

CITY OF MARYVILLE, MISSOURI COUNCIL ACTION REPORT



Title: An Ordinance Authorizing a Contract with Ed M. Feld Equipment Co., Inc for the Purchase of One (1) Spartan Star Pumper for the Maryville Fire Department, Maryville, Missouri

Council Bill No.: 2026'78

Agenda Date: September 28, 2026

Presented by: Jace Pine, Fire Chief

BACKGROUND:

The Maryville Fire Department has identified the need to replace Fire Engine No. 3 (Engine 3). Engine 3 is a 1997 Toyne Fire Apparatus equipped with a 1250 gpm fire pump and a 1,000-gallon water tank. The apparatus was purchased new by the City of Maryville and has been well maintained, allowing it to remain in service for nearly 30 years. Engine 3 lacks many modern safety and functionality features, and annual repair costs have continued to increase. Replacement of Engine 3 has been identified as a future project in the City's most recent Capital Improvement Plan and has been a priority for the fire department over the last few budget cycles.

On April 17, 2025, the City entered into a contract with the Northwest Missouri Regional Council of Governments for grant writing services. On May 27, 2025, the City Council approved a resolution stating intent to seek funding and authorizing activities necessary to apply for the Community Development Block Grant – Community Facilities grant by the Missouri Department of Economic Development for replacement of Engine 3.

The City was notified on December 15, 2025, that the grant application was awarded \$530,000, including \$500,000 dedicated to the apparatus purchase and \$30,000 for grant administration. The grant agreement also requires a local match of \$500,000 to complete the project. On January 12, 2026 City Council authorized execution of the grant agreement with the Missouri Department of Economic Development, and an RFP was released on June 25, 2026 with bids due by July 24, 2026. Three bids were received and opened on July 27, 2026.

Bidder	Price	Build Time
Sutphen / Cashion Fire Equip	\$1,072,964.85	28-30 months
Pierce / MacQueen	\$1,132,008.00	23-26 months
Spartan / Feld Fire	\$1,042,729.00	20.7 months

The build committee reviewed all three bids in depth to ensure compliance with the issued specifications. Spartan / Feld Fire was the low bid and was also the bid that matched the bid specifications the closest. The contract price provided by Feld Fire was set to expire on September 10. On September 8, 2026, City Council issued a letter of intent to Feld Fire who subsequently provided a revised contract at the bid price of \$1,042,729, with terms stated to expire October 10, 2026, pending an executed contract.

FINANCIAL CONSIDERATIONS:

The CDBG Community Facilities award requires a local match of \$500,000 depending on final apparatus specifications, procurement, and project costs. Total cost to the City will be \$542,729.00 for One (1) Spartan Star Pumper. That payment is due upon delivery of the apparatus which is anticipated to be around August 2028.

City staff will coordinate with Gilmore & Bell, P.C. to evaluate financing options. This action does not commit the City to a specific financing method at this time but allows staff to review options during the FY'28 budget cycle and return to Council with a recommended approach at that time.

LEGAL CONSIDERATIONS:

The ordinance has been reviewed and approved by the City Attorney.

COMPREHENSIVE PLAN:

Section Two: A Community Vision (Chapter 4, pg. 45)

- Policy Statements
 - “Providing a general basis for interpreting and applying the comprehensive plan, maintaining the flexibility to respond to individual situations.”
 - “Providing a framework for consistent decision-making, while providing flexibility for review of individual situations.”
 - “Providing a firmer basis for evaluating costs and benefits of public investments, and their consistency with overall policy objectives.”

RECOMMENDED ACTION:

Approve an ordinance authorizing the Mayor to execute a Contract with Ed M. Feld Equipment Co., Inc for the Purchase of One (1) Spartan Star Pumper in an amount not to exceed \$1,042,729.00.

**AN ORDINANCE AUTHORIZING THE MAYOR OF THE CITY OF
MARYVILLE, MISSOURI TO EXECUTE A CONTRACT WITH ED M.
FELD EQUIPMENT CO., INC FOR THE PURCHASE OF ONE (1) SPARTAN
STAR PUMPER FOR THE MARYVILLE FIRE DEPARTMENT,
MARYVILLE, MISSOURI**

**BE IT ORDAINED BY THE COUNCIL OF THE CITY OF MARYVILLE,
MISSOURI**, as follows:

SECTION 1: The Mayor of the City of Maryville, Missouri, be and is hereby authorized and directed to execute a contract with Ed M. Feld Equipment Co., Inc for the purchase of one (1) Spartan Star Pumper in an amount not-to-exceed \$1,042,729.00, said contract being on file in the office of the City Clerk and identified as Contract No. 2026-49.

SECTION 2: This Ordinance shall be in full force and effect from and after its passage and adoption.

PASSED AND ADOPTED this 28th day of September, 2026.

John J. McBride, Mayor

ATTEST:

Stacy Wood, City Clerk



SALES CONTRACT

This agreement made by and between Ed M. Feld Equipment Co., Inc. (Company) and

415 N Market Street City of Maryville MO 64468
Maryville

1. **ACCEPTANCE:** The "Company" agrees to sell and the "Buyer" agrees to purchase a quantity of one (1) Spartan Star Pumper(s), as described in the specifications hereto attached and made part of this contract, in accordance with the terms and conditions listed on contract pages A, B, & C.

2. **DELIVERY:** The apparatus schedule shall be dependent on the production schedule at time of order. The estimated delivery date of the apparatus to Feld Fire for final inspection and upfit, is **630 days** from Change Order A acceptance.

If inability to obtain exclusive or brand name materials causes completion or delivery problems, the Company shall advise the Buyer of said problem. The Company resolves to examine alternative sources of said material. Material substitutions shall be mutually agreed upon by the Buyer and the Company. No substitutions shall be made without the execution of a written Change Order by the Buyer.

3. **CHANGE ORDERS:** Changes to the contract may be requested by the Buyer after the execution of the contract. Changes shall be reviewed for cost and schedule impact by the Company. Changes shall be sequentially numbered. Change Orders shall be prepared by the Company and executed by the Buyer. The price of the apparatus shall be adjusted to take into account any Change Orders. Any or all Change Orders may extend the completion and delivery of the apparatus.

4. **SPECIFICATIONS:** The Company agrees that all material and workmanship in and about this apparatus shall comply with the hereto attached specifications.

5. **WARRANTY:** Shall be as proposed in the attached Spartan specifications.

6. **PRICE:** Upon completion of contract, (1) one Spartan Star Pumper(s) as specified by customer for a **paid upon delivery purchase price for the apparatus' of: One Million Forty-Two Thousand Seven Hundred Twenty-Nine Dollars and zero cents. (\$1,042,729.00).**



SECTION A

All prices are less any applicable local, state or federal taxes which may be applied to the apparatus proposed. Payment shall be made to Ed M. Feld Equipment Co., Inc. of 113 N. Griffith Rd Carroll, IA 51401.

7. **TERMS OF PAYMENT:**

- i. **Contract payment of One Hundred Percent (100%) shall be paid at delivery.**
- ii. It is agreed that the apparatus and equipment covered by this contract shall remain the property of the Company and not be placed in service until the entire contract price has been paid.

8. **Ed M. Feld Equipment Co., Inc.** requires, and the customer agrees, that the unit shall be inspected and/or delivered within seven (7) days of notice that the unit has been completed and an agreed inspection time has been scheduled at purchaser.

9. **CANCELLATION:** This contract is subject to cancellation by Buyer only upon payment to Company of reasonable cancellation charges, which shall take into account expenses already incurred and commitments made by Company.

This contract, to be binding, must be signed by an officer of the Ed M. Feld Equipment Co., Inc. or a person authorized, by Ed M. Feld Equipment Co., Inc. to do so.



SECTION B

This contract, including its appendices, embodies the entire understanding between the parties relating to the subject matter contained herein and merges all prior discussions and agreements between them. No agent or representative of the Company has authority to make any representations, statements, warranties or agreements not herein expressed and all modifications of amendments of this agreement, including the appendices, must be in writing signed by an authorized representative of each of the parties hereto.

IN WITNESS WHEREOF, the Buyer and the Company have caused this contract to be executed by their duly authorized representatives this **23rd day of July, 2026 the terms of this contract expire end of business day October 10th, 2026**

COMPANY	BUYER
Ed M. Feld Equipment Co., Inc.	City of Maryville, MO
113 N. Griffith Rd	
Carroll, IA 51401	
BY: <u>Spencer Stephens</u>	BY: _____
NAME: <u>Spencer Stephens</u>	NAME: _____
TITLE: <u>Apparatus Sales Consultant</u>	TITLE: _____
DATE: <u>9-23-26</u>	DATE: _____
	WITNESSED: _____
	NAME: _____
	TITLE: _____
	DATE: _____

A division of **ED M. FELD EQUIPMENT CO., INC.**

113 North Griffith Road • Carroll, Iowa 51401 • T 800 568 2403 • F 712 792 6658 • www.feldfire.com



SECTION C

Customer Information Sheet

To assist in processing your order, please furnish the following information with the contract.

Owner Information (For Apparatus Title - MSO)

Name of Owner: _____
Address: _____
City/State/Zip: _____
Contact Name/Title: _____
Phone: _____ Fax: _____

Station Information (For Service - Where Apparatus Will Be Housed)

Name of End User: _____
Address: _____
City/State/Zip: _____
Contact Name/Title: _____
Phone: _____ Fax: _____

Job Coordinator (For Engineering Changes & Approval, Etc.)

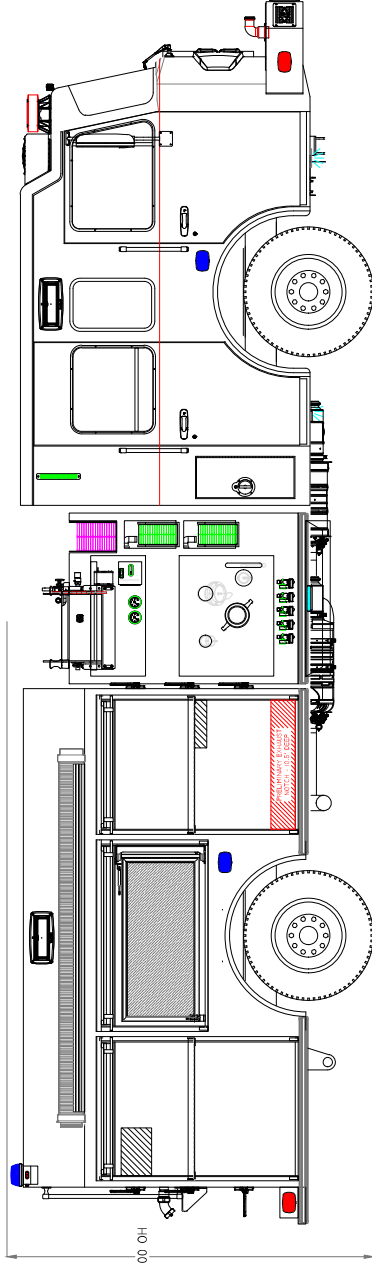
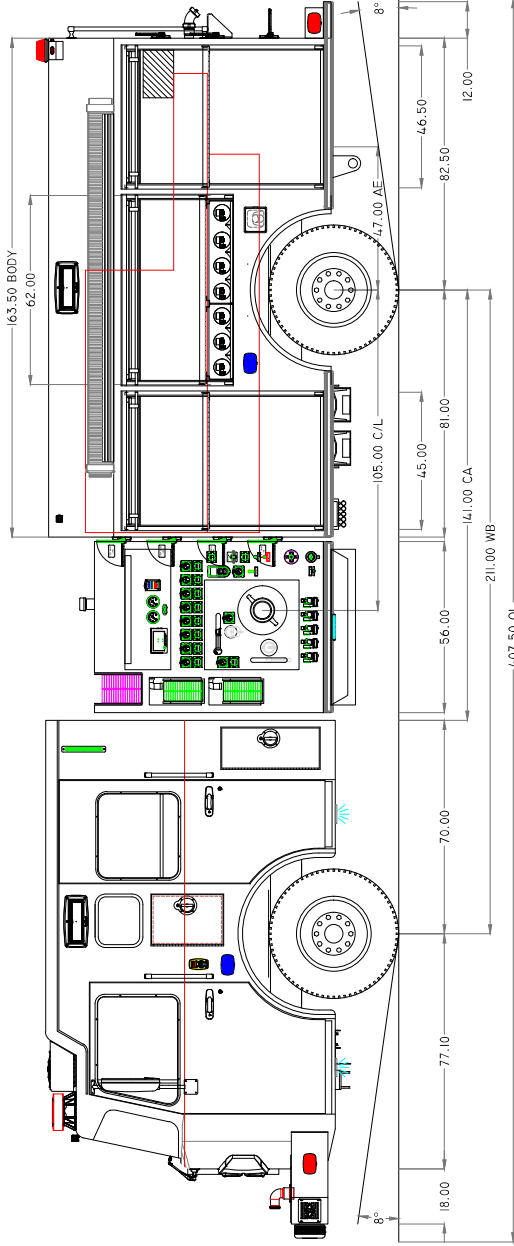
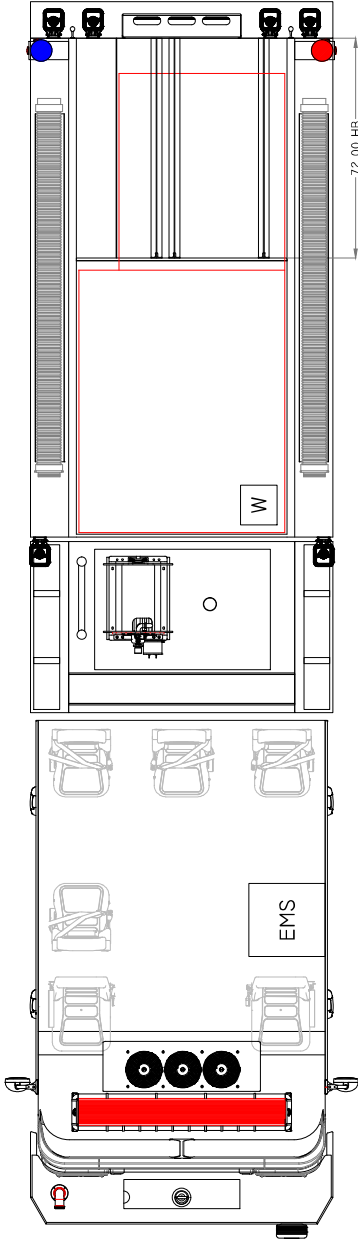
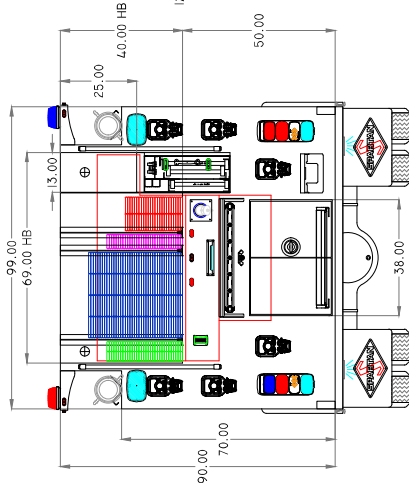
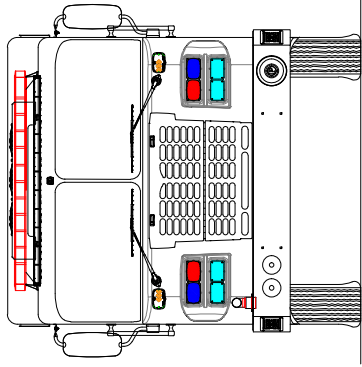
Contact Name/Title: _____
Address: _____
City/State/Zip: _____
Phone: _____ Fax: _____

Person Responsible for Billing/Payments

Contact Name/Title: _____
Address: _____
City/State/Zip: _____
Phone: _____ Fax: _____

*** VEHICLE CONFIGURATION
SUBJECT TO CHANGE PENDING
FINALIZATION OF CUMMINS EPA
2027 EXHAUST LAYOUTS. ***

THE FOLLOWING ITEMS ARE SUBJECT TO
CHANGE (BUT NOT LIMITED TO): WHEELBASE,
BODY COMPARTMENT EXHAUST NOTCHES, PUMP
MODULE EXHAUST NOTCHES, FRONT SECTIONS,
AND AXLE WEIGHT LIMITS.



EMERGENCY RESPONSE	
CHASSIS:	SPARTAN METRO STAR LLFD IORR
ENGINE:	CUMMINS X10 450HP
TRANSMISSION:	ALLISON 4000 EVS
AXLES:	21,500# FRONT / 27,000# REAR
MODEL:	STAR PUMPER
WATER/FOAM:	1250 / - GALLONS
PUMP:	WATERLOUS CSU 2000GPM
FOAM SYSTEM:	-
GENERATOR:	-

DOOR FRAMED OPENINGS	
COMPARTMENT	DOOR FRAMED OPENING
L1	45.0"W x 65.0"H
L2	62.0"W x 35.0"H
L3	46.5"W x 65.0"H
R1	45.0"W x 65.0"H
R2	62.0"W x 35.0"H
R3	46.5"W x 65.0"H
B1	38.0"W x 27.0"H

SPECIAL NOTES:
THE PUMP PANEL LAYOUT IS REFERENCE ONLY.
THE LOCATION OF COMPONENTS WILL CHANGE AS
REQUIRED FOR DESIGN AND CUSTOMER INPUT POST
THE PRE-CONSTRUCTION MEETING.

CUSTOMER
THIS DRAWING IS A CLOSE APPROXIMATION OF YOUR FIRE
APPARATUS. THE LOCATION OF EQUIPMENT IS THE SOLE
PROPERTY OF SPARTAN EMERGENCY RESPONSE. ANY
REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE
WRITTEN PERMISSION OF SPARTAN EMERGENCY RESPONSE IS
PROHIBITED. SPARTAN FIRE, LLC, DOES A SPARTAN EMERGENCY
RESPONSE.

PROPRIETARY AND CONFIDENTIAL
THIS DRAWING IS THE PROPERTY OF SPARTAN EMERGENCY RESPONSE. IT IS
TO BE USED FOR THE DESIGN AND CONSTRUCTION OF THE
VEHICLE ONLY. IT IS NOT TO BE REPRODUCED OR
TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC
OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING,
OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM,
WITHOUT THE WRITTEN PERMISSION OF SPARTAN EMERGENCY
RESPONSE.

1	07/16/26	NEW FILES	B.H.
0	05/29/26	INITIAL PROPOSAL	B.H.
REV	DATE	DESCRIPTION	NAME
SCALE: NOT TO SCALE			

CUSTOMER:	
MARYVILLE PUBLIC SAFETY	
TRUCK NUMBER:	000000
DEALER:	FELD FIRE

Metro Star

Feld Fire
113 N Griffith Road
Po Box 625
Carroll, IA 51401

Prepared By : SPENCER STEPHENS
816-810-2811
spencers@feldfire.com

Prepared For : Maryville Fire Department

Thursday, July 23, 2026, 10:39:24 AM Central Daylight Time

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Quotation

Description

VEHICLE

0100-011	MODEL	Metro Star
8012-111	CUSTOMERS / OEMS	Spartan ER (CMF1000)[1004096]
8011-028	MODEL YEAR	Model Year - 2028
8001-001	COUNTRY OF SERVICE	Country of Service United States Of America
8017-009	CAB AND CHASSIS LABELING LANGUAGE	Cab and Chassis Labeling Language English w/Innovative Controls Labels
8006-009	APPARATUS TYPE	Apparatus Type Pumper
8008-001	VEHICLE TYPE	Vehicle Type Straight Truck
8008A-000	VEHICLE ANGLE OF APPROACH PACKAGE	Vehicle Angle of Approach NFPA Minimum 8.00 Degrees
0104-001	AXLE CONFIGURATION	Axle Configuration 4x2 (Rear Axle Drive Only)
0101-004	GROSS AXLE WEIGHT RATINGS FRONT	GAWR Front 21500#
0102-004	GROSS AXLE WEIGHT RATINGS REAR	GAWR Rear 27000#
8010-201	PUMP PROVISION	Pump Provision Driveline Midship, Pump Mode Prog w/Auto Park Brake "N"
8009-013	WATER & FOAM TANK CAPACITY	Water & Foam Tank Capacity 750 to 1250 Gallons
8003-197	WARRANTY	Warranty Cab and Chassis (2) Year RFW0102

CAB

1000-047	CAB STYLE	Cab Style LLFD 10" Raised Roof
8101-001	OCCUPANT PROTECTION	REMOVE Occupant Protection
1501-002	CAB FRONT FASCIA	Cab Frt Fascia Classic
1518-025	FRONT GRILLE	Cab Frt Grille Hinged Classic Styled
1551-002	CAB UNDERCOAT	Cab Undercoat
1552-002	CAB SIDE DRIP RAIL	Cab Side Drip Rail
1521-002	CAB PAINT EXTERIOR	Cab Paint Exterior Two Tone
1533-001	CAB PAINT PROCESS/MANUFACTURER	Cab Paint Process/Manufacturer PPG
1522-086	CAB PAINT PRIMARY/LOWER COLOR	Cab Paint Primary/Lower Color PPG Red FBCH 71663
1523-013	CAB PAINT SECONDARY/UPPER COLOR	Cab Paint Sec/Upper Color PPG Black FBCH 9000
1524-002	CAB PAINT EXTERIOR BREAKLINE	Cab Paint Exterior Breakline Classic
1515-002	CAB PAINT PINSTRIPE	Cab Paint Pinstripe 1/2" Gold Reflective
8013-156	CAB PAINT WARRANTY	Cab Paint Warranty PPG (10) Year RFW0710
1334-039	CAB PAINT INTERIOR	Cab Paint Int Multi-tone Onyx Blk
1005-001	CAB ENTRY DOORS	Cab Entry Doors (4)
1101-101	CAB ENTRY DOOR TYPE	Cab Entry Door Type Full Length w/Pollak Switches
1322-007	CAB INSULATION	Cab Insulation Nonwoven Polyester Fiber
1556-009	LH MID EMS COMPARTMENT	LH Mid EMS Compartment 26"H w/Offset to 24"W Chamfered Corner
1558-027	LH MID EMS COMPARTMENT EXTERIOR ACCESS	LH Mid EMS Cmpt Ext Access 26"H Hng Dr w/DA Sand Dr Pnl

1560-003	LH MID EMS COMPARTMENT INTERIOR	LH Mid EMS Cmpt Interior Solid Wall Rear Access
1562-025	LH MID EMS COMPARTMENT INTERIOR ACCESS	LH Mid EMS Cmpt Interior Access AL Dr 10.50"W
1566-008	LH MID EMS COMPARTMENT DOOR HARDWARE	LH Mid EMS Cmpt Door Hardware Black D-Ring Latch/Black Hng
1568-002	LH MID EMS COMPARTMENT TRIM	LH Mid EMS Cmpt Trim SS Scuff Plate Lower 2"
5384-002	MID EMS COMPARTMENT LIGHTING	Mid EMS Compartment Lighting LED
1535-020	MID EMS COMPARTMENT EXTERIOR FINISH	Mid EMS Cmpt Ext Finish Multi-tone Onyx Black
1536-002	MID EMS COMPARTMENT INTERIOR FINISH	Mid EMS Cmpt Interior Finish DA Sand
1570-006	LH EXTERIOR REAR COMPARTMENT	LH Ext Rr Cmpt 31"H x 13"W
1540UF-121	LH EXTERIOR REAR COMPARTMENT UNDER FLOOR DEPTH	LH Exterior Rear Cmpt Undr Floor Depth 21" w/PDC Provisional Notch
1570B-002	LH EXTERIOR REAR COMPARTMENT ACCESS	LH Ext Rr Cmpt Access Hinged
1540G-032	LH EXTERIOR REAR COMPARTMENT HINGE DOOR HEIGHT	LH EXTERIOR REAR CMPT HNG DR HEIGHT 32.00
1570E-006	LH EXTERIOR REAR COMPARTMENT HARDWARE	LH Exterior Rear Compartment Hardware Blk D-Ring Latch
1540V-003	LH EXTERIOR REAR COMPARTMENT INTERIOR DOOR PANEL	LH Exterior Rr Cmpt Interior Door Panel DA Sand
1540CS-001	LH EXTERIOR REAR COMPARTMENT DOOR CHECK STRAP	LH Exterior Rear Compartment Door Check Strap (1)
1570F-001	LH EXTERIOR REAR COMPARTMENT DEPTH ABOVE FLOOR	LH Exterior Rear Compartment Depth Above Floor Underseat/Transverse
1570D-002	LH EXTERIOR REAR COMPARTMENT TRIM	LH Exterior Cmpt Trim SS Scuff Plate Lower .5"
5313-054	LH EXTERIOR REAR COMPARTMENT LIGHTING	LH Ext Rr Cmpt Lt LED Strip Lt
1548-002	LH EXTERIOR COMPARTMENT INTERIOR FINISH	LH Exterior Compartment Interior Finish DA Sand
1571-006	RH EXTERIOR REAR COMPARTMENT	RH Ext Rr Cmpt 31"H x 13"W
1541UF-121	RH EXTERIOR REAR COMPARTMENT UNDER FLOOR DEPTH	RH Exterior Rear Cmpt Undr Floor Depth 21" w/PDC Provisional Notch
1571B-002	RH EXTERIOR REAR COMPARTMENT ACCESS	RH Ext Rr Cmpt Access Hinged
1541G-032	RH EXTERIOR REAR COMPARTMENT HINGE DOOR HEIGHT	RH EXTERIOR REAR CMPT HNG DR HEIGHT 32.00
1571E-006	RH EXTERIOR REAR COMPARTMENT HARDWARE	RH Exterior Rear Compartment Hardware Blk D-Ring Latch
1541V-003	RH EXTERIOR REAR COMPARTMENT INTERIOR DOOR PANEL	RH Exterior Rr Cmpt Interior Door Panel DA Sand
1541CS-001	RH EXTERIOR REAR COMPARTMENT DOOR CHECK STRAP	RH Exterior Rear Compartment Door Check Strap (1)
1571F-001	RH EXTERIOR REAR COMPARTMENT DEPTH ABOVE FLOOR	RH Exterior Rear Compartment Depth Above Floor Underseat/Transverse
1571D-002	RH EXTERIOR REAR COMPARTMENT TRIM	RH Exterior Cmpt Trim SS Scuff Plate Lower .5"

5345-054	RH EXTERIOR REAR COMPARTMENT LIGHTING	RH Ext Rr Cmpt Lt LED Strip Lt
1549-002	RH EXTERIOR COMPARTMENT INTERIOR FINISH	RH Exterior Compartment Interior Finish DA Sand
8004-033	CAB STRUCTURAL WARRANTY	Cab Structural Warranty (10) Year RFW0602
9001-006	CAB TEST INFORMATION	Cab Test Information Crash Test ECE-R29/SAE J2420/SAE J2422

ELECTRICAL POWER DISTRIBUTION

5000-018	ELECTRICAL SYSTEM	Elec System 12V DC Multiplex
5005-251	VEHICLE DISPLAY	Vehicle Display Control-Maxx 10" Touchscreen LH Sw Pnl
5046-068	MULTIPLEX DISPLAY SPECIAL LAYOUT	Multiplex Display Special Layout Day/Night Dimmer Settings
5004-002	LOAD MANAGEMENT SYSTEM	Load Management System Multiplex
5622-032	DATA RECORDING SYSTEM	Data Recording Sys Vehicle Data Control-Maxx w/USB Data Link
5031-100	ACCESSORY POWER	Accessory Pwr Batt & Ign Stud w/(2)Fuse Batt/(2)Fuse Mstr Bus Bar Rescue/Pumper
5030-032	AUXILIARY ACCESSORY POWER	Aux Acc Pwr 6 Fuse Blue Sea Pnl Bhd Drv Seat w/40A Fuse Batt Dir
5032-007	ADDITIONAL ACCESSORY POWER	Addl Acc Pwr & Gnd Stud Off Underseat Strg Cmpt 40A Batt Dir
5033-040	EXTRA ACCESSORY POWER	Extra Acc Pwr 6 Fuse Blue Sea Pnl Bhd Off Seat On Wall 40A Batt Dir
5011-001	EXTERIOR ELECTRICAL TERMINAL COATING	Exterior Electrical Terminal Coating Spray On Plasti Dip
8014-002	ELECTRICAL SYSTEM WARRANTY	Electrical System Warranty (2) Year RFW0202

ENGINE

1701-183	ENGINE	Engine Diesel 450HP/1650Ft-Lbs Cummins X10 HHD - EPA 2027
1329-001	CAB ENGINE TUNNEL	Cab Engine Tunnel Small/Medium
1731-018	DIESEL PARTICULATE FILTER CONTROLS	DPF Ctrl Regeneration Sw & Inhibit Sw w/Digital Dash
1718-002	ENGINE PROGRAMMING HIGH IDLE SPEED	Engine Programming High Idle Speed 1250 RPM
1719-005	ENGINE HIGH IDLE CONTROL	Engine High Idle Ctrl Automatic and Manual w/Disp Actv
1710-001	ENGINE PROGRAMMING ROAD SPEED GOVERNOR	Engine Programming Road Speed Governor Enabled
1713-010	AUXILIARY ENGINE BRAKE	Aux Engine Brake Compression Brake w/VG Turbo
1708-004	AUXILIARY ENGINE BRAKE CONTROL	Aux Engine Brake Ctrl On/Off & Low/Med/High Sw Pnl
1720-003	ELECTRONIC ENGINE OIL LEVEL INDICATOR	Elec Engine Oil Level Indicator
1715-001	FLUID FILLS	Fluid Fills Fwd For Med Displacement Cap
1735-001	ENGINE DRAIN PLUG	Engine Drain Plug
8002-001	ENGINE WARRANTY	Engine Warranty Cummins (5) Year/100,000 Miles
1707-116	REMOTE THROTTLE HARNESS	Rmt Throttle Harness Cab Harness Only Shift Interlock
1721-001	ENGINE PROGRAMMING REMOTE THROTTLE	Engine Program Rmt Throttle Off
1725-004	CRUISE CONTROL	Cruise Ctrl Rkr Sw Actv w/Rkr Sw Speed Ctrl
1727-001	ENGINE PROGRAMMING IDLE SPEED	Engine Programming Idle Speed 700 RPM

AIR INTAKE

2801-010	ENGINE AIR INTAKE	Engine Air Intake Filtration and Restriction w/Replaceable Element Abv Radiator
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COOLING

2704-016	ENGINE FAN DRIVE	Engine Fan Drive Variable Speed
2701-021	ENGINE COOLING SYSTEM	Engine Cooling System Serial Flow w/Package Drop-Out Prov
2711-005	ENGINE COOLING SYSTEM PROTECTION	Engine Cooling System Protection Light Duty Skid Plate Paint Frame Color
2708-001	ENGINE COOLANT	Engine Coolant Extended Life
2706-003	ELECTRONIC COOLANT LEVEL INDICATOR	Elec Low Coolant Level Indicator
2709-001	COOLANT HOSES	Coolant Hoses Silicone

EXHAUST

2901-090	ENGINE EXHAUST SYSTEM	Eng Exhaust Sys Under Frm RH Outboard DPF/SCR Inboard Inline
2907-021	DIESEL EXHAUST FLUID TANK	Diesel Exhaust Fluid Tank LH 5 Gal Fill Thru Rr Step
2902-010	ENGINE EXHAUST ACCESSORIES	Engine Exhaust Acc Temp Mitigation
2906-002	ENGINE EXHAUST WRAP	Engine Exhaust Wrap
8018-006	EMISSIONS SYSTEM WARRANTY	Emissions System Warranty (5) Years Heavy HDE/450K Miles/22K Hours RFW0144
8018A-002	REGULATED EMISSIONS WARRANTY TIRES	Regulated Emissions Warranty Tires (2) Years/24,000 Miles RFW0145
8018B-002	REGULATED EMISSIONS WARRANTY AIR CONDITIONING	Regulated Emissions Warranty Air Conditioning (5) Years/100,000 Miles RFW0146

TRANSMISSION

1801-017	TRANSMISSION	Transmission Allison 4000 EVS
1806-006	TRANSMISSION MODE PROGRAMMING	Transmission Mode Programming 6th Startup/6th Mode S1/S1 Omit Economy Mode
1811-004	TRANSMISSION FEATURE PROGRAMMING	Transmission Feature Programming Allison Gen 5 & 6-E I/O Package 198/Pumper
1807-005	TRANSMISSION SHIFT SELECTOR	Transmission GEN 5 & 6-E Shift Sel Key Pad/Push Button
1815-002	ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR	Elec Transmission Oil Level Indicator
1814-002	TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE	2nd Gear Pre-Select
1808-007	TRANSMISSION COOLING SYSTEM	Transmission Cooling System
1817-001	TRANSMISSION DRAIN PLUG	Transmission Drain Plug
8005-001	TRANSMISSION WARRANTY	Transmission Warranty Allison (5) Year

POWER TAKE OFF

2005-008	PTO LOCATION	PTO Location 8:00/1:00
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DRIVELINE

3001-015	DRIVELINE	Driveline MSI 1810 w/Meritor U-Joints w/Thrust Washers
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3005-022	MIDSHIP PUMP / GEARBOX	Midship Pump Jackshaft w/Spartan ER Full Body Pump Mount Holes
3008-085	MIDSHIP PUMP / GEARBOX MODEL	Midship Pump/Gearbox Model Waterous CSUC20/C22 Fwd
3048-007	MIDSHIP PUMP GEARBOX DROP	Midship Driveline Pump Gearbox Drop Waterous "C"
3009-007	MIDSHIP PUMP RATIO	Midship Pump Ratio 2.27:1
3010-1050	MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE	Midship Pump Location C/L Suction to C/L Rear Axle 105.0"
5013-032	PUMP SHIFT CONTROLS	Pump Shift Ctrl Air Ctrl Integrated Shifter Pod
3049-003	PUMP SHIFT CONTROL PLUMBING	Pump Shift Control Plumbing Pre-Plumb Elec/Air

FUEL SYSTEMS

3109-064	FUEL FILTER/WATER SEPARATOR	Fuel Filter/Wtr Separator Racor GreenMAX 6600R w/Lt & Alarm
3111-002	FUEL LINES	Fuel Lines Wire Braid
3103-008	ELECTRIC FUEL PRIMER	Electric Fuel Primer Engine Sply Electric Lift Pump
3101-101	FUEL TANK	Fuel Tank 50 Gallon
3130-001	FUEL TANK MATERIAL AND FINISH	Fuel Tank Material Steel & Finish Painted Frame Components Color
3131-001	FUEL TANK STRAP MATERIAL AND FINISH	Fuel Tank Strap Material Steel & Finish Painted Frame Components Color
3102-007	FUEL TANK FILL PORT	Fuel Tank Fill Port LH Rwd/RH Mid
3115-002	FUEL TANK DRAIN PLUG	Fuel Tank Drain Plug Magnetic

FRONT AXLE

2401-038	FRONT AXLE	Frt Axle Hendrickson STEERTEK NXT Fabricated Box Beam 22000#
8059-019	FRONT AXLE WARRANTY	Front Axle Warranty Hendrickson STEERTEK NXT
2405-001	FRONT WHEEL BEARING LUBRICATION	Frt Wheel Bearing Lube Oil

FRONT SUSPENSION

2502-006	FRONT SHOCK ABSORBERS	Frt Shock Absorbers Suspension Sply
2501-019	FRONT SUSPENSION	Frt Suspension Parabolic STEERTEK NXT Integrated 18000-24000# Spring Pack

STEERING

2601-006	STEERING COLUMN/WHEEL	Steering Column/Wheel Tilt/Telescopic 18" 4 Spoke
2609-002	ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR	Elec Power Steering Fluid Level Indicator
2603-016	POWER STEERING PUMP	Power Steering Pump Vickers V20H w/Passive Cooler
2606-005	FRONT AXLE CRAMP ANGLE	Front Axle Cramp Angle 45 Degrees
2610-005	POWER STEERING GEAR	Power Steering Gear TRW TAS 85 w/Assist
2608-001	CHASSIS ALIGNMENT	Chassis Alignment

REAR AXLE

3401-004	REAR AXLE	Rear Axle 27000# Meritor RS-26-185
3403-001	REAR AXLE DIFFERENTIAL LUBRICATION	Rear Axle Differential Lubrication Oil
8061-023	REAR AXLE WARRANTY	Rear Axle Warranty Meritor 2028
3411-001	REAR WHEEL BEARING LUBRICATION	Rear Wheel Bearing Lubrication Oil

3407-002	REAR AXLE DIFFERENTIAL CONTROL	Rear Axle Differential Ctrl DCDL
3408-008	VEHICLE TOP SPEED	Vehicle Top Speed 68 MPH
3410-001	REAR AXLE EXTERNAL VENT	Rear Axle External Vent OEM Housing Breather

REAR SUSPENSION

3501-059	REAR SUSPENSION	Rear Susp Reyco 79KB 24001-27000# Parabolic 5 Leaf
3503-002	REAR SHOCK ABSORBERS	Rear Shock Absorbers Bilstein

TIRES

3625-002	TIRE INTERMITTENT SERVICE RATING	Tire Intermittent Service Ratings Acceptable
3601-083	FRONT TIRE	Frt Tire 385/65R 22.5 Michelin X Multi HL Z
3602-012	REAR TIRE	Rear Tire 12R 22.5 Michelin XDN2
3413-538	REAR AXLE RATIO	Rear Axle Ratio 5.38
3614-030	TIRE PRESSURE INDICATOR	Tire Pressure Ind Frt & Rr LED

WHEELS

3701-034	FRONT WHEEL	Frt Wheel Alcoa Dura-Bright 22.5 x 12.25 Alum
3703-064	REAR WHEEL	Rr Whl Alcoa Dura-Bright/Alcoa 22.5 x 8.25 Alum/Alum
3702-002	WHEEL TRIM	Wheel Trim Hub & Nut Covers SS Shiploose

TIRE CHAINS

3801-002	TIRE CHAINS	Tire Chains Rear Axle ON-Spot 6 Strand Auto
3802-022	TIRE CHAINS ACTIVATION	Tire Chains Actv Rkr Sw

BRAKES

3205-014	BRAKE SYSTEM	Brake System ABS/ATC/ESC Sgl Axle Disp Actv
3206-003	FRONT BRAKES	Frt Brakes Meritor EX225 Disc 17"
3207-003	REAR BRAKES	Rr Brakes Meritor EX225 Disc 17"
3208-001	PARK BRAKE	Prk Brake Rr Wheels Only
3204-003	PARK BRAKE CONTROL	Prk Brake Ctrl Ctr Dash Mnt
3202-005	AIR DRYER	Air Dryer Wabco System Saver 1200 Bhd LH Batt Box
3215-009	FRONT BRAKE CHAMBERS	Frt Brake Chambers Hendrickson STEERTEK NXT Type 24
3210-023	REAR BRAKE CHAMBERS	Rr Brake Chambers TSE 24/30 H.O.T.

