, 1 Lock	
			Door, Cab Interior Cabinet - Rollup, Amdor, Anodized, Non-Locking	
			Louvers, Cabinet - 0-No Louvers	
148	0822962	SP	Seat, Fwd Fcng C/C, RS Otbrd, PS6, Base, SCBA, 17" Btm,Safety,3" Inbrd,SECONDARY	1
149	0793615	SP	Cabinet, Fwd Fcng, Overhead, RS, 29 W x 10 H x 14 D, VEL/IMP	1
			Latch, Storage Compt - a) Non Locking	
			Qty, Compt Door - (1)	
			Light, Overhead Compt - Pierce, Horizontal Mounted	
150	0793617	SP	Cabinet, Fwd Fcng, Overhead, LS, 29 W x 10 H x 14 D, VEL/IMP	1
			Latch, Storage Compt - a) Non Locking	
			Qty, Compt Door - (1)	
			Light, Overhead Compt - Pierce, Horizontal Mounted	
151	0777157	SP	Console, Cup Holder and Open Storage, 5 W x 3 H x 14.50 L	2
			Location - shipped loose	
			Qty, - 02	
152	0566653		Upholstery, Seats In Cab, Turnout Tuff	1
			Color, Cab Interior Vinyl/Fabric - c) Black	
153	0543991		Bracket, Air Bottle, Hands-Free II, Cab Seats	3
			Qty, - 03	
154	0603867		Seat Belt, ReadyReach	1
			Seat Belt Color - Red	
155	0604867		Seat Belt Height Adjustment, 4 Seats, Imp/Vel	1
156	0564727		Bracket, Helmet Holder, OSS Talon	4
			Qty, - 04	
157	0647647		Lights, Dome, FRP Dual LED 4 Lts	1
			Color, Dome Lt - Red & White	
			Color, Dome Lt Bzl - Black	
			Control, Dome Lt White - Door Switches and Lens Switch	
			Control, Dome Lt Color - Lens Switch	
158	0896451		Enhanced Software for Cab and Crew Cab Dome Lts	1
159	0631776		Not Required, Overhead Map Lights	1
160	0727540		Spotlight, Golight/RadioRay, Model 20**4GT, LED, 1 Lt	1
			Location - centered on cab roof behind lightbar	
			Color, GoLt - White	
			Bracket, Spotlight - Z Bracket - 1 Lt	
161	0620801		Controller, Spotlight, Golight/RadioRay, Wireless Dash Mt/Handheld, 1 Lt	1
162	0649973		Location, Spotlight Controller, Driver's Side and Shipped Loose, 1 Lt	1
163	0804719		Handlts, (4) Streamlight, Fire Vulcan, 44451, C4 LED, Tail Lts, 12v, Orange	1
			Location, Portable Hand Light - 1 each under the forward facing seats and 1 each in the engineers compartment forward wall up against the ceiling bulb facing in.as marked by the customer reference Photo's	
164	0568369		Cab Instruments, Ivory Gauges, Chrome Bezels, Impel/Velocity 2010	1
165	0509511		Air Restriction Indicator, Imp/Vel, AXT, Enf MUX	1
166	0543751		Light, Do Not Move Apparatus	1
			Alarm, Do Not Move Truck - Pulsing Alarm	
167	0509042		Messages, Open Dr/DNMT, Color Dsply,	1
168	0611681		Switching, Cab, Membrane, Impel/Velocity, AXT WiFi MUX	1
			Location, Emerg Sw Pnls - Driver's Side Overhead	
169	0811803	SP	Wiper Control, 2-Speed with Intermittent, Prk Brk, OR Switch, MUX, Imp/Vel	1
170	0834413		USB, Cab, 4, 12V DC, Dual USB Termination, Batt Dir. NFPA1900/ULC	1
			USB, Type - USB Combo A & C	
171	0821194		Wiring, Spare, 20 A 12V DC, Batt Dir, 2nd NFPA1900/ULC	1
			Location, Wiring - officers side rear facing EMS compartment for the CGI charger	
			12vdc power from - Battery direct	
			Wire termination - Butt Splice	
172	0821308		Wiring, Spare, 30 A 12V DC 1st NFPA1900/ULC	1
			Qty, - 01	
			12vdc power from - Battery switched	

Line	Option	Type	Option Description	Qty
172			Wire termination - 10-Place Bus Bar w/Cover	
			Location, Spare Wiring - center forward facing EMS cabinet on back wall near floor	
173	0820894		Wiring, Spare, 15 A 12V DC, Batt Dir, 1st NFPA1900/ULC	1
			Location, Wiring - two in the front of cab under instrument panel	
			12vdc power from - Battery direct	
			Wire termination - Butt Splice	
174	0821191		Wiring, Spare, 20 A 12V DC, Batt Dir, 1st NFPA1900/ULC	1
			Location, Wiring - behind instrument panel #9	
			12vdc power from - Battery direct	
			Wire termination - Stud	
175	0821312		Wiring, Spare, 30 A 12V DC Batt Dir 1st NFPA1900/ULC	1
			Location, Wiring - D3 compartment coiled up by 120 volt receptacle	
			12vdc power from - Battery direct	
			Wire termination - Butt Splice	
176	0035069		Emerg Light Switches, Special Activation, MUX Only	1
177	0566101		Recess, Dash Panel, Officer Side, Vel/Imp	1
178	0697394		Instrument Panel Layout, Match Existing	1
			Fill in Blank - Match Switch panel layout	
179	0814201		Vehicle Information Center, 7" Color Display, Touchscreen, MUX, CL714 **	1
			System Of Measurement - US Customary	
180	0816633		Collision Mitigation, HAAS Alert (R2V), HA7	1
			Subscription, HAAS R2V - R2V - 5 Year Data Plan Subscription	
181	0606247		Vehicle Data Recorder w/CZ Display Seat Belt Monitor	1
182	0735006		Intercom, David Clark, 4-Pos, 2-Radio, (D, O, RPTT), 2obC, U3805	1
			Location - in panel #10 rocker switch style on the driver side and chrome PB officer dash	
183	0637058		David Clark Universal Radio Interfaces Included with Single/Dual System	1
			Location, Radio Interface - center overhead position	
184	0597914		Headset, David Clark, H3442 Under Helmet, Flex Mic	4
			Qty, - 04	
			Location - driver, officer and crew cab	
185	0819255		Hangers For Headsets, NFPA/ULC 2024, Each	4
			Qty, - 04	
			Location, Headset Hangers - Driver Seat, Officer Seat, DS Outbrd, Fwrd Fcng Seat and PS Outbrd, Fwrd Fcng Seat	
186	0505836		Antenna Mount, Custom Chassis, Maxrad BMATM, Location Feature	2
			Location - one each side of cab roof just to the rear of the lightbar	
			Qty, - 02	
			Location, Antenna Cable - officer seat box	
187	0653519		Camera, Pierce, LS Mux, RS, LS, R, Cameras, SD	1
			Camera System Audio - Not Provided	
188	0814861		Camera, Switcher, Pierce, 4 channel, AHD, CVBS	1
189	0896458		Pierce Command Zone, Advanced Electronics & Control System, Vel WiFi CZT	1
			Color, Antenna - White Antenna	
			Module Housings - See Through Housings with LED Cuircuit Indicators	
190	0896456		Prognostics, Electrical System	1
191	0730603		Electrical System, Velocity ESP, Cummins, Paccar	1
192	0735191		Batteries, (3) Stryten/Exide Grp 31, 950 CCA ea, Threaded Stud, LS Bat Box	1
193	0008621		Battery System, Single Start, All Custom Chassis	1
194	0123174		Battery Compartment, Imp/Vel	1
195	0724049		Battery Charger/Converter, (2) PD2180, 80 Amp x 2, IRT	1
196	0814893		Location, Body, Charger, Front Side Compartment, LS	1
			Location, Comp Body - Ceiling, Left	
197	0813791		Panel, Charger Display, Kussmaul, 091-94-12, Batt Dir	1
198	0814942		Location, Cab, Ind/Remote, Driver's Seat with Bracket **	1
199	0811952		Not Required, Indicator/Remote Status	1
200	0016847		Shoreline, 15A 120V, Kussmaul Auto Eject 091-18WP-120	1
			Qty, - 01	
			Color, Kussmaul Cover - b) red	
			Connection, Shoreline - the battery charger and the six place outlet in the crew cab	
201	0026800		Shoreline Location	1
			Location, Shoreline(s) - DS Crew Cab	

Line	Option	Type	Option Description	Qty
202	0724036		Shoreline, IRT, 30A 120V, Kussmaul Auto Eject, 091-159-30-120, Super	1
			Color, Kussmaul Cover - b) red	
203	0724033		Shoreline Location IRT	1
			Location, Shoreline, IRT - Body- LS Rear Bulkhead	
204	0897828	SP	Light, Indicator, Shoreline Powered, IRT Battery Chargers, Color LED, Loc	1
			Location - By the IRT Shoreline Inlet	
			Color, Light - green	
205	0832341	SP	Cover, Protection over IRT Battery, Alum Treadplate	1
206	0647728		Alternator, 430 amp, Delco Remy 55SI	1
207	0032764		No Auxiliary Power Supply Req'd, Alternator System	1
208	0092582		Load Manager/Sequencer, MUX	1
			Enable/Disable Hi-Idle - e)High Idle enable	
209	0720841		Switch, Membrane, Load Manager, Mux Chassis	1
			Location - lower dash next to driver	
210	0783157		Headlights, Rect LED, JW Spkr Evo 2, Heat, AXT/Enf/Imp/Sab/Vel	1
			Color, Headlight Bez - Chrome Bezel	
211	0648425		Light, Directional, Wln 600 Cmb, Cab Crn, Wrp Bzl Out HD Lts, Imp/Vel/AXT/Qtm	1
			Color, Lens, LED's - m)match LED's	
212	0620054		Light, Directional/Marker, Intermediate, Weldon 9186-8580-29 LED 2lts	1
213	0648074		Lights, Clearance/Marker/ID, Front, P25 LED 7 Lts	1
214	0511569		Lights, Clearance/Marker/ID, Rear, P25 LED 7Lts	1
			Light Guard - Without Guard	
215	0804514		Lights, Tail, Wln M62BTT* Red Stop/Tail & M62T* Amber Dir Arw For Hsg	1
			Color, Lens, LED's - Match	
			Flash Pattern, Directional Lts - Steady On (Arrow)	
216	0806466		Lights, Backup, Wln M62BU, LED, For Tail Lt Housing	1
217	0664466		Bracket, License Plate & Light, Weldon 9186-23882-30 Incand, Temp Under Tailbrd	1
			Location - driver side	
218	0556842		Bezels, Wln, (2) M6 Chrome Pierce, For mtg (4) Wln M6 lights	1
219	0758431		Instruction, Order of Tail Lt Instl, Warn, Stop, Dir, BU,	1
220	0820889		Alarm, Back-up Warning, Wln BU97LL **	1
221	0614309		Synchronize, Wln Warning Lights, 1st	4
			Location - in lower front zone	
			Qty, - 04	
			Location 1 - common bezel outboard positions	
			Location 2 - common bezel inboard positions	
222	0587028		Light, Marker, Britax Model 428.102 LED, Red/Amber, Qty, Location	1
			Location, Lights - just the rear of D1 and P1 door	
			Qty, Lights (pair) - 1	
223	0769569		Lights, Perimeter Cab, Amdor AY-LB-12HW012 LED 4Dr **	1
224	0769572		Lights, Perimeter Pump House, Amdor AY-LB-12HW020 LED 2lts **	1
225	0770056		Lights, Perimeter Body, Amdor AY-LB-12HW020 LED 2lts, Rear Step **	1
			Control, Perimeter Lts - DS Switch Panel and Parking Brake Applied	
226	0896454		Enhanced Software for Perimeter Lts	1
227	0611878	SP	Lights, Step, Wln 0AC0EDCR LED, 45 Deg Crm Bzl, Prk Brk, Loc	1
228	0727107	SP	Light, Roof Mt, Wln S86M**, 86" Cnt Feature, Mkr Lts Not Activated, Mt Fet	1
			Color, Wln Lt Housing - White Paint	
			Control, Scene Lts - Cab Sw Panel DS and Cab Sw Panel PS	
			LED Module Type - 4 White Spot	
			Mount, Wln Summit - SUBKT5 Extended Mnt Horizontal	
229	0832812	SP	Light, Wln, Wln Field Series FSB04* w/FSBB* Bail Brackets, 26", Near/Far, 2nd	1
			Location - right side centered over crew cab door, also centered outboard of lightbar	
			Qty, - 01	
			Color, Wln Lt Housing - White Paint	
			Control, Scene Lts - PS Scene Lts	
230	0832811	SP	Light, Wln, Wln Field Series FSB04* w/FSBB* Bail Brackets, 26", Near/Far, 1st	1
			Location - left side centered over crew cab door, also centered outboard of lightbar	
			Qty, - 01	
			Color, Wln Lt Housing - White Paint	
			Control, Scene Lts - DS Flood Lts	

Line	Option	Type	Option Description	Qty
231	0831193	SP	Lights, Wln, Wln Field Series FSB04* w/FSBB* Bail Brackets, 26", Near/Far, 2nd	1
			Location - Passenger side side sheet up high between the rear beacon and the rear most Zico ladder rack actuator	
			Qty, - 01	
			Color, Wln Lt Housing - White Paint	
			Control, Scene Lts - PS Scene Lts	
232	0831183	SP	Lights, Wln, Wln Field Series FSB04* w/FSBB* Bail Brackets, 26", Near/Far, 1st	1
			Location - Driver Side towards the rear mounted above the hard suction hose	
			Qty, - 01	
			Color, Wln Lt Housing - White Paint	
			Control, Scene Lts - DS Scene Lts	
233	0645676		Lights, Not Required, Hose Bed, Deck Lights At Rear	1
234	0833492	SP	Lights, Rear Scene, Wln Field Series FSB02* w/FSBB* 14", Spcl Sw, 2Lts	1
			Location, Lights - one each side just under the traffic advisor, recessed in housing	
			Location - core controler	
			Color, Wln Lt Housing - White Paint	
235	0709438		Lights, Walk Surf, FRP Flood, LED	1
236	0753285		Switch, White Warning Lights, Front	1
			Function Reset - On	
237	0060115		Pumper, Medium, Aluminum, 2nd Gen	1
238	0554271		Body Skirt Height, 20"	1
239	0013303		Tank, Water, 500 Gallon, Poly, Med, New York Style	1
240	0003405		Overflow, 4.00" Water Tank, Poly	1
241	0028104		Foam Cell Required	1
242	0553725		Restraint, Water Tank, Heavy Duty, Special Type Tank, 4x4, or Export	1
243	0003429		Not Required, Direct Tank Fill	1
244	0003424		Not Required, Dump Valve	1
245	0048710		Not Required, Jet Assist	1
246	0030007		Not Required, Dump Valve Chute	1
247	0514778		Not Required, Switch, Tank Dump Master	1
248	0815391		Hose Bed, Aluminum, Pumper, New York Style, Fill in the Blank Height	1
			Fill in Blank - 64.00"	
			Material Trim/Scuffplate - b) S/S, Brushed	
249	0723549		Painted Hose Bed	1
			Paint Color, Hose Bed Interior - Match Lower Body	
250	0003481		Hose Bed Capacity, Special	1
			Capacity, Hose Bed - 200' X 1.75", 600' X 2.5", 1000' X 5.0", 200' X 2.5", and 200' X 1.75", in addition 150' of 1.75" will lay flat on top of the 600' of 2.5"	
251	0689090		Divider, Hose Bed, .25" Unpainted, w/Handhold	2
			Qty, Hose Bed Dividers - 2	
252	0805760		Cover, Hose Bed, Alum Treadplate	1
253	0807336		Hose Restraint, Hose Bed, Vinyl, Rear, Separate From Top	1
			Color, Vinyl Cover - a) red	
			Vinyl Flap Weight - Chain Weighted	
			Fastener, Rear Restraint, Top - Permanent Attachment (Aluminum Bar)	
			Fastener, Rear Restraint, Bottom - StayPut Shock Cord Loop Pull Tab	
254	0784405	SP	Cutout, Handhold, in Hose Bed Pull Out Tray	6
			Qty, - 06	
255	0644925		Divider, .25" Unpainted, Angled at Rear	1
			Qty, - 1	
			Fill in Blank - between hose bay #1 and #2 , to meet the bottom of the little giant ladder storage, needs to be able to slide to the right under ladder enclosure. Top of divider should be tapper notch from the rear of divider to the ladder storage box.	
256	0723741	SP	Hose Tray, Dual Action Alum, Removable, Hose Bed	3
			Location - The tray will be sized (1) 200' of 1.75" Double Stack- (4) 200' of 2.50" Single Stack - (5) 200' of 1.75" Double Stack. troughs to be 6' long with an angle stop to keep them from sliding forward.	
			Qty, - 03	
			Size - (1) 200' of 1.75" Double Stack- (4) 200' of 2.50" Single Stack - (5) 200' of 1.75" Double Stack. troughs to be 6' long with an angle stop to keep them from sliding forward.	

Line	Option	Type	Option Description	Qty
257	0755869	SP	Platform, Full Width, Front of Hose Bed, (2) Access Doors, Reinforced	1
			Location - one each side, same as job 30369 and 32374 Dimensions - 52.00" front to back and full width of the hosebed Latch, Door, Storage - "D" Handle Latch Hinge Location - Outboard	
258	0835701	SP	StayPut Shock Cord w/Pull Tab, Ship Loose, Qty 10	1
259	0013512		Running Boards, 12.75" Deep	1
260	0681766		Tailboard, 16" Deep, Full Width, Extended Substructure, Angled Corners	1
261	0828360		Wall, Rear, Smooth Aluminum/Body Material, Flush Rear Wall, 41.88D Rear Compt	1
262	0889713		Tow Eyes, 2G Pumper	1
263	0590926		Hose Restraint, Running Board, Velcro Straps	1
			Location, Hose Tray, Running Board - Left Side Qty, Tray, Hose - 1	
264	0611453	SP	Tray, Hose, Running Board, Special Size	1
			Location, Hose Tray, Running Board - b) LH Side Qty, Tray, Hose - 1 Size - 9" deep x 39" long	
265	0895820		Construction, Compt, Alum, 2G Pumper	1
266	0673878	SP	Engineer Compt, Trans, Special Width, 23" W x 42" H, x 80", Lap Door	1
267	0766002	SP	Size, Pump Access From Engineer Compt, As Large As Possbile	1
268	0833353	SP	LS 152" Lap, Full Height Compts, Double Door OTW/Front, FDLER, 14" D (INT) Upper	1
269	0793707	SP	RS 152" Lap, 3/4 Height Compts, (1) Broom, FDLER, 14" D (INT) Upper	1
270	0063911		Doors, Lap w/ "D" Handles - Side Compartments	1
271	0765433	SP	Compt, Flush Rear, Rollup, 30.75" FF, 41.88" D, Notched Over Frame Rails	1
272	0692746		Door, Gortite, Rollup, Rear Compartment	1
			Color, Roll-up Door, Gortite - Satin finish Latch, Roll-up Door, Gortite - Locking, 751, AXT/Qtm/Dash CF/Saber Cab	
273	0808926		Body Modification, 12.50" Reduced Depth Rr Compt, 65 Gal Fuel Tank/Air Susp,SR22 **	1
274	0634455		Scuffplate, Brushed S/S, Insides of Hose Bed Walls (3)	1
275	0625184		Guard, Drip Pan, S/S, Rollup Door, Pumper	1
			Qty, Door Accessory - 01 Location, Door Guard/Drip Pan - B1	
276	0505888		Keyed Locks for Latches, Lap Doors (#751 Lock)	8
			Qty, Door Accessory - 08 Location, Door Accessory - driver side and passenger side body compartments, and both pump compartments.	
277	0004012		Scuffplate, Polished S/S, Inside Each Compartment Door	1
			Qty, Door Accessory - 01 Location, Door Accessory - RS2	
278	0084013		Scuffplate, S/S, 8.00" H, Inside Compartment Door	8
			Qty, Door Accessory - 08 Location, Door Accessory - LS1, LS4, RS1, RS4 Material Trim/Scuffplate - c) S/S, Polished	
279	0616670		Lights, Compt, Pierce LED, Dual Light Strips, Each Side of Door, Pumper/Tanker	9
			Qty, - 09 Location, Compartment Lights - All Body Compts	
280	0687146		Shelf Tracks, Painted	5
			Qty, Shelf Track - 05 Location, Shelf Track - LS1, LS2, LS3, RS1 and RS3	
281	0622945		Shelves, Adjustable, Full Width/Depth, Low/Special Side Height	1
			Qty, Shelf - 01 Location, Shelf - LS1 upper with lip up Shelf, Low Side Height, Front - 1" Shelf, Low Side Height, Rear - 1" Material Finish, Shelf - Painted - Spatter Gray Shelf, Low Side Height, Right & Left - 1"	
282	0600350		Shelves, Adj, 500 lb Capacity, Full Width/Depth, Predefined Locations	7
			Qty, Shelf - 07 Material Finish, Shelf - Painted - Spatter Gray	

Line	Option	Type	Option Description	Qty
282			Location, Shelves/Trays, Predefined - RS1-Transition Point, RS3-Transition Point, RS3-Lower Third, LS2-Centered, LS3-Lower Third, LS3-Lower Third (2nd) and LS3-Transition Point	
283	0765997	SP	Shelves, Adj Full Width, 1" Sides, Transverse Engineer Compartment, Painted	1
			Qty, Shelf - 01	
284	0647091		Tray, Floor Mounted, Slide-Out, 500lb, 2.00" Sides	3
			Qty, - 03	
			Location, Tray Slide-Out, Floor Mounted - RS1, LS1 and B1	
			Material Finish, Tray - Painted - Spatter Gray	
285	0774670	SP	Tray, Floor Mounted, Slide-Out, w/Side Slides, Low/Special Sides, Size	1
			Qty, - 01	
			Fill in Blank - 40" across to cover the 40" wide transverse area, use the 22.00" slides	
			location - D4 in the transverse engineers compartment just over the chassis frame enclosure, sliding out into D4 only with 22.00' slides	
			Material - paint to match compt interior	
			Tray, Low Side Height, Front - 1"	
			Tray, Low Side Height, Rear - 1"	
286	0788561		Access Panel, Compartment Wall	1
			Location - LS3 compartment right side wall to access DEF header, panel needs to extend up past the transition point in the compartment several inches to allow access to DEF fittings. Same as what was done on Denver job 39150	
			Qty, - 01	
			Size - panel should a a minimum of 20.75" wide across the bottom x 18.00" high on the door side x 14.50" high towards back side the top will be "L shaped around the transition. See picture of Denver job 39150 in the approval return documents.	
			Fill in Blank - the DEF header	
287	0539812		Box, Poly Tool, Additional	1
			Location - LS3 floor. all measurements ID	
			Qty, Comp. Accessory - 01	
			Color - 1) black	
			Length - 22.00"	
			Width - 12.00"	
			Depth - 6.00"	
288	0539811		Box, Poly Tool	2
			Location - RS1 body, all measurements ID	
			Qty, Comp. Accessory - 02	
			Color - 1) black	
			Length - 22.00"	
			Width - 11.00"	
			Depth - 10.00"	
289	0793601	SP	Box, Long Tool Storage, Over Pump, Open Top Only, Crosslay Cover	1
			Location - above the crosslays	
			Dimensions - full width x 12.00" high x full length ID	
290	0657143		Compt, Storage, Over Pump, IPO Crosslay, Long Handle Tools, Access Both Sides	1
			Location - rearward	
			Qty, Partition - 01	
			Fill in Blank - 3.00" from forward wall	
			Dimensions - 12" wide x 20" high x full length of engineers compartment	
			Latch, Door, Storage - "D" Handle Latch	
291	0835702	SP	Tray, Top of Compartment, 13.50" H, (4) Seat Belt Buckles Shipped Loose	1
			Qty, - 01	
			Location, driver's/passenger's/center - Right Side	
			Floor Material, Hose Tray - Grating	
			Length, Tray - 152"	
			Outboard Height, Tray - Angled - 2.00"	
292	0004016		Rub Rail, Aluminum Extruded, Side of Body	1
293	0784811		Fender Crowns, Rear, Stainless, w/Removable Liner	1
			Material Finish, Fender Liner - Brushed Stainless	
294	0600801	SP	Hose, Hard Suction, 5.0", 10.0', Clear Corrugated, w/6.0" Couplings	2
			Qty, Hard Suction Hose - 2	
295	0612959		Trough, HSH, (2), Compartment Top Mount, Angle Bracket	1
			Location, Hose Trough/Compartment - a) left side	
			Trough, Material - Steel - Painted (2)	

Line	Option	Type	Option Description	Qty
295			Trough, Latch Type - clamps	
296	0626229		Handrails, Side Pump Panels, Per Print	1
297	0025450		Handrails, Rear Bulkhead	1
298	0014136		Handrails, Rear, (2), (1) Above and (1) Below Hose Bed	1
			Reinforcement, Hose Bed Divider - Not Required, Reinforcement	
299	0004154		Handrail, Extra - 10" Long	1
			Location, Handrails - front DS corner of the cargo compartment cover to access the top of the truck to the cargo area	
			Qty, Handrails - 01	
300	0657651		Compt, Air Bottle, Double, Fender Panel	2
			Qty, Air Bottle Comp - 2	
			Door Finish, Fender Compt - Painted	
			Location, Fender Compt - Double - LS Fwd and Double - RS Fwd	
			Latch, Air Bottle Compt - Flush Lift & Turn	
			Insert, Air Bottle Compt - W-Shaped Insert	
301	0637785		Compt, Extinguisher Fender Panel, 9.00" Square	1
			Qty, - 01	
			Door Finish, Fender Compt - Painted	
			Location, Fender Compt - Single - RS Rear	
			Latch, Air Bottle Compt - Flush Lift & Turn	
			Insert, Air Bottle Compt - Rubber Matting	
302	0004225		Ladder, 24' Duo-Safety 900A 2-Section	1
303	0635956		Ladder, 14' Duo-Safety 775-DR Roof	1
			Qty, - 01	
304	0730775	SP	Rack, Zico Quic-Lift, RS, Spcl Mounting	1
			Fill in Blank - on the rack that is spaced out from the body 1.25" to allow clearance for the hose stored in the tray on the catwalk. 24' ladder will be on the inside and the 14' on the outside	
305	0733387		Ladder, 10' Duo-Safety Folding 585A	1
306	0721034		Trough, Folding Ladder, Top of Body Compt	1
			Location, Left Side, Right Side - Left Side	
307	0812235		Ladder, Little Giant, Revolution 2.0 - Model 17, 13117 **	1
			Location - in the ladder trough in the hosebed to allow mounting of the folding ladder	
308	0833360	SP	Compt w/Strap, Little Giant Storage, Hose Bed Wall, Vertical, On Beam	1
			Location, driver's/passenger's/center - Left Side	
			Ladder, Make/Model - Little Giant Revolution Model 17	
309	0625843		Trash Hook, 8' Fire Hooks Unlimited, Fiberglass, TRH-8, w/D Handle	1
			Location - driver side catwalk	
			Qty, Pike Poles - 1	
310	0567897		Pike Pole, 8' Fire Hooks Unlimited, New York Roof Hook, Steel, Pry End, RH-8	1
			Qty, - 01	
			Location - driver side catwalk, behind suction hose	
311	0552649		Pike Pole, 6' Fire Hooks Unlimited, New York Roof Hook, Steel, Pry End, RH-6	1
			Qty, - 01	
			Location - and will be installed on passenger side of cab at pick up. Note: the telescoping lights on both sides of the cab must be installed inboard 3" from standard to allow room see photo	
312	0657484		Trough for D-Handled Pike Pole, Aluminum	1
			Location - Top of LS catwalk	
			Qty, Pike Pole Tubes - 01	
313	0004361		Tubes, Alum, Pike Pole Storage	1
			Qty, Pike Pole Tubes - 01	
			Location, Pike Pole Tube - Compt Top - DS	
314	0622227	SP	Label, Load Rating	2
			Location - above each front tow eyes	
			Qty, - 02	
			Fill in Blank - of the front two eyes	
315	0785102		Steps, Folding, Front of Body, Cargo Bed Access, w/LED, Trident	1
			Coating, Step - luminescent	
			Location, Steps - Full Height Left, One (1) Right Side w/LED Light	
316	0592994		Steps, Folding, Rear of Body, w/LED, Trident	1
			Coating, Step - luminescent	

Line	Option	Type	Option Description	Qty
317	0724153		Step, Folding - Extra, Body Only, w/LED, Trident	2
			Qty, Folding Step - 02	
			Location, Additional Step - one right front bulkhead and one PS rear	
			Coating, Step - luminescent	
318	0007545		Pump House, Side Control, 45", Control Zone	1
319	0035501		Pump House Structure, Std Height	1
320	0608224		Access Door, Cargo Compt, RS, 105 Deg Lift-up Door, Latch & Hold Open Selections	1
			Door, Material & Finish, Storage - Aluminum Treadplate	
			Latch, Door, Storage - "D" Handle Latch w/ Gas Struts(2)	
321	0000515		Divider, Cargo Area Above Pump	1
			Location - In the cargo area in the hinge area for support for the cargo compartmet	
322	0650571		Floor, Split and Notched for Access, Aluminum Treadplate	2
			Qty, - 02	
			Fill in Blank - floor to be removable	
323	0785060	SP	Platform, Cargo Area, For Hose Reel	1
			Size - raise the booster reel in the cargo area approximately 20.00" so the remaining area under the reel/false floor should remain open for storage, access from the center of cargo area	
			Location, driver's/passenger's/center - Right Side	
324	0004430		Pump, Waterous, CSU, 1750 GPM, Single Stage	1
325	0004482		Seal, Mechanical, Waterous	1
326	0816447		Trans, Pump, Waterous C22 Series	1
327	0635600		Pumping Mode, Stationary Only	1
328	0605126		Pump Shift, Air Mnl Override, Split Shaft, Interlocked, Waterous	1
329	0003148		Transmission Lock-up, EVS	1
330	0004547		Auxiliary Cooling System	1
331	0014486		Not Required, Transfer Valve, Single Stage Pump	1
332	0737989		Valve, Relief Intake, Waterous	1
			Qty - 1	
			Pressure Setting - 150 psig	
333	0826104		Controller, Pressure, FRC, Pump Boss Max, PBA500	1
			Pressure Governor Throttle Control - Clockwise	
			Pressure Governor Default Mode - RPM Setting	
			Pressure Governor Std/Metric - Standard psi readouts	
			Pressure Governor Transducer - Single 600 PSI	
			Pressure Governor Alarm - NOT BE an additional alarm provided	
334	0072170		Primer, Trident, Air Prime, Air Operated, w/(1) Additional Priming Valve	1
			Inlet Extra Primer - Front Inlet	
335	0528229		Drain Locations, Special Instructions	1
336	0780364		Manuals, Pump, (2) Total, Electronic Copies	1
337	0602512		Plumbing, Stainless Steel and Hose, Single Stage Pump, Control Zone	1
338	0795135		Plumbing, Stainless Steel, w/Foam System	1
339	0004645		Inlets, 6.00" - 1250 GPM or Larger Pump	1
340	0034651		Pump Suction Tube(s), Short, Right Side	1
341	0550696		Valve, Waterous Monarch w/Relief, LS Side Inlet, 6", Waterous Handwheel Control	1
342	0550697		Valve, Waterous Monarch w/Relief, RS Side Inlet, 6", Waterous Handwheel Control	1
343	0004646		Cap, Main Pump Inlet, Long Handle, NST, VLH	1
344	0743394		Valves, Full Flow Waterous, Akron/Elkhart Aux Inlet Valves	6
			Valve, Brand - Akron	
			Qty, Valves - 6	
			Inlet/Outlet Location - No. 1 Left Side Discharge, No. 1 Right Side Discharge, No. 1 Rear Discharge, No. 2 Rear Discharge, No. 3 Rear Discharge and No. 4 Rear Discharge	
345	0016158		Valve, Inlet(s) Recessed, Side Cntrl, "Control Zone"	2
			Qty, Inlets - 2	
346	0004700		Control, Inlet, at Valve	1
347	0004660		Inlet (1), Left Side, 2.50"	1
348	0004680		Inlet, Right Side, 2.50"	1
349	0799698	SP	Garnish Plate, Main Inlets, Cover MIV Valve Elbow, Polished S/S	1
350	0034720		Anode, Zinc, Pair, Pump Inlets	1

Line	Option	Type	Option Description	Qty
351	0897257		Inlet, 4" to 6" Front, 5" Plumbing, w/Bleeder Valve, Top of Bumper	1
			Inlet, Size - Six Drain, Suction - T Swing Handle Inlet, Front, Valve - Jamesbury 5.00" Inlet, Front, Plumbing - Black Iron Pipe	
352	0767500		Control, Front Inlet, Akron 9333 Elec Controller, w/Override, Access Door	1
353	0737984		Valve, Relief Intake, Front Inlet, Waterous	1
			Pressure Setting - 150 psig	
354	0732444		Swivel, Front Inlet, 4.00" to 6.00", w/Drain	1
			Inlet, Size - 6.00" inlet Inlet Bleeder - Quarter-Turn Style Bleeder Finish, Front Inlet Elbow/Adapter - Chrome	
355	0521688		Not Required, Cap, Long Handle, Front Inlet, Pre-connected Hose	1
356	0092569		No Rear Inlet (Large Dia) Requested	1
357	0064116		No Rear Inlet Actuation Required	1
358	0092696		Not Required, Cap, Rear Inlet	1
359	0009648		No Rear Intake Relief Valve Required on Rear Inlet	1
360	0500064		Adapter, 6" (FNST) x 5" Storz, Rigid, w/Cap, Front Inlet	1
361	0038167		Interlock, Cab Lift and Front Suction	1
362	0092568		No Rear Auxiliary Inlet Requested	1
363	0723049		Valve, .75" Bleeder, Aux. Side Inlet, "T" Swing Handle	1
364	0029043		Tank to Pump, (1) 3.00" Valve, 3.00" Plumbing	1
365	0004905		Outlet, Tank Fill, 1.50"	1
366	0062133		Control, Outlets, Manual, Pierce HW if applicable	1
367	0004940		Outlet, Left Side, 2.50"	1
			Qty, Discharges - 01	
368	0065091		Elbow, Left Side Outlets, 30 Degree, 2.50" FNST x 2.50" MNST, VLH	1
369	0092570		Not Required, Outlets, Left Side Additional	1
370	0035094		Not Required, Elbow, Left Side Outlets, Additional	1
371	0004945		Outlet, Right Side, 2.50"	1
			Qty, Discharges - 01	
372	0085096		Elbow, Right Side Outlets, 30 Degree, 2.5" FNST x 2.5" MNST, VLH	1
373	0092571		Not Required, Outlets, Right Side Additional	1
374	0089584		Not Required, Elbow, Right Side Outlets, Additional	1
375	0816625		Outlet, Large Diameter, Right Side, Akron Valve	1
			Outlet, Large Diameter, Plumbing - 4.00" Outlet, Large Diameter, NST Adapter - 4.00" MNST Outlet, Large Diameter, Valve Actuation - Pierce large handwheel	
376	0005097		Elbow, Large Dia Outlet, 30 Deg, 4.00" FNST x 5.00" Storz	1
			Qty, - 01	
377	0092572		Not Required, Outlet, Front	1
378	0004995		Outlet, Rear, 2.50"	2
			Qty, Discharges - 02 Location, Outlet - c) one (1) each side	
379	0040286		Elbow, Rear Outlets, 30 Degree, 2.50" FNST x 2.50" MNST, VLH	1
380	0044930		Outlet, Rear, 2.50", Additional	2
			Location - one each side Qty, Discharges - 02	
381	0633330		Elbow, Rear Outlets, 30 Degree, 2.50" FNST x 2.50" MNST, VLH, Additional	1
382	0092573		Not Required, Outlet, Hose Bed/Running Board Tray	1
383	0752097		Caps/Plugs for 1.00" to 3.00" Discharges/Inlets, Chain	1
384	0723042		Valve, 0.75" Bleeder, Discharges, "T" Swing Handle	1
385	0005080		Reducer, 2.50" FNST x 1.50" MNST, w/Cap	2
			Qty, Adapter for Outlets - 02 Location, Adapter(s) - Rear hosebed outlets in beds 1 and 5	
386	0092504		Reducer, 2.50" FNST x 1.50" MNST, No Cap	1
			Qty, Adapter for Outlets - 01 Location, Adapter(s) - 2.50" crosslay, make sure swivel and adapter clears the tray with swivels	
387	0820280		Outlet, 3.00" Deluge Riser	1
388	0095958		Deluge Outlet, Special Height/Location	1
			Fill in Blank - center of cargo area to the rear 6.5" above the side sheets, match customers previous unit 32374	

Line	Option	Type	Option Description	Qty
389	0092044		Monitor, TFT Crossfire XFC-52, (2) 2.5" Inlets, Package	1
			Monitor Finish - Painted by OEM	
390	0047175		No Additional Nozzle Req'd	1
391	0015072		Deluge Mount, For TFT Crossfire Monitor, XFF-APL, No Extend-a-Gun	1
392	0723726		Speedlay Module Not Required	1
393	0722432		Hose Restraint Not Required, No Speedlay Module	1
394	0723395		Speedlays, Not Required	1
395	0723394		Speedlays, Not Required	1
396	0806792	SP	Crosslay, (1) 1.50", Spl. Cap/Arrangement, Alum Tray	1
			Capacity, Special Xlay - 200' of 1.75" D.J hose and nozzle double stack	
397	0029196		Not Required, 2.50" Crosslay	1
398	0793608	SP	Hose Restraint, Crosslay, Vinyl, StayPut Fasteners, Each Side, Ends	1
			Color, Vinyl Cover - a) red	
			Qty, - 01	
			Restraint Location - Top (towards roof of truck)	
399	0029260		Not Required, Speedlays	1
400	0750536		Hose Restr, Spdly, Not Required, No Spdly	1
401	0615255		Cover, Crosslay, 3/16" Alum Treadplate, Front Hinge	1
			Stay arm, Tray Cover - c)Pneumatic Stay Arm, Dual	
402	0015216		Reel, Booster, Aluminum - Over Pump, Right Side	1
403	0005280		Switches, Reel Rewind - (1) Each Pump Panel	1
404	0793706	SP	Hose, Booster - 100' of 1.00"/800 PSI (50'+50')	1
405	0025244		Capacity, Hose Reel 100' of 1"	1
406	0793709	SP	Nozzle (1), TFT, DS1040BCP	1
407	0005326		Blowout, Hose Reel - Valve at Panel	1
			Qty, - 1	
408	0085328		Nozzle Cup, Zico w/Bracket	1
			Location - locate at time of final inspection	
			Qty, - 1	
			Size, Nozzle Cup - 3-1/2" I.D.	
409	0622237		Roller Assembly, Additional	1
			Location - Drivers side cargo side sheet	
			Qty, - 1	
410	0624939		Foam Sys, Husky 3, Single Agent, Multi Select Feature	1
			Discharge, Foam Locations - rear outlet right side inboard, Hose Reel in Dunnage Right Side, Rear Outlet Right Side and Crosslay Front	
411	0012126		Not Required, CAF Compressor	1
412	0592527		Refill, Foam Tank, Integral, Husky 3	1
413	0600980	SP	Label Foam Tank, 40 Gallon Capacity	1
414	0622173	SP	Foam Tank Shut Off Valve, 1.00"	1
			Qty, - 01	
415	0042573		Not Required, Foam System Demonstration	1
416	0005448		Foam Cell, 40 Gallon, Not Reduce Water	1
			Type of Foam - Class "A"	
			Foam, Brand Name - Baums NovaCool A/B	
417	0697589		Drain, 1.00", Foam Tank #1, Husky 3 Foam System, Quarter Turn	1
418	0091079		Not Required, Foam Tank #2	1
419	0091112		Not Required, Foam Tank #2 Drain	1
420	0746447		Approval Dwg, All Pump Panel(s), Includes Color And Label Tags	1
			Num Of Truck(s) or Sim Unit, ALL Pump Pnl, Dwg - 32374	
421	0032479		Pump Panel Configuration, Control Zone	1
422	0005525		Material, Pump Panels, Side Control Brushed Stainless	1
423	0721765		Panel, Pump Access - Right Side Only, Side Control	1
			Latch, Pump Panel Access, Side Mount - Swell Latch, Black	
424	0583824		Light, Pump Compt, Wln 3SC0CDCR LED White	1
			Qty, - 01	
425	0586438		Gauges, (5), Engine - Pump Panel, IAT Pressure Controller	1
426	0005601		Throttle, Engine, Incl'd w/Press Controller	1
427	0739224		Indicator Light @ Pump Panel, Throttle Ready, Incl w/Pressure Gov/Throttle,Green	1
428	0549333		Indicators, Engine, Included with Pressure Controller	1
429	0830148	SP	Not Required, Indicator Light, Pump Panel, Ok To Pump, Inc w/Pressure Gov	1

Line	Option	Type	Option Description	Qty
430	0757201	SP	Latch Over the Foam Inlet Drain, W/Stripe Designator	1
			Location - installed on the foam inlet drain drivers side of the unit.	
431	0771004	SP	Plate, Access, Removeable, Pump Panel, Brushed SS, Location	1
			Location - driver side pump panel, customer requesting access as large as possible . See marked up pump panel layout	
432	0830289		Gauges, 6.00" Master, IC	1
			Gauge Pressure Range - 30"-0-600 psi	
			Color Dial Face - white	
433	0005715		Gauge, 3.50" Pressure, Class 1, 30"-0-600psi	1
434	0607159		Gauge, Water Level, FRC, WLA 300-A00, TankVision Pro	1
435	0604028		Water Level Gauge, FRC, MaxVision WLA280-A00 Programmable Remote Display	2
			Location - upper rear corners of the crew cab, to the rear of the crew doors	
			Qty, - 02	
			Activation, Water Level G - pb) parking brake is applied	
436	0604354		Gauge, Foam Level, FRC, Tank Vision Pro, WLA 360-A00, Class "A"	1
437	0747860	SP	Light Shield/Step 8", LED Mtd Above the Master Gauges, w/P25 Step Light	1
438	0682498		Light Shield/Step 8", PS LED, P25 LED Stp Lt	1
439	0606694		Air Horns, (2) Hadley, 6" Round, eTone, In Bumper	1
440	0606831		Location, Air Horns, Bumper, Right Side, Outside Frame, Same Side (Pos #1 & #2)	1
441	0757092		Control, Air Horn, Multi Select	1
442	0757077		Control, Air Horn, Lanyard, LS	1
			Lanyard - Plastic Coated Braided Cable	
443	0757076		Control, Air Horn, Lanyard, RS	1
			Lanyard - Plastic Coated Braided Cable	
444	0505417		Siren, Wln 295HFSC9, Dual Tone, 200W	1
445	0015283		Location, Elect Siren	1
			Location - overhead panel #3	
446	0076156		Control, Elec Siren, Head Only	1
447	0745225		Speaker, (2) Wln, SA314A, Natural Finish, 100 watt	1
			Connection, Speaker - siren head	
448	0601559		Location, Speaker, Frt Bumper, Recessed, Each Side, Inside Frame (Pos 3 & 5)	1
449	0895310		Siren, Federal Q2B	1
			Finish, Q2B Siren - Chrome	
450	0602078	SP	Siren, Mechanical, Recessed In Bumper, Flush with Bumper Face	1
			Location, Siren, Mech - a) Left	
451	0748305		Control, Mech Siren, Multi Select	1
452	0748279		Control Mech Siren, Push Button Sw, RS	1
453	0748282		Control Mech Siren, Ft Sw LS	1
454	0726839		Sw, Siren Brake, Momentary Red Rocker, Location, Hardwire	1
			Location - switch location #10, dash, driver side	
455	0740391		Sw, Siren Brake, Momentary Chrome Push Button, RS	1
456	0811625		Control System, Supplier Based, Electrical Wln CenCom Core C399 HW CCCo	1
457	0824762		Module, Control Head, CCTL9, 6 PB/Rot Knob, CCCo	1
			Location - locate at preconstruction	
458	0813290		Module, Sync, Wln CV2V, CCCo	1
459	0746353		Not Required, Warning Lights Intensity	1
460	0835748	SP	Lightbar, Wln, Frdm Q WCX, 92", RRRRWBRWROptRWRBWRRRR, CCCo	1
			Opticom Priority - b) High	
			Opticom Activation - Cab Switch & E-Master	
			Momentary Opticom Activation - DS Switch	
			Filter, Whl Freedom Ltbrs - No Filters	
461	0828267	SP	Lightbars, Wln, Freedom IV-WCXF4MINI, 2-21.5", RBRR RRBR, CCCo	1
			Lightbar Location, Cab/Crew Cab - cc)over the crew cab doors	
			Filter, Whl Freedom Ltbrs - No Filters	
462	0731884		Lights, Front Zone, Wln M6**S, Q Bezel 4Lts CCCo	1
			Color, Lens, LED's - Clear	
			Color, Lt DS Frnt Outside - Left Red	
			Color, Lt PS Frnt Outside - Right Red	
			Color, Lt DS Front Inside - Left Blue	
			Color, Lt PS Front Inside - Right Blue	
			Color, Q Bezel and Trim - Polished Chrome	
463	0757440		Light, Front, Roto Ray 4000W, PAR46 LED, 2-R, 1-W, Hidden Mt Top Section Grl	1

Line	Option	Type	Option Description	Qty
464	0889526		Light, Front, Wln M6**S, 1st, CCCo	2
			Location, Lights - cab grill center each side	
			Qty, - 02	
			Color, Lights, Warning - gla) red	
			Control, Light - h) front warning	
			Color, Lens, LED's - Clear	
			Color, Trim - Chrome Trim	
465	0653937		Flasher, Headlight Alternating	1
			Headlt flash deactivation - a)w/high beam	
466	0895940		Lights, Side Zone Lower, Wln, Separated into Front, Middle, Rear	1
467	0810761		Lights, Side Zone Lower Front, Wln M6V2**, CCCo	1
			Location, Lights Front Side - b)each side bumper	
			Color, Lens, LED's - Clear	
			Control, Scene Lts - Perimeter light and Directional Light - Respective	
			Color, Trim - Chrome Trim	
			Color, Lt Side Front, DS - Left Red	
			Color, Lt Side Front, PS - Right Red	
468	0804496		Lights, Side Zone Lower Middle, Wln M6D# DUO, CCCo	1
			Location, Lights Mid Side - Rearward of Crew Cab Doors	
			Color, Trim - Chrome Trim	
			Color, Lt Side Mid LS Cmb - Dual Red/Amber	
			Color, Lt Side Mid RS Cmb - Dual Red/Amber	
469	0807294		Lights, Side Zone Lower Rear, Wln M6V2**, CCCo	1
			Color, Lens, LED's - Clear	
			Control, Scene Lts - Perimeter light and Reverse Signal for Side Scene Lts	
			Location, Lights Rear Side - Rear Fender Panel	
			Color, Trim - Chrome Trim	
			Color, Lt Side Rear PS - Right Red	
			Color, Lt Side Rear DS - Left Red	
470	0807350		Lights, Side, Wln M6D# DUO, CCCo, 1st	2
			Location - on the 45 degree angled corners of the bumper extension	
			Qty, - 02	
			Color, Lights, Warning - Red and White	
			Control, Light - b) side warning	
			Color, Trim - Chrome Trim	
471	0828323	SP	Lights, Side, Wln RS*03ZCR, Horizontally Mtd/Rec in Rub Rail, CCCo 1st	2
			Location, Lights - one on each side of rear tailboard facing the side	
			Qty, - 02	
			Color, Lights, Warning - Red	
			Control, Light - b) side warning	
			Color, Trim - Chrome Trim	
472	0727126		Lights, Rear Zn Lwr, Wln M6**S, For Tail Lt Housing CCCo	1
			Color, Lens, LED's - Clear	
			Color, Lt DS Rear - Left Blue	
			Color, Lt PS Rear - Right Red	
473	0814078	SP	Lights, Rear, Wln M6D# DUO, 1st, CCCo	2
			Location - above the tail lights	
			Qty, - 02	
			Color, Lights, Warning - Red and Amber	
			Control, Light - d) separate switch	
			Color, Lens, LED's - Clear	
			Color, Trim - Chrome Trim	
474	0828388	SP	Light, Rear Zone Up, Wln B63M7**, Rota-Beam & M7 LED Lt, 33 Degree, CCCo	1
			Color, Lights, Warning - Amber	
			Color, Dome, Rear Warning - Clear	
			Color, Lens, LED's - c)clear	
475	0006551		Not Required, Lights, Rear Upper Zone Blocking	1
476	0016610		Mtg, Rear Warn Lts, Std Mt, S/S Brkts	1
			Material, Bracket - Polished S/S	
477	0811162	SP	Light, Traffic Directing, Wln TANF85, 45.12" Long, CTA, CCTL9 Controlled, CCCo	1
478	0529908		Location, TDL, Over Hose Bed, Cross Tube (Included), Treadplate Box	1
479	0780350		Receptacle Strip, 15A 120V 6-Place, Interior Cab	1
			Qty, - 1	

Line	Option	Type	Option Description	Qty
479			Location 1 - the receptacle will be high in the forward facing EMS compartment to the rear of the roll up door	
			AC Power Source - Shoreline	
480	0779722		Receptacle, 15/20A 120V 3-Pr 3-Wr, NEMA 5-20R SB Dup, 1st, Interior Body	3
			Qty, - 03	
			Location 1 - LS1 recessed in left wall just above the transition and LS3 forward wall lower section up against the transition. Reference Photo in Job file Photo's #7. RS1, right wall up high towards the back.	
			AC Power Source - Shoreline	
			Cover, Receptacle - Interior SS Wall Plate(s)	
481	0519934		Not Required, Brand, Hydraulic Tool System	1
482	0649753		Not Required, PTO Driven Hydraulic Tool System	1
483	0007150		Bag of Nuts and Bolts	1
			Qty, Bag Nuts and Bolts - 1	
484	0047021		Reflective Emergency Triangles, Set of Three	1
			Qty, - 1	
485	0816508		NFPA Required Loose Equipment, Pumper, NFPA/ULC 2024, Provided by Fire Dept	1
486	0519913		Not Required, Soft Suction Hose	1
487	0007028		Strainer, 6.00"	1
488	0816939		Extinguisher, Dry Chemical, NFPA 2024, Provided by Fire Department	1
489	0816937		Extinguisher, 2.5 Gal. Pressurized Water, NFPA/ULC 2024, Provided by Fire Dept	1
490	0816998		Axe, Flathead, Provided by Fire Department	1
491	0817000		Axe, Pickhead, Provided by Fire Department	1
492	0741569		Paint Process / Environmental Requirements, Appleton	1
493	0709763		Paint, Single Color, Velocity/Impel	1
			Paint Color, Cab - RED #213	
494	0709845		Paint, Single Color, Body	1
			Paint, Body - Match Lower Cab	
495	0640911		Paint Chassis Frame Assy, E-Coat, All Joints Sealed	1
			Paint Color, Frame Assembly, Predefined - Standard Black	
496	0693797		No Paint Required, Aluminum Front Wheels	1
497	0693792		No Paint Required, Aluminum Rear Wheels	1
498	0733739		Paint, Axle Hubs	1
			Paint, Axle Hub - Black #101	
499	0007230		Compartment, Painted, Spatter Gray	1
500	0544129		Reflective Band, 1"-6"-1"	1
			Color, Reflect Band - A - e) black	
			Color, Reflect Band - B - t) gold	
			Color, Reflect Band - C - za) black	
501	0510041		Reflective across Cab Face, Imp/Vel	1
502	0536954		Stripe, Chevron, Rear, Diamond Grade, Pumper	1
			Color, Rear Chevron DG - fluorescent yellow green	
503	0805739		Stripe, Diamond Grade, Chevron, EMS Exterior Doors, Interior	2
			Qty, - 02	
			Size, Chevron Striping - 06	
			Color, Chevron DG - Fluorescent Yellow-Green 983-23	
			Color, Chevron DG - B - Red 983-72	
504	0660093		Stripe, Reflective, Chevron, Body Compt Door Interior, Diamond Grade	11
			Location - LS1 (2), LS2 (2), LS3 (2), LS4, RS1(2), RS3,RS4	
			Qty, - 11	
			Color, Reflect Chev - A - t) fluorescent yellow green diamond grade	
			Color, Reflect Chev - B - a) red diamond grade	
505	0545179		Stripe, Diamond Grade, Chevron, Front Bumper	1
			Size, Chevron Striping - 06	
			Color, Chevron DG - Fluorescent Yellow-Green 983-23	
			Color, Chevron DG - B - Red 983-72	
506	0552453		Stripe, Reflective, Chevron, Cab and Crew Cab Doors Interior, Diamond Grade	1
			Color, Reflect Band - A - p) fluorescent yellow green diamond grade	
			Size, Chevron Striping - 04	
			Color, Reflect Chev - A - r) red diamond grade	
507	0033179		Lettering Specifications, Reflective	1
508	0686159		Lettering, Reflective, 3.00", (41-60)	1
			Outline, Lettering - No Outline or Shade	

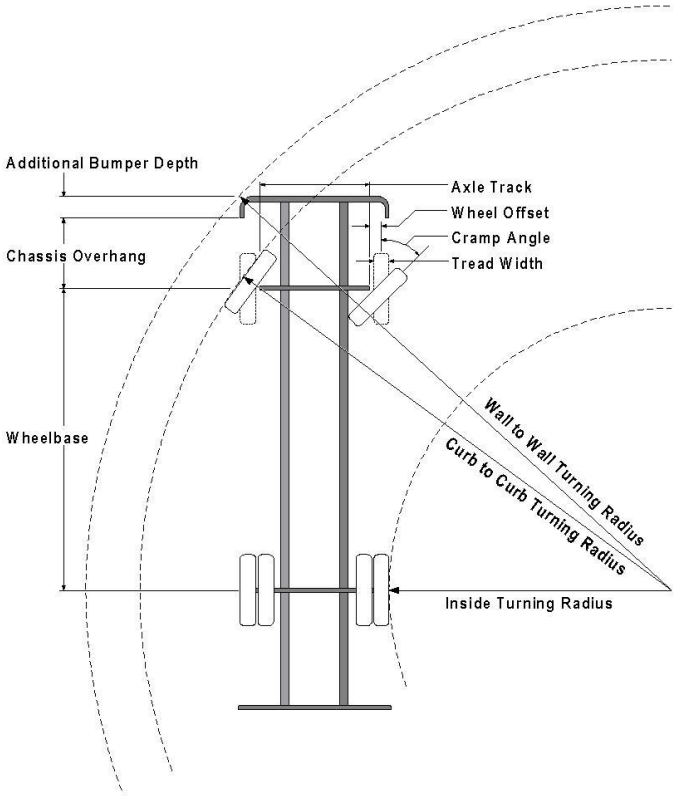
Line	Option	Type	Option Description	Qty
509	0087256		Bracket, Channel for Dept Number Placard	3
			Location - shipped loose	
			Qty, - 03	
510	0087257		Bracket, For Department Number Placards	6
			Location - shipped loose	
			Qty, - 06	
511	0686033		Lettering, Reflective, 4.00", Each	2
			Qty, Lettering - 02	
			Outline, Lettering - No Outline or Shade	
512	0686039		Lettering, Reflective, 2.00", (41-60)	1
			Outline, Lettering - No Outline or Shade	
513	0686042		Lettering, Reflective, 2.00", Each	8
			Qty, Lettering - 08	
			Outline, Lettering - Outline	
514	0686027		Lettering, Reflective, 4.00", (21-40)	1
			Outline, Lettering - No Outline or Shade	
515	0077162		Emblem, "Star of Life", 10", Reflective, Pair	1
516	0672805		Emblem, Maltese Cross, Reflective, 15"-17", Each	1
			Qty, - 01	
			Location, Emblem - CAB DOOR	
517	0661571	SP	Emblem, Maltese Cross, Reflective, 18"-20", Each	1
			Qty, - 01	
			Location, Emblem - rear rollup	
517	0000000	STF	Mounting, Customer Equipment - $5,000.00 Contingency Fund	1
518	0032773		Manuals, Two (2), Fire Apparatus Parts, & (1) CD, Custom Chassis	1
519	0032421		Manuals, (2) Chassis Service, (1) CD, Custom	1
520	0029551		Manuals, Two (2) Chassis Operation, & (1) Compact Disc, Custom	1
521	0030008		Warranty, Basic, 1 Year, Apparatus, WA0008	1
522	0595239		(No Pick Required)	1
523	0696698		Warranty, Engine, Cummins, 5 Year, WA0181	1
524	0684953		Warranty, Steering Gear, Sheppard M110, 3 Year WA0201	1
525	0595767		Warranty, Frame, 50 Year, Velocity/Impel, WA0038	1
526	0595698		Warranty, Axle, 3 Year, TAK-4, WA0050	1
527	0733306		Warranty, Single Axle, 5 Year, Meritor, General Service, WA0384	1
528	0652758		Warranty, ABS Brake System, 3 Year, Meritor Wabco, WA0232	1
529	0019914		Warranty, Structure, 10 Year, Custom Cab, WA0012	1
530	0744240		Warranty, Paint, 10 Year, Cab, Pro-Rate, WA0055	1
531	0524627		Warranty, Electronics, 5 Year, MUX, WA0014	1
532	0695416		Warranty, Pierce Camera System, WA0188	1
533	0647720		Warranty, Pierce LED Strip Lights, WA0203	1
534	0046369		Warranty, 5-year EVS Transmission, Standard Custom, WA0187	1
535	0685945		Warranty, Transmission Cooler, WA0216	1
536	0688798		Warranty, Water Tank, Lifetime, UPF, Poly Tank, WA0195	1
537	0596025		Warranty, Structure, 10 Year, Body, WA0009	1
538	0693127		Warranty, Gortite, Roll-up Door, 6 Year, WA0190	1
539	0734463		Warranty, Pump, Waterous, 7 Year Parts, WA0382	1
540	0648675		Warranty, 10 Year S/S Pumbing, WA0035	1
541	0657990		Warranty, Foam System, Husky 3, WA0231	1
542	0595820		Warranty, Paint, 10 Year, Body, Pro-Rate, WA0057	1
543	0595412		Warranty, Graphics Lamination, 1 Year, Apparatus, WA0168	1
544	0819254		Certification, Vehicle Stability, CD0196	1
545	0808577		Certification, Engine Installation, Velocity, Cummins X15, 2027	1
546	0686786		Certification, Power Steering, CD0098	1
547	0892701		Certification, Cab Integrity, Impel/Velocity FR, CD0190	1
548	0548950		Certification, Cab Door Durability, Velocity/Impel, CD0001	1
549	0548967		Certification, Windshield Wiper Durability, Impel/Velocity, CD0005	1
550	0667411		Certification, Electric Window Durability, Velocity/Impel FR, CD0004	1
551	0549273		Certification, Seat Belt Anchors and Mounting, Imp/Vel/Vel SLT, CD0018	1
552	0735950		Certification, Cab HVAC System Perf, Vel/Imp FR, CD0166/CD0168/CD0176/CD0177	1
553	0545073		Amp Draw Report, NFPA Current Edition	1
554	0002758		Amp Draw, NFPA/ULC Radio Allowance	1

Line	Option	Type	Option Description	Qty
555	0799248		Appleton/Florida BTO	1
556	0000018		PUMPER, 2ND GEN	1
557	0000012		PIERCE CHASSIS	1
558	0004713		ENGINE, OTHER	1
559	0046396		EVS 4000 Series TRANSMISSION	1
560	0020011		WATEROUS PUMP	1
561	0020009		POLY TANK	1
562	0028048		FOAM SYSTEM	1
563	0020006		SIDE CONTROL	1
564	0020007		AKRON VALVES	1
565	0020014		FRONT SUCTION	1
566	0020015		ABS SYSTEM	1
567	0658751		PUMPER BASE	1

Turning Performance Analysis

08/22/2025

Bid Number: 1413
Department: Castle Rock Fire Department
Chassis: Velocity Chassis (Big Block), 2010
Body: Pumper, Medium, Aluminum, 2nd Gen



Parameters:

*Inside Cramp Angle:	45°
Axle Track:	82.92 in.
Wheel Offset:	4.68 in.
Tread Width:	16.3 in.
Chassis Overhang:	78 in.
Additional Bumper Depth:	0.00 in.
Front Overhang:	78 in.
Wheelbase:	207.5 in.

Calculated Turning Radii:

Inside Turn:	16 ft. 3 in.
Curb to curb:	30 ft. 10 in.
Wall to wall:	34 ft. 8 in.

Category	Option	Description
Tires, Front	0899288	Tires, Front, Goodyear, Armor MAX MSA, 425/65R22.50, 20 ply, Fire Service Speed
Wheels, Front	0019611	Wheels, Front, Alcoa, 22.50" x 12.25", Aluminum, Hub Pilot
Axle, Front, Custom	0508849	Axle, Front, Oshkosh TAK-4, Non Drive, 22,800 lb, Imp/Vel
Bumpers	0793614	Bumper, 16" Extended, Steel Painted, 12" H, Imp/Vel

Notes:

*Actual Inside cramp angle may be less than shown.

Curb to Curb turning radius calculated for 9.00 inch curb.

Definitions:	
Inside CrampAngle	Maximum turning angle of the front inside fire.
Axle Track	King-pin to King-pin distance of front axle.
Wheel Offset	Offset from the center line of the wheel to the King-pin.
Tread Width	Width of the tire tread.
Chassis Overhang	Distance of the center line of the front axle to the front edge of the cab. This does not include the bumper depth.
Additional Bumper Wheel	Depth that the bumper assembly adds to the front overhang.
Wheelbase	Distance between the center lines of the vehicles front and rear axles.
Inside Turning Radius	Radius of the smallest circle around which the vehicle can turn.
Curb to Curb Turning Radius	Radius of the smallest circle around which the vehicle's tires can turn. This measures assumes a curb height of 9 inches.
Wall to Wall Turning Radius	Radius of the smallest circle around which the vehicle's tires can turn. This measures takes into account any front overhang due to chassis , bumper extensions and or aerial devices.

Electrical Analysis

8/22/2025

Bid #: 1413

Desc: Pumper, Med Alum, Velocity 2nd Gen

Customer: Castle Rock Fire Department

Option: Pierce Command Zone, Advanced Electronics & Control System, Vel WiFi CZT

Job #:

Sales Rep: Doucette, Duane

Organization: Front Range Fire Apparatus, Ltd

Type: Multiplexed

Option	Description	Type*	Minimum Load	Intermittent Load	Total Connected
0001244	High Idle w/Electronic Engine, Custom		0.00	1.20	0.00
0012527	Lights, Engine Compt, (2), All Custom Chassis		0.00	0.00	3.20
0015216	Reel, Booster, Aluminum - Over Pump, Right Side		0.00	36.00	0.00
0032085	Fans, Window Defrost, Two (2), Location Feature		0.00	2.50	2.50
0072170	Primer, Trident, Air Prime, Air Operated, w/(1) Additional Priming		0.00	0.01	0.00
0199683	Cab Lift, Elec/Hyd, w/Manual Override, Unlocked Ind Light,		0.00	180.00	0.00
0543751	Light, Do Not Move Apparatus		0.00	0.80	0.00
0549333	Indicators, Engine, Included with Pressure Controller		0.00	0.35	0.00
0583824	Light, Pump Compt, Wln 3SC0CDCR LED White		0.00	0.36	0.00
0587028	Light, Marker, Britax Model 428.102 LED, Red/Amber, Qty,		0.00	0.00	0.80
0604028	Water Level Gauge, FRC, MaxVision WLA280-A00 Programmable		0.00	0.00	0.00
0604354	Gauge, Foam Level, FRC, Tank Vision Pro, WLA 360-A00, Class		0.00	0.00	1.23
0624939	Foam Sys, Husky 3, Single Agent, Multi Select Feature		0.00	55.00	0.00
0653519	Camera, Pierce, LS Mux, RS, LS, R, Cameras, SD		0.00	1.20	0.00
0667902	Controls, Electric Windows, All Cab Doors, Impel/Velocity FR		0.00	26.00	0.00
0687994	Engine Brake, Jacobs Compression Brake, Cummins Engine		0.00	0.42	0.00
0721071	Compt, Storage, 10.71 W x 30 H x 14 D, (1) Ea Side C/C, Sgl		0.00	0.00	0.00
0727540	Spotlight, Golight/RadioRay, Model 20**4GT, LED, 1 Lt		0.00	0.00	3.00
0730775	Rack, Zico Quic-Lift, RS, Spcl Mounting		0.00	28.00	0.00
0735006	Intercom, David Clark, 4-Pos, 2-Radio, (D, O, RPTT), 2obC,		0.00	0.00	0.50
0735191	Batteries, (3) Stryten/Exide Grp 31, 950 CCA ea, Threaded Stud,		0.00	3.00	0.00
0757440	Light, Front, Roto Ray 4000W, PAR46 LED, 2-R, 1-W, Hidden Mt		0.00	4.00	0.00
0766002	Size, Pump Access From Engineer Compt, As Large As Possbile		0.00	0.00	0.00
0767500	Control, Front Inlet, Akron 9333 Elec Controller, w/Override,		0.00	2.50	0.00
0804719	Handlts, (4) Streamlight, Fire Vulcan, 44451, C4 LED, Tail Lts,		0.00	0.00	4.40
0806466	Lights, Backup, Wln M62BU, LED, For Tail Lt Housing		0.00	3.20	0.00
0807350	Lights, Side, Wln M6D# DUO, CCCo, 1st		0.00	2.25	2.25
0811803	Wiper Control, 2-Speed with Intermittent, Prk Brk, OR Switch,		0.00	6.00	0.00
0814078	Lights, Rear, Wln M6D# DUO, 1st, CCCo		0.00	2.70	1.80
0820509	ESC/ABS/ATC Wabco Brake System, Single Rear Axle, NFPA		0.00	6.00	0.00
0820889	Alarm, Back-up Warning, Wln BU97LL		0.00	0.26	0.00
0820894	Wiring, Spare, 15 A 12V DC, Batt Dir, 1st NFPA1900/ULC		0.00	0.00	15.00
0821191	Wiring, Spare, 20 A 12V DC, Batt Dir, 1st NFPA1900/ULC		0.00	0.00	20.00
0821194	Wiring, Spare, 20 A 12V DC, Batt Dir, 2nd NFPA1900/ULC		0.00	0.00	20.00
0821308	Wiring, Spare, 30 A 12V DC 1st NFPA1900/ULC		0.00	0.00	30.00
0821312	Wiring, Spare, 30 A 12V DC Batt Dir 1st NFPA1900/ULC		0.00	0.00	30.00
0828267	Lightbars, Wln, Freedom IV-WCXF4MINI, 2-21.5", RBRR RRBR,		0.00	0.00	14.56
0828323	Lights, Side, Wln RS*03ZCR, Horizontally Mtd/Rec in Rub Rail,		0.00	0.00	0.80
0831183	Lights, Wln, Wln Field Series FSB04* w/FSBB* Bail Brackets, 26",		0.00	0.00	6.10
0831193	Lights, Wln, Wln Field Series FSB04* w/FSBB* Bail Brackets, 26",		0.00	0.00	6.10
0832811	Light, Wln, Wln Field Series FSB04* w/FSBB* Bail Brackets, 26",		0.00	0.00	5.20
0832812	Light, Wln, Wln Field Series FSB04* w/FSBB* Bail Brackets, 26",		0.00	0.00	5.20
0834413	USB, Cab, 4, 12V DC, Dual USB Termination, Batt Dir.		0.00	0.00	10.00
0889526	Light, Front, Wln M6**S, 1st, CCCo		0.00	2.70	1.80
0895310	Siren, Federal Q2B		0.00	100.00	0.00
0741239	HVAC, Heavy-Duty, Impel/Velocity FR, CARE	Load Managed	0.00	0.00	136.00
0002758	Amp Draw, NFPA/ULC Radio Allowance	NFPA	5.00	0.00	0.00

* UDMC = User Defined Mission Critical, LM = User Defined Load Managed, S = Electrical Amperage Supply

Electrical Analysis

8/22/2025

Bid #: 1413

Desc: Pumper, Med Alum, Velocity 2nd Gen

Customer: Castle Rock Fire Department

Option: Pierce Command Zone, Advanced Electronics & Control System, Vel WiFi CZT

Job #:

Sales Rep: Doucette, Duane

Organization: Front Range Fire Apparatus, Ltd

Type: Multiplexed

Option	Description	Type*	Minimum Load	Intermittent Load	Total Connected
0092582	Load Manager/Sequencer, MUX	NFPA	0.56	0.56	0.00
0505417	Siren, Wln 295HFSC9, Dual Tone, 200W	NFPA	0.80	7.20	0.00
0511569	Lights, Clearance/Marker/ID, Rear, P25 LED 7Lts	NFPA	0.50	0.00	0.00
0568369	Cab Instruments, Ivory Gauges, Chrome Bezels, Impel/Velocity	NFPA	1.26	0.00	0.00
0586438	Gauges, (5), Engine - Pump Panel, IAT Pressure Controller	NFPA	0.30	0.00	0.00
0587034	Air Dryer, Bendix, AD-IP w/Heat, 2010	NFPA	4.70	0.00	0.00
0595087	DEF Tank, 4.5 Gallon, LS Fill, Forward of Rear Axle	NFPA	0.60	11.40	0.00
0605126	Pump Shift, Air Mnl Override, Split Shaft, Interlocked, Waterous	NFPA	1.00	0.00	0.00
0607159	Gauge, Water Level, FRC, WLA 300-A00, TankVision Pro	NFPA	1.23	0.00	0.00
0611878	Lights, Step, Wln 0AC0EDCR LED, 45 Deg Crm Bzl, Prk Brk, Loc	NFPA	0.16	0.00	0.00
0620054	Light, Directional/Marker, Intermediate, Weldon 9186-8580-29	NFPA	0.10	0.90	0.00
0647647	Lights, Dome, FRP Dual LED 4 Lts	NFPA	0.80	0.80	0.00
0648074	Lights, Clearance/Marker/ID, Front, P25 LED 7 Lts	NFPA	0.49	0.00	0.00
0648425	Light, Directional, Wln 600 Cmb, Cab Crn, Wrp Bzl Out HD Lts,	NFPA	0.70	0.70	0.00
0653937	Flasher, Headlight Alternating	NFPA	0.08	0.00	0.00
0664466	Bracket, License Plate & Light, Weldon 9186-23882-30 Incand,	NFPA	0.69	0.00	0.00
0668315	Cab, Velocity FR, 7010 Raised Roof	NFPA	6.80	10.20	0.00
0673878	Engineer Compt, Trans, Special Width, 23" W x 42" H, x 80", Lap	NFPA	1.80	0.00	1.80
0682498	Light Shield/Step 8", PS LED, P25 LED Stp Lt	NFPA	3.85	0.00	0.00
0709438	Lights, Walk Surf, FRP Flood, LED	NFPA	2.00	0.00	0.00
0725071	Cabinet, Fwd Fcng, Ctr, 34 W x 58 H x 24 D, Roll, Imp/Vel	NFPA	0.48	0.48	0.00
0727107	Light, Roof Mt, Wln S86M**, 86" Cnt Feature, Mkr Lts Not	NFPA	0.31	0.00	21.29
0727126	Lights, Rear Zn Lwr, Wln M6**S, For Tail Lt Housing CCCo	NFPA	1.80	2.70	0.00
0731884	Lights, Front Zone, Wln M6**S, Q Bezel 4Lts CCCo	NFPA	1.80	5.40	1.80
0739224	Indicator Light @ Pump Panel, Throttle Ready, Incl w/Pressure	NFPA	0.10	0.00	0.00
0747860	Light Shield/Step 8", LED Mtd Above the Master Gauges, w/P25	NFPA	5.50	0.00	0.00
0765433	Compt, Flush Rear, Rollup, 30.75" FF, 41.88" D, Notched Over	NFPA	0.90	0.00	0.90
0769569	Lights, Perimeter Cab, Amdor AY-LB-12HW012 LED 4Dr	NFPA	0.72	0.00	0.00
0769572	Lights, Perimeter Pump House, Amdor AY-LB-12HW020 LED 2lts	NFPA	0.58	0.00	0.00
0770056	Lights, Perimeter Body, Amdor AY-LB-12HW020 LED 2lts, Rear	NFPA	0.60	0.00	0.00
0771004	Plate, Access, Removeable, Pump Panel, Brushed SS, Location	NFPA	0.11	0.00	0.00
0783157	Headlights, Rect LED, JW Spkr Evo 2, Heat, AXT/Enf/Imp/Sab/Vel	NFPA	6.60	6.60	0.00
0793615	Cabinet, Fwd Fcng, Overhead, RS, 29 W x 10 H x 14 D, VEL/IMP	NFPA	0.15	0.15	0.00
0793617	Cabinet, Fwd Fcng, Overhead, LS, 29 W x 10 H x 14 D, VEL/IMP	NFPA	0.15	0.15	0.00
0793707	RS 152" Lap, 3/4 Height Compts, (1) Broom, FDLER, 14" D (INT)	NFPA	2.70	0.00	2.70
0801890	Trans, Allison 6th Gen, 4500 EVS P, w/Prognostics, Imp/Vel/Enf	NFPA	2.00	2.00	0.00
0804496	Lights, Side Zone Lower Middle, Wln M6D# DUO, CCCo	NFPA	1.80	2.70	0.00
0804514	Lights, Tail, Wln M62BTT* Red Stop/Tail & M62T* Amber Dir Arw	NFPA	0.83	2.49	0.00
0807294	Lights, Side Zone Lower Rear, Wln M6V2**, CCCo	NFPA	1.80	2.70	0.00
0808495	Engine, Cummins X15, 525 hp, 1850 lb-ft, W/OBD, EPA 2027,	NFPA	6.00	0.00	0.00
0810761	Lights, Side Zone Lower Front, Wln M6V2**, CCCo	NFPA	1.80	2.70	0.00
0811162	Light, Traffic Directing, Wln TANF85, 45.12" Long, CTA, CCTL9	NFPA	0.60	1.20	0.00
0813791	Panel, Charger Display, Kussmaul, 091-94-12, Batt Dir	NFPA	0.03	0.00	0.00
0814201	Vehicle Information Center, 7" Color Display, Touchscreen, MUX,	NFPA	1.20	0.00	0.00
0826104	Controller, Pressure, FRC, Pump Boss Max, PBA500	NFPA	1.80	0.00	0.00
0828388	Light, Rear Zone Up, Wln B63M7**, Rota-Beam & M7 LED Lt, 33	NFPA	3.00	1.50	1.50
0830148	Not Required, Indicator Light, Pump Panel, Ok To Pump, Inc	NFPA	0.10	0.00	0.00
0833353	LS 152" Lap, Full Height Compts, Double Door OTW/Front,	NFPA	4.50	0.00	4.50

* UDMC = User Defined Mission Critical, LM = User Defined Load Managed, S = Electrical Amperage Supply

Electrical Analysis

8/22/2025

Bid #: 1413

Desc: Pumper, Med Alum, Velocity 2nd Gen

Customer: Castle Rock Fire Department

Option: Pierce Command Zone, Advanced Electronics & Control System, Vel WiFi CZT

Job #:

Sales Rep: Doucette, Duane

Organization: Front Range Fire Apparatus, Ltd

Type: Multiplexed

Option	Description	Type*	Minimum Load	Intermittent Load	Total Connected
0833492	Lights, Rear Scene, Wln Field Series FSB02* w/FSBB* 14", Spcl	NFPA	5.00	0.00	0.00
0835748	Lightbar, Wln, Frdm Q WCX, 92",	NFPA	6.48	5.16	12.40
0887714	Cabinet, Rear Facing, LS, 24 W x 34 H x 30.5 D, Radius Sp Web,	NFPA	0.56	0.56	0.00
0887715	Cabinet, Rear Facing, RS, 21.5 W x 34 H x 26.5 D, Radius Sp	NFPA	0.56	0.56	0.00
0892637	Lights, Cab & Crw Cab Acs Stps, P25, LED w/Bezel, 1Lt Per Step	NFPA	1.00	0.00	0.00
0647728	Alternator, 430 amp, Delco Remy 55SI	S	0.00	0.00	0.00
		Load Totals:	**94.98**	**533.26**	**367.33**

Note: Minimum Continous Load is in "Blocking Right of Way" mode.(Reference current edition of NFPA 1901)
Note: Intermittent Load items are not factored in on any alternator load comparisons. These items are included on the report for reference only and should be looked at as amp draw exclusion items. (Reference current edition of NFPA 1901)
Note: Total Connected Load "Demand" represents Total Connected Load minus any Load Managed items

Alternator Output at Idle: 253.00

Minimum Continuous Load	
Supply:	253.00
Demand:	94.98
Variance:	158.02

Alternator Output at Governed Speed: 370.00

Total Connected Load	
Supply:	370.00
Demand:	326.31
Variance:	43.69

* UDMC = User Defined Mission Critical, LM = User Defined Load Managed, S = Electrical Amperage Supply

CONTENTS

Front Range Fire Apparatus is pleased to submit a proposal to Castle Rock Fire Department for a **Pierce® triple combination pumper** per your request for quotation. The following paragraphs will describe in detail the apparatus, construction methods, and equipment proposed. This proposal will indicate size, type, model and make of components parts and equipment, providing proof of compliance with each and every item (except where noted) in the departments advertised specifications.