AIR SUPPLY SYSTEMS

3320-001	AIR COMPRESSOR	Air Compressor Wabco SS318 18.7 CFM
3339-004	AIR GOVERNOR	Air Governor Mnt on Air Dryer Bracket
3303-001	MOISTURE EJECTORS	Moisture Ejectors Manual
3307-101	AIR SUPPLY LINES	Air Sply Lines Nylon w/PTC Fittings
3309-033	AIR INLET CONNECTION	Air Inlet Connection
3349-002	AIR INLET LOCATION	Air Inlet Location LH Lwr Frt Step Fwd
3310-001	AIR OUTLET CONNECTION	Air Outlet Conn LH Lwr Frt Step Mid Fwd
3328-002	PLUMBING AIR OUTLET CONNECTION	Plumbing Air Outlet Conn

3325-002	AIR OUTLET SHUTOFF VALVE	Air Outlet Shutoff Valve 1/4 Turn
3326-002	AIR INLET/OUTLET FITTING TYPE	Air Inlet/Outlet Manual Conn Tru-Flate Interchange 1/4"
3338-002	REAR AIR TANK MOUNTING	Rear Air Tank Mnt Any Bhd Rear Axle Perpendicular w/Frame

FRAME

2103-2110	WHEELBASE	Wheelbase 211.0"
2106-0470	REAR OVERHANG	Rear Overhang 47.0"
2101-002	FRAME	Frame Double Channel 35.00" Width
2110-201	FRAME PAINT	Frame Paint Hot Dipped Galvanized - Frame Only Addl Comp Blk Powder Coat
8007-036	FRAME ASSEMBLY STRUCTURAL WARRANTY	Frame Assembly Structural Warranty (50) Year RFW0305
8019-003	FRAME RAIL CORROSION WARRANTY	Frame Rail Corrosion Warranty (25) Year RFW0316
8022-004	FRAME COMPONENTS CORROSION WARRANTY	Frame Components Corrosion Warranty (3) Year RFW0315

BUMPER

2201-002	FRONT BUMPER	Frt Bumper Structural Steel Channel Severe Duty
2202-004	FRONT BUMPER EXTENSION LENGTH	Frt Bumper Extension Length 18"
2206-012	FRONT BUMPER PAINT	Frt Bumper Paint Primary/Lower Cab Color w/Bedliner Black Bumper Trim
2227-024	FRONT BUMPER TRIM	Frt Bumper Trim SS Ptd Wide Band Frt Top Edge/Corners Abv Apron w/Iso Washers
2208-005	FRONT BUMPER APRON	Frt Bumper Apron For 18" Extension
5503-021	MECHANICAL SIREN	Mechanical Siren Federal Signal Q2B Recess Mnt
2218-009	MECHANICAL SIREN LOCATION	Mech Siren Location Frt Bmpr Face LH
5501-020	AIR HORN	Air Horn (2) 21" Round Hadley E-Tone
2216-007	AIR HORN LOCATION	Air Horn Location (2) Frt Bmpr Face RH
2232-002	AIR HORN RESERVOIR	Air Horn Reservoir (1) 1200 Cu In
5504-072	ELECTRONIC SIREN SPEAKER	Elect Siren Speaker (2) 100W Whelen SA314A w/Spartan Grille
2217-033	ELECTRONIC SIREN SPEAKER LOCATION	Elec Siren Speaker Location (2) Bmpr Corner Mnt
2203-006	FRONT BUMPER TOW HOOKS	Frt Bumper Tow Hooks Painted Side Rwd

CAB TILT

2301-037	CAB TILT SYSTEM	Cab Tilt System w/Pump Bhd RH Frt Step/5' Extended Release Cable
2302-014	CAB TILT AUXILIARY PUMP	Cab Tilt Aux Pump Manual Mnt w/Fwd Tilt Pump Mnt
2303-003	CAB TILT LIMIT SWITCH	Cab Tilt Limit Sw Preset Limit
2305-001	CAB TILT CONTROL RECEPTACLE	Cab Tilt Ctrl Receptacle Temp
2306-002	CAB TILT LOCK DOWN INDICATOR	Cab Tilt Lock Down Indicator

CAB GLASS

1401-009	CAB WINDSHIELD	Cab Windshield
1402-002	GLASS FRONT DOOR	Glass Frt Dr Pwr
1407-002	GLASS TINT FRONT DOOR	Glass Tint Frt Dr Automotive Dark Gray

1419-008	GLASS REAR DOOR RIGHT HAND	Glass Rr Dr RH Pwr
1430-002	GLASS TINT REAR DOOR RIGHT HAND	Glass Tint Rr Door RH Automotive Dark Gray
1412-008	GLASS REAR DOOR LEFT HAND	Glass Rr Dr LH Pwr
1431-002	GLASS TINT REAR DOOR LEFT HAND	Glass Tint Rr Door LH Automotive Dark Gray
1410-003	GLASS SIDE MID RIGHT HAND	Glass Side Mid RH Fxd 16"W x 26"H
1432-002	GLASS TINT SIDE MID RIGHT HAND	Glass Tint Side Mid RH Automotive Dark Gray
1409-010	GLASS SIDE MID LEFT HAND	Glass Side Mid LH Fxd 16"W x 12"H
1433-002	GLASS TINT SIDE MID LEFT HAND	Glass Tint Side Mid LH Automotive Dark Gray

CLIMATE CONTROL

1614-204	CLIMATE CONTROL	Climate Ctrl Htr Defroster A/C SGM Ovrhd Alum 10-24" RR Short Plenum
1632-002	CLIMATE CONTROL DRAIN	Climate Control Drain Gravity
1617-201	CLIMATE CONTROL ACTIVATION	Climate Ctrl Actv Rotary Dash Mnt Ctr
1620-019	HVAC OVERHEAD COVER PAINT	HVAC Overhead Cover Paint Multi-tone Onyx Black
1603-003	A/C CONDENSER LOCATION	A/C Condenser Location Roof Mnt Fwd Ctr
1601-013	A/C COMPRESSOR	A/C Compressor TM-31/QP-31
1530-100	UNDER CAB INSULATION	Under Cab Insulation Engine Tunnel

CAB INTERIOR

1327-036	INTERIOR TRIM FLOOR	Interior Trim Floor w/Cast Alum Trim
1302-001	INTERIOR TRIM	Interior Trim Vinyl
1368-003	REAR WALL INTERIOR TRIM	Rear Wall Interior Trim Painted Aluminum
1306-006	HEADER TRIM	Header Trim XDuty
1305-015	TRIM CENTER DASH	Trim Center Dash XDuty w/Gas Cylinder Stay
1339-102	TRIM LEFT HAND DASH	Trim LH Dash XDuty
1321-004	TRIM RIGHT HAND DASH	Trim RH Dash XDuty Glove Cmpt/MDT Prov
1307-002	ENGINE TUNNEL TRIM	Eng Tnl Trim Flr Mat
5040-010	POWER POINT DASH MOUNT	Pwr Pnt Dash Mnt Batt Dir (2) Sw Pnl
5044-034	AUXILIARY POWER POINT REAR CREW	Aux Pwr Pnt Rr Crew Batt Dir (2) FFC Seat Box L/R Behind Seats Composite Hsg
1303-039	STEP TRIM	Step Trim Embossed & Diamond Cut SS Lwr, TPlt Mid
1379-003	UNDER CAB ACCESS DOOR	Under Cab Access Door Rear Step LH Painted
1102-013	INTERIOR DOOR TRIM	Interior Door Trim Painted
1323-050	DOOR TRIM CUSTOMER NAMEPLATE	Door Trim Customer Nameplate
1105-008	CAB DOOR TRIM REFLECTIVE	Remove Cab Door Trim Reflective
1308-001	INTERIOR GRAB HANDLE "A" PILLAR	Interior Grab Handle 'A' Pillar 11" Molded
1332-008	INTERIOR GRAB HANDLE FRONT DOOR	Interior Grab Handle Frt Door Horiz 9"
1345-002	INTERIOR GRAB HANDLE REAR DOOR	Int Grab Handle Rr Dr Alum Window Span 30" Black Powder Coat
1301-003	INTERIOR SOFT TRIM COLOR	Interior Soft Trim Color Gray
1337-001	INTERIOR TRIM SUNVISOR	Interior Trim Sunvisor Vinyl
1304-002	INTERIOR FLOOR MAT COLOR	Interior Floor Mat Color Black
1335-018	CAB PAINT INTERIOR DOOR TRIM	Cab Paint Int Dr Trim Multi-tone Onyx Black

1371-021	HEADER TRIM INTERIOR PAINT	Header Trim Interior Paint Multi-tone Onyx Black
1370-023	TRIM CENTER DASH INTERIOR PAINT	Trim Center Dash Interior Paint Multi-tone Onyx Black
1378-022	TRIM LEFT HAND DASH INTERIOR PAINT	Trim LH Dash Interior Paint Multi-tone Onyx Black
1373-022	TRIM RIGHT HAND DASH INTERIOR PAINT	Trim RH Dash Interior Paint Multi-tone Onyx Black
1369-018	REAR WALL INTERIOR PAINT	Rear Wall Interior Paint Multi-tone Onyx Black
1344-009	DASH PANEL GROUP	Dash Pnl Group 3-Pnl w/Black Textured Aluminum Panels
1312-099	SWITCHES CENTER PANEL	Switches Ctr Pnl 7
1313-023	SWITCHES LEFT PANEL	Switches Left Pnl 5 (3+2) Wiper Only
1314-012	SWITCHES RIGHT PANEL	Switches Right Pnl 6 (3+3)

CAB SEATS

1225-007	SEAT BELT WARNING	Seat Belt Warn Disp w/VDR
1237-002	SEAT MATERIAL	Seat Material Vinyl
1243-003	SEAT COLOR	Seat Color Black/Red Seat Belts
1249-001	SEAT BACK LOGO	Seat Back Logo Spartan
1201-038	SEAT DRIVER	Seat Driver Bostrom Firefighter 4-Way Air 500 Series ABTS
1213-024	SEAT BACK DRIVER	Seat Back Driver Non-SCBA ABTS Reclining
1219-001	SEAT MOUNTING DRIVER	Seat Mounting Driver
1202-037	SEAT OFFICER	Seat Officer Bostrom Firefighter Fixed 500 Series ABTS
1214-034	SEAT BACK OFFICER	Seat Back Officer SCBA IMMI SmartDock
1220-002	SEAT MOUNTING OFFICER	Seat Mounting Officer
1273-001	SEAT BELT ORIENTATION CREW	Seat Belt Orientation Crew Outboard Shoulder To Inboard Hip
1263-003	SEAT REAR FACING OUTER LOCATION	Seat RFO Location Primary Pos RH
1203-024	SEAT CREW REAR FACING OUTER	Seat Crew RFO Bostrom Firefighter Fold & Hold Flip-Up 500 Series
1215-031	SEAT BACK REAR FACING OUTER	Seat Back RFO SCBA IMMI SmartDock
1221-009	SEAT MOUNTING REAR FACING OUTER	Seat Mounting RFO Rwd 2"
1265-001	SEAT FORWARD FACING OUTER LOCATION	Seat FFO Location Primary Pos (2) R/L
1205-027	SEAT CREW FORWARD FACING OUTER	Seat Crew FFO Bostrom Firefighter Fold & Hold Flip-Up 500 Series
1217-032	SEAT BACK FORWARD FACING OUTER	Seat Back FFO SCBA IMMI SmartDock
1223-003	SEAT MOUNTING FORWARD FACING OUTER	Seat Mounting FFO Inboard
1266-005	SEAT FORWARD FACING CENTER LOCATION	Seat FFC Location Secondary Pos Ctr
1206-031	SEAT CREW FORWARD FACING CENTER	Seat Crew FFC Bostrom Firefighter Fold & Hold Flip-Up 500 Series
1218-035	SEAT BACK FORWARD FACING CENTER	Seat Back FFC SCBA IMMI SmartDock
1269-103	SEAT FRAME FORWARD FACING	Seat Frm Fwd Fcg Full Width
1281-165	SEAT FRAME FORWARD FACING STORAGE ACCESS	Seat Frm Fwd Fcg Strg Acc Dr (2) R/L Fwd Push Btn
1224-002	SEAT MOUNTING FORWARD FACING CENTER	Seat Mounting Forward Facing Center
1227-002	SEAT FRAME EXTERIOR REAR COMPARTMENT ACCESS	Seat Frame Exterior Rear Compartment Access Transverse

1311-101	CAB FRONT UNDERSEAT STORAGE ACCESS DOOR	Cab Frt Undrst Strg Acc Dr
1355-023	SEAT COMPARTMENT DOOR FINISH	Seat Compartment Door Finish Multi-tone Onyx Black

CAB EXTERIOR

1511-200	WINDSHIELD WIPER SYSTEM	Windshield Wiper System
1534-002	ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR	Electronic Windshield Fluid Level Indicator
1103-002	CAB DOOR HARDWARE	Cab Door Hardware Black Composite
1111-001	DOOR LOCKS	Door Locks Manual
1113-002	DOOR LOCK LH EMS COMPARTMENT	Door Lock LH EMS Compartment Manual #1250
1115-002	DOOR LOCK LH REAR CAB COMPARTMENT	Door Lock LH Rear Cab Compartment Manual #1250
1116-002	DOOR LOCK RH REAR CAB COMPARTMENT	Door Lock RH Rear Cab Compartment Manual #1250
1503-201	GRAB HANDLES	Grab Handles 3-Pc Alum Knurled 18"
1503D-005	LIGHTED EXTERIOR GRAB HANDLES	Lighted Grab Handles Red LED
1504-014	REARVIEW MIRRORS	Mirror Aerodynamic Retractable 613305 Rmt Htd
1529-004	REARVIEW MIRROR HEAT SWITCH	Rearview Mirror Heat Sw Mirror Ctrl Pnl
1513-029	CAB FENDER	Cab Fender SS Wide
1514-002	MUD FLAPS FRONT	Mud Flaps Frt
1526-026	CAB EXTERIOR FRONT & SIDE EMBLEMS	Cab Ext Frt & Side Emblems Spartan
1502-050	CAB EXTERIOR MODEL NAMEPLATE	Cab Exterior Model Nameplate Metro Star

START / CHARGING SYSTEMS

5109-015	IGNITION	Ign Mstr Rkr Sw w/Push-Button Start
5101-035	BATTERY	Batt (5) Group 31 Harris
5106-003	BATTERY TRAY	Batt Tray (2) R/L Steel
5107-028	BATTERY BOX COVER	Batt Box Cover (2)
5102-001	BATTERY CABLE	Batt Cables
5108-010	BATTERY JUMPER STUD	Batt Jumper Stud Frt LH Lwr Step 8" Apart
5104-002	ALTERNATOR	Alternator Leece-Neville 320A
5105-001	STARTER MOTOR	Starter Motor Delco

LINE VOLTAGE ELECTRICAL POWER DISTRIBUTION

5202-400	BATTERY CONDITIONER	Batt Cond Kussmaul Chief 4012 40A
5218-003	BATTERY CONDITIONER LOCATION	Batt Cond Loc RH RFO Seat Position
5203-200	BATTERY CONDITIONER DISPLAY	Batt Cond Display Integrated In Elec Inlet w/Digital Status Center
5220-002	BATTERY CONDITIONER DISPLAY LOCATION	Batt Cond Display Location Integrated with Elec Inlet
3314-202	AUXILIARY AIR COMPRESSOR	Aux Air Cmp Kussmaul Auto Pump 120V
3370-006	AUX AIR COMPRESSOR LOCATION	Aux Air Compressor Location Bhd Off Seat
5209-036	ELECTRICAL INLET LOCATION	Elec Inlet Location LH Cab Side Mid Bhd Grab Handle

5204-055	ELECTRICAL INLET	Elec Inlet 120V 20A Auto Eject
5210-005	ELECTRICAL INLET CONNECTION	Elec Inlet Conn to Batt Conditioner & Air Pump
5206-002	ELECTRICAL INLET COLOR	Elec Inlet Color Yellow

LIGHTING

5301-102	HEADLIGHTS	Headlights 4 Headlamps LED
5337-001	HEADLIGHT LOCATION	Headlights Below Frt Warn Lts
5303-036	FRONT TURN SIGNALS	Frt Turn Signals Whelen M6 LED Above Frt Warn Rad Mnt w/Clr Lens
5336-017	SIDE TURN/MARKER LIGHTS	Side Turn/Marker Lts LED Tecniq S170 No Bezel
5302-018	MARKER & ICC LIGHTS	Marker & ICC Lts Face Mnt LED In Scene Lt
5350-076	HEADLIGHT AND MARKER LIGHT ACTIVATION	Hdlt & Mrkr Lt Actv Disp/Hdlt Eng On
5305-350	INTERIOR OVERHEAD LIGHTS	Interior Overhead Lts Red/Clear LED
5388-003	INTERIOR OVERHEAD LIGHTING ACTIVATION	Int Ovrhd Lt Actv Resp Dr & Disp
5403-062	LIGHTBAR PROVISION	Lightbar Prov Wire & Lwr Mnt Chassis Supply
5450N-003	CAB FRONT LIGHTBAR MODEL	Cab Front Lightbar Model Whelen F4N72
5450-999	CAB FRONT LIGHTBAR	Cab Front Lightbar - Configured in 5450M Subcategory
5450M-002	FRONT LIGHTBAR LAYOUT	Cab Front Lightbar Layout
5450X-002	FRONT LIGHTBAR ORIENTATION	Front Lightbar Orientation - Standard Fwd
5450L2-003	FRONT LIGHTBAR LIGHT POSITION 2	Cab Front Lightbar Position 2 - White LH Side
5450L4-005	FRONT LIGHTBAR LIGHT POSITION 4	Cab Front Lightbar Position 4 - Blue
5450L5-003	FRONT LIGHTBAR LIGHT POSITION 5	Cab Front Lightbar Position 5 - White
5450L6-002	FRONT LIGHTBAR LIGHT POSITION 6	Cab Front Lightbar Position 6 - Red
5450L8-005	FRONT LIGHTBAR LIGHT POSITION 8	Cab Front Lightbar Position 8 - Blue
5450L9-002	FRONT LIGHTBAR LIGHT POSITION 9	Cab Front Lightbar Position 9 - Red
5450L10-002	FRONT LIGHTBAR LIGHT POSITION 10	Cab Front Lightbar Position 10 - Red
5450L11-005	FRONT LIGHTBAR LIGHT POSITION 11	Cab Front Lightbar Position 11 - Blue
5450L13-002	FRONT LIGHTBAR LIGHT POSITION 13	Cab Front Lightbar Position 13 - Red
5450L14-003	FRONT LIGHTBAR LIGHT POSITION 14	Cab Front Lightbar Position 14 - White
5450L15-005	FRONT LIGHTBAR LIGHT POSITION 15	Cab Front Lightbar Position 15 - Blue
5450L17-033	FRONT LIGHTBAR LIGHT POSITION 17	Cab Front Lightbar Position 17 - White RH Side
5426-003	LIGHTBAR SWITCH	Lightbar Sw Disp

5317-284	FRONT SCENE LIGHTS	Frt Scene Lts Whelen Field Series FSB11B 12V LED 69" Black
5329-003	FRONT SCENE LIGHT LOCATION	Frt Scene Lt Loc Ctr Brow Pos
5335-022	FRONT SCENE LIGHTS ACTIVATION	Frt Scene Lts Actv Disp & Lighted Momentary Rkr Sw
5306-196	SIDE SCENE LIGHTS	Side Scene Lts Whelen Pioneer LED 12V PCH2 15 Deg Blk w/Blk Flange
5318-004	SIDE SCENE LIGHT LOCATION	Side Scene Lt Loc Upper Mid Rwd 10" Roof Position
5316-048	SIDE SCENE ACTIVATION	Side Scene Actv Indv Lighted Momentary Sw, Indv Disp Actv
5330-035	REAR SCENE LIGHTS	Rear Scene Lts Body Mount Provision
5331-002	REAR SCENE LIGHT ACTIVATION	Rear Scene Lt Actv Sgl Sw
5308-300	GROUND LIGHTS	Ground Lts Tecniq T44 LED
5386-006	GROUND LIGHTING ACTIVATION	Ground Lt Actv Prk Brk, Resp Sd Dr, Disp, Rev & Turn Sig
5309-003	LOWER CAB STEP LIGHTS	Lwr Cab Step Lts Tecniq T44 LED
5382-008	INTERMEDIATE STEP LIGHTS	Intermediate Step Lts Tecniq D06 LED Frt Drs
5312-003	ENGINE COMPARTMENT LIGHT	Engine Cmpt Work Lt LED (1)

OPTICAL WARNING DEVICES

5406-119	DO NOT MOVE APPARATUS LIGHT	Do Not Move App Lt Flashing Red Tecniq K50 LED w/Alarm
5422-025	MASTER WARNING SWITCH	Mstr Warn Sw Disp & Lighted Sw Pnl w/Warning Lt Dimmer, Disp Dim & Prk Brk Inter
5409-002	HEADLIGHT FLASHER	Headlight Flasher Alternating
5425-003	HEADLIGHT FLASHER SWITCH	Headlight Flasher Sw Disp
5401-032	INBOARD FRONT WARNING LIGHTS	Inboard Frt Warn Lts Whelen M6 LED Chrm Bezel
5413-003	INBOARD FRONT WARNING LIGHTS COLOR	Inboard Frt Warn Lts Color Red w/Clr Lens
5414-022	OUTBOARD FRONT WARNING LIGHTS	Outboard Frt Warn Lts Whelen M6 LED Chrm Bezel
5415-006	OUTBOARD FRONT WARNING LIGHTS COLOR	Outboard Frt Warn Lts Color Blue w/Clr Lens
5423-003	FRONT WARNING SWITCH	Frt Warn Sw Disp
5404-027	INTERSECTION WARNING LIGHTS	Intersection Warn Lts Whelen M6 LED
5419-003	INTERSECTION WARNING LIGHTS COLOR	Int Warn Lts Color Red w/Clr Lens
5420-007	INTERSECTION WARNING LIGHTS LOCATION	Intersection Warn Lts Location Bumper Tail Ctr Position
5402-029	SIDE WARNING LIGHTS	Side Warn Lts Whelen M6 LED
5418-008	SIDE WARNING LIGHTS COLOR	Side Warn Lts Color Blue w/Clr Lens
5412-009	SIDE WARNING LIGHTS LOCATION	Side Warn Lts Location Lwr Mid Fwd Position
5424-003	SIDE AND INTERSECTION WARNING SWITCH	Side & Intersection Warn Sw Disp
5469-002	TANK LEVEL LIGHTS	Tank Lvl Lts FRC Max Vision
5470-002	TANK LEVEL LIGHTS ACTIVATION	Tank Lvl Lights Actv Prewire Rear of Cab
5471-003	TANK LEVEL LIGHTS LOCATION	Tank Lvl Lights Loc Rear Cab Sides Centered
5449-045	REAR WARNING LIGHTS	Rr Warn Lts Prewire & Cutout Whelen TACTL5 Traf Advsr LH Overhead
5407-019	INTERIOR DOOR OPEN WARNING LIGHTS	Int Dr Open Warn Lts Amber Weldon 15" LED Dir Flsh

AUDIBLE WARNING DEVICES

5510-004	SIREN CONTROL HEAD	Siren Ctrl Head Whelen 295HFS2
5514-102	STEERING WHEEL HORN BUTTON SELECTOR SWITCH	Horn Btn Sel Sw Elec Horn/Air Horn Disp Def Air Horn On
5526-004	AUDIBLE WARNING LH FOOT SWITCH	Audible Warning LH Foot Switch Siren
5526D-001	MECHANICAL SIREN FOOT SWITCH LH	Mechanical Siren Foot Switch LH Linemaster 491-S
5526E-001	MECHANICAL SIREN FOOT SWITCH LH LOCATION	Mechanical Foot Switch LH Location A-Pillar
5526F-001	MECHANICAL SIREN FOOT SWITCH LH POSITION	Mechanical Siren Foot Switch Position Outboard of Other Foot Switches
5529-002	AUDIBLE WARNING LH FOOT SWITCH BRACKET	Audible Warn LH Ft Sw Double Brkt 30Deg TPlate
5512-078	AIR HORN AUXILIARY ACTIVATION	Air Horn Actv L/R Lanyard/Rkr Sw
5513-102	MECHANICAL SIREN BRAKE/AUXILIARY ACTIVATION	Mech Siren Actv (2) Siren/Brk Combo Sw
5532-001	MECHANICAL SIREN INTERLOCK	Mechanical Siren Interlock Master Warn Only
5505-002	BACK-UP ALARM	Back-Up Alarm Ecco 575

INSTRUMENTATION

5601-063	INSTRUMENTATION	Instrumentation Digital Innovative Controls Touchscreen
5624-005	BACKLIGHTING COLOR	Backlighting Color Red Switch Backlighting w/White Digital Dash Display
5607-030	HOOR METER	Hour Meter Digital Dash Engine/Pump

COMMUNICATIONS SYSTEMS

5701-300	RADIO	Radio Jensen WB/AM/FM/BT
5736-200	RADIO LOCATION	Radio Overhead RH
5707-003	AM/FM ANTENNA	AM/FM Antenna RH Fwd Cab Roof
5737-200	RADIO SPEAKERS	Radio Speakers (4) Front/Rear
5738-200	RADIO CUTOFF	Radio Cutoff Disp
5706-324	CAMERA	Cam in View 360-HD (4) Cam Bird's Eye View System Front Camera Centered
5731-004	CAMERA DISPLAY	Camera Display on Disp
5703-011	COMMUNICATION ANTENNA	Comm Ant Base LH Fwd Cab Rf Chassis Sply
5708-003	COMMUNICATION ANTENNA CABLE ROUTING	Comm Ant Cable Routing Under Rkr Sw Pnl
5709-002	AUXILIARY COMMUNICATION ANTENNA	Aux Comm Ant Base RH Fwd Cab Roof Chassis Sply
5710-003	AUXILIARY COMMUNICATION ANTENNA CABLE ROUTING	Aux Comm Ant Cable Routing Under Rkr Sw Pnl
5020-002	PANEL LAYOUT	Panel Layout

ADDITIONAL EQUIPMENT

8806-001	FIRE EXTINGUISHER	Fire Extinguisher Shiploose
8810-001	DOOR KEYS	Door Keys for Manual Locks (4)

SALES ADMIN

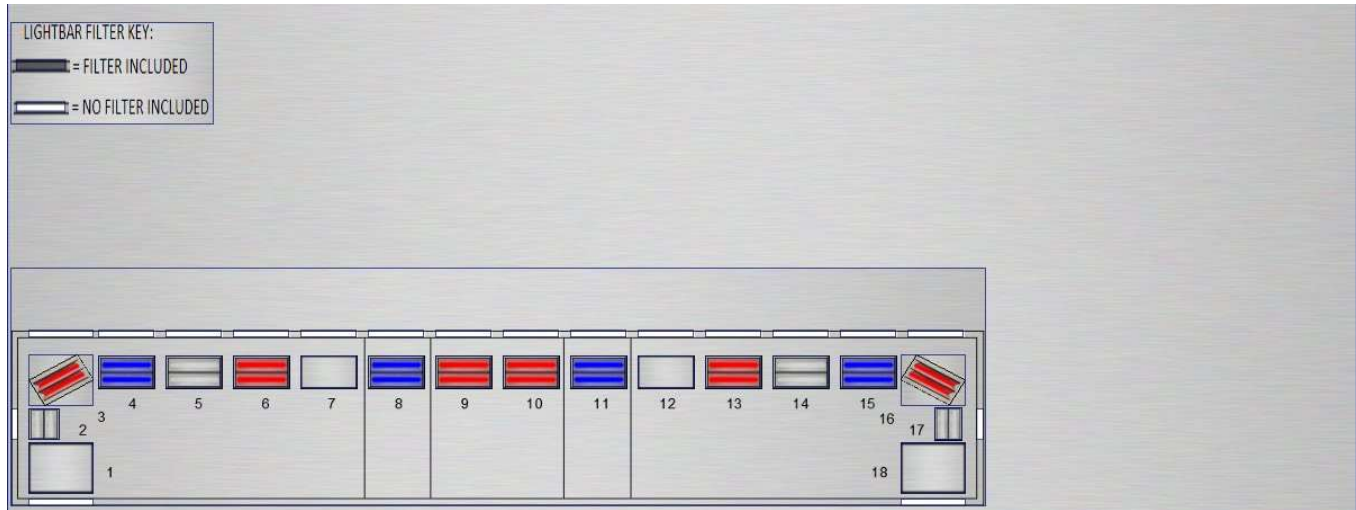
8030-006	CHASSIS OPERATION MANUAL	Chassis Operation Manual Digital Copy (2)
8031-024	ENGINE & TRANSMISSION OPERATION MANUAL	Eng & Trans Operation Man Eng Hard Copy/Trans Digital/Eng Owner Digital
8805-007	CAB/CHASSIS AS BUILT WIRING DIAGRAMS	Cab/Chassis As Built Wiring Diagrams Digital Copy (2)
8063-007	CAB PAINT CONFIRMATION	Cab Paint Confirmation - PPG - Confirmation #2
8039-001	SALES TERMS	Sales Terms

ENGINEERING

9005-002	DRIVELINE LAYOUT CONFIRMATION	Driveline Layout Confirmation Required
2124-009	EFCM/REAR CROSSMEMBERS	End of Frame Cross Member 2.25" From EOF

Front Lightbar Layout

5450M-002 Cab Front Lightbar Layout



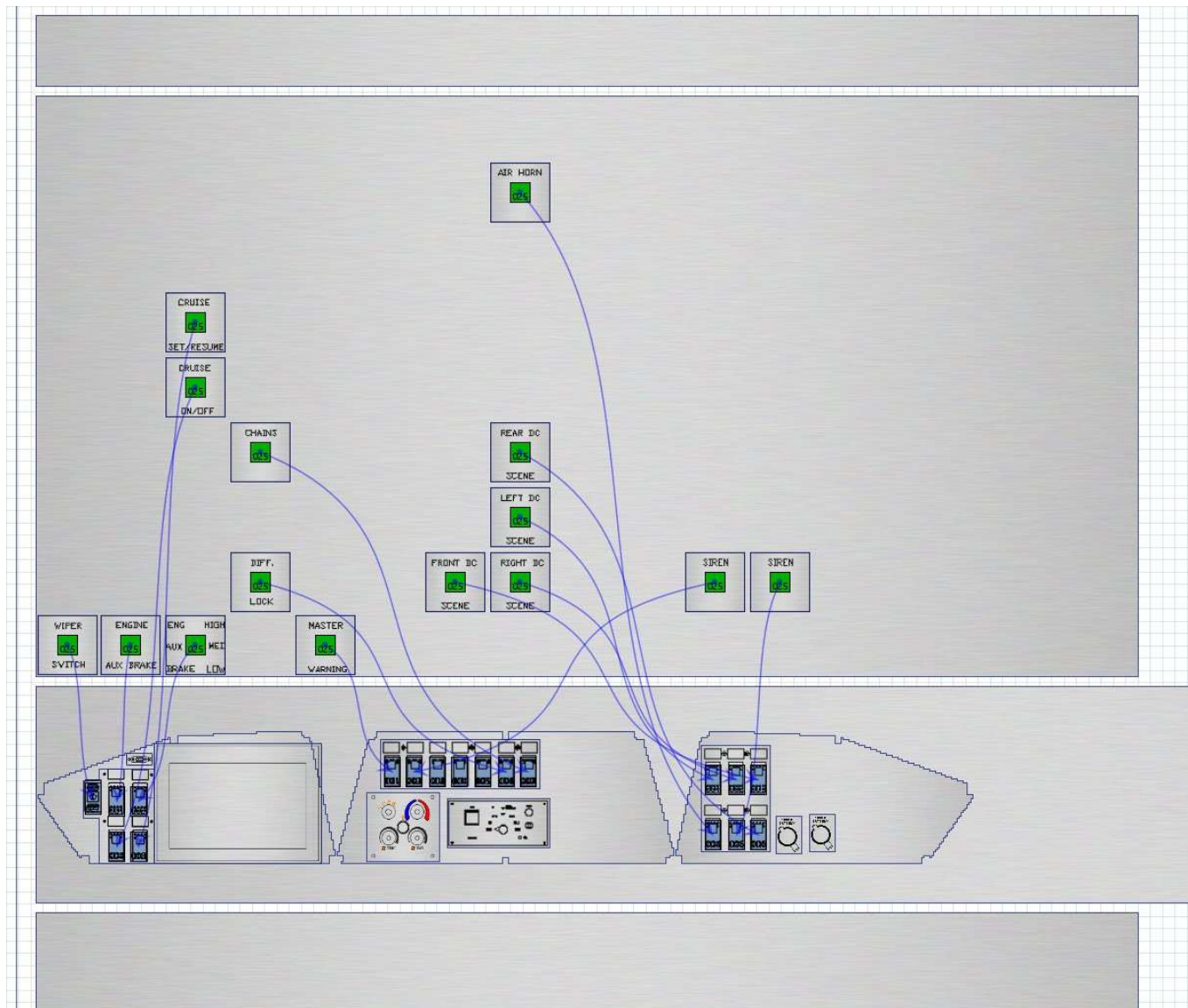
Option Description

- NO Cab Front Lightbar Position 1 Filter
- NO Cab Front Lightbar Position 2 Filter
- NO Cab Front Lightbar Position 3 Filter
- NO Cab Front Lightbar Position 4 Filter
- NO Cab Front Lightbar Position 5 Filter
- NO Cab Front Lightbar Position 6 Filter
- NO Cab Front Lightbar Position 7 Filter
- NO Cab Front Lightbar Position 8 Filter
- NO Cab Front Lightbar Position 9 Filter
- NO Cab Front Lightbar Position 10 Filter
- NO Cab Front Lightbar Position 11 Filter
- NO Cab Front Lightbar Position 12 Filter
- NO Cab Front Lightbar Position 13 Filter
- NO Cab Front Lightbar Position 14 Filter
- NO Cab Front Lightbar Position 15 Filter
- NO Cab Front Lightbar Position 16 Filter
- NO Cab Front Lightbar Position 17 Filter RH Side
- NO Cab Front Lightbar Position 18 Filter Rear RH Corner
- Cab Front Lightbar Position 1 - Blank Rear LH Corner
- Cab Front Lightbar Position 2 - White LH Side
- Cab Front Lightbar Position 3 - Red Front LH Corner
- Cab Front Lightbar Position 4 - Blue
- Cab Front Lightbar Position 5 - White
- Cab Front Lightbar Position 6 - Red
- Cab Front Lightbar Position 7 - Blank
- Cab Front Lightbar Position 8 - Blue
- Cab Front Lightbar Position 10 - Red
- Cab Front Lightbar Position 9 - Red
- Cab Front Lightbar Position 11 - Blue
- Cab Front Lightbar Position 12 - Blank
- Cab Front Lightbar Position 13 - Red
- Cab Front Lightbar Position 14 - White
- Cab Front Lightbar Position 15 - Blue
- Cab Front Lightbar Position 16 - Red Front RH Corner
- Cab Front Lightbar Position 17 - White RH Side

Cab Front Lightbar Position 18 - Blank Rear RH Corner
FRONT LIGHTBAR LEGEND INSERT

Panel Layout

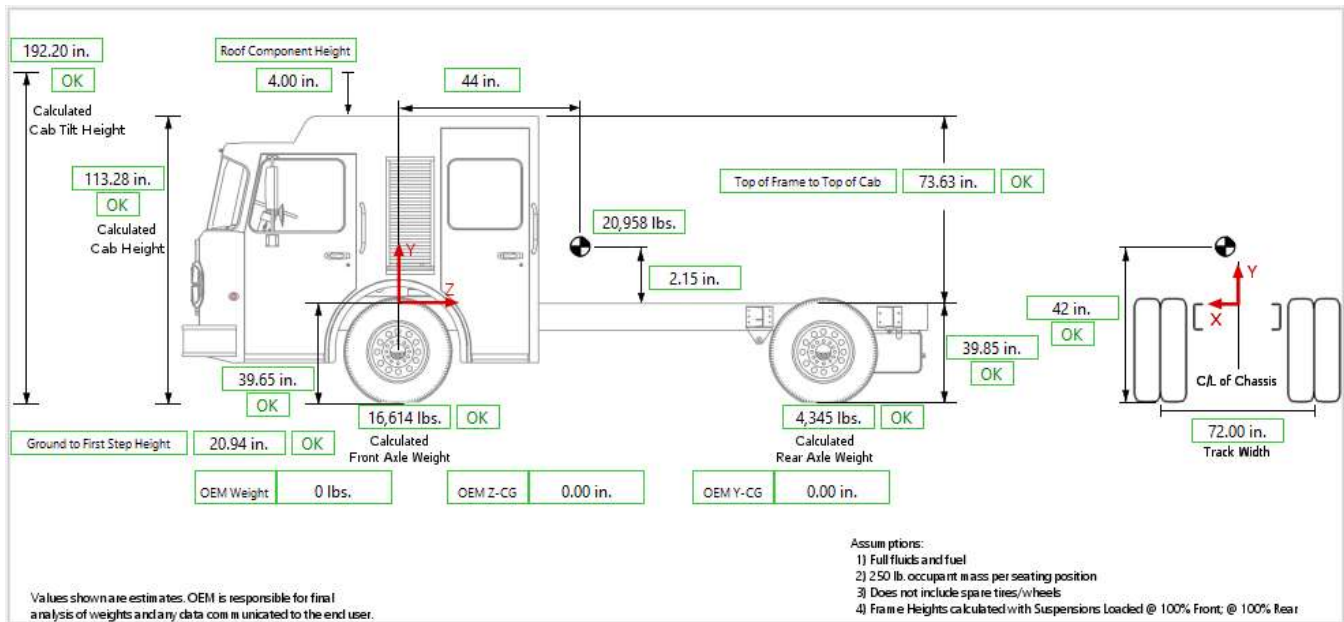
5020-002 Panel Layout



Option Description
 SWITCH PANEL - MISC PANELS
 LEGEND LOCATION
 CLIMATE CTRLS CTR DASH ABS ROTARY SGM 2025
 SIREN CONTROL HEAD WHELEN 295HFS2
 SW PNL 7 SWS 2010
 SWITCH PANEL RH 6 (3+3) 2010 94"
 PWR POINT DASH MNT (2) BATT DIR
 POWER POINT DASH MNT (1) BATT DIR
 VEHICLE DISPLAY TOUCHSCREEN CONTROLMAXX 10" DRIVER PNL
 SWITCH PANEL LH (5) [3+2] SWITCHES 2010 94"
 VEHICLE DISPLAY SW PANEL MISC USB/CARPLAY PORT
 LEFT MOMENTARY DC SCENE
 FRONT SCENE LIGHT ACTIVATION LIGHTED MOMENTARY RKR SW PNL
 REAR AXLE DRIVER CONTROL DIFFERENTIAL LOCK
 AIR HORN RKR SW ACTV

MSTR WARN SW PNL MOMENTARY W/LIGHT
CRUISE CONTROL ON/OFF
AUX ENG BRK CTRL ON/OFF SW PNL SWPN (-010)
CRUISE CONTROL IMAGE
AUX ENGINE BRAKE CONTROL ON/OFF & HIGH/MED/LOW SWITCH PANEL
RIGHT MOMENTARY DC SCENE
Rear Scene Lt Actv Sgl Sw
WINDSHIELD WIPER SYSTEM SINGLE MOTOR
TIRE CHAINS RKR SW ACTV
MECH SIREN 3 POS RKR/BRK SW
MECH SIREN 3 POS RKR/BRK SW

Weight Distribution

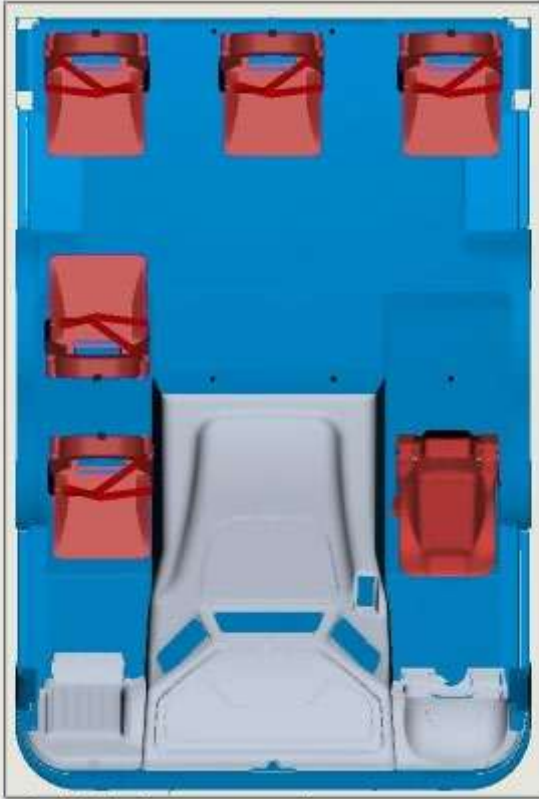


Calculated Apparatus Weight 20,958 lbs.
 Calculated Apparatus Z-CG 44 in.
 Calculated Apparatus Y-CG 2.15 in.

Note:

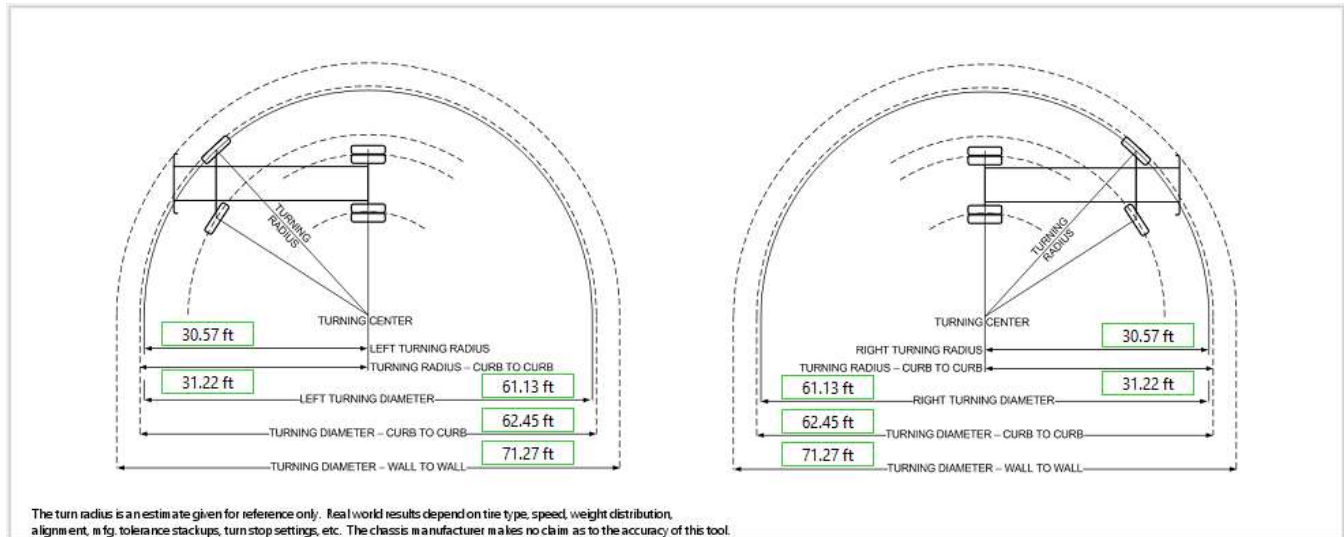
The Y-CG value above is calculated from the top of the frame.
 Apparatus refers to total combined value for cab and chassis and OEM inputs.