PIERCE MANUFACTURING was founded in 1913. Since then, we have been building bodies with one philosophy, "BUILD THE FINEST". Our skilled craftsmen take pride in their work, which is reflected, in the final product. We have been building fire apparatus since the early "forties" giving Pierce Manufacturing over 75 years of experience in the fire apparatus market. Pierce Manufacturing has built and put into service more than 62,500 apparatus, including more than 33,900 on Pierce custom chassis designed and built specifically for fire and emergency applications. Our Appleton, Wisconsin facility has over 870,000 total square feet of floor space situated on approximately 105 acres of land. Our Bradenton, Florida facility has 300,000 square feet of floor space situated on approximately 38 acres of land.

Our beliefs in high ethical standards are carried through in all of our commitments and to everyone with whom we do business. Honesty, Integrity, Accountability and Citizenship are global tenets by which we all live and work. Consequently, we neither engage in, nor have we ever been convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

Pierce has only one brand of fire apparatus "Pierce", ensuring you are receiving top of the line product that meets your specification.

In accordance with the current edition of applicable NFPA standards, this proposal will specify whether the fire department, manufacturer, or apparatus dealership will provide required loose equipment.

Images and illustrative material in this proposal are as accurate as known at the time of publication but are subject to change without notice. Images and illustrative material are for reference only and may include optional equipment and accessories and may not include all standard equipment.

GENERAL DESIGN AND CONSTRUCTION

To control quality, ensure compatibility, and provide a single source for service and warranty, the custom cab, chassis, pump module and body will be entirely designed, assembled/welded and painted in Pierce owned manufacturing facilities. This includes, but not limited to the cab weldment, the pumphouse module assembly, the chassis assembly, the body and the electrical system.

QUALITY AND WORKMANSHIP

Pierce has set the pace for quality and workmanship in the fire apparatus field. Our tradition of building the highest quality units with craftsmen second to none has been the rule right from the beginning and we demonstrate that ongoing commitment by: Ensuring all steel welding follows American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding follows American Welding society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding follows American welding Society B2.1-2000 requirements for structural welding of sheet metal. Our flux core arc welding uses alloy rods, type 7000 and is performed to American Welding Society standards A5.20-E70T1. Furthermore, all employees classified as welders are tested

and certified to meet the American welding Society codes upon hire and every three (3) years thereafter. Pierce also employs and American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

Pierce Manufacturing operates a Quality Management System under the requirements of ISO 9001. These standards sponsored by the International Organization for Standardization (ISO) specify the quality systems that are established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance is included with this proposal.

In addition to the Quality Management system, we also employ a Quality Achievement Supplier program to ensure the vendors and suppliers that we utilize meet the high standards we demand. That is just part of our overall "Quality at the Source" program at Pierce.

To demonstrate the quality of our products and services, a list of at least twenty five (25) fire departments/municipalities that have purchased vehicles for a second time is provided.

DELIVERY

The apparatus will be delivered under its own power to ensure proper break-in of all components while the apparatus is still under warranty. A qualified delivery representative shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in proper operation, care and maintenance of the equipment delivered.

MANUAL AND SERVICE INFORMATION

At time of delivery, complete operation and maintenance manuals covering the apparatus will be provided. A permanent plate will be mounted in the driver's compartment specifying the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

SAFETY VIDEO

At the time of delivery Pierce will also provide one (1) 39-minute, professionally produced apparatus safety video, in DVD format. A link to the video is also available on the Pierce Training website. This video will address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus, including the following: vehicle pre-trip inspection, chassis operation, pump operation, aerial operation, and safety during maintenance.

PERFORMANCE TESTS

A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power, nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus when fully loaded will not have less than 25 percent nor more than 50 percent on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle. The apparatus will meet the current edition of applicable NFPA standards acceleration and braking requirements.

SERVICE AND WARRANTY SUPPORT

Pierce dealership support will be provided by Front Range Fire Apparatus by operating a Pierce authorized service center. The service center will have factory-trained mechanics on staff versed in

Pierce fire apparatus. The service facility will be located within seventy five (75) miles of the fire department.

In addition to the dealership, Pierce has service facilities located in both, Weyauwega, Wisconsin and Bradenton, Florida. Pierce also maintains a dedicated parts facility of over 100,000 square feet in Appleton, Wisconsin. The parts facility stocks in excess of $5,000,000 in parts dedicated to service and replacement parts. The parts facility employs a staff dedicated solely for the distribution and shipment of service and replacement parts.

Service parts for the apparatus being proposed can be found via Pierceparts.com which, is an interactive online tool that delivers information regarding your specific apparatus as well as the opportunity to register for training classes.

As a Pierce customer you have the ability to view the complete bill of materials for your specific apparatus, including assembly drawings, piece part drawings, and beneficial parts notations. You will also have the ability to search the complete Pierce item master through a parts search function which offers all Pierce SKU's and descriptions offered on all Pierce apparatus. Published component catalogs, which include proprietary systems along with an extensive operator's manual library is available for easy reference.

Pierce Manufacturing maintains a dedicated service and warranty staff of over 35 personnel, dedicated to customer support, which also maintains a 24 hour 7 day a week toll free hot line, four (4) on staff EVTs, and offers hands-on repair and maintenance training classes multiple times a year.

LIABILITY

The successful bidder will defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.

INSURANCE PROVIDED BY BIDDER

Commercial General Liability Insurance

The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of commercial general liability insurance:

Each Occurrence:	$1,000,000
Products/Completed Operations Aggregate:	$1,000,000
Personal and Advertising Injury:	$1,000,000
General Aggregate:	$2,000,000

Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form and will include Contractual Liability coverage for bodily injury and property damage subject to the terms and conditions of the policy. The policy will include Owner as an additional insured when required by written contract.

Commercial Automobile Liability Insurance

The successful bidder will, during the performance of the contract, keep in force at least the following minimum limits of commercial automobile liability insurance and coverage will be written on a Commercial Automobile liability form:

Each Accident Combined Single Limit:	$1,000,000

Umbrella/Excess Liability Insurance

The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Aggregate:	$3,000,000
Each Occurrence:	$3,000,000

The umbrella policy will be written on an occurrence basis and at a minimum provide excess to the bidder's General Liability and Automobile Liability policies.

The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.

Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.

All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described polices be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Bidder agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as certificate holder.

INSURANCE PROVIDED BY MANUFACTURER

Product Liability Insurance

The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of Product Liability insurance:

Each Occurrence:	$1,000,000
Products/Completed Operations Aggregate:	$1,000,000

Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form. The manufacturer's policy will include the owner as additional insured when required by written contract between the Owner and a Pierce authorized dealer.

Umbrella/Excess Liability Insurance

The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Each Occurrence:	$25,000,000
Aggregate:	$25,000,000

The umbrella policy will be written on an occurrence basis and provide excess to the manufacturer's General Liability/Products policies.

The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.

Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.

All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described polices be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Manufacturer agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as the certificate holder.

SINGLE SOURCE MANUFACTURER

Pierce Manufacturing, Inc. provides an integrated approach to the design and manufacture of our products that delivers superior apparatus and a dedicated support team. From our facilities, the chassis, cab weldment, cab, pumphouse (including the sheet metal enclosure, valve controls, piping and operators panel) and body will be entirely designed, tested, and hand assembled to the customer's exact specifications. The electrical system either hardwired or multiplexed, will be both designed and integrated by Pierce Manufacturing. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) will be provided by Pierce as a single source manufacturer. Pierce's single source solution adds value by providing a fully engineered product that offers durability, reliability, maintainability, performance, and a high level of quality.

Your apparatus will be manufactured in Appleton, Wisconsin.

SPECIAL INSTRUCTIONS

The apparatus being proposed will be designed and built to match the 32374 Job pics in 32374 - Stage 7 folder: S:\FAE-SHARE\Dept\Job E-Folders\32000-32999\32374\Stage 7 - Graphics & Photos\FASC. However, some variation may be necessary due to changes in our manufacturing processes or our product offering. Revisions in NFPA guidelines and/or other regulations may also affect our ability to match the previous unit.

NFPA 2024 STANDARDS

This unit will comply with the NFPA standards effective January 1, 2024, except for fire department directed exceptions. These exceptions will be set forth in the Statement of Exceptions.

Certification of slip resistance of all stepping, standing and walking surfaces will be supplied with delivery of the apparatus.

All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and designated access paths to destination points will be identified on the customer approval print and are shown as approximate. Actual location(s) will be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required. Access paths may require the operation of devices and equipment such as the aerial device or ladder rack.

A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating.

The manufacturer will have programs in place for training, proficiency testing and performance for any staff involved with certifications.

An official of the company will designate, in writing, who is qualified to witness and certify test results.

NFPA COMPLIANCY

Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA".

PUMP TEST

Underwriters Laboratory (UL) will test, approved, and certify the pump. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the pump manufacturer's record of pump construction details will be forwarded to the Fire Department.

GENERATOR TEST

If the unit has a generator, Underwriters Laboratory (UL) will test, approved, and certify the generator. The test results will be provided to the Fire Department at the time of delivery.

BREATHING AIR TEST

If the unit has breathing air, Pierce Manufacturing will draw an air sample from the air system and have the sample certified that the air quality meets the requirements of NFPA 1989, *Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection.*

VEHICLE INSPECTION PROGRAM CERTIFICATION

To assure the vehicle is built to current NFPA 1900 standards, the apparatus, in its entirety, will be third-party, independent, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition. The certification includes: all design,

production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus.

A placard will be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.

BID BOND NOT REQUESTED

A bid bond will not be included. If requested, the following will apply:

All bidders will provide a bid bond as security for the bid in the form of a 5 percent bid bond to accompany their bid. This bid bond will be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond will be issued by an authorized representative of the Surety Company and will be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond will include language, which assures that the bidder/principal will give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.

Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision will prevail.

PERFORMANCE BOND, 1 YEAR

The successful bidder will furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond will be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category of XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required.

Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Basic One (1) Year Limited Warranty period included within this proposal. Owner agrees that the penal amount of this bond will be simultaneously amended to 25 percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type will not exceed one (1) year from the date of such satisfactory acceptance and delivery, or the actual Basic One (1) Year Limited Warranty period, whichever is shorter.

Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current information. Delivery updates will be made available, and a final firm delivery date will be provided as soon as possible.

If the Producer Price Index of Components for Manufacturing [www.bls.gov Series ID: WPUID6112] ("PPI") has increased at a compounded annual growth rate of 5.0% or more between the month Pierce accepts the order ("Order Month") and a month 14 months prior to the then predicted Ready For Pickup date ("Evaluation Month"), then pricing may be updated in an amount equal to the increase in PPI over 5.0% for each year or fractional year between the Order Month and the Evaluation Month.
The seller will document any such updated price for the customer's approval before proceeding and provide an option to cancel the order.

APPROVAL DRAWING

A drawing of the proposed apparatus will be prepared and provided to the purchaser for approval before construction begins. The Pierce sales representative will also be provided with a copy of the same drawing. The finalized and approved drawing will become part of the contract documents. This drawing will indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.

A "revised" approval drawing of the apparatus will be prepared and submitted by Pierce to the purchaser showing any changes made to the approval drawing.

ELECTRICAL WIRING DIAGRAMS

Two (2) electrical wiring diagrams, prepared for the model of chassis and body, will be provided.

VELOCITY CHASSIS

The Pierce Velocity® is the custom chassis developed exclusively for the fire service. Chassis provided will be a new, tilt-type custom fire apparatus. The chassis will be manufactured in the apparatus body builder's facility eliminating any split responsibility. The chassis will be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required. The chassis will be the manufacturer's first line tilt cab.

MAXIMUM OVERALL HEIGHT

The maximum overall height of the apparatus will be Size - 128 inches same as 30369.

WHEELBASE

The wheelbase of the vehicle will be Wheelbase - 207.50".

GVW RATING

The gross vehicle weight rating will be GVW rating - 49,800 lbs..

FRAME

The chassis frame will be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails will have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to 10.75" over the rear axle. Each rail will have a section modulus of 25.992 cubic inches and a resisting bending moment (rbm) of 3,119,040 in-lb over the critical regions of the frame assembly, with a section modulus of 18.96 cubic inches with an rbm of 2,275,200 in-lb over the rear axle. The frame rails will be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.

FRONT NON DRIVE AXLE

The Oshkosh TAK-4® front axle will be of the independent suspension design with a ground rating of 22,800 lb.

Upper and lower control arms will be used on each side of the axle. Upper control arm castings will be made of 100,000-psi yield strength 8630 steel and the lower control arm casting will be made of 55,000-psi yield ductile iron.

The center cross members and side plates will be constructed out of 80,000-psi yield strength steel.

Each control arm will be mounted to the center section using elastomer bushings. These rubber bushings will rotate on low friction plain bearings and be lubricated for life. Each bushing will also have a flange end to absorb longitudinal impact loads, reducing noise and vibrations.

There will be nine (9) grease fittings supplied, one (1) on each control arm pivot and one (1) on the steering gear extension.

The upper control arm will be shorter than the lower arm so that wheel end geometry provides positive camber when deflected below rated load and negative camber above rated load.

Camber at load will be 0 degrees for optimum tire life.

The ball joint bearing will be of low friction design and be maintenance free.

Toe links that are adjustable for alignment of the wheel to the center of the chassis will be provided.

The wheel ends will have little to no bump steer when the chassis encounters a hole or obstacle.

The steering linkage will provide proper steering angles for the inside and outside wheel, based on the vehicle wheelbase.

The axle will have a turning angle of up to 45 degrees.

FRONT SUSPENSION

Front Oshkosh TAK-4™ independent suspension will be provided with a minimum ground rating of 22,800 lb.

The independent suspension system will be designed to provide maximum ride comfort. The design will allow the vehicle to travel at highway speeds over improved road surfaces and at moderate speeds over rough terrain with minimal transfer of road shock and vibration to the vehicle's crew compartment.

Each wheel will have torsion bar type spring. In addition, each front wheel end will also have energy absorbing jounce bumpers to prevent bottoming of the suspension.

The suspension design will be such that there is at least 10.00" of total wheel travel and a minimum of 3.75" before suspension bottoms.

The torsion bar anchor lock system allows for simple lean adjustments, without the use of shims. One can adjust for a lean within 15 minutes per side. Anchor adjustment design is such that it allows for ride height adjustment on each side.

The independent suspension was put through a durability test that simulated 140,000 miles of inner city driving.

FRONT SHOCK ABSORBERS
KONI heavy-duty telescoping shock absorbers will be provided on the front suspension.

FRONT OIL SEALS
Oil seals with viewing window will be provided on the front axle.

FRONT TIRES
Front tires will be Goodyear 425/65R22.50 radials, 20 ply Armor MAX MSA, rated for 22,800 lb maximum axle load and 75 mph maximum speed.

The tires will be mounted on Alcoa 22.50" x 12.25" polished aluminum disc type wheels with a ten (10) stud, 11.25" bolt circle.

REAR AXLE
The rear axle will be a Meritor™, Model RS-26-185, with a capacity of 27,000 lb.

TOP SPEED OF VEHICLE
A rear axle ratio will be furnished to allow the vehicle to reach a top speed of 68 mph / 109 kph.

REAR SUSPENSION
Rear suspension will be a Hendrickson FMX 272 EX, air ride with a ground rating of 27,000 lb. The suspension will have the following features:

- Heavy-duty shock absorbers to protect air springs from overextension

- Heavy-duty torque rods and bushings

- Premium, heavy-duty rubber bushings require no lubrication

- Integrated stabilizer design results in greater stability

- Low spring rate air springs for excellent ride quality

- Dual height control valves to maintain level vehicle from side to side

REAR OIL SEALS
Oil seals will be provided on the rear axle(s).

DRIVER CONTROL DIFFERENTIAL LOCK (DCDL)
A rear axle will be equipped with a driver controlled differential lock (DCDL).

The control will be located within easy reach of the driver. An indicator light will be provided next to the control switch.

REAR TIRES

Rear tires will be four (4) Goodyear® 12R22.50 radials, 16 ply all season G622 RSD tread, rated for 27,120 lb maximum axle load and 75 mph maximum speed.

The tires will be mounted on Alcoa 22.50" x 8.25" polished aluminum disc wheels with a ten (10) stud 11.25" bolt circle.

TIRE BALANCE

All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.

TIRE PRESSURE MANAGEMENT

There will be a RealWheels LED AirSecure™ tire alert pressure management system provided, that will monitor each tire's pressure. A sensor will be provided on the valve stem of each tire for a total of six (6) tires.

The sensor will calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor will activate an integral battery operated LED when the pressure of that tire drops 5 to 8 psi.

Removing the cap from the sensor will indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED will immediately start to flash.

FRONT HUB COVERS

Stainless steel hub covers will be provided on the front axle. An oil level viewing window will be provided.

HUB COVERS (REAR)

Stainless steel baby moon covers will be provided over the rear axle hubs.

MUD FLAPS

Mud flaps with a Pierce logo will be installed behind the front and rear wheels.

AIR PRESSURE TIRE EQUALIZATION

A Crossfire air pressure equalization system will be provided on the rear dual wheels. This system will equalize the tire air pressure in the rear duals and indicate over or under inflation.

AUTOMATIC TIRE CHAINS

One (1) pair of ONSPOT automatic tire chains will be provided at the rear. System will be electric over air operated with switch on cab instrument panel. System may be engaged at speeds up to 25 mph and operated at speeds up to 35 mph.

WHEEL CHOCKS

There will be one (1) pair of folding Ziamatic, Model SAC-44-E, aluminum alloy, Quick-Choc wheel blocks, with easy-grip handle provided.

Wheel Chock Brackets

There will be one (1) pair of Zico, Model SQCH-44-H, horizontal mounting wheel chock brackets provided for the Ziamatic, Model SAC-44-E, folding wheel chocks. The brackets will be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets will be mounted forward of the left side rear tire.

ELECTRONIC STABILITY CONTROL

A vehicle control system will be provided as an integral part of the ABS brake system from Meritor Wabco.

The system will monitor and update the lateral acceleration of the vehicle and compare it to a critical threshold where a side roll event may occur. If the critical threshold is met, the vehicle control system will automatically reduce engine RPM, engage the engine retarder (if equipped), and selectively apply brakes to the individual wheel ends of the front and rear axles to reduce the possibility of a side roll event.

The system will monitor directional stability through a lateral accelerometer, steer angle sensor and yaw rate sensor. If spinout or drift out is detected, the vehicle control system will selectively apply brakes to the individual wheel ends of the front and rear axles to bring the vehicle back to its intended direction.

ANTI-LOCK BRAKE SYSTEM

The vehicle will be equipped with a Wabco 4S4M, anti-lock braking system. The ABS will provide a four (4) channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology will control the anti-lock braking system. Each wheel will be monitored by the system. When any wheel begins to lockup, a signal will be sent to the control unit. This control unit will then reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

AUTOMATIC TRACTION CONTROL

An anti-slip feature will be included with the ABS. The Automatic Traction Control will be used for traction in poor road and weather conditions. The Automatic Traction Control will act as an electronic differential lock that will not allow a driving wheel to spin, thereby supplying traction at all times. The ABS electronic control unit (ECU) will work with the engine ECU, sharing information concerning wheel slip. Engine ECU will use information to control engine speed, allowing only as much throttle application as required for the available traction, regardless of how much the driver is asking for. An "off road traction" switch will be provided on the instrument panel. Activation of the switch will allow additional tire slip to let the truck climb out and get on top of deep snow or mud.

BRAKES

The service brake system will be full air type.

The front brakes will be Knorr/Bendix disc type with a 17.00" ventilated rotor for improved stopping distance.

The brake system will be certified, third party inspected, for improved stopping distance.

The rear brakes will be Meritor™, Disc Plus, Model EX225, disc operated with automatic slack adjusters and a 17.00" ventilated rotor for improved stopping distance.

BRAKE SYSTEM AIR COMPRESSOR

The air compressor will be a Cummins/WABCO with 18.7 cubic feet per minute output.

BRAKE SYSTEM

The brake system will include:

- Bendix® dual brake treadle valve
- Heated automatic moisture ejector on air dryer
- Total air system capacity of 4,362 cubic inches
- Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi
- Spring set parking brake system
- Parking brake operated by a push-pull style control valve
- A parking "brake on" indicator light on instrument panel
- Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, with an automatic spring brake application at 40 psi
- A pressure protection valve to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa)
- 1/4 turn drain valve on each air tank

The air tank will be primed and painted to meet a minimum 750 hour salt spray test.

The air tanks will be painted same as frame color.

To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.

BRAKE SYSTEM AIR DRYER

The air dryer will be a Bendix AD-IP, with coalescing filter and heater.

BRAKE LINES

Color-coded nylon brake lines will be provided. The lines will be wrapped in a heat protective loom in the chassis areas that are subject to excessive heat.

AIR INLET

One (1) air inlet with 3D series male coupling will be provided. It will allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet will be located rearward in the driver side lower step well of cab. A check valve will be provided to prevent reverse flow of air. The inlet will discharge into the "wet" tank of the brake system. A mating female fitting will also be provided with the loose equipment.

AIR OUTLET

One (1) air outlet will be installed with a female coupling and shut off valve, located in the driver side lower step well of cab. This system will 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.

Female coupling and male fitting will be .25" thread.

A mating male fitting will be provided with the loose equipment.

ADDITIONAL AIR TANK

An additional air tank with 1454 cubic inch displacement will be provided to increase the capacity of the main air brake system. This tank will be plumbed into the rear half of the brake system.

The air tank will be primed and painted to meet a minimum 750 hour spray test. To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.

The air tank(s) will be painted same as frame color.

The output flow of the engine air compressor will vary with engine rpm. Full compressor output will only be achieved at governed engine speed. Engine speed will be limited by generators, pumps and other PTO driven options.

AIR TANKS LABEL

There will be a stick-on style label provided on all of the chassis air tanks to identify the function a particular tank provided to the chassis (i.e. quick build up, isolated, chassis air supply, etc.).

ENGINE

The chassis will be powered by an electronically controlled engine as described below:

Make:	Cummins®
Model:	X15
Power:	525 hp at 1500 rpm
Torque:	1850 lb-ft at 950 rpm
Governed Speed:	2000 rpm
Emissions Level:	EPA 2027
Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	912 cubic inches (14.9L)
Starter:	Delco 39MT+™
Fuel Filters:	Frame mounted spin-on style filter from Cummins®.

The engine will include On-board diagnostics (OBD), which provides self diagnostic and reporting. The system will give the owner or repair technician access to state of health information for various vehicle sub systems. The system will monitor vehicle systems, engine and after treatment. The system will illuminate a malfunction indicator light on the dash console if a problem is detected.

The engine will be filled with FA-4 10W30 oil as required by Cummins.

REMOTE MOUNTED ENGINE FILTERS

The engine fuel and oil filters will be remote mounted for ease of maintenance.

HIGH IDLE

A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a preset engine rpm. A switch will be installed, at the cab instrument panel, for activation/deactivation.

The high idle will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided, adjacent to the switch. The light will illuminate when the above conditions are met. The light will be labeled "OK to Engage High Idle."

IDLE REDUCTION, LITHIUM-ION, SYSTEM

The Command Zone™ electronics system auto shut down / auto start system will reduce engine idle time by allowing a parked, non-running apparatus to operate to the current edition of applicable NFPA standards warning, DOT and user defined Mission Critical options by utilizing a fully-charged lithium-ion battery pack to run at 150 amps for a minimum of one hour. This time will be based on the vehicle's factory configuration.

The system will not inhibit additional loads outside or those used to calculate its operational performance.

The system will estimate its remaining capacity based on the load it is experiencing. This estimation will be presented on the vehicle display and through the vehicle's broadcasted web page.

The system will monitor multiple conditions and react accordingly. The conditions monitored include battery voltage, cab temperature, engine temperature. These component conditions will initiate certain actions depending on the threshold changes and settings of the system. The primary focus of the system will be to ensure the vehicle has enough battery capacity to start at any time.

The information center is intended for use on mobile severe duty emergency vehicles. The display will be usable by individuals wearing protective clothing including heavy gloves and in a wet and dirty environment.

System Requirements

The vehicle will require the Command Zone™ information center and other options.

Operational Scenario

The following is the expected nominal operation of the system:

- System is enabled or disabled by system maintainer by signing into the administrator screen of the information center which becomes the default setting
- Apparatus arrives on scene
- Parameters are met for engine shutdown
- Engine is shutdown
- System begins monitoring lithium-ion battery pack State of Charge (SOC)
- System activates heating or cooling system (if applicable)
- Lithium-ion battery pack SOC falls below threshold
- Engine auto starts

System Operation
Vehicle engine will shut off after 5 minutes of idle. This will allow for driveline components, such as the engine turbo, to return to an idle condition prior to shut down.

IRT can be activated manually prior to 5 minute shut off using the information center controls.

Vehicle electronics will remain operational:

- NFPA and DOT Lighting
- User defined Mission Critical
- Heater system and air conditioning requires vehicle engine operation. (Dependent on HVAC system installed).
- The vehicle engine will start automatically when reserve power has been depleted.

System Interlocks
The following conditions must be met to arm the auto shutdown / start system:

- Battery switch on
- Ignition on (Ignition must be on to turn on the Battery Management System (BMS) system)
- Parking brake is applied
- Chassis transmission is in neutral
- Cab fully engaged into lockdown latches
- Engine at idle
- No PTO activity
- No pump activity
- Service brake not applied
- Shore power is not energized

Current Setting
The operator will have the capability to change the current setting of the IRT system. This will override the default setting for that ignition cycle only if the IRT system is enabled from the administration screen.
The operator will not be able to enable the IRT system, if high idle is enabled.

Note: In order for High Idle switch in cab to be enabled, the IRT system will be required to be disabled by the operator. All other high idle functions work as designed with exception that the cab high idle switch and OK to Engage High Indicator are disabled when IRT is enabled.

Auto Shutdown
The chassis diesel engine shutdown will be activated when all the following conditions have been met for five (5) consecutive minutes:

- Parking brake engaged
- Transmission is in neutral

- Lithium-ion battery pack SOC is sufficient
- Service brake is not pressed
- Water pump is inactive (If equipped)
- Engine is at idle
- Aerial Master/PTO is inactive (If equipped)
- PTO/Generator is inactive (If equipped)

When the engine is shut down due to the operational mode interlocks being met, the display will bring forward the IRT screen.

Auto Shutdown Sequence

60-Second Mark

- 60 seconds before the engine is auto shutdown, there will be a service notification on the information center. The information center will auto-navigate to the IRT screen when this occurs.

30-Second Mark

- 30 seconds before the engine is auto shutdown, there will be a service notification on the information center.

10-Second Mark

- 10 seconds before the engine is auto shutdown, there will be a service notification on the information center.

0-Second Mark

- At the 0-second mark, engine will be commanded to shut down. The information center will auto-navigate to the IRT screen when this occurs.

Auto Start

The following interlock conditions will initiate the auto-start sequence:

- Lithium-ion battery pack State of Charge is depleted
- Battery System Voltage is below 12.0 V
- Lead acid batteries are supporting more than 20A of the load 1 minute 30 seconds after engine is off
- Cab cooling is required
- Cab heating is required
- Water pump is active (If equipped)
- Aerial Master/PTO is active (If equipped)
- PTO/Generator is active(If equipped)
- There is a reported issue with the lithium-ion Battery Management System (BMS)

Auto Start Sequence

60-Second Mark

- 60 seconds before the engine is auto start, there will be a service notification on the information center.

30-Second Mark

- 30 seconds before the engine is auto start, there will be a service notification on the information center.

10-Second Mark

- 10 seconds before the engine is auto start, there will be a service notification on the information center.

0-Second Mark

- At the 0-second mark, engine will be commanded to start.

Engine Auto Starting

Vehicle Monitoring

- The vehicle will monitor engine RPM to ensure the engine has successfully started. If engine RPM is greater than 600, the engine will be considered to have been started.

Cranking Cycles

- Each engine crank will be a maximum of 5 seconds. There will be a delay of 10 seconds before another attempt can be made. The engine will attempt to crank a maximum of 3 cycles.

Failed Start

- If the truck fails to start, the IRT system will enter a faulted state, and a service notification will occur. In the faulted state all loads will be shut off, to allow the user to make a final attempt at starting.

The controller will exit the IRT operation without starting the engine, if any of the following are true:

- Ignition is off
- Shore power is energized
- Cab lock down latches become disengaged
- Park brake is released
- Transmission is not in neutral
- Comm Loss with engine
- Comm Loss with transmission
- Comm Loss with CZ Related modules
- Comm Loss with Lead Acid current sensor
- Comm Loss with lithium-ion battery pack BMS
- IRT mode is disabled

"Interlocks not met" will be displayed on the IRT mode screen in this condition.

Quick Start
The system will immediately start the engine if any of the following conditions are true when in IRT mode:

- Service brake is pressed for 3 seconds
- Engine start switch is activated

Cab Temperature Control
The IRT system will allow the operator to enable and disable control for HVAC while in the IRT state. The operator will be able to select a temperature range for the system to maintain. While the IRT system is maintaining the cabin temperature range, it will override user HVAC inputs.

Cab Temperature - HVAC Cooling
Cooling setpoints will be 80 degrees Fahrenheit, 75 degrees Fahrenheit, and 70 degrees Fahrenheit

If the cabin temperature rises 5 degrees above the setpoint, the IRT system will initiate the 60 second startup sequence to start the engine. While the engine is running, the IRT system will turn blowers on at 100 percent and command maximum cooling.

When cabin temperature falls 5 degrees below the setpoint, the IRT system will initiate the 60 second shutdown sequence.

Cab Temperature - HVAC Heating
Heating setpoints will be 55 degrees Fahrenheit, 60 degrees Fahrenheit, and 65 degrees Fahrenheit

If the cabin temperature falls 5 degrees below the setpoint, the IRT system will initiate the 60 second startup sequence to start the engine. While the engine is running, the IRT system will turn blowers on at 100 percent and command maximum heating.

When cabin temperature rises 5 degrees above the setpoint, the IRT system will initiate the 60 second shutdown sequence.

Touch Screen Operation
Virtual Switch

No virtual switch panel operations will be allowed while in IRT mode. Overhead switch panels will still functional while the auto start system is active. This will allow the NFPA warning, DOT, and scene lights to be turned off or on.

Debugging Command Zone
Debugging will not be allowed while the IRT is "Operational".

Command Zone Information Screen Operation
Once the IRT system is enabled and interlock requirements are met the IRT system mode screen will be displayed.

Two (2) control switches will appear on the display. Indicators and colors are built into the firmware of the system and cannot be changed.

Virtual IRT enable switch will be located on the left-hand side of the screen.

The inner green ring will default to ON when the system is enabled.

The IRT can be activated and deactivated depressing the center of the switch.

The IRT can only be disabled for the current ignition switch cycle and will reactivate to the ON state during the next cycle.

The outer segments of the IRT switch show the State of Charge (SOC). All segments green indicates the lithium-ion battery pack is at a full state of charge. Segment colors will turn off clockwise as the SOC of the battery pack is decreased. When one remaining segment is shown it will turn amber showing the SOC is low. If the truck is in IRT mode with engine off, it will auto start the engine and will not re-enter IRT mode until SOC is 80 percent or higher.

Virtual IRT shutdown switch is located below the IRT switch and can be utilized to enter IRT immediately when IRT interlock requirements are met prior to the timed interval to shut the engine off.

Virtual bar graph below the IRT switch will indicate the amperage draw from the lithium-ion battery pack in the IRT mode for all lights and or loads activated with the engine off.

Virtual bar graph displays a bar in the center of the graph that will indicate the truck specific amperage requirements from the report for NFPA, DOT and user defined mission critical options selected to operate in the IRT mode. Activations of additional loads will show the green bar go above the center point. The bar used only as a gauge to view that amperage usage is higher than reported and will decrease time with engine in IRT mode. Operator may activate loads as needed through the fully integrated system.

Virtual cab temperature control switch will be located on the right-hand side of the screen.

The virtual cab temperature control switch inner green ring will retain the previous setting when the system is enabled.

The cab temperature switch can be activated and deactivated by depressing the switch center.

Arrow buttons below the switch will move the cab temperature switch left or right. There are three selections each for cooling or heating the cab. These ranges are set in firmware and cannot be modified.

The bar graph below the cab temperature switch will have a green indicator showing where the operator setpoint is selected.

The operator will have 3 cooling setpoints (80 degrees Fahrenheit, 75 degrees Fahrenheit, 70 degrees Fahrenheit).

The operator will have 3 heating setpoints (55 degrees Fahrenheit, 60 degrees Fahrenheit, 65 degrees Fahrenheit).

Deactivation of the cab temperature switch will increase the amount of IRT engine off time to maximum efficiency because the engine will not have to start and stop as needed to keep the requested temperature range in the cab to meet operational requirements for each department.

ENGINE BRAKE

A Jacobs® engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.

The driver will be able to turn the engine brake system on/off and have a high, medium and low setting.

The engine brake will activate when the system is on and the throttle is released.

The high setting of the brake application will activate and work simultaneously with the variable geometry turbo (VGT) provided on the engine.

The engine brake will be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.

The ABS system will automatically disengage the auxiliary braking device, when required.

CLUTCH FAN

A Horton® fan clutch will be provided. The fan clutch will be automatic when the pump transmission is in "Road" position, and fully engaged in "Pump" position.

ENGINE AIR INTAKE

An air intake with an ember separator (to prevent road dirt, burning embers, and recirculating hot air from entering the engine) will be mounted at the front of the apparatus, on the passenger side of the engine. The ember separator will be mounted in the air intake with flame retardant, roto-molded polyethylene housing. It will be easily accessible by the hinged access panel at the front of the vehicle.

EXHAUST SYSTEM

The exhaust system will be stainless steel from the turbo to the engine's aftertreatment device. The exhaust system will include an aftertreatment device to meet current EPA standards. An insulation wrap will be provided on all exhaust pipe between the turbo and the aftertreatment device to minimize the transfer of heat to the cab.

The exhaust will terminate horizontally ahead of the right side rear wheels and will extend 2.00" past the body rub rail. The exhaust pipes will be aluminized steel.

There will be a stainless steel exhaust diffuser increased to 7.00" in the center to accommodate the fire department's air recovery system with a standard straight tip on the end provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.

EXHAUST MODIFICATION

An adapter for the Nederman exhaust extraction system will be provided on the end of the tail pipe.

There will be a 1-piece Nederman nozzle anchor plate provided The exhaust pipe will be brought straight out from under the body. The exhaust pipe will extend a maximum of 2.00" past the body side. The diameter of the diffuser will be 7.00"..

RADIATOR

The radiator and the complete cooling system will meet or exceed the current edition of applicable NFPA and engine manufacturer cooling system standards.

For maximum corrosion resistance and cooling performance, the entire radiator core will be constructed using long life aluminum alloy. The core will be made of aluminum fins, having a serpentine design, brazed to aluminum tubes. The tubes will be brazed to aluminum headers. The radiator core will have a minimum frontal area of 1434 square inches. Supply tank made of glass-reinforced nylon and a return tank of cast aluminum alloy will be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly. The radiator will be compatible with commercial antifreeze solutions.

There will be a full steel frame around the entire radiator core assembly. The radiator core assembly will be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability. The radiator will be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly will be isolated from the chassis frame rails with rubber isolators.

The radiator assembly will include an integral de-aeration tank permanently mounted to the top of the radiator framework, with a readily accessible remote-mounted overflow tank. For visual coolant level inspection, the radiator will have a built-in sight glass. The radiator will be equipped with a 15 psi pressure relief cap.

A drain port will be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.

A heavy-duty fan will draw in fresh, cool air through the radiator. Shields or baffles will be provided to prevent recirculation of hot air to the inlet side of the radiator.

COOLANT LINES

Gates® silicone or a combination of silicone and rubber hoses will be used for the radiator and cab heater hoses installed by the chassis manufacturer.

The chassis manufacturer will also use Gates® brand hose on other heater and auxiliary coolant circuits. There will be some areas in which an appropriate Gates product is not available. In those instances a comparable silicone hose from another manufacturer will be used.

Rubber hoses will be used for the overhead defrost/heater system only in the drain tubes of the cab.

Hose clamps will be stainless steel constant torque type to prevent coolant leakage. They will react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

FUEL TANK

A 65 gallon fuel tank will be provided and mounted at the rear of the chassis. The tank will be constructed of aluminum with the exterior unpainted (vendor finish). It will be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank will be mounted with stainless steel straps.

A 0.75" drain plug will be located in a low point of the tank for drainage.

A fill inlet will be located on the left hand side of the body and is covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."

A 0.50" diameter vent will be installed from tank top to just below fuel fill inlet.

The fuel tank will meet all FHWA 393.67 requirements, including a fill capacity of 95 percent of tank volume.

All fuel lines will be provided as recommended by the engine manufacturer.

DIESEL EXHAUST FLUID TANK

A 4.5 gallon diesel exhaust fluid (DEF) tank will be provided and mounted in the left side body forward of the rear axle.

A 0.50" drain plug will be provided in a low point of the tank for drainage.

A fill inlet will be located on the left side of the body and be covered with a hinged, spring loaded, Painted Job Color door that is marked "Diesel Exhaust Fluid Only".

The tank will meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing.

The tank will include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.

FUEL PRIMING PUMP

A Cummins automatic electronic fuel priming pump will be integrated as part of the engine.

FUEL SHUTOFF

A fuel line shutoff valve will be installed on both the inlet and outlet of the primary fuel filter.

FUEL COOLER

An air to fuel cooler will be installed in the engine fuel return line.

FUEL FILL DOOR

Fuel fill door will be painted job color.

FUEL SEPARATOR
The engine will be equipped with a Racor in-line spin-on fuel and water separator in addition to the engine fuel filters.