Seat Locations



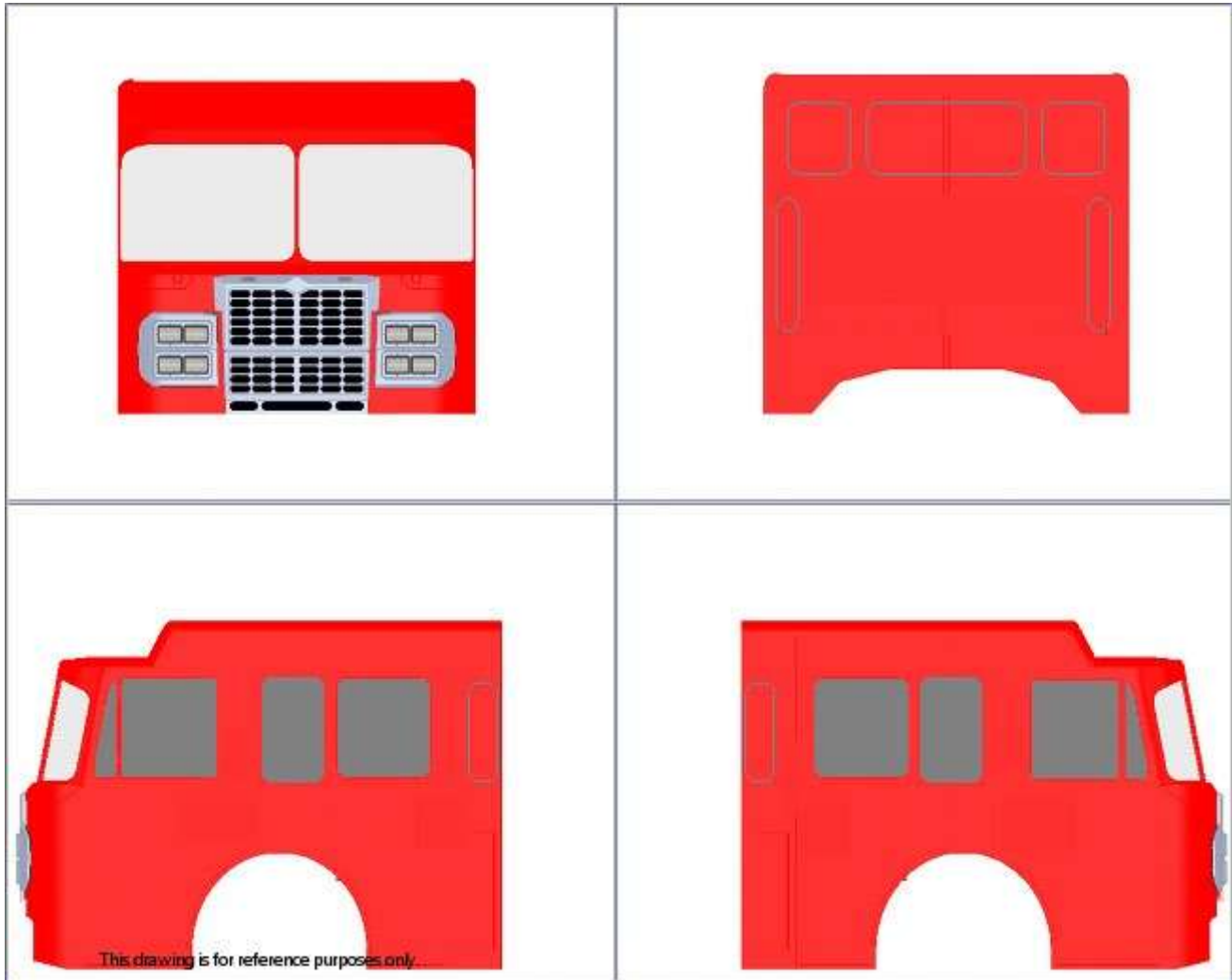
This drawing is for reference purposes only.

Turning Radius



End User Name	
Chassis Model	0100-011 Metro Star
Wheelbase	211.00 in
Bumper Extension	18.00 in
Bumper Width	99.00 in
Left hand outside tire turn angle	35.00 deg
Right hand outside tire turn angle	35.00 deg
Left hand Curb-to-Curb turning radius	31.22 ft, 9.52 m
Right hand Curb-to-Curb turning radius	31.22 ft, 9.52 m
Left hand Wall-to-Wall turning radius	35.63 ft, 10.86 m
Right hand Wall-to-Wall turning radius	35.63 ft, 10.86 m

Cab Glass



Specification

0100-011

MODEL

The chassis shall be a Metro Star model. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability. The chassis shall be manufactured for heavy duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.

8011-028

MODEL YEAR

The chassis shall have a vehicle identification number that reflects a 2028 model year.

8001-001

COUNTRY OF SERVICE

The chassis shall be put in service in the country of United States of America (USA).

The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4 which accompanies each chassis. The chassis manufacturer is not responsible for compliance to state, regional, or local regulations. Dealers should identify those regulations and order any necessary optional equipment from the chassis manufacturer or their OEM needed to be in compliance with those regulations.

8017-009

CAB AND CHASSIS LABELING LANGUAGE

The cab and chassis shall include the applicable caution, warning, and safety notice labels with text to be written in English. All applicable caution, warning, and safety notice labels shall be Innovative Controls brand. Where applicable to the location within the specific layout and label package of the cab and chassis, the labels shall include decorative chrome bezels. Designs shall include bezels that fit individual labels or packaged configurations of labels in certain common locations.

8006-009

APPARATUS TYPE

The apparatus shall be a pumper vehicle designed for emergency service use which shall be equipped with a permanently mounted fire pump which has a minimum rated capacity of 750 gallons per minute (3000 L/min). The apparatus shall include a water tank and hose body whose primary purpose is to combat structural and associated fires.

8008-001

VEHICLE TYPE

The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.

8008A-000

VEHICLE ANGLE OF APPROACH PACKAGE

The angle of approach of the apparatus shall be a minimum of 8.00 degrees.

NFPA1901 Angle of Approach definition:

“To determine the angle of approach, place a thin steel strip against the front of the tires where they touch the ground or stretch a tight string from one front tire to the other at the front where they touch the ground. Determine the lowest point (component or equipment) on the vehicle forward of the front tire that would make the smallest angle of approach. Hang a plumb bob from the lowest point and mark the point on the ground where the point of the plumb bob touches. Measure the vertical distance from the ground to the point where the plumb bob was hung (distance V). Measure the horizontal distance from the plumb bob point to the steel strip or string running from front tire to front tire (distance H). Divide the vertical distance by the horizontal distance. The ratio of V/H is the tangent of the angle of approach. If the ratio is known, the angle of approach can be determined from a table of trigonometric functions of angles or from a math calculator. The standard requires a minimum angle of approach of 8.00 degrees: since the tangent of 8.00 degrees is 0.1405, if V divided by H is 0.1405 or larger, the angle of approach is 8.00 degrees or greater.”

0104-001

AXLE CONFIGURATION

The chassis shall feature a 4 x 2 axle configuration consisting of a single rear drive axle with a single front steer axle.

0101-004

GROSS AXLE WEIGHT RATINGS FRONT

The front gross axle weight rating (GAWR) of the chassis shall be 21,500 pounds.

This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

0102-004

GROSS AXLE WEIGHT RATINGS REAR

The rear gross axle weight rating (GAWR) of the chassis shall be 27,000 pounds.

This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

8010-201

PUMP PROVISION

The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location. Chassis driveline pump provisions shall include an

interlock feature for automatic setting of the park brake when the vehicle is shifted into pump mode while the transmission is in neutral and the transmission output speed translates to less than 1 mph. When the conditions are met the driver side parking brake valve shall activate. Once shifted to road mode the condition for electric automatic brake engagement is no longer present and the driver's parking brake control valve shall function normally.

8009-013

WATER & FOAM TANK CAPACITY

The chassis shall include a carrying capacity of 750 gallons (2839 liters) to 1250 gallons (4732 liters). The water and/or foam tank(s) shall be supplied and installed by the apparatus manufacturer.

8003-197

WARRANTY

Purchaser shall receive a Custom Chassis Two (2) Years or 36,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0102. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

1000-047

CAB STYLE

The cab shall be a custom, fully enclosed, LLFD model with a 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to ten (10) seating positions.

The cab shall incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side wall panels shall be assembled using a combination of welds and proven industrial adhesives designed specifically for aluminum fabrication for construction.

The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.

All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention.

The cab shall be constructed of 5052-H32 corrosion resistant aluminum plate. The cab shall incorporate tongue and groove fitted 6061-T6 0.13 & 0.19 inch thick aluminum extrusions for extreme duty situations. A single formed, one (1) piece extrusion shall be used for the "A" pillar, adding strength and rigidity to the cab as well as additional roll-over protection. The cab side walls and lower roof skin shall be 0.13 inch thick; the rear wall and raised roof skins shall be 0.09 inch thick; the front cab structure shall be 0.19 inch thick.

The exterior width of the cab shall be 94.00 inches wide with a minimum interior width of 88.00 inches. The overall cab length shall be 147.10 inches with 70.00 inches from the centerline of the front of the axle to the back of the cab.

The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for ease of movement inside the cab.

The cab shall offer an interior height of 57.50 inches from the front floor to the headliner and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 67.88 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The front doors shall offer a clear opening of 40.25 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The cab shall also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gear. The rear doors shall offer a clear opening of 32.25 inches wide X 61.00 inches high, from the cab floor to the top of the door opening.

The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.

The first step for the driver and officer area shall measure approximately 11.50 inches deep X 31.13 inches wide. The intermediate step shall measure approximately 8.50 inches deep X 32.50 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.

The first step for the crew area shall measure approximately 11.50 inches deep X 20.44 inches wide. The intermediate step shall measure approximately 10.25 inches deep X 22.75 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.80 inches.

8101-001

OCCUPANT PROTECTION

With this selection, the customer shall acknowledge and document a willful opt-out of a vehicle standard advanced safety system feature.

Review and acknowledge Factory Option PDF

1501-002

CAB FRONT FASCIA

The front cab fascia shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate which shall be an integral part of the cab.

The cab fascia will encompass the entire front of the aluminum cab structure from the bottom of the windshield to the bottom of the cab and shall be the “Classic” design.

The front cab fascia shall include two (2) molded plastic modules on each side accommodating a total of up to four (4) Hi/Low beam headlights and two (2) turn signal lights or up to four (4) warning lights. A chrome plated molded plastic bezel shall be provided on each side around each set of four lamps.

1518-025

FRONT GRILLE

The front fascia shall include a box style, 304 stainless steel front grille 44.45 inches wide X 33.50 inches high X 1.50 inches deep. The grille shall include a minimum free air intake of 732.00 square inches. The upper portion of the grille shall be hinged to provide service access behind the grille.

1551-002

CAB UNDERCOAT

There shall be undercoating applied to the underside of the cab which provides an abrasion resistant coating for protection against corrosion caused by moisture, salt, alkalis and galvanic reaction.

1552-002

CAB SIDE DRIP RAIL

There shall be a drip rail along the top radius of each cab side. The drip rails shall help prevent water from the cab roof running down the cab side.

1521-002

CAB PAINT EXTERIOR

The cab exterior shall be painted two tone per customers specified paint colors following the RFG-SR-001 paint standards.

1533-001

CAB PAINT PROCESS/MANUFACTURER

The cab shall be painted with PPG Industries paint prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum in corrosion protection of all metal surfaces.

All metal surfaces on the cab shall be mechanically etched by sanding disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once all imperfections on the exterior surfaces are removed and sanded smooth, body fillers shall be applied to the cab on all surfaces that require a critically aesthetic finish and sanded smooth.

The entire cab shall then be coated with a high quality base primer that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be sanding the cab to a smooth finish followed by sealing the seams with an automotive seam sealer. The minimum thickness of the primer coat after sanding shall be 2.50 mils with a maximum thickness of 5.00 mils.

The cab shall then be painted the specific color(s) designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on an

emergency scene. The paint shall have a minimum thickness of 1.00 mils with a maximum of 4 mils, followed by a clear top coat with a minimum of 2.5 mils and a maximum of 3.5 mils. The entire cab shall then be baked to speed the curing process of the coatings.

1522-086

CAB PAINT PRIMARY/LOWER COLOR

The lower paint color shall be PPG FBCH 71663 Red.

1523-013

CAB PAINT SECONDARY/UPPER COLOR

The secondary/upper paint color shall be PPG FBCH 9000 black.

1524-002

CAB PAINT EXTERIOR BREAKLINE

The upper and lower paint shall meet at a breakline on the cab which shall be located approximately 1.00 inch below the door windows on each side of the cab. The breakline shall curve down at the front cab corners to approximately 5.00 inches below the windshields on the front of the cab.

1515-002

CAB PAINT PINSTRIPE

A 0.50 inch wide gold reflective tape with black borders shall be applied on the break line between the two different colored surfaces.

8013-156

CAB PAINT WARRANTY

Purchaser shall receive a Paint and Finish (Exterior Clear coated) Ten (10) Years limited warranty in accordance with, and subject to, warranty certificate RFW0710. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

1334-039

CAB PAINT INTERIOR

The visible interior cab structure surfaces shall be painted with a multi-tone onyx black texture finish.

1005-001

CAB ENTRY DOORS

The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors shall be constructed of extruded aluminum with a nominal thickness of 0.13 inch. The exterior skins shall be constructed of 0.13 inch aluminum plate.

The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit.

All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge shall be piano style with a 0.38 inch pin and shall be constructed of stainless steel.

1101-101

CAB ENTRY DOOR TYPE

All cab entry doors shall be full length in design to fully enclose the lower cab steps. Entry doors shall include Pollak mechanical plunger style switches for electrical component activation.

1322-007

CAB INSULATION

The cab ceiling and walls shall include a nonwoven polyester fiber insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

1556-009

LH MID EMS COMPARTMENT

The cab shall include a compartment located in the middle of the wall above the left side wheel well. The inner rear corner of the compartment shall be chamfered at a 45-degree angle to eliminate the square corner. The chamfered corner shall be cut at a width and depth of 7.00 inches the full height of the compartment. This compartment shall be offset and measure 17.00 inches just inside the door opening offset to 24.00 inches wide X 26.00 inches high X 25.00 inches deep, when viewing perpendicular to the side of the cab.

1558-027

LH MID EMS EXTERIOR ACCESS

The cab shall include a hinged box pan door featuring a full length stainless steel piano style hinge and a DA sanded aluminum inner panel located in the middle of the wall above the left side wheel well. The compartment shall have a clear door opening of 15.00 inches wide X 24.00 inches high.

1560-003

LH MID EMS COMPARTMENT INTERIOR

The cab compartment located in the middle of the wall above the left side wheel well shall include solid aluminum walls with an interior access point rear facing. This compartment shall be finished to customer specification.

1562-025

LH MID EMS COMPARTMENT INTERIOR ACCESS

The left hand EMS compartment shall include access from inside the cab. The compartment shall be accessible from the inside of the cab via an aluminum framed aluminum hinged door with one (1) non-locking latch. The interior access door shall feature a clear door opening of 10.50 inches wide and as tall as possible in the available customer specified left EMS compartment height and access point. The interior access door shall include a finish to match the EMS compartment exterior finish.

1566-008

LH MID EMS COMPARTMENT DOOR HARDWARE

The left side EMS compartment door shall include a bent D-ring slam latch. There shall be a switch to activate the open compartment warning light in the cab in the event the door is left ajar. The bent D-ring slam latch shall feature a black powder coat finish. The door hinge shall be painted black.

1568-002

LH MID EMS COMPARTMENT TRIM

The cab shall include a polished stainless steel scuff plate wrapped around the bottom edge of the compartment opening. The scuff plate shall extend approximately 2.00 inches onto the painted cab surface below the left side compartment door.

5384-002

MID EMS COMPARTMENT LIGHTING

The interior portion of each of the mid EMS compartments shall include compartment door activated LED lighting to illuminate all usable surfaces within each compartment.

1535-020

MID EMS COMPARTMENT EXTERIOR FINISH

The mid EMS compartment surfaces that are exposed to the interior of the cab shall be painted with a multi-tone onyx black texture finish.

1536-002

MID EMS COMPARTMENT INTERIOR FINISH

The EMS compartment interior shall feature a DA sanded finish.

1570-006

LH EXTERIOR REAR COMPARTMENT

The cab shall offer an exterior compartment on the left side of the cab behind the rear door. The compartment opening shall be 12.31 inches wide X 31.19 inches high. The compartment size shall be 13.34 inches wide X 31.19 inches high.

1540UF-121

LH EXTERIOR REAR COMPARTMENT UNDER FLOOR DEPTH

The cab shall offer an exterior compartment on the left side of the cab behind the rear door with a depth of 21.19 inches under the cab floor. There shall be a 3.00 inches wide fore/aft provisional notch on the forward wall of the under floor compartment for the frame mounted power distribution box. The notch shall extend through half the compartment depth under the floor.

1570B-002

LH EXTERIOR REAR COMPARTMENT ACCESS

The cab shall offer rear exterior compartment access behind the doors on the left side of the cab via a 1.50 inches thick hinged box pan style flush mount door. There shall be a switch to activate compartment lighting and the open compartment warning light in the cab in the event the door is left ajar.

1570E-006

LH EXTERIOR REAR COMPARTMENT HARDWARE

The cab rear exterior compartment access door on the left side of the cab shall include a black powder coated bent D-ring slam latch.

1540V-003

LH EXTERIOR REAR COMPARTMENT ACCESS

The cab rear exterior compartment access door on the left side of the cab shall include a DA sanded aluminum inner panel.

1540CS-001

LH EXTERIOR REAR COMPARTMENT DOOR CHECK STRAP

The cab rear exterior compartment access door on the left side of the cab shall include a strap added to the compartment to only allow it to open approximately 90 degrees.

1570F-001

LH EXTERIOR REAR COMPARTMENT DEPTH ABOVE FLOOR

The cab shall offer an exterior compartment on the left side of the cab behind the rear door that shall be open into the cab crew area above the floor into a seat frame or wall compartment access area.

1570D-002

LH EXTERIOR REAR COMPARTMENT TRIM

There shall be a polished stainless steel scuff plate wrapped around the bottom edge of the compartment opening. The scuff plate shall extend approximately .50 inches onto the painted cab surface below the compartment door.

5313-054

LEFT HAND EXTERIOR REAR COMPARTMENT LIGHTING

There shall be one (1) clear LED strip light installed to illuminate the exterior rear compartment on the left side of the cab. The strip light shall be sized appropriately to illuminate all usable surfaces in the compartment.

1548-002

LH EXTERIOR COMPARTMENT INTERIOR FINISH

The interior of the left hand exterior compartment shall have a DA sanded finish.

1571-006

RH EXTERIOR REAR COMPARTMENT

The cab shall offer an exterior compartment on the right side of the cab behind the rear door. The compartment opening shall be 12.31 inches wide X 31.19 inches high. The compartment size shall be 13.34 inches wide X 31.19 inches high.

1541UF-121

RH EXTERIOR REAR COMPARTMENT UNDER FLOOR DEPTH

The cab shall offer an exterior compartment on the right side of the cab behind the rear door with a depth of 21.19 inches under the cab floor. There shall be a 3.00 inches wide fore/aft provisional notch on

the forward wall of the under-floor compartment for the frame mounted power distribution box. The notch shall extend through half the compartment depth under the floor.

1571B-002

RH EXTERIOR REAR COMPARTMENT ACCESS

The cab shall offer rear exterior compartment access behind the doors on the right side of the cab via a 1.50 inches thick hinged box pan style flush mount door. There shall be a switch to activate compartment lighting and the open compartment warning light in the cab in the event the door is left ajar.

1571E-006

RH EXTERIOR REAR COMPARTMENT HARDWARE

The cab rear exterior compartment access door on the right side of the cab shall include a black powder coated bent D-ring slam latch.

1541V-003

RH EXTERIOR REAR COMPARTMENT ACCESS

The cab rear exterior compartment access door on the right side of the cab shall include a DA sanded aluminum inner panel.

1541CS-001

RH EXTERIOR REAR COMPARTMENT DOOR CHECK STRAP

The cab rear exterior compartment access door on the right side of the cab shall include a strap added to the compartment to only allow it to open approximately 90 degrees.

1571F-001

RH EXTERIOR REAR COMPARTMENT DEPTH ABOVE FLOOR

The cab shall offer an exterior compartment on the right side of the cab behind the rear door that shall be open into the cab crew area above the floor into a seat frame or wall compartment access area.

1571D-002

RH EXTERIOR REAR COMPARTMENT TRIM

There shall be a polished stainless steel scuff plate wrapped around the bottom edge of the compartment opening. The scuff plate shall extend approximately .50 inches onto the painted cab surface below the compartment door.

5345-054

RIGHT HAND EXTERIOR REAR COMPARTMENT LIGHTING

There shall be one (1) clear LED strip light installed to illuminate the exterior rear compartment on the right side of the cab. The strip light shall be sized appropriately to illuminate all usable surfaces in the compartment.

1549-002

RH EXTERIOR COMPARTMENT INTERIOR FINISH

The interior of the right hand exterior compartment shall have a DA sanded finish.

8004-033

CAB STRUCTURAL WARRANTY

Purchaser shall receive a Cab Structure (Aluminum) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0602. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

9001-006

CAB TEST INFORMATION

The cab shall have successfully completed the preload side impact, static roof load application and frontal impact without encroachment to the occupant survival space when tested in accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi –Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles with regard to the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.

The above tests have been witnessed by and attested to by an independent third party. The test results were recorded using cameras, high speed imagers, accelerometers and strain gauges. Documentation of the testing shall be provided upon request.

5000-018

ELECTRICAL SYSTEM

The chassis shall include a single starting electrical system which shall include a 12 volt direct current multiplexing system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311 degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275 degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.

5005-251

MULTIPLEX DISPLAY

The multiplex electrical system shall include an FRC OmniPlex S-Core 10-inch Touchscreen display which shall be located on the left side dash in the switch panel. The Touchscreen displays shall feature full color LCD display screens.

5046-068

MULTIPLEX DISPLAY SPECIAL LAYOUT

The vehicle display and control screen shall be configured specifically for the display dimmer control screen to have two dimmer settings. The dimmer settings shall be labeled “DAY” (Normal) and “NIGHT”. This shall omit the additional default settings “MAX” and “DIM”.

5004-002

LOAD MANAGEMENT SYSTEM

The apparatus load management shall be performed by the included multiplex system. The multiplex system shall also feature the priority of sequences and shall shed electrical loads based on the priority list specifically programmed.

5622-032

DATA RECORDING SYSTEM

The chassis shall have a Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the ControlMaxx Multiplex electrical system. The following information shall be recorded:

- Vehicle Speed
- Acceleration
- Deceleration
- Engine Speed
- Engine Throttle Position
- ABS Event
- Seat Occupied Status
- Seat Belt Status
- Master Optical Warning Device Switch Position
- Time
- Date

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system. The laptop connection shall be a panel mounted female type C USB connection point, mounted in dash.

5031-100

ACCESSORY POWER

The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40-amp battery direct load. One (1) power stud shall be capable of carrying up to a 15-amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud.

The Master power distribution box (MPD) shall include four (4) fuses. The battery direct bus bar shall include one (1) 300-amp fuse labeled E-PUMP and one (1) 300-amp fuse labeled PUMP PRIMER. The master power bus bar shall include one (1) 200-amp fuse labeled PUMP MASTER and one (1) 300-amp fuse labeled BODY MASTER. Each bus bar stud is size 5/16”.

5030-032

AUXILIARY ACCESSORY POWER

An auxiliary six (6) position Blue Sea Systems 5025 blade type fuse panel shall be installed behind the driver's seat. The fuse panel shall be circuit protected with a 40 amp fuse wired for a battery direct load.

5032-007

ADDITIONAL ACCESSORY POWER

An additional set of power and ground studs shall be provided and installed in the officer side under seat storage compartment. The power and ground studs shall be 0.38 inch diameter circuit protected with a 40 amp fuse wired for a battery direct load.

5033-040

EXTRA ACCESSORY POWER

An extra six (6) position Blue Sea Systems 5025 blade type fuse panel shall be installed behind the officer's seat mounted on the wall of the cab. The fuse panel shall be circuit protected with a 40 amp fuse wired for a battery direct load.

5011-001

EXTERIOR ELECTRICAL TERMINAL COATING

All terminals exposed to the elements will be sprayed with a high visibility protective rubberized coating to prevent corrosion.

8014-002

ELECTRICAL SYSTEM WARRANTY

Purchaser shall receive an Electrical System Two (2) Years or 36,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0202. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

1701-183

ENGINE

The chassis engine shall be a Cummins heavy heavy duty (HHD) certified X10 engine. The X10 engine shall be an in-line six (6) cylinder, four-cycle diesel-powered engine. The engine shall offer a rating of 450 horsepower at 1800 RPM and shall be governed at 1900 RPM. The torque rating shall feature 1650-foot pounds of torque at 1000 RPM.

The engine shall feature a VGT™ Turbocharger, a high-pressure common rail fuel system, fully integrated electronic controls with an electronic governor, and shall be EPA certified to meet the 2027 emissions standards.

A wiring harness shall be supplied ending at the back of the cab. The harness shall include a connector which shall allow an optional harness for the pump panel. The included circuits shall be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle and a PSG system. A circuit for J1939 data link shall also be provided at the back of the cab.

Until the 2027 EPA engine integration is finalized, option availability and body design relative to engine and aftertreatment are subject to change. Additional costs associated with the 2027 EPA engine will be passed on to the end user. No exceptions.

1329-001

CAB ENGINE TUNNEL

The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade, 0.19 of an inch thick aluminum. The tunnel shall be a maximum of 41.50 inches wide X 25.50 inches high.

1731-018

DIESEL PARTICULATE FILTER CONTROLS

There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibit. The controls shall be located on the digital dash display.

1718-002

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.

1719-005

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with an automatic high-idle speed control which shall be pre-set to operate the engine at a specified RPM to increase alternator output if the system voltage drops to 12.5 volts. This device shall automatically operate only when the engine is running, the transmission is in neutral, and with the parking brake set. The automatic high idle will stay engaged for a minimum of ten (10) minutes and until the system, voltage has reached 13.0 volts. Application of the service brake will override the automatic high idle and reset timer. The vehicle shall be equipped with a high-idle speed virtual button on the vehicle display and control screen to activate/deactivate manual control only. It shall be pre-set so when activated, it will operate the engine at the specified RPM to increase alternator output. This device shall operate only when the engine is running, the transmission is in neutral, and with the parking brake set. When automatically engaged the high idle shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake pedal is released, or when the transmission is placed in neutral. Virtual control screen shall not override automatic high idle between voltage parameters during timed cycle. Display shall indicate when high idle is disabled, enabled, or active.

1710-001

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

The engine shall include programming which will govern the top speed of the vehicle.

1713-010

AUXILIARY ENGINE BRAKE

A compression brake, for the six (6) cylinder engine shall be provided. A cutout relay shall be installed to disable the compression brake when in pump mode or when an ABS event occurs. The engine compression brake shall activate upon 0% accelerator when in operation mode and actuate the vehicle's brake lights.

The engine shall utilize a variable geometry turbo (VGT) as an integrated auxiliary engine brake to offer a variable rate of exhaust flow, which when activated in conjunction with the compression brake shall enhance the engine's compression braking capabilities.

1708-004

AUXILIARY ENGINE BRAKE CONTROL

An engine compression brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected:

- ☐ A valid gear ratio is detected.
- ☐ The driver has requested or enabled engine compression brake operation.
- ☐ The throttle is at a minimum engine speed position.
- ☐ The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift.

The compression brake shall be controlled through an on/off switch and a low/medium/high selector switch.

1720-003

ELECTRONIC ENGINE OIL LEVEL INDICATOR

The engine oil shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.

1715-001

FLUID FILLS

The front of the chassis shall accommodate fluid fill for the engine oil through the grille. This area shall also accommodate a check for the engine oil. The transmission, power steering, and coolant fluid fills and checks shall be under the cab. The windshield washer fill shall be accessible through the front left side mid step.

1735-001

ENGINE DRAIN PLUG

The engine shall include an original equipment manufacturer installed oil drain plug.

8002-001

ENGINE WARRANTY

The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.

1707-116

REMOTE THROTTLE HARNESS

An apparatus interface wiring harness for the engine and transmission pump interlocks shall be supplied with the chassis. The harness shall include a connector for connection to a chassis pump panel harness supplied by the body builder and shall terminate in the left frame rail behind the cab for connection by the body builder. The harness shall include circuits deemed for a pump panel and shall contain circuits for a hand throttle, and a multiplexed gauge. Separate circuits shall also be included for a pump control switch, "Pump Engaged" and "OK to Pump" indicator lights, open compartment ground, start signal, park brake ground, ignition signal, master power, clean power, customer ignition, air horn solenoid switch, high idle switch and high idle indicator light. The harness shall contain interlocks that will prevent shifting to road or pump mode unless the transmission output speed translates to less than 1 mph and the transmission is in neutral. The shift to pump mode shall also require the park brake be set.

1721-001

ENGINE PROGRAMMING REMOTE THROTTLE

The engine ECM (Electronic Control Module) discreet wire remote throttle circuit shall be turned off for use with a J1939 based pump controller or when the discreet wire remote throttle controls are not required.

1725-004

CRUISE CONTROL

The chassis will be provided with a cruise control system. There shall be two (2) switches to control the engine inputs for cruise on/off, and set/resume/accelerate. The brake pedal activation shall deactivate cruise operation.

1727-001

ENGINE PROGRAMMING IDLE SPEED

The engine low idle speed will be programmed at 700 rpm.

2801-010

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator. This ember separator shall be designed to protect the downstream air filter from embers using a combination of unique flat and crimped metal screens packaged in a heavy duty galvanized steel frame. This multilayered screen shall trap embers and allow them to burn out before passing through the pack.

The engine air intake system shall also include an air cleaner mounted above the radiator. This air cleaner shall utilize a replaceable dry type filter element designed to prevent dust and debris from being ingested into the engine. A service cover shall be provided on the housing, reducing the chance of contaminating the air intake system during air filter service.

The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.

2704-016

ENGINE FAN DRIVE

The engine cooling system fan shall incorporate a thermostatically controlled, Horton fully variable type fan drive with SmartClutch J-1939 CAN controller.

The variable speed fan clutch only engages at the amount needed for proper cooling to facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail-safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure. The fan speed shall include a J-1939 CAN clutch controller to receive signal from the engine control module to activate at variable rates of speed. Variable speeds shall be set through thermostatic and engine speed signals to run as efficiently and quietly as required to maintain temperature.

2701-021

ENGINE COOLING SYSTEM

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system shall be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.

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

The radiator shall be a down-flow design constructed with aluminum cores, plastic end tanks, and a steel frame. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

The cooling system shall include a one piece injected molded polymer fan with a three (3) piece fiberglass fan shroud.

The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and rearward oriented sight glass to observe coolant in the system. A cold fill and observation line shall be included within the frame mounted translucent recovery bottle to monitor the level of the coolant. The surge tank shall have a dual seal cap that meets the engine manufacturer's pressure requirements and allows for expansion and recovery of coolant into a separate integral expansion chamber.

All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance.

The charge air cooler shall be a cross-flow design constructed completely of aluminum with cast tanks. All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel "constant torque" style clamps meeting the engine manufacturer's requirements.

The radiator and charge air cooler shall be removable through the bottom of the chassis.

2711-005

ENGINE COOLING SYSTEM PROTECTION

The engine cooling system shall include a recirculation shield designed to act as a light duty skid plate below the radiator to provide additional protection for the engine cooling system from light impacts, stones, and road debris. The skid plate shall be painted to match the frame components.

2708-001

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees Fahrenheit.

Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.

2706-003

ELECTRONIC COOLANT LEVEL INDICATOR

The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.

2709-001

COOLANT HOSES

The cooling systems hose shall be formed silicone hose and formed aluminized steel tubing and include stainless steel constant torque band clamps.

2901-090

ENGINE EXHAUST SYSTEM

The exhaust system shall include an end-in end-out horizontally mounted dual module after treatment device, and downpipe from the charge air cooled turbo. The dual module shall include a diesel particulate filter (DPF), urea dosing module (UL2), and a selective catalytic reduction (SCR) catalyst to meet current EPA standards.

The system shall utilize 0.07 inch thick stainless steel exhaust tubing between the engine turbo and the DPF. Zero leak clamps seal all system joints between the turbo and DPF.

The DPF, the decomposition tube, and the SCR canister through the end of the tailpipe shall be connected with zero leak clamps. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires.

The exhaust system after treatment modules shall be mounted below the frame, with the DPF in the outboard position and the SCR rearward in the inboard position.

Disclaimer - Until the 2027 EPA engine integration is finalized, available options and body design specifications related to the engine and aftertreatment system are subject to change. This may include, but is not limited to, wheelbase dimensions, centerline of suction for pumps, and pump configurations. Any additional costs resulting from the 2027 EPA engine requirements will be passed on to the end user - No exceptions.

2907-021

DIESEL EXHAUST FLUID TANK

The exhaust system shall include a molded cross linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of five (5) usable gallons and shall be mounted on the left-hand side of the chassis frame behind the rear crew door entry steps.

The DEF tank shall be designed with capacity for expansion in case of fluid freezing. Engine coolant, which shall be thermostatically controlled, shall run through lines in the tank to help prevent the DEF from freezing and to provide a means of thawing the fluid if it should become frozen.

The tank fill tube shall be routed under the rear of the cab with the fill neck and splash guard accessible in the top rear step.

2902-010

ENGINE EXHAUST ACCESSORIES

An exhaust temperature mitigation device shall be shipped loose for installation by the body manufacturer on the vehicle. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gasses at the exhaust outlet.

2906-002

ENGINE EXHAUST WRAP

The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap shall also help protect surrounding components from radiant heat which can be transferred from the exhaust.

The exhaust flex joint shall not include the thermal exhaust wrap.

8018-006

EMISSIONS SYSTEMS WARRANTY

Purchaser shall receive a Regulated Emissions Systems ten (5) years, or 450,000 miles, or 22,000 engine hours limited warranty for heavy heavy-duty engines in accordance with, and subject to, warranty certificate RFW0144. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

8018A-002

REGULATED EMISSIONS WARRANTY TIRES

Purchaser shall receive a regulated emissions tires two (2) years or 24,000 miles limited warranty in accordance with, and subject to, warranty certificate RFW0145. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

8018B-002

REGULATED EMISSIONS WARRANTY AIR CONDITIONING

Purchaser shall receive a regulated emissions air conditioning five (5) years or 100,000 miles limited warranty in accordance with, and subject to, warranty certificate RFW0146. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

1801-017

TRANSMISSION

The drive train shall include an Allison model EVS 4000 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

The transmission shall include two (2) internal oil filters which shall offer Allison formulated Castrol TranSynd™ synthetic transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The transmission gear ratios shall be:

1st	3.51:1
2nd	1.91:1
3rd	1.43:1
4th	1.00:1
5th	0.74:1
6th	0.64:1 (if applicable)
Rev	4.80:1

1806-006

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will select a six (6) speed operation without the need to press the mode button. The transmission programming shall only include S1 performance shift schedules. The mode button shall not include a secondary economy shift schedule.

1811-004

TRANSMISSION FEATURE PROGRAMMING

The Allison Gen V/VI-E transmission EVS group package number 127 shall contain the 198 vocational package in consideration of the duty of this apparatus as a pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override.

This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.

A transmission interface connector shall be provided in the cab. This package shall contain the following input/output circuits to the transmission control module. The Gen V/VI-E transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

<u>Function ID</u>	<u>Description</u>	<u>Wire assignment</u>
Inputs		
C	PTO Request	142
J	Fire Truck Pump Mode (4th Lockup)	122 / 123
Outputs		
C	Range Indicator	145 (4th)
G	PTO Enable Output	130
	Signal Return	103

1807-005

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall have a graphical Vacuum Florescent Display (VFD) capable of displaying two lines of text. The shift selector shall provide mode indication and a prognostic indicator (wrench symbol) on the digital display. The prognostics monitor various operating parameters and shall alert you when a specific maintenance function is required.

1815-002

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically.

1814-002

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.

1808-007

TRANSMISSION COOLING SYSTEM

The transmission shall include a water to oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system shall meet all transmission manufacturer requirements. The transmission cooling system shall feature continuous flow of engine bypass water to maintain uninterrupted transmission cooling.

1817-001

TRANSMISSION DRAIN PLUG

The transmission shall include an original equipment manufacturer installed magnetic transmission fluid drain plug.

8005-001

TRANSMISSION WARRANTY

The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

2005-008

PTO LOCATION

The transmission shall have two (2) power take off (PTO) mounting locations, one (1) in the 8:00 o'clock position and one (1) in the 1:00 o'clock position.

3001-015

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with MSI 1810 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat®. The drivelines shall include Meritor brand u-joints with thrust washers.

3005-022

MIDSHIP PUMP / GEARBOX

A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the midship split shaft pump as specified by the apparatus manufacturer. Holes shall be provided as specified by the OEM for mounting a pump.

See PDF for specific hole pattern.

3008-085

MIDSHIP PUMP / GEARBOX MODEL

The midship pump/gearbox provisions shall be for a Waterous CSUC20 or C22 pump.

3048-007

MIDSHIP PUMP GEARBOX DROP

The Waterous pump gearbox shall have a “C” (medium length) drop length.

3009-007

MIDSHIP PUMP RATIO

The ratio for the midship pump shall be 2.27:1.

3010-1050

MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE

The midship pump shall be located so the dimension from the centerline of the suction to the centerline of the rear axle is 105.00 inches.

5013-032

PUMP SHIFT CONTROLS

One (1) air pump shift control panel shall be located on the left hand side of the engine tunnel, integrated with the shifter pod. The following shall be provided on the panel: a three (3) position control lever; an engraved PUMP ENGAGED identification light; and an engraved OK TO PUMP identification light. The pump shift control panel shall be black with a yellow border outline and shall include pump instructions. An instruction plate describing the transmission shift selector position used for pumping shall be provided and located so it can be read from the driver's position per NFPA **16.10.1.3**. The road mode shall be selected when the control lever is in the forward position and pump mode shall be selected when the control lever is in the rearward position.

The control lever center position shall exhaust air from both pump and road sides of the pump gear box shift cylinder.

3049-003

PUMP SHIFT CONTROL PLUMBING

Air connections shall be provided from the air supply tank to the pump shift control valve and from the pump shift control valve to the frame mounted bracket. The frame mounted bracket shall include labeling identifying the pump and road connection points with threaded 0.25 inch NPT fittings on the solenoid for attaching the customer installed pump. The air supply shall be pressure protected from service brake system.

3109-064

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Racor GreenMAX 6600R fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve and a see-through cover to allow visual inspection of fuel and filter

condition. The Racor 6600R shall meet engine requirements for particulate size, collection capacity, removal efficiency, and water removal efficiency. The filter shall be capable of handling a maximum flow rate of 150 gallons per hour.

A secondary fuel filter shall be included as approved by the engine manufacturer.

An instrument panel lamp and audible alarm which indicates when water is present in the fuel-water separator shall also be included.

3111-002

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be black textile braided lines which are reinforced with braided high tensile steel wire. The fuel lines shall be connected with reusable steel fittings.

3103-008

ELECTRIC FUEL PRIMER

Integral to the engine assembly is an electric lift pump that serves the purpose of pre-filter fuel priming.

3101-101

FUEL TANK

The fuel tank shall have a capacity of fifty (50) gallons and shall measure 35.00 inches in width X 15.00 inches in height X 24.00 inches in length.

The baffled tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.

The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00 inch NPT fill ports for right or left hand fill. A 0.50 inch NPT drain plug shall be centered in the bottom of the tank.

The fuel tank shall be mounted below the frame, behind the rear axle. Two (2) three-piece strap hanger assemblies with "U" straps bolted midway on the fuel tank front and rear shall be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads shall be provided between the tank and the upper tank mounting brackets. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

3130-001

FUEL TANK MATERIAL AND FINISH

The fuel tank shall be constructed of 12 gauge aluminized steel. The exterior of the tank shall be powder coated black and then painted to match the frame components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 Method B, results to be 5B minimum. The pencil hardness test per ASTM D3363 shall have a final post-cured pencil hardness of H-2H. The direct impact resistance test per ASTM D2794, results to be 5B minimum.

Any proposals offering painted fuel tanks with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

3131-001

FUEL TANK STRAP MATERIAL

The fuel tank straps shall be constructed of ASTM A-36 steel. The fuel tank straps shall be powder coated black and then painted to match the frame components if possible.

3102-007

FUEL TANK FILL PORT

The fuel tank fill ports shall be offset with the left fill port located in the rearward position and the right fill port located in the middle position on the fuel tank.

3115-002

FUEL TANK DRAIN PLUG

A 0.5 inch NPT magnetic drain plug shall be centered in the bottom of the fuel tank.

2401-038

FRONT AXLE

The front axle shall be a Hendrickson STEERTEK Non-drive front axle, NXT Fire/Rescue model. The axle shall include 3.74 inches of drop and a 70.87 inches wide king pin intersection (KPI). The axle shall be a box-shaped fabricated beam with integrated suspension. The axle shall include a conventional style hub with a standard knuckle. The weight capacity for the axle shall be rated up to 22,000 pounds.

2405-001

FRONT WHEEL BEARING LUBRICATION

The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.

2502-006

FRONT SHOCK ABSORBERS

Shock absorbers shall be supplied by the suspension manufacturer and installed on the front axle suspension.

2501-019

FRONT SUSPENSION

The front suspension shall include a parabolic leaf spring pack integrated into the Hendrickson STEERTEK NXT axle consisting of 58.40 inches long and 4.00 inches wide tapered leaf springs and shall feature a military double wrapped front eye. Spring eyes shall have Hendrickson's proprietary threaded pin bushings to increase roll stiffness. The spring capacity shall be rated specifically to the axle configuration from 18,000 and up to 24,000 pounds.

2601-006

STEERING COLUMN/ WHEEL

The cab shall include a Douglas Autotech steering column which shall include a seven (7) position tilt, a 2.25 inch telescopic adjustment, and an 18.00 inch, four (4) spoke steering wheel located at the driver's position. The steering wheel shall be covered with black polyurethane foam padding.

The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.

2609-002

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.

2603-016

POWER STEERING PUMP

The hydraulic power steering pump shall be a Vickers V20H and shall be gear driven from the engine. The pump shall be a fixed displacement vane type. The power steering system shall include an oil to air passive cooler.

2606-005

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 45-degrees to the left and right.

Note: Addition of optional equipment may require cramp angle to be reduced.

2610-005

POWER STEERING GEAR

The power steering gear shall be a TRW model TAS 85 with an assist cylinder.

2608-001

CHASSIS ALIGNMENT

The chassis frame rails shall be measured to insure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.

3401-004

REAR AXLE

The rear axle shall be a Meritor model RS-26-185 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 27,000 pounds.

The axle shall be built of superior construction and quality components to provide the rugged dependability needed to stand up to the fire industry's demands. The axle shall include rectangular shaped, hot-formed housing with a standard wall thickness of 0.56 of an inch for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance.

The axle shall have heavy-duty Hypoid gearing for longer life, greater strength and quieter operation. Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage will be used.

3403-001

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

8061-023

REAR AXLE WARRANTY

The rear axle shall be warranted by Meritor for five (5) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

3411-001

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

3407-002

REAR AXLE DIFFERENTIAL CONTROL

A driver controlled differential lock shall be installed on the rear axle. This feature shall allow the main differential to be locked and unlocked when encountering poor road or highway conditions, where maximum traction is needed, for use at speeds no greater than 25 MPH. The differential lock shall be controlled by a locking rocker switch on the switch panel. The light on the switch shall illuminate with positive engagement of the differential control.

3408-008

VEHICLE TOP SPEED

The top speed of the vehicle shall be approximately 68 MPH +/-2 MPH at governed engine RPM.

3501-059

REAR SUSPENSION

The single rear axle shall feature a Reyco 79KB vari-rate, self-leveling captive slipper type parabolic five (5) leaf spring pack suspension with 57.50 inch X 3.00 inch springs. The suspension shall also utilize two (2) torque arms with eccentric cam adjustment.

The rear suspension capacity shall be rated to 27,000 pounds.

3503-002

REAR SHOCK ABSORBERS

Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the rear suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintains consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life.

The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.

The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and “road sensing” shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers.

Proposals offering the use of conventional twin tube or “road sensing” designed shocks shall not be considered.

3625-002

TIRE INTERMITTENT SERVICE RATING

The chassis shall be rated using Intermittent Service ratings provided to the emergency vehicle market by the tire manufacturers as the basis for determining the maximum vehicle load and speed.

3601-083

FRONT TIRE

The front tires shall be Michelin 385/65R22.5 “L” tubeless radial X Multi HL Z regional tread.

The front tire stamped load capacity shall be 22,000 pounds per axle with a nominal speed rating of 68 miles per hour when properly inflated to 130 pounds per square inch.

The Michelin Intermittent Service Rating maximum load capacity shall be 23,540 pounds per axle with a maximum speed of 68 miles per hour when properly inflated to 130 pounds per square inch.

The Michelin Intermittent Service Rating maximum speed capacity shall be 22,000 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 130 pounds per square inch.

The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

3602-012

REAR TIRE

The rear tires shall be Michelin 12R-22.5 16PR "H" tubeless radial XDN2 all-weather tread.

The rear tire stamped load capacity shall be 27,120 pounds per axle with a nominal speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum load capacity shall be 29,020 pounds per axle with a maximum speed of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum speed capacity shall match the nominal speed rating.

The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

3413-538

REAR AXLE RATIO

The rear axle ratio shall be 5.38:1.

3614-030

TIRE PRESSURE INDICATOR

There shall be electronic chrome LED valve caps shipped loose for installation by the OEM which shall illuminate with a red LED when tire pressure drops 8psi provided. The valve caps are self-calibrating and set to the pressure of the tire upon installation.

3701-034

FRONT WHEEL

The front wheels shall be Alcoa hub piloted, 22.50 inch X 12.25 inch aluminum wheels. The outer face of the wheels shall feature Alcoa's Dura-Bright® finish as an integral part of the wheel surface. Alcoa Dura-Bright® wheels keep their shine without polishing. Brake dust, grime and road debris are easily removed by simply cleaning the wheels with soap and water. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

3703-064

REAR WHEEL

The outer rear wheels shall be Alcoa hub piloted, 22.50 inch X 8.25 inch aluminum wheels with a polished finish and Alcoa Dura-Bright® wheel treatment as an integral part of the wheel. The inner rear wheels shall be Alcoa hub piloted, 22.50 inch X 8.25 inch aluminum wheels with a polished finish. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

3702-002

WHEEL TRIM

The front wheels shall include stainless steel lug nut covers and stainless steel baby moons shipped loose with the chassis for installation by the apparatus builder. The baby moons shall have cutouts for oil seal viewing when applicable.

The rear wheels shall include stainless steel lug nut covers and band mounted spring clip stainless steel high hats shipped loose with the chassis for installation by the apparatus builder.

The lug nut covers, baby moons, and high hats shall be RealWheels® brand constructed of 304L grade, non-corrosive stainless steel with a mirror finish. Each wheel trim component shall meet D.O.T. certification.

3801-002

TIRE CHAINS

Onspot brand six (6) strand automatic ice chains shall be installed on the rear axle of the chassis to provide instant traction while traveling on ice and snow at speeds below 35 MPH.

3802-022

TIRE CHAINS ACTIVATION

The tire chain system shall be activated by a locking switch on the dash to deter accidental activation. The light on the switch shall illuminate when the tire chains are engaged. The tire chains shall be interlocked with the transmission and shall engage only if the vehicle is traveling 30 MPH or less. After traveling over 30 MPH, the vehicle must be reduced to a speed below 5 MPH for the tire chains to be engaged or re-engaged.

3205-014

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include, at a minimum, a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a service brake application in the unlikely event of primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification.

The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI.

A four (4) sensor, four (4) modulator Anti-lock Braking System (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

Additional safety shall be accommodated through Automatic Traction Control (ATC) which shall be installed on the single rear axle. The ATC system shall apply the ABS when the drive wheels lose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces.

A virtual button on the vehicle display and control screen shall be provided and properly labeled “mud/snow”. When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature.

The Electronic Stability Control (ESC) unit is a functional extension of the electronic braking system. It is able to detect any skidding of the vehicle about its vertical axis as well as any rollover tendency. The control unit comprises an angular-speed sensor that measures the vehicle’s motion about the vertical axis, caused, for instance, by cornering or by skidding on a slippery road surface. An acceleration sensor measures the vehicle’s lateral acceleration. The Controller Area Network (CAN) bus provides information on the steering angle. On the basis of lateral acceleration and steering angle, an integrated microcontroller calculates a theoretical angular speed for the stable vehicle condition.

3206-003

FRONT BRAKES

The front brakes shall be Meritor EX225 Disc Plus disc brakes with 17.00 inch vented rotors.

3207-003

REAR BRAKES

The rear brakes shall be Meritor EX225 Disc Plus disc brakes with 17.00 inch vented rotors.

3208-001

PARK BRAKE

Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.

3204-003

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color.

The parking brake actuation valve shall be mounted on the center of the dash within easy access of the driver and the officer positions.

3202-005

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer with an integral heater with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be mounted behind the battery box on the left hand side.

3215-009

FRONT BRAKE CHAMBERS

The front brakes shall be provided with type 24 brake chambers as supplied with the Hendrickson STEERTEK NXT axle.

3210-023

REAR BRAKE CHAMBERS

The rear axle shall include TSE 24/30 H.O.T. (High Output Technology) brake chambers shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake pads against the brake rotor.

3320-001

AIR COMPRESSOR

The air compressor provided for the engine shall be a Wabco® SS318 single cylinder pass-through drive type compressor which shall be capable of producing 18.7 CFM at 1200 engine RPMs. The air compressor shall feature a higher delivery efficiency translating to more air delivery per horsepower absorbed. The compressor shall include an aluminum cylinder head which shall improve cooling, reduce weight and decrease carbon formation. Superior piston and bore finishing technology shall reduce oil consumption and significantly increasing the system component life.

3339-004

AIR GOVERNOR

An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be located on the air dryer bracket.

3303-001

MOISTURE EJECTORS

Manual pet-cock type drain valves shall be installed on all reservoirs of the air supply system.

3307-101

AIR SUPPLY LINES

The air system on the chassis shall be plumbed with color coded reinforced nylon tubing air lines. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange or yellow, and the auxiliary (outlet) will be blue.

Push to connect type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

3309-033

AIR INLET CONNECTION

An air connection for the shoreline air inlet shall be supplied.

3349-002

AIR INLET LOCATION

The air inlet shall be installed in the left hand side lower front step in the forward position.

3310-001

AIR OUTLET CONNECTION

A quick release air outlet female connector shall be installed in the mid-section of the left lower cab step towards the front of the cab for the use of auxiliary air tools. The air outlet connector shall be compatible with a Milton 787, Parker Hannifin B13 or Meyers 54-410 connector.

3328-002

PLUMBING AIR OUTLET CONNECTION

The cab mounted air outlet connection shall be plumbed to the chassis auxiliary air system reservoir.

3325-002

AIR OUTLET SHUTOFF VALVE

The air outlet shall include a 1/4 turn valve which shall terminate the air supply between the outlet connection and the tank.

3326-002

AIR INLET/ OUTLET FITTING TYPE

The air connector supplied shall be a 0.25 inch size Tru-Flate Interchange style manual connection which is compatible with Milton 'T' style, Myers 0.25 inch Automotive style and Parker 0.25 inch 10 Series connectors.

3338-002

REAR AIR TANK MOUNTING

If a combination of wheel base, air tank quantity, or other requirements necessitate the location of one or more air tanks to be mounted rear of the fuel tank, these tank(s) will be mounted perpendicular to frame.

2103-2110

WHEELBASE

The chassis wheelbase shall be 211.00 inches.

2106-0470

REAR OVERHANG

The chassis rear overhang shall be 47.00 inches.

2101-002

FRAME

The frame shall consist of double rails running parallel to each other with cross members forming a ladder style frame. The frame rails shall be formed in the shape of a "C" channel, with the outer rail measuring 10.25 inches high X 3.50 inches deep upper and lower flanges X 0.38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and 0.38 inches thick. Each rail shall be constructed of 110,000 psi minimum yield high strength low alloy steel. Each double rail section shall

be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100 inch pounds and have a minimum section modulus of 29.21 cubic inches. The frame shall measure 35.00 inches in width.

Proposals calculating the frame strength using the “box method” shall not be considered.

Proposals including heat treated rails shall not be considered. Heat treating frame rails produces rails that are not uniform in their mechanical properties throughout the length of the rail. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail.

A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The cross members shall be attached using zinc coated grade 8 fasteners. The bolt heads shall be flanged type, held in place by distorted thread flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.

Any proposals not including additional reinforcement for each cross member shall not be considered.

All relief areas shall be cut in with a minimum 2.00 inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.

2110-201

FRAME PAINT

The frame rails shall be hot dip galvanized prior to assembly and attachment of any components. The components that shall be galvanized shall include:

- ☐ Main frame “C” channel or channels

The frame parts which are not galvanized shall be powder coated prior to any attachment of components. Parts which shall be powder coated shall include but are not limited to:

- Steering gear bracket
- Front splayed rails and fish plates
- Bumper extensions
- Cross members
- Cross member gussets
- Fuel tank mounting brackets
- Fuel tank straps (unless material/finish is specified in 3130 subcat)
- Air tanks (unless color coded tanks are specified in 3205 subcat)
- Air tank mounting brackets
- Exhaust mounting brackets
- Air cleaner skid plate
- Radiator skid plate
- Battery supports, battery trays and battery covers

Other non-galvanized under carriage components which are received from the suppliers with coatings already applied shall include but are not limited to:

- Suspension components
- Front and rear axles

All powder coatings, primers and paint used on the non-galvanized components shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils.

8007-036

FRAME ASSEMBLY STRUCTURAL

Purchaser shall receive a Frame Assembly Structural Fifty (50) Years or 250,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0305. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

8019-003

FRAME RAIL CORROSION

Purchaser shall receive a Frame Rail Corrosion (Zinc Plate and Powder Coat) Twenty Five (25) Years or 150,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0316. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

8022-004

FRAME COMPONENTS CORROSION

Purchaser shall receive a Frame Components Corrosion (Powder Coat) Three (3) Years or 48,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0313. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

2201-002

FRONT BUMPER

The chassis shall be equipped with a severe duty front bumper constructed from structural steel channel. The bumper material shall be 0.38 thick ASTM A36 steel which shall measure 12.00 inches high with a 3.05 inch flange and shall be 99.00 inches wide with angled front corners.

The bumper shall be primed and painted as specified.

2202-004

FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended approximately 18.00 inches ahead of the cab.

2206-012

FRONT BUMPER PAINT

The front bumper shall be painted the same as the lower cab color. The front bumper trim shall feature a black spray on bedliner coating.

2227-024

FRONT BUMPER TRIM

A stainless steel trim angle, painted to the customer's specifications, shall be installed on the top corner of the bumper across the front and on the top corner of the bumper tails, terminating at the rearmost portion of the apron. The trim angle shall measure approximately 3.00 inches wide on the horizontal flange and 1.60 inches tall on the vertical flange. The trim shall be affixed to the bumper and bolted down to the apron with isolating washers.

2208-005

FRONT BUMPER APRON

The 18.00 inch extended front bumper shall include an apron constructed of 0.19 inch thick embossed aluminum tread plate.

The apron shall be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the top bumper flange.

5503-021

MECHANICAL SIREN

The front bumper shall include an electro mechanical Federal Q2B™ siren, which shall be streamlined, chrome-plated and shall produce 123 decibels of sound at 10.00 feet. The Q2B™ siren produces a distinctive warning sound that is recognizable at long distances. A unique clutch design provides a longer coast down sound while reducing the amp draw to 100 amps. The siren shall measure 10.50 inches wide X 10.00 inches high X 14.00 inches deep. The siren shall include mounting hardware designed to recess or flush mount.

2218-009

MECHANICAL SIREN LOCATION

The siren shall be recess mounted on the left side of the front fascia of the bumper approximately in the center of the flat surface between the bumper radius and the frame rail.

5501-020

AIR HORN

The front bumper shall include two (2) Hadley brand E-Tone air horns which shall measure 21.00 inches long with a 6.00 inch round flare. The air horns shall be trumpet style with a chrome finish on the exterior and a painted finish deep inside the trumpet.

2216-007

AIR HORN LOCATION

The air horns shall be recess mounted in the front bumper face on the right side of the bumper in the inboard and outboard positions relative to the right hand frame rail.

2232-002

AIR HORN RESERVOIR

One (1) air reservoir, with a 1200 cubic inch capacity, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

5504-072

ELECTRONIC SIREN SPEAKER

There shall be two (2) Whelen Engineering Inc. model SA314A, 100 watt speakers provided. Each speaker shall measure 6.40 inches tall X 6.17 inches wide X 3.14 inches deep. Each speaker shall have a natural cast aluminum finish and shall be installed using a polished custom Spartan grille.

2217-033

ELECTRONIC SIREN SPEAKER LOCATION

The electronic siren speaker shall be located on the flat surfaces of the angled front right and left corners of the bumper.

2203-006

FRONT BUMPER TOW HOOKS

Two (2) heavy duty tow hooks, painted to match the frame components, shall be installed in the rearward position out of the approach angle area, bolted directly to the side of each chassis frame rail with grade 8 bolts.

2301-037

CAB TILT SYSTEM

The entire cab shall be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission. The cab tilt pump assembly shall be located on the right side of the chassis forward of the front axle behind the officer's door area.

The electric-over-hydraulic lift system shall include an ignition interlock and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the "Down" button to indicate safe road operation.

It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety circuit.

Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.

Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be 1.90 inch ball and be anchored to frame brackets with 1.25 inch diameter studs.

A steel safety channel assembly, painted safety yellow shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab. The release system cable shall be extended 5.00 feet.

2302-014

CAB TILT AUXILIARY PUMP

A manual cab tilt pump module shall be attached to the cab tilt pump mounting bracket.

2303-003

CAB TILT LIMIT SWITCH

A cab tilt limit switch shall be installed. The switch will effectively limit the travel of the cab when being tilted. The limit adjustment of the switch shall be preset by the chassis manufacturer to prevent damage to the cab or any bumper mounted option mounted in the cab tilt arc. Further adjustment to the limit by the apparatus manufacturer shall be available to accommodate additional equipment.

2305-001

CAB TILT CONTROL RECEPTACLE

The cab tilt control cable shall include a receptacle which shall be temporarily located on the right hand chassis rail rear of the cab to provide a place to plug in the cab tilt remote control pendant. The tilt pump shall include 8.00 feet of cable with a six (6) pin Deutsch receptacle with a cap.

The remote control pendant shall include 20.00 feet of cable with a mating Deutsch connector. The remote control pendant shall be shipped loose with the chassis.

2306-002

CAB TILT LOCK DOWN INDICATOR

The cab dash shall include a message located within the dual air pressure gauge which shall alert the driver when the cab is unlocked and ajar. The alert message shall cease to be displayed when the cab is in the fully lowered position and the hold down hooks are secured and locked to the cab mounts.

In addition to the alert message an audible alarm shall sound when the cab is unlocked and ajar with the parking brake released.

1401-009

CAB WINDSHIELD

The cab windshield shall have a surface area of 2825.00 square inches and be of a two (2) piece wraparound design for maximum visibility.

The glass utilized for the windshield shall include standard automotive tint. The left and right windshield shall be fully interchangeable thereby minimizing stocking and replacement costs.

Each windshield shall be installed using black self locking window rubber.

1402-002

GLASS FRONT DOOR

The front cab doors shall include a window which is 27.00 inches in width X 26.00 inches in height. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished using electric actuation. The left and right front door windows shall be controlled using a switch on each respective side inner door panel. The driver's door shall include a switch for each powered door window in the cab.

There shall be an irregular shaped fixed window which shall measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches in height, more commonly known as "cozy glass" ahead of the front door roll down windows.

The windows shall be mounted within the frame of the front doors trimmed with a black ring on the exterior.

1407-002

GLASS TINT FRONT DOOR

The windows located in the left and right front doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

1419-008

GLASS REAR DOOR RH

The rear right hand side crew door shall include a window which is 27.00 inches in width X 26.00 inches in height. The window shall be a powered type and shall be controlled by a switch on the door panel ledge and on the driver's control panel.

1430-002

GLASS TINT REAR DOOR RIGHT HAND

The window located in the right hand side rear window shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

1412-008

GLASS REAR DOOR LH

The rear left hand side crew door shall include a window which is 27.00 inches in width X 26.00 inches in height. The window shall be a powered type and shall be controlled by a switch on the door panel ledge and on the driver's control panel.

1431-002

GLASS TINT REAR DOOR LEFT HAND

The window located in the left hand side rear door shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

1410-003

GLASS SIDE MID RH

The cab shall include a window on the right side behind the front and ahead of the crew door which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

1432-002

GLASS TINT SIDE MID RIGHT HAND

The window located on the right hand side of the cab between the front and rear doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

1409-010

GLASS SIDE MID LH

The cab shall include a window on the left side behind the front door and ahead of the crew door and above the wheel well which shall measure 16.00 inches wide X 12.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self-locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

1433-002

GLASS TINT SIDE MID LEFT HAND

The window located on the left hand side of the cab between the front and rear doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

1614-204

CLIMATE CONTROL

A ceiling mounted combination defroster and cabin heating and air conditioning system shall be located above the engine tunnel area. The system covers and plenums shall be of severe duty design made of aluminum which shall be coated with a customer specified interior paint. The design of the system's covers shall provide quick access to washable air intake filters as well as easy access to other serviceable items.

Six (6) adjustable louvers shall provide comfort for the front seat occupants and ten (10) adjustable louvers shall provide comfort for the rear crew occupants. The plenum shall be shortened to terminate in the mid crew area on cabs with 10.00 inch raised roofs and greater. This shortened plenum shall allow for the customer to utilize the upper rear center wall for compartmentation, equipment, or apparatus operations.

Separate front and rear blower motors shall be of brushless design and shall be controlled independently. It shall be capable of reducing the interior cabin air temperature from 122° F (+/- 3° F) to 80° F in thirty minutes with 50% relative humidity and full solar load as described in SAE J2646.

The system shall also provide heater pull up performance which meets or exceeds the performance requirements of SAE J1612 as well as defrost performance that meets or exceeds the performance requirements of SAE J381.

A gravity drain system shall be provided that is capable of evacuating condensate from the vehicle while on a slope of up to a 13% grade in any direction.

The air conditioning system plumbing shall be a mixture of custom bent zinc coated steel fittings and Aeroquip flexible hose with Aeroquip EZ-Clip fittings.

The overhead heater/defroster plumbing shall include an electronic flow control valve that re-directs hot coolant away from the evaporator, via a bypass loop, as the temperature control is moved toward the cold position.

Any component which needs to be accessed to perform system troubleshooting shall be accessible by one person using basic hand tools. Regularly serviced items shall be replaceable by one person using basic hand tools.

*****The chassis manufacturer recommends that the overall climate system performance be based off third-party testing in accordance with the Society of Automotive Engineering standards as a complete system.***

Individual component level BTU ratings is not an accurate indicator of the performance capability of the completed system. System individual component BTU ratings:

- ☐ Air conditioning evaporator total BTU/HR: 82,000
- ☐ Air conditioning condenser total BTU/HR: 59,000
- ☐ Heater coil total BTU/HR: 98,000

Performance data specified is based on testing performed by an independent third-party test facility using a medium four-door 10" raised roof cab equipped with an ISL engine.

1632-002

CLIMATE CONTROL DRAIN

The climate control system shall include a gravity drain for water management. The gravity drain shall remove condensation from the air conditioning system without additional mechanical assistance.

1617-201

CLIMATE CONTROL ACTIVATION

The heating, defrosting and air conditioning controls shall be in the center dash center switch panel, in a position which is easily accessible to the driver. The climate control shall be activated by a rotary switch.

1620-019

HVAC OVERHEAD COVER PAINT

The overhead HVAC cover shall be painted with a multi-tone onyx black texture finish.

1603-003

A/C CONDENSER LOCATION

A roof mounted A/C condenser shall be installed centered on the cab forward of the raised roof against the slope rise.

1601-013

A/C COMPRESSOR

The air-conditioning compressor shall be a belt driven, engine mounted compressor. The compressor shall be compatible with R134-a refrigerant.

*****The chassis manufacturer recommends that the overall climate system performance be based off third-party testing in accordance with the Society of Automotive Engineering standards as a complete system.***

Individual component level ratings are not an accurate indicator of the performance capability of the completed system.

Refrigerant Compressor displacement: 19.1 cubic inches per revolution.

1530-100

UNDER CAB INSULATION

The underside of the cab tunnel surrounding the engine shall be lined with multi-layer insulation, engineered for application inside diesel engine compartments.

The insulation shall act as a noise barrier, absorbing noise thus keeping the decibel level in the cab well within NFPA recommendations. As an additional benefit, the insulation shall assist in sustaining the desired temperature within the cab interior.

The engine tunnel insulation shall measure approximately 0.30 inch thick including a multi-layer foil faced glass cloth and polyester fiber layer. The foil surface acts as protection against heat, moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.

The insulation shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation shall be held in place by acrylic pressure sensitive adhesive.

1327-036

INTERIOR TRIM FLOOR

The floor of the cab shall be covered with a multi-layer mat consisting of 0.25 inch thick sound absorbing closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive and a cast aluminum trim piece at each cab door opening. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.

1302-001

INTERIOR TRIM

The cab interior shall include trim on the front ceiling, rear crew ceiling, and the cab walls. It shall be easily removable to assist in maintenance. The trim shall be constructed of insulated vinyl over a hard board backing.

1368-003

REAR WALL INTERIOR TRIM

The rear wall of the cab shall be trimmed with aluminum sheet metal coated with a customer specified interior paint or protective coating.

1306-006

HEADER TRIM

The cab interior shall feature header trim over the driver and officer dash constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum.

1305-015

TRIM CENTER DASH

The main center dash area shall be constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum plate. There shall be four (4) holes located on the top of the dash near each outer edge of the electrical access cover for ventilation. The center dash electrical access cover shall include a gas cylinder stay which shall hold the cover open during maintenance.

1339-102

TRIM LH DASH

The left hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum plate for a perfect fit around the instrument panel. For increased occupant protection the extreme duty left hand dash utilizes patent pending break away technology to reduce rigidity in the event of a frontal crash. The left hand dash shall offer lower vertical surface area to the left and right of the steering column to accommodate control panels.

1321-004

TRIM RH DASH

The right hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate and shall include a glove compartment with a hinged door and a Mobile Data Terminal (MDT) provision. The glove compartment size will measure 14.00 inches wide X 6.38 inches high X 5.88 inches deep. The MDT provision shall be provided above the glove compartment.

1307-002

ENGINE TUNNEL TRIM

The cab engine tunnel shall be covered with a multi-layer mat consisting of 0.25 inch closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The mat shall be held in place by pressure sensitive adhesive. The engine tunnel mat shall be trimmed with anodized aluminum stair nosing trim for an aesthetically pleasing appearance.

5040-010

POWER POINT DASH MOUNT

The cab shall include two (2) 12 volt cigarette lighter type receptacles in the dash to provide a power source for 12 volt electrical equipment. The receptacles shall be wired battery direct.

5044-034

AUXILIARY POWER POINT REAR CREW

The cab interior shall include two (2) 12 volt cigarette lighter type receptacles located on the top of the forward facing seat box in the crew area behind the left and right hand seating positions within a composite housing. The receptacles shall be connected to the batteries. The receptacles shall provide a power source for 12 volt electrical equipment.

1303-039

STEP TRIM

Each cab entry door shall include a three step entry. The first step closest to the ground shall be constructed of SAE 304 stainless steel with embossed perforations and diamond shaped cutout. The perforations and cutouts shall allow water and other debris to flow through rather than becoming trapped within the stepping surface. The stainless steel material shall have a number 8 mirror finish. The lower step shall be mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed in 0.08 inch thick 3003-H22 embossed aluminum tread plate.

1379-003

UNDER CAB ACCESS DOOR

The cab shall include an aluminum access door in the left crew step riser painted to match the cab interior paint with a push and turn latch. The under cab access door shall provide access to the diesel exhaust fluid fill.

1102-013

INTERIOR DOOR TRIM

The interior trim on the doors of the cab shall consist of an aluminum panel constructed of Marine Grade 5052-H32 0.13 of an inch thick aluminum plate. The door panels shall include a painted finish.

1323-050

DOOR TRIM CUSTOMER NAMEPLATE

The interior door trim on the front doors shall include a customer nameplate which states the vehicle was custom built for their department, city, township, or county.

1105-008

CAB DOOR TRIM REFLECTIVE

In accordance with the current standards of NFPA, the body builder shall provide 96.00 square inches of reflective material on the interior of each cab door.

1308-001

INTERIOR GRAB HANDLE "A" PILLAR

There shall be two (2) rubber covered 11.00 inch grab handles installed inside the cab, one on each "A" post at the left and right door openings. The left handle shall be located 7.88 inches above the bottom of the door window opening and the right handle shall be located 2.88 inches above the bottom of the door window opening. The handles shall assist personnel in entering and exiting the cab.

1332-008

INTERIOR GRAB HANDLE FRONT DOOR

Each front door shall include one (1) ergonomically contoured 9.00 inch cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured black powder coat finish to assist personnel entering and exiting the cab.

1345-002

INTERIOR GRAB HANDLE REAR DOOR

A black powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door. A 30.00 inch long handle shall extend horizontally the width of the window just above the window sill. The handle shall assist personnel in exiting and entering the cab.

1301-003

INTERIOR SOFT TRIM COLOR

The cab interior soft trim surfaces shall be gray in color.

1337-001

INTERIOR TRIM SUNVISOR

The header shall include two (2) sun visors, one each side forward of the driver and officer seating positions above the windshield. Each sun visor shall be constructed of Masonite and covered with padded vinyl trim.

1304-002

INTERIOR FLOOR MAT COLOR

The cab interior floor mat shall be black in color.

1335-018

CAB PAINT INTERIOR DOOR TRIM

The inner door panel surfaces shall be painted with multi-tone onyx black texture finish.

1371-021

HEADER TRIM INTERIOR PAINT

The metal surfaces in the header area shall be coated with multi-tone onyx black texture finish.

1370-023

TRIM CENTER DASH INTERIOR PAINT

The entire center dash shall be coated with multi-tone onyx black texture finish. Any accessory pods attached to the dash shall also be painted this color.

1378-022

TRIM LH DASH INTERIOR PAINT

The left hand dash shall be painted with a multi-tone onyx black texture finish.

1373-022

TRIM RIGHT HAND DASH INTERIOR PAINT

The right hand dash shall be painted with multi-tone onyx black texture finish.

1369-018

REAR WALL INTERIOR PAINT

The rear wall of the cab shall be trimmed with aluminum sheet metal coated with a multi-tone onyx black texture finish.

1344-009

DASH PANEL GROUP

The main center dash area shall include three (3) aluminum removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The

panels shall be coated with a black texture finish. The center panel shall be within comfortable reach of both the driver and officer.

1312-099

SWITCHES CENTER PANEL

The center dash panel shall include seven (7) rocker switch positions in a single row configuration in the center panel.

A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

1313-023

SWITCHES LEFT PANEL

The left dash panel shall include five (5) switches. There shall be three (3) across the top of the panel with two (2) below. Two (2) of the top row of switches shall be rocker type and the left one (1) shall be the windshield wiper/washer control switch. The lower switches shall be a rocker type switch.

A rocker switch with a blank legend installed directly above shall be provided for any position not designated by a specific option. The non-designated switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

1314-012

SWITCHES RIGHT PANEL

The right dash panel shall six (6) rocker switch positions in a three (3) over three (3) switch configuration.

A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

1225-007

SEAT BELT WARNING

A seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall provide a visual warning indicator in the vehicle display and control screen(s).

The warning system shall activate when any seat is occupied with a minimum of 60 pounds, the corresponding seat belt remains unfastened, and the park brake is released. The warning system shall also activate when any seat is occupied, the corresponding seat belt was fastened in an incorrect sequence, and the park brake is released. Once activated, the visual indicators and applicable audible alarm shall remain active until all occupied seats have the seat belts fastened.

1237-002

SEAT MATERIAL

The seats shall be covered with a 45.00 ounce vinyl material. This material shall be semi- resistant to UV rays and from being saturated or contaminated by fluids.

1243-003

SEAT COLOR

All seats supplied with the chassis shall be black in color. All seats shall include red seat belts.

1249-001

SEAT BACK LOGO

The seat back shall include the “Spartan” logo. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.

1201-038

SEAT DRIVER

The driver's seat shall be an H.O. Bostrom 500 Series Firefighter Sierra model seat with air suspension. The four-way seat shall feature a 3.00 inches vertical travel air suspension and manual fore and aft adjustment with 5.00 inches of travel. The suspension control shall be located on the seat below the left front corner of the bottom cushion. The seat shall also feature integral springs to isolate shock.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208.

The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.

1213-024

SEAT BACK DRIVER

The driver’s seat shall include a standard seat back incorporating the all belts to seat feature (ABTS) as described above. The seat back shall recline up to 19-degrees.

1219-001

SEAT MOUNTING DRIVER

The driver's seat shall be installed in an ergonomic position in relation to the cab dash.

1202-037

SEAT OFFICER

The officer's seat shall be a H.O. Bostrom 500 Series Sierra seat model. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

1214-034

SEAT BACK OFFICER

The officer's seat back shall include an IMMI brand SmartDock® Gen 2 hands-free self contained breathing apparatus (SCBA) holder. The hands-free holder shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of emergency response vehicles. The bracket shall accommodate and secure most types of self-contained breathing apparatus cylinders.

The hands-free holder shall consist of a back plate, bottom cradle, non-marring top claws, and claw height adjustment knob. The height adjustment knob shall allow for easy adjustment of the claws to the SCBA. The hands-free holder's claws shall lock from inertial forces to prevent the SCBA from becoming a projectile in the event of a crash to meet the NFPA 1901-03 standard for SCBA retention. The SCBA holder shall offer single-motion insertion into the claws and hands-free release when the SCBA fitted seat occupant rises.

1220-002

SEAT MOUNTING OFFICER

The officer's seat shall be installed in an ergonomic position in relation to the cab dash.

1273-001

SEAT BELT ORIENTATION CREW

The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip.

1263-003

SEAT REAR FACING OUTER LOCATION

The crew area shall include one (1) rear facing crew seat located directly behind the right side front seat.

The primary position designation per NFPA 1900 2024 edition, shall only declare the positioning in the cab offers a minimum width of 27.60 inches of shoulder clearance without overlap of any other primary seating position and a minimum of 10.80 inches each side of seat center line. Clear width may be offset from center of seat cushion by up to 3.00 inches. It shall also offer a minimum of 22.00 inches of shoulder width clearance without any overlap of any position.

1203-024

SEAT CREW REAR FACING OUTER

The crew area shall include a seat in the rear facing outboard position which shall be a H.O. Bostrom 500 Series Firefighter model seat. The seat shall feature a tapered and padded seat, and cushion. The seat and cushion shall be spring load hinged and compact in design for additional room. The seat shall include a “Fold and Hold” feature so that the cushion shall remain in the seated position and simply touched to flip up.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

1215-031

SEAT BACK REAR FACING OUTER

The crew area seat backs shall include an IMMI brand SmartDock® Gen 2 hands-free self contained breathing apparatus (SCBA) holder. The hands-free holder shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of emergency response vehicles. The bracket shall accommodate and secure most types of self-contained breathing apparatus cylinders.

The hands-free holder shall consist of a back plate, bottom cradle, non-marring top claws, and claw height adjustment knob. The height adjustment knob shall allow for easy adjustment of the claws to the SCBA. The hands-free holder's claws shall lock from inertial forces to prevent the SCBA from becoming a projectile in the event of a crash to meet the NFPA 1901-03 standard for SCBA retention. The SCBA holder shall offer single-motion insertion into the claws and hands-free release when the SCBA fitted seat occupant rises.

1221-009

SEAT MOUNTING REAR FACING OUTER

The rear facing outer seats shall offer special mounting positions which shall be 2.00 inches towards the rear wall offering additional space between the front seats and the outer rear facing seats.

1265-001

SEAT FORWARD FACING OUTER LOCATION

The crew area shall include two (2) forward facing outboard seats, which include one (1) located next to the outer wall of the cab on the left side of the cab and one (1) located next to the outer wall on the right side of the cab.

The primary position designation per NFPA 1900 2024 edition, shall only declare the positioning in the cab offers a minimum width of 27.60 inches of shoulder clearance without overlap of any other primary seating position and a minimum of 10.80 inches each side of seat center line. Clear width may be offset from center of seat cushion by up to 3.00 inches. It shall also offer a minimum of 22.00 inches of shoulder width clearance without any overlap of any position.

1205-027

SEAT CREW FORWARD FACING OUTER

The crew area shall include a seat in the forward facing outer position which shall be a H.O. Bostrom 500 Series Firefighter model seat. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position. The seat and cushion shall be hinged and compact in design for additional room. The seat shall include a “Fold and Hold” feature so that the cushion shall remain in the seated position and simply touched to flip up.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

1217-032

SEAT BACK FORWARD FACING OUTER

The crew area seat backs shall include an IMMI brand SmartDock® Gen 2 hands-free self contained breathing apparatus (SCBA) holder. The hands-free holder shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of emergency response vehicles. The bracket shall accommodate and secure most types of self-contained breathing apparatus cylinders.

The hands-free holder shall consist of a back plate, bottom cradle, non-marring top claws, and claw height adjustment knob. The height adjustment knob shall allow for easy adjustment of the claws to the SCBA. The hands-free holder's claws shall lock from inertial forces to prevent the SCBA from becoming a projectile in the event of a crash to meet the NFPA 1901-03 standard for SCBA retention. The SCBA holder shall offer single-motion insertion into the claws and hands-free release when the SCBA fitted seat occupant rises.

1223-003

SEAT MOUNTING FORWARD FACING OUTER

The forward facing outer seat shall be mounted inboard from the side wall for additional clearance facing the front of the cab.

1266-005

SEAT FORWARD FACING CENTER LOCATION

The crew area shall include one (1) forward facing center crew seat located directly behind the engine tunnel in the center of the cab.

1206-031

SEAT CREW FORWARD FACING CENTER

The forward facing center seat shall be a H.O. Bostrom 500 Series Firefighter model seat. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position. The seat and cushion shall be hinged and compact in design for additional room. The seat shall include a "Fold and Hold" feature so that the cushion shall remain in the seated position and simply touched to flip up.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

1218-035

SEAT BACK FORWARD FACING CENTER

The crew area seat backs shall include an IMMI brand SmartDock® Gen 2 hands-free self contained breathing apparatus (SCBA) holder. The hands-free holder shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of emergency response vehicles. The bracket shall accommodate and secure most types of self-contained breathing apparatus cylinders.

The hands-free holder shall consist of a back plate, bottom cradle, non-marring top claws, and claw height adjustment knob. The height adjustment knob shall allow for easy adjustment of the claws to the SCBA. The hands-free holder's claws shall lock from inertial forces to prevent the SCBA from becoming a projectile in the event of a crash to meet the NFPA 1901-03 standard for SCBA retention. The SCBA holder shall offer single-motion insertion into the claws and hands-free release when the SCBA fitted seat occupant rises.

1269-103

SEAT FRAME FORWARD FACING

The forward facing center seating positions shall include a full width seat frame located and installed at the rear wall. The seat frame shall span the available space on the rear wall. The seat frame shall be 12.38 inches high X 22.00 inches deep. The seat frame shall be constructed of Marine Grade 5052-H32 0.19 inch thick aluminum plate. The seat box shall be painted with the same color as the remaining interior.

1281-165

SEAT FRAME FORWARD FACING STORAGE ACCESS

There shall be two (2) access points to the storage area centered on the front of the seat frame. Each access point shall be covered by a hinged door and push button latch to allow access for storage in the seat box.

1224-002

SEAT MOUNTING FORWARD FACING CENTER

The forward facing center seats shall be installed facing the front of the cab.

1227-002

SEAT FRAME EXTERIOR REAR COMPARTMENT ACCESS

The seat frame shall be open to the exterior rear compartment on both the right hand side and the left hand side. This shall allow interior access to the left and right exterior rear compartments.

1311-101

CAB FRONT UNDERSEAT STORAGE ACCESS

The left and right under seat storage areas shall have a solid aluminum hinged door with non-locking latch.

1355-023

SEAT COMPARTMENT DOOR FINISH

All underseat storage compartment access doors shall have a multi-tone onyx black texture finish.

1511-200

WINDSHIELD WIPER SYSTEM

The cab shall include a triple arm linkage wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers; each shall be affixed to a radial arm. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position.

1534-002

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow "Check Message Center" indicator light on the instrument panel shall illuminate and the message center in the dual air pressure gauge shall display a "Check Washer Fluid Level" message.

1103-002

CAB DOOR HARDWARE

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of a fiber reinforced plastic composite with a black matt finish.

The interior exit door handles shall be flush paddle type with a black finish, which are incorporated into the upper door panel.

All cab entry doors shall include locks which are keyed alike. The door locks shall be designed to prevent accidental lockout.

1111-001

DOOR LOCKS

Each cab entry door shall include a manually operated door lock. Each door lock may be actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door or by using a TriMark key from the exterior. The door locks are designed to prevent accidental lock out.

1113-002

DOOR LOCK LH EMS COMPARTMENT

The left hand side EMS compartment shall feature a manual door lock. The lock shall be keyed #1250.

1115-002

DOOR LOCK LH REAR CAB COMPARTMENT

The left hand side rear compartment shall feature a manual door lock. The lock shall be keyed #1250.

1116-002

DOOR LOCK RH REAR CAB COMPARTMENT

The right hand side rear compartment shall feature a manual door lock. The lock shall be keyed #1250.

1503-201

GRAB HANDLES

The cab shall include one (1) 18.00 inch three-piece knurled aluminum, anti-slip exterior assist handle, installed behind each cab door. The assist handle shall be made of extruded aluminum with a knurled finish to enable non-slip assistance with a gloved hand.

1503D-005

LIGHTED GRAB HANDLES

The grab rails shall include a 12 volt, 17.00 inch long red LED light to provide an increased margin of safety for night time cab entry and egress.

1504-014

REARVIEW MIRRORS

Retrac Aerodynamic West Coast style dual vision mirror heads model 613305 shall be provided and installed on each of the front cab doors.

The mirrors shall be mounted via 1.00 inch diameter tubular stainless steel arms to provide a rigid mounting to reduce mirror vibration.

The mirrors shall measure 8.00 inches wide X 19.00 inches high and shall include an integral convex mirrors installed in the mirror head below the flat glass to provide a wider field of vision. The flat and convex mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver. The flat and convex mirrors shall be heated for defrosting in severe cold weather conditions.

The mirrors shall be constructed of a vacuum formed chrome plated ABS plastic housing that is corrosion resistant and shall include the finest quality non-glare glass.

1529-004

REARVIEW MIRROR HEAT SWITCH

The heat for the rearview mirrors shall be controlled through a rocker switch in the mirror control panel on the left side dash.

1513-029

CAB FENDER

Wheel well liners shall be integrated into cab design and include a bed liner undercoat to limit road splash and enable easier cleaning. Each outer fenderette shall be 5.00 inches wide made of SAE 304 polished stainless steel.

1514-002

MUD FLAPS FRONT

The front wheel wells shall have mud flaps installed on them.

1526-026

CAB EXTERIOR FRONT & SIDE EMBLEMS

The cab shall include three (3) Spartan emblems. There shall be one (1) installed on the front air intake grille and one (1) emblem on each of the cab sides.

1502-050

CAB EXTERIOR MODEL NAMEPLATE

The cab shall include “Metro Star” nameplates on the front driver and officer side doors.

5109-015

IGNITION

A master battery system with a keyless start ignition system shall be provided. There shall be a three-position rocker switch with off, battery, and ignition positions as well as a stainless-steel etched engine start push-button. The engine start button shall include an illuminated LED halo ring. Both switches shall be mounted to the left of the steering wheel on the dash.

The engine start switch shall only operate when the master battery and ignition switch is in the “ignition” position.

5101-035

BATTERY

The single start electrical system shall include five (5) Harris BCI 31 925 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541.

5106-003

BATTERY TRAY

The batteries shall be installed within two (2) steel battery trays located on the left side and right side of the chassis, securely bolted to the frame rails. The battery trays shall be coated with the same material as the frame.

The battery trays shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek shall be installed in the bottom of the trays to allow for air flow and help prevent moisture build up.