TRANSMISSION
An Allison 6th generation, Model EVS 4500P, electronic, torque converting, automatic transmission will be provided.

The transmission will be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display will indicate when service is due.

Two (2) PTO openings will be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock).

A transmission temperature gauge with amber light and buzzer will be installed on the cab instrument panel.

TRANSMISSION SHIFTER
A six (6)-speed push button shift module with four (4) + two (2) "Mode" selector will be mounted to right of driver on console. Shift position indicator will be indirectly lit for after dark operation.

The transmission ratio will be 1st - 4.70 to 1.00, 2nd - 2.21 to 1.00, 3rd - 1.53 to 1.00, 4th - 1.00 to 1.00, 5th - 0.76 to 1.00, 6th - 0.67 to 1.00, R - 5.55 to 1.00.

TRANSMISSION COOLER
A Modine plate and fin transmission oil cooler will be provided using engine coolant to control the transmission oil temperature.

DOWNSHIFT MODE (W/ENGINE BRAKE)
The transmission will be provided with an aggressive downshift mode.

This will provide earlier transmission downshifts to 2nd gear from 6th gear, resulting in improved engine braking performance.

TRANSMISSION FLUID
The transmission will be provided with TranSynd, or other Allison approved TES-668 heavy duty synthetic transmission fluid.

DRIVELINE
Drivelines will be a heavy-duty metal tube and be equipped with Spicer® 1810 universal joints.

The shafts will be dynamically balanced before installation.

A splined slip joint will be provided in each driveshaft where the driveline design requires it. The slip joint will be coated with Glidecoat® or equivalent.

STEERING
Dual Sheppard, Model M110, steering gears, with integral heavy-duty power steering, will be provided. For reduced system temperatures, the power steering will incorporate an air to oil cooler and an Eaton,

Model VN20, hydraulic pump with integral pressure and flow control. All power steering lines will have wire braded lines with crimped fittings.

A tilt and telescopic steering column will be provided to improve fit for a broader range of driver configurations.

STEERING WHEEL

The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design.

LOGO AND CUSTOMER DESIGNATION ON DASH

The dash panel will have an emblem containing the Pierce logo and customer name. The emblem will have three (3) rows of text for the customer's department name. There will be a maximum of eight (8) characters in the first row, 11 characters in the second row and 11 characters in the third row.

The first row of text will be: Castle

The second row of text will be: Rock

The third row of text will be: Fire Rescue

BUMPER

A 1-piece bumper manufactured from 0.25" formed steel with a 0.38" bend radius will be provided. The bumper will be a minimum of 12.00" high with a 1.50" top and bottom flange, and will extend 16.00" from the face of the cab. The bumper will be 102.00" wide with 45 degree corners and side plates.

To provide adequate support strength, the bumper will be mounted directly to the front of the C channel frame. The frame will be a bolted modular extension frame constructed of 50,000 psi tensile steel.

The bumper will be metal finished and painted to match the lower job color of the apparatus.

GRAVEL PAN

A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and the cab face. The pan will be properly supported from the underside to prevent flexing and vibration.

Documentation will be provided, upon request to show that the options selected have been engineered for fit up and approval for this modular bumper extension. A chart will be provided to indicate the option locations and will include but not be limited to the following options: air horns, mechanical sirens, speakers, hose trays with hose capacities, winches, lights, discharge and suction connections.

CENTER HOSE TRAY

A hose tray, constructed of aluminum, will be placed in the center of the bumper extension.

The tray will have a capacity of 25' of 5.00" double jacket cotton-polyester hose.

Aluminum grating will be provided at the bottom of the tray. Drain holes are also provided.

Center Hose Tray Restraint

There will be one (1) pair of hose tray restraint straps located over the center mounted tray.

The restraints will be a pair of 2.00" wide black nylon straps with Velcro® fasteners provided. The strap(s) will be used to secure the hose in the tray.

LIFT AND TOW MOUNTS

Mounted to the frame extension will be lift and tow mounts. The lift and tow mounts will be designed and positioned to adapt to certain tow truck lift systems.

The lift and tow mounts with eyes will be painted the same color as the frame.

TOW EYES

Two (2) tow eyes will be mounted through the front face of the bumper.

The inner and outer edges of the tow eyes will have a .25" radius.

The tow eyes will be mounted directly to the bumper frame.

Cutouts will be provided in the front face of the stainless steel bumper to allow the tow eyes to extend out the front.

The tow eyes will be designed and positioned to allow up to a 9,000 lb straight horizontal pull in line with the centerline of the vehicle. The tow eyes will not be used for lifting of the apparatus.

The tow eyes will be painted black.

FRONT BUMPER UL-LX COATING

Protective black UL-LX® coating will be provided on the outside exterior of the top front bumper flange. It will not be sprayed on the underside of the flange.

The lining will be properly installed by an authorized UL-LX dealer.

CAB

The Velocity cab will be designed specifically for the fire service and will be manufactured by Pierce Manufacturing.

To provide quality at the source and single source customer support, the cab will be built by the apparatus manufacturer in a facility located on the manufacturer's premises.

For reasons of structural integrity and enhanced occupant protection, the cab will be of heavy duty design, constructed to the following minimal standards.

The cab will have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts) and rear wall areas. The A-pillar will be constructed of 0.25" heavy wall extrusions joined by a solid A356-T6 aluminum joint casting. The B-pillar and C-pillar will also be constructed from 0.25" heavy wall extrusions. The rear wall will be constructed of two (2) 4.00" x 2.00" outer aluminum extrusions and two (2) 3.00" x 2.00" inner aluminum extrusions. All main vertical structural members will run from the floor to 7.50" x 3.50" x 0.125" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.75" thick corner casting at each of the front corners of the roof assembly.

The front of the cab will be constructed of a 0.25" thick firewall, covered with a 0.125" front skin (for a total thickness of 0.38"), and reinforced with 24.50" wide x 10.00" deep x 0.50" thick supports on each side of the engine tunnel. The cross-cab support will be welded to the A-pillar, 0.25" firewall, and engine tunnel, on the left and right sides.

The cab floors will be constructed of 0.1875" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.44" of structural material at the front floor area. The front floor area will also be supported with three (3) 0.50" plates bolted together that also provides the mounting point for the cab lift. This tubing will run from the front of the cab to the 0.1875" thick engine tunnel, creating the structure to support the forces created when lifting the cab.

The cab will be a full-tilt style. A 3-point cab mount system with rubber isolators will improve ride quality by isolating chassis vibrations from the cab.

The crew cab will be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.

The centerline of front axle to the rear of the cab will be 70.00" long.

The forward cab section will have an overall height (from the cab roof to the ground) of approximately 102.00". The crew cab section will have a 10.00" raised roof, with an overall cab height of approximately 112.00". The raised portion will start at the most forward point of the B-pillar and continue rearward to the back of the cab. The overall height listed will be calculated based on a truck configuration with the lowest suspension weight ratings, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension will increase the overall height listed.

The cab will have an interior width of not less than 93.50". The driver and passenger seating positions will have a minimum 24.00" clear width at knee level.

To reduce injuries to occupants in the seated positions, proper head clearance will be provided. The floor-to-ceiling height inside the forward cab will be no less than 60.25". The floor-to-ceiling height inside the crew cab will be no less than 62.95" in the center position and 68.75" in the outboard positions.

The crew cab will measure a minimum of 57.50" from the rear wall to the backside of the engine tunnel (knee level) for optimal occupant legroom.

FENDER LINERS

Full-circular, aluminum, inner fender liners in the wheel wells will be provided.

PANORAMIC WINDSHIELD

A one (1)-piece, safety glass windshield with more than 2,802 square inches of clear viewing area will be provided. The windshield will be full width and will provide the occupants with a panoramic view. The windshield will consist of three (3) layers: the outer light, the middle safety laminate, and the inner light. The 0.114" thick outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage. The

inner light will provide yet another chip resistant layer. The cab windshield will be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern will be applied on the outside perimeter of the windshield for a finished automotive appearance.

WINDSHIELD WIPERS

Three (3) electric windshield wipers with a washer, in conformance with FMVSS and SAE requirements, will be provided. The wiper blades will be 21.65" long and together will clear a minimum of 1,783 square inches of the windshield for maximum visibility in inclement weather.

The windshield washer fluid reservoir will be located at the front of the vehicle and be accessible through the access hood for simple maintenance.

FAST SERVICE ACCESS FRONT TILT HOOD

A full-width access hood will be provided for convenient access to engine coolant, steering fluid, wiper fluid, cab lift controls, headlight power modules, and ember separator. The hood will also provide complete access to the windshield wiper motor and components. The hood will be contoured to provide a sleek, automotive appearance. The hood will be constructed of two (2) fiberglass panels bonded together and will include reinforcing ribs for structural integrity. The hood will include air cylinders to hold the hood in open and closed positions, and a heavy duty latch system that will meet FMVSS 113 (Hood Latch System). The spring-loaded hood latch will be located at the center of the hood with a double-action release lever located behind the Pierce logo. The two (2)-step release requires the lever first be pulled to the driver side until the hood releases from the first latch (primary latch) then to the passenger side to fully release the hood (secondary latch).

ENGINE TUNNEL

To provide structural strength, the engine tunnel sidewalls will be constructed of 0.50" aluminum plate that is welded to both the 0.25" firewall and 0.38" heavy wall extrusion under the crew cab floor. To maximize occupant space, the top edges will be tapered.

The engine tunnel will be insulated for protection from heat and sound. Perforated foil faced insulation will be over a 1.00" thick closed cell foam affixed with pressure sensitive adhesive and further secured with mechanical fasteners. Thermal rating for this insulation will be -40 degrees Fahrenheit to 300 degrees Fahrenheit. The noise insulation keeps the dBA level within the limits stated in the current edition of applicable NFPA standards.

INTERIOR CAB INSULATION

The cab will include 1.50" insulation in the ceiling, 3.00" insulation in the side walls, and 2.00" insulation in the rear wall to maximize acoustic absorption and thermal insulation.

CAB REAR WALL EXTERIOR COVERING

The exterior surface of the rear wall of the cab will be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.

CAB LIFT

A hydraulic cab lift system will be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. The hydraulic pump will have a backup manual override, for use in the event of an electrical failure.

The cab lift controls will be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls will include a permanently mounted raise/lower switch. A "cab unlocked" indicator light will be located at the controls that will indicate when the cab is not in the locked position for safe road travel. For enhanced visibility during cab tilt operations, a remote control tether with on/off switch will be supplied on a coiled cord that will extend from 2' (coiled) to 6' (extended).

The cab will be capable of tilting 42 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. The cab pivots will be located 46.00" apart to provide stability while tilting the cab.

The rear of the cab will be locked down by a two (2)-point, automatic, hydraulic, double hook mechanism that fully engages after the cab has been lowered (self-locking). The dual 2.25" diameter hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.

For increased safety, a redundant mechanical stay arm will be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device will be manually stowed to its original position before the cab can be lowered.

Cab Lift Interlock

The cab lift safety system will be interlocked to the parking brake. The cab tilt mechanism will be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism will be disabled.

GRILLE

A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, will be provided on the front center of the cab, and will serve as an air intake to the radiator.

DOOR JAMB SCUFFPLATES

All cab door jambs will be furnished with a 1.00" brushed stainless steel scuffplate, mounted on the striker side of the jamb.

FRONT CAB TRIM

There will be polished stainless steel rectangular garnish plates installed behind the two (2) headlight bezels for an enhanced appearance.

There will be no covers provided over the painted cab corner where the cab turn signals are located.

SIDE OF CAB MOLDING

Chrome molding will be provided on both sides of cab.

MIRRORS

A Retrac, Model 613423, dual vision, motorized, west coast style mirror, with chrome finish, will be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass will be heated and adjustable with remote control within reach of the driver.

FRONT CROSS VIEW MIRROR

An 8.00" diameter convex mirror will be provided over the officer's side front corner of the cab. The mirror will provide the driver with a view of the front bumper and the area several feet in front of the truck.

The mirror housing, tubing, clamps, and hardware will be constructed of corrosion resistant stainless steel.

CAB DOORS

The forward cab and crew cab doors will be the half-height style door. To enhance entry and egress to the cab, the forward cab doors will be a minimum of 43.59" wide x 64.71" high. The crew cab doors will measure a minimum of 37.87" wide x 73.75" high.

The forward cab and crew cab doors will be constructed of extruded aluminum with a nominal material thickness of 0.125". The exterior door skins will be constructed from 0.090" aluminum.

The forward cab door windows will include a 7.50" high x 10.00" wide drop area at the front to enhance visibility.

A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The finish of the door handle will be chrome/black. The exterior handle will be designed specifically for the fire service to prevent accidental activation, and will provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands.

Each door will also be provided with an interior flush, open style paddle handle that will be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles will provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.

The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys will be Model 751. The locks will be capable of activating when the doors are open or closed. The doors will remain locked if locks are activated when the doors are opened, then closed.

A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf will be provided on all cab doors. There will be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.

A chrome grab handle will be provided on the inside of each cab and crew cab door.

A red webbed grab handle will be installed on the crew cab door stop strap. The grab handles will be securely mounted.

The cab steps at each cab door location will be located below the cab doors and will be exposed to the exterior of the cab.

Door Panels

The inner cab door panels will be constructed out of brushed stainless steel. The cab door panels will be removable.

RECESSED POCKET WITH ELASTIC COVER

To provide organized storage (clutter control) in the cab for miscellaneous equipment, the cab interior will be provided with recessed storage pockets. The pockets will be 5.63" wide x 2.00" high x 4.00" deep. The pockets will be provided with a perforated elastic material cover to secure the equipment in the pocket. The pockets will be installed in all available mounting locations of the overhead console.

ELECTRIC WINDOW CONTROLS

Each cab entry door will be equipped with an electrically operated tempered glass window. A window control panel will be located on the door panel within easy reach of the respective occupant. Each switch will allow intermittent or auto down operation for ease of use. Auto down operation will be actuated by holding the window down switch for approximately 1 second. The driver control panel will contain a control switch for each cab door's window. All other door control panels will contain a single switch to operate the window within that door.

The window switches will be connected directly to the battery power. This allows the windows to be raised and lowered when the battery switch is in the off position.

ELECTRIC CAB DOOR LOCKS

The front driver and passenger doors will have a door lock master switch (custom designed rotary lock knob) built into the interior door latch that will control all front and rear side exit door locks. Each rear cab door will have its own lock control. Each door will have a keyed exterior lock mechanism built into the door handle assembly.

There will be one (1) concealed switch on the exterior of the cab, located under the front full width service access panel, that operates the cab door locks.

The lock system will include two (2) key FOBs that allow for keyless entry into the vehicle. The key FOB system will use code hopping technology for high security and be FCC part 15 compliant.

CAB STEPS

The forward cab and crew cab access steps will be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps will be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps will be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps will be a minimum 31.00" wide, and the crew cab steps will be 24.25" wide with an 8.00" minimum depth. The inside cab steps will not exceed 18.00" in height and be limited to two (2) steps.

CAB EXTERIOR HANDRAILS

A 1.25" diameter slip-resistant, knurled aluminum handrail will be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress.

STEP LIGHTS

There will be four (4) white P25 LED step lights provided. The lights will be installed at each cab and crew cab door, one (1) per step. The lights will be located in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep.

In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light.

The light(s) will have a chrome housing.

The lights will be activated when the adjacent door is opened.

FENDER CROWNS

Stainless steel fender crowns will be installed at the cab wheel openings. The fender crowns will have a radius outside corner that will allow the fender crown to extend out further than the standard width crown, thus extending beyond the sidewall of the front tires and allow the crew cab doors to open fully.

WEBBED GRAB HANDLE ON INTERIOR CAB DOORS

Installed on the interior of the driver and officer cab door stop strap will be a red webbed grab handle. The grab handles will be securely mounted.

FRONT WINDOWS FOR RAISED ROOF

To enhance both visibility out of and light penetration into the crew cab, two (2) bonded windows will be provided in the front slanted portion of the raised roof. Each window will be approximately 15.00" wide x 7.00" high. The profile of the glass will match the painted metal side sheet opening, creating a uniform threshold appearance. The windows will be bonded to the vehicle using urethane adhesive.

LEFT SIDE ROLLUP CREW CAB DOOR WINDOW TINT

The rollup window in the left side crew cab door will be tinted medium gray.

LEFT SIDE UPPER CREW CAB DOOR WINDOW TINT

The upper window in the left side crew cab door will be tinted medium gray.

RIGHT SIDE ROLLUP CREW CAB DOOR WINDOW TINT

The rollup window in the right side crew cab door will be tinted medium gray.

RIGHT SIDE UPPER CREW CAB DOOR WINDOW TINT

The upper window in the right side crew cab door will be tinted medium gray.

STORAGE COMPARTMENTS

Provided on each side of the cab, to the rear of the crew cab access doors, will be a storage compartment.

The compartments will be 10.71" wide x 30.00" high x 14.00" deep.

There will be two (2) single pan doors painted to match the cab exterior with a locking D-ring latch with #751 key, one (1) on each side of the cab. A web strap for each exterior door will be provided as a door stop.

The exterior of the compartments will be painted to match the cab interior color. The interior of the compartments will be painted to match the cab interior.

Compartment Light
There will be two (2) white LED strip lights provided, one (1) each hinged side of compartment door openings, located horizontally, high on wall.

PIKE POLE STORAGE
There will be one (1) set(s) of holders for mounting of pike pole(s). The holders will be mounted vertically Install on the passengers side on the back of the cab between the push up light and the outside edge of the rear cab corner reference photo in the Stage 3 Job Folder File 7 Photo's If unsure, mount at pick-up.. The head of the pole will be held in place with a Handlelok, part number 1004, adjustable mounting bracket and the base in a cup holder.

WEB STRAP
There will be three (3) web strap(s), made from 2.00" black nylon installed on top of center forward facing cabinet. Each strap will be secured with footman loops and hook and loop fastener.

MOUNTING PLATE ON ENGINE TUNNEL
Equipment installation provisions will be installed on the engine tunnel.

A .188" smooth aluminum plate will be bolted to the top surface of the engine tunnel. The plate will be located to the left of the officer and on the rear of the tunnel. It will follow the contour of the engine tunnel and will run the entire length of the engine tunnel. The edges will be kinked downward so that items do not slip under the plate. The plate will be spaced off the engine tunnel .75" to allow for wire routing below the plate.

The mounting surface will be painted to match the cab interior.

CAB INTERIOR
With safety as the primary objective, the wrap-around style cab instrument panel will be designed with unobstructed visibility to instrumentation. The dash layout will provide the driver with a quick reference to gauges that allows more time to focus on the road.

The center console will be a high impact ABS polymer and will be easily removable.

The passenger side dashboard will be constructed of painted aluminum for durability and low maintenance. For enhanced versatility, the passenger side dash will include a flat working surface.

To provide optional (service friendly) control panels, switches and storage modules, a painted aluminum overhead console will also be provided.

To complete the cab front interior design, painted aluminum modesty panels will be provided under the dash on both sides of the cab. The driver side modesty panel will provide mounting for the battery switch and diagnostic connectors, while the passenger side modesty panel provides a glove box, and ground access to the main electrical distribution panel via quick quarter turn fasteners.

To provide a deluxe automotive interior, the engine tunnel, side walls and rear wall will be covered by a leather grain vinyl that is resistant to oil, grease, and mildew.

The headliner will be installed in both forward and rear cab sections. The headliner panel will be a composition of an aluminum panel covered with a sound barrier and upholstery.

The cab structure will include designated raceways for electrical harness routing from the front of the cab to the rear upper portion of the cab. Raceways will be extruded in the forward door frame, floor, walls and overhead in the area where the walls meet the ceiling. The raceways located in the floor will be covered by aluminum extrusion, while the vertical and overhead raceways will be covered by painted aluminum covers. The raceways will improve harness integrity by providing a continuous harness path that eliminates wire chafing and abrasion associated with exposed wiring or routing through drilled metal holes. Harnesses will be laid in place.

CAB INTERIOR UPHOLSTERY

The cab interior upholstery will be 36 oz red vinyl. All cab interior materials will meet FMVSS 302 (flammability of interior materials).

CAB INTERIOR PAINT

The following metal surfaces will be painted black, vinyl textured paint:

- Modesty panel in front of driver
- Vertical surface of dash in front of the officer (not applicable for recessed dash)
- Glove box in front of the officer (if applicable)
- Power distribution in front of the officer
- Rear heater vent panels

The remaining cab interior metal surfaces will be painted red, vinyl texture paint.

CAB FLOOR

The cab and crew cab floor areas will be covered with Polydamp™ acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.

The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a 0.25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.

DEFROST/AIR CONDITIONING SYSTEM

A ceiling mounted combination heater, defroster and air conditioning system will be installed in the cab above the engine tunnel area.

Cab Defroster

A 54,000 BTU heater-defroster unit with 690 SCFM of air flow will be provided inside the cab. The heater-defrost will be installed in the forward portion of the cab ceiling. Air outlets will be strategically located in the cab header extrusion per the following:

- One (1) adjustable will be directed towards the left side cab window
- One (1) adjustable will be directed towards the right side cab window
- Six (6) fixed outlets will be directed at the windshield

The defroster will be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system will meet or exceed SAE J382 requirements.

Cab/Crew Auxiliary Heater

There will be one (1) 31,000 BTU auxiliary heater with 560 SCFM of air flow provided in each outboard rear facing seat riser with a dual scroll blower. An aluminum plenum incorporated into the cab structure to be used to transfer heat to the forward positions.

Air Conditioning

A 19.10 cubic inch compressor will be installed on the engine.

A roof-mounted condenser with a 78,000 BTU output at 2,400 SCFM that meets and exceeds the performance specification will be installed on the cab roof. The condenser cover to be painted to match the cab roof.

The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30 minutes. The cooling performance test will be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.

The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator will include one (1) high performance heating core, one (1) high performance cooling core with (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.

The evaporator unit will have a 52,000 BTU at 690 SCFM rating that meets and exceeds the performance specifications.

Adjustable air outlets will be strategically located on the forward plenum cover per the following:

- Four (4) will be directed towards the seating position on the left side of the cab
- Four (4) will be directed towards the seating position on the right side of the cab

Adjustable air outlets will be strategically located on the evaporator cover per the following:

- Five (5) will be directed towards crew cab area

A high efficiency particulate air (HEPA) filter will be included for the system. Access to the filter cover will be hinged with two (2) thumb latches.

The air conditioner refrigerant will be R-134A and will be installed by a certified technician.

Climate Control

An automotive style controller will be provided to control the heat and air conditioning system within the cab. The controller will have three (3) functional knobs for fan speed, temperature, and air flow distribution (front to rear) control.

The system will control the temperature of the cab and crew cab automatically by pushing the center of the fan speed control knob. Rotate the center temperature control knob to set the cab and crew cab temperature.

The AC system will be manually activated by pushing the center of the temperature control knob. Pushing the center of the air flow distribution knob will engage the AC for max defrost, setting the fan speeds to 100 percent and directing all air flow to the overhead forward position.

Gravity Drain Tubes

Two (2) condensate drain tubes will be provided for the air conditioning evaporator. The drip pan will have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip pan. No pumps will be provided.

The drain tubes will terminate under the cab, on the inboard side of the front wheelwells.

WINDOW DEFROST FANS

Two (2) window defrost fans will be mounted on the ceiling of the cab, located each side on the overhead console.

SUN VISORS

Two (2) smoked Lexan™ sun visors will be provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab.

There will be no retention bracket provided to help secure each sun visor in the stowed position.

GRAB HANDLE

A black rubber covered grab handle will be mounted on the door post of the driver side and passenger side cab door to assist in entering the cab. The grab handle will be securely mounted to the post area between the door and windshield.

ENGINE COMPARTMENT LIGHTS

Two (2) engine compartment lights will be installed under the engine hood, with an integral switch. The lights will have a .125" diameter hole in its lens to prevent moisture retention.

ACCESS TO ENGINE DIPSTICKS

For access to the engine oil and transmission fluid dipsticks, there will be a door on the engine tunnel, inside the crew cab. The door will be on the rear wall of the engine tunnel, on the vertical surface. The door will be flush with the wall of the engine tunnel.

The engine oil dipstick will allow for checking only. The transmission dipstick will allow for both checking and filling. An additional port will be provided for filling the engine oil.

The door will have a rubber seal for thermal and acoustic insulation. One (1) flush lift and turn latch will be provided on the access door.

STORAGE BOX

There will be four (4) storage box(es) designed to hold and dispense boxes of latex gloves provided.

Each box will be constructed of aluminum and located ship loose/mount at final.

Each storage box will be 5.00" wide x 3.50" deep x 10.00" high and painted to match the cab interior. A slot will be provided on the front of each box to dispense the gloves. The glove box will drop in from the top.

MAP BOX

A map box with four (4) bins, open from top, will be installed vertically on the EMS compartments facing the engine tunnel. The map box will be divided into four (4) bins, each being 12.50" wide x 2.25" high x 12.00" deep. Each bin will slant 30 degrees from horizontal. The sides of the top bin will have rounded corners.

The map box top will be finished and include a small storage area and cup holder hole. The cup holder hole will be 3.75" in diameter and toward the crew cab.

The map box will be constructed of 0.125" aluminum and will be painted to match the cab interior.

There will be two (2) map boxes provided.

CAB SAFETY SYSTEM

The cab will be provided with a safety system designed to protect occupants in the event of a side roll or frontal impact, and will include the following:

- A supplemental restraint system (SRS) sensor will be installed on a structural cab member behind the instrument panel. The SRS sensor will perform real time diagnostics of all critical subsystems and will record sensory inputs immediately before and during a side roll or frontal impact event.
- A slave SRS sensor will be installed in the cab to provide capacity for eight (8) crew cab seating positions.
- A fault-indicating light will be provided on the vehicle's instrument panel allowing the driver to monitor the operational status of the SRS system.
- A driver side front air bag will be mounted in the steering wheel and will be designed to protect the head and upper torso of the occupant, when used in combination with the 3-point seat belt.

- A passenger side knee bolster air bag will be mounted in the modesty panel below the dash panel and will be designed to protect the legs of the occupant, when used in combination with the 3-point seat belt.
- Air curtains will be provided in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall.
- Suspension seats will be provided with devices to retract them to the lowest travel position during a side roll or frontal impact event.
- Seat belts will be provided with pre-tensioners to remove slack from the seat belt during a side roll or frontal impact event.

Frontal Impact Protection

The SRS system will provide protection during a frontal or oblique impact event. The system will activate when the vehicle decelerates at a predetermined G force known to cause injury to the occupants. The cab and chassis will have been subjected, via third party test facility, to a crash impact during frontal and oblique impact testing. Testing included all major chassis and cab components such as mounting straps for fuel and air tanks, suspension mounts, front suspension components, rear suspensions components, frame rail cross members, engine and transmission and their mounts, pump house and mounts, frame extensions and body mounts. The testing provided configuration specific information used to optimize the timing for firing the safety restraint system. The sensor will activate the pyrotechnic devices when the correct crash algorithm, wave form, is detected.

The SRS system will deploy the following components in the event of a frontal or oblique impact event:

- Driver side front air bag
- Passenger side knee bolster air bag
- Air curtains mounted in the outboard bolster of outboard seat backs
- Suspension seats will be retracted to the lowest travel position
- Seat belts will be pre-tensioned to firmly hold the occupant in place

Side Roll Protection

The SRS system will provide protection during a fast or slow 90 degree roll to the side, in which the vehicle comes to rest on its side. The system will analyze the vehicle's angle and rate of roll to determine the optimal activation of the advanced occupant restraints.

The SRS system will deploy the following components in the event of a side roll:

- Air curtains mounted in the outboard bolster of outboard seat backs
- Suspension seats will be retracted to the lowest travel position
- Seat belts will be pre-tensioned to firmly hold the occupant in place

SEATING CAPACITY

The seating capacity of the vehicle (including tiller cab and belted seat positions in the rescue body) will be four (4).

DRIVER SEAT

A Pierce PS6® seat will be provided in the cab for the driver. The seat will be a cam action type, with air suspension. For increased convenience, the seat will include manual controls to adjust the height (1.12" travel) and horizontal (6.00" travel) position. The manual horizontal control will be a towel-bar style located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat will have a reclining back adjustable from 20 degrees back to 45 degrees forward. The seat back will be a high back style, and will include minimum 7.50" deep side bolster pads for maximum support. For optimal comfort, the seat will be provided with 17.00" deep foam cushions.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A suspension seat safety system will be included. When activated in the event of a side roll, this system will pretension the seat belt and retract the seat to its lowest travel position.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

OFFICER SEAT

A Pierce PS6® seat will be provided in the cab for the officer. The seat will be a fixed type, with no suspension. For optimal comfort, the seat will be provided with 17.00" deep foam cushions. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled. The seat back will be an SCBA back style with 7.5 degree fixed recline angle, and will include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A seat safety system will be included. When activated, this system will pretension the seat belt.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

RADIO COMPARTMENT

A compartment for the radio amplifier will be located under the front passenger's seat. The size of the compartment will be approximately 16.00" wide x 7.50" high x 16.50" deep. A drop-down door with a chrome plated, flush lift and turn latch will be provided for access. The compartment will be constructed of smooth aluminum and painted to match the cab interior.

REAR FACING LEFT SIDE CABINET

A rear facing cabinet will be provided in the crew cab at the left side outboard position with interior and exterior access.

The cabinet will be 24.00" wide x 34.00" high x 30.50" deep. The interior door will be web netting. The netting is to be made with 1.00" wide nylon material with 2.00" openings. Front top corners of cabinet will be radiused. This will allow access through the front and top section of the cabinet. Heavy nylon webbing will be provided over the opening with Velcro® strap fasteners each side.The clear door opening will be 19.25" wide x 33.75" high.

The cabinet will include one (1) infinitely adjustable shelf with a 0.75" flanged down lippainted to match the cab interior.

The cabinet will include no louvers.

The cabinet will also provide exterior access with one (1) double pan door painted to match the cab exterior with a locking D-ring latch with #751 key. A web strap will be provided as a door stop. The clear door opening will 19.75" wide x 31.50" high.

The exterior access will be provided with a polished stainless steel scuffplate on the lower door frame.

The cabinet will be constructed of smooth aluminum and painted to match the cab interior.

Cabinet Light

There will be one (1) white LED strip light installed on the right side of the exterior cabinet door opening. The lighting will be controlled by an automatic door switch and a rocker switch on the front of the cabinet.

REAR FACING RIGHT SIDE CABINET

A rear facing cabinet will be provided in the crew cab at the right side outboard position with interior and exterior access.

The cabinet will be 21.50" wide x 34.00" high x 26.50" deep. The interior door will be web netting. The netting is to be made with 1.00" wide nylon material with 2.00" openings. Front top corners of cabinet will be radiused. This will allow access through the front and top section of the cabinet. Heavy nylon webbing will be provided over the opening with Velcro® strap fasteners each side.The clear door opening will be 16.75" wide x 33.75" high.

The cabinet will include one (1) infinitely adjustable shelf with a 0.75" flanged down lippainted to match the cab interior.

The cabinet will include no louvers.

The cabinet will also provide exterior access with one (1) double pan door painted to match the cab exterior with a locking D-ring latch with #751 key. A web strap will be provided as a door stop. The clear door opening will 16.00" wide x 31.50" high.

The exterior access will be provided with a polished stainless steel scuffplate on the lower door frame.

The cabinet will be constructed of smooth aluminum and painted to match the cab interior.

Cabinet Light

There will be one (1) white LED strip light installed on the right side of the exterior cabinet door opening. The lighting will be controlled by an automatic door switch and a rocker switch on the front of the cabinet.

FORWARD FACING DRIVER SIDE OUTBOARD SEAT

There will be one (1) forward facing Pierce PS6® seat provided at the driver side outboard position in the crew cab. To provide improved ride comfort, and maximize accessibility to the crew cab, the seat will be provided with 17.00" deep foam cushions, and the seat back will be provided with 0 degree fixed recline angle. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle, that will activate an alarm indicating a seat is occupied but not buckled.

The seat back will be an SCBA back style. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A seat safety system will be included. When activated, this system will pretension the seat belt around the occupant to firmly hold them in place in the event of a side roll.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

The seat will be moved approximately 3.00" inboard from the standard location.

FORWARD FACING CENTER CABINET

A forward facing cabinet will be provided in the crew cab at the center position.

The cabinet will be 34.00" wide x 58.00" high x 24.00" deep with one (1) Amdor rollup door with anodized finish, non-locking. The cabinet will be provided with no false floor. The frame to frame opening of the cabinet will be 31.50" wide x 52.75" high. The minimum clear door opening will be 28.75" wide x 46.87" high.

CLEAR DOOR OPENINGS (F-F = Frame to Frame)					
AMDOR		GORTITE		ROM	
HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL
Subtract 2.00" from F-F	Subtract 5.88" from F-F	Subtract 2.75" from F-F	Subtract 4.75" from F-F	Subtract 2.56" from F-F	Subtract 4.50" from F-F

The cabinet will include one (1) infinitely adjustable shelf with a 0.75" flanged down lip and one (1) adjustable slide-out tray constructed of 0.188" thick aluminum with a 1.00" down turned lip around the

perimeter, an automatic lock for both the in and out tray positions with only one (1) lock to allow for one (1) handed operationpainted to match the cab interior.

The cabinet will include no louvers.

The cabinet will be constructed of smooth aluminum and painted to match the cab interior.

Cabinet Light

There will be one (1) white LED strip light installed on the right side of the interior cabinet door opening and one (1) white LED strip light installed on the left side of the interior cabinet door opening. The lighting will be controlled by an automatic door switch.

FORWARD FACING PASSENGER SIDE OUTBOARD SEAT

There will be one (1) forward facing Pierce PS6® seat provided at the passenger side outboard position in the crew cab. To provide improved ride comfort, and maximize accessibility to the crew cab, the seat will be provided with 17.00" deep foam cushions, and the seat back will be provided with 0 degree fixed recline angle. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle, that will activate an alarm indicating a seat is occupied but not buckled.

The seat back will be an SCBA back style. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A seat safety system will be included. When activated, this system will pretension the seat belt around the occupant to firmly hold them in place in the event of a side roll.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

The seat will be moved approximately 3.00" inboard from the standard location.

FORWARD FACING OVERHEAD STORAGE COMPARTMENT

There will be an overhead forward-facing storage compartment installed at the raised roof within the crew cab, passenger side of the roof notch.

The compartment will be 29.00" wide x 10.00" high x 14.00" deep.

The compartment will include one (1) lift up compartment doors with Non-locking latch paddle handle latches and gas operated stay arms. The compartment will be provided with a divider between each door opening.

The compartments will be constructed of smooth aluminum and painted to match the cab interior.

Compartment Light
There will be one (1) white LED strip light installed horizontally above each compartment door opening. The light will be controlled by an automatic door switch.

FORWARD FACING OVERHEAD STORAGE COMPARTMENT
There will be an overhead forward-facing storage compartment installed at the raised roof within the crew cab, driver side of the roof notch.

The compartment will be 29.00" wide x 10.00" high x 14.00" deep.

The compartment will include one (1) lift up compartment doors with Non-locking latch paddle handle latches and gas operated stay arms. The compartment will be provided with a divider between each door opening.

The compartments will be constructed of smooth aluminum and painted to match the cab interior.

Compartment Light
There will be one (1) white LED strip light installed horizontally above each compartment door opening. The light will be controlled by an automatic door switch.

CUP HOLDER/STORAGE CONSOLE
There will be two (2) console(s) located shipped loose. Each console will be 14.50" long x 5.00" wide x 3.00" high. A 3.75" diameter hole will be provided for a cup holder. The other side of the console will have a recessed rectangle storage area.

The console(s) will be painted to match the cab interior.

SEAT UPHOLSTERY
All seat upholstery will be black Turnout Tuff material.

AIR BOTTLE HOLDERS
All SCBA type seats in the cab will have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket will include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp will constrain the SCBA bottle in the seat and will exceed the NFPA standard of 9G.

There will be a quantity of three (3) SCBA brackets.

SEAT BELTS
All seating positions in the cab, crew cab and tiller cab (if applicable) will have red seat belts.

To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current edition of applicable NFPA and CAN/ULC - S515 standards.

The 3-point shoulder type seat belts will also include the ReadyReach® D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.

Any flip up seats will include a 3-point shoulder type belts only.

SHOULDER HARNESS HEIGHT ADJUSTMENT

All seating positions furnished with 3-point shoulder type seat belts will include a height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter.

A total of four (4) seating positions will have the adjustable shoulder harness.

HELMET HOLDER

There will be four (4) On Scene Talon, Model 92510, helmet holder bracket(s) provided in the cab. Each bracket will provide quick access and secure storage of the helmet.

The bracket location(s) will be determined at time of final inspection.

CAB DOME LIGHTS

There will be four (4) dual LED dome lights with black bezels provided. Two (2) lights will be mounted above the inside shoulder of the driver and officer and two (2) lights will be installed and located, one (1) on each side of the crew cab.

The color of the LED's will be red and white.

The white LED's will be controlled by the door switches and the lens switch.

The color LED's will be controlled by the lens switch.

All dome lights on the apparatus will be illuminated per the current edition of applicable NFPA standards per seating position.

ENHANCED SOFTWARE FOR CAB AND CREW CAB DOME LIGHTS

The cab and crew cab dome lights will remain on for 10 seconds for improved visibility after the doors are closed.

The dome lights will dim after 10 seconds or immediately if the vehicle's transmission is put into gear.

CAB SPOTLIGHT

There will be one (1) Golight/RadioRay®, Model 20**4GT, white LED spotlight located on the cab roof, centered on cab roof behind lightbar. The spotlight will be mounted on a painted Z bracket.

This light may be load managed when the parking brake is applied.

Spotlight Controller

There will be one (1) wireless dash mounted remote and one (1) wireless handheld remote provided for the spotlight.

SPOTLIGHT CONTROLLER LOCATION

The remote to control the spotlight will be located within reach of the driver. The handheld remote will be shipped with loose equipment.

HAND HELD LIGHT

There will be four (4) Streamlight, Fire Vulcan, Model #44451, hand lights provided with a vehicle mount with 12VDC direct wire charging rack and quick release buckle strap mounted 1 each under the forward facing seats and 1 each in the engineers compartment forward wall up against the ceiling bulb facing in.as marked by the customer reference Photo's.

Each light housing will be orange in color and be provided with a C4, LED and two (2) "ultra bright blue tail light LEDs". The tail light LEDs will have a dual mode of blinking or steady.

CAB INSTRUMENTATION

The cab instrument panel will consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches will be identified by a label adjacent to each item. Actuation of the headlight switch will illuminate the labels in low light conditions. Telltale indicator lamps will not be illuminated unless necessary. The cab instruments and controls will be conveniently located within the forward cab section directly forward of the driver. Gauge and switch panels will be designed to be removable for ease of service and low cost of ownership.

Gauges

The gauge panel will include the following ten (10) ivory gauges with chrome bezels to monitor vehicle performance:

- Voltmeter gauge (Volts)
    - Low volts (11.8 VDC)
        - Amber indicator on gauge assembly with alarm
    - High volts (15 VDC)
        - Amber indicator on gauge assembly with alarm
    - Very low volts (11.3 VDC)
        - Amber indicator on gauge assembly with alarm
    - Very high volts (16 VDC)
        - Amber indicator on gauge assembly with alarm
- Tachometer (RPM)
- Speedometer (Primary (outside) MPH, Secondary (inside) Km/H)
- Fuel level gauge (Empty - Full in fractions)
    - Low fuel (1/8 full)
        - Amber indicator on gauge assembly with alarm
    - Very low fuel (1/32) fuel
        - Amber indicator on gauge assembly with alarm
- Engine oil pressure gauge (PSI)
    - Low oil pressure to activate engine warning lights and alarms
        - Red indicator on gauge assembly with alarm

- Front air pressure gauge (PSI)
    - Low air pressure to activate warning lights and alarm
        - Red indicator on gauge assembly with alarm
- Rear air pressure gauge (PSI)
    - Low air pressure to activate warning lights and alarm
        - Red indicator on gauge assembly with alarm
- Transmission oil temperature gauge (Fahrenheit)
    - High transmission oil temperature activates warning lights and alarm
        - Amber indicator on gauge assembly with alarm
- Engine coolant temperature gauge (Fahrenheit)
    - High engine temperature activates an engine warning light and alarm
        - Red indicator on gauge assembly with alarm
- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions)
    - Low fluid (1/8 full)
        - Amber indicator on gauge assembly with alarm

All gauges and gauge indicators will perform prove out at initial power-up to ensure proper performance.

Indicator Lamps

To promote safety, the following telltale indicator lamps will be integral to the gauge assembly and are located above and below the center gauges. The indicator lamps will be "dead-front" design that is only visible when active. The colored indicator lights will have descriptive text or symbols.

The following amber telltale lamps will be present:

- Low coolant
- Trac cntl (traction control) (where applicable)
- Check engine
- Check trans (check transmission)
- Aux brake overheat (Auxiliary brake overheat)
- Air rest (air restriction)
- Caution (triangle symbol)
- Water in fuel
- DPF (engine diesel particulate filter regeneration)
- Trailer ABS (where applicable)
- Wait to start (where applicable)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- SRS (supplemental restraint system) fault (where applicable)
- DEF (low diesel exhaust fluid level)

The following red telltale lamps will be present:

- Warning (stop sign symbol)
- Seat belt
- Parking brake
- Stop engine
- Rack down

The following green telltale lamps will be provided:

- Left turn
- Right turn
- Battery on

The following blue telltale lamp will be provided:

- High beam

Alarms

Audible steady tone warning alarm: A steady audible tone alarm will be provided whenever a warning message is present.

Audible pulsing tone caution alarm: A pulsing audible tone alarm (chime/chirp) will be provided whenever a caution message is present without a warning message being present.

Alarm silence: Any active audible alarm will be able to be silenced by holding the ignition switch at the top position for 3 to 5 seconds. For improved safety, silenced audible alarms will intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp will act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition will enable the steady or pulsing tones respectively.

Indicator Lamp and Alarm Prove-Out

Telltale indicators and alarms will perform prove-out at initial power-up to ensure proper performance.

Control Switches

For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver.

Emergency master switch: A molded plastic push button switch with integral indicator lamp will be provided. Pressing the switch will activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.

Headlight / Parking light switch: A three (3)-position maintained rocker switch will be provided. The first switch position will deactivate all parking lights and the headlights. The second switch position will activate the parking lights. The third switch position will activate the headlights.

Panel backlighting intensity control switch: A three (3)-position momentary rocker switch will be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the

switch is held. The second switch position is the default position that does not affect the backlighting intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.

The following standard controls will be integral to the gauge assembly and are located below the right hand gauges. All switches have backlit labels for low light applications.

High idle engagement switch: A two (2)-position momentary rocker switch with integral indicator lamp will be provided. The first switch position is the default switch position. The second switch position will activate and deactivate the high idle function when pressed and released. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch will indicate when the high idle function is engaged.

"Ok To Engage High Idle" indicator lamp: A green indicator light will be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

The following standard controls will be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches will have backlit labels for low light applications.

Ignition switch: A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will deactivate vehicle ignition. The second switch position will activate vehicle ignition. The third momentary position will disable the Command Zone audible alarm if held for 3 to 5 seconds. A green indicator lamp will be activated with vehicle ignition.

Engine start switch: A two (2)-position momentary rocker switch will be provided. The first switch position is the default switch position. The second switch position will activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

4-way hazard switch: A two (2)-position maintained rocker switch will be provided. The first switch position will deactivate the 4-way hazard switch function. The second switch position will activate the 4-way hazard function. The switch actuator will be red and includes the international 4-way hazard symbol.

Heater, defroster, and air conditioning control panel.

Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls will be provided. The windshield wiper control will have high, low, and intermittent modes.

Parking brake control: An air actuated push/pull park brake control valve will be provided.

Chassis horn control: Activation of the chassis horn control will be provided through the center of the steering wheel.

Custom Switch Panels

The design of cab instrumentation will allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There will be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and

up to two (2) switch panels in the engine tunnel console facing the officer. All switches will have backlit labels for low light applications.

Diagnostic Panel

A diagnostic panel will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches will allow ABS systems to provide blink codes should a problem exist.

The diagnostic panel will include the following:

- Engine diagnostic port
- Transmission diagnostic port
- ABS diagnostic port
- SRS diagnostic port (where applicable)
- Command Zone USB diagnostic port
- ABS diagnostic switch (blink codes flashed on ABS telltale indicator)
- Diesel particulate filter regeneration switch (where applicable)
- Diesel particulate filter regeneration inhibit switch (where applicable)

Cab LCD Display

A digital four (4)-row by 20-character dot matrix display will be integral to the gauge panel. The display will be capable of showing simple graphical images as well as text. The display will be split into three (3) sections. Each section will have a dedicated function. The upper left section will display the outside ambient temperature.

The upper right section will display, along with other configuration specific information:

- Odometer
- Trip mileage
- PTO hours
- Fuel consumption
- Engine hours

The bottom section will display INFO, CAUTION, and WARNING messages. Text messages will automatically activate to describe the cause of an audible caution or warning alarm. The LCD will be capable of displaying multiple text messages should more than one caution or warning condition exist.

AIR RESTRICTION INDICATOR

A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm will be provided.

"DO NOT MOVE APPARATUS" INDICATOR

A flashing red indicator light, located in the driving compartment, will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On."

The same circuit that activates the Do Not Move Apparatus indicator will activate a pulsing alarm when the parking brake is released.

DO NOT MOVE TRUCK MESSAGES

Messages will be displayed on the Command Zone™, color display located within sight of the driver whenever the Do Not Move Truck light is active. The messages will designate the item or items not in the stowed for vehicle travel position (parking brake disengaged).

The following messages will be displayed (where applicable):

- Do Not Move Truck
- DS Cab Door Open (Driver Side Cab Door Open)
- PS Cab Door Open (Passenger's Side Cab Door Open)
- DS Crew Cab Door Open (Driver Side Crew Cab Door Open)
- PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open)
- DS Body Door Open (Driver Side Body Door Open)
- PS Body Door Open (Passenger's Side Body Door Open)
- Rear Body Door Open
- DS Ladder Rack Down (Driver Side Ladder Rack Down)
- PS Ladder Rack Down (Passenger Side Ladder Rack Down)
- Deck Gun Not Stowed
- Lt Tower Not Stowed (Light Tower Not Stowed)
- Fold Tank Not Stowed (Fold-A-Tank Not Stowed)
- Aerial Not Stowed (Aerial Device Not Stowed)
- Stabilizer Not Stowed
- Steps Not Stowed
- Handrail Not Stowed

Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved will be displayed as a caution message after the parking brake is disengaged.

SWITCH PANELS

The emergency light switch panel will have a master switch for ease of use plus individual switches for selective control. Each switch panel will contain eight (8) membrane-type switches each rated for one million (1,000,000) cycles. Panels containing less than eight (8) switch assignments will include non-functioning black appliqués. Documentation will be provided by the manufacturer indicating the rated cycle life of the switches. The switch panel(s) will be located in the overhead position above the windshield on the driver side overhead to allow for easy access.

Additional switch panel(s) will be located in the overhead position(s) above the windshield or in designated locations on the lower instrument panel layout.

The switches will be membrane-type and also act as an integral indicator light. For quick, visual indication the entire surface of the switch will be illuminated white whenever back lighting is activated

and illuminated green whenever the switch is active. An active illuminated switch will flash when interlock requirements are not met or device is actively being load managed. For ease of use, a two (2)-ply, scratch resistant laser engraved Gravoply label indicating the use of each switch will be placed in the center of the switch. The label will allow light to pass through the letters for ease of use in low light conditions.

WIPER CONTROL

For simple operation and easy reach, the windshield wiper control will be an integral part of the directional light lever located on the steering column. The wiper control will include high and low wiper speed settings, a one (1) speed intermittent wiper control with six (6) second interval and windshield washer switch. The control will have a return to park provision, which allows the wipers to return to the stored position when the wipers are not in use.

The wipers will be interlocked to the parking brake. The wipers will terminate operation when the parking brake is set.

There will be a momentary switch included in the instrument panel. When the parking brake is applied, activating this momentary switch will activate the intermittent feature of the windshield wipers.

CAB USB

There will be four (4) USB terminations with a combination USB type A & C, wired to battery direct power, and provided per the following:

- One (1) within reach of the driver
- One (1) within reach of the passenger
- Two (2) on the rear of the engine tunnel, one (1) each side.

Battery direct loads cannot be load managed.

SPARE CIRCUIT

There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The wires will have the following features:

- The positive wire will be connected directly to the battery power.
- The negative wire will be connected to ground.
- Wires will be capable of carrying 20 amps.
- Power and ground will terminate behind instrument panel #9.
- Termination will be with 3/8" studs and plastic covers.
- Wires will be protected to meet the NFPA Automotive Fire Apparatus standard.

Battery direct loads cannot be Load Managed.

SPARE CIRCUIT

There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The wires will have the following features:

- The positive wire will be connected directly to the battery switched power
- The negative wire will be connected to ground
- Wires will be capable of carrying 30 amps
- Power and ground will terminate center forward facing EMS cabinet on back wall near floor
- Termination will be with a 10-place bus bar with screws and removable cover
- Wires will be protected to meet the NFPA Automotive Fire Apparatus standard

This circuit(s) may be load managed when the parking brake is set.

SPARE CIRCUIT
There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The wires will have the following features:

- The positive wire will be connected directly to the battery power
- The negative wire will be connected to ground
- Wires will be capable of carrying 20 amps
- Power and ground will terminate officers side rear facing EMS compartment for the CGI charger
- Termination will be with heat shrinkable butt splicing
- Wires will be protected to meet the NFPA Automotive Fire Apparatus standard

Battery direct loads cannot be Load Managed

SPARE CIRCUIT
There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The wires will have the following features:

- The positive wire will be connected directly to the battery power.
- The negative wire will be connected to ground.
- Wires will be capable of carrying 15 amps.
- Power and ground will terminate two in the front of cab under instrument panel.
- Termination will be with heat shrinkable butt splicing.
- Wires will be protected to meet the NFPA Automotive Fire Apparatus standard.

Battery direct loads cannot be Load Managed.

SPARE CIRCUIT
There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The wires will have the following features:

- The positive wire will be connected directly to the battery power
- The negative wire will be connected to ground
- Wires will be capable of carrying 30 amps
- Power and ground will terminate D3 compartment coiled up by 120 volt receptacle
- Termination will be with heat shrinkable butt splicing

- Wires will be protected to meet the NFPA Automotive Fire Apparatus standard

Battery direct loads cannot be Load Managed

EMERGENCY LIGHT SWITCHES

The emergency light switching will work as follows: The emergency master switch must be activated for all emergency lighting to function.

The emergency master "saved states" feature will not be activated. This means that if the emergency master switch is on and individual switch is turned off. Then the emergency master is turned off, upon turning the emergency master switch back on the individual switch which was previously turn off will turn back on.

All emergency lighting will be turned on whenever the emergency master switch is turned on.

Individual emergency light switches may be deactivated and/or reactivated after the emergency master switch is turned on.

Switches will be per the following: Emergency Master, Lightbar, Front Warning, Side Warning, Rear Warning, High Beam Flash will be combined with Front Warning, Upper & Lower Rear Warning will be combined under Rear Warning.

DASH PANEL RECESS

The dash panel across from the officer will be recessed to accommodate the mounting of miscellaneous items. The recess will be 7.25" down x 7.81" back and 20.88" wide.

INSTRUMENT PANEL LAYOUT

The instrument panel layout will match Match Switch panel layout per the customer.

INFORMATION CENTER

An information center employing a 7.00" diagonal touch screen color LCD display will be encased in an ABS plastic housing.

The information center will have the following specifications:

- Operate in temperatures from -40 to 158 degrees Fahrenheit
- LCD optically bonded to hardened AR glass lens
- Five weather resistant user interface switches
- Grey with black accents
- Sunlight Readable
- Linux operating system
- Minimum of 1000nits rated display
- Display can be changed to an available foreign language
- A LCD display integral to the cab gauge panel will be included as outlined in the cab instrumentation area.
- Programmed to read US Customary

General Screen Design

Where possible, background colors will be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background will be used.

If a caution or warning situation arises the following will occur:

- An amber background/text color will indicate a caution condition
- A red background/text color will indicate a warning condition
- The information center will utilize an "Alert Center" to display text messages for audible alarm tones. The text messages will be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages will cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" will change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color will be shown for all alert center messages.
- A label for each button will exist. The label will indicate the function for each active button for each screen. Buttons that are not utilized on specific screens will have a button label with no text or symbol.

Home/Transit Screen

This screen will display the following:

- Vehicle Mitigation (if equipped)
- Water Level (if the water level system includes compatible communications to the information center)
- Foam Level (if the foam level system includes compatible communications to the information center)
- Seat Belt Monitoring Screen
- Tire Pressure Monitoring (if equipped)
- Digital Speedometer
- Active Alarms

On Scene Screen

This screen will display the following and will be auto activated with pump engaged (if equipped):

- Battery Voltage
- Fuel
- Oil Pressure
- Coolant Temperature
- RPM
- Water Level (if equipped)
- Foam Level (if equipped)
- Foam Concentration (if equipped)
- Water Flow Rate (if equipped)
- Water Used (if equipped)
- Active Alarms

Virtual Buttons

There will be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.

Page Screen

The page screen will display the following and allow the user to progress into other screens for further functionality:

- Diagnostics
  - Faults
    - Listed by order of occurrence
    - Allows to sort by system
  - Interlock
    - Throttle Interlocks
    - Pump Interlocks (if equipped)
    - Aerial Interlocks (if equipped)
    - PTO Interlocks (if equipped)
  - Load Manager
    - A list of items to be load managed will be provided. The list will provide a description of the load.
    - The lower the priority numbers the earlier the device will be shed should a low voltage condition occur.
    - The screen will indicate if a load has been shed (disabled) or not shed.
    - "At a glance" color features are utilized on this screen.
  - Systems
    - Command Zone
      - Module type and ID number
      - Module Version
      - Input or output number
      - Circuit number connected to that input or output
      - Status of the input or output
      - Power and Constant Current module diagnostic information
    - Foam (if equipped)
    - Pressure Controller (if equipped)
    - Generator Frequency (if equipped)
  - Live Data
    - General Truck Data
- Maintenance
  - Engine oil and filter
  - Transmission oil and filter
  - Pump oil (if equipped)
  - Foam (if equipped)
  - Aerial (if equipped)
- Setup

    - Clock Setup
    - Date & Time
        - 12 or 24 hour format
        - Set time and date
    - Backlight
        - Daytime
        - Night time
        - Sensitivity
    - Unit Selection
    - Home Screen
    - Virtual Button Setup
    - On Scene Screen Setup
    - Configure Video Mode
        - Set Video Contrast
        - Set Video Color
        - Set Video Tint
- Do Not Move
    - The screen will indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices will be indicated
        - Driver Side Cab Door
        - Passenger's Side Cab Door
        - Driver Side Crew Cab Door
        - Passenger's Side Crew Cab Door
        - Driver Side Body Doors
        - Passenger's Side Body Doors
        - Rear Body Door(s)
        - Ladder Rack (if applicable)
        - Deck Gun (if applicable)
        - Light Tower (if applicable)
        - Hatch Door (if applicable)
        - Stabilizers (if applicable)
        - Steps (if applicable)
- Notifications
    - View Active Alarms
        - Shows a list of all active alarms including date and time of the occurrence is shown with each alarm
        - Silence Alarms - All alarms are silenced
- Timer Screen
- HVAC (if equipped)
- Tire Information (if equipped)
- Ascendant Set Up Confirmation (if equipped)

Button functions and button labels may change with each screen.

COLLISION MITIGATION

There will be a HAAS Alert®, Model HA7 Responder-to-Vehicle (R2V) collision avoidance system provided on the apparatus. The HA7 cellular transponder module will be installed behind the cab windshield, as high and near to the center as practical, to allow clear visibility to the sky. The module dimensions are 5.40" long x 2.70" wide x 1.30" high, and operating temperature range is -40 degrees Celsius to 85 degrees Celsius.

The transponder will be connected to the vehicle's emergency master circuit and battery direct power and ground.

While responding with emergency lights on, the HA7 transponder sends alert messages via cellular network to motorists in the vicinity of the responding truck that are equipped with the WAZE app.

While on scene with emergency lights on, the HA7 transponder sends road hazard alerts to motorists in the vicinity of the truck that are equipped with the WAZE app.

The HA7 Responder-to-Vehicle (R2V) collision avoidance system will include the transponder and a 5 year cellular plan subscription.

Activation of the HAAS Alert system requires a representative of the customer to accept the End User License Agreement (EULA) via an on-line portal.

VEHICLE DATA RECORDER

There will be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.

The vehicle data recorder will be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle
- ABS Event - On/Off
- Seat Occupied Status - Yes/No by Position
- Seat Belt Buckled Status - Yes/No by Position
- Master Optical Warning Device Switch - On/Off
- Internal clock syncs the time and date when a laptop is connected.

Seat Belt Monitoring System

A seat belt monitoring system (SBMS) will be provided on the Command Zone™ color display. The SBMS will be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:

- Seat Occupied & Buckled = Green LED indicator illuminated
- Seat Occupied & Unbuckled = Red LED indicator with audible alarm
- No Occupant & Buckled = Red LED indicator with audible alarm
- No Occupant & Unbuckled = No indicator and no alarm
- FAULT = Blue LED indicator illuminated

The seat belt monitoring screen will become active on the Command Zone color display when:

- The home screen is active:
    - and there is any occupant seated but not buckled or any belt buckled with an occupant.
    - and there are no other Do Not Move Apparatus conditions present. As soon as all Do Not Move Apparatus conditions are cleared, the SBMS will be activated.

The SBMS will include an audible alarm that will warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.

INTERCOM SYSTEM

There will be a four (4) position David Clark, Model U3800, intercom system with single radio interface capability at the driver and officer positions and remote radio push to talk buttons located in panel #10 rocker switch style on the driver side and chrome PB officer dash. Two (2) crew cab outboard seats will have intercom only capability.

The following components will be provided:

- One (1) U3805 Radio Cord Junction Module
- Two (2) U3815 Radio interface modules (Driver, Officer)
- Two (2) Remote Push To Talk Button Kits
- One (1) U3800 Master station (1 Crew)
- One (1) U3801 Remote headset intercom station (1 Crew)
- One (1) C3820 Power cord
- All necessary station cables and connectors

RADIO / INTERCOM INTERFACE INCLUDED

All radio interfaced stations will have universal radio interfaces installed. The interface wiring will be routed within the cab to center overhead position .

UNDER THE HELMET HEADSET

There will be four (4) under the helmet, headset(s) provided driver, officer and crew cab.

Each David Clark, Model H3442, headset will feature:

- M-7A noise canceling electret microphone
- Hybrid wire/flex boom assembly, 280Â rotating, for perfect microphone placement on left or right side
- Dynamic earphone elements
- Advanced Undercut Gel Ear Seals for superior comfort
- Microphone on/off switch
- 6 ft. extended coil cord
- Adjustable overhead support assembly
- Carbon steel nape-band spring, black finish, rotates for left or right side mic positioning
- Independently Certified NRR: 23dB

HEADSET HANGERS

There will be four (4) headset hanger(s) installed driver's seat, officer's seat, driver's side outboard forward facing seat and passenger's side outboard forward facing seat. The hanger(s) will meet the current edition of applicable NFPA and ULC standards for equipment mounting.

RADIO ANTENNA MOUNT

There will be two (2) Maxrad, Model BMATM, antenna-mounting base(s) with 17.00' coax cable and weatherproof cap provided.

The mount(s) will be located on the cab roof one each side of cab roof just to the rear of the lightbar.

The cable will be routed to the officer side seat box.

VEHICLE CAMERA SYSTEM

There will be a color vehicle camera system provided with the following:

- One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse.
- One (1) camera located on the right side of the apparatus, pointing rearward, displayed automatically with the right side turn signal.
- One (1) camera located on the left side of the apparatus, pointing rearward, displayed automatically with the left side turn signal.

The camera images will be displayed on the left side vehicle information center display. Audio from the microphone on the rear camera will be not provided.

The following components will be included:

- One (1) SV-CW134639CAI Rear Camera
- Two (2) CS134404CI Side Cameras
- All necessary cables

Camera Switcher

There will be one (1), HMU318 HD Image Processor multiplexer, 4 channel camera video switcher with remote control provided to allow single, dual, triplex, quad, trefoil, Y split and PIP view display modes on the vehicle information center display provided. The switcher will have one (1) CVBS, Composite Video Blanking and Sync, standard Definition video output and one (1) AHD, Analog High Definition video output for High Definition cameras.

ELECTRICAL POWER CONTROL SYSTEM

The primary power distribution will be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers will be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers will be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers will be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays will be easily accessible.

Distribution centers located throughout the vehicle will contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.

Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting). When required, automotive type fuses will be utilized to protect electronic equipment. Control relays and solenoid will have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.

Solid-State Control System

A solid-state electronics based control system will be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network will consist of electronic modules, electronic control modules to include a see through housing, a power indicator, a status indicator and circuit indicators located near their point of use to reduce harness lengths and improve reliability. The control system will comply with SAE J1939-11 recommended practices.

The control system will operate as a master-slave system whereas the main control module instructs all other system components. The system will contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system will utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership.

For increased reliability and simplified use the control system modules will include the following attributes:

- Green LED indicator light for module power
- Red LED indicator light for network communication stability status
- Control system self test at activation and continually throughout vehicle operation
- No moving parts due to transistor logic

- Software logic control for NFPA mandated safety interlocks and indicators
- Integrated electrical system load management without additional components
- Integrated electrical load sequencing system without additional components
- Customized control software to the vehicle's configuration
- Factory and field programmable to accommodate changes to the vehicle's operating parameters

To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules will meet the following specifications:

- Module circuit board will meet SAE J771 specifications
- Operating temperature from -40C to +70C
- Storage temperature from -40C to +70C
- Vibration to 50g

IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)

Operating voltage from eight (8) volts to 32 volts DC

The main controller will activate status indicators and audible alarms designed to provide warning of problems before they become critical.

Circuit Protection and Control Diagram

Copies of all job-specific, computer network input and output (I/O) connections will be provided with each chassis. The sheets will indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.

On-Board Electrical System Diagnostics

The on-board information center will include the following diagnostic information:

- Text description of active warning or caution alarms
- Simplified warning indicators
- Amber caution indication with intermittent alarm
- Red warning indication with steady tone alarm

Advanced diagnostic feature will be provided in this control system. From the Command Zone display or connected wireless device, these features allow the user to monitor the real-time status of every input or output on the vehicle. It also allows users logged in as an administrator to force on inputs or outputs to assist the troubleshooting process.

TCU Module with WiFi

An in cab module will provide WiFi wireless interface and data logging capability. The WiFi interface will comply with IEEE 802.11 b/g/n capabilities while communicating at 2.4 Gigahertz. The module will communicate through a white WiFi antenna allowing a line of site communication range of up to 300 feet with a roof mounted antenna.

The module will transmit a password protected web page to a WiFi enabled device (i.e. most smart phones, tablets or laptops) allowing two levels of user interaction. The firefighter level will allow vehicle monitoring of the vehicle and firefighting systems on the apparatus. The technician level will allow diagnostic access to inputs and outputs installed on the Command Zone™, control and information system.

The TCU capability will record faults from the engine, transmission, ABS and Command Zone™, control and information systems as they occur. No other data will be recorded at the time the fault occurs. The data TCU will provide up to 2 Gigabytes of data storage.

The TCU will provide a means to download the TCU information and update software in the device.

Indicator Light and Alarm Prove-Out System

A system will be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

Voltage Monitor System

A voltage monitoring system will be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system will provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm will activate if the system falls below 11.8 volts DC for more than two (2) minutes.

Dedicated Radio Equipment Connection Points

There will be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment. The studs will consist of the following:

- 12-volt 40-amp battery switched power
- 12-volt 60-amp ignition switched power
- 12-volt 60-amp direct battery power

There will also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.

EMI/RFI Protection

To prevent erroneous signals from crosstalk contamination and interference, the electrical system will meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system will be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.

The apparatus will have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system will meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, will provide EMC testing reports from testing conducted on an entire apparatus and will certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements. Component and partial

(incomplete) vehicle testing is not adequate as overall vehicle design can impact test results and thus is not acceptable by itself.

EMI/RFI susceptibility will be controlled by applying appropriate circuit designs and shielding. The electrical system will be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

ELECTRICAL SYSTEM PROGNOSTICS

There will be a software based vehicle tool provided to predict remaining life of the vehicles critical fluid and events.

The system will send automatic indications to the Command Zone™ information center and/or wireless enabled devices to proactively alert of upcoming service intervals.

Prognostics will include the following:

- Engine oil and filter
- Transmission oil and filter

ELECTRICAL

All 12-volt electrical equipment installed by the apparatus manufacturer will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers will be provided which conform to SAE Standards. Wiring will be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment will be installed utilizing the following guidelines:

1. All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.
2. Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.
3. Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.
4. Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation (of the plug).
5. All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.

6. All electrical terminals in exposed areas will have silicon applied completely over the metal portion of the terminal.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests will be recorded and provided to the purchaser at time of delivery.

BATTERY SYSTEM

There will be three (3) Stryten/Exide, Model 31S950X3W, 12 volt DC group 31 batteries provided and mounted in the left side battery box.

These batteries will be rated at 950 CCA cold cranking amps with a reserve capacity of 190 amps and have threaded stainless steel studs.

BATTERY SYSTEM

There will be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.

MASTER BATTERY SWITCH

There will be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.

An indicator light will be provided on the instrument panel to notify the driver of the status of the battery system.

BATTERY COMPARTMENTS

The batteries will be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments will be constructed of 3/16" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The compartments will include formed fit heavy-duty roto-molded polyethylene battery tray inserts with drains on each side of the frame rails. The batteries will be mounted inside of the roto-molded trays.

JUMPER STUDS

One (1) set of battery jumper studs with plastic color-coded covers will be installed on the battery box on the driver's side. This will allow enough room for easy jumper cable access.

POWER CONVERTER / BATTERY CHARGERS

There will be two (2) Progressive Dynamics, Inc., Model PD2180, power converter / battery chargers installed. Each PD2180 will be capable of charging up to three (3) separated banks of batteries. The PD2180s will be wired in parallel to increase maximum output capability to each battery system.

Each PD2180 will contain the following features:

- Four-Stage Charging System constantly monitors battery voltage, then automatically selects one of four charging modes: BOOST, NORMAL, STORAGE, or EQUALIZE.
- Digital meter displays current, voltage mode, blown fuse indication, and battery type.
- Reverse battery protection prevents charger damage if battery leads are accidentally reversed.
- Over Voltage Protection prevents high voltage spikes from damaging sensitive electronic components in the charger.
- Electronic Current Limiting limits the maximum output current to the rating of the charger to prevent overheating and damage caused by shorts or excessive loads.
- Regulated Output Voltage prevents AC line voltage variations from being transmitted to the batteries and 12 Volt circuits.
- Intelligent Cooling Fan only runs as fast as required to maintain constant operating temperature reducing thermal stress.
- Automatic Over-temperature Shutdown prevents charger damage in the event the fan is unable to cool the charger due to inadequate compartment ventilation.

The PD2180s will be powered from a dedicated 30A VAC shoreline.

The battery charger will be located in the left front body compartment mounted on the ceiling as far to the left side as practical.

REMOTE CONTROL PANEL - BATTERY CHARGER

There will be a Kussmaul™, Model 091-94-12 universal display panel included. It will be wired directly to the chassis batteries.

The battery charger indicator will be located near the driver's seat riser with special bracketry.

KUSSMAUL AUTO EJECT FOR SHORELINE

There will be one (1) Kussmaul Model 091-18WP-120, 15 amp 120 volt AC shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus without the use of the generator.

The shoreline inlet(s) will include red weatherproof flip up cover(s).

There will be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.

The shoreline(s) will be connected to the battery charger and the six place outlet in the crew cab.

There will be a mating connector body supplied with the loose equipment.

There will be a label installed near the inlet(s) that state the following:

- Line Voltage
- Current Ratting (amps)
- Phase

- Frequency

The shoreline receptacle will be located on the driver side exterior of cab, behind crew cab door.

KUSSMAUL AUTO EJECT FOR IRT SHORELINE

There will be one (1) Kussmaul™, Model 091-159-30-120, 30 amp 120 volt AC shoreline inlet provided to operate the IRT dedicated 120 volt AC circuit on the apparatus.

The shoreline inlet will include red weatherproof flip up cover.

There will be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.

The shoreline will be connected to the Idle Reduction Technology battery chargers.

A mating connector body will be supplied with the loose equipment.

There will be a label installed near the inlet that state the following:

- Line Voltage
- Current Ratting (amps)
- Phase
- Frequency

The IRT dedicated shoreline receptacle will be located on the left side rear bulkhead of the body.

INDICATOR IRT SYSTEM CHARGERS

One (1) green indicator light will be mounted By the IRT Shoreline Inlet. The lights will indicate when each IRT battery charger is being powered with 120 VAC via the shoreline inlet.

BATTERY BOX COVER

A removable cover will be fabricated and installed over the IRT battery box for protection. The cover will be made out of aluminum treadplate material.

ALTERNATOR

A Delco Remy®, Model 55SI, alternator will be provided. It will have a rated output current of 430 amps, as measured by SAE method J56. The alternator will feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

ELECTRONIC LOAD MANAGER

An electronic load management (ELM) system will be provided that monitors the vehicles 12-volt electrical system, automatically reducing the electrical load in the event of a low voltage condition, and automatically restoring the shed electrical loads when a low voltage condition expires. This ensures the integrity of the electrical system.

For improved reliability and ease of use, the load manager system will be an integral part of the vehicle's solid state control system requiring no additional components to perform load management tasks. Load management systems which require additional components will not be allowed.

The system will include the following features:

- System voltage monitoring.
- A shed load will remain inactive for a minimum of five minutes to prevent the load from cycling on and off.
- Sixteen available electronic load shedding levels.
- Priority levels can be set for individual outputs.
- High Idle to activate before any electric loads are shed and deactivate with the service brake.
    - If enabled:
        - "Load Man Hi-Idle On" will display on the information center.
        - Hi-Idle will not activate until 30 seconds after engine start up.
- Individual switch "on" indicator to flash when the particular load has been shed.
- The information center indicates system voltage.

The information center, where applicable, includes a "Load Manager" screen indicating the following:

- Load managed items list, with priority levels and item condition.
- Individual load managed item condition:
    - ON = not shed
    - SHED = shed

SEQUENCER

A sequencer will be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation will allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12 volt load to prolong the life of the alternator.

For improved reliability and ease of use, the load sequencing system will be an integral part of the vehicle's solid state control system requiring no additional components to perform load sequencing tasks. Load sequencing systems which require additional components will not be allowed.

Emergency light sequencing will operate in conjunction with the emergency master light switch. When the emergency master switch is activated, the emergency lights will be activated one by one at half-second intervals. Sequenced emergency light switch indicators will flash while waiting for activation.

When the emergency master switch is deactivated, the sequencer will deactivate the warning light loads in the reverse order.

Sequencing of the following items will also occur, in conjunction with the ignition switch, at half-second intervals:

- Cab Heater and Air Conditioning
- Crew Cab Heater (if applicable)

- Crew Cab Air Conditioning (if applicable)
- Exhaust Fans (if applicable)
- Third Evaporator (if applicable)

SWITCH, MEMBRANE
A membrane switch will be provided on the driver side instrument panel for the Load Manager lower dash next to driver.

HEADLIGHTS
There will be four (4) JW Speaker®, Model 8800, 4" x 6" rectangular LED lights with heated lens mounted in the front quad style, chrome housing on each side of the cab grille:

- the outside light on each side will contain a part number 055***1 low beam module
- the inside light on each side will contain a part number 055***1 high beam module
- the headlights to include chrome bezels

The low beam lights will be activated when the headlight switch is on.

The high beam and low beam lights will be activated when the headlight switch and the high beam switch is activated.

DIRECTIONAL LIGHTS
There will be two (2) Whelen 600® series, LED combination directional/marker lights provided. The lights will be located on the outside cab corners, next to the headlights.

The color of the lenses will be the same color as the LED's.

INTERMEDIATE LIGHT
There will be two (2) Weldon, Model 9186-8580-29, amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light will double as a turn signal and marker light.

CAB CLEARANCE/MARKER/ID LIGHTS
There will be seven (7) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:

- Three (3) amber LED identification lights will be installed in the center of the cab above the windshield.
- Two (2) amber LED clearance lights will be installed, one (1) on each outboard side of the cab above the windshield.
- Two (2) amber LED marker lights will be installed, one (1) on each side above the cab doors.

REAR CLEARANCE/MARKER/ID LIGHTING
There will be three (3) LED identification lights located at the rear installed per the following:

- As close as practical to the vertical centerline
- Centers spaced not less than 6.00" or more than 12.00" apart

- Red in color
- All at the same height

There will be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

- To indicate the overall width of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the rear
- All at the same height

There will be two (2) LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:

- To indicate the overall length of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the side
- All at the same height

The lights will be mounted with no guard.

There will be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

There will be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

Per FMVSS 108 and CMVSS 108 requirements.

REAR FMVSS LIGHTING

The rear stop/tail and directional lighting included in the rear tail light housing will include the following:

- Two (2) Whelen®, Model M62BTT, 4.30" high x 6.70" wide x 1.40" deep brake/tail lights with red LEDs
- Two (2) Whelen, Model M62T, 4.30" high x 6.70" wide x 1.40" deep directional lights with amber LEDs. The directional lights will be set to Steady On (Arrow) flash pattern.
- The lens color(s) to be the same as the LEDs.

There will be two (2) Whelen Model M62BU, LED backup lights provided in the tail light housing.

LICENSE PLATE BRACKET

There will be one (1) Weldon, Model 0J10-0393-00, license plate bracket located below the tailboard on a removable bolt-on bracket located driver side.

A Weldon, Model 9186-23882-30, incandescent step light will illuminate the license plate.

LIGHTING BEZEL
There will be two (2) Whelen, Model M6FCV4P, four (4) place chromed ABS housings with Pierce logos provided for the rear M6 series stop/tail, directional, back up, scene lights or warning lights.

TAIL LIGHT MOUNTING INFORMATION
The following lights will be installed in the following order from the top down:

- The top lights will be the warning lights.
- The second lights will be the stop lights/tail lights.
- The third lights from the top will be the directional lights.
- The bottom lights from the top will be the backup/scene lights.

BACK-UP ALARM
There will be a Whelen, Model BU97LL, 97dB solid state electronic audible back-up alarm provided that actuates when the apparatus chassis transmission is shifted into reverse.

SYNCHRONIZE WARNING LIGHTS
The sync wires to the following four (4) lights located in lower front zone on the apparatus will be connected together to maintain the flash patterns of the lights.

The lights located common bezel outboard positions will remain on phase 1 or flash together.

The lights located common bezel inboard positions will be changed to phase 2 or flash opposite the lights selected above.

MARKER LIGHTS
There will be one (1) pair of amber and red, Britax, Model 428.102 LED marker lights located just the rear of D1 and P1 door. The amber lens will face the front and the red lens will face the rear of the truck and be the most rearward marker light.

These lights will be activated with the running lights of the vehicle.

CAB PERIMETER SCENE LIGHTS
There will be four (4) Amdor, Model AY-LB-12HW012, 190 lumens each, 12.00" white LED strip lights provided.

- One (1) under the driver's side cab access step.
- One (1) under the passenger's side cab access step.
- One (1) under the passenger's side crew cab access step.
- One (1) under the driver's side crew cab access step.

The lights will be activated when the battery switch is on and the respective door is open and whenever control has been selected for the body perimeter lights.

PUMP HOUSE PERIMETER LIGHTS

There will be two (2) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" LED weatherproof strip lights with brackets provided under the pump panel running boards, one (1) each side.

If the combination of options in the vehicle does not permit clearance for a 20.00" light, a 12.00" version of the Amdor light will be installed.

The lights will be controlled by the same means as the body perimeter lights.

BODY PERIMETER SCENE LIGHTS

There will be two (2) Amdor, Model AY-LB-12HW020, 350 lumens, 20.00" long, white LED's, 12 volt DC lights provided at the rear step area of the body, one (1) each side shining to the rear.

The perimeter scene lights will be activated when a switch within reach of the driver is activated and the parking brake is applied.

ENHANCED SOFTWARE FOR PERIMETER LIGHTS

All perimeter lights will be deactivated when the parking brake is released unless alternate control is selected.