5107-028

BATTERY BOX COVER

Each battery box shall include a cover which protects the top of the batteries. The covers shall be constructed of a composite material which is resistant to corrosion.

5102-001

BATTERY CABLE

The starting system shall include cables which shall be protected by 275 degree F. minimum high temperature flame retardant loom, sealed at the ends with heat shrink and sealant.

5108-010

BATTERY JUMPER STUD

The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step, 8.00 inches apart. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.

5104-002

ALTERNATOR

The charging system shall include a 320 amp Leece-Neville 12 volt alternator. The alternator shall include a self-exciting integral regulator.

5105-001

STARTER MOTOR

The single start electrical system shall include a Delco brand starter motor.

5202-400

BATTERY CONDITIONER

A Kussmaul Auto Charge Chief 4012 battery conditioner shall be supplied. The battery conditioner shall provide a circuit protected 40-amp output for the chassis batteries and a 20-amp output circuit for accessory loads. The conditioner shall also include a battery temperature sensor.

5218-003

BATTERY CONDITIONER LOCATION

The battery conditioner shall be mounted in the cab in the right-hand rear facing outer seating position.

5203-200

BATTERY CONDITIONER DISPLAY

A Kussmaul battery conditioner display with a Digital Status Center shall be integrated into the electrical inlet.

5220-002

BATTERY CONDITIONER DISPLAY LOCATION

The battery conditioner display shall be integrated into the electrical inlet and located via the electrical inlet location 5209 subcategory.

3314-202

AUXILIARY AIR COMPRESSOR

A Kussmaul Auto Pump 120V air compressor shall be supplied. The air compressor shall be plumbed to the air brake system to maintain air pressure.

3370-006

AUXILIARY AIR COMPRESSOR LOCATION

The air compressor shall be installed behind the officer's seat.

5209-036

ELECTRICAL INLET LOCATION

An electrical inlet shall be installed on the left hand side of cab over the wheel well in the forward position rear of the grab handle and above the door entry key pad if applicable.

5204-055

ELECTRICAL INLET

A Kussmaul 20 amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed.

A single item or an addition of multiple items must not exceed the rating of the electric inlet that it's connected to.

Amp Draw Reference List:

Kussmaul 40 LPC Charger - 5 Amps

Kussmaul Chief 4012 Charger – 5.7 Amps

Kussmaul 80 LPC Charger - 13 Amps

Kussmaul Chief 6012 Charger - 9 Amps

Blue Sea P12 7532 - 7.5 Amps

Iota DLS-45/IQ4 - 11 Amps

1000W Engine Heater - 8.33 Amps

1500W Engine Heater - 12.5 Amps

120V Air Compressor - 4.2 Amps

120V Dometic HVAC - 15 Amps

5210-005

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery conditioner and the air pump.

5206-002

ELECTRICAL INLET COLOR

The electrical inlet connection shall include a yellow cover.

5301-102

HEADLIGHTS

The cab front shall include four (4) rectangular LED headlamps with separate high and low beams mounted in bright chrome bezels. Each lamp shall include a heating system that de-ices the headlight.

5337-001

HEADLIGHT LOCATION

The headlights shall be located on the front fascia of the cab directly below the front warning lights.

5303-036

FRONT TURN SIGNALS

The front fascia shall include two (2) Whelen model M6 4.00 inch X 6.00 inch amber LED with clear lens turn signals which shall be installed in a chrome radius mount housing above and outboard of the front warning and head lamps.

5336-017

SIDE TURN/MARKER LIGHTS

The sides of the cab shall include two (2) Tecniq S170 LED side marker lights which shall be provided just behind the front cab radius corners. The lights shall be amber in color.

5302-018

MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) marker lamps on the front of the vehicle designating identification and clearance. There shall be five (5) face mounted lights integrated into the scene light.

5350-076

HEADLIGHT AND MARKER LIGHT ACTIVATION

The headlights and marker lights shall be controlled via a virtual button on the vehicle display and control screen. The headlights and marker lights shall also be activated upon engine startup. There shall be a virtual dimmer control on the Vista display and control screen to adjust the brightness of the dash lights.

5305-350

INTERIOR OVERHEAD LIGHTS

The cab shall include a LED dome lamp located over each door. The lights shall include push switches on each lamp to activate both the clear and red portions of the light individually.

5388-003

INTERIOR OVERHEAD LIGHTS ACTIVATION

The clear portion of each lamp shall be activated by opening the respective door and via the vehicle display and control screen.

5403-062

LIGHTBAR PROVISION

There shall be one (1) light bar installed on the cab roof. The light bar shall be provided and installed by the chassis manufacturer. The light bar installation shall include a lowered mounting that shall place the light bar just above the junction box and wiring to a control switch on the cab dash.

5450N-003

CAB FRONT LIGHTBAR MODEL

The cab shall be provided with one (1) Whelen model F4N72 light bar. The light bar shall be 72.00 inches in length and feature eighteen (18) customizable pods.

See the light bar layout for specific details.

If applicable, clear lights shall be disabled with park brake engaged.

5426-003

LIGHTBAR SWITCH

The light bar shall be controlled by a virtual button on the vehicle display and control screen. This button shall be clearly labeled for identification.

5317-284

FRONT SCENE LIGHTS

The front of the cab shall include one (1) 69" Whelen Field Series FSB11B 12V LED scene light installed on the brow of the cab. The light shall feature five (5) integrated marker lights.

The housing shall be powder coated black.

5329-003

FRONT SCENE LIGHT LOCATION

There shall be one (1) scene light mounted center on the front brow of the cab.

5335-022

FRONT SCENE LIGHTS ACTIVATION

The front scene lighting shall be activated by a virtual button on the vehicle display and control screen and a lighted momentary rocker switch on the dash.

5306-196

SIDE SCENE LIGHTS

The cab shall include two (2) Whelen model Pioneer PCH2 semi-recess mount lights installed one (1) on each side of the cab.

Each 150 watt lamp head shall incorporate a 12 volt DC Super-LED combination flood/spot light installed in a die-cast aluminum housing. Each lamp head shall use a collimator/metalized redux spot/flood reflector assembly with Proclera™ silicone optics and a clear non-optic polycarbonate lens. The lens/reflector assembly shall utilize a liquid injected molded silicone gasket to be resistant to water, moisture, dust, and other environmental conditions. The PCH2 shall be vibration resistant. The Pioneer PC boards shall be conformal coated for additional protection. Each combination flood light lamp head shall draw 13.0 amps in spotlight mode and generate 17,750 lumens total. Each lamp head shall measure 4.25 inches in height X 14.00 inches in width. Each lamp head shall be mounted in a 15.00 degrees downward angle within a semi-recess housing which shall measure 7.92 inches in height X 17.17 inches in width. The semi-recess housing shall feature a gloss black finish, additionally the lamp heads and brackets shall be powder coated black.

5318-004

SIDE SCENE LIGHT LOCATION

The scene lighting located on the left and right sides of the cab shall be mounted rearward of the cab "B" pillar in the 10.00 inch raised roof portion of the cab between the front and rear crew doors.

5316-048

SIDE SCENE ACTIVATION

The scene lights shall be activated by two (2) lighted momentary rocker switches located in the switch panel, one (1) for each light and by two (2) virtual buttons on the vehicle display and control screen(s), one (1) for each light.

5330-035

REAR SCENE LIGHTS

The vehicle shall include multiplex activated rear scene lighting for body builder installed scene lights and body builder installed multiplex output.

5331-002

REAR SCENE LIGHT ACTIVATION

The rear scene lighting shall be activated via a single rocker switch located inside the cab on the switch panel.

5308-300

GROUND LIGHTS

Each door shall include a Tecniq T44 LED ground light mounted to the underside of the cab step below each door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life.

5386-006

GROUND LIGHTS

The ground lighting shall be activated when the parking brake is set, by the opening of the door on the respective cab side, through a virtual button on the vehicle display and control screen, when the truck is placed into reverse, and by the respective side turn signal.

5309-003

LOWER CAB STEP LIGHTS

The middle step located at each door shall include a Tecniq T44 LED light which shall activate with the opening of the respective door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life.

5382-008

INTERMEDIATE STEP LIGHTS

The intermediate step well area at the front doors shall include a TecNiQ D06 LED light within a chrome housing. The front egress step lights shall provide visibility to the step well area for the first step exiting the vehicle. The Egress step lights shall activate with entry step lighting.

5312-003

ENGINE COMPARTMENT LIGHT

There shall be a LED NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall activate automatically when the cab is tilted.

5406-119

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a flashing red TecNiQ K50 LED light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated.

The flashing red light shall be located centered left to right for greatest visibility.

The light and alarm shall be interlocked for activation when either a cab door is not firmly closed, or an apparatus compartment door is not closed, and the parking brake is released.

5422-025

MASTER WARNING SWITCH

A master switch shall be included, as a virtual button on the vehicle display and control screen which shall be labeled “E Master” for identification. The button shall feature control over all devices wired through it. Any warning device switches left in the “ON” position when the master switch is activated shall automatically power up. An additional master switch shall be included in the rocker switch panel. The switch shall change the current state of the virtual button on the display screen. The switch shall be a lighted momentary rocker type, red in color and labeled “Master” for identification.

There shall be an additional virtual button on the vehicle display and control screen to manually override an automatic warning light dimmer clearly labeled “WARNING LIGHT DIMMER”. The warning light dimmer will automatically reduce the brightness of the warning lights with the display screen “Night” dimmer setting and with the park brake set. The operator can override the warning light dimmer feature and manually select the warning lights to be at normal brightness using the warning light dimmer virtual button, or “Day” display screen brightness. The lights shall also default to normal brightness when the “E Master” button is activated, and the park brake is released.

5409-002

HEADLIGHT FLASHER

An alternating high beam headlight flashing system shall be installed into the high beam headlight circuit which shall allow the high beams to flash alternately from left to right.

Deliberate operator selection of high beams will override the flashing function until low beams are again selected. Per NFPA, these clear flashing lights will also be disabled “On Scene” when the park brake is applied.

5425-003

HEADLIGHT FLASHER SWITCH

The flashing headlights shall be activated through a virtual button on the Vista display and control screen.

5401-032

INBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right inboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the front fascia of the cab within a chrome bezel

5413-003

INBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the inboard positions shall be red with a clear lens.

5414-022

OUTBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right outboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the front fascia of the cab within a chrome bezel.

5415-006

OUTBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the outboard position shall be blue with a clear lens.

5423-003

FRONT WARNING SWITCH

The front warning lights shall be controlled through a virtual control on the vehicle display and control screen. This switch shall be clearly labeled for identification.

5404-027

INTERSECTION WARNING LIGHTS

The chassis shall include two (2) Whelen M6 series Super LED intersection warning lights, one (1) each side. The lights shall feature multiple flash patterns including steady burn.

5419-003

INTERSECTION WARNING LIGHTS COLOR

The intersection lights shall be red with a clear lens.

5420-007

INTERSECTION WARNING LIGHTS LOCATION

The intersection lights shall be mounted centered front to rear on the flat portion of the side of the bumper tail.

5402-029

SIDE WARNING LIGHTS

The cab sides shall include two (2) Whelen M6 Super LED warning lights, one (1) on each side. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the sides of the cab within a chrome bezel.

5418-008

SIDE WARNING LIGHTS COLOR

The warning lights located on the side of the cab shall be blue with a clear lens.

5412-009

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the cab shall be mounted over the front wheel well forward from the center of the front axle.

5424-003

SIDE AND INTERSECTION WARNING SWITCH

The side warning lights shall be controlled through a virtual button on the vehicle display and control screen. This button shall be clearly labeled for identification.

5469-002

TANK LEVEL LIGHTS

There shall be two (2) FRC MaxVision surface mount water level light strips.

The light strips shall feature four (4) colors of LED lights to indicate the fluid level of a tank. The colors from top to bottom shall be green, blue, amber, and red.

5470-002

TANK LEVEL LIGHTS ACTIVATION

The tank level lights shall be pre-wired and coiled at rear of the cab for connection to the apparatus by the body builder.

5471-003

TANK LEVEL LIGHTS LOCATION

There shall be water level lights mounted on each side of the cab, centered between the rear cab doors and the rear corners of the cab.

5449-045

REAR WARNING LIGHTS

The cab shall be prewired and contain a cutout for a Whelen TACTL5 Traffic Advisor control head located in the header above the driver for OEM installation.

Wiring provisions shall be provided routed to the rear of the frame for OEM installation of up to eight (8) individual traffic advisor warning lights rated at no more than one (1) amp each.

The power to the control head shall be ignition switched and activation dependent upon the state of the controllers switched position upon ignition.

5407-019

INTERIOR DOOR OPEN WARNING LIGHTS

The interior of each door shall include one (1) 15.87 inch long X 0.73 inch tall amber Weldon LED warning light. The light shall be located on the upper portion of the door frame to be visible when a person is standing in front of the door while entering or exiting the cab. Each light shall activate with a scrolling directional flash pattern which moves from inside to outside when the door is in the open position. This shall serve as a warning to oncoming traffic.

5510-004

SIREN CONTROL HEAD

A Whelen 295HFS2 electronic siren control head with remote amplifier shall be provided and flush mounted in the switch panel with a location specific to the customer's needs. The siren shall feature 200-watt output, hands free mode and shall be in "standby" mode awaiting instruction. The siren shall offer radio broadcast, public address, wail, yelp, or piercer tones and hands free operation which shall allow the operator to turn the siren on and off from the horn ring if a horn/siren selector switch option is also selected.

5514-102

STEERING WHEEL HORN BUTTON SELECTOR SWITCH

A virtual button on the vehicle display and control screen shall be provided to allow control of the electric horn or the air horn from the steering wheel horn button. The horn button selection shall default to the air horn each time the display screen power is cycled off and on.

5526-004

AUDIBLE WARNING LH FOOT SWITCH

A foot switch wired to actuate the mechanical siren(s) shall be supplied for installation in the front section of the cab for driver actuation.

5526D-001

MECHANICAL SIREN FOOT SWITCH LH

The mechanical siren foot switch shall be a Linemaster model 491-S.

5526E-001

MECHANICAL SIREN FOOT SWITCH LH LOCATION

The mechanical siren foot switch shall be located on the left hand side accessible to the driver between the steering column and the door.

5526F-001

MECHANICAL SIREN FOOT SWITCH LH POSITION

The mechanical siren foot switch shall be positioned outboard of any other foot switch, if applicable.

5529-002

AUDIBLE WARNING LH FOOT SWITCH BRACKET

A 30.00 degree angled foot switch bracket, wide enough to accommodate (2) foot switches, shall be installed outboard of the steering column for specified driver accessible foot switch activations.

5512-078

AIR HORN AUXILIARY ACTIVATION

The air horn activation shall be accomplished by two (2) lanyard cables, one (1) on the left hand side accessible to the driver and one (1) on the right hand side accessible to the officer, and by a momentary

rocker switch on the switch panel. An air horn activation circuit shall be provided to the chassis harness pump panel harness connector.

5513-102

MECHANICAL SIREN BRAKE/AUXILIARY ACTIVATION

The mechanical siren shall be actuated by two (2) dual function momentary rocker switches in the switch panel on the dash which shall activate the siren in the upper position and engage the siren brake in the lower position.

5532-001

MECHANICAL SIREN INTERLOCK

The siren shall only be active when master warning switch is on to prevent accidental engagement.

5505-002

BACK-UP ALARM

An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.

5601-063

INSTRUMENTATION

An Innovative Controls Digital Instrument Cluster (DIC) shall be provided that combines gauges, telltales, warning messages, and advanced diagnostic capabilities into a single 12.8-inch digital display. The display screen shall have an anti-reflective coating and include touch screen and mechanical button user interaction with the display as well as video and audio interfaces.

The DIC shall include a vehicle odometer which displays the total vehicle distance traveled. The DIC shall also include two vehicle trip odometers (TRIP A and TRIP B) which indicate the distance traveled and average fuel economy for each respective trip. The operator may select which odometer is displayed and may reset either trip odometer through the on-screen display. The DIC shall include an engine hour meter which displays the total engine hours of operation.

The gauges shall have high-contrast white scales with orange pointers. The following gauges shall be included on the display:

- ☐ Speedometer that indicates vehicle speed. The scale on the speedometer shall read from 0 to 100 MPH. A numerical display of vehicle speed shall also be shown on the gauge.
- ☐ Tachometer that indicates engine speed. The scale of the tachometer shall read from 0 to 3000 RPM.
- ☐ Primary and secondary air pressure gauges shall indicate the pressure in the primary and secondary air systems. The scale of the air pressure gauges shall read from 0 to 160 pounds per square inch (PSI). The gauge icon and scale shall turn amber when the system pressure drops below 70 PSI. The icon and scale shall turn red when the system pressure drops below 62 PSI. An audible alarm shall also sound when air pressure is low.

- ☐ Fuel gauge. The fuel gauge shall read from empty to full as a fraction of full tank capacity. The gauge icon and scale shall turn amber when the fuel level is below 1/8th tank capacity (1/4th tank in pump mode). An audible alarm shall also sound with low fuel level.
- ☐ Diesel exhaust fluid (DEF) gauge. The DEF gauge shall read from empty to full as a fraction of full tank capacity. The gauge icon and scale shall turn amber, and an audible alarm shall sound to indicate low DEF level.
- ☐ Engine oil pressure gauge. The scale of the engine oil pressure gauge shall read from 0 to 100 PSI. The gauge icon and scale shall turn red, and an audible alarm shall sound to indicate low oil pressure.
- ☐ Engine coolant temperature gauge. The scale of the coolant temperature shall read from 100 to 250 degrees Fahrenheit (°F). The gauge icon and scale shall turn red, and an audible alarm shall sound to indicate high coolant temperature.
- ☐ Voltmeter indicating chassis system voltage. The scale of the voltmeter shall be from 10 to 18 volts. The gauge icon and scale shall turn red, and an audible alarm shall sound when the system voltage drops below 11.8 volts for more than 120 seconds in accordance with the requirements of NFPA 1901. The gauge icon and scale shall turn red, and an audible alarm shall sound when the system voltage rises above 15.5 volts for more than 5 seconds.
- ☐ Transmission temperature gauge. The scale of the transmission temperature shall read from 100 to 300 degrees Fahrenheit (°F). The gauge icon and scale shall turn amber, and an audible alarm shall sound to indicate high transmission temperature.

The DIC shall include thirty-six (36) colored telltales to indicate vehicle operating conditions. The DIC shall provide text-based warning messages to accompany all telltales. The DIC shall contain an audible alarm capable of providing different alert sounds based on the type of warning. The audible alarm shall be capable of being heard from all seating positions in the cab. The operator shall be able to silence active alarms that are permitted to be silenced by applicable regulations. The DIC shall contain the following indicators and produce the following audible alarms when supplied in conjunction with applicable configurations:

RED TELLTALES

- ☐ Air Filter Restriction - indicates restriction of the engine air intake filter
- ☐ Air Pressure (Primary) – indicates critically low primary system air pressure
- ☐ Air Pressure (Secondary) – indicates critically low secondary system air pressure
- ☐ Cab Tilt Warning - indicates the cab tilt system locks are not engaged
- ☐ Coolant Temperature – indicates high engine coolant temperature
- ☐ Low Coolant - indicates critically low engine coolant
- ☐ Oil Pressure – indicates critically low engine oil pressure
- ☐ Park Brake - indicates parking brake is set
- ☐ Seat Belt - indicates a seat belt violation
- ☐ Stop Engine - indicates critical engine fault
- ☐ Voltage – indicates critically low or high system voltage

AMBER TELLTALES

- ☐ Supplemental Restraint System (SRS) – ISO Icon indicates an SRS fault
- ☐ Anti-Lock Brake System (ABS) - indicates anti-lock brake system fault
- ☐ Check Engine - indicates engine fault
- ☐ Check Transmission - indicates transmission fault

- ☐ Diesel Exhaust Fluid (DEF) level – indicates low DEF level
- ☐ Diesel Particulate Filter (DPF) - indicates restriction of the diesel particulate filter
- ☐ Electronic Stability Control (ESC) – indicates active electronic stability control system
- ☐ Fuel Level – indicates low fuel
- ☐ High Exhaust System Temperature (HEST) – indicates elevated exhaust temperature
- ☐ Malfunction Indicator Lamp (MIL) - indicates an engine emissions system fault
- ☐ Regen Inhibit - indicates regeneration of the DPF has been inhibited by the operator
- ☐ Transmission Temperature – indicates high transmission or transmission retarder temperature
- ☐ Transmission Range Inhibit - indicates a transmission operation is prevented and requested shift into gear may not occur
- ☐ Wait to Start - indicates active engine air preheat cycle
- ☐ Water in Fuel - indicates presence of water in fuel filter
- ☐ Windshield Washer Fluid – indicates low washer fluid

GREEN TELLTALES

- ☐ Automatic Traction Control (ATC) - indicates low wheel traction for automatic traction control equipped vehicles. Also indicates mud/snow mode is active for ATC system
- ☐ Auxiliary Brake - indicates secondary braking device is active
- ☐ Cruise Control - indicates cruise control is enabled
- ☐ High Idle - indicates engine high idle is active
- ☐ OK to Pump - indicates that conditions have been met for pump operations
- ☐ Left and Right Turn Signal – indicates active turn signal
- ☐ Pump Engaged - indicates the pump transmission is currently in pump gear

BLUE TELLTALES

- High Beam indicator

AUDIBLE ALARMS

- ABS System Fault
- Air Filter Restriction
- APS System Fault
- Cab Tilt Warning
- Check Engine
- Check Transmission
- Do Not Move Apparatus (open door/compartment)
- DPF Restriction
- High Coolant Temperature
- High or Low System Voltage
- High Transmission Temperature
- Idle Shutdown
- Low Air Pressure
- Low Coolant Level
- Low DEF Level
- Low Engine Oil Pressure
- Low Fuel
- Seatbelt Warning
- Stop Engine

- Turn Signal On
- Water in Fuel

The DIC shall allow the user to configure settings through an on-screen menu. The following settings shall be adjustable by the user:

- Distance/Speed Units – English (miles/MPH) or metric (kilometers/KPH)
- Temperature Units – degrees Fahrenheit (°F) or degrees Celsius (°C)
- Pressure Units – pounds per square inch (PSI) or kilopascals (kPA)
- Odometer/Trip odometer—choose which odometer is displayed and reset trip odometers
- Display Brightness – adjust brightness levels for both day and night settings
- Volume – adjust volume of display speaker
- Auxiliary Gauges – configure location of auxiliary gauges

The DIC shall include on-screen control of the diesel particulate filter (DPF). The DIC shall be capable of initiating and halting a manual DPF regeneration cycle. Also, the DIC shall be capable of inhibiting DPF regeneration when not desired by the operator.

The DIC shall be capable of displaying detailed diagnostic information. Diagnostic information screens shall only be accessible when the park brake is set to prevent unsafe operation of the vehicle. The following information shall be available through the on-screen menu:

- ☐ On-Board Diagnostics (OBD) faults – display of all active OBD faults, including the system reporting the fault, the suspect parameter number (SPN), and the failure mode identifier (FMI)
- ☐ Messages– display a list of all active warning messages and the status of alarms
- ☐ Vehicle Info – display of broadcast chassis information, including Vehicle Identification Number (VIN)
- ☐ Pump Interlocks – display pump interlocks status, engine speed, and transmission output speed
- ☐ Input/Output Diagnostics – display the state of all wired inputs and outputs to the DIC
- ☐ Symbol Legend – display a glossary of all symbols and icons used on the DIC
- ☐ J1939 Databus Info – display a list of all electronic control units (ECUs) communicating on the vehicle J1939 databus and display a list of all current message data on J1939

5624-005

BACKLIGHTING COLOR

The digital dash instrumentation gauges shall display in white and the switch panel legends shall be backlit using red LED backlighting.

5607-030

HOUR METER

An hour meter for the engine and the pump hours shall be included within the digital dash display which shall measure the number of hours the engine and the driveline pump has been operated.

5701-300

RADIO

A Jensen brand heavy-duty radio with weather band, AM/FM stereo receiver and Bluetooth capabilities shall be installed in a customer specified location. Radio shall be the current, commercially available heavy-duty single-DIN automotive model at time of vehicle manufacturing date.

5736-200

RADIO LOCATION

The radio shall be installed in the right hand overhead position above the officer.

5707-003

AM/FM ANTENNA

A small antenna shall be located on the right hand side of the cab roof for AM/FM and weather band reception.

5737-200

RADIO SPEAKERS

There shall be two (2) speakers installed in the front portion of the cab recessed overhead and two (2) speakers installed in the rear portion of the cab overhead. The speakers shall be provided for connection to the sound system.

5738-200

RADIO CUTOFF

The radio shall cut-out with activation of a virtual button on the vehicle control and display screen.

5706-324

CAMERA

An FRC branded inView 360-HD™ heavy duty 360° camera system powered by SEON shall be supplied. Three (3) HD cameras with box shaped housing shall be shipped loose for OEM installation in the body to afford the driver a clear view to the rear and sides of the vehicle and one (1) HD camera shall be mounted on the front of the cab, centered above the windshield.

The system shall provide a dual camera view. One (1) view shall be a stitched bird's eye 360.00 degrees view around the truck and one (1) shall be a direct feed from a single camera. This feed shall display the rear camera when the transmission is placed in reverse, the left or right camera with the activation of the respective side turn signal, or the front camera at all other times.

5731-004

CAMERA DISPLAY

The camera system shall be wired to a single vehicle display and control screen located on the driver's side dash. The camera system display can be activated through the vehicle display and control screen.

5703-011

COMMUNICATION ANTENNA

An antenna base, for use with an NMO type antenna, shall be mounted on the left hand front corner of the cab roof so not to interfere with light bars or other roof mounted equipment installed by chassis

builder. The antenna base shall be an Antenex model MABVT8 made for either a 0.38 inch or 0.75 inch receiving hole in the antenna and shall include 17 foot of RG58 A/U cable with no connector at the radio end of the cable. The antenna base design provides the most corrosion resistance and best power transfer available from a high temper all brass construction and gold plated contact design. The antenna base shall be chassis builder supplied.

5708-003

COMMUNICATION ANTENNA CABLE ROUTING

The antenna cable shall be routed from the antenna base mounted on the roof to the area inside the center rocker switch console.

5709-002

AUXILIARY COMMUNICATION ANTENNA

An auxiliary antenna base, for use with and NMO type antenna, shall be installed on the cab. The antenna base shall be an Antenex model MABVT8 and shall include 17.00 foot of RG58 A/U cable with no connector at the radio end of the cable. The antenna shall be mounted on the right hand front corner of the cab roof so not to interfere with light bars or other roof mounted equipment installed by chassis builder. The antenna base shall be chassis builder supplied.

5710-003

AUXILIARY COMMUNICATION ANTENNA CABLE ROUTING

The auxiliary antenna cable shall be routed from the antenna base mounted on the roof to the area inside the center rocker switch console.

8806-001

FIRE EXTINGUISHER

A 2.50 pound D.O.T approved fire extinguisher with BC rating shall be shipped loose with the cab.

8810-001

DOOR KEYS

The cab and chassis shall include a total of four (4) door keys for the manual door locks.

8030-006

CHASSIS OPERATION MANUAL

There shall be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data shall include a parts list specific to the chassis model.

8031-024

ENGINE AND TRANSMISSION OPERATION MANUALS

The following manuals specific to the engine and transmission models ordered will be included with the chassis in the ship loose items:

(1) Hard copy of the Engine Operation and Maintenance manual with digital copy

(1) Digital copy of the Transmission Operator's manual

(1) Digital copy of the Engine Owner's manual

8805-007

CAB/CHASSIS AS BUILT WIRING DIAGRAMS

The cab and chassis shall include two (2) digital copies of wiring schematics and option wiring diagrams.

8063-007

PAINT CONFIRMATION

There shall be a paint confirmation letter sent to the body manufacturer with paint spray outs to confirm the cab primary paint color or primary and secondary paint color as specified by the paint options.

8039-001

SALES TERMS

The sale of the chassis shall be governed by the terms contained on the Sales Terms – Acceptance of Purchase Order document, a copy of which is attached to this option.

9005-002

DRIVELINE LAYOUT CONFIRMATION

During the design phase of the chassis the Spartan Chassis driveline engineer shall submit the driveline layout to an OEM engineer to review the chassis design for any potential problems integrating the OEM body to the chassis. This shall also include review and approval of requested clear areas. The OEM engineer shall provide approval to the driveline engineer prior to driveline bills of materials being released.

One (1)

== Top/Side Control Midship Pumper - Boiler Plate - 10.351 04/16/26 ==

One (1)
00-01-1000

INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to provide a complete apparatus equipped as hereinafter and as specified. With a view to obtaining the best results and the most acceptable apparatus for service in the Department, these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment, and appliances with which the successful bidder shall conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and construction for all features. The manufacturer shall provide loose equipment only when specified by the customer. The current NFPA (Standard for Automotive Fire Apparatus) at time of contract, unless otherwise specified as requested by the customer in these specifications, shall prevail.

The apparatus must meet all NFPA, DOT, ICC, AE, SAE, UL, TRA, FMVSS and local state Motor Vehicle Requirements.

It is required that the apparatus be manufactured to current NFPA edition standards, all NFPA equipment (LOOSE EQUIPMENT) not specified in the specifications will not be provided by the contractor.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction that have been in business and construction for a minimum of twenty-five (25) years.

The bidder of the apparatus herein specified; shall be wholly owned (100%) and managed by a Company, Corporation, and/or Parent Company that is wholly based, and permanently resides in the United States of America.

The Company, Corporation, and/or Parent Company and all assets belonging to such, shall be wholly owned and managed (100%) by the entities specified above.

The bidder shall state the location of the manufacturing facility where the apparatus is to be built and the location of the parent company if a subsidiary of a manufacturer.

The bidder shall provide satisfactory evidence of their ability to construct the apparatus specified in the bidders' manufacturing facilities.

The bidder's representation shall state the length of time representing the manufacturer of specified apparatus.

Due to the severe service requirements, the department will impose on the apparatus as specified, each bidder shall provide a list of at least six (6) departments in which similar apparatus utilizing the brand of chassis proposed have been in service for over one year. This list shall include contact names and phone numbers.

Due to the importance of keeping this vital piece of firefighting apparatus in service with a

minimum of downtime, the manufacturer shall maintain a network of service centers with factory-training personnel.

The bid shall be accompanied by a set of “Contractor’s Specifications” consisting of a detailed description of the apparatus being provided under this contract which conform. Computer runoff sheets are not acceptable as “Contractor’s Specifications”. Item compliance shall be indicated in the “Yes/No” column of each item by all Bidders. Note: Each bidder shall submit their bid in the same sequence as these specifications to allow the department to easily compare.

These specifications shall indicate size, type, model and make of all component parts and equipment.

QUALITY AND WORKMANSHIP

The design of the Apparatus shall embody the latest approved automotive engineering practices.

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

Construction shall be rugged and ample safety factors shall be provided to carry loads as specified and to meet both on and off-road requirements and to speed conditions as set forth under “Performance tests and requirements”.

Welding shall be employed in the assembly of the apparatus in a manner that will not prevent the ready removal of any component part for service or repair, with apparatus bodies of bolt together design not being acceptable.

All steel welding shall follow American Welding Society requirements for AWS D1.1:2012 Structural Welding Code for welding steel structural assemblies. All aluminum welding shall follow American Welding Society requirements for AWS D1.2/D1.2M:2003 Structural Welding Code for any type of structure made from aluminum structural alloys. All sheet metal welding shall follow American Welding Society AWS D9.1M/D9.1:2006 Structural Welding code for Arc/Braze requirements of non-structural materials. All pressure pipe welding shall follow American Society of Mechanical Engineers ASME IX/ ASME B31:2010 requirements to the qualification of procedures in welding and brazing, in accordance with the ASME Boiler and Pressure Vessel Code and the ASME B31 Code for Pressure Piping. Flux core arc welding to use alloy rods, type 7000, American Welding Society AWS standards A5.20-E70T1.

DELIVERY

The bidder shall provide the number of calendar days from the date the bid is awarded to the delivery of the completed unit.

A qualified delivery engineer representing the contractor shall deliver the apparatus and instruct the Fire Department personnel in the proper operation, care and maintenance of the equipment delivered.

To ensure proper break-in of all components while still under warranty, the apparatus shall be

delivered under its own power. The unit will remain insured by the apparatus manufacturer until the department accepts the unit.

PERFORMANCE TESTS AND REQUIREMENTS

A road test shall be conducted with the apparatus fully loaded to its estimated in-service weight and shall be capable of the following performance while on dry paved roads that are in good condition and for a continuous run of ten (10) miles or more, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. The successful bidder shall provide a Weight Certificate showing weights on front axle, rear axles, and total weight for the completed apparatus at time of delivery.

- A. The apparatus shall be capable of accelerating to 35 MPH (55 km/hr) from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed RPM of the engine.
- B. The apparatus, fully loaded, shall be capable of obtaining a minimum top speed of 50 MPH (80 km/hr) on a level dry concrete highway with the engine not exceeding its governed RPM (fully loaded).
- C. The service brakes shall be capable of stopping a fully loaded vehicle in 35ft (10.7 m) at 20 mph (32.2 km/hr) on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.
- D. The apparatus, when fully loaded, shall have not less than 25 percent or more than 50 percent of the weight on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle.
- E. From a steady pace of 15 mph, the vehicle will accelerate to a true speed of 35 mph within 15 seconds. This will be accomplished without moving gear selector.
- F. The apparatus will be able to maintain a speed of at least 20 mph on any grade up to and including 6 percent.
- G. The contractor shall have a third party testing company conduct the tests of the apparatus as in accordance with standard practices required by the third party testing company (Guide for the Certification of Fire Department Pumper latest edition). A copy of all tests shall accompany the Apparatus. (For apparatus sold within Canadian ULC S515 latest revision shall prevail).
- H. The contractor shall provide copies of the Pump Manufacturer's Certification of hydrostatic test, the Engine Manufacturer current certified brake horsepower curve, and the Manufacturer's record of pumper construction details when delivered.
- I. All fluid levels and applicable pressures will be brought to proper levels and noted prior to final delivery.

INFORMATION REQUIRED

The manufacturer shall supply, at time of delivery, a complete operation and maintenance

manual covering the completed apparatus as delivered.

A Fire Apparatus Safety Guide published by Fire Apparatus Manufacturer's Association shall be provided with the apparatus upon delivery. This manual includes essential safety information for fire fighters, fire chiefs, apparatus mechanics, and fire department safety officers. The guide is applicable to municipal, wildland, and airport firefighting apparatus manufactured on either custom or commercial chassis.

A permanent plate shall be mounted in the driver's compartment to specify the quantity and type of the following fluids used in the vehicle: Engine oil, engine coolant, and chassis transmission fluid, pump transmission lubrication fluid, pump primer fluid (if used), and drive axle lubrication fluid.

The manufacturer shall supply the final certification of GVWR and GAWR on a nameplate affixed to the vehicle.

A permanent plate in the driver's compartment shall be installed, specifying the seating capacity of the enclosed cab.

Signs that state "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION" shall be provided and will be visible from each seated position. An accident prevention sign shall be located at the rear step area of the apparatus. It shall warn all personnel that standing on the step while apparatus is in motion shall be prohibited.

A nameplate indicating the chassis transmission shift selector position to be used when pumping shall be provided in the driving compartment and located so that it can be easily read from the driver's position.

LIABILITY

The bidder, if their bid is accepted, shall defend any and all suits and assume all liability for the use of any patented device or article forming part of the apparatus or any appliance provided under the contract.

GENERAL CONSTRUCTION

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including filled water tank, a full complement of personnel and fire hose will be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the current NFPA, Standard for Automotive Fire Apparatus, documentation at time of contract signing.

The apparatus shall be designed so that all recommended daily maintenance checks can be performed easily by the operator without the need for hand tools. Apparatus components that interfere with repair or removal of other major components must be attached with fasteners (cap, screws, nuts, etc.) so that the components can be removed and installed with normal hand tools. These components must not be welded or otherwise permanently secured into place.

The GAWR and GVWR of the chassis shall be adequate to carry the fully equipped apparatus including all tanks filled, the specified hose load, unequipped personnel weight, ground ladders,

and a miscellaneous equipment allowance per NFPA criteria. It shall be the responsibility of the purchaser to provide the contractor with the weight of equipment to be carried if it is in excess of the allowance as set forth by NFPA.

The unequipped personnel weight shall be calculated at 250 lbs. per person times the maximum number of persons to ride on the apparatus.

The height of the fully loaded vehicle's center of gravity shall not exceed the chassis manufacturer's maximum limit.

The front to rear weight distribution of the fully loaded vehicle shall be within the limits set by the chassis manufacturer. The front axle loads shall not be less than the minimum axle loads specified by the chassis manufacturer, under full loads and all other loading conditions.

The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped, shall not exceed 7 percent.

The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment, and repair.

Where special tools manufactured or designed by the contractor and are required to provide routine service on any component of the apparatus built or supplied by the contractor, such tools shall be provided with the apparatus.

EXCEPTIONS TO SPECIFICATIONS

The following specifications shall be strictly adhered to. Exceptions shall be allowed if they are equal to or superior to that as specified and providing, they are listed and entirely explained on a separate page entitled "Exceptions to Specifications". The exceptions list to refer to specification page number and paragraph.

Proposals taking total exception to specifications or total exception to certain parts of the specifications such as Electrical Systems, Chassis, Body or Pump, will not be accepted.

Prototype units will not be acceptable. Apparatus shall be inspected upon completion for compliance with specifications.

Deviations will not be tolerated and will be cause for rejection of Apparatus unless they were originally listed in bidder's proposal and accepted in writing by the department.

If the bidder takes an exception, on the exception page, the bidder must state an option price to bring their specifications into full compliance with the Department specifications.

Failure to provide this information shall be cause to reject the proposal as being non-responsive.-

Copied or run off sheets of these specifications shall be unacceptable, and the bid will be rejected no exceptions.

WARRANTY

Warranties applicable to the chassis and body (excluding vendor supplied components {engine, transmission, axles, etc.} which carry their own specific warranties) will be addressed by a single point warranty service provider approved by the manufacturer to perform service as necessary.

PURCHASER'S RIGHTS

The Purchaser reserves the right to accept or reject any or all bids as it deemed in their best interests.

One (1)
00-01-2500

ENGINE AVAILABILITY

If an L9 engine is **NOT** available or cannot be provided for that specific quote or build slot at time of production, the engine will **automatically be upgraded and charged for an X12 (or the X10 engine) with all costs associated with the upgrade being passed on to the end user. No exceptions.**

If a pre-2027 emission engine is **NOT** available at the time of build **(starting production on January 1, 2026)** the order will **automatically be upgraded and charged for either the 2027 engine compliant Cummins X-10 or X-15, with all associated costs being passed on to the end user. No exceptions.**

One (1)
00-03-1110

BID/PROPOSAL DRAWINGS

For purposes of evaluation, the bidder shall provide a drawing illustrating, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus and other specified equipment, shall be required to be included with the bidder's proposal package.

The drawings shall be large "D" size (minimum 24.00 inches x 36.00 inches).

Smaller size drawings, "similar to" drawings or general sales drawings, shall not be acceptable.

Failure to provide a bid evaluation drawing in accordance with these specifications shall be cause for rejection of the bid proposal.

One (1)
00-03-1212

PRE-CONSTRUCTION DRAWINGS

After the award of the bid, the contractor shall provide detailed colored engineering drawings including, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus for use during the pre-construction conference.

The drawings shall include, but shall not be limited to the right, left, top, front, and rear views of the apparatus.

In addition, a detailed engineering drawing of the pump operator's panel shall be provided prior to manufacturing for fire department approval.

One (1)
00-05-1000

BID SECURITY

Each bidder must provide a bid bond or a cashier's check with his or her proposal for the amount of five percent (5%) of the bid price of the proposal submitted.

One (1)
00-06-1000

PERFORMANCE BOND

A 100% Performance Bond shall be supplied within thirty days of bid award. The signatures of both buyer and bidder on the contract shall construe awarding of the bid. The prime apparatus builder shall provide the performance bond. Any bonds supplied by the dealer or representative shall not be acceptable.

One (1)
00-08-3100

SINGLE SOURCE MANUFACTURER

Bids shall only be accepted from a single source apparatus manufacturer.

The definition of single source manufacturer is a company that designs and manufactures their products utilizing an approach that includes complete product integration, including the apparatus chassis, cab, and body modules being constructed, assembled, and tested on company premises only.

Warranties qualified to the chassis and body design construction (excluding vender component warranties such as engine, axles, transmission, and pumps, etc.) will be from a single source manufacturer and not separated between manufacturers (i.e., body and chassis). The bidder shall provide evidence of maintaining compliance to this requirement.

One (1)
00-08-4110

TAG-ON ORDERS-COOPERATIVE PURCHASING

Other fire departments, metropolitan regions, or municipalities may purchase apparatus and equipment from same manufacture similar to the Apparatus and Equipment that is the subject of this Contract held by the same manufacture. The following terms shall apply to any such tag-on orders:

(a) Changes - Tag-on orders utilizing the same specification as the Apparatus and Equipment that is the subject of this Contract in order to provide favorable pricing and lead-times to other buyers due to having such specification fully engineered. Limited changes will be permitted. Such changes will be captured in the pre-construction meeting and the price of any tag-on unit adjusted accordingly.

(b) Term – Tag-on orders may be placed for a term of one year after the Effective Date of this Contract.

(c) Escalation - Manufacture reserves the right to adjust the price of any tag-on order if material costs escalate during the term of this Contract, changes in regulations become effective (for example EPA, NFPA or other), or the tag-on order would cross a model year.

(d) Acceptance – Manufacture holding the contract reserves the right to accept or reject any tag-on orders under this Contract.

One (1)
00-13-1000

SUPPLIED INFORMATION & EXTRAS

The apparatus manufacturer shall supply two (2) hard copies of apparatus manuals with all manufactured apparatus.