The cab and crew cab perimeter lights will remain on for ten (10) seconds for improved visibility after the doors closed.

STEP LIGHTS

There will be at least two (2) Whelen, Model 0AC0EDCR, white 12 volt DC LED step lights provided on the left side, one on the rear of the cab, and one on the front body bulkhead. An additional light will be included depending on the length of the running board.

There will be at least two (2) Whelen, Model 0AC0EDCR, white 12 volt DC LED step lights provided on the right side, one on the rear of the cab, and one on the front body bulkhead. An additional light will be included depending on the length of the running board.

There will be at least two (2) Whelen, Model 0AC0EDCR, white 12 volt DC LED step lights provided over the rear tailboard. The lights will be installed no more than 10.00" over the surface of and 15.00" apart. Additional lights will be included depending on the length of the tail board.

These step lights will be actuated when the battery switch is on and the parking brake is applied.

All other steps on the apparatus will be illuminated per the current edition of applicable NFPA standards.

12 VOLT LIGHTING

There will be a Whelen® Model S86M**, 86.00" long 38,880 lumens DC powered light provided on the front cab roof as far forward as practical. The painted parts of this light assembly to be white. The light(s) to be installed with extended horizontal mounts.

The light will include the following:

- White scene LEDs
- Two (2) amber LED modules as clearance lights that are not energized
- Three (3) amber LED modules as identification lights that are not energized
- Four (4) additional LED modules. The additional additional modules to be four (4) scene light modules with white LEDs

The scene LEDs will be activated when the battery switch is on and by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel is on.

There will be a switch in the cab on the switch panel to control the flashing or spot LED modules.

Amber flashing LED modules will be deactivated when the parking brake is released.

The white scene and flashing LED modules may be load managed when the parking brake is applied.

12 VOLT DC SCENE LIGHTS

There will be one (1) Whelen® Field Series™, Model FSB04*, 26.00" long DC powered white LED light bar(s) with Whelen Model FSBB* bail bracket kit provided on the cab located, left side centered over crew cab door, also centered outboard of lightbar.

The painted parts of this light assembly to be white.

Both "Near and Far" optics will be activated when the control is on.

The lights will be controlled when the battery switch is on and scene lights to be controlled by the same control that has been selected for the driver's side flood light(s).

The light(s) may be load managed when the parking brake is applied.

12 VOLT DC SCENE LIGHTS

There will be one (1) Whelen® Field Series™, Model FSB04*, 26.00" long DC powered white LED light bar(s) with Whelen Model FSBB* bail bracket kit provided on the cab located, right side centered over crew cab door, also centered outboard of lightbar.

The painted parts of this light assembly to be white.

Both "Near and Far" optics will be activated when the control is on.

The lights will be controlled when the battery switch is on and by the same control that has been selected for the passenger's side scene light(s).

The light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be one (1) Whelen® Field Series™, Model FSB04*, 26.00" long DC powered white LED light bar(s) with Whelen Model FSBB* bail bracket kit provided on the body located, Passenger side side sheet up high between the rear beacon and the rear most Zico ladder rack actuator.

The painted parts of this light assembly to be white.

Both "Near and Far" optics will be activated when the control is on.

The lights will be controlled when the battery switch is on and by the same control that has been selected for the passenger's side scene light(s).

The light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be one (1) Whelen® Field Series™, Model FSB04*, 26.00" long DC powered white LED light bar(s) with Whelen Model FSBB* bail bracket kit provided on the body located, Driver Side towards the rear mounted above the hard suction hose.

The painted parts of this light assembly to be white.

Both "Near and Far" optics will be activated when the control is on.

The lights will be controlled when the battery switch is on and by the same control that has been selected for the driver's side scene light(s).

The light(s) may be load managed when the parking brake is applied.

REAR SCENE LIGHTS

There will be two (2) Whelen® Field Series™, Model FSB02*, 14.00" long DC powered white LED light bars with Whelen® Model FSBB* bail mount brackets provided at the rear of the apparatus located one each side just under the traffic advisor, recessed in housing.The Field Series light bars and the mounting brackets will be painted parts of this light assembly to be white. These lights will be installed between 36.00" and 108.00" above the ground.

The lights will include the following:

- Two (2) individual light heads
- Three (3) optical control selections - with "near", "far", and "near & far" optics

The light bars will be controlled by momentary switch(es). The switch(es) will operate as follows:

- Depressing the switch once will turn on the "near & far" optics
- Depressing the switch a second time will turn on the "far" optics
- Depressing the switch a third time will turn on the "near" optics
- Depressing the switch a fourth time will turn the light bar off

The switch(es) will be located core controler.

Cycling the battery switch will default the light bars to off.

Both "near & far" optics will need to be illuminated together, for NFPA rear work scene lighting compliance.

WALKING SURFACE LIGHT

There will be Model FRP, 4.00" round black 12 volt DC LED floodlight(s) with bolt mount provided to illuminate the entire designated walking surface on top of the body.

The light(s) will be activated when the body step lights are on.

FRONT WHITE WARNING LIGHT CONTROL

There will be switch(es) installed in the cab on the switch panel that will allow the operator to activate/deactivate all the front white warning lights whenever the emergency master switch is activated and the parking brake is released. The headlight flash option is included in this white warning light control if applicable. Each time the emergency master switch is activated, and the parking brake is released, the white warning light control switch and the white warning lights will default to on.

SPECIAL WATER TANK

Booster tank will have a capacity of 500 gallons and be constructed of polypropylene plastic by United Plastic Fabricating, Incorporated.

The Special tank will be T-shaped to provide for deep side compartments and to serve as a large sump to limit the amount of undraftable water.

The tank will be designed to achieve a low hose bed. Tank design will be a stepped design with the forward section of the tank higher than the section of the tank that is below the hose bed.

Tank joints and seams will be nitrogen welded inside and out.

Tank will be baffled in accordance with the current edition of applicable NFPA standards.

Baffles will have vent openings at both the top and bottom to permit movement of air and water between compartments.

Longitudinal partitions will be constructed of .38" polypropylene plastic and will extend from the bottom of the tank through the top cover to allow for positive welding.

Transverse partitions will extend from 4.00" off the bottom of the tank to the underside of the top cover.

All partitions will interlock and will be welded to the tank bottom and sides.

Tank top will be constructed of .50" polypropylene. It will be recessed .38" and will be welded to the tank sides and the longitudinal partitions.

Tank top will be sufficiently supported to keep it rigid during fast filling conditions.

Construction will include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two (2) of the dowels will be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes.

A sump that will be sized dependent on the tank to pump plumbing will be provided at the bottom of the water tank.

Sump will include a drain plug and the tank outlet.

Tank will have a combination vent and 14.00" fill tower.

Tank will be installed in a special size fabricated cradle assembly constructed of structural steel.

Sufficient crossmembers will be provided to properly support bottom of tank. Crossmembers will be constructed of steel flat bar or rectangular tubing.

Tank will "float" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50" thick x 3.00" wide, will be placed on all horizontal surfaces that the tank rests on.

Stops or other provision will be provided to prevent an empty tank from bouncing excessively while moving vehicle.

Mounting system to be approved by the tank manufacturer.

Fill tower will be constructed of 0.50" polypropylene and will be a minimum of 8.00" wide x 14.00" long.

Fill tower will be furnished with a 0.25" thick polypropylene screen and a hinged cover.

An overflow pipe, constructed of 4.00" schedule 40 polypropylene, will be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.

WATER TANK RESTRAINT

A heavy-duty water tank restraint will be provided.

HOSE BED

The hose bed will be fabricated of 0.125"-5052 aluminum with a nominal 38,000 psi tensile strength.

The hose bed will be as low as practical.

Upper and rear edges of side panels will have a double break for rigidity, a split tube finish will not be acceptable.

The upper area at the rear of the hose bed will be covered with brushed stainless steel to prevent damage to painted surface when hose is removed.

Flooring of the hose bed will be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats will be a minimum of 0.50" x 4.50" with spacing between slats for hose ventilation.

A cross divider will be provided at the front of the hose bed before the tank transitions from the lower section to the upper section. The divider will run from the top of the side sheet down below the hose bed grating.

The hose bed floor will be 64.00"" from the ground when the truck is fully loaded.

The hose bed interior walls will be painted to match the lower body color.

Hose bed will accommodate 200' X 1.75", 600' X 2.5", 1000' X 5.0", 200' X 2.5", and 200' X 1.75", in addition 150' of 1.75" will lay flat on top of the 600' of 2.5".

HOSE BED DIVIDER

Two (2) hosebed dividers will be furnished for separating hose.

Each divider will be constructed of a .25" brushed aluminum sheet. Flat surfaces will be sanded for uniform appearance, or constructed of brushed aluminum.

An oval opening will be provided near the rear of the divider to be used as a hand hold and aid in accessing the hose bed.

Divider will be fully adjustable by sliding in tracks, located at the front and rear of the hose bed.

Divider will be held in place by tightening bolts, at each end.

Acorn nuts will be installed on all bolts in the hose bed which have exposed threads.

HOSE BED COVER

A two (2) section hose bed cover, constructed of .125" bright aluminum treadplate will be furnished. The cover will be hinged with full length stainless steel piano hinge. The sides will be slanted down. A stationary bridgework support assembly will be provided at the rear to support the cover.

The cover will be reinforced so that it can support the weight of a man walking on the cover.

The cover is designed with the left cover opening first.

If access to the water tank fill tower is blocked by the hose bed cover, then a hinged door will be provided in it so that the tank may be filled without raising cover doors.

Chrome grab handles and four (4) gas filled cylinders will be provided to assist in opening and closing the cover. A handrail is to be provided at the rear, in the center of the support, to assist in opening the cover. Two (2) rubber latches will be provided to hold the cover in the stowed position.

The hose bed cover will be connected to the Do Not Move Truck indicator. The light will be activated if the cover is not in the stowed position and the parking brake is released.

At the rear of the hose bed, a red vinyl flap will be provided with permanent attachment to an aluminum bar at the top. At the bottom of the flap, StayPut shock cord loop with pull tab will be provided. The bottom of the flap will be chain weighted.

CUTOUT, HANDHOLD

A cutout with radiused corners will be provided at the rear of the six (6) hose bed pullout tray(s).

There will be one (1) additional hose bed dividers furnished for separating hose.

Each divider will be constructed of a .25" brushed aluminum sheet. The divider will be located between hose bay #1 and #2 , to meet the bottom of the little giant ladder storage, needs to be able to slide to

the right under ladder enclosure. Top of divider should be tapper notch from the rear of divider to the ladder storage box.

Partition will be fully adjustable by sliding in tracks, located at the front of the hose bed and at the rear of the divider.

The rear of the divider will be supplied with a 45 degree angle from the top of the divider.

Divider will be held in place by tightening two (2) bolts, one (1) at each end.

Acorn nuts will be installed on all bolts in the hose bed which have exposed threads.

Flat surfaces will be sanded for uniform appearance or constructed of brushed aluminum.

REMOVABLE HOSE TRAY(S) IN HOSE BED

There will be three (3) removable hose tray(s) provided inside the hose bed.

The tray(s) will be sized (1) 200' of 1.75" Double Stack- (4) 200' of 2.50" Single Stack - (5) 200' of 1.75" Double Stack. troughs to be 6' long with an angle stop to keep them from sliding forward..

Tray(s) will be fabricated of dual action finish aluminum with two (2) hand hold cutouts on each end. The tray(s) will slide on stainless steel angles. Bottom of angles will be lined with Dura-surf anti friction poly slides for ease of removal. A stop will be provided at the front of the tray(s) to prevent the tray(s) from moving forward and a pin will be supplied at the rear.

Tray(s) will be located The tray will be sized (1) 200' of 1.75" Double Stack- (4) 200' of 2.50" Single Stack - (5) 200' of 1.75" Double Stack. troughs to be 6' long with an angle stop to keep them from sliding forward..

PLATFORM WITH TWO (2) ACCESS DOORS

A bright aluminum treadplate platform will be provided at the front of the hose bed for the full width of the hose bed between two cross dividers. Two single pan doors will be provided one each side, same as job 30369 and 32374 and be 52.00" front to back and full width of the hosebed in size. The doors will be hinged along the outboard edge with a D-handle latch. A pair of gas struts will be provided to hold the doors in the open position. This platform and doors will be properly reinforced to support the weight of firefighters.

Ten (10) StayPut shock cords with orange pull tabs for the hose bed restraint will be shipped loose.

RUNNING BOARDS

Running boards will be fabricated of 0.125" bright aluminum treadplate.

Each running board will be supported by a welded 2.00" square tubing and channel assembly, which will be bolted to the pump compartment substructure.

Running boards will be 12.75" deep and spaced 0.50" away from the pump panel.

A splash guard will be provided above the running board treadplate.

TAILBOARD
The tailboard will also be constructed of .125" bright aluminum treadplate and spaced .50" from the body, as well as supported by a structural steel assembly.

The tailboard area will be 16.00" deep and full width of the body. The outboard sides of the tailboard will be angled at 45 degrees beginning at the point where the body meets the tailboard at the outboard edge angling rearward to the rear edge of the tailboard.

The exterior side will be flanged down and in for increased rigidity of tailboard structure.

REAR WALL, SMOOTH ALUMINUM/BODY MATERIAL
The rear facing surfaces of the center rear wall will be smooth aluminum.

The bulkheads, the surface to the rear of the side body compartments, will be smooth and the same material as the body.

The rear wall will be flush.

REAR TOW EYES
Two (2) tow eyes, which are an integral part of the body mounting substructure, will be installed below the rear of the truck.

The tow eyes will be of adequate strength to allow the truck to be pulled from the eyes.

RUNNING BOARD HOSE RESTRAINT
A pair of 2.00" wide black nylon straps with Velcro fasteners will be provided for each hose tray to secure the hose during travel. One (1) hose tray will be located in the left side running board.

HOSE TRAY
One (1) hose tray will be recessed in the left hand side running board.

The size of the tray will be 9" deep x 39" long.

Rubber matting will be installed on the floor of the tray to provide proper ventilation. Drain holes will be provided.

COMPARTMENTATION
Body and compartments will be fabricated of 0.125", 5052-H32 aluminum.

Side compartments will be an integral assembly with the rear fenders.

Circular fender liners will be provided for prevention of rust pockets and ease of maintenance.

Side compartment flooring will be of the sweep out design with the floor higher than the compartment door lip.

The side compartment door opening will be framed by flanging the edges in 1.75" and bending out again 0.75" to form an angle.

Drip protection will be provided above the doors by means of bright aluminum extrusion, formed bright aluminum treadplate or polished stainless steel.

The top of the compartment will be covered with bright aluminum treadplate rolled over the edges on the front, rear and outward side. These covers will have the corners welded.

Side compartment covers will be separate from the compartment tops.

Front facing compartment walls will be covered with bright aluminum treadplate.

All screws and bolts which protrude into a compartment will have acorn nuts on the ends to prevent injury.

UNDERBODY SUPPORT SYSTEM

Due to the severe loading requirements of this pumper a method of body and compartment support suitable for the intended load will be provided.

The backbone of the support system will be the chassis frame rails which is the strongest component of the chassis and is designed for sustaining maximum loads.

Forward to the rear axle, the support system will include "L"-shaped support members bolted to the chassis frame rails. These welded support members will include vertical formed channels, horizontal structural channels, and support gussets. These parts extend from the chassis frame outward underneath the body.

Rearward to the rear axle, the body support system will include two rearward facing "L"-shaped support members bolted to the chassis frame rails. These support members will be connected to the two body supporting crossmembers forming a boxed foundation for the rear body support system.

Steel upper platform decks will be mounted on the top of these support members to create a floating substructure which will result in a 500 lb equipment support rating per lower compartment.

All structural components of this system will be made from high strength 50K steel plate material or structural steel componentry. The steel frames as well as the steel vertical angles will be treated with an epoxy E-coat or equivalent to provide resistance to corrosion and chemicals as standard.

The floating substructure will be separated from the horizontal members with neoprene elastomer isolators. These isolators will reduce the natural flex stress of the chassis from being transmitted to the body.

Isolators will have a broad load range, proven viability in vehicular applications, be of a fail-safe design and allow for all necessary movement in three (3) transitional and rotational modes.

The neoprene isolators will be installed in a pattern which assimilates a three (3)-point mounting pattern to reduce the natural flex of the chassis being transmitted to the body.

A design with body compartments hanging on the chassis in an unsupported fashion will not be acceptable.

AGGRESSIVE WALKING SURFACE

All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards.

LOUVERS

Louvers will be stamped into compartment walls to provide the proper airflow inside the body compartments and to prevent water from dripping into the compartment. Where these louvers are provided, they will be formed into the metal and not added to the compartment as a separate plate.

TESTING OF BODY DESIGN

Body structural analysis will be fully tested. Proven engineering and test techniques such as finite element analysis, strain gauging, and model analysis will be performed with special attention given to fatigue, life and structural integrity of the body and substructure.

Body will be tested while loaded to its greatest in-service weight.

The criteria used during the testing procedure will include:

- Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb.
- Making a 90 degree turn, while driving at 20 mph to simulate aggressive driving conditions.
- Driving the vehicle at 35 mph on a washboard road.
- Driving the vehicle at 55 mph on a smooth road.
- Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement.

Evidence of actual testing techniques will be made available upon request.

PUMP ACCESS FROM ENGINEER COMPARTMENT

The access from the transverse engineer compartment to the pump/pump house will be provided as large as possible.

ENGINEER COMPARTMENT

A transverse engineer compartment will be provided ahead of the water pump.

The compartment will be 23.00" wide x 42.00" high x 80.00" deep. The door opening will be 18.50" wide x 40.25" high. The clear height of the transverse section over the chassis frame rails will be 22.00" high.

The compartment will be furnished with vertically hinged, lap style, compartment doors that have a D handle latch and positive door hold open device.

LEFT SIDE COMPARTMENTATION

The left side compartmentation will consist of three lap door compartments.

A full height, vertically hinged, double door compartment ahead of the rear wheels will be provided. The interior dimensions of this compartment will be 34.50" wide x 66.63" high x 25.88" deep in the lower 25.00" of the compartment and 14.00" deep in the remaining upper portion. The clear door opening will be a minimum of 27.50" wide x 61.88" high.

A vertically hinged, double door compartment over the rear wheels will be provided. The interior dimensions of this compartment will be 66.50" wide x 32.88" high x 14.00" deep. The clear door opening will be a minimum of 57.00" wide x 28.13" high.

A full height, vertically hinged, double door compartment behind the rear wheels will be provided. The interior dimensions of this compartment will be 47.75" wide x 67.63" high x 25.88" deep in the lower 26.00" of the compartment and 14.00" deep in the remaining upper portion. The clear door opening will be a minimum of 43.50" wide x 62.88" high.

The interior height of the compartments will be measured from the compartment floor to the ceiling. The depth of the compartments will be measured from the back wall to the inside of the door frame.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand. A positive door holder will be furnished with this compartment.

RIGHT SIDE COMPARTMENTATION

A vertically hinged, single door compartment in the lower area ahead of the rear wheels will be provided. The interior dimensions of this compartment will be 34.50" wide x 46.13" high x 25.88" deep in the lower 25.00" of the compartment and 14.00" deep in the remaining upper portion. The depth of the compartment will be calculated with the compartment door closed. The clear door opening of this compartment will be 30.00" wide x 41.50" high.

A positive door holder will be furnished with this compartment.

A three-quarter broom compartment with one horizontally hinged, drop-down door in the area above the rear wheels will be provided. The interior dimensions of this compartment will be 66.50" wide x 12.38" high x 14.00" deep. The depth of the compartment will be calculated with the compartment door closed. The clear door opening of this compartment will be 59.50" wide x 7.75" high. The drop-down door will be furnished with two chain-style door holders with a plastic covering around the chain.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism.

A vertically hinged, double door compartment in the lower area behind the rear wheels will be provided. The interior dimensions of this compartment will be 47.50" wide x 47.13" high x 25.88" deep in the lower 26.00" of the compartment and 14.00" deep in the remaining upper portion. The depth of the compartment will be calculated with the compartment door closed. The clear door opening of this compartment will be 46.00" wide x 42.50" high.

A positive door holder will be furnished with this compartment.

SIDE COMPARTMENT DOORS

All hinged compartment doors will be lap style with double panel construction and will be a minimum of 1.50" thick. The doors will be made out of the same material as the body. To provide additional door strength a "C" section reinforcement will be installed between the outer and interior panels.

Doors will be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core will be installed on the door framing that seals onto the interior panel, to ensure a weather resisting compartment.

All compartment doors will have polished stainless steel continuous hinge with a pin diameter of 0.25" that is bolted or screwed on with stainless steel fasteners.

All door locking mechanisms will be fully enclosed within the door panels to prevent fouling of the lock in the event equipment inside shifts into the lock area.

Doors will be latched with recessed, polished stainless steel "D" ring handles and FMVSS approved door latching mechanisms.

To prevent corrosion caused by dissimilar metals, compartment door handles will not be attached to outer door panel with screws. A rubber gasket will be provided between the "D" ring handle and the door.

REAR COMPARTMENTATION

A roll-up door compartment flush with the rear body will be provided.

Interior dimensions of this compartment will be 40.00" wide x 33.63" high. Below the frame rail height the compartment will be 28.38" deep due to suspension components and extended frame rail. Above the frame rail the compartment will be 41.88" deep with the exception of the door roll area. Depth of the compartment will be calculated with the compartment door closed.

For a chassis with a rear mounted fuel tank, a louvered removable access panel will be furnished on the back wall of the compartment.

Rear compartment will be open into the rear side compartments.

Clear door opening of this compartment will be 33.25" wide x 26.00" high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

ROLLUP REAR COMPARTMENT DOOR

There will be a rear rollup door. The door will be double faced aluminum construction, an anodized satin finish and manufactured by Gortite®.

Lath sections will be an interlocking rib design and will be individually replaceable without complete disassembly of door.

Between each slat at the pivoting joint will be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals will allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals will be provided to resist ingress of dirt and weather and be made of Santoprene.

All hinges, barrel clips and end pieces will be nylon 66. All nylon components will withstand temperatures from 300 to -40 degrees Fahrenheit.

A polished stainless steel lift bar with locking key latches to be provided for each roll-up door. The keys to be Model 751 to match all compartment and cab doors. Lift bar will be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge will be supplied over lift bar for additional area to aid in closing the door.

Door will be constructed from an aluminum box section. The exterior surface of each slat will be flat. The interior surface will be concave to provide strength and prevent loose equipment from jamming the door from inside.

To conserve space in the compartments, the spring roller assembly will not exceed 3.00" in diameter.

The header for the rollup door assembly will not exceed 4.00".

A heavy-duty magnetic switch will be used for control of open compartment door warning lights.

BODY MODIFICATION FROM STANDARD

The following body modifications will be required for the installation of a single axle air ride suspension:

- Rear compartment will be approximately 12.50" shorter in depth.

- Special water tank mounting may be required (if applicable).

SCUFFPLATE

A brushed stainless steel scuffplate will installed on the sides of the hosebed area both sides and front. This scuffplate will cover from the top flange of the hosebed area down to the hosebed grating. The scuffplate will be fastened with self tapping screws.

DOOR GUARD

There will be one (1) compartment door that will include a guard/drip pan designed to protect the rollup door from damage when in the retracted position and contain any water spray. The guard will be fabricated from stainless steel and installed rear compartment.

KEYED LOCK(S)

There will be eight (8) compartment doors that require a keyed lock. The compartments to have a keyed lock will be driver side and passenger side body compartments, and both pump compartments..

SCUFFPLATE ON INTERIOR OF COMPARTMENT DOOR(S)
The one (1) compartment door will include a polished stainless steel scuffplate to cover the entire width and height on the inside panel of each door pan.

Scuffplate will be located RS2.

SCUFFPLATE, INSIDE DOOR PAN
The eight (8) compartment doors will include a polished stainless steel scuffplate to cover the lower portion of the inside door pan of each door. Each scuffplate will be 8.00" high and full width of the compartment door pan.

Scuffplate will be located LS1, LS4, RS1, RS4.

COMPARTMENT LIGHTING
There will be nine (9) compartment(s) with two (2) white 12 volt DC LED compartment light strips. The dual light strips will be centered vertically along each side of the door framing. There will be two (2) light strips per compartment. The dual light strips will be in all body compartment(s).

Any remaining compartments without light strips will have a 6.00" diameter Truck-Lite, Model: 79384 light. Each light will have a number 1076 one filament, two wire bulb.

Opening the compartment door will automatically turn the compartment lighting on.

MOUNTING TRACKS
There will be five (5) sets of tracks for mounting shelf(s) in LS1, LS2, LS3, RS1 and RS3. These tracks will be installed vertically to support the adjustable shelf(s). The tracks will be painted to match the compartment interior.

ADJUSTABLE SHELVES
There will be one (1) shelf provided LS1 upper with lip up. The shelf construction will consist of 0.188" aluminum painted spatter gray. A capacity rating will not be available on this item due to a reduced side height being less than 2.00". Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track. Each shelf will as wide and as deep as the compartment space will allow.

The shelves will be held in place by 0.12" thick stamped plated brackets and bolts.

The side height of the shelf/shelves will be as follows:

- Front: 1.00" high
- Rear: 1.00" high
- Left & Right Sides: 1.00" high

ADJUSTABLE SHELVES
There will be seven (7) shelves with a capacity of 500 lb provided.

The shelf construction will consist of .188" aluminum painted spatter gray with 2.00" sides.

Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves will be held in place by .12" thick stamped plated brackets and bolts.

The location(s) will be in RS1 at the transition point, in RS3 at the transition point, in RS3 in the lower third, in LS2 centered between the floor and ceiling, in LS3 in the lower third, in LS3 in the lower third and in LS3 at the depth transition point.

ADJUSTABLE SHELF

There will be one (1) shelf provided. Each shelf will be constructed of 0.188" aluminum with 1.00" high sides. Each shelf will be full width of the transverse engineer's compartment and will be painted spatter gray.

A capacity rating will not be available on this item due to a reduced side height being less than 2.00".

Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves will be held in place by 0.12" thick stamped plated brackets and bolts.

SLIDE-OUT FLOOR MOUNTED TRAY

There will be three (3) floor mounted slide-out tray(s) provided.

Each tray will have 2.00" high sides and a minimum capacity rating of 500 lb in the extended position.

Each tray will be constructed of aluminum painted spatter gray.

There will be two undermount-roller bearing type slides rated at 250 lb each provided. The pair of slides will have a safety factor rating of 2.

To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

The location(s) will be RS1, LS1 and B1.

SLIDE-OUT FLOOR MOUNTED TRAY

There will be one (1) floor mounted slide-out tray(s) provided D4 in the transverse engineers compartment just over the chassis frame enclosure, sliding out into D4 only with 22.00' slides and 40" across to cover the 40" wide transverse area, use the 22.00" slides in size. A capacity rating will not be available on this tray due to a reduced side height being less than 2.00". The tray(s) will be constructed of .19" aluminum with welded corners. The finish will be painted to match compartment interior.

The side height of the tray(s) will be as follows:

- Front: 1.00" high
- Rear: 1.00" high
- Left Side: 2.00" high
- Right side: 2.00" high

Slides will be equipped with ball bearings for ease of operation and years of dependable service. The slides will be located on the sides of the tray so that the tray can be located as close to the compartment floor as possible.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

ACCESS PANEL

A removable access panel will be provided LS3 compartment right side wall to access DEF header, panel needs to extend up past the transition point in the compartment several inches to allow access to DEF fittings. Same as what was done on Denver job 39150 . This panel will be panel should a a minimum of 20.75" wide across the bottom x 18.00" high on the door side x 14.50" high towards back side the top will be "L shaped around the transition. See picture of Denver job 39150 in the approval return documents. and will be held in place with threaded fasteners. It will provide access to the DEF header.

A total quantity of one (1) access panel(s) will be provided.

TOOL BOX

A tool box will be furnished.

The outside size will be 22.00" long x 11.00" wide x 10.00" deep.

The tool box will be black in color.

Construction will be of .50" polypropylene plastic with joints and seams nitrogen welded. A cut out carrying handle will be provided on each end.

There will be two (2) provided. It will be located RS1 body, all measurements ID.

TOOL BOX

A tool box will be furnished.

The outside size will be 22.00" long x 12.00" wide x 6.00" deep.

The tool box will be black in color.

Construction will be of .50" polypropylene plastic with joints and seams nitrogen welded. A cut out carrying handle will be provided on each end.

There will be one (1) provided. It will be located LS3 floor. all measurements ID.

LONG TOOL STORAGE BOX
A long storage box over the pump and above the crosslays will be provided.

The long tools will only be accessible from the open top of the box. The crosslay cover will be extend to cover the top of this box as well.

The size of the box will be full width x 12.00" high x full length ID.

LONG TOOL STORAGE
An aluminum treadplate compartment will be provided over the pump to store long handle tools. The compartment will be located rearward. The compartment will be 12" wide x 20" high x full length of engineers compartment.

Access will be provided from either side of the vehicle through vertically hinged treadplate doors. Each door will have a D-handle latch.

The compartment will have One (1) partition. Any partition provided will be permanent, oriented horizontally and located 3.00" from forward wall.

TREADPLATE TRAY
There shall be a quantity of one (1) bright aluminum treadplate tray(s) provided on top of the right side compartmentation. The tray shall be approximately 152.00" long. The inboard wall of the tray shall be approximately 13.50" high. The outboard wall of the tray shall be approximately 2.00" high with sides that angle in height. There shall be four (4) seat belt buckles with footman loops shipped loose. Aluminum grating slats shall be provided on the floor of the tray with spacing provided for aeration. Drain holes shall be provided.

RUB RAIL
Bottom edge of the side compartments will be trimmed with a bright aluminum extruded rub rail.

Trim will be 2.12" high with 1.38" flanges turned outward for rigidity.

The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.

BODY FENDER CROWNS
Polished stainless steel fender crowns will be provided around the rear wheel openings with a dielectric barrier will be provided between the fender crown and the fender sheet metal to prevent corrosion.

The fender crowns will be held in place with stainless steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion. Rubber welting will be provided between the body and crown.

BODY FENDER LINER
A unpainted brushed stainless fender liner will be provided. The liners will be removable to aid in the maintenance of rear suspension components.

HARD SUCTION HOSE
Two (2) lengths of 5.00" clear corrugated PVC hard suction hose, 10' in length, will be provided. The hose will be equipped with 6.00" long handle female coupling on one (1) end and 6.00" rocker lug male coupling on the other end. Couplings will be hard coated aluminum.

HOSE TROUGH
A quantity of two (2) hard suction hose troughs will be compartment top mounted on an angle bracket. These hose troughs will be located on the left side.

Troughs will be constructed of steel painted job color.

A quantity of two (2) chrome plated, quarter turn, spring loaded clamps will be provided on the troughs to contain the hard suction hose.

HANDRAILS
The handrails will be 1.25" diameter knurled aluminum to provide a positive gripping surface.

Chrome plated end stanchions will support the handrail. Plastic gaskets will be used between end stanchions and any painted surfaces.

Drain holes will be provided in the bottom of all vertically mounted handrails.

Handrails will be provided to meet current edition of applicable NFPA standards. The handrails will be installed as noted on the sales drawing.

One (1) vertical handrail will be located on each rear bulkhead.

HANDRAIL
One (1) horizontal knurled aluminum handrail will be provided above the hose bed at the rear of the apparatus. The hose bed dividers do not require additional reinforcement.

One (1) full width horizontal knurled aluminum handrail will be provided below the hose bed at the rear of the apparatus.

ADDITIONAL HANDRAIL
One (1) handrail, 10.00" long, will be mounted front DS corner of the cargo compartment cover to access the top of the truck to the cargo area. The handrail will be constructed out of knurled aluminum.

AIR BOTTLE STORAGE (DOUBLE)
A quantity of two (2) air bottle compartments, 15.25" wide x 7.75" tall x 26.00" deep, will be provided on the left side forward of the rear wheels and on the right side forward of the rear wheels. A painted stainless steel door with a chrome plated flush lift & turn latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment, "W" shaped insert formed of composite materials will be provided.

EXTINGUISHER STORAGE
A quantity of one (1) extinguisher compartments will be provided on the right side rearward of the rear wheels. The extinguisher compartment will be in the form of a 9.00" square tube and of adequate

depth to accommodate different size extinguishers. A painted stainless steel door with a chrome plated flush lift & turn latch will be provided to contain the extinguisher. A dielectric barrier will be provided between the door hinge, hinge fasteners, and the body sheet metal.

Inside the compartment, black rubber matting will be provided. There will also be a drain hole for each compartment.

EXTENSION LADDER
There will be a 24' two-section aluminum Duo-Safety Series 900-A extension ladder provided.

ROOF LADDER
There will be one (1) 14' aluminum, Duo-Safety, Series 775-DR roof ladder(s) provided. The ladder(s) will have roof hooks on both ends.

LADDER RACK
Ground ladders will be mounted above right side of body compartments in a Zico Quic-Lift electric ladder lowering system. The ladder rack mounts will be powered by two (2), 12-volt electric actuators.

The ladders will be mounted on the rack that is spaced out from the body 1.25" to allow clearance for the hose stored in the tray on the catwalk. 24' ladder will be on the inside and the 14' on the outside.

The electric controls will be located at the pump panel or in such a manner to allow the operator full view of the area in which the ladders will be lowered.

The electric actuator control will have a master switch and be interlocked to prevent operation should a compartment door, in the travel area of the ladder bracket, be in the open position.

LADDER RACK INTERLOCK AND NOT STOWED INDICATOR LIGHT
An interlock will be provided to prevent operation of the ladder rack unless the apparatus parking brake has been activated.

A steady red indicator light will be located on the cab instrument panel and illuminated when the ladder rack is not in the stowed position. The light will be labeled "Ladder Rack". In addition, the "Do Not Move Apparatus" light located in the cab will be activated when the ladder rack is not in the stowed position.

LIGHTS, FLASHING, LADDER RACK
Flashing amber lights facing the front and rear will be provided on the ladder rack and activated whenever the rack is in the down position.

FOLDING LADDER
One (1) 10.00' aluminum, Series 585-A, Duo-Safety folding ladder will be installed.

FOLDING LADDER STORAGE
One (1) folding ladder will be stored on top of the left side body compartments in a stainless steel U-shaped trough.

ADDITIONAL FOLDING LADDER
One (1) Revolution 2.0 Model 13117 Little Giant folding ladder will be provided. The stored dimensions will be 55.50" high x 23.75" wide x 9.25" deep. The weight will be 32 lbs.

The ladder will be located in the ladder trough in the hosebed to allow mounting of the folding ladder.

LITTLE GIANT STORAGE
A compartment with for storage of one (1) Little Giant ladder will be located on the hose bed wall left side. The ladder will be stored in the vertical position on beam. The trough will be sized for ladder Little Giant Revolution Model 17 - 12017.

The storage compartment will be enclosed with an open rear. A strap will be provided at the rear to contain the ladder(s).

8' PIKE POLE
One (1) pike pole, 8' long trash hook(s), Fire Hooks Unlimited, Model TRH-8 with D-handle will be provided and located driver side catwalk.

8' PIKE POLE
There will be one (1) Fire Hooks Unlimited, New York Hook, 8' long roof hook with steel shaft and chisel (pry) end provided driver side catwalk, behind suction hose.

6' PIKE POLE
There will be one (1) Fire Hooks Unlimited NY roof hook RH-6, 6' pike pole(s) with steel handles and pry end provided and will be installed on passenger side of cab at pick up. Note: the telescoping lights on both sides of the cab must be installed inboard 3" from standard to allow room see photo.

PIKE POLE STORAGE
Smooth aluminum U-shaped trough(s) for the storage of one (1) pike pole, with D-handle style grip, will be provided and installed Top of LS catwalk.

PIKE POLE STORAGE
Aluminum tubing will be used for the storage of one (1) pike pole and will be located on the top of the driver side compartments. If the head of a pike pole can come in contact with a painted surface, a stainless steel scuffplate will be provided.

LOAD RATING LABEL(S)
There will be two (2) label(s), indicating the load rating of of the front two eyeslocated above each front tow eyes.

FOLDING STEPS FRONT OF BODY
Folding steps will be provided full height on the left side and one (1) step on the right side body compartments to provide access to the cargo bed. Steps will be spaced evenly on the sales drawing. Actual quantity may vary due to pump panel interferences but will meet the NFPA required maximum stepping height.

The Trident steps will be bright finished, non-skid with a luminescent tread coating, that is rechargeable from any light source and can hold a charge for up to 24 hours, on the stepping surface.

The step will incorporate an LED light to illuminate the stepping surface.

The steps can be used as a hand hold with two openings wide enough for a gloved hand.

REAR FOLDING STEPS

Bright finished, non-skid folding steps with a luminescent tread coating, that is rechargeable from any light source and can hold a charge for up to 24 hours, on the stepping surface will be provided at the rear. Each step will incorporate an LED light to illuminate the stepping surface. The steps can be used as a hand hold with two openings wide enough for a gloved hand.

Two (2) additional folding steps will be located one right front bulkhead and one PS rear. The step(s) will be bright finished, non-skid with a luminescent tread coating, that is rechargeable from any light source and can hold a charge for up to 24 hours, on the stepping surface. Each step will incorporate an LED light to illuminate the stepping surface. The step(s) can be used as a hand hold with two openings wide enough for a gloved hand.

PUMP COMPARTMENT

The pump compartment will be separate from the hose body and compartments so that each may flex independently of the other. The pump compartment will be constructed of the same material as the body compartmentation.

The pump compartment substructure will be a fabricated assembly of steel tubing, angles and channels which supports both the fire pump and the side running boards.

The pump compartment will be mounted on the chassis frame rails with rubber biscuits in a four point pattern to allow for chassis frame twist.

Pump compartment, pump, plumbing and gauge panels will be removable from the chassis in a single assembly.

PUMP MOUNTING

Pump will be mounted to a substructure which will be mounted to the chassis frame rail using rubber isolators. The mounting will allow chassis frame rails to flex independently without damage to the fire pump.

LEFT SIDE PUMP CONTROL PANELS

All pump controls and gauges will be located at the left side of the apparatus and properly identified.

Layout of the pump control panel will be ergonomically efficient and systematically organized.

The pump operator's control panel will be removable in two (2) main sections for ease of maintenance:

The upper section will contain sub panels for the mounting of the pump pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable). Sub panels will be removable from the face of the pump panel for ease of maintenance. Below the sub panels will be located all valve controls and line pressure gauges.

The lower section of the panel will contain all inlets, outlets, and drains.

All push/pull valve controls will have 1/4 turn locking control rods with polished chrome plated zinc tee handles. Guides for the push/pull control rods will be chrome plated zinc castings securely mounted to the pump panel. Push/pull valve controls will be capable of locking in any position. The control rods will pull straight out of the panel and will be equipped with universal joints to eliminate binding.

IDENTIFICATION TAGS

The identification tag for each valve control will be recessed in the face of the tee handle.

All discharge outlets will have color coded identification tags, with each discharge having its own unique color. Color coding will include the labeling of the outlet and the drain for each corresponding discharge.

All line pressure gauges will be mounted directly above the corresponding discharge control tee handles and recessed within the same chrome plated casting as the rod guide for quick identification. The gauge and rod guide casting will be removable from the face of the pump panel for ease of maintenance. The casting will be color coded to correspond with the discharge identification tag.

All remaining identification tags will be mounted on the pump panel in chrome plated bezels.

The pump panel on the right side will be removable with lift and turn type fasteners.

Trim rings will be installed around all inlets and outlets.

The trim rings for the side discharge outlets will be color coded and labeled to correspond with the discharge identification tag.

ACCESS DOOR

A liftup, aluminum treadplate door will be provided above the right side pump panel for access to the cargo compartment above the pump. It will have a D-handle latch and two (2) gas struts and be as large as possible.

Each door must open 105 degrees or greater to eliminate being mistaken as a stepping surface.

This door will be labeled as a non-step surface.

A divider will be furnished above the pump house in the cargo area In the cargo area in the hinge area for support for the cargo compartmet .

CARGO FLOOR, SPLIT AND NOTCHED

The bright aluminum treadplate flooring in the cargo compartment will be split into two (2) pieces for easier access to the pump and plumbing without removing any other items and will support the weight of a fire fighter.

The floor will also be notched for floor to be removable .

PLATFORM

A raised aluminum treadplate platform will be provided in the cargo area for the installation of a hose reel. The platform will be reinforced, raised raise the booster reel in the cargo area approximately 20.00" so the remaining area under the reel/false floor should remain open for storage, access from the

center of cargo area and located at the right side. The platform will be removable for maintenance of any items that may be covered.

PUMP

Pump will be a Waterous CSU 1750 gpm single (1) stage midship mounted centrifugal type.

Pump will be the class "A" type.

Pump will deliver the percentage of rated discharge at pressures indicated below:

- 100 percent of rated capacity at 150 psi net pump pressure
- 70 percent of rated capacity at 200 psi net pump pressure
- 50 percent of rated capacity at 250 psi net pump pressure

Pump body will be close-grained gray iron, bronze fitted, and horizontally split in two (2) sections for easy removal of the entire impeller shaft assembly (including wear rings).

Pump will be designed for complete servicing from the bottom of the truck, without disturbing the pump setting or apparatus piping.

Pump case halves will be bolted together on a single horizontal face to minimize a chance of leakage and facilitate ease of reassembly. No end flanges will be used.

Discharge manifold of the pump will be cast as an integral part of the pump body assembly and will provide a minimum of three (3) 3.50" openings for flexibility in providing various discharge outlets for maximum efficiency.

The three (3) 3.50" openings will be located as follows: one (1) outlet to the right of the pump, one (1) outlet to the left of the pump, and one (1) outlet directly on top of the discharge manifold.

Impeller shaft will be stainless steel, accurately ground to size. It will be supported at each end by sealed, anti-friction ball bearings for rigid precise support. Impeller will have flame plated hubs assuring maximum pump life and efficiency despite any presence of abrasive matter in the water supply.

Bearings will be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. No special or sleeve type bearings will be used.

Pump will be equipped with a self-adjusting, maintenance-free, mechanical shaft seal.

The mechanical seal will consist of a flat, highly polished, spring fed carbon ring that rotates with the impeller shaft. The carbon ring will press against a highly polished stainless steel stationary ring that is sealed within the pump body.

In addition, a throttling ring will be pressed into the steel chamber cover, providing a very small clearance around the rotating shaft in the event of a mechanical seal failure. The pump performance will not deteriorate, nor will the pump lose prime, while drafting if the seal fails during pump operation.

Wear rings will be bronze and easily replaceable to restore original pump efficiency and eliminate the need to replace the entire pump casing due to wear.

PUMP TRANSMISSION

The pump transmission will be made of a three (3) piece, aluminum, horizontally split casing. Power transfer to pump will be through a high strength Morse HY-VO silent drive chain. By using a chain rather than gears, 50 percent of the sprocket will be accepting or transmitting torque, compared to two (2) or three (3) teeth doing all the work.

Drive shafts will be 2.35" diameter hardened and ground alloy steel and supported by ball bearings. The case will be designed to eliminate the need for water cooling.

PUMPING MODE

An interlock system will be provided to ensure that the pump drive system components are properly engaged so that the apparatus can be safely operated. The interlock system will be designed to allow stationary pumping only.

AIR PUMP SHIFT

Pump shift engagement will be made by a two (2) position sliding collar, actuated pneumatically (by air pressure), with a three (3) position air control switch located in the cab. A manual back-up shift control will also be located on the left side pump panel.

Two (2) indicator lights will be provided adjacent to the pump shift inside the cab. One (1) green light will indicate the pump shift has been completed and be labeled "pump engaged". The second green light will indicate when the pump has been engaged, and that the chassis transmission is in pump gear. This indicator light will be labeled "OK to pump".

The pump shift will be interlocked to prevent the pump from being shifted out of gear when the chassis transmission is in gear to meet NFPA requirements.

The pump shift control in the cab will be illuminated to meet NFPA requirements.

TRANSMISSION LOCK-UP

The direct gear transmission lock-up for the fire pump operation will engage automatically when the pump shift control in the cab is activated.

AUXILIARY COOLING SYSTEM

A supplementary heat exchange cooling system will be provided to allow the use of water from the discharge side of the pump for cooling the engine water. The heat exchanger will be a separate unit. It will be installed in the pump or engine compartment with the control located on the pump operator's control panel. The exchanger will be plumbed to the master drain valve.

INTAKE RELIEF VALVE - PUMP

There will be One (1) Waterous Model #83827 relief valve(s) installed on the suction side of the pump preset at 150 psig.

The relief valve(s) will have a working range of 50 psi to 250 psi.

The outlet will terminate below the frame rails with a 2.50" National Standard hose thread adapter and will have a "do not cap" warning tag.

PRESSURE CONTROLLER

A FRC Pump Boss 500 electronic pressure controller with one (1) 600 PSI transducer on the pump discharge will be provided. All readouts will be standard PSI.

When a single 300 psi or single 600 psi pressure transducer is selected the transducer is installed in the discharge side of the water pump. The transducer continuously monitors pump pressure sending a signal to the electronic pressure controller.

When a dual 600 psi pressure transducer is selected the transducer are installed in the discharge side and intake side of the water pump. The discharge transducer continuously monitors pump pressure sending a signal to the electronic pressure controller. The intake transducer continuously monitors the pump intake sending a signal to the electronic pressure controller.

The pressure controller can be used in two (2) modes of operation, RPM mode and pressure modes. The controller will be programmed to turn on/default to RPM Setting mode.

In RPM mode, the controller can be activated after vehicle parking brake has been set. When in this mode, the controller will maintain the set engine speed, regardless of engine load (within engine operation capabilities).

In pressure mode, the controller can be activated after vehicle parking brake has been set. When in this mode, the controller will automatically maintain the discharge pressure set by the operator (within the discharge capabilities of the pump and water supply) regardless of flow.

A 2.00" diameter throttle control knob with no mechanical stops, a serrated grip, and a red idle push button in the center will be a integrated/part of the pressure controller. The throttle control knob will be programmed for Clockwise rotation to increase engine speed.

Individual LED indicators for ok to pump, throttle ready, pressure mode and rpm mode will be located on the pressure controller for easy viewing.

Safety features include recognition of low water and no water conditions with an automatic programmed response and a push button to return the engine to idle.

An additional audible alarm will NOT BE provided.

The pressure controller screen will be LCD. The LCD screen and LED intensity will be automatically adjust for day and nighttime operation. The LCD screen intensity can also be manually adjusted if needed.

The following information will be provided/displayed on the LCD screen:

- Engine RPM
- Check engine and stop engine warning indicators
- Engine oil pressure
- Engine coolant temperature
- Transmission Temp
- Battery voltage

- Operating mode (RPM or pressure)
- Pressure or RPM setting

On screen messaging show diagnostic and warning messages as they occur. It will show apparatus information, stored data, and program options when selected by the operator. It will monitor inputs outputs and support audible and visual warning alarms for the following conditions:

- High battery voltage
- Low battery voltage/engine off
- Low battery voltage/engine running
- High water pump temperature
- Low engine oil pressure
- High engine coolant temperature
- No engine response (visual alarm only)

The pressure controller will store the accumulated operating hours for the pump and engine. These items are to be displayed within the pressure controller menu.

The pressure controller will include a USB port on the back of the controller for easy software upgrades if needed.

PRIMING PUMP

The priming pump will be a Trident Emergency Products compressed air powered, high efficiency, multi-stage venturi based AirPrime System, conforming to the current edition of applicable NFPA standards.

All wetted metallic parts of the priming system are to be of brass and stainless steel construction.

One (1) priming control will open the priming valve and start the pump primer.

A second priming valve will be plumbed to the front suction piping. The second push button control will be located at the pump operator's panel.

DRAINS- SPECIAL INSTRUCTIONS

All valves drains/bleeders will be tapped into the lowest point of each plumbing discharge and inlet. (This includes the ports on each valve as well).

PUMP MANUALS

There will be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals will be provided by the pump manufacturer in the form of two (2) electronic copies. Each manual will cover pump operation, maintenance, and parts.

PLUMBING, STAINLESS STEEL AND HOSE

All inlet and outlet lines will be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's will be equipped with brass or stainless steel couplings. All stainless steel hard plumbing will be a minimum of a schedule 10 wall thickness.

Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping will be equipped with victaulic or rubber couplings.

Plumbing manifold bodies will be ductile cast iron or stainless steel.

All piping lines are to be drained through a master drain valve or will be equipped with individual drain valves. All drain lines will be extended with a hose to drain below the chassis frame.

All water carrying gauge lines will be of flexible polypropylene tubing.

All piping, hose and fittings will have a minimum of a 500 PSI hydrodynamic pressure rating.

FOAM SYSTEM PLUMBING

All piping that is in contact with the foam concentrate or foam/water solution will be stainless steel. The fittings will be stainless steel or brass. Cast iron pump manifolds will be allowed.

MAIN PUMP INLETS

A 6.00" pump manifold inlet will be provided on each side of the vehicle. The suction inlets will include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.

RIGHT SIDE SHORT SUCTION TUBE(S)

The suction tube(s) on the right side of the water pump will have short suction tube(s) installed to allow for installation of adapters, elbows or intake valves without excessive overhang.

INLET BUTTERFLY VALVE

One (1) Waterous Monarch inline butterfly valve will be provided on the right side main pump inlet.

The 6.00" inlet valve will be partially recessed behind the pump panel with a "key hole" shaped stainless steel trim ring around the opening.

A built-in, adjustable pressure relief valve and a bleeder valve will be provided on the inlet side of the valve.

A chrome plated handwheel control will be provided on the side pump panel adjacent to the inlet valve.

A valve position indicator will be provided, next to the valve control.

INLET BUTTERFLY VALVE

One (1) Waterous Monarch inline butterfly valve will be provided on the left side main pump inlet.

The 6.00" inlet valve will be partially recessed behind the pump panel with a "key hole" shaped stainless steel trim ring around the opening.

A built-in, adjustable pressure relief valve and a bleeder valve will be provided on the inlet side of the valve.

A chrome plated handwheel control will be provided on the side pump panel adjacent to the inlet valve.

A valve position indicator will be provided, next to the valve control.

MAIN PUMP INLET CAP

The main pump inlets will have National Standard Threads with a long handle chrome cap.

The cap will be the Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

VALVES

There will be Six (6) Waterous 2.50" full flow valves. The valves will be used No. 1 left side discharge, No. 1 right side discharge, No.1 rear discharge, No. 2 rear discharge, No. 3 rear discharge and No. 4 rear discharge .

The Waterous full flow valve will have a 2.50" chromium plated bronze ball forming a hard, durable surface. There will be a hydraulically balanced floating seal assembly that will be self adjusting for wear.

If Waterous valves are desired for outlets 3.00" and larger, that valve will be picked within the specific outlet category.

All remaining discharge valves and auxiliary inlets will be Akron Unibody valves with a stainless-steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.

If an outlet location chosen from above uses a valve smaller than 2.50", that valve will be substituted with a Waterous 2.50" full flow valve. This option will supersede any specific outlet category option that requires a valve smaller than 2.50".

The location of the valve for the two (2) inlets will be recessed behind the pump panel.

INLET CONTROL

The side auxiliary inlet(s) will incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism will indicate the position of the valve.

LEFT SIDE INLET

There will be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.

The auxiliary inlet will be provided with a strainer, chrome swivel and plug.

RIGHT SIDE INLET

There will be one (1) auxiliary inlet with a 2.50" valve at the right side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.

The auxiliary inlet will be provided with a strainer, chrome swivel and plug.

GARNISH PLATE MAIN INLETS

Polished stainless steel garnish plates will be provided for each main pump inlet. The garnish plates will be formed to cover the relief valve blister from the MIV valves.

ANODE, INLET

A pair of sacrificial zinc anodes will be provided in the water pump inlets to protect the pump from corrosion.

FRONT INLET

A 6.00" inlet front inlet that terminates on top of the right side bumper extension will be provided.

The plumbing will consist of 5.00" black iron pipe and a 5.00" Jamesbury butterfly valve. Only radius elbows will be used in the piping, no mitered joints.

Drains will be furnished in all the low points of piping and have .75" valves with T swing handle.

Bleeder valves will be located near the threaded connection and the valve control.

Die cast zinc screens will be provided at the front inlet connection.

FRONT INLET CONTROL

The front inlet will be gated with an Akron 9333 electric valve controller provided on the pump operators panel. The electric control must be of a true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate the valve actuator. The controller will provide position indication on a full color, backlit LCD display. It will have manual adjustment of the brightness as well as an auto dimming option.

A manual override will be provided on the valve. A stainless steel door located on the right side pump panel will be provided for access to the manual override.

A maintain switch will be provided behind the stainless steel access door near the manual override. The switch will cut off power to the valve to allow for manual valve actuation.

FRONT INLET INTAKE RELIEF VALVE

An Waterous Model #83827 intake pressure relief valve will be provided on the inlet side of the valve preset at 150 psig .

The relief valve will have a working range of 50 psi to 250 psi.

The outlet will terminate below the frame rails with a 2.50" National Standard hose thread adapter and will have a "do not cap" warning tag.

FRONT INLET ELBOW

The front inlet will have a 6.00" inlet elbow with swivel, terminating with Male National Standard Hose Thread.

The swivel will be Chrome.

A quarter-turn style of bleeder will be provided on the front inlet elbow.

6.00" STORZ ADAPTER

There will be a 6.00" FNST x 5.00" Storz rigid adapter with a Storz blind cap, provided on the front inlet plumbing.

INTERLOCK

An interlock system will be provided that will not allow the cab to be lifted unless the front suction is in the correct location as to not damage the cab.

INLET BLEEDER VALVE

A 0.75" bleeder valve will be provided for each side gated inlet.

The valves will be located behind the panel with a "T" swing style handle control extended to the outside of the panel.

The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage.

The water discharged by the bleeders will be routed below the chassis frame rails.

TANK TO PUMP

The booster tank will be connected to the intake side of the pump with stainless steel piping and a quarter turn 3.00" full flow line valve with the control remotely located at the operator's panel. Tank to pump line will run straight (no elbows) from the pump into the front face of the water tank and angle down into the tank sump. A rubber coupling will be included in this line to prevent damage from vibration or chassis flexing.

A check valve will be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.

TANK REFILL

A 1.50" combination tank refill and pump re-circulation line will be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.

DISCHARGE OUTLET CONTROLS

The discharge outlets will incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism will indicate the position of the valve.

If a handwheel control valve is used, the control will be a minimum of a 3.90" diameter stainless steel handwheel with a dial position indicator built into the center of the handwheel.

Any 3.00 inch or larger discharge valve will be a slow-operating valve to meet current edition of applicable NFPA standards.

LEFT SIDE DISCHARGE OUTLETS

One (1) discharge outlet with a 2.50" valve will be provided on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.

LEFT SIDE OUTLET ELBOWS
The 2.50" discharge outlets, located on the left side pump panel, will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 30 degree elbow.

The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

RIGHT SIDE DISCHARGE OUTLET
One (1) discharge outlet with a 2.50" valve will be provided on the right side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.

RIGHT SIDE OUTLET ELBOWS
The 2.50" discharge outlets, located on the right side pump panel, will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 30 degree elbow.

The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

LARGE DIAMETER DISCHARGE OUTLET
There will be an Akron 8800 4.00" flat ball valve with 4.00" plumbing terminating with a 4.00" MNST chrome adapter on the right side pump panel.

The valve will be controlled with a(n) Pierce large handwheel with indicator located at the pump operator's panel.

LARGE DIAMETER OUTLET ELBOWS
The 4.00" outlet(s) will be furnished with one (1) 4.00" (F) National Standard hose thread x 5.00" Storz elbow adapter with Storz cap.

REAR DISCHARGE OUTLET
There will be Two (2) discharge outlets piped to the rear of the hose bed, one (1) each side, installed so proper clearance is provided for spanner wrenches or adapters. Plumbing will consist of 2.50" piping along with a 2.50" full flow ball valve with the control from the pump operator's panel.

REAR OUTLET ELBOWS
The 2.50" discharge outlets, located at the rear of the apparatus, will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 30 degree elbow.

The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

DISCHARGE OUTLET (REAR)
There will be Two (2) discharge outlets piped to the rear of the hose bed, one each side. Proper clearance will be provided for spanner wrenches or adapters. Plumbing will consist of 2.50" piping

along with a 2.50" full flow ball valve with the control from the pump operator's panel. The discharge outlet(s) will terminate with a 2.50" male National Standard hose thread male adapter.

ADDITIONAL REAR OUTLET ELBOWS

The 2.50" discharge outlets, located at the rear of the apparatus, will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread chrome plated, 30 degree elbow.

The elbow will be the Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

DISCHARGE CAPS/ INLET PLUGS

Chrome plated, rocker lug, caps with chain will be furnished for all discharge outlets 1.00" thru 3.00" in size, besides the pre-connected hose outlets.

Chrome plated, rocker lug, plugs with chain will be furnished for all auxiliary inlets 1.00" thru 3.00" in size.

The caps and plugs will incorporate a thread design to automatically relieve stored pressure in the line when disconnected.

OUTLET BLEEDER VALVE

A 0.75" bleeder valve will be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.

The valves will be located behind the panel with a T swing style handle control extended to the outside of the side pump panel.

The handles will be chrome plated and provide a visual indication of valve position.

The T swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage.

Bleeders will be located at the bottom of the pump panel. They will be properly labeled identifying the discharge they are plumbed in to.

The water discharged by the bleeders will be routed below the chassis frame rails.

ADAPTERS

There will be one (1) adapter with 2.50" FNST x 1.50" MNST threads installed 2.50" crosslay, make sure swivel and adapter clears the tray with swivels.

REDUCER

There will be two (2) adapters with 2.50" FNST x 1.50" MNST threads and a 1.50" chrome plated cap installed on Rear hosebed outlets in beds 1 and 5.

DELUGE RISER

A 3.00" deluge riser will be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping will be rigidly braced and installed securely so no movement develops when the line is charged. The riser will be gated and controlled at the pump operator's panel.

Any 3.00 inch or larger discharge valve will be a slow-operating valve in accordance with NFPA 13.7.5.3.

DELUGE OUTLET SPECIAL INSTRUCTIONS

The deluge gun outlet will be located center of cargo area to the rear 6.5" above the side sheets, match customers previous unit 32374.

MONITOR

A Task Force Crossfire XFC-52 monitor package will be furnished and properly installed on the deluge riser. The monitor will include a M-R nozzle, 10" stream straightener and quad stacked tips. The portable base unit with folding legs and a safety valve will have (2) 2.50" female NST inlets. The monitor will be painted as provided by monitor manufacturer.

The deluge riser will have a Task Force Tips, Model XFF-APL truck mount adapter for mounting the CrossFire monitor.

CROSSLAY HOSE BED, 1.50"

One (1) crosslay with 1.50" outlets will be provided. The bed to be capable of carrying 200' of 1.75" D.J hose and nozzle double stack and will be plumbed with 2.00" i.d. pipe and gated with a 2.00" quarter turn ball valve.

Outlet to be equipped with a 1.50" National Standard hose thread 90 degree swivel located in the hose bed so that hose may be removed from either side of apparatus.

The crosslay control will be at the pump operator's panel.

Vertical scuffplates, constructed of polished stainless steel, will be provided at the front and rear ends of the bed on each side of vehicle.

A removable tray will be provided for each crosslay hosebed. The crosslay trays will be constructed of aluminum. Two (2) hand holes will be in the floor and additional hand holes will be provided in the sides for easy removal and installation from the compartment. The floor of the trays will be perforated to allow for drainage and hose drying. The bottom of the crosslay compartments will be lined with stainless steel to allow the tray to slide with ease. Scuffplates will be provided on both sides, at the sides and bottom of each opening to protect the paint.

CROSSLAY HOSE RESTRAINT

There will be red vinyl end flap provided across each end of one (1) crosslay opening(s) to secure the hose during travel. Each vinyl end flap will be permanently attached at the top of the crosslay/deadlay opening(s). The flaps will be attached at the bottom of each crosslay opening using STAYPUT™ shock cord loop fasteners with pull tabs to aid in grabbing.

CROSSLAY COVER

A hinged .19" aluminum treadplate cover will be installed over the crosslay hose beds. It will include a latch at each end of the cover to hold it securely in place, a chrome grab handle at each end for opening and closing the cover and a foam rubber gasket where the cover comes into contact to a painted surface.

The cover will be provided with pneumatic stay arm on each side hold open device.

The hinge will be to the front of the hose beds.

BOOSTER HOSE REEL

A Hannay electric rewind booster hose reel will be installed over the pump in a recessed open compartment on the right side of the apparatus. The reel will be fabricated of aluminum and have highly polished end discs.

A polished stainless steel roller and guide assembly will be mounted on the reel side of the apparatus.

Discharge control will be provided at the pump operator's panel. Plumbing to the reel will consist of 1.50" Aeroquip hose and a 1.50" valve.

Reel motor will be protected from overload with a circuit breaker rated to match the motor.

Two (2) electric rewind control switches will be provided, one (1) installed on each pump panel.

Booster hose, 1.00" diameter and 100 feet, with chrome plated Barway, or equal couplings will be provided. The hose will be provided in two (2) 50' sections.

Working pressure of the booster hose will be a minimum of 800 psi.

Capacity of the hose reel will be 100 feet of 1.00" booster hose.

HOSE REEL NOZZLE

A Task Force Tips model DS1040BCP gpm nozzle with shut-off valve and pistol grip will be provided.

HOSE REEL BLOWOUT

one (1) hose reel blowout(s) will be furnished to blow out any remaining water from the reel(s). The blowout will be piped from the wet tank of the brake system to the reel, and will be controlled at the pump operator's panel.

NOZZLE CUP AND BRACKET

A Zico nozzle cup and chrome plated mounting bracket will be provided for storage of the booster reel nozzle.

There will be one (1) provided. The nozzle cup(s) will have a 3-1/2" inside diameter and will be located locate at time of final inspection.

There will be one (1) additional polished stainless steel roller and guide assembly mounted Drivers side cargo side sheet.

HUSKY 3 FOAM PROPORTIONER

A Pierce Husky® 3 foam proportioning system will be provided. The Husky 3 is an on demand, automatic proportioning, single point, direct injection system suitable for all types of Class A and B foam concentrates, including the high viscosity (6000 cps), alcohol resistant Class B foams. Operation will be based on direct measurement of water flow, and remain consistent within the specified flows and pressures. The system will automatically proportion foam solution at rates from .1 percent to 3 percent regardless of variations in water pressure and flow, up to the maximum rated capacity of the foam concentrate pump.

The design of the system will allow operation from draft, hydrant, or relay operation.

System Capacity

The system will have the ability to deliver the following minimum foam solution flow rates at accuracies that meet or exceed NFPA requirements at a pump rating of 150 psi.

- 100 gpm @ 3 percent
- 300 gpm @ 1 percent
- 600 gpm @ 0.5 percent

Class A foam setting in 0.1 percent increments from 0.1 percent to 1 percent. Typical settings of 1 percent, 0.5 percent and 0.3 percent (maximum capacity will be limited to the plumbing and water pump capacity).

Control System

The system will be equipped with a digital electronic control display located on the pump operator's panel. Push button controls will be integrated into the panel to turn the system on/off, control the foam percentage, and to set the operation modes.

The percent of injection will have a preset. This preset can be changed at the fire department as desired. The percent of injection will be able to be easily changed at the scene to adjust to changing demands.

Three (3) .50 tall LEDs will display the foam percentage in numeric characters. Three (3) indicator LEDs will also be included, one (1) green, one (1) red, and one (1) yellow. The LEDs will indicate various system operation or error states.

The indications will be:

- Solid Green - System On
- Solid Red - Valve Position Error
- Solid Yellow - Priming System
- Flashing Green - Injecting Foam
- Flashing Red - Low Tank Level
- Flashing Yellow - Refilling Tank

The control display will house a microprocessor, which receives input from the systems water flow meter while also monitoring the position of the foam concentrate pump. The microprocessor will

compare the values of the water flow versus the position/rate of the foam pump, to ensure the proportion rate is accurate. One (1) check valve will be installed in the plumbing to prevent foam from contaminating the water pump.

Hydraulic Drive System
The foam concentrate pump will be powered by an electric over hydraulic drive system. The hydraulic system and motor will be integrated into one (1) unit.

Foam Concentrate Pump
The foam concentrate pump will be of positive displacement, self-priming; linear actuated design, driven by the hydraulic system. The pump will be constructed of brass body; chrome plated stainless steel shaft, with a stainless steel piston. In order to increase longevity of the pump, no aluminum will be present in its construction.

A relief system will be provided which is designed to protect the drive system components and prevent over pressuring the foam concentrate pump.

The foam concentrate pump will have minimum capacity for 3 gpm with all types of foam concentrates with a viscosity at or below 6000 cps including protein, fluoroprotein, AFFF, FFFP, or AR-AFFF. The system will deliver only the amount of foam concentrate flow required, without recirculating foam back to the storage tank. Recirculating foam concentrate back to the storage tank can cause agitation and premature foaming of the concentrate, which can result in system failure. The foam concentrate pump will be self-priming and have the ability to draw foam concentrate from external supplies such as drums or pails.

External Foam Concentrate Connection
An external foam pick-up will be provided to enable use of a foam agent that is not stored on the vehicle. The external foam pick-up will be designed to allow continued operation after the on-board foam tank is empty, or the use of foam different than the foam in the foam tank.

Panel Mounted External Pick-Up Connection / Valve
A bronze three (3)-way valve will be provided. The unit will be mounted to the pump panel. The valve unit will function as the foam system tank to pump valve and external suction valve. The external foam pick-up will be one (1) 0.75" male connection GHT (garden hose thread) with a cap.

Pick-Up Hose
A 0.75" flexible hose with an end for insertion into foam containers will be provided. The hose will be supplied with a 0.75" female swivel GHT (garden hose thread) swivel connector. The hose will be shipped loose.

Discharges
The foam system will be plumbed to the rear outlet right side inboard, hose reel in right side of dunnage area, right rear outlet and front crosslay.

System Electrical Load
The maximum current draw of the electric motor and system will be no more than 55 amperes at 12 VDC.

SINGLE FOAM TANK REFILL

The foam system's proportioning pump will be used to fill the foam tank. This will allow use of the auxiliary foam pick-up to pump the foam from pails or a drum on the ground into the foam tank. A foam shut-off switch will be installed in the fill dome of the tank to shut the system down when the tank is full. The fill operation will be controlled by a mode in the foam system controller. While the proportioner pump is filling the tank, the controller will display a flashing yellow LED to indicate that the tank is filling. When the tank is full, as determined by the float switch in the tank dome, the pump will stop and the controller will shut the yellow LED off. If it attempted to use tank fill and the refill valve and suction valve are in the wrong position(s), then a red LED will illuminate to indicate the improper valve position(s). When the valves are positioned properly, then filling will commence.

FOAM LABEL

The foam tank for Class A foam will have a label that reads "40 Gallon Capacity".

FOAM SHUT OFF

There will be one (1) foam tank shut off valve(s). The valve will be a 1.00" 1/4 turn valve located inside the pump compartment accessible through a door on the right side pump panel.

FOAM TANK

The foam tank will be an integral portion of the polypropylene water tank. The cell will have a capacity of 40 gallons of foam with the intended use of Class A foam. The brand of foam stored in this tank will be Baums NovaCool A/B. The foam cell will not reduce the capacity of the water tank. The foam cell will have a screen in the fill dome and a breather in the lid.

FOAM TANK DRAIN

The foam tank drain will be a 1.00" quarter turn drain valve located inside the pump/plumbing compartment.

The following drawing(s) will be provided for approval by the customer. The drawing(s) will be made for up 32374 apparatus and/or similar Pierce job number.

PUMP OPERATOR'S PANEL DRAWING

A detailed drawing to scale of the pump operator's panel will be provided for the customer to review. The drawing will include all of the gauges, controls, switching, etc.., located on the pump operator's panel. The customer will be allowed to make changes and/or mark-ups to this approval drawing. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved pump operator's panel drawing will become part of the contract documents.

Due to the way drain(s), bleeder(s), operational/maintenance tag(s) and NFPA required warning tag(s) are placed on pump panel(s), these items will NOT be shown on any pump panel approval drawing(s). These item(s) will be placed on pump panel(s) at the fire apparatus manufacturer discretion.

REMAINING PUMP PANEL(S)

Detailed drawing(s) to scale of the remaining pump panel(s) will be provided for the customer to review. The drawing(s) will include all of the gauges, controls, switching, etc.., located on the pump panel(s). The customer will be allowed to make changes and/or mark-ups to these approval drawing(s). The fire apparatus manufacturer will make revisions (If needed) to the drawing(s) per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved pump panel drawing(s) will become part of the contract documents.

Due to the way drain(s), bleeder(s), operational/maintenance tag(s) and NFPA required warning tag(s) are placed on pump panel(s), these items will NOT be shown on any pump panel approval drawing(s). These item(s) will be placed on pump panel(s) at the fire apparatus manufacturer discretion.

COLOR CODED TAGS

A detailed drawing/chart of the colors used on all of the inlet(s) and outlet(s) will be provided for the customer to review. The customer will be allowed to make changes and/or mark-ups to this approval drawing/chart. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved drawing/chart of the colors will become part of the contract documents.

SPECIAL TEXT/VERBIAGE TAGS

A detailed drawing/chart of the text/verbiage used on all of the inlet(s) and outlet(s) will be provided for the customer to review. The customer will be allowed to make changes and/or mark-ups to this approval drawing/chart. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved drawing/chart of the text/verbiage will become part of the contract documents.

PUMP PANEL CONFIGURATION

The pump panel configuration will be arranged and installed in an organized manner that will provide user-friendly operation.

PUMP AND GAUGE PANEL

The pump and gauge panels will be constructed of stainless steel with a brushed finish. A polished aluminum trim molding will be provided on both sides of the pump panel.

PUMP ACCESS

Right Side Panel

The right side upper pump panel will be removable.

Panel Fastener
The removable panels will be secured with black swell latch.

The left side pump panels will be attached with screws.

The right side lower pump panel (drain bank) will be attached with screws.

PUMP COMPARTMENT LIGHT
There will be one (1) Whelen®, Model 3SC0CDCR, 3.00" white 12 volt DC LED light(s) with Whelen, Model 3FLANGEC, flange(s) installed in the pump compartment.

PUMP PANEL GAUGES AND CONTROLS
The following will be provided on the pump and gauge panels in a neat and orderly fashion. These gauges will be in addition to what is provided with the pressure controller.

- Engine Oil Pressure Gauge: With visual and audible warning

- Engine Water Temperature Gauge: With visual and audible warning

- Tachometer: Electric

- Master Pump Drain Control

- Voltmeter

- Fuel

THROTTLE READY GREEN INDICATOR LIGHT
There will be a green indicator light integrated with the pressure governor and/or engine throttle installed on the pump operators panel that is activated when the pump is in throttle ready mode.

SPECIAL FOAM INLET DRAIN LATCH
There will be a special foam drain latch to keep the drain from being opened accidentally installed installed on the foam inlet drain drivers side of the unit. on the left side below the pump panel. A graphic stripe will be added to the drain handle to identify this drain handle.

REMOVABLE ACCESS PANEL ON PUMP OPERATORS PANEL

A removable access panel will be provided driver side pump panel, customer requesting access as large as possible . See marked up pump panel layout

VACUUM AND PRESSURE GAUGES
The pump vacuum and pressure gauges will be liquid filled and manufactured by Innovative Controls.

The gauges will be a minimum of 6.00" in diameter and will have white faces with black markings, with a pressure range of 30.00" 0-600 psi.

The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel.

Test port connections will be provided at the pump operator's panel. One (1) will be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They will have 0.25 in. standard pipe thread connections and polished stainless steel plugs. They will be marked with a label.

PRESSURE GAUGES

The individual "line" pressure gauges for the discharges will be interlube filled and manufactured by Class 1©.

The gauges will be a minimum of 3.50" in diameter and will have white faces with black lettering.

Gauges will be compound type with a vacuum/pressure range of 30.00"-0-600#.

The individual pressure gauge will be installed as close to the outlet control as practical.

WATER LEVEL GAUGE

A Fire Research TankVision Pro model WLA300-A00 water tank indicator gauge will be installed on the pump operator's panel. The gauge kit will include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The gauge will 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 will provide for a viewing angle of 180 degrees. The gauge case will be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label.

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

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

ADDITIONAL WATER LEVEL GAUGE

There will be two (2) additional Fire Research MaxVision, model WLA280-A00, water tank remote indicator(s) provided and installed upper rear corners of the crew cab, to the rear of the crew doors. The indicators will show the volume of water in the tank on 96 easy to see super bright Tri-color LEDs. The indicator case will be waterproof and manufactured of Polycarbonate material with an integrated lens.

The remote indicator will indicate the level as a single color:

- Red for 25 percent or less
- Amber for up to 50 percent volume
- Blue for up to 75 percent volume
- Green for up to 100 percent volume

When the level reaches 25 percent, the red LEDs will begin flashing. When the level is empty, the red LEDs will scroll in a down-chasing motion and then flash three (3) times.

The flash rate will be determined by the main water tank sensor.

It will have the program capability to adjust the brightness level for day time and night time viewing. The LEDs can also be programmed for different colors.

This module will be activated when the parking brake is applied.

CLASS "A" FOAM LEVEL GAUGE

A Fire Research TankVision Pro, Model WLA360-A00, cell/tank level indicator kit will be installed on the pump operator's panel. The kit will include an electronic indicator module, a pressure sensor, a 10' sensor cable and a tank vent. The indicator will show the volume of Class "A" foam concentrate in the cell/tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs will provide for a viewing angle of 180 degrees. The indicator case will be waterproof, manufactured of Polycarbonate/Nylon material and have a distinctive green label.

The program features will be accessed from the front of the indicator module. The program will support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display cell/tank volume, adjustable brightness control levels and a data link to connect remote indicators. Low foam level warnings will include flashing LEDs at 1/4 cell/tank and down chasing LEDs when the cell/tank is almost empty.

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

STEP/LIGHT SHIELD

There will be an aluminum treadplate stepping surface no less than 8.00" deep and properly reinforced to support a man's weight, installed over the pump operators panel.

- There will be 12 volt DC white LED lights installed under the step to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights will be activated by the pump panel light switch. Additional lights will be included every 18.00" depending on the size of the pump house.
- One (1) pump panel light will come on when the pump is in ok to pump mode.

The switch panel will be lit when the parking brake is set. This is to afford the operator illumination when first approaching the control panel.

There will be one (1) P-25 LED step light provided. The step light will be installed beneath the crosslays.

All step lights on the apparatus shall be illuminated per the current edition of applicable NFPA standards.

ADDITIONAL STEP/LIGHT SHIELD

There will be an additional aluminum treadplate stepping surface no less than 8.00" deep and properly reinforced to support a man's weight, installed over the passenger's side pump panel.

- There will be 12 volt DC white LED lights installed under the step to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights will be activated by the pump panel light switch. Additional lights will be included every 18.00" depending on the size of the pump house.

All step lights on the apparatus will be illuminated per the current edition of applicable NFPA standards.

AIR HORN SYSTEM
Two (2) Hadley®, eTone, chrome air horns will be recessed in the front bumper. The air horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed to prevent the loss of air in the brake system.

Air Horn Location
The air horns will be located on the right side of the bumper, outside of the frame rail.

Air Horn Control
The air horn(s) will be activated by the following:

- Left side lanyard. The lanyard to be a plastic coated braided cable.
- Right side lanyard. The lanyard to be a plastic coated braided cable.

ELECTRONIC SIREN
A Whelen, Model: 295HFSC9, 200 watt, dual tone, electronic siren with noise canceling microphone will be provided.

This siren to be active when the battery switch is on and that emergency master switch is on.

ELECTRIC SIREN, LOCATION,
Siren head will be mounted overhead panel #3.

The electronic siren will be controlled on the siren head only. No horn button or foot switches will be provided.

SPEAKERS
There will be two (2) Whelen Projector™ Series, Model SA314A, 100-watt, cast aluminum speakers with natural finish provided. Each speaker will be connected to the siren amplifier.

The speakers will be recessed in each side of the front bumper, inside of the frame rails.

AUXILIARY MECHANICAL SIREN
There will be a Federal Signal Model Q2B mechanical siren furnished and installed in the front of the apparatus.

The Q2B will be chrome finish.

The siren will have a 2-gauge cable connected to a power solenoid that is connected by a 2-gauge cable ran battery direct to the primary chassis batteries and will be labeled Q2B+ at the battery. The power solenoid will only be enabled when the emergency master switch is on.