The manuals shall include, but not be limited to: all component warranties, users' manuals and information for supplied products, apparatus engineering information including drawings and build prints, and whatever other pertinent information the manufacturer can supply to its customer regarding the said apparatus.

Included in the delivery of the unit, the manufacturer shall also include spare hardware and extra fasteners, paint for touch-up, information regarding washing and care procedures, as well as other recommendations for care and maintenance of the general apparatus.

The manufacturer shall also supply a manufacturer's record of apparatus construction details, including the following information:

- Owner name and address
- Apparatus manufacturer, model, and serial number
- Chassis make, model, and serial number
- GAWR of front and rear axles
- Front tire size and total rated capacity in pounds
- Rear tire size and total rated capacity in pounds
- Chassis weight distribution in pounds with water (if applicable) and manufacturer mounted equipment (front and rear)
- Engine make, model, serial number, rated horsepower, related speed and no load governed speed
- Type of fuel and fuel tank capacity
- Electrical system voltage and alternator output in amps
- Battery make and model, capacity in CCA
- Paint numbers
- Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall vehicle (with the water tank full (if applicable) but without personnel, equipment, and hose)
- Written load analysis and results of the electrical system performance tests
- Transmission make, model, and type
- Pump to drive through the transmission (yes or no)
- Engine to pump gear ratio and transmission gear ratio used
- Pump make and model, rated capacity in gallons per minute, serial number, and number of stages
- Pump manufacturer's certification of suction capability
- Pump manufacturer's certification of hydrostatic test
- Pump manufacturer's certification of inspection and test for the fire pump
- Copy of the apparatus manufacturer's approval for stationary pumping applications
- Pump transmission make, model and serial number
- Priming device type
- Type of pump pressure control system
- The engine manufacturer's certified brake horsepower curve for the engine provided, showing the maximum no load governed speed
- Certification of the water tank capacity

ELECTRICAL SCHEMATICS

The apparatus manufacturer shall supply one (1) set(s) as-built wiring schematics, to include all line voltage schematics with each apparatus.

One (1)
00-13-9000

WARNING AND INFORMATION LABELS

All warning and informational labels (non-vendor specific) shall be provided in compliance with current NFPA (Standard for Automotive Fire Apparatus) at time of contract, and installed in the appropriate locations to alert the operator of potential hazards and operating instructions.

One (1)
00-30-5000

ON-LINE CUSTOMER INTERACTION

The manufacturer shall provide the capability for online access through the manufacturer's website. The customer shall be able to view digital photos of their apparatus in the specified phases of construction. The following phases will be captured and displayed on the manufacturer's website:

1. Chassis when available at manufacturing facility
2. Body – Prior to Paint
3. Body – Painted
4. Pump and Plumbing
5. Assembly – 80% Complete

Due to the complex nature of fire apparatus and the importance of communication between the manufacture and customer, this line item is considered a critical requirement.

One (1)
00-40-0100

LIABILITY INSURANCE COVERAGE

In order to protect the department and its personnel, the bidder shall show proof that it has no less than \$10 million in liability insurance in force. A certificate of coverage shall be included in the bid package. Failure to carry liability insurance of at least this amount or failure to include proof of coverage shall be cause to reject the bidder's proposal.

One (1)
00-60-1000

GENERAL WARRANTY

The manufacturer shall provide a two (2) year warranty from the date of delivery.

In the case of a commercial chassis being used, the warranty on the chassis, engine, transmission, tires, storage batteries, generators, electrical lamps, and other devices subject to deterioration is limited to the warranty of the manufacturer thereof and adjustments for the same are to be made directly with the manufacturer by the customer.

One (1)
00-90-8200

PLUMBING WARRANTY

A Stainless Steel Plumbing/Piping warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years from the date of delivery.

THIRD PARTY PUMP CERTIFICATION AND TESTING

The apparatus upon completion will be tested and certified by an independent third party testing company. The certification tests will follow the guidelines outlined in the current NFPA, Standard for Automotive Fire Apparatus, documentation at time of contract signing.

There shall be multiple tests performed by the contractor and the third party testing company when the apparatus has been completed. The manufacturer shall provide the completed Test Certificate(s) to the purchaser at time of delivery.

The fire pump shall be mounted on the apparatus and shall have a minimum rated capacity of 250 gpm (1000 L/min) at 150 psi (1000 kPa) net pump pressure.

Where the apparatus is designed for pump in-motion operations, the vehicle drive engine and drive train shall be arranged so that the pump can deliver at least 20 gpm (76 L/min) at a gauge pressure of 80 psi (550 kPa), while the fire apparatus is moving.

If the pumping system provided is rated at 3000 gpm (12,000 L/min) or less, the pump shall be capable of delivering the following:

- (1) One hundred percent of rated capacity at 150 psi (1000 kPa) net pump pressure
- (2) Seventy percent of rated capacity at 200 psi (1400 kPa) net pump pressure
- (3) Fifty percent of rated capacity at 250 psi (1700 kPa) net pump pressure

If the pumping system provided is rated at greater than 3000 gpm (12,000 L/min), the pump shall be capable of delivering the following:

- (1) One hundred percent of rated capacity at 100 psi (700 kPa) net pump pressure
- (2) Seventy percent of rated capacity at 150 psi (1000 kPa) net pump pressure
- (3) Fifty percent of rated capacity at 200 psi (1400 kPa) net pump pressure

If the fire pump has a rated capacity of 750 gpm (3000 L/min) or greater, the pump shall be tested after the pump, and all its associated piping and equipment have been installed on the apparatus.

The tests shall include at least the pumping test, the pumping engine overload test, the pressure control system test, the priming device tests, and the vacuum test.

A test plate shall be provided at the pump operator's panel that gives the rated discharges and pressures together with the speed of the engine as determined by the certification test for each unit, the position of the parallel/series pump as used, and the governed speed of the engine as stated by the engine manufacturer on a certified brake horsepower curve. The plate shall be completely stamped with all information at the factory and attached to the vehicle prior to shipping.

Pumping Test:

The test site shall be adjacent to a supply of clear water at least 4 feet (1.2 m) deep, with the water level not more than 10 feet (3 m) below the center of the pump intake, and close enough to allow the suction strainer to be submerged at least 2 feet (0.6 m) below the surface of the water when connected to the pump by 20 feet (6 m) of suction hose.

Tests shall be performed when conditions are as follows:

- (1) Air temperature: 0 degrees Fahrenheit to 110 degrees Fahrenheit (−18 degrees Celsius to 43 degrees Celsius)
- (2) Water temperature: 35 degrees Fahrenheit to 90 degrees Fahrenheit (2 degrees Celsius to 32 degrees Celsius)
- (3) Barometric pressure: 29 inches Hg (98.2 kPa), minimum (corrected to sea level)

Engine-driven accessories shall not be functionally disconnected or rendered inoperative during the tests.

The following devices shall be permitted to be turned off or not operating during the pump test:

- (1) Aerial hydraulic pump
- (2) Foam pump
- (3) Hydraulically driven equipment (other than hydraulically driven line voltage generator)
- (4) Winch
- (5) Windshield wipers
- (6) Four-way hazard flashers
- (7) Compressed air foam system (CAFS) compressor

All structural enclosures, such as floorboards, gratings, grilles, and heat shields, not provided with a means for opening them in service shall be kept in place during the tests.

All test gauges shall meet the requirements for Grade A gauges as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments*, and shall be at least size 3 1/2 per ASME B40.100. The pump intake gauge shall have a range of 30 in. Hg (100 kPa) vacuum to zero for a vacuum gauge, or 30 in. Hg (100 kPa) vacuum to a gauge pressure of 150 psi (1000 kPa) for a compound gauge. The discharge pressure gauge shall have a gauge pressure range of 0 psi to 400 psi (0 kPa to 2800 kPa). All pilot gauges shall have a gauge pressure range of at least 0 psi to 160 psi (0 kPa to 1100 kPa). All gauges shall be calibrated in the month preceding the tests using a dead-weight gauge tester or a master gauge meeting the requirements for Grade 3A or 4A gauges, as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments*, that has been calibrated within the preceding year.

The engine speed-measuring equipment shall consist of a nonadjustable tachometer supplied from the engine or transmission electronics, a revolution counter on a checking shaft outlet and a stopwatch, or other engine speed-measuring means that is accurate to within ± 50 rpm of actual speed.

If the apparatus is equipped with a fire pump rated at 750 gpm (3000 L/min) or greater but not greater than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3 hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by 1/2 hour of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and 1/2 hour of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure and shall not be stopped until after the 2 hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

If the apparatus is equipped with a fire pump rated at greater than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3 hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at 100 psi (700 kPa) net pump pressure, followed by 1/2 hour of continuous pumping at 70 percent of rated capacity at 150 psi (1000 kPa) net pump pressure and 1/2 hour of continuous pumping at 50 percent of rated capacity at 200 psi (1400 kPa) net pump pressure and shall not be stopped until after the 2 hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

If the apparatus is equipped with a fire pump rated at less than 750 gpm (3000 L/min), the pump shall be subjected to a 50-minute pumping test from draft consisting of 30 minutes of continuous pumping at rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by 10 minutes of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and 10 minutes of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure and shall not be stopped until after the 30-minute test at rated capacity, unless it becomes necessary to clean the suction strainer.

Pumping Engine Overload Test:

If the pump has a rated capacity of 750 gpm (3000 L/min) or greater but not greater than 3000 gpm (12,000 L/min), the apparatus shall be subjected to an overload test consisting of pumping rated capacity at 165 psi (1100 kPa) net pump pressure for at least 10 minutes.

This test shall be performed immediately following the pumping test of rated capacity at 150 psi (1000 kPa).

The capacity, discharge pressure, intake pressure, and engine speed shall be recorded at least three times during the overload test.

Pressure Control System Test:

If the pump is rated at 3000 gpm (12,000 L/min) or less, the pressure control system on the pump shall be tested as follows:

- (1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 150 psi (1000 kPa).
- (2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 150 psi (1000 kPa) ± 5 percent.
- (3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

- (4) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.
- (5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be reestablished.
- (6) The discharge pressure gauge shall be reduced to 90 psi (620 kPa) by throttling the engine fuel supply, with no change to the discharge valve settings, hose, or nozzles.
- (7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 90 psi (620 kPa) ± 5 percent.
- (8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.
- (10) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 250 psi (1700 kPa).
- (11) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 250 psi (1700 kPa) ± 5 percent.
- (12) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (13) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

If the pump is rated at greater than 3000 gpm (12,000 L/min), the pressure control system on the pump shall be tested as follows:

- (1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 100 psi (700 kPa).
- (2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 100 psi (700 kPa) ± 5 percent.
- (3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (4) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.
- (5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be reestablished.
- (6) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 200 psi (1400 kPa).
- (7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 200 psi (1400 kPa) ± 5 percent.

(8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

Priming System Tests:

With the apparatus set up for the pumping test, the primer shall be operated in accordance with the manufacturer's instructions until the pump has been primed and is discharging water. This test shall be permitted to be performed in connection with priming the pump for the pumping test.

The interval from the time the primer is started until the time the pump is discharging water shall be noted. The time required to prime the pump shall not exceed 30 seconds if the rated capacity is 1250 gpm (5000 L/min) or less. The time required to prime the pump shall not exceed 45 seconds if the rated capacity is 1500 gpm (6000 L/min) or more.

An additional 15 seconds shall be permitted in order to meet the requirements of 16.13.5.3 and 16.13.5.4 when the pump system includes an auxiliary 4 inches (100 mm) or larger intake pipe having a volume of 1 foot³ (0.30 m³) or more.

Vacuum Test:

The vacuum test shall consist of subjecting the interior of the pump, with all intake valves open, capped or plugged, and all discharge caps removed, to a vacuum of 22 inches/Hg (75 kPa) by means of the pump priming system.

At altitudes above 2000 feet (600 m), the vacuum attained shall be permitted to be less than 22 inches/Hg (75 kPa) by 1 inch/Hg (3.4 kPa) for each 1000 feet (305 m) of altitude above 2000 feet (610 m).

The vacuum shall not drop more than 10 inches/Hg (34 kPa) in 5 minutes.

The primer shall not be used after the 5 minute test period has begun and the engine shall not be operated at any speed greater than the governed speed during this test.

Water Tank-to-Pump Flow Test:

A water tank-to-pump flow test shall be conducted as follows:

(1) The water tank shall be filled until it overflows.

(2) All intakes to the pump shall be closed.

(3) The tank fill line and bypass cooling line shall be closed.

(4) Hose lines and nozzles for discharging water at the rated tank-to-pump flow rate shall be connected to one or more discharge outlets.

- (5) The tank-to-pump valve(s) and the discharge valves leading to the hose lines and nozzles shall be fully opened.
- (6) The engine throttle shall be adjusted until the required flow rate $-0/+5$ percent is established.
- (7) The discharge pressure shall be recorded.
- (8) The discharge valves shall be closed, and the water tank refilled.
- (9) The bypass line shall be permitted to be opened temporarily, if needed, to keep the water temperature in the pump within acceptable limits.
- (10) The discharge valves shall be reopened fully, and the time noted.
- (11) If necessary, the engine throttle shall be adjusted to maintain the discharge pressure recorded as noted in 16.13.7.1(7).
- (12) When the discharge pressure drops by 10 psi (70 kPa) or more, the time shall be noted and the elapsed time from the opening of the discharge valves shall be calculated and recorded.

Volume Discharge Calculation:

The volume discharged shall be calculated by multiplying the rate of discharge in gallons per minute (liters per minute) by the time in minutes elapsed from the opening of the discharge valves until the discharge pressure drops by at least 10 psi (70 kPa).

Other means shall be permitted to be used to determine the volume of water pumped from the tank such as a totalizing flowmeter, weighing the truck before and after, or refilling the tank using a totalizing flowmeter.

The rated tank-to-pump flow rate shall be maintained until 80 percent of the rated capacity of the tank has been discharged.

Engine Speed Advancement Interlock Test

The engine speed advancement interlock system shall be tested to verify that engine speed cannot be increased at the pump operator's panel unless there is throttle-ready indication.

If the apparatus is equipped with a stationary pump driven through split-shaft PTO, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when either of the following conditions exist:

- (6) The chassis transmission is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.
- (7) The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

If the apparatus is equipped with a stationary pump driven through a transmission mounted PTO, front-of-engine crankshaft PTO, or engine flywheel PTO, the test shall verify that the engine speed control on the pump operator's panel cannot be advanced when either of the following conditions exists:

- (1) The chassis transmission is in neutral, the parking brake is off, and the pump shift status in the driving compartment is disengaged.
- (2) The chassis transmission is in any other gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the "Pump Engaged" position.

If the apparatus is equipped with a pump driven by the chassis engine designed for both stationary pumping and pump-in-motion, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when either of the following conditions exists:

- (1) The chassis transmission is in neutral, the parking brake is on, and the pump shift status in the driving compartment is disengaged.
- (2) The chassis transmission is in any other gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the "Pump Engaged" or the "OK to Pump In-Motion" position.

If the apparatus is equipped with a stationary pump driven through transfer case PTO, the test shall verify that the engine speed control on the pump operator's panel cannot be advanced when either of the following conditions exists:

- (1) The chassis transmission is in neutral, the transfer case is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.
- (2) The chassis transmission is in neutral, the transfer case is engaged, the parking brake is off, and the pump shift in the driving compartment is in the road position.
- (3) The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

LOW-VOLTAGE ELECTRICAL SYSTEM PERFORMANCE TESTING

The apparatus low-voltage electrical system will be tested and certified. Tests shall be performed when the air temperature is between 0 degrees Fahrenheit and 110 degrees Fahrenheit (–18 degrees Celsius and 43 degrees Celsius). The three tests defined in NFPA shall be performed in the order in which they appear. Before each test, the batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for 10 minutes. Failure of any of these tests shall require a repeat of the sequence.

Reserve Capacity Test:

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged.

The engine shall be shut off, and the minimum continuous electrical load shall be activated for 10 minutes.

All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test failure of the battery system.

Alternator Performance Test at Idle:

The minimum continuous electrical load shall be activated with the engine running at idle speed.

The engine temperature shall be stabilized at normal operating temperature.

The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

Alternator Performance Test at Full Load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed.

The test duration shall be a minimum of 2 hours.

Activation of the load management system shall be permitted during this test.

An alarm sounded by excessive battery discharge, as detected by the system required in NFPA 13.3.4, or a system voltage of less than 11.8v dc for a 12v nominal system or 23.6v dc for a 24v nominal system, for more than 120 seconds, shall be considered a test failure.

Low Voltage Alarm Test:

Following the above test, a Low Voltage Alarm Test will be performed in the manner prescribed.

With the engine shut off, the total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates.

The battery voltage shall be measured at the battery terminals.

The test shall be considered a failure if the alarm has not yet sounded 140 seconds after the voltage drops to 11.7v for a 12v nominal system or 23.4v for a 24v nominal system.

The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

Four (4)
00-30-1000

FACTORY PRE-CONSTRUCTION CONFERENCE

The factory authorized Distributor shall be required, prior to manufacturing, to have a pre-construction conference at the manufacturing facility with a factory representative present and with Four (4) individual(s) from the to finalize all construction details.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

Four (4)
00-30-4000

FINAL INSPECTION CONFERENCE

The factory authorized Distributor shall be required, during manufacturing, to have a final completion inspection conference at the site of the manufacturing facility with Four (4) individuals from the to inspect the apparatus after construction.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

S One (1)
00-95-1E00

MAXIMUM OVERALL LENGTH REQUIREMENT

The apparatus specified shall be constructed as detailed and shall NOT exceed a maximum overall length of ____34 feet 0 ____ inches.

Narrow body compartment widths to achieve this, no height restriction but would prefer to keep the body similar height to 10" raised roof cab, L shape tank with low hose bed preferred.

One (1)
00-95-2E50

MAXIMUM OVERALL HEIGHT REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum overall height.

One (1)
00-95-3E00

MAXIMUM OVERALL WIDTH OF NINETY-NINE (99) INCHES

The apparatus specified shall be constructed as detailed and shall NOT exceed a Maximum Overall Width of Ninety-nine (99.00) inches.

This dimension shall include the primary construction of the apparatus body and chassis cab. Any peripheral items shall not be incorporated into this measurement.

The items included, but not limited to, are Rub Rails, Fenderettes, Mirrors, Lights, Handrails, Front Bumpers, Cab Steps, Overlays, Etc.

One (1)
00-95-5E50

MAXIMUM WHEELBASE REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum wheelbase.

One (1)
00-95-9E00

ALTITUDE PERFORMANCE REQUIREMENT

The apparatus specified shall be constructed with no altitude performance requirements.

One (1)

== Top/Side Control Midship Pumper - Chassis - 10.351 04/16/26 ==

One (1)

06-26-0105

EXHAUST HEAT SHIELD

There shall be an exhaust heat shield added to the chassis provided exhaust. The shield shall terminate past the front compartment and shall incorporate a heavy duty spray on insulation under R1.

The heat shield shall be attached to the underside of the body utilizing a flexible bracket.

One (1)
04-26-0055

PIKE POLE STORAGE

There shall be two (2) tubes mounted to the ceiling of the transverse crew cab compartment for storage of pike poles.

Each tube shall be notched at both ends to receive the hooked portion of the pole for storage and access from either side of the cab.

One (1)
62-38-3015

PIKE POLE STORAGE

The pike poles shall be supplied and installed by the Fire Department before the apparatus is placed into service.

{MUST EDIT} pike poles shall be provided by the Fire Department.

One (1)
04-58-0505

FRONT BUMPER COMPARTMENT-CENTER

There shall be a front bumper compartment provided on the front bumper extension between the chassis frame rails. The compartment shall be constructed of smooth aluminum and shall have the edges flush with the bumper apron. There shall be drain holes provided in the bottom corners to allow excess moisture to escape.

One (1)
04-59-0135

FRONT BUMPER COMPARTMENT COVER

A .188 inch (4.76 mm) embossed aluminum diamond plate cover shall be installed on the front bumper compartment. The cover shall be notched in the front corner adjacent to the front discharge to allow the cover to be closed while the hose is connected to the front discharge outlet.

The rear edge of the cover shall be attached with a stainless steel hinge. The cover shall be equipped with a D-ring style handle to secure the cover in the closed position. A single hold open device shall be installed on the opposite side of the notch to hold the cover in the "Open" position.

One (1)
04-59-0292

HAZARD LIGHT

If the bumper compartment cover is not properly closed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

One (1)

04-59-0605

HOSE WELL STORAGE

The front bumper compartment shall be used for storage of fire hose.

One (1)
04-60-0110

HOSE LOAD

The hose well shall be sized to accommodate 100 feet of 1.75 inch double jacket hose and nozzle.

One (1)
04-87-0000

CHASSIS REQUIRED LABELING

Signs that state "Occupants must be seated and belted when apparatus is in motion" shall be provided.

They shall be visible from each seating position.

There shall be a lubrication plate mounted inside the cab listing the type and grade of lubrication used in the following areas on the apparatus and chassis:

- Engine oil
- Engine Coolant
- Transmission Fluid
- Pump Transmission Lubrication Fluid
- Drive Axle Lubrication Fluid
- Generator Lubrication Fluid (where applicable)
- Tire Pressures

One (1)
04-87-5000

APPARATUS INFORMATION LABEL

There shall be a high-visibility label installed in a location clearly detectable to the driver while in the seated position.

The label shall indicate the following specified information.

Overall Height (feet and inches)
Overall Length (feet and inches)
Overall GVWR (tons or metric tons)

One (1)
06-22-0510

CAB TILT CONTROL

There shall be a cab tilt pendant control provided and installed on the right side of the apparatus. The pendant shall be located directly behind the upper auxiliary pump access panel, accessible through a small, hinged door secured with a push button style latch.

A label shall be provided that states "CAB TILT".

There shall also be a cab tilt instruction plate located as close as possible to the control pendant

for ease of operation.

One (1)
06-22-1205

AIR TANK DRAIN LINES (extended)

There shall be manual pull air tank drain lines provided with the apparatus. The air drain lines shall be extended to the outer edge of the apparatus to facilitate draining moisture from the chassis air tanks to a single location for all drains and shall be actuated by a key ring. A label shall be affixed indicating "Air Tank Drain".

Six (6)
05-15-0154

HELMET RESTRAINTS

All NFPA required helmet restraints will be supplied and installed by the Fire Department prior to the truck being placed into service.

One (1)
06-20-0002

MUD FLAPS

There shall be no front mud flaps added by the body manufacturer.

One (1)
06-20-0010

MUD FLAPS

Heavy-duty black rubber mud flaps with manufactures logo shall be provided behind the rear wheels. The mud flaps shall be bolted in place.

One (1)

== Top/Side Control Midship Pumper - Pump Control - 10.351 04/16/26 ==

One (1)
26-10-2505

PUMP COMPARTMENT

The complete apparatus pump compartment shall be constructed of a combination of structural tubing and formed sheet metal. The same materials used in the body shall be utilized in the construction of the pump compartment. The structure shall be welded utilizing the same A.W.S. Certified welding procedure as used on the structural body module. These processes shall ensure the quality of structural stability of the pump compartment module.

The pump compartment module shall be separated from the apparatus body with a gap. This gap is necessary to accommodate the flexing of the chassis frame rails that are encountered while the vehicle is in transit so that harmful torsional forces are not transmitted into the structural framework.

One (1)
26-10-2910

VIBRA-TORQ™ PUMP MODULE MOUNTING SYSTEM

The entire pump module assembly shall be mounted so that it "floats" above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable pump module mounting system.

The pump module substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame

rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each pump compartment mount bracket shall be mounted to the side chassis frame flange with two 5/8"-UNC Grade 8 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the pump module, apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All pump module to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature pump module structural failures. The Vibra-Torq™ body mounting system shall have a twenty (20) year or 100,000 miles limited warranty in accordance with, and subject to, warranty certificate RFW0710.

One (1)
26-13-3000

HEAT PAN

There shall be a heat pan enclosure provided and installed under the apparatus fire pump.

The heat pan assembly shall be fabricated of .188 inch aluminum. The top portion shall be bolted in place. The bottom trays shall be held in the place with mechanical style latch devices. The enclosure may include slide out tray(s) on either side of the apparatus for ease of service and maintenance.

One (1)
70-20-2100

The heat pan shall have one (1) 3.00 inch hole under the relief valve for drainage.

PUMP COMPARTMENT WORK LIGHT

One (1) Weldon LED work light model #2631-0000-30 shall be installed in the pump compartment module to illuminate the piping and plumbing components.

The light shall be activated by a weather resistant toggle switch installed inside the pump compartment.

One (1)
26-10-3105

LEFT SIDE OPERATORS PANEL & PUMP PANEL

The pump operator's panel shall be located on the left side of the apparatus pump compartment. The panel shall be split into an upper and lower section.

The material of the operator's panel shall match that of the overlays and right side panels specified.

The upper panel shall house gauges and controls and be hinged to allow easy access to components. The door shall have a stainless steel hinge, dual point chrome push button latches, and a rubber seal provided to prevent excessive moisture from entering or leaving the pump house.

The lower panel on the left side shall be a removable panel attached with mechanical fasteners.

Valve controls shall be immediately adjacent to its respective gauge. The valve controls shall be properly labeled, and color coded for ease of use. All markings shall be permanent in nature.

One (1)
25-05-0010

OPEN DOOR WARNING

If the hinged panel is not properly closed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

One (1)
26-05-0125

VALVE CONTROL - T-HANDLE PULL ASSEMBLY

Unless specified otherwise, the discharge valves shall be controlled from an Innovative Controls side mount valve control assembly. The ergonomically designed handle shall be chrome-plated with recessed areas for name plate and color code. A .75 inch (19.5 mm) diameter hardcoat anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated panel-mounting bezel. The valve operating mechanism will indicate the position of the valve at all times.

One (1)
26-10-1005

PUMP PANEL LIGHTS

There shall be adequate illumination provided at the side pump panels with the installation of two (2) brushed stainless steel shielded light assemblies, one (1) on the left and one (1) on the right side pump compartment.

Each shield shall contain the maximum number of lights permitted in the space available for 9.00 inch (21cm) LED tube lights model #RX-15T16-5050-21CM.

There shall also be one directional light Weldon style 9186-23882 Surface Mount series installed to add illumination at the lower pump panel.

One (1)
26-10-2005

PUMP PANEL LIGHT ACTIVATION

One (1) pump panel light at the operator's panel shall be illuminated at the time the pump is ready to pump, and it is "OK TO PUMP". The Pump shift has been completed, and the chassis automatic transmission is engaged.

The remaining lights shall be controlled by a switch located on the side operator's panel.

One (1)
26-10-7110

SPEEDLAY HOSE BEDS

Two (2) vertically stacked speedlay hose beds shall be provided in the forward portion of the pump compartment module. The speedlay hose beds shall be constructed as an integral part of the pump compartment tubular structure. Stainless steel scuff plates shall be installed at the bottom and at the vertical edges of the speedlay openings to protect the hose and hose ends.

The speedlay hose beds shall be tall and wide enough for laying a double stack of each hose size specified in the plumbing specifications.

The speedlay hose beds shall span the entire width of the pump compartment module. Slotted flooring shall be provided for hose area drainage.

One (1)
26-11-9105

PUMP COMPARTMENT SERVICE

The front portion of the pump compartment structure shall be overlaid entirely with aluminum diamond plate fastened with mechanical fasteners.

There shall not be any service access openings provided in this area of the module.

REMOVABLE SPEEDLAY TRAYS

Removable speedlay hose bed trays shall be provided to facilitate hose loading. The speedlay hose beds trays shall be accessible from either side and be easily removed from the pump compartment tubular structure.

A removable speedlay hose bed tray shall be provided for each bay specified.

One (1)
26-12-0015

BLACK POLY SPEEDLAY TRAYS

The speedlay trays shall be made of .50-inch black poly material.

Each tray shall have vertical and horizontal hand holds for ease of handling. Slots shall be provided in the floor of the tray for hose drainage.

S One (1)
26-12-0550

PUMP COMPARTMENT WIDTH

The width of the pump compartment (front to back) shall be 56.00 inches (1.42 m).

as narrow as possible while utilizing speedlays and deadlay, to assist in overall length requirement.

One (1)
26-41-1000

RIGHT SIDE PUMP PANELS STYLE

There shall be two (2) pump panels on the right side of the pump compartment, one (1) upper and one (1) lower. Each panel shall be accessible by a quick-release mechanical type latch, closing against a door seal. Both panels shall be easily removed for access to the pump for serviceability.

RIGHT & LEFT SIDE BLACK LAMINOL FINISHING FOR PANELS AND OVERLAYS

The panels for the pump compartment on the left and right side shall be made from heavy duty "Black Laminol" covered aluminum, capable of withstanding the conditions and effects of extreme weather and temperature changes.

The tubular structure shall be overlaid on each side of the pump compartment underneath the access panels and shall be made of "Black Laminol" covered aluminum.

One (1)
27-00-0005

RUNNING BOARDS

The pump compartment running boards shall be made of a structural tubular framework. The tubular frame supports all loads by transmitting the loads through the pump compartment structure directly to the chassis frame rails.

The running boards shall be independent of the apparatus body and shall be integrated into the pump compartment structure only, eliminating any pump compartment to body interference. This is essential in keeping a truly 'modular' configuration. Slip-resistant abrasive adhesive materials shall be applied to the top surface of the running board framework to provide a suitable stepping surface where applicable.

One (1)
27-10-0015

FLOATING HOSE WELLS

The side running board areas shall have a floating hose well with drain holes provided.

The hose wells shall be fabricated of .125 inch (3.18 mm) smooth aluminum and be formed so that it rests in the framework of the running board with no fasteners installed. The front and rear ends of the hose well shall be slightly tapered, to allow the well to float up instead of being damaged in cases where extreme break over angles or impact from road debris are encountered.

Each hose well shall be approximately 8.00 inches (203.20 mm) deep (measured from the top of the running board) and as wide and long as possible to fit in the framework of the running board.

Two (2)
27-01-0105

VELCRO HOLD DOWN STRAPS

There shall be two (2) Velcro strap type hold downs installed on the storage area. The hold downs will be used to secure the stored equipment in place during transit.

One (1)
28-15-0072

PRESSURE GOVERNOR and ENGINE MONITORING DISPLAY

Fire Research PumpBoss Max series PBA500-A00 pressure governor and control module kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module housing shall be waterproof and have dimensions not to exceed 7 1/2" high by 3 5/8" wide. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 2" from the front of the control module. The control LCD shall be 3.5" in

size with a minimum brightness of 1000 nits and optically bonded to 3mm Borofloat Glass. Inputs for monitored engine information shall be from a J1939 data bus or independent sensors. Outputs for engine control shall be on the J1939 data bus or engine specific signal wiring. Inputs from the pump discharge and intake pressure sensors shall be electrical.

The following continuous displays shall be provided:

- Engine RPM; shown on LCD screen
- Check engine and stop engine warning; shown on LCD screen
- Engine oil pressure; shown on LCD screen
- Engine coolant temperature; shown on LCD screen
- Transmission Temperature; shown on LCD screen
- Battery voltage; shown on LCD screen
- Pressure and RPM operating mode LEDs
- Pressure / RPM setting; shown on LCD screen
- Throttle ready / Ok to Pump LEDs.

On screen (LCD) message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. LCD Screen and LED's intensity shall be automatically adjusted for day and nighttime operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs 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 Transmission Temperature
- Low Engine Oil Pressure
- High Engine Coolant Temperature
- Out of Water (visual alarm only)
- No Engine Response (visual alarm only).

The program features shall be accessed via push buttons located on the front of the control module. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

The pressure governor shall operate in two control modes, pressure, and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready and Ok to Pump LED shall light when the interlock signal is recognized. The pressure governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the pressure governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The pressure governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of low water and no water conditions with an automatic programmed response and a push button to return the engine to idle.

One (1)
09-09-0210

The pressure governor control module shall be programmed at installation for a specific engine.

INTAKE PRESSURE RELIEF VALVE

A Task Force Tips model #A18XX pressure relief valve shall be provided. The valve shall have an easy to read adjustment range from 90 to 300 PSI with easy to read 90, 125, 150, 200, 250, 300 psi settings and an "OFF" position. Pressure adjustment can be made utilizing a ¼" hex key, 9/16" socket or 14mm socket.

For corrosion resistance the cast aluminum valve shall be a hardcoat anodized with a powder coat interior and exterior finish. The valve shall meet NFPA, Standard for Automotive Fire Apparatus, requirements for pump inlet relief valves. The unit shall be covered by a five year warranty. The valve shall be preset at 125 PSI (860 kPa) suction inlet pressure, unless otherwise shop noted. The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere and shall dump on the opposite side of the pump operator.

For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed.

One (1)
28-19-1700

PRESSURE GOVERNOR and MONITORING DISPLAY BUZZER

Fire Research PumpBoss –Z1 option for an audible alarm buzzer shall be installed. The buzzer shall sound when a signal from the PumpBoss activates it.

S Two (2)
28-22-0012

MASTER GAUGES

An Innovative Controls TC Series nominal 4.00 inch gauge shall be supplied for the master intake and master discharge gauges.

A KEM-X socket saver diaphragm, located in the stem, eliminates freeze-up by preventing water from entering and/or clogging the gauge internals while containing a low temperature instrument oil that fills and protects the socket and the bourdon tube.

The molded glass-filled Nylon 66 case will not corrode and includes a scratch-resistant molded polycarbonate lens with O-ring seal. The gauge shall withstand pressures up to 100psi over gauge range with operation from –40° F to +160°F.

Add second set of master gauges to officer side best fit location

Two (2)
28-22-0100

GAUGE SCALE

The master intake gauge shall be marked for a reading from -30 to 400 PSI, and the master discharge shall be marked for reading a discharge pressure of 0 to 400 PSI.

Two (2)
28-22-0405

GAUGE FACE COLOR

One (1)
28-25-0100

Each gauge shall have black markings on a white face.

TESTING PORTS

Test port connections for pressure and vacuum shall be provided at the pump operator's panel. One (1) shall be connected to the intake side of the pump, and the other to the discharge manifold side of the pump.

Each port shall have 0.25 inch (6.35 mm) standard pipe thread connection and be manufactured of non-corrosive polished stainless steel or brass plugs.

One (1)
28-50-0125

TANK LEVEL GAUGE

An Innovative Controls SL Plus Tank Monitor System model number 3030796-01, with a Spartan bezel, shall be installed. The system shall include an electronic display module, a pressure transducer-based sender unit, and the necessary wiring with water-tight plug terminations.

The display module shall show the volume of water in the tank using 16 super bright easy-to-see LEDs. Tank level indication shall be achieved by the use of 4 horizontal rows of LEDs. Full and near-full levels shall be indicated with the illumination of all 4 rows of LEDs, including the illumination of the top row of 4 green LEDs. Tank levels between $\frac{1}{2}$ and $\frac{3}{4}$ full shall be indicated with the illumination of the bottom 3 rows of LEDs, including the illumination of the top row of 4 blue LEDs. Tank levels between $\frac{1}{4}$ and $\frac{1}{2}$ full shall be indicated with the illumination of the bottom 2 rows of LED's including the illumination of the top row of 4 amber LEDs. Tank levels between $\frac{1}{4}$ full and near empty shall be indicated with the illumination of the bottom row of 4 red LEDs only. Tank levels between near empty and empty shall be indicated by flashing the bottom row of 4 red LEDs.

A wide-angle polycarbonate diffusion lens in front of the LEDs create a 180 degree viewing angle. The electronic display module shall be waterproof and shock resistant being encapsulated in a urethane-based potting compound. The potted display module shall be mounted to a chrome plated panel-mount bezel with a durable easy-to-read polycarbonate insert featuring blue graphics and a water icon.

All programming functions shall be accessed and performed from the front of the display module. The programming includes manual or self-calibration and networking capabilities to connect remote slave displays. Low tank level warnings shall include flashing red LEDs starting below the $\frac{1}{4}$ level, down-chasing LEDs when the tank is almost empty.

The display module shall receive an input signal from a pressure transducer. This stainless steel sender unit shall be installed on the outside of the water tank near the bottom. All wiring, cables and connectors shall be waterproof without the need for sealing grease.

One (1)
28-51-0105

AUXILIARY WATER LEVEL GAUGE

One (1)
28-51-0215

TANK LEVEL GAUGE

A Fire Research TankVision Pro model WLA300-B00 tank remote indicator kit shall be installed. The kit shall include an electronic indicator module and a 20.00 foot remote cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label.

The remote indicator shall receive input information over a datalink from a Fire Research TankVision primary indicator model WLA200-A00, WLA300-A00 or WLA400-A00. It shall mirror the primary indicator. A 10' cable shall be provided to connect the datalink. The remote indicator shall have the same program as the primary so that the two indicators are interchangeable.

One (1)
28-52-0015

TANK LEVEL GAUGE LOCATION

One (1) tank level readout shall be located at the rear of the vehicle, to the left side.

One (1)
28-25-0205

AIR HORN BUTTON

There shall be an air horn activation red push button provided and installed on the pump operator's gauge panel. The air horn button shall be of weather resistance type and labeled "AIR HORN".

One (1)
54-50-3110

PUMP COMPARTMENT TOP OVERLAY

The top cap of the pump compartment shall be overlaid with materials of a non-slip .125 inch (3.18 mm) embossed aluminum diamond plate.

One (1)
54-50-3310

DUNNAGE AREA

A single wall .125 inch (3.18 mm) aluminum diamond plate dunnage area shall be provided above the pump house compartment for equipment mounting and storage space.

The dunnage area shall be as wide as possible from side to side, and as deep as allowed with the available space.

One (1)

== Top/Side Control Midship Pumper - Plumbing - 10.351 04/16/26 ==

One (1)
08-21-0025

MIDSHIP PUMP

The pump shall have a capacity of 2000 gallons per minute, measured in U.S. Gallons. The pump shall be a Waterous model CSU, single stage midship pump.

One (1)
08-21-0105

The pumps impellers shall be bronze with double suction inlets, accurately balanced (mechanically and hydraulically), of mixed flow design with reverse-flow, labyrinth-type, wear rings that resist water bypass and loss of efficiency due to wear. The impeller shall have flame

plated hub to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped. The wear rings shall be bronze and easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.

Pump casing shall be close grained gray iron, bronze fitted and horizontally split in two sections for easy removal of entire impeller assembly, including wear rings, without disturbing setting of pump in chassis or pump piping. The pump, for ease and rapid servicing in the future, shall have the separable impeller shaft which allows true separation of transmission or pump without disassembly or disturbing the other component. This shall be accomplished by using a two piece shaft. This feature will allow field service to accomplish in much less time since each component (pump or transmission) can be repaired independently. The impeller shaft shall be stainless steel, accurately ground to size and polished. Shaft shall be supported at each end by ball type oil grease lubricated bearings. Sleeve bearings or bushings will not be acceptable. The bearings shall be protected from water at each end of the impeller shaft.

The discharge manifold shall be cast as an integral part of the pump body assembly and shall provide at least three full 3.50 inch openings for ultimate flexibility in providing various discharge outlets for maximum efficiency and shall be located as follows: one outlet on the right side of the pump body, one outlet on the left side of the pump body, and one outlet directly on top of the pump discharge manifold.

The entire pump shall be cast, manufactured and tested at the pump manufacturer's factory. The pump transmission housing shall be high strength aluminum, three pieces and horizontally split. Power transfer to the pump shall be through a Morse Hy-Vo drive chain. Chain shall be pressure lubricated through oil pump. Chain sprockets shall be cut from carbonized, hardened alloy steel. Spur gears will not be acceptable.

The drive shafts shall be 2.35 inches in diameter, made of hardened and ground alloy steel. All shafts shall be ball bearing supported. Case shall be designed to eliminate the need of water cooling.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. A certificate documenting this test shall be provided with the completed apparatus. The pump shall be fully tested at the pump manufacturer's factory to the performance requirements as outlined by the latest NFPA, Standard for Automotive Fire Apparatus. The pump shall be free from objectionable pulsation and vibration.

The pump shall be the Class "A" type and shall deliver the percentage of rated discharge at pressures indicated below.

100% of rated capacity at 150 PSI net pump pressure.

100% of rated capacity at 165 PSI net pump pressure.

70% or rated capacity at 200 PSI net pump pressure.

50% of rated capacity at 250 PSI net pump pressure.

One (1)
08-58-0200

PUMP WARRANTY

Waterous Co shall provide a limited manufacturer's pump warranty to be free from defects, under normal use and service, for a period of seven (7) years from the date placed into service.

One (1)
09-23-0020

PUMP SEALS

The pump shall be equipped with self-adjusting, maintenance free mechanical shaft seals that shall not require manual adjustment. These seals shall be designed in a manner that they will remain functional enough to permit continued use of the pump in the unlikely event of a seal failure.

One (1)
09-71-0100

PUMP SHIFT MANUAL OVERRIDE

In the event of pump shift failure, the pump can be shifted into gear by a push/pull manual override mechanism, allowing the pump to be engaged manually. The handle shall be located on the lower portion of the driver's side pump panel and shall be labeled accordingly.

One (1)
09-38-0110

AUTOMATIC AIR PRIMER SYSTEM

The priming system shall be a Trident Emergency Products compressed air powered high efficiency, multi-stage, venturi based Automatic Air Prime System.

All wetted metallic parts of the priming system are to be of brass and stainless steel construction. The 12 volt primer control shall be an “automatic” type, with a pump panel three-way switch to operate an air solenoid valve. The maximum current draw shall not exceed 0.5 amps during operation.

The priming components shall be mounted above the highest priming point on the suction side of the pump to permit air removal and allow for drainage. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass ‘wye’ type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.

The automatic priming switch shall have three positions as follows:

- **“Prime”** – the lower position shall be a momentary “push to prime”.
- **“Off”** -- center position
- **“Auto-Prime”** – in the upper position, a “green” LED pilot light shall be illuminated when the switch is the auto-prime position. The “Auto-Prime” operates automatically when the pump pressure drops below 20 PSIG. The primer shuts “off” automatically when the pump pressure is re-established and exceeds 20 PSIG. The “Auto” mode only operates when the fire pump is engaged.

The system shall employ an 80 PSI (5.5 bar) pressure protection valve, located on the chassis auxiliary air tank.

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

One (1)
09-38-0400

PRIMER CONTROL

There shall be one (1) automatic control to actuate the primer valve of the above specified pump body, at the operator's panel.

One (1)
10-12-1000

MAIN PUMP INLET-LEFT SIDE

A 6.00 inch (150 mm) pump manifold inlet shall be provided on the left side of the pump. The inlet shall protrude up to 2.00 inches (50 mm) away from the side panel and maintain a low connection height.

The main pump inlet shall have National Standard Threads and includes a removable screen designed to provide cathodic protection for reducing deterioration in the pump.

One (1)
10-25-1000

6" CHROME PLATED CAP

There shall be one (1) 6.00 inch (150 mm) long handled chrome plated cap installed on the Steamer Inlet.

The cap shall be National Standard Thread.

One (1)
10-12-1005

MAIN PUMP INLET-RIGHT SIDE

A 6.00 inch (150 mm) pump manifold inlet shall be provided on the right side of the pump. The inlet shall protrude up to 2.00 inches (50 mm) away from the side panel and maintain a low connection height.

The main pump inlet shall have National Standard Threads and includes a removable screen designed to provide cathodic protection for reducing deterioration in the pump.

One (1)
10-25-1000

6" CHROME PLATED CAP

There shall be one (1) 6.00 inch (150 mm) long handled chrome plated cap installed on the Steamer Inlet.

The cap shall be National Standard Thread.

One (1)
09-01-05M0

MASTER DRAIN VALVE

A Trident manifold type drain valve shall be installed in the pump compartment. All pump drains shall be connected to the master drain valve. The drain valve shall be controlled from the left side lower pump house sill. The control shall be a hand wheel knob marked "open" and "closed".

The drain shall be located such that it shall not interfere with pumping operations or functions such as soft suction hoses, etc. nor shall it protrude past the outer edge of the apparatus, to prevent damage to the valve.

In some cases, it is necessary to locate the master drain in a secondary location to ensure proper draining. If no lower or vertical sill exists, the drain shall be located below the bottom outside edge of the hose body near the forward most corner on the driver's side hose body. The drain shall not protrude past the outer edge of the body, thus preventing damage to the valve.

One (1)
09-70-0010

PUMP COOLING LINE

There shall be a .38 inch (9.5 mm) line running from the pump to the water tank to assist in keeping the pump water from overheating. A valve shall be installed on the operator's panel.

One (1)
09-70-0420

PUMP ANODES

Two (2) pump anodes shall be installed in the pumping system, one (1) on the discharge side and one (1) on the suction side, to prevent damage from galvanic corrosion within the pump system.

One (1)
12-10-1000

STAINLESS STEEL PLUMBING

All auxiliary suction and discharge plumbing related fittings, and manifolds shall be fabricated with a minimum of 3.00 inch (77 mm), or greater as required by design, schedule 10 stainless steel pipe, brass, or high pressure flexible piping with stainless steel couplings. Galvanized components and/or iron pipe shall NOT be accepted to ensure long life of the plumbing system without corrosion or deterioration of the waterway system. Where waterway transitions are critical (elbows, tees, etc.), no threaded fittings shall be allowed to promote the smooth transition of water flow to minimize friction loss and turbulence. All piping components and valves shall be non-painted, unless otherwise specified. All piping welds shall be wire brushed and cleaned for inspection and appearance.

The high pressure flexible piping shall be black SBR synthetic rubber hose with 700 PSI working pressure and 1200 PSI burst pressure for flexible piping sizes 1.50 inches (38 mm) through 4.00 inches (100 mm). Sizes of .75 inch (19 mm), 1.00 inch (25 mm) and 5.00 inches (125 mm) are rated at 250 PSI working pressure and 1000 PSI burst pressure. All sizes are rated at 30 in HG vacuum. Reinforcement consists of two plies of high tensile strength tire cord for all sizes and helix wire installed in sizes 1.00 inch (25 mm) through 5.00 inches (125 mm) for maximum performance in tight bend applications. The material has a temperature rating of -40 degrees Fahrenheit to +210 degrees Fahrenheit.

The stainless steel full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. Mechanical grooved and male .75 inch (19 mm) and 1.00 inch (25 mm) couplings are brass. A high tensile strength stainless steel ferrule with serrations on the I.D. is utilized to assure maximum holding power when fastening couplings to hose.

One (1)
12-10-1250

PUMP HOUSE LINE PROTECTION

All drain lines for the discharges, suctions, ABS discharge gauge lines and any other appropriate connections in the pump house area shall have a protective cover provided on the lines in the required areas of the lines to prevent the lines from rubbing on any other components in the pump house area.

All drain lines, ABS lines, high pressure discharge lines and electrical wiring in the pump house area shall be properly and neatly routed, wire tied, and rubber coated “P” clamped, to keep the items secured.

One (1)
12-10-1290

PLUMBING TERMINATION SECUREMENT

All plumbing termination caps and plugs for intakes and discharges, shall be secured by a chain.

One (1)
12-10-1335

DRAIN VALVES

An Innovative Controls 3/4" quarter turn drain valve shall be included on each discharge, gated intake, and steamer valve (if applicable). A side stem, long stroke chrome plated lift handle shall be provided on the drain valve to facilitate use with a gloved hand. The drain valve shall have an ergonomically designed handle with a recessed verbiage tag area easily read by the operator before opening.

The drain valve shall be connected to the valve with a flexible hose that is routed in such a manner as to assure complete drainage to below the apparatus.

One (1)
14-10-0105

LEFT SIDE INLET

There shall be one (1) gated suction inlet with .75 inch (19mm) bleeder installed on the left side of the apparatus with the following specified components.

One (1)
14-30-0010

INTAKE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with stainless steel ball.

One (1)
14-35-0015

INTAKE VALVE CONTROL

The intake control valve shall be a 'swing out type' direct operation manual lever actuator at the valve.

One (1)
14-45-0005

INTAKE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
14-55-0500

SUCTION/INTAKE TERMINATION

The termination shall include the following components:

One (1) 2.50 inch (65 mm) NST swivel female straight adapter with screen

One (1) 2.50 inch (65 mm) self-venting plug.

One (1)

14-75-0305

INLET LOCATION

The inlet shall be located on the pump panel in the forward position.

One (1)
14-10-0505

RIGHT SIDE INLET

There shall be one (1) gated suction inlet with .75 inch (19mm) bleeder installed on the right side of the apparatus with the following specified components.

One (1)
14-30-0010

INTAKE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with stainless steel ball.

One (1)
14-35-0015

INTAKE VALVE CONTROL

The intake control valve shall be a 'swing out type' direct operation manual lever actuator at the valve.

One (1)
14-45-0005

INTAKE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
14-55-0500

SUCTION/INTAKE TERMINATION

The termination shall include the following components:

One (1) 2.50 inch (65 mm) NST swivel female straight adapter with screen

One (1) 2.50 inch (65 mm) self-venting plug.

One (1)
14-75-0305

INLET LOCATION

The inlet shall be located on the pump panel in the forward position.

One (1)
15-05-0105

LEFT SIDE DISCHARGE

There shall be one (1) gated discharge installed on the left side of the apparatus with the following specified components.

One (1)
16-30-0125

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

One (1)
16-35-0015

DISCHARGE VALVE CONTROL

The control valve shall be a 'swing out type' direct operation manual lever actuator at the valve.

One (1)
16-44-0510

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
16-52-1100

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female swivel by male with 30 degree polished elbow

One (1) 2.50 inch (65 mm) female self-venting cap.

One (1)
15-05-0610

RIGHT SIDE DISCHARGE

There shall be one (1) gated discharge installed on the right side of the apparatus with the following specified components.

One (1)
16-30-0120

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

One (1)
16-35-0010

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

One (1)
16-44-0510

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
16-52-1100

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female swivel by male with 30 degree polished elbow

One (1) 2.50 inch (65 mm) female self-venting cap.

One (1)
15-05-1110

RIGHT SIDE MASTER DISCHARGE

There shall be one (1) master discharge installed on the right side of the apparatus provided with the following specified components.

One (1)
16-30-0205

DISCHARGE VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series slo-cloz swing-out valve with a stainless steel ball.

One (1)
16-35-0010

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

One (1)
16-44-1710

DISCHARGE PLUMBING

The plumbing shall consist of 4.00 inch (100 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
16-53-2000

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 4.00 inch (100 mm) NST adapter

One (1) 4.00 inch (100 mm) NST female by 4.00 inch (100 mm) Storz with 30 degree elbow

One (1) 4.00 inch (100 mm) Storz cap.

One (1)
15-05-2110

RIGHT REAR DISCHARGE

There shall be one (1) gated discharge installed on the right rear of the apparatus with the following specified components.

One (1)
16-30-0105

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

One (1)
16-35-0010

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

One (1)
16-44-0710

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain

One (1)
16-52-1100

control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female swivel by male with 30 degree polished elbow

One (1) 2.50 inch (65 mm) female self-venting cap.

One (1)
16-20-0030

CROSSLAY AREA

The crosslay hose beds shall be located in the upper portion of the pump compartment.

The crosslay area shall span the entire width of the apparatus pump module. Removable flooring shall be provided in the hose bed area for drainage.

One (1)
16-20-0036

DOUBLE STACK CROSSLAYS

The crosslay area shall be constructed with a minimum of 25.00-inch (635mm) approximate depth for laying a double stack of each hose size as specified below.

Chiksan swivels shall be installed just below the floor of each crosslay bed just high enough for hose couplings to be accessed and tightened on to chiksans. Chiksan swivels shall swing from left to right to allow attached hose to be deployed from either side.

One (1)
16-20-0110

ADJUSTABLE CROSSLAY DIVIDERS WITH HAND HOLD CUTOUTS

Each crosslay divider, acting as a hose bed separator, shall be fabricated of .25-inch smooth aluminum. Each divider shall be adjustable from side to side and be of full length. Each divider shall have a vertical hand hold cutout provided at each end.

One (1)
16-20-1705

2-1/2" DEADLAY

A deadlay for hose storage only with no plumbing shall be provided for up to 200 feet (60 m) of 2.50 inch (63.5 mm) hose.

There shall be a total of one (1) provided.

One (1)
16-64-0010

CROSSLAY TRIM

Brushed stainless steel trim shall be installed at the openings on the bottom and on each side of the crosslay hose bed area. The trim shall reduce the chaffing of the hose jacket on the edges of the bay area.

One (1)

16-65-0025

CROSSLAY HOSE BED HOSE RESTRAINTS

The Dealership shall provide a means of restraining the hose stored in the crosslays to prevent inadvertent deployment of hose during transit. A hose restraint safety label shall be affixed by the Dealership and visible to personnel at each hose storage area.

One (1)
16-20-1010

SPEEDLAYS/PRE-CONNECT PLUMBING

Chiksan swivels shall be installed above each plumbed speedlay hose bed, accessible enough for the hose couplings to be tightened onto the chiksans.

The chiksan swivels shall swing from left to right to allow the attached hose to be deployed from either side.

Two (2)
16-20-1205

1 3/4" SPEEDLAY

A speedlay with the following specified components shall be provided for up to 200 feet (60 m) of 1.75 inch (44.4 mm) hose.

There shall be a total of two (2) provided.

Two (2)
16-30-0005

DISCHARGE VALVE

A 2.00 inch (50 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

Two (2)
16-35-0010

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

Two (2)
16-44-0110

DISCHARGE PLUMBING

The plumbing shall consist of 2.00 inch (50 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

Two (2)
16-50-1000

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.00 inch (50 mm) NPT x 1.50 inch (38 mm) NST brass chiksan swivel

Two (2)
16-70-0105

SPEEDLAY TRIM

Brushed stainless steel trim shall be installed at the openings on each side of the speedlay hose bed area. The trim shall extend 8.00 inches into the speedlay bay opening from the outer edge. The trim shall reduce the chaffing of the hose jacket on the edges of the bay area.

Two (2)
16-71-0010

SPEEDLAY HOSE BED HOSE RESTRAINTS

The Dealership shall provide a means of restraining the hose stored in the speedlays to prevent inadvertent deployment of hose during transit. A hose restraint safety label shall be affixed by the Dealership and visible to personnel at each hose storage area.

One (1)
16-21-0400

2 1/2" PRE-CONNECT

One (1) hose bed pre-connect with the following specified components shall be provided for 2.50 inch (63.5 mm) hose on the left side of the hose bed.

One (1)
16-30-0120

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

One (1)
16-35-0010

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

One (1)
16-44-0810

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
16-50-4003

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) NPT x 2.50 inch (65 mm) NST chrome plated brass fitting

One (1) 2.50 inch (65 mm) NST x 2.50 inch (65 mm) New York Corp (3.0" x 8 TPI) chrome plated brass fitting

One (1) 2.50 inch (65 mm) New York Corp (3.0" x 8 TPI) x 1.5 inch (38 mm) NPSH chrome plated brass fitting

One (1)
16-55-2105

PRE-CONNECT LOCATION

The discharge shall terminate to the left side upper corner of the hose bed header wall approximately 8.00 inches, on center, below the top of the hose bed.

One (1)
16-21-0405

2 1/2" PRE-CONNECT

One (1) hose bed pre-connect with the following specified components shall be provided for 2.50

inch (63.5 mm) hose on the right side of the hose bed.

One (1)
16-30-0105

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

One (1)
16-35-0010

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

One (1)
16-44-0810

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
16-50-4000

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) NPT x 2.50 inch (65 mm) MNST chrome plated brass fitting

One (1)
16-55-2205

PRE-CONNECT LOCATION

The discharge shall terminate to the right side upper corner of the hose bed header wall approximately 8.00 inches, on center, below the top of the hose bed.

One (1)
16-22-0105

DECK GUN MONITOR WATERWAY

There shall be one (1) deck gun monitor waterway installed on the apparatus with the following components.

One (1)
16-30-0220

DISCHARGE VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series slo-cloz swing-out valve with a stainless steel ball.

One (1)
16-35-0010

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

One (1)
16-44-1510

DELUGE PLUMBING

The deluge waterway shall consist of 3.00 inch (77 mm) piping and shall be drained with an auto-drain located at the lowest point of the waterway plumbing if required.

One (1)
16-79-0020

DELUGE PIPE LOCATION

The deluge pipe shall be located up through the pump compartment, to the left side of the apparatus.

One (1)
16-80-0005

DELUGE WATERWAY TERMINATION

The deluge waterway shall be capped with a stainless steel cap to allow for future installation of deck gun monitor.

One (1)
16-80-1500

PIPE EXTENSION

The deluge waterway plumbing shall extend 5.00 inches (125 mm) above the top of the pump compartment unless otherwise specified by overall height requirement. A cap on the plumbing shall be provided.

One (1)
16-23-0010

FRONT BUMPER DISCHARGE OUTLET

One (1) front bumper discharge outlet shall be provided and installed in the location specified.

One (1)
16-30-0120

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

One (1)
16-35-0010

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

One (1)
16-44-1010

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access. Auto-drain(s) shall be installed in the discharge piping at lowest point of the plumbed system.

One (1)
16-50-2080

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) NPT x 2.50 inch (65 mm) NST SST chiksan swivel

One (1)
16-75-0010

FRONT BUMPER DISCHARGE LOCATION

The front bumper discharge shall be mounted on top of the bumper apron of the front bumper extension. The discharge shall be placed outboard of the frame rail extensions on the right side.

One (1)
16-88-1005

BOOSTER REEL

There shall be an electric rewind booster reel with automatic brake installed on the apparatus. The booster reel shall have a capacity to handle 1.00-inch diameter (25.4 mm) booster hose.

There shall be a manual rewind device provided. A manual crank shall be mounted adjacent to booster reel.

One (1)
16-88-3005

BOOSTER HOSE-DEALER PROVIDED

The booster hose shall be provided and installed by the Dealership before the truck is placed into service.

One (1)
16-89-1000

REEL FINISH

The hose reel specified shall be steel and painted the standard silver utilized by Hannay.

One (1)
16-89-2000

HOSE REEL VALVE

The reel shall be plumbed to the pump with a 1.00 inch (25.40 mm) quarter turn Akron brass 8000 series ball valve and 1.00 inch (25.40 mm) high pressure hose and couplings.

The valve shall be controlled from the operator's panel.

One (1)
16-91-1000

REWIND ACTIVATION

An electric rewind switch shall be located adjacent to the booster reel. The switch shall have a weather resistant rubber cover and a label indicating its function.

The switch shall be labeled "HOSE REEL".

One (1)
16-90-0115

HOSE REEL LOCATION

The hose reel shall be mounted in dunnage area specified above the pump on the right side.

One (1)
16-92-0120

HOSE REEL ROLLERS

There shall be one (1) bell roller assembly installed on the right side upper pump house to allow hose payout to the right side of the apparatus.

One (1)
16-93-0105

BOOSTER REEL GAUGE

There shall be a pressure gauge supplied for the Booster Reel as specified below.

Eleven (11)
16-60-0500

DISCHARGE GAUGES

An Innovative Controls TC Series nominal 63 mm gauge shall be supplied for reading the pressure of each discharge greater than 1.50 inches (38 mm) in diameter, unless otherwise specified.

A KEM-X socket saver diaphragm, located in the stem, eliminates freeze-up by preventing water from entering and/or clogging the gauge internals while containing a low temperature instrument oil that fills and protects the socket and the bourdon tube.

The molded glass-filled Nylon 66 case will not corrode and includes a scratch-resistant molded polycarbonate lens with O-ring seal. The gauge shall withstand pressures up to 100psi over gauge range with operation from -40°F to $+160^{\circ}\text{F}$.

Eleven (11)
16-62-0100

GAUGE SCALE

Each gauge shall be marked for reading a pressure range of 0-400 PSI.

Eleven (11)
16-62-0400

GAUGE FACE COLOR

Each gauge shall have black markings on a white face.

Eleven (11)
16-62-0805

BEZELS FOR DISCHARGE GAUGES

Highly polished stainless steel Innovative Control bezels shall be provided around each of the discharge pressure gauges to prevent corrosion and protect lenses and gauge cases. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve identifying verbiage and/or color labels.

Eleven (11)
28-10-0590

APPARATUS PLUMBING LABELING

Innovative Controls verbiage tag bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These tags shall be designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The verbiage tag bezel assemblies shall include a chrome-plated panel-mount bezel with durable easy-to-read UV resistant polycarbonate inserts featuring the specified verbiage and color coding. These UV resistant polycarbonate verbiage and color inserts shall be subsurface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel shall be backed with 3M permanent adhesive, which meets UL969 and NFPA standards.

One (1)
20-00-0010

TANK TO PUMP LINE

The connection between the tank and the pump shall be capable of the flow recommendations as set forth in NFPA, Standard for Automotive Fire Apparatus, latest revision and shall be tested to those standards when the pump is being certified.

One (1) non-collapsible flexible hose and valve shall be incorporated into the tank to pump

plumbing to allow movement in the line as the chassis flexes to avoid damage during normal road operation. Four (4) inch stainless steel schedule 10 piping shall be used to complete the connection from the tank to pump valve to the water tank.

One (1)
20-05-0100

TANK TO PUMP CHECK VALVE

There shall be a tank to pump check valve, conforming to NFPA standard requirements to prevent water from back flowing at an excessive rate if the pump is being supplied from a pressurized source. The check valve shall be mounted as an integral part of the pump suction extension. A hole up to .25 inch (6.00 mm) is allowable in the check valve to release steam or other pressure buildup so that the void between the valve and check valve may drain of water that could be subject to freezing.

One (1)
20-26-0315

TANK TO PUMP VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

One (1)
20-35-0005

VALVE CONTROL

The valve shall be controlled from the pump operator's panel location.

One (1)
20-10-0110

TANK FILL LINE

One (1) 2.00 inch (50.80 mm) tank fill/recirculating line shall be installed from the pump directly to the booster tank.

One (1)
20-26-0110

TANK FILL VALVE

A 2.00 inch (50 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

One (1)
20-35-0005

VALVE CONTROL

The valve shall be controlled from the pump operator's panel location.

One (1)

== Top/Side Control Midship Pumper - Body - 10.351 04/16/26 ==

One (1)
30-11-1000

TRI-MAX™ Space Frame Body - ALUMINUM

The apparatus body shall be a Tri-Max™ **Space Frame** design, which serves as an incredibly durable, structural body framework. This framework acts as a series of beams and columns that support and protect the body and its contents. The space frame design provides maximum torsional resistance and load capabilities. The entire space frame structure shall be welded together utilizing an A.W.S. Certified welding procedure.

The space frame design shall also be required because it provides energy absorbing impact zones in the structure, thus providing increased safety to the rest of the apparatus and personnel on board. Documented proof of this extra safety shall be required upon request.

The Tri-Max™ body structure shall consist entirely of closed section members, except where the body is mounted to the chassis. Closed section members (such as square, rectangular, triangular, or round tubes) are required because they provide maximum strength and torsion rigidity. This solid tubular structural style of design ultimately adds longevity to the body structure by eliminating flex and twists in material, creating less stress and fatigue. Body designs that use independent sub-frames will not be acceptable.

BODY STRUCTURE MEMBERS

The space frame body shall have triangular shaped structural members in certain areas of the body. This shape is required to prevent loss of useable compartment space. Other body structure members shall be square or rectangular. Each structural member will have a nominal outside dimension of 2.50 inches (63.50 mm) in at least one direction. The body shall be designed for maximum strength to weight ratio, therefore the gauge of sheet metal and structural members varies from .125 inches (3.18 mm) to .250 inches (6.35 mm) throughout, dependent on the design requirement.

BODY MATERIAL TYPE

All body structural members shall be Aluminum 6061-T6 alloy material. All .125 inch (3.18 mm) sheet material shall be Aluminum Alloy 5052-H32, and .250 inch (6.35 mm) sheet materials shall be Aluminum Alloy 3003. These alloys are required because it provides optimum all-around performance for strength, manufacturing properties, and corrosion resistance.

ECK® ANTI-CORROSION PROCESS

Absolutely no dissimilar metals shall be used in the body and its supporting substructure without being separated by Eck®, which prevents corrosion by providing a barrier between dissimilar metals, sealing out moisture and absorbing energy created by a dissimilar metal reaction.

FRONT BODY COMPARTMENT WALLS

The front compartment walls of both forward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments.

REAR BODY COMPARTMENT WALLS

The rear compartment walls of both rearward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments. Access panels from the rear walls shall be strategically placed to ensure access to the rear taillight clusters for any servicing that may be completed.

COMPARTMENT TOP

The top of the compartments shall be an integral portion of the body. No overlay material shall be visible from the interior of the compartments.

COMPARTMENT FLOORS

The body compartments shall be enclosed with aluminum sheet metal as specified above. The compartment floors shall have a 1.00 inch (25.40 mm) lip downward at the door opening side of the compartment. This lip shall integrate with a structural member on the bottom edge and form a “sweep-out” compartment. This design shall also allow for a structural flush fitting door frame and a complete door/weather seal.

COMPARTMENT LOAD CAPACITY

Each compartment shall have a minimum of one additional structural compartment floor support centered on the underside of the compartment floor. This additional member shall be integral with the rest of the body structure. Each compartment must be designed, and 3rd party analyzed to carry a working load of:

Full depth side compartment: 1,000 lbs (453.59 kg) per compartment

Half depth side compartment: 750 lbs (340.19 kg) per compartment

Rear center compartment: 1,500 lbs (680.39 kg)

NOTE: These values are for design purposes only for individual compartment construction and are not meant to be used as an actual overall weight rating for equipment load per compartment for the specified apparatus. The apparatus shall be engineered such that the completed unit, when loaded to its estimated in-service weight, shall comply with the gross axle weight ratings {GAWR}, the overall gross vehicle weight rating {GVWR}, and the chassis manufacturer's load balance guidelines per NFPA.

EXTERIOR HOSE BED WALLS

The exterior hose bed walls shall be an integral portion of the body. The wall shall give a smooth exterior look and finish with no vertical supports tubing visible from the exterior of the truck.

FASTENERS

All bolts and nuts used in the finish construction of the apparatus shall be coated stainless steel which helps prevent dissimilar metal electrolytic reaction and corrosion. Any bolt extending into a compartment or into the hose bed area shall have an acorn nut attached or be protected in such manner where sharp edges are avoided.

FINITE ELEMENT ANALYSIS

The proposed body design must have completed a review and analysis by a legitimate 3rd party engineering firm. At a minimum, the 3rd party must have conducted a computer model finite element analysis of the proposed design. The analysis is to include real world working load scenarios. Analysis to cover both static and dynamic situations must be completed. The purpose of the finite element analysis is to ensure proper design of the apparatus body, and that it is capable of carrying the typical fire apparatus loads and those specified by NFPA for equipment. The analysis process must conclude that the body structure is properly designed and

manufactured to provide longevity under normal conditions. The 3rd party must also validate the manufacturing processes are consistent with the design and analysis performed. Proof of having completed this testing must be submitted with the bid.

PPG PAINT SPECIFICATIONS

All bright metal fittings, if unavailable in stainless steel, shall be heavily chrome plated.

Critical body and sub-frame area which cannot be primed after assembly shall be pre-painted.

All welded metal surfaces shall be ground to a smooth surface prior to a degreasing and high pressure, high temperature phosphatizing process. The entire surface shall be sprayed with a non-chromate sealing compound to prevent formulation of stains or flash rust on previously phosphatized parts.

The paint applied to the apparatus shall be PPG Industries Delta® brand, applied throughout a multi-step process including at least two coats of each color and clear coat finish.

The coating shall be an infrared, baked air dried. The coatings shall provide full gloss finished suitable for application by high-pressure airless or conventional low pressure air atomizing spray.

The coatings shall not contain lead, cadmium, or arsenic. The polyisocyanate component shall consist of only aliphatic isocyanates, with no portion being aromatic isocyanates in character. The solvents used in all components and products shall not contain ethylene glycol mono-ethyl ethers or their acetates (commercially recognized as cello solves), nor shall they contain any chlorinated hydrocarbons. The products shall have no adverse effects on the health or nor present any unusual hazard to personnel when used according to manufacturer's recommendations for handling and proper protective safety equipment, and for its intended use.

The coating system, as supplied and recommended for application, shall meet all applicable federal, state, and local laws and regulations now in force or at any time during the course of the bid.

The manufacturer shall supply (upon request) for each product and component of the system, a properly complete OSHA "Safety Data Sheet".

The following documents of the issue in effect on the date of the invitation to quote form a part of this document to the extent specified herein:

Federal Standards: Number 141A and 141B paint, varnish, lacquer, and related material: methods of inspection, sampling, and testing.

Military Standard: MIL-C 83486B Coating, Urethane, Aliphatic Isocyanates, for Aerospace applications.

Industry Methods and Standards: ASTM Method of Analysis (American Society for testing and Materials). BMS 10-72A (Boeing Material Specifications).

The entire exterior body structure (excluding roll-up doors) shall receive the primer coats and the

finish coats. The apparatus body will be painted in a down draft type paint booth to reduce dust, dirt, or impurities in the finish paint. The painted surfaces shall have a finish with no runs, sags, craters, pinholes, or other defects. The coating will meet the following test performance properties as a minimum standard.

One (1)
30-12-6000

BODY PAINT COLOR

One (1)
30-12-7000

The apparatus body shall be painted to match {"[MUST SPECIFY](#)"}.

One (1)
30-12-6065

SUPERLINER COMPARTMENT FINISH

The compartment interiors shall be coated with Superliner.

One (1)
30-12-6540

COMPARTMENT FINISH COLOR

The Superliner Color shall be Medium Gray.

One (1)
30-12-5500

STRUCTURAL BODY WARRANTY

A structural Aluminum body warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship under normal use and service for a period of ten (10) years.

One (1)
30-12-5850

PAINT WARRANTY

A Prorated Paint Warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years.

One (1)
54-50-1045

DIAMOND PLATE FRONT OVERLAYS

The entire front face of the apparatus body shall have aluminum diamond plate overlays installed.

RAW ALUMINUM REAR OVERLAYS

The entire rear face of the apparatus body shall have raw aluminum overlays installed for the installation of chevron striping.

All overlay materials shall be coated with adhesive sealant on the back portion to provide an insulating barrier between dissimilar metals.

One (1)
54-50-2110

FRONT CORNER TRIM 16 GAUGE BRUSHED STAINLESS STEEL

The front of the apparatus body vertical wall overlays shall be installed with a 16 gauge brushed stainless steel 1.00 inch x 1.00 inch corner trim piece, for edge protection. The vertical edge trim shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

One (1)
54-50-2210

REAR CORNER TRIM 16 GAUGE BRUSHED STAINLESS STEEL

The rear face of the apparatus body, vertical wall overlays shall be installed with a 16 gauge brushed stainless steel 1.00-inch by 1.00-inch corner trim piece, for edge protection. The vertical edge trim shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

The vertical edge trim piece that is protecting the chevron striping surface or that is utilized for the purpose of striping, shall be secured utilizing fasteners only.

One (1)
54-75-0010

CATWALKS

The catwalks shall be constructed with materials of a non-slip .125 inch embossed aluminum diamond plate.

One (1)
30-20-1000

VIBRA-TORQ™ BODY MOUNTING SYSTEM

The entire body module assembly shall be mounted so that it “floats” above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable body mounting system.

The body substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each body mount bracket shall be mounted to the side chassis frame flange with two 5/8”-UNC Grade 8 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All body to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures. The Vibra-Torq™ body mounting system shall have a twenty (20) year or 100,000 miles limited warranty in accordance with, and subject to, warranty certificate

RFW0541.

One (1)
30-30-1000

BODY STRUCTURE WIDTH

The width of the apparatus body from the outside of the left compartments to the outside of the right compartments shall be 99.00 inch (2.51 m) excluding any attached peripherals such as rub rails, fenderettes, grab handles, etc.

One (1)
30-31-5000

COMPARTMENT VENTILATION

To allow for proper air circulation & flow, each compartment shall have a venting route. The venting locations shall be determined by best-fit for each body configuration. Chrome louvered plate vents shall be installed appropriately on the compartment interior walls.

S One (1)
33-00-0300

COMPARTMENTATION

The following compartments shall be supplied on the apparatus:

Compartment "L1"

There shall be one (1) full height compartment ahead of the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 33.50 inches (850.90 mm) wide by 69.00 inches (1752.60 mm) high with a lower depth of 25.50 inches (647.70 mm) and an upper depth of 12.50 inches (317.50 mm).

The framed opening shall measure approximately 45" inches wide by 65.00 inches (1651.00 mm) high.

Compartment "L2"

There shall be one (1) compartment located directly over the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 62.00 inches (1574.80 mm) wide by 35.00 inches (889.00 mm) high with a depth of 12.50 inches (317.50 mm).

The framed opening shall measure approximately 62.00 inches (1574.80 mm) wide by 35.5" high.

Compartment "L3"

There shall be one (1) full height compartment located behind the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 49.00 inches (1244.60 mm) wide by 69.00 inches (1752.60 mm) high with an upper depth of 12.50 inches (317.50 mm) and the lower portion being transverse into the rear compartment, unless partitions are installed.

The framed opening shall measure approximately 46.50 inches (1181.10 mm) wide by 65.00 inches (1651.00 mm) high.

The compartment will have approximately 36.62 cubic feet (1.04 cu m) of space.

Compartment "R1"

There shall be one (1) full height compartment ahead of the rear wheels on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 33.50 inches (850.90 mm) wide by 69.00 inches (1752.60 mm) high with a lower depth of 25.50 inches (647.70 mm) and an upper depth of 12.50 inches (317.50 mm).

The floor of the compartment shall have a notch large enough to accommodate the chassis exhaust and its components.

The framed opening shall measure approximately 45" inches wide by 65.00 inches (1651.00 mm) high.

Compartment "R2"

There shall be one (1) compartment located directly over the rear wheels on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 62.00 inches (1574.80 mm) wide by 35.00 inches (889.00 mm) high with a depth of 12.50 inches (317.50 mm).

The framed opening shall measure approximately 62.00 inches (1574.80 mm) wide by 35.5" high.

Compartment "R3"

There shall be one (1) full height compartment located behind the rear wheels on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 49.00 inches (1244.60 mm) wide by 69.00 inches (1752.60 mm) high with an upper depth of 12.50 inches (317.50 mm) and the lower portion being transverse into the rear compartment, unless partitions are installed.

The framed opening shall measure approximately 46.50 inches (1181.10 mm) wide by 65.00 inches (1651.00 mm) high.

The compartment will have approximately 36.62 cubic feet (1.04 cu m) of space.

No mandatory compartment sizes on this truck, however they must stay under 34' overall length, while maintaining current cab length, speedlays in pump panel (called out for panel to be as narrow as possible), and tailboard selection we have or very close to it, front bumper could be shortened if needed, but must fit 150' of 1.75",

All of this being said, narrow up side compartments as much as needed to achieve the above.

Customer does prefer a low hose bed / L shaped tank, understands we can't go super low with 1250 water but somewhere around 50" from tailboard give or take 6" would be awesome, the lower the better while still maintaining at least 6 feet of hose bed depth.

Contact Spencer with any questions before designing if needed - Spencers@feldfire.com
816-810-2811

One (1)
33-05-0330

DOOR CONSTRUCTION

All horizontal and vertical side compartment doors shall be roll-up style doors.

R•O•M ROLL-UP DOOR

A R•O•M Corporation Series IV roll-up shutter door shall be installed. Each shutter slat, track, bottom rail, and drip rail shall be constructed from anodized 6063 T6 aluminum.

Shutter slats shall feature a double wall extrusion 0.315 inches thick with a concave interior surface to minimize loose equipment jamming the shutter door closed. Shutter slats shall feature an interlocking end shoe to prevent side to side binding of the shutter door during operation. Slat must have interlocking joints with an inverted locking flange. Slat inner seal shall be a one piece PVC extrusion; seal design shall be such to prevent metal to metal contact while minimizing dirt and water from entering the compartment.

Shutter door track shall be one piece design with integral overlapping flange to provide a clean finished look without the need of caulk. Door track shall feature an extruded Santoprene rubber double lip low profile side seal with a silicone co-extruded back to reduce friction during shutter operation.

Shutter bottom rail shall be a one piece double wall extrusion with integrated finger pull. Finger pull shall be curved upward with a linear striated surface to improve operator grip while operating the shutter door. Bottom rail shall have a smooth contoured interior surface to prevent loose equipment from jamming the shutter door. Bottom rail seal shall be made from Santoprene; it will be a double "V" seal to prevent water and debris from entering compartment. Bottom rail lift bar shall be a one piece "D" shaped aluminum extrusion with linear striations to improve operator grip during operation. Lift bar shall have a wall thickness of 0.125 inches. Lift bar shall be supported by no less than two pivot blocks; pivot blocks shall be constructed from Type 66 Glass filled reinforced nylon for superior strength. Bottom rail end blocks shall have incorporated drain holes which will allow any moisture that collects inside the extrusion to drain out.

Shutter door shall have an enclosed counterbalance system. Counterbalance system shall be 4.00 inches in diameter and held in place by 2 heavy duty 18 gauge zinc plated plates. Counterbalance system shall have 2 over-molded rubber guide wheels to provide a smooth transition from vertical track to counterbalance system.

One (1)
37-90-0115

SIDE COMPARTMENT DOORS/TRACK/TRIM/WET PAINTED

The side compartment roll up doors, track and trim shall be wet finish painted to color match the apparatus body.

One (1)
37-91-0005

ROLL-UP DOOR PROTECTORS

There shall be a protective cover installed under each body side compartment door roll to protect the door in the rolled up position.

One (1)
37-91-0010

ROLL-UP DOOR PROTECTOR FINISH

The roll-up door protector shall be left Natural finish.

One (1)
37-92-0105

DOOR ASSIST STRAPS

There shall be nylon straps installed on both the left and right body side 'high side' compartment doors to assist in closing the door. The strap shall be attached to each door and permanently mounted to the rearward wall with footman loops using Nutserts, halfway between the top and bottom of the compartment.

One (1)
37-96-0020

DOOR OPEN INDICATOR

Each roll up door shall have an integral door open indicator magnet in the lift bar.

If the door is not properly closed and the parking brake is released, it shall activate the “hazard light” in the cab to alert the crew.

S One (1)
37-10-0010

REAR CENTER COMPARTMENT

There shall be one (1) compartment, "B1", located at the rear of the apparatus, below the hose bed access area.

The approximate interior dimensions of this compartment shall be 43.00 inches (1092.20 mm) wide and 47.00 inches (1193.80 mm) high or as high as possible determined by the hose bed height and rear configuration. The depth shall be determined by the length of the rear side compartments specified and maximized for the suspension specified for the chassis.

The framed opening shall be approximately 38.00 inches (965.20 mm) wide and 27" inches high.

One (1)
37-10-5000

REAR COMPARTMENT DOOR CONSTRUCTION

The doors shall be a minimum of 2.00 inches (50.80 mm) thick with a return flange on the interior of the door to provide a mounting surface for the attachment of a door liner. Each door will have a weep hole to prevent interior moisture build up.

The door hinges shall be polished 14 gauge 304 stainless steel with a .25 inch (6.35 mm) diameter stainless steel pin. The hinges shall be mounted to provide easy door adjustment in the future without removing the door liner. The vertically hinged doors shall each have a stainless steel spring loaded door holder.

The door handle shall be polished stainless steel D-ring style that is spring loaded and bidirectional. It shall be mounted on the primary door. The latch shall attach to the door assembly without any fasteners penetrating the door skin material, with a rubber gasket provided between the D-ring handle and the door skin. The door latch assembly must be completely enclosed by the door assembly and inner door pan, to prevent damage from shifting equipment carried in the compartment.

The door latch to open the secondary door shall be "lever" style, located on the backside of the door. Once the primary door is opened, the handle shall be easily visible.

The hinged doors shall be a "flush" style to provide a flat appearance of the body side. The body shall form a 2.00 inch (50.80 mm) deep frame on all four sides to receive the door, preventing any door overlap. A clip on rubber gasket shall be mounted on the door frame, providing a tight seal to prevent moisture and debris from entering the compartment.

Lap type doors which utilize an outer lip to provide a weather seal, shall not be acceptable.

One (1)
37-15-0020

REAR COMPARTMENT DOOR MATERIAL

The rear compartment doors shall be fabricated of 5052 smooth aluminum and shall be left a natural finish for application of the rear retro-reflective chevron striping.

One (1)
37-20-0010

REAR COMPARTMENT DOOR LINER MATERIAL

The rear compartment doors interior liners shall be fabricated of 5052 smooth aluminum and shall be dual-action sanded finish.

One (1)
37-62-0110

REAR DOOR RETRO-REFLECTIVE CHEVRON STRIPING

The rear compartment hinged door assembly shall be equipped with Diamond Grade, retro-reflective striping in a chevron pattern, sloping downward and away from the centerline of the vehicle at an angle of 45-degrees.

The striping color shall match the rear of the apparatus as specified later in the specifications.

One (1)
37-96-0005

DOOR OPEN INDICATOR

Each flush door body compartment shall be provided with an auto door switch. The switch shall be installed on the primary compartment door and activate the open door indicator when the door is opened.

The switch shall be of a magnetic style reed indicator type. Each switch shall be hermetically

sealed rated to 10,000,000 cycles. The contact and magnetic housing shall snap-lock in the body material, one on the body and one in the door.

If the door is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the "hazard light" in the cab to alert the driver.

One (1)
37-65-0015

REAR COMPARTMENT PARTITIONS

The rear center compartment of the apparatus shall have semi-permanent partitions installed on each side to increase utilization of the rear center area and to block access to either of the side compartments. The partitions shall be constructed of the same materials as used in the body structure and shall be bolted in place to form permanent compartmentation.

One (1)
37-98-0010

SILL PLATES

Brushed stainless steel sill plates shall be installed at the bottom of each body compartment door opening.

One (1)
70-30-0300

COMPARTMENT LIGHTING

Two (2) LED tube lights model #RX-15T16-5050 shall be installed in each body compartment. The tube lights shall be centered vertically along each side of the door framing and at maximum length available to fit the opening.

The lights in each compartment shall be on a separate circuit, turning on only those lights that have open compartment doors.

One (1)
71-50-0100

COMPARTMENT LIGHTING ACTIVATION

Each compartment light shall be activated with the ignition, park brake, and the respective compartment door open switch.

One (1)
38-10-0070

REAR TAILBOARD

The rear of the apparatus body shall be vertical in design - otherwise known as a 'flat-back'.

The rear tailboard shall be fabricated of the same tubular materials as used in the apparatus body.

The rear step shall be designed to incorporate "crush zone" technology. This idea incorporates lighter materials in the tailboard than the body structure so the step will "crush" in a collision before the body structure.

On the rear body surface, a sign shall be attached that states: "DO NOT RIDE ON REAR STEP, DEATH OR SERIOUS INJURY MAY RESULT."

The rear tailboard and body shall be constructed such that the angle of departure shall be no less than 8 degrees at the rear of the apparatus when fully loaded, per NFPA, Standard for

Automotive Fire Apparatus.

One (1)
38-11-0110

TAILBOARD LENGTH

The rear tailboard shall be approximately 12.00 inches (304.80 mm) deep and shall incorporate a .188 inch (4.78 mm) embossed aluminum diamond plate overlay.

The stepping area shall span the width of the apparatus, overlapping the perimeter of the structural tailboard framework.

One (1)
38-13-0100

NO Beveled Tailboard (Chamfered)

One (1)
38-13-2100

The tailboard shall be an independent assembly welded to the rear body structural framing to provide body protection and a solid rear stepping platform.