The siren will have a 2-gauge ground wire connected to the chassis battery stud. The cable will be labeled Q2B- at the battery.

The mechanical siren will be recessed in the front bumper on the left side. The siren will be supported by the bumper framework. The face of the siren will be flush with the face of the bumper. The hole in the bumper face will match the face of the siren.

MECHANICAL SIREN CONTROL

The mechanical siren will be activated by the following:

- Left side foot switch.
- Right side push button switch

A momentary red rocker switch will be included in the switch location #10, dash, driver side to activate the siren brake.

A momentary chrome push button switch will be included in the right side dash panel to activate the siren brake.

WARNING SYSTEM CONTROL

There will be a Whelen®, CenCom CORE™ WeCanX™ warning system control provided. The system will be a microprocessor based system that utilizes a centralized means of controlling the warning lighting on the vehicle.

The system will include a photocell mounted in a location in the cab with a clear view of the ambient light to sense external ambient light.

The warning system controlled warning lighting will be controlled as following:

When in respond mode (high ambient light):

When the emergency master switch is active, the associated warning light switch is activated, and the parking brake is released, and the vehicle is in high ambient light conditions, the warning light control system will change the flash pattern to LONG FLASH 75 RANDOM flash with high intensity light output.

When in respond mode (low ambient light):

When the emergency master switch is active, the associated warning light switch is activated, and the parking brake is released, and the vehicle is in low ambient light conditions, the warning light control system will change the flash pattern to SIGNAL ALERT 75 ALTERNATING flash with high intensity light output.

When in blocking mode (high ambient light):

When the emergency master switch is active, the associated warning light switch is activated, and the parking brake is applied, and the vehicle is in high ambient light conditions, the warning light control system will change the flash pattern to SINGLE FLASH 75 ALTERNATING flash with high intensity light output.

When in blocking mode (low ambient light):

When the emergency master switch is active, the associated warning light switch is activated, the parking brake is applied, and the vehicle is in low ambient light conditions, the warning light control system will enter the Whelen® Dynamic Variable Intensity (DVI) mode. DVI mode lowers warning light output intensity and creates a "calming" effect by slowing flash rates and synchronizing warning light flash patterns.

CONTROL HEAD MODULE

There will be one (1) Whelen® WeCanX® Model CCTL9, 2.51" H x 6.01" W x 2.07" D, six (6) button control head module with rotary knob installed in the cab locate at preconstruction .

The CCTL9 control head will have the following functions available:

- Pushbutton switches - six (6) programmable for various functions (Air horn, Siren, Traffic Directing, Scene Lights, etc.).
- Rotary knob - seven (7) position rotary switch for RAD (Radio), PA (Public Address), MAN (Manual Control), HF (Hands Free), T1 (Open), T2 (Open), and T3 (Open).
- Microphone, microphone input jack, and microphone extension cable.

The control head will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

VEHICLE TO VEHICLE SYNC MODULE

There will be one (1) Whelen®, Model CV2V module, 3.23" high x 4.42" wide x 0.58" deep, Vehicle to Vehicle synchronization module installed on the cab dash, in clear view of the outside through the windshield.

The module will be connected to the microprocessor based Whelen® CenCom CORE™ system to synchronize the apparatus flash patterns with other Whelen® Vehicle to Vehicle enabled emergency vehicles in the vicinity, when the vehicles are in blocking mode (parking brake set).

Any programming or enabling of the CV2V sync module will be completed by Whelen Engineering.

FRONT ZONE UPPER WARNING LIGHTS

There will be one (1) 92.00" Whelen® Model WCX-1 lightbar mounted on the cab roof.

The lightbar will include the following:

- One (1) red flashing LED module in the driver's side end position.
- One (1) red flashing LED module in the driver's side front corner position.
- One (1) red flashing LED module in the driver's side first front position.
- One (1) red flashing LED module in the driver's side second front position.
- One (1) white flashing LED module in the driver's side third front position.
- One (1) blue flashing LED module in the driver's side fourth front position.

- One (1) red flashing LED module in the driver's side fifth front position.
- One (1) white flashing LED module in the driver's side sixth front position.
- One (1) red flashing LED module in the driver's side seventh front position.
- One (1) LED traffic light controller sent to national standard high priority in the driver's side center front positions.
- One (1) red flashing LED module in the passenger's side seventh front position.
- One (1) white flashing LED module in the passenger's side sixth front position.
- One (1) red flashing LED module in the passenger's side fifth front position.
- One (1) blue flashing LED module in the passenger's side fourth front position.
- One (1) white flashing LED module in the passenger's side third front position.
- One (1) red flashing LED module in the passenger's side second front position.
- One (1) red flashing LED module in the passenger's side first front position.
- One (1) red flashing LED module in the passenger's side front corner position.
- One (1) red flashing LED module in the passenger's side end position.

There will be clear lenses included on the lightbar.

The following switches may be installed in the cab on the switch panel to control the lightbar:

- a switch to control the flashing LED modules.
- the traffic light controller will be by a cab switch with emergency master control.
- there will be a driver side momentary cab switch with no emergency master control.

The traffic light controller will be disabled when the parking brake is applied.

These lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

A photocell to measure ambient light will be installed in the cab with a clear view of the sky.

SIDE WARNING LIGHTS

There will be two (2) Whelen®, Freedom IV WeCanX™ LED Mini lightbars, 21.50" long, mounted on the roof, one (1) on each side, over the crew cab doors.

Each lightbar will include the following:

- One (1) red flashing LED module in the outside rear corner position.
- One (1) blue flashing LED module in the rear outside position.
- One (1) red flashing LED module in the front outside position.
- One (1) red flashing LED module in the outside front corner position.

There will be clear lenses included on the lightbar.

These light bars will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

There will be a switch in the cab on the switch panel to control the lightbars.

CAB FACE WARNING LIGHTS

There will be four (4) Whelen®, Model M6**, 4.31" high x 6.75" wide x 1.37" steady burn LED warning lights installed on the cab face, above the headlights, mounted in a common bezel.

- The left side outside warning light to include red LEDs
- The left side inside warning light to include blue LEDs
- The right side inside warning light to include blue LEDs
- The right side outside warning light to include red LEDs
- The warning light lens color(s) to be clear
- The housing to be polished and the trim shall be chrome

There will be a switch located in the cab, on the switch panel, to control the lights.

The flash pattern of the lights will be controlled through the supplier based electrical control system.

ROTO RAY LIGHT

There will be one (1) Roto Ray, Model 4000W rotating warning light provided on the front of the cab mounted through the top section of the front grille.

This warning light will include the following:

- Two (2) PAR46 lights with red LEDs and clear lenses
- One (1) PAR46 light with white LEDs and a clear lens

There will be a switch in the cab on the switch panel to control this light.

The rotation motor and the warning lights will be deactivated when the parking brake is applied.

FRONT WARNING LIGHT

There will be two (2) Whelen®, Model M6*CS, steady burn LED warning lights with lens color(s) to be clear and chrome trim provided cab grill center each side.

The color of the light(s) will be red.

The light(s) will be activated with the front warning switch.

These lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

Any white light will be disabled and any amber light activated when the parking brake is applied.

HEADLIGHT FLASHER

The high beam headlights will flash alternately between the left and right side.

There will be a switch installed in the cab on the switch panel to control the high beam flash. This switch will be live when the battery switch and the emergency master switches are on.

The flashing will automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.

SIDE ZONE LOWER FRONT WARNING

There will be two (2) Whelen®, Model M6V2**, 4.30" high x 6.70" wide x 2.50" deep LED warning and scene lights with chrome trim installed per the following:

- There will be one (1) each side on the bumper extension.
- The left side, side front light to include red warning LEDs.
- The right side, side front light to include red warning LEDs.
- The warning light lens color(s) to be clear.

These lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

The warning light portion of the M6V2* warning/scene lights will be set to steady burn pattern #32.

The scene LEDs will be activated when the perimeter lights are activated and when the left directional signal is activated, the left scene lights will activate. When the right directional signal is activated, the right scene lights will activate.

There will be a switch in the cab on the switch panel to control the lights.

SIDE ZONE LOWER MIDDLE WARNING

There will be two (2) Whelen®, DUO™ Model M6D#, 4.31" high x 6.75" long x 1.37" deep two color LED warning lights with chrome trim and clear lenses, installed per the following:

- There will be one (1) each side of cab rearward of crew cab doors.
- The left side middle dual color flashing LED light(s) to include red alternating with amber.
- The right side middle dual color flashing LED light(s) to include red alternating with amber.

The lights will be set to steady burn.

These lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

There will be a switch in the cab on the switch panel to control the lights.

Any white LED's will be disabled when the parking brake is applied.

SIDE ZONE LOWER REAR WARNING

There will be two (2) Whelen®, Model M6V2**, 4.30" high x 6.70" wide x 2.50" deep LED warning and scene lights with chrome trim installed per the following:

- There will be one (1) each side on the rear fender panel.
- The left side, side rear light to include red warning LEDs.
- The right side, side rear light to include red warning LEDs.
- The warning light lens color(s) to be clear .

These lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

The warning light portion of the M6V2* warning/scene lights will be set to steady burn pattern #32.

The scene LEDs will be activated when the perimeter lights are activated and side scene lights activated when the chassis transmission is shifted into reverse.

There will be a switch in the cab on the switch panel to control the lights.

SIDE WARNING LIGHTS

There will be two (2) Whelen®, DUO™ Model M6D#, 4.31" high x 6.75" long x 1.37" deep two color LED flashing warning light(s) with chrome trim and clear lens(es), provided on the 45 degree angled corners of the bumper extension.

The light(s) to include red and white LEDs.

These light(s) will be activated with the side warning switch.

The warning lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

White LEDs will be disabled when the parking brake is applied.

SIDE WARNING LIGHTS

There will be two (2) Whelen® TIR3™, Model RS*03ZCR LED light(s) with chrome trim and clear lenses provided on the side of the apparatus, one on each side of rear tailboard facing the side.

The light(s) to include red LEDs.

The light(s) will be set to flash pattern #25 - Steady.

The light(s) will be activated with the side warning switch.

The light(s) will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

White LEDs will be deactivated when the parking brake is applied.

REAR ZONE LOWER LIGHTING

There will be two (2) Whelen®, Model M6**S, 4.31" high x 6.75" wide x 1.37" deep flashing LED warning lights located at the rear of the apparatus included in the tail light housings.

- The left side rear warning light to include blue LEDs.
- The right side rear warning light to include red LEDs.
- The warning light lens color(s) to be clear.

The flash pattern of the lights will be controlled through the supplier based electrical control system.

There will be a switch in the cab on the switch panel to control the lights.

REAR WARNING LIGHTS

There will be two (2) Whelen®, Model M6D#, DUO LED warning lights and chrome trim provided at the rear of the apparatus, above the tail lights.

The light(s) to include red and amber LEDs.

The warning light lens color(s) to be clear.

These light(s) will be controlled with a separate switch in cab.

These lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

REAR AND SIDE ZONE UPPER WARNING LIGHTS

There will be two (2) Whelen®, Model B63M7** LED beacon with lower LED flashing warning lights provided at the rear of the truck, one (1) each side.

Each light will include a flashing LED beacon and a Whelen, Model M7* LED flashing light, mounted in a polished aluminum housing.

The beacons will have red LEDs and be provided with color of the domes to be clear.

The color of the Whelen, Model M7* LED flashing lights will be light(s) to include amber LEDs and include a lens that is clear.

These beacons/lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

There will be a switch located in the cab on the switch panel to control the lights.

The rear beacons shall be installed at a 33 degree angle to the outside of the rear of the truck.

The rear warning lights will be mounted on polished stainless steel brackets with all wiring totally enclosed. These brackets will also support the clearance/marker lights.

TRAFFIC DIRECTING LIGHT

There will be one (1) Whelen®, Model TANF85, 45.12" long x 2.37" high x 2.37" deep, amber LED traffic directing light installed for use with the Whelen CORE™ system control head Model CCTL9, at the rear of the apparatus.

The traffic directing lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

This traffic directing light will be mounted over the hosebed, between the body side sheets, in a treadplate box on the cross tube at the rear of the apparatus.

The traffic directing light will be installed in a treadplate box, mounted to the rear face of the cross tube.

POWER OUTLET STRIP

There will be one (1) receptacle strip(s) with six (6) 15 amp 120 volt AC straight blade receptacles provided the receptacle will be high in the forward facing EMS compartment to the rear of the roll up door.

The strip(s) selected will be powered from the shoreline inlet through a receptacle located adjacent to the strip(s).

There will be a label installed near the strip(s) that state the following:

- Line Voltage
- Current Ratting (amps)
- Phase
- Frequency

120 VOLT RECEPTACLE

There will be three (3), 15/20 amp 120 volt AC three (3) wire straight blade duplex receptacle(s) with interior stainless steel wall plate(s), installed LS1 recessed in left wall just above the transition and LS3 forward wall lower section up against the transition. Reference Photo in Job file Photo's #7. RS1, right wall up high towards the back.. The NEMA configuration for the receptacle(s) will be 5-20R.

The receptacle(s) will be powered from the shoreline inlet.

There will be a label installed near the receptacle(s) that state the following:

- Line Voltage
- Current Ratting (amps)
- Phase
- Frequency

LOOSE EQUIPMENT

The following equipment will be furnished with the completed unit:

- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.

One (1) set of reflective emergency triangles will be provided.

NFPA LOOSE EQUIPMENT

NFPA Required Loose Equipment Provided by Fire Department

The following loose equipment as outlined in NFPA 1900, 2024 edition, table 8.1 and CAN/ULC S515:2024 edition, section 5.2 will be provided by the fire department:

- One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.
- Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band.
- Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.

NFPA Loose Equipment That Should be Considered

The following loose equipment as outlined in NFPA 1900, 2024 edition, appendix table A.8.4 (a) and CAN/ULC S515:2024 edition, section 5.2 should be considered:

- 800 ft (60 m) of 2.50" (65 mm) or larger fire hose.
- 400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose.
- One (1) handline nozzle, 200 gpm (750 L/min) minimum.
- Two (2) handline nozzles, 95 gpm (360 L/min) minimum.
- One (1) smooth bore or combination nozzle with shutoff and with 2.50" (65 mm) inlet that flows a minimum of 250 gpm (950 L/min).
- Four (4) SCBA apparatus
- Four (4) SCBA spare cylinders
- One (1) first aid kit.
- Four (4) combination spanner wrenches.
- Two (2) hydrant wrenches.
- One (1) double female 2.50" (65 mm) adapter with national hose (NH) threads.
- One (1) double male 2.50" (65 mm) adapter with national hose (NH) threads.
- One (1) rubber mallet, for use on suction hose connections.
- Two (2) salvage covers each a minimum size of 12 ft × 18 ft (3.7 m × 5.5 m).
- One (1) automatic external defibrillator (AED).

SOFT SUCTION HOSE

There will be no soft suction hose provided.

- One (1)-6.00" National Standard hose thread barrel strainer, chrome plated

DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT

The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.

PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT

The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.

PAINT PROCESS

The exterior custom cab and body painting procedure will consist of a seven (7) step finishing process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the custom cab and body will be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces will be removed and sanded to a smooth finish. Exterior seams will be sealed before painting. Exterior surfaces that will not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.
2. Chemical Cleaning and Pretreatment - All surfaces will be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces will be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces will be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion.
3. Surfacer Primer - The Surfacer Primer will be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.
4. Finish Sanding - The Surfacer Primer will be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.
5. Sealer Primer - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.
6. Basecoat Paint - Two coats of a high performance, two component high solids polyurethane basecoat will be applied. The Basecoat will be applied to a thickness that will achieve the proper color match. The Basecoat will be used in conjunction with a urethane clear coat to provide protection from the environment.
7. Clear Coat - Two (2) coats of Clear Coat will be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors will be Clear Coated to match the body. Paint warranty for the roll-up doors will be provided by the roll-up door manufacturer.

After the cab and body are painted, the color will be verified to make sure that it matches the color standard. Electronic color measuring equipment will be used to compare the color sample to the color standard entered into the computer. Color specifications will be used to determine the color match. A Delta E reading will be used to determine a good color match within each family color.

All removable items such as brackets, compartment doors, door hinges, and trim will be removed and painted separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly.

The paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) are to meet or exceed Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels are to meet or exceed the #6 A.C.T. standard in critical areas. The manufacture's written paint standards will be available upon request.

Environmental Impact

Contractor will meet or exceed all current state regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions:

- Topcoats and primers will be chrome and lead free.
- Metal treatment chemicals will be chrome free. The wastewater generated in the metal treatment process will be treated on-site to remove any other heavy metals.
- Particulate emission collection from sanding operations will have a 99.99 percent efficiency factor.
- Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter is used, it will have an efficiency rating of 98 percent. Water wash systems will be 99.97 percent efficient.
- Water from water wash booths will be reused. Solids will be removed on a continual basis to keep the water clean.
- Paint wastes are disposed of in an environmentally safe manner.
- Empty metal paint containers will be recycled to recover the metal.
- Solvents used in clean-up operations will be recycled on-site or sent off-site for distillation and returned for reuse.

Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Contractor will, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his state EPA rules and regulations.

CAB PAINT

The cab will be painted RED #213.

BODY PAINT

The body will be painted to match the lower section of the cab.

PAINT/SEAL CHASSIS FRAME ASSEMBLY

The following components will be treated with epoxy E-coat protection prior to finish paint:

- Two (2) C-channel frame rails

The E-coat process will meet the technical properties shown.

Before the frame rails are finish painted, all areas will be sealed with a 3M 2084 metal sealant after the components are torqued to the frame rails:

- The joint between all crossmembers and the frame

- The joint between all spring hangers and the frame.

FILM TECHNICAL PROPERTIES

PROPERTY	TEST METHOD	PERFORMANCE
Color	–	Black
Film Thickness	–	0.5 - 1.5 Mils
Gloss - 60 Degree	ASTM D523	65 - 85
Pencil Hardness	ASTM D3363	2H Minimum
Direct Impact	ASTM D2794	100 in. - lbs. Minimum
Reverse Impact	ASTM D2794	60 in. - lbs. Minimum
Crosshatch Adhesion	ASTM D3359	4B - 5B
Humidity	ASTM D1735	1000 Hours Minimum
Water Immersion	ASTM D870	250 Hours Minimum
Gravelometer	GM9508P	6 Minimum
Throwpower	GM9535P	12 - 15 in.

Cold rolled steel lab panels, Zinc Phosphate pretreatment, 0.6 mils average film thickness, cured 20 minutes @ 350°F.

PROPERTY	SUBSTRATE PRETREATMENT	SALT SPRAY* 1000 HOURS
Corrosion Resistance	CRS / Zinc Phos / Non-Chrome	1 - 2 mm

*Salt Spray - ASTM B117, cold rolled steel lab panels cured 20 minutes @ 350°F. (Average Total Scribe Creep)

The chassis frame assembly will be finished with a single system black top coat before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.

Components that are included with the chassis frame assembly that will be finish painted (unless otherwise stated in a secondary option) are:

- Frame rails
- Cross membersAxles
- Suspensions
- Steering gear
- Battery boxes
- Bumper extension weldment
- Frame extensions
- Body mounting angles
- Rear Body support substructure (front and rear)
- Pump house substructure
- Steel fuel tank
- Castings
- Individual piece parts used in chassis and body assembly

After the chassis frame assembly is finish painted, the following non-torqued joints will be sealed with a SG-510A rust-proofing compound:

-All bolted on chassis components that could be vulnerable to rust, i.e. body mounting angles, air tanks, etc.

To summarize, all metal to metal contact components that are prone to rust, will be protected.

AXLE HUB PAINT

All axle hubs will be painted black #101.

COMPARTMENT INTERIOR PAINT

The interior of all compartments will be painted with a gray spatter finish for ease of cleaning and to make it easier to touch up scratches and nicks.

REFLECTIVE STRIPES

Three (3) reflective stripes will be provided across the front of the vehicle and along the sides of the body. The reflective band will consist of a 1.00" black stripe at the top with a 1.00" gap then a 6.00" gold stripe with a 1.00" gap and a 1.00" black stripe on the bottom.

The reflective band provided on the cab face will be below the headlights on the fiberglass.

REAR CHEVRON STRIPING

There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The rear surface, excluding the rear compartment door, will be covered.

The colors will be red and fluorescent yellow green diamond grade.

Each stripe will be 6.00" in width.

This will meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface will be covered with chevron striping.

EMS DOOR INTERIOR DIAMOND GRADE CHEVRON STRIPING

A diamond grade chevron stripe will be provided across the interior of two (2) EMS cabinet exterior doors. The colors will be alternating Fluorescent Yellow-Green 983-23 and Red 983-72 .

The size of the striping will be 6.00".

DIAMOND GRADE CHEVRON STRIPE ON BODY COMPARTMENT DOOR INTERIOR

A fluorescent yellow green diamond grade and red diamond grade reflective stripe will be provided across the interior of eleven (11) body compartment door(s). LS1 (2), LS2 (2), LS3 (2), LS4, RS1(2), RS3,RS4. The stripe will be located approximately 1.00" up from the bottom, on the door panel.

CHEVRON STRIPING ON THE FRONT BUMPER

There will be alternating chevron striping located on the front bumper.

The colors will be Fluorescent Yellow-Green 983-23 and Red 983-72 diamond grade.

The size of the striping will be 6.00".

INVERTED "V" CHEVRON STRIPING ON CAB AND CREW CAB DOORS

There will be alternating chevron striping located on the inside of each cab and crew cab door.

The striping will consist of the following colors:

- The first color will be red diamond grade.
- The second color will be fluorescent yellow green diamond grade.

The size of the striping will be 4.00".

LETTERING

Forty-one (41) to sixty (60) reflective lettering, 3.00" high, with no outline or shade will be provided.

PLACARD BRACKET

three (3) channel bracket(s) will be provided for the installation of department number placard. The bracket(s) will be located shipped loose.

BRACKETS FOR NUMBER PLACARDS

Brackets will be provided for the installation of department numbers. The brackets will be located shipped loose.

LETTERING

There will be reflective lettering, 4.00" high, with no outline or shade provided. There will be two (2) letters provided.

LETTERING
Twenty-one (21) to forty (40) reflective lettering, 4.00" high, with no outline or shade will be provided.

LETTERING
There will be reflective lettering, 2.00" high, with outline provided. There will be eight (8) letters provided.

LETTERING
Forty-one (41) to sixty (60) reflective lettering, 2.00" high, with no outline or shade will be provided.

EMBLEM
A pair of emblems showing a "Star of Life" will be installed on the vehicle. The emblem will be made with reflective material. The size will be approximately 10.00" high x 10.00" wide.

MALTESE CROSS INSTALLATION
There will be one (1) each of maltese crosses, comprised of reflective material, provided and installed rear rollup.

MALTESE CROSS INSTALLATION
There will be one (1) maltese cross, comprised of reflective material, provided and installed CAB DOOR.

EQUIPMENT MOUNTING

Customer equipment mounting in the body compartments and cab shall be included.In addition a $5,000.00 contingency fund will be included for changes/ additions.

MANUAL, FIRE APPARATUS PARTS
Two (2) custom parts manuals for the complete fire apparatus will be provided in hard copy with the completed unit.

One (1) compact disc (CD) will also be provided that will include all of the information from the above manual.

The manual will contain the following:

- Job number

- Part numbers with full descriptions

- Table of contents

- Parts section sorted in functional groups reflecting a major system, component, or assembly

- Parts section sorted in Alphabetical order

- Instructions on how to locate parts

The manual will be specifically written for the chassis and body model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.

SERVICE PARTS INTERNET SITE

The service parts information included in this manual is also available on the Pierce website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.

MANUALS, CHASSIS SERVICE

Two (2) chassis service manuals containing parts and service information on major components will be provided with the completed unit.

One (1) compact disk (CD) will also be provided that will include all of the information from the above manual.

The manuals will contain the following sections:

- Job number
- Table of contents
- Troubleshooting
- Front Axle/Suspension
- Brakes
- Engine
- Tires
- Wheels
- Cab
- Electrical, DC
- Air Systems
- Plumbing
- Appendix

The manual will be specifically written for the chassis model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.

MANUALS, CHASSIS OPERATION

Two (2) chassis operation manuals will be provided.

One (1) compact disk (CD) will also be provided that will include all of the information from the above manual.

ONE (1) YEAR MATERIAL AND WORKMANSHIP
A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal.

ENGINE WARRANTY
A Cummins **five (5) year** limited engine warranty will be provided. A limited warranty certificate, WA0181, is included with this proposal.

STEERING GEAR WARRANTY
A Sheppard **three (3) year** limited steering gear warranty will be provided. A copy of the warranty certificate will be submitted with this proposal.

FIFTY (50) YEAR STRUCTURAL INTEGRITY
The Pierce custom chassis frame and crossmembers limited warranty certificate, WA0038, is included with this proposal.

FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY
The Pierce TAK-4 suspension limited warranty certificate, WA0050, is included with this proposal.

SINGLE REAR AXLE FIVE (5) YEAR MATERIAL AND WORKMANSHIP WARRANTY
A Meritor™ Axle 5 year limited warranty will be provided.

ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY
A Meritor Wabco™ ABS brake system limited warranty certificate, WA0232, is included with this proposal.

TEN (10) YEAR STRUCTURAL INTEGRITY
The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal.

TEN (10) YEAR PRO-RATED PAINT AND CORROSION
A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.

FIVE (5) YEAR MATERIAL AND WORKMANSHIP
The Pierce Command Zone electronics limited warranty certificate, WA0014, is included with this proposal.

CAMERA SYSTEM WARRANTY
A Pierce fifty four (54) month warranty will be provided for the camera system**.**

COMPARTMENT LIGHT WARRANTY
The Pierce 12 volt DC LED strip lights limited warranty certificate, WA0203, is included with this proposal.

TRANSMISSION WARRANTY
The transmission will have a **five (5) year/unlimited mileage** warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission.

Note: The transmission cooler is not covered under any extended warranty you may be getting on your Allison Transmission. Please review your Allison Transmission warranty for coverage limitations.

TRANSMISSION COOLER WARRANTY

The transmission cooler will carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty will also be in effect for the first three (3) years of the warranty coverage and will not exceed $10,000 per occurrence. A copy of the warranty certificate will be included with this proposal.

WATER TANK WARRANTY

A UPF poly water tank limited warranty certificate, WA0195, is included with this proposal.

TEN (10) YEAR STRUCTURAL INTEGRITY

The Pierce apparatus body limited warranty certificate, WA0009, is included with this proposal.

ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY

A Gortite roll-up door limited warranty will be provided. The mechanical components of the roll-up door will be warranted against defects in material and workmanship for the lifetime of the vehicle. A **six (6) year** limited warranty will be provided on painted and satin roll up doors.

The limited warranty certificate, WA0190, is included with this proposal.

PUMP WARRANTY

The Waterous pump will be provided with a seven (7) year material and workmanship limited warranty.

A copy of the warranty certificate will be included with this proposal.

TEN (10) YEAR PUMP PLUMBING WARRANTY

The Pierce apparatus plumbing limited warranty certificate, WA0035, is included with this proposal.

FOAM SYSTEM WARRANTY

The Husky 3 foam system limited warranty certificate, WA0231, is included with this proposal.

TEN (10) YEAR PRO-RATED PAINT AND CORROSION

A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.

ONE (1) YEAR MATERIAL AND WORKMANSHIP

The Pierce graphics fading and deterioration limited warranty limited warranty certificate, WA0168, is included with this proposal.

VEHICLE STABILITY CERTIFICATION

The fire apparatus manufacturer will provide a certification stating the apparatus complies with NFPA 1900, current edition, section 7.14, Vehicle Stability. The certification is included with this proposal.

ENGINE INSTALLATION CERTIFICATION

The fire apparatus manufacturer will provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification will be provided at the time of delivery.

POWER STEERING CERTIFICATION

The fire apparatus manufacturer will provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification is included with this proposal.

CAB INTEGRITY CERTIFICATION

The fire apparatus manufacturer will provide a cab crash test certification with this proposal. The certification will state that a specimen representing the substantial structural configuration of the cab has been tested and certified by an independent third party test facility. Testing events will be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap. The fire apparatus manufacturer will provide a state licensed professional engineer to witness and certify all testing events. Testing will meet or exceed the requirements below:

- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.
- European Occupant Protection Standard ECE Regulation No.29.
- SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.

Side Impact

The cab will be subjected to dynamic preload where a 14,320-lb moving barrier is slammed into the side of the cab at 5.50 mph, striking with an impact of 13,000 ft-lb of force. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a rollover incident.

Roof Crush

The same cab will be subjected to a roof crush force of 22,050 lb. This value meets the ECE 29 criteria and is equivalent to the front axle rating up to a maximum of ten (10) metric tons.

Additional Roof Crush

The same cab will be subjected to a roof crush force of 100,000 lb. (Four and a half times the load criteria of ECE 29)

Frontal Impact

The same cab will withstand a frontal impact of 32,600 ft-lb of force using a moving barrier in accordance with SAE J2420.

Additional Frontal Impact

The same cab will withstand a frontal impact of 65,200 ft-lb of force using a moving barrier. (Twice the force required by SAE J2420)

The same cab will withstand all tests without any measurable intrusion into the survival space of the occupant area.

CAB DOOR DURABILITY CERTIFICATION

Robust cab doors help protect occupants. Cab doors will survive a 200,000-cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder will certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.

WINDSHIELD WIPER DURABILITY CERTIFICATION

Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers will survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 *Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles.* The bidder will certify that the wiper system design has been tested and that the wiper system has met these criteria.

ELECTRIC WINDOW DURABILITY CERTIFICATION

Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design will complete 30,000 complete up-down cycles and still function normally when finished. The bidder will certify that sample doors and windows similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.

SEAT BELT ANCHOR STRENGTH

Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design will withstand 3000 lb of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder will certify that each anchor design was pull tested to the required force and met the appropriate criteria.

SEAT MOUNTING STRENGTH

Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design will be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder will certify that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.

PERFORMANCE CERTIFICATIONS

Cab Air Conditioning

Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system will cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 78 degrees Fahrenheit in 30 minutes. The bidder will certify that a substantially similar cab has been tested and has met these criteria.

Cab Defroster

Visibility during inclement weather is essential to safe apparatus performance. The defroster system will clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure And Performance Requirements - Trucks, Buses, And Multipurpose Vehicles. The bidder will certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.

Cab Auxiliary Heater

Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. An auxiliary cab heater will warm the cab 77 degrees Fahrenheit from a cold-soak, within 30 minutes when tested using the coolant supply methods found in

SAE J381. The bidder will certify, at time of delivery, that a substantially similar cab has been tested and has met these criteria.

AMP DRAW REPORT

The bidder will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus will provide the following:

- Documentation of the electrical system performance tests.
- A written load analysis, which will include the following:
    - The nameplate rating of the alternator.
    - The alternator rating under the conditions specified per:
        - Current edition of applicable NFPA standards.
    - The minimum continuous load of each component that is specified per:
        - Current edition of applicable NFPA standards.
    - Additional loads that, when added to the minimum continuous load, determine the total connected load.
    - Each individual intermittent load.

All of the above listed items will be provided by the bidder per the current edition of applicable NFPA standards.

FRONRAN-05 GOMSA1

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 5/6/2025

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

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

PRODUCER	CONTACT NAME: Sarajane Gomez	
TCW Risk Management 384 Inverness Parkway Suite 170 Englewood, CO 80112	PHONE (A/C, No, Ext): (303) 368-5757	FAX (A/C, No): (303) 368-5863
	E-MAIL ADDRESS: tcwinfo@tcwrm.com	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : Arch Insurance Company	11150
INSURED	INSURER B : Pinnacol Assurance	41190
Front Range Fire Apparatus Ltd. 7600 Miller Ct. Longmont, CO 80504	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

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

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	COMMERCIAL GENERAL LIABILITY			MFPK08553111	12/27/2024	12/27/2025	EACH OCCURRENCE	$ 1,000,000
	[ ] CLAIMS-MADE [X] OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 1,000,000
							MED EXP (Any one person)	$ 5,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	[ ] POLICY [ ] PRO-JECT [X] LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	[ ] OTHER:						GARAGE LIABILIT	$ Included
A	AUTOMOBILE LIABILITY			MFCA08347011	12/27/2024	12/27/2025	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	[X] ANY AUTO						BODILY INJURY (Per person)	$
	[ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	[X] HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
A	[ ] UMBRELLA LIAB [X] OCCUR			MFUM07987211	12/27/2024	12/27/2025	EACH OCCURRENCE	$ 3,000,000
	[X] EXCESS LIAB [ ] CLAIMS-MADE						AGGREGATE	$ 3,000,000
	[ ] DED [ ] RETENTION $							$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	N / A		4043254	5/1/2025	5/1/2026	[X] PER STATUTE [ ] OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N [ ] (Mandatory in NH)						E.L. EACH ACCIDENT	$ 500,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 500,000
							E.L. DISEASE - POLICY LIMIT	$ 500,000
A	Garage & Dealers (Si			MFCA08347011	12/27/2024	12/27/2025	Garage & Dealers	8,320,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

For Information Only

CANCELLATION

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

AUTHORIZED REPRESENTATIVE

EVIDENCE OF LIABILITY INSURANCE

April 1, 2025

PRODUCER

Brown & Brown Insurance Services, Inc.
1200 N. Mayfair Road Suite 100
Milwaukee, WI 53226
Phone: 414-443-0000 Fax: 414-259-8448

THIS DOCUMENT IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE DOCUMENT HOLDER. THIS DOCUMENT DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE

INSURED

OSHKOSH CORPORATION
1917 Four Wheel Drive
Oshkosh, WI 54902

INSURER A:	Westchester Surplus Lines Insurance Company
INSURER B:	Twin City Fire Insurance Company
INSURER C:	Hartford Accident and Indemnity Company
INSURER D:	Hartford Fire Insurance Company
INSURER E:	Berkley National Insurance Company

COVERAGES

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

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE	POLICY EXPIRATION DATE	LIMITS	
A	**GENERAL LIABILITY** COMMERCIAL GENERAL LIABILITY OCCURRENCE FORM INCL GARAGE LIABILITY	G7446676A002	April 1, 2025	April 1, 2026	EACH OCCURRENCE	USD 1,000,000
					DAMAGE TO RENTED PREMISES (Ea. occurrence)	USD 500,000
					MED EXP (Any one person)	EXCLUDED
					PERSONAL & ADV INJURY	USD 1,000,000
					GENERAL AGGREGATE	USD 5,000,000
					PRODUCTS-COMP/OP AGG	USD 3,000,000
D	**AUTOMOBILE LIABILITY** Any Auto (Symbol 1)	83 AB S68003	October 1, 2024	October 1, 2025	COMBINED SINGLE LIMIT (Ea. Accident)	USD 1,000.000
A	**UMBRELLA LIABILITY** Occurrence Form	G72515511005	April 1, 2025	April 1, 2026	EACH OCCURRENCE	USD 15,000,000
					AGGREGATE	USD 15,000,000
B C	**WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY**	83 WBR S68001 83 WN S68000	October 1, 2024 October 1, 2024	October 1, 2025 October 1, 2025	WORKERS COMPENSATION	WC STATUTORY LIMITS
					E.L. EACH ACCIDENT	USD 1,000,000
					E.L. DISEASE – EA EMPLOYEE	USD 1,000,000
					E.L. DISEASE – POLICY LIMIT	USD 1,000,000
F	Aviation Liability	See Attached Schedule	April 1, 2025	April 1, 2026	Each Occurrence Prod Comp/Ops Aggregate	$25,000,000 $25,000,000
D	**GARAGEKEEPERS**	83 AB S68003	October 1, 2024	October 1, 2025	Limit of Insurance	USD 1,000.000
E	**EXCESS LIABILITY**	CEX09600174-12	April 1, 2025	April 1, 2026	Each Occurrence/Aggregate	USD 15,000,000

ADDITIONAL INFORMATION

NAMED INSURED LISTING:

Oshkosh Corporation
Oshkosh Commercial Products, LLC
Oshkosh Defense, LLC
Oshkosh HD, LLC
Oshkosh Logistics Corporation
Oshkosh Manufacturing, LLC
Iowa Mold Tooling Co., Inc.
Iowa Contract Fabricators, Inc.
JLG Industries, Inc.
JLG Equipment Services, Inc.
Frontline Communications, a Division of Pierce Manufacturing, Inc.
Oshkosh Airport Products, Division of Pierce Manufacturing, Inc.
Jerr-Dan Corporation
Oshkosh Specialty Vehicles, a Division of Pierce Manufacturing, Inc.
JLG Latino Americana Ltda.
Kewaunee Fabrications, LLC
McNeilus Companies, Inc.
McNeilus Financial, Inc.
McNeilus Truck and Manufacturing, Inc.
Viking Truck & Equipment Sales, Inc.
McIntire Fabricators, Inc.
Pierce Manufacturing Inc.
Pratt & Miller Engineering & Fabrication, LLC
Oshkosh AeroTech, LLC
Oshkosh AeroTech Oregon, Inc.

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Brown & Brown Insurance Services, Inc.	Oshkosh AeroTech, LLC
POLICY NUMBER See Below	
CARRIER: See Below / NAIC CODE	EFFECTIVE DATE: April 1, 2025

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 FORM TITLE: **Aviation Liability Schedule of Insurers (Insurer F)**

SECURITY (the "Insurers")

Insurer	Policy Number	NAIC Code
Allianz Global Risks US Insurance Co. through Allianz Global Corporat & Surety	A1PR000201125AM	35300
Starr Indemnity & Liability Compay through Starr Companies	1000189341-04	38318
National Union Fire Insurance Co. of Pittsburgh PA through AIG	PL7741013-14	19445
QBE Insurance Corporation through QBE America	100010221	39217
Old Republic Insurance Company through Old Republic Aerospace	MP00045904	24147
XL Specialty Insruance Company a Division of AXA	UA00019286AV25A	37885
Underwriters at Lloyds of London & Certain Insurance Companies through Price Forbes	B0507PE2500045	N/A

Several Liability Notice

The subscribing insurers' obligations under contracts of insurance to which they subscribe are several and not joint and are limited solely to the extent of their individual subscriptions. The subscribing insurers are not responsible for the subscription of any co-subscribing insurer who for any reason does not satisfy all or part of its obligations. LSW 1001 (insurance)

In the event of cancellation or adverse material change of the policies by Insurers, Insurers agree that such cancellation or change shall not be effective as to the Additional Insured until thirty (30) days after issuance of notice by the Insurers to the certificate holders.