One (1)
39-01-0005

WHEEL WELLS

Wheel wells shall have semicircular black polymer composite inner liners that are bolted to the wheel well panel and supported inboard by brackets that are connected to the body framework. Each wheel well shall be a continuous piece with no breaks or ledges where road grime or debris may accumulate. This liner shall be removable for access to suspension assembly for repairs. There shall be no exception to the bolted wheel well inner liner requirement.

One (1)
39-03-0025

WHEEL WELL PANELS

The body panel in the wheel well area on each side of the body shall be fabricated of same material type as the body and finish painted.

One (1)
56-05-2000

FUEL FILL ASSEMBLY

There shall be a fuel fill assembly located on the apparatus body accessing the chassis supplied fuel tank. The assembly shall be located in the area that best suits efficient fuel filling with the space appropriated on the left side of the apparatus.

The fuel fill assembly will have a brushed aluminum door. There shall be a drain in the fuel fill assembly to allow overflow to drain on the back side of the apparatus body. The fuel fill cap shall be removable, manufactured of plastic materials, green in color and equipped with a tether.

The fuel fill cap shall be labeled "DIESEL FUEL". The fuel fill neck shall have a .375 inch inside diameter vent line installed from the top of the fuel tank to the fill tube.

One (1)
39-15-0005

FENDERETTES

Two (2) polished stainless steel fenderettes shall be provided and installed on body rear wheel well openings, one (1) each side. Rubber welting shall be provided between the body and the crown to seal the seam and restrict moisture from entering. A dielectric barrier shall be provided

S One (1)
50-15-3000

between the fender crown fasteners (screws) and the fender sheet metal to resist deterioration.

HOSE STORAGE

A hose bed shall be provided and installed as long and as deep as the tank volume, rear configuration, and the body height allows. At a minimum, the capacity of the hose bed shall meet the latest version of NFPA, Standard for Automotive Fire Apparatus.

The hose bed shall have a slotted .25 inch (6.35 mm) aluminum flooring installed to allow drainage through the tank cavity to the ground below.

The aluminum flooring shall be manufactured in discrete sections to allow for ease of removal and stability. The area shall be free of sharp edges to protect the hose when loading and unloading.

Low hose bed as possible, would love to see around 50", L shape tanked called out, hose bed shall be around 6 feet deep.

One (1)
30-14-0005

HOSE BED AREA

The hose bed area of the apparatus shall be overlaid with brushed stainless steel material.

One (1)
30-14-2000

HOSE BED AREA TRIMMED W/ BRUSHED SST

The vertical corners at the back hose bed shall be trimmed with brushed stainless steel. The trim shall extend from the hose floor level up to the top edge of the body side.

One (1)
30-14-5000

HOSE BED WALL CAP

The top rail on the hose bed side walls shall have a trim cap fabricated of 16 gauge brushed 304L stainless steel. The cap shall run the entire length of the hose bed side wall and shall provide a smooth surface with a highly finished appearance. It shall extend down at least 1.00 inch on each side of the hose bed side wall.

One (1)
50-12-4000

HOSE BED WALL HEIGHT

The walls of the hose bed shall be 90.00 inches (2.29 m) tall, measured from the bottom edge of the compartments to the top flange.

One (1)
50-30-0060

DEALER PROVIDED & INSTALLED HOSE RESTRAINT

The dealer shall provide a means of restraining the hose stored in the hose bed to prevent inadvertent deployment of hose during transit. A hose restraint safety label shall be affixed by the Dealership and visible to personnel at each hose storage area.

S One (1)
78-05-3010

LED HOSE BED LIGHTING

There shall be four (4) 48.00 inch (122cm) LED tube lights model #RX-15T16-5050-122CM installed with protective angles. Two (2) each side at the top of the hose bed walls, centered from front to back.

Front of hose bed walls, notch divider around, set on park brake

One (1)
78-10-1070

HOSE BED LIGHT ACTIVATION

The hose bed lights shall be activated when the park brake is set.

One (1)
50-15-3305

HOSE BED DUNNAGE AREA

A vertical bulkhead shall be provided and installed at the front of the hose bed area, behind the water tank fill tower, forming a storage area that is separated from the hose bed.

The rear face of the bulkhead shall serve as a mounting surface for the hose bed dividers, resulting in the ability to move any hose bed divider across the entire width of the hose bed.

One (1)
50-15-3380

NO Embossed Floor Upgrade in Hose Bed Dunnage

One (1)
70-31-3010

LED HOSE BED DUNNAGE COMPARTMENT LIGHTING

There shall be one (1) Weldon model #2631-0000-30 LED light mounted in the hose bed dunnage compartment.

The hose bed dunnage lighting shall be activated when the park brake is applied.

Three (3)
50-15-4020

REINFORCED HOSE BED DIVIDER WITH HAND CUTOUT

There shall be a full height adjustable reinforced hose bed divider provided and installed in the hose bed area of the apparatus body.

The divider shall be fabricated of .25 inch (6.35 mm) thick aluminum plate with a double sided reinforcement and attached to the adjustable slide rails. The rear of the divider shall have a radius to provide a smooth corner and a hand cut out to aid in access to the hose bed area. The top and rear edges shall be reinforced with 1.00 inch (25.40 mm) round aluminum tubing for extra rigidity. Hose payout shall be unobstructed by the divider.

There shall be a total of three (3) provided and installed in the hose bed.

Three (3)
50-15-6020

SCALLOP CUTOUTS FOR HOSE BED DIVIDER(S)

Along the top edge of each adjustable hose bed divider specified there shall be equally spaced scalloped cutouts (belly cutouts) that shall be 10.00 inches, not to exceed more than half the height of the divider itself without affecting structural integrity. The number of cutouts shall be a maximum of four (4) depending on length of the divider.

One (1)
50-15-9E00

HOSE LOAD

The hose bed shall accommodate the following hose loads:

One (1)
50-16-0010

BAY 1:

One (1)
50-17-0400

-400 feet of 1.75 inch hose

One (1)
50-16-0020

BAY 2:

One (1)
50-21-1000

-1000 feet of 4.00 inch hose

One (1)
50-16-0030

BAY 3:

One (1)
50-19-0200

-200 feet of 2.50 inch hose

One (1)
50-16-0040

BAY 4:

One (1)
50-20-0300

-300 feet of 3.00 inch hose

S One (1)
60-00-1730

TANK CAPACITY

The tank shall be 1250 gallons (4732 liters) in capacity.

[L shaped tank to achieve low hose bed](#)

One (1)
60-00-0000

SPARTAN POLY TANK

The water tank shall be designed to utilize cavities that have commonly been wasted space. The water tank may fill the void between the main hose bed floor and the top of the rear center compartment. In addition, this design shall create a lower center of gravity of the vehicle, for improved vehicle handling.

TANK CONSTRUCTION

The booster tank shall be constructed of poly sheet stock which is a non-corrosive stress relieved thermoplastic. It shall be designed to be completely independent of the body and compartments. All joints and seams are extrusion welded and/or tested for maximum strength and integrity. The top of the booster tank is fitted with lifting eyes designed to facilitate tank removal.

COVER

The tank cover shall be constructed of the same poly material as the rest of the tank and shall be recessed. A minimum of two lifting dowels shall be drilled to accommodate the lifting eyes.

BAFFLES

The swash partitions shall be manufactured of the same poly material as the rest of the tank. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments to provide maximum water flow. All swash partitions interlock and are welded to one another as well as to the walls of the tank.

MOUNTING

The tank shall have a reinforced floor for added strength and durability. The tank shall be isolated from the body substructure cross members with rubber strips that are 60 durometer in hardness. The tank shall sit nested inside the center body substructure and shall be completely removable without disturbing the body side panels. Tank stops on all four sides will keep the tank from shifting front to back or side to side.

One (1)
60-00-0050

TANK WARRANTY

A lifetime tank warranty will be provided by the tank manufacturer.

Please see the official warranty document in the appendix (attached) for specific details.

One (1)
60-00-0110

FILL TOWER

The fill tower opening shall be approximately 13.00 inches (330.20 mm) x 12.00 inches (304.80 mm).

The tower will have a removable poly screen and a poly hinged type cover that will open if the tank is filled at an excess rate. The removable poly screen to prevent debris from falling into the tank.

The fill tower shall have a 6.00 inch (150.00 mm) overflow that will discharge underneath the tank, behind the rear axle(s), avoiding the chassis fuel tank and suspension components where applicable. The overflow shall terminate above the tank water level when filled to the rated capacity.

One (1)
60-00-0200

FILL TOWER LOCATION

The fill tower shall be located to the left side at the front of the hose bed.

One (1)
60-00-0300

SUMP

The sump will be constructed in an 8.00 inch (203.20 mm) x 16.00 inch (406.40 mm) x 1.00 inch (25.40 mm) deep area.

The construction material shall utilize 1.00 inch (25.40 mm) poly and be located in line with the

tank suction valve. There shall be a 4.00 inch (100.00 mm) schedule 40 poly tube installed that will run from the suction outlet to the sump location. The tank will have an anti-swirl plate located approximately 2.00 inches (50.00 mm) above the sump.

One (1)
60-00-0310

SUMP PLUG

The sump shall have a 3.00 inch (77.00 mm) plug for use in draining and cleaning out the tank.

One (1)
60-00-0400

OUTLETS

In addition to the tank suction valve outlet located in the sump, there shall be an outlet provided for the tank fill valve. If there are any additional options selected (such as an extra tank suction or direct tank inlets), there shall be additional outlets provided to accommodate these items.

One (1)
62-25-0005

LADDER COMPARTMENT

The ground ladders shall be stored within a compartment installed beside the booster tank.

All items shall be stored in their own independent section to allow one item to be removed without disturbing another. There shall be polypropylene slide angles installed in each section where applicable, to support the ladders and allow ease of removal. There shall be a stop in the front of each section to prevent the items from sliding forward.

One (1)
62-25-1200

LADDER COMPARTMENT MATERIAL

The ground ladder compartment shall be fabricated of .125-inch smooth aluminum.

One (1)
62-27-0010

LADDER COMPARTMENT LOCATION

The ground ladder compartment shall be mounted vertically on the right side of the water tank.

One (1)
62-29-0010

LADDER COMPARTMENT END CAP

The compartment shall be enclosed through to the pumphouse and incorporate a removable weather resistant end cap, providing access for serviceability, drainage, and cleaning.

One (1)
62-29-1010

LADDER COMPARTMENT DOOR HINGE LOCATION

The door hinge shall be mounted vertically across the inboard edge of the compartment door opening.

One (1)
62-29-1900

LADDER COMPARTMENT DOOR

The door material shall match the rear overlay material. The door shall have two (2) push button type latches installed with a chrome handle centered between the push button latches.

If the door is not properly closed and the parking brake is released, it shall activate the “hazard light” in the cab to alert the crew.

One (1)
62-29-8010

LADDER COMPARTMENT DOOR REFLECTIVE CHEVRON

The ladder compartment door shall be left unfinished and include retro-reflective chevron material matching the rear of the apparatus.

One (1)
62-35-0015

LADDER COMPLEMENT

The following ladders shall be supplied with the apparatus:

One (1)
90-11-0070

One (1) Duo-Safety 24 foot (7.0 m) two (2) section aluminum extension ladder(s), model 900A.

One (1)
90-12-0030

One (1) Duo-Safety 14 foot (4.0 m) aluminum roof ladder(s) with folding hooks, model 775A.

One (1)
90-13-0030

One (1) Duo-Safety 10 foot (3.0 m) aluminum attic ladder(s), model 585A.

One (1)
62-38-0025

PIKE POLE STORAGE

There shall be two (2) tubes provided for storage of the pike poles installed with the ground ladder complement.

The pike poles provided shall be standard hook with straight handle.

The pike poles shall be supplied and installed by the Fire Department before the apparatus is placed into service.

S One (1)
62-40-0005

STORAGE ABOVE LADDER COMPARTMENT

The inner side wall of the ladder compartment shall be extended vertically to the same height as the body side sheet or as high as permitted by design to create a dunnage area above the ground ladder compartment.

This storage area shall be open to the top and to the rear.

Where applicable by design, the construction style of the extension shall be similar to hose bed divider style if provided. The inboard face of the sheet shall be overlaid with matching material type of the hose bed interior side sheets.

There shall be slotted hose bed flooring installed with approximately 1.00 inch clearance above the ladder box allowing for drainage.

Need at least 72 inches in depth, 22–24 inches in height, and 6–8 inches in width

One (1)
66-02-0105

SUCTION HOSE STORAGE

Suction hose shall be stored on a formed carrier rack sized to hold 6.00 inch x 10.00 foot hose. The rack shall have two (2) Velcro hold-down straps, one (1) at each end, which shall secure the suction hose to the tray.

One (1) carrier shall be mounted to the catwalk on each side of the apparatus above the side compartments.

One (1)
66-02-9020

SUCTION HOSE STORAGE MATERIAL

Each suction hose rack shall be constructed of anodized aluminum for a durable, long lasting finish.

One (1)
66-08-0115

SUCTION HOSE

Two (2) lengths of 6.00 inch by 10.00 foot suction hose shall be provided and installed by the Fire Department to be stored with the carriers.

One (1)
51-05-0005

COMPARTMENT UNISTRUT

Vertically mounted Unistrut shall be installed in all apparatus body compartments, in the upper and lower sections, to accommodate the installation of shelves, trays, and/or other miscellaneous equipment.

One (1)
52-13-0010

OVER-WHEEL COMPARTMENT PARTITIONS

Compartment partitions fabricated of the same material as the body shall be permanently installed in the left over-wheel compartment, right over-wheel compartment, or both where applicable by design.

The partitions shall be permanently installed in place and flush to the forward and rearward frame openings.

The partitions shall aid in keeping loose equipment from falling into the fore and aft compartments.

One (1)
52-16-0080

SHELVING

The shelving shall be made out of .190 inch (4.83 mm) smooth aluminum sheet material with a formed 2.00 inch (50.80 mm) lip on the front and back.

The side mounting brackets shall be provided for vertical adjustment.

Standard manufacture shelf construction capacity ratings are as follows, any requested change to

the manufacture's standard design may affect/reduce the ratings accordingly:

Shelving shall be rated at a capacity of 200 pounds (90.72 kg) and applicable to the design configuration.

The following shelving shall be provided:

Four (4)
52-16-0210

UPPER HALF DEPTH SHELVING

A full width x half depth shelf shall be provided and installed in the upper area of the compartment specified.

There shall be a total quantity of four (4) provided.

One (1)
52-40-0105

- One (1) located in the L1 compartment.

One (1)
52-40-0115

- One (1) located in the L3 compartment.

One (1)
52-40-0205

- One (1) located in the R1 compartment.

One (1)
52-40-0215

- One (1) located in the R3 compartment.

One (1)
52-22-0020

ROLL OUT TRAY(S)

Each tray shall be fabricated of .19 inch (4.83 mm) thick 3003 grade or higher aluminum sheet material with four (4) 3.00 inch (76.20 mm) side flanges, corner welded for maximum strength and shall be as wide and as deep as compartment allows.

The following shall be supplied:

One (1)
52-22-8205

ROLL-OUT ASSEMBLY/SPARTAN

The floor mounted tray shall be full width and shall be secured to a Spartan 22.00 inch (558.80 mm) long ball bearing "heavy duty" slide assembly. The slide assemblies shall incorporate cadmium plated ball bearing roller slides and a lock-in, lock-out front drawer release system (FDR).

The tray shall have a 300# capacity and 100% extension.

There shall be a total quantity of one (1) provided.

One (1)
52-40-0305

- One (1) located in the rear center compartment.

One (1)
52-39-0265

FIXED DEPTH SWING-OUT TOOL BOARD/ALUMINUM

An aluminum swing-out tool board with DA finish shall be installed in the compartment as specified. The tool board shall be fabricated within a structural tubular frame, supported on a pivot rod, seated in bearings attached to the compartment floor and upper bracket.

The tool board shall be capable of swinging open to a position perpendicular to the rear wall. A thumb latch and gas shock shall be installed to keep the board in the open and/or closed positions.

There shall be a total quantity of one (1).

One (1)
52-39-1005

The pull-out/swing-out style tool board shall have RED reflective striping installed making the perimeter of the tool board more readily visible.

One (1)
52-40-0210

- One (1) located in the R2 compartment.

One (1)
52-85-0020

SCBA AIR BOTTLE STORAGE RACK

S One (1)
52-85-0110

There shall be a seven (7) place air bottle compartment bin provided in the lower portion of the compartment. The bin shall be fabricated of .125 smooth aluminum.

The top surface finish of this area shall match the finish of the shelves specified on the apparatus. If no shelves are specified on the apparatus, the bottle compartment shall be dual-action sanded finish.

The interior surface of each SCBA storage slot shall be lined with a finish matching the compartment interior. The painted finish shall aid to minimize any damage caused to the canisters while stored in the holders.

Each individual bottle storage compartment shall incorporate a 1.00 inch nylon safety loop to be attached to the shelf to prevent the bottles from sliding forward when stored.

One (1) tray shall be provided in the wheel well compartment as part of the assembly.

The tray shall be .19 inch (4.76 mm) smooth aluminum with a formed 2.25 inch (57.15 mm) lip on all sides.

Need 24" of true depth like legend had, for dry chemexting

One (1)
52-85-1010

SCBA RACK LOCATION

The SCBA storage rack shall be located in the L2 compartment.

One (1)
53-00-0110

SIDE RUB RAILS (ALUMINUM CHANNEL)

The lowest edge of the apparatus body side compartments shall be trimmed with brightly anodized aluminum channel rub rail material.

The rub rails shall be approximately 3.00 inches high with flanges turned outwards for increased rigidity, with each end chamfered to a 45 degree angle. The rub rails shall not be constructed as an integral part of the apparatus body structure, allowing each rub rail to be easily removed in the event of damage.

The rub rails shall be secured with stainless steel fasteners and spaced away from the apparatus body with .50 inch nylon spacers to help absorb moderate side impacts and prevent the collection of water and debris for easier cleaning.

One (1)
53-15-0008

FOLDING STEPS

Cast Products, Inc. model #SP6610-1CH dual LED illuminated folding steps, made of high strength die cast aluminum with a protective chromed coating, pyramid tread platform, conforming to current NFPA requirements, shall be provided and installed on the apparatus as specified.

The steps shall have a minimum of 46 sq. inches of surface area capable of sustaining a 1200 lb. static load. The steps shall be mounted no more than 18" inches between each step.

One (1)
53-15-1315

STEP LOCATION

Three (3) folding steps shall be installed on the right forward vertical wall of the front compartment.

One (1)
53-30-1205

10" HANDRAILS

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded aluminum with a knurled grip, and full length illuminated LED light strip shall be installed in a location above the forward step(s) and in accordance with NFPA, Standard for Automotive Fire Apparatus, standard requirements. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

One (1)
53-31-0010

NO Red Reflective Insert

One (1)
53-31-0520

Each handrail LED light strip specified shall be red in color.

One (1)
53-32-0005

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

One (1)
58-60-0005

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

One (1)
53-15-1515

STEP LOCATION

Three (3) folding steps shall be installed on the right rear vertical face of the body.

One (1)
53-30-1210

10" HANDRAIL

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded aluminum with a knurled grip, and full length illuminated LED light strip shall be installed in a location above the rearward step(s) and in accordance with NFPA, Standard for Automotive Fire Apparatus, standard requirements. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

One (1)
53-31-0010

NO Red Reflective Insert

One (1)
53-31-0520

Each handrail LED light strip specified shall be red in color.

One (1)
53-32-0005

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

One (1)
58-60-0005

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

One (1)
53-15-1220

STEP LOCATION

Four (4) folding steps shall be installed on the left forward vertical wall of the front compartment.

One (1)
53-30-1205

10" HANDRAILS

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded aluminum with a knurled grip, and full length illuminated LED light strip shall be installed in a location above the forward step(s) and in accordance with NFPA, Standard for Automotive Fire Apparatus, standard requirements. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

One (1)
53-31-0010

NO Red Reflective Insert

One (1)
53-31-0520

Each handrail LED light strip specified shall be red in color.

One (1)
53-32-0005

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

One (1)
58-60-0005

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

One (1)
53-15-1415

STEP LOCATION

Three (3) folding steps shall be installed on the left rear vertical face of the body.

One (1)
53-30-1210

10" HANDRAIL

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded aluminum with a knurled grip, and full length illuminated LED light strip shall be installed in a location above the rearward step(s) and in accordance with NFPA, Standard for Automotive Fire Apparatus, standard requirements. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

One (1)
53-31-0010

NO Red Reflective Insert

One (1)
53-31-0520

Each handrail LED light strip specified shall be red in color.

One (1)
53-32-0005

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

One (1)
58-60-0005

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

One (1)
53-20-0140

INTERMEDIATE REAR STEP

The rear step shall be 8.00 inches (203.20 mm) in depth. Handhold cutouts shall be provided in the top step surface measuring approximately 2.50 inches deep. There shall be one (1) full length aluminum non lit handrail integrated into the assembly.

The step shall be mounted on the flat back of the apparatus with gusset-type mounting to provide sufficient support for loading hose and gaining access to the hose bed area.

The platform stepping surface shall be constructed of .188 inch (4.76 mm) embossed aluminum diamond plate materials.

One (1)
53-20-0220

INTERMEDIATE REAR STEP LOCATION

The rear step shall be located as high as possible beneath the hose bed floor.

One (1)
58-50-0005

STEP LIGHTING

One (1) light shall be installed to illuminate the stepping areas as provided. The light shall be an LED tube light model #RX-15T16-5050-21CM with an aluminum mounting bezel.

The light shall be directed towards and positioned above the stepping surfaces.

One (1)
58-60-0005

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

One (1)
53-30-1005

HANDRAILS KNURLED ALUMINUM ILLUMINATED

Handrails shall be 1.25 inches in diameter, constructed of extruded aluminum with a knurled grip, and full length illuminated LED light strip.

There shall be a 2.00 inch minimum clearance between the handrail and the body. The light shall illuminate an area adjacent to the handrail and in accordance with NFPA, Standard for Automotive Fire Apparatus, standard requirements.

The following handrails shall be installed at the approximate lengths noted:

One (1)
53-30-1102

REAR HANDRAIL LOCATION

Three (3) handrails shall be installed on the rear of the apparatus. Each handrail shall be of an adequate length, as available usable space allows, to provide a suitable gripping area for personnel.

The handrails shall be spaced away from the body using chrome plated straight stanchions. Two (2) vertical handrails shall be installed, one on each side, just below the hose bed sides. These vertical handrail(s) shall utilize an offset stanchion with the offset directed away from storage door openings for added clearance, where applicable. The remaining handrail shall be installed horizontally, just below the hose bed area.

One (1)
53-31-0010

NO Red Reflective Insert

One (1)
53-31-0520

Each handrail LED light strip specified shall be red in color.

One (1)
53-32-0005

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

One (1)
56-58-0025

TOW EYES

There shall be two (2) rear tow eyes installed to the frame rails, one each side, accessible below the rear of the apparatus.

They shall be manufactured of 1.00 inch plate steel and each plate shall be bolted to the chassis frame rail with a minimum quantity of six (6) grade 8 bolts. The two plates shall be anchored together with 1.00 inch steel tubing to prevent swaying of the frame rails during a towing operation. All steel components shall be painted black.

One (1)

== Top/Side Control Midship Pumper - Electrical - 10.351 04/16/26 ==

One (1)
70-01-0010

LOW-VOLTAGE ELECTRICAL SYSTEM

The apparatus shall be equipped with a Logic Controlled, Low-Voltage (12v) Electrical System, compliant with the latest revision of the NFPA, Standard for Automotive Fire Apparatus.

The system shall be capable of performing total load management, load management sequencing, and load shedding via continuous monitoring of the low-voltage electrical system. In addition, the system shall be capable of switching loads (similar to operating as an emergency warning lamp flasher) eliminating the dependency on many archaic electrical components such as conventional flasher modules. The system shall also incorporate provisions for future expansion or system modification.

The low-voltage electrical system shall be designed to distribute the placement of electrical system hardware throughout the apparatus thereby enabling a smaller, optimized wire harness. The programmable, logic controlled system shall eliminate redundant electrical hardware such as extra harnesses, circuit boards, relays, circuit breakers, and separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs.

As-built electrical system drawings and an apparatus-specific reference of I/O shall be provided in the final delivery manuals. These drawings shall illustrate the electrical system broken down into separate functions, or small groups of related functions. Drawings shall depict circuit numbers, electrical components, and connectors from beginning to end. **A single drawing for all electrical circuits installed by the apparatus manufacturer shall not be accepted.**

One (1)
70-01-5020

MULTIPLEXED ELECTRICAL WARRANTY

A two (2) year limited (Control-MAXX) multiplex system warranty shall be provided by the apparatus manufacturer for parts and labor, while under normal use and service; against mechanical, electrical, and physical defects from the date of installation.

The warranty shall exclude "third-party parts". Defects in materials and workmanship related to third-party parts that carry their own warranty are subject to that warranty.

One (1)
70-10-0025

NODE

An electrical distribution node or relay shall be installed in the below locations of the apparatus body.

The pump node shall be mounted as high as practical in the full depth portion of the right front compartment.

The rear body nodes shall be mounted as high and as far rearward as practical on the back wall of the rearmost compartment.

A protective cover shall be installed to prevent damage to the node or electrical system during equipment installation and or removal. Node covers shall be approximately 16.00 to 22.00 inches in length with an inspection hole positioned for view of the node indicator LED lights. The finish of the cover shall match the compartments interior finish. Node covers will not include any type of shelf mounting structure and shall limit the height of unistrut or shelf height within the compartments.

One (1)
70-36-1900

PERIMETER LIGHTS LOCATION

There shall be four (4) underbody perimeter lights installed on the apparatus positioned to provide illumination to the immediate ground area around the unit.

One (1) under each side of the pumphouse running boards and two (2) under the rear tailboard.

Four (4)
70-36-2280

PERIMETER LIGHTS

The underbody perimeter lights provided will be TecNiq model T44 series, 4" round, 8 diode LED lights.

One (1)
70-37-0020

PERIMETER LIGHTS ACTIVATION

The perimeter lights under the body shall illuminate the area with the activation of the chassis ground lights, excluding any chassis door programming.

One (1)
72-2A-0010

UPPER LIGHTING PACKAGE

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the upper areas of the vehicle.

One (1)
72-2M-0145

UPPER ZONE C:

There shall be two (2) Whelen model L31H*FN beacons with 360 degree LED lights, provided and installed on the apparatus.

One (1) each side on the rear upper outboard corners of the apparatus.

S One (1)
75-04-0035

REAR WARNING LIGHTS COLOR

The upper warning lights mounted at the rear shall be red on the left and blue on the right side with clear lenses.

One (1)
78-30-0010

CAST ALUMINUM LIGHT STANCHIONS

Two (2) light stanchions shall be mounted in the upper rear corners of the body sides, one each side. Each shall be large enough to accommodate an upper zone C rotating beacon and a hose bed light if specified. The DOT lights specified elsewhere in the quote shall also be located one on the side and the other located on the rear of each stanchion.

One (1)
75-02-1430

UPPER REAR WARNING LIGHT SWITCH E-MASTER/DISPLAY

The upper rear warning lights shall be controlled through the master warning switch and a secondary rear warning switch located on the vehicle display control screen. The switches shall be clearly labeled for ease of identification.

One (1)
74-2A-1000

LOWER LED WARNING LIGHTING

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the lower areas of the vehicle.

One (1)
74-2F-0290

LOWER ZONE B&D:

There shall be four (4) Whelen model M6 series LED lights with chrome bezels, two (2) each side, provided and installed with the apparatus.

One (1)
75-05-0207

SIDE WARNING LIGHTS FLASH

The lower side lights shall feature multiple flash patterns including steady burn.

One (1)
75-06-0200

SIDE WARNING LIGHTS LOW INTENSITY FLASH

The lower side warning lights shall feature low intensity standard flash pattern.

One (1)
75-11-0045

SIDE WARNING LIGHTS COLOR

The lower side warning lights mounted shall be blue at the front side location and red at the rear location with clear lenses.

One (1)
75-15-0122

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the apparatus shall be mounted at the rear wheel panel location, forward of the rear axle, and at the rear tailboard location.

One (1)
74-6J-0010

LOWER ZONES B&D CAST ALUMINUM ANGLED LIGHT HOUSING

A cast aluminum angled light housing shall be used for the rearmost warning light in zones B&D to ensure the light is mounted as far rearward as possible on the tailboard.

One (1)
75-18-0120

LOWER SIDE WARNING LIGHT SWITCH E-MASTER/DISPLAY

The lower side warning lights shall be controlled through the master warning switch and a secondary side warning switch located on the vehicle display control screen. The switches shall be clearly labeled for ease of identification.

One (1)
74-2J-0080

LOWER ZONE C:

There shall be two (2) Whelen model M6 series Super-LED lights with chrome bezels, one (1) each side, on provided and installed on the rear of the body.

One (1)
75-05-0407

REAR WARNING LIGHTS FLASH

The lower rear lights shall feature multiple flash patterns including steady burn.

One (1)
75-06-0300

REAR WARNING LIGHTS LOW INTENSITY FLASH

The lower rear lights shall feature low intensity flash pattern.

One (1)
75-12-0045

REAR WARNING LIGHTS COLOR

The lower rear warning lights mounted at the rear shall be blue on the left and red on the right side with clear lenses.

One (1)
75-18-0220

LOWER REAR WARNING LIGHT SWITCH E-MASTER/DISPLAY

The lower rear warning lights shall be controlled through the master warning switch and a secondary rear warning switch located on the vehicle display control screen. The switches shall be clearly labeled for ease of identification.

One (1)
75-20-0330

LED REAR TAILLIGHT ASSEMBLY

There shall be Whelen M6-Series Super LED rear taillight assemblies provided and installed with the apparatus, one (1) each side at the rear.

The following shall be installed in the order as specified from top to bottom:

One (1) M62BTT LED red brake light
One (1) M62T LED series amber turn signal light
One (1) M62BU LED clear back-up light

One (1)
75-20-0650

MOUNTING ASSEMBLY

There shall be Whelen 4-position vertical chrome plated housing provided for each taillight assembly.

The upper most open cavity shall be filled with the specified warning light for the rear of the

apparatus.

One (1)
75-20-1010

REAR TAILLIGHTS COLOR

The taillights mounted at the rear shall have clear lenses.

One (1)
75-21-0010

BACKUP LIGHTS

The backup lights shall illuminate when the apparatus is placed in reverse.

One (1)
75-25-3000

LED DOT LIGHTING

There shall be seven (7) lights located on the rear of the apparatus. Three (3) of the lights shall be mounted on the rear of the apparatus center location, for use as identification lamps. Two (2) additional lights shall be located on the rear outboard locations, one (1) each side as high as possible. Two (2) lights shall be mounted on the sides facing the side at the rear corners, for use as clearance lamps.

The lights shall be TecNiq S17 series LED red markers.

One (1)
75-25-6000

DOT ADDITIONAL MARKER LIGHTS

There shall be two (2) amber LED intermediate marker lights/intermediate turn signals installed in the rub rail, forward of the rear wheel well, one (1) each side.

The lights shall be TecNiq S17 series LED amber markers/turn.

One (1)
75-25-9000

INTERMEDIATE TURN SIGNALS

The intermediate turn signals will flash with the turn indicators.

One (1)
75-30-5000

MARKER LIGHT LENS COLOR

The above specified marker lights shall have colored lenses.

One (1)
75-30-7000

MARKER LIGHT BEZELS

The above specified marker lights shall have chrome bezels.

One (1)
76-30-0020

REAR DIRECTIONAL LIGHTBAR

There shall be a Whelen model #TAL65 36.00 inch long directional lightbar with six (6) amber 500 series LED light heads provided and installed on the apparatus.

One (1)
76-31-0010

One (1)
76-32-0000

The rear directional lights shall be controlled by a Whelen Model TACTL5 control head.

RDL CONTROL HEAD MOUNTING LOCATION

Rear Directional Lightbar control head shall be mounted in the rocker panel cutout provided by the chassis manufacturer.

One (1)
76-33-0015

DIRECTIONAL LIGHTBAR LOCATION & PROTECTION

The rear directional lightbar shall be installed as high as possible at the rear of the apparatus.

A .125 inch embossed aluminum diamond plate light shield shall be installed directly above the rear directional light bar to protect the light bar from accidental damage during hose loading and unloading operations.

One (1)
77-01-3010

This light shield shall not be used as a stepping surface.

REAR VIEW CAMERA LOCATION

Three (3) cameras shipped loose with the chassis shall be surface mounted on the apparatus body for maximum viewing capability. When not provided by the camera manufacture, a protective shroud shall be installed over each camera to protect against damage.

S One (1)
77-00-8020

One (1) camera shall be mounted at the rear of the body (center location) and two (2) cameras shall be mounted high at the front corner of the body, one (1) each side.

AUXILIARY CAMERA MONITOR

There shall be an FRC auxiliary camera monitor installed in the below location.

Camera itself to be placed on officer side pump panel, allowing pump operator to see as much as possible on the officer side of the truck.

S One (1)
77-01-5035

CAMERA MONITOR DISPLAY

A weather resistant camera monitor shall be mounted on the operator's panel for viewing by the pump operator.

This display shall be for officer pump panel viewing only, completely separate from 360 camera system, ensure if 360 camera is removed at pre-con there is no affect to this system.

One (1)
78-50-0410

SIDE SCENE LIGHT LOCATION

There shall be two (2) scene lights installed on the side of the apparatus, one (1) on each side center location.

Two (2)
78-51-0234

SCENE LIGHT MODEL

Whelen Pioneer series model #PCH2 LED single combination flood/spot scene lighting with black housing and a chrome bezel shall be semi-recess mounted on the apparatus.

Each lamp head shall have two (2) 12v Super-LED® panel at 150 watts total. The light head shall draw 13.0 amps and generate 23,000 lumens. Each LED panel shall be mounted within the semi-recess chrome trim bezel. Each lamp head shall be no more than 4.25 inches in height by 14.00 inches in width.

One (1)
82-60-2500

BODY SIDE SCENE LIGHT ACTIVATION

The scene lighting shall be activated with the chassis side scene lights.

One (1)
78-50-0705

REAR SCENE LIGHT LOCATION

There shall be two (2) scene lights installed on the rear facing vertical surface of the apparatus, one (1) on each side.

Two (2)
78-51-0257

SCENE LIGHT MODEL

Whelen model #M92SLB LED EZ scene lighting with black flange shall be surface mounted on the apparatus.

Each light shall feature a unique lens shape and patented Linear-LED® reflector assembly for unmatched high-intensity illumination with low current consumption.

One (1)
82-60-3505

REAR SCENE LIGHT ACTIVATION

The rear scene lighting shall be activated by a virtual button on the vehicle display control screen. The scene shall also be interlocked with the park brake.

The switch shall be labeled as follows:

Rear Scene

One (1)
82-60-0040

FRONT SCENE LIGHT ACTIVATION

The front scene lighting shall be activated by a weather resistant switch at the pump operator's panel in addition to the chassis provided switching.

The switch shall be labeled as follows:

Front Scene

One (1)
80-80-0020

INVERTER 12V-1100W Lifesine Sinewave inverter shall be installed in the R1 compartment, transfer switch shall be built into inverter, and below outlets shall be wired into inverter, to allow them to function on shoreline and inverter power (disconnected from shoreline and ignition on)

One (1)

80-83-0320

NEMA 5-15 DUPLEX RECEPTACLE(S)

There shall be one (1) type NEMA 5-15 120V/15A duplex receptacle with a cover installed in the below specified location(s).

One (1)
80-81-2120

RECEPTACLE LOCATION

Two (2) receptacles shall be provided and installed inside the chassis cab EMS compartment. The receptacles shall be low on the back wall, one (1) each side, of the compartment.

One (1)
80-84-0010

The outlet(s) shall be powered by the shoreline connection and shall be live when the shoreline power is provided.

One (1)
80-83-0520

NEMA 5-15 DUPLEX RECEPTACLE(S)

There shall be one (1) type NEMA 5-15 120V/15A duplex receptacle with a cover installed in the below specified location(s).

One (1)
80-81-6030

RECEPTACLE LOCATION

The L1 body compartment shall be equipped with one (1) receptacle(s).

One (1)
80-82-0080

The outlet shall be located in the compartment, as outboard as practical on the middle portion of the forward wall.

One (1)
80-84-0020

The outlet(s) shall be powered by the shoreline connection and shall be live when the shoreline power is provided.

One (1)
80-81-6050

RECEPTACLE LOCATION

The L3 body compartment shall be equipped with one (1) receptacle(s).

One (1)
80-82-0080

The outlet shall be located in the compartment, as outboard as practical on the middle portion of the forward wall.

One (1)
80-84-0020

The outlet(s) shall be powered by the shoreline connection and shall be live when the shoreline power is provided.

One (1)
80-81-6530

RECEPTACLE LOCATION

The R1 body compartment shall be equipped with one (1) receptacle(s).

One (1)
80-82-0080

The outlet shall be located in the compartment, as outboard as practical on the middle portion of the forward wall.

One (1)
80-84-0020

The outlet(s) shall be powered by the shoreline connection and shall be live when the shoreline power is provided.

One (1)
80-81-6550

RECEPTACLE LOCATION

The R3 body compartment shall be equipped with one (1) receptacle(s).

One (1)
80-82-0080

The outlet shall be located in the compartment, as outboard as practical on the middle portion of the forward wall.

One (1)
80-84-0020

The outlet(s) shall be powered by the shoreline connection and shall be live when the shoreline power is provided.

One (1)

== Top/Side Control Midship Pumper - Extras - 10.351 04/16/26 ==

One (1)
88-50-0500

REFLECTIVE STRIPING

The reflective striping shall be supplied and installed by the Dealer.

One (1)
88-53-2000

REAR RETRO-REFLECTIVE CHEVRON STRIPING

A minimum of 50 percent of the rear-facing vertical surface, visible from the rear of the apparatus, shall be equipped with 3M Diamond Grade, retro-reflective striping in a chevron pattern, sloping downward and away from the centerline of the vehicle at an angle of 45-degrees.

The stripe shall be 6.00 inches (152.40 mm) wide alternating in colors.

One (1)
88-53-6010

CHEVRON COLOR

The diamond grade retro-reflective chevron striping shall be red and fluorescent yellow-green in color.

One (1)
88-54-0150

DEALER SUPPLIED LETTERING

The apparatus lettering shall be provided and installed by the Dealership before final delivery of the completed apparatus.

One (1)
88-55-0200

DEALER SUPPLIED DECALS

The apparatus decals shall be provided and installed by the Dealership prior to the apparatus being placed into service.

One (1)
88-78-0000

LICENSE PLATE MOUNTING

One (1)
88-78-4050

A Cast Products, model LP0004-1-B, cast aluminum fully enclosed license plate bracket shall be installed. The bracket shall incorporate a clear LED light (WL0501) to illuminate the license plate and meet DOT requirements.

One (1)
88-78-9010

LICENSE PLATE BRACKET LOCATION

The above specified license plate bracket shall be installed at the back of the apparatus on the right side. The bracket shall be mounted to meet all applicable DOT standards.

One (1)
90-00-0000

MISCELLANEOUS EQUIPMENT

The following equipment list shall be provided with the completed apparatus.

One (1)
90-04-1000

WHEEL CHOCKS

One (1) set of NFPA compliant cast aluminum folding wheel chocks shall be supplied with the apparatus.

One (1)
90-04-1100

WHEEL CHOCK MOUNTING BRACKETS

One (1) set of folding wheel chock underbody horizontal mounts shall be installed on the apparatus under the body in front of the rear wheels on the left side.

One (1)
90-80-0110

EXTINGUISHERS

All NFPA required fire extinguishers will be supplied and installed by the Fire Department before the apparatus is placed into service.

One (1)
91-10-0030

All NFPA required portable hand lights will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-22-0010

FLARES

Five (5)
91-22-0110

All NFPA required flares will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-23-0010

TRAFFIC CONES

Five (5)
91-23-0120

All NFPA required traffic cones will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-23-0200

TRAFFIC VEST

Five (5)
91-23-0220

All NFPA required traffic vest will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-24-0001

AED (AUTOMATIC EXTERNAL DEFIBRILLATOR)

One (1)
91-24-0054

All NFPA required AED units will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-25-0001

FIRST AID KIT

One (1)
91-25-0054

All NFPA required First Aid Kits will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-26-0010

SALVAGE COVERS

One (1)
91-26-0120

All NFPA required salvage covers will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-29-0010

AXES

One (1)
91-29-0030

All NFPA required Axes will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-35-0000

WRENCH SETS

One (1)
91-35-0054

All NFPA required spanner and hydrant wrenches will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-36-0000

NOZZLES

One (1)
91-36-0054

All NFPA required nozzles will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-40-0010

HANDHELD TOOLS

One (1)
91-40-0100

CLAW TOOL

One (1)
91-40-0110

All NFPA required claw tools will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-40-0200

HALLIGAN TOOL

One (1)
91-40-0210

All NFPA required Halligan tools will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-40-0300

CROWBAR

Two (2)
91-40-0310

All NFPA required crowbars will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-40-0500

SLEDGE HAMMER

One (1)
91-40-0510

All NFPA required sledge hammers will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-40-0615

RUBBER Mallet

All NFPA required rubber mallets will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-40-0700

SHOVELS

Two (2)
91-40-0710

All NFPA required shovels will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-40-0800

BOLT CUTTER

One (1)
91-40-0810

All NFPA required bolt cutters will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-70-0000

SUPPLY HOSE

One (1)
91-70-0054

All NFPA required fire hose will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
92-01-0100

ADAPTORS

One (1)
92-01-0154

All NFPA required Adaptors will be supplied and installed by the Fire Department before the

truck is placed into service.

One (1)
92-10-0100

SCBA & CYLINDERS (air packs)

Four (4)
92-10-0154

All NFPA required SCBA and Cylinders will be supplied and installed by the Fire Department before the truck is placed into service.