Date: March 3, 2024

To: City of Langley

Sourcewell Member ID #BC1077

RE: Sourcewell Proposal presented using Sourcewell Vendor Contract 113021-RVG-4 for a Smeal/Spartan Fire Apparatus

To Whom It May Concern;

We hereby propose and agree to furnish, after your acceptance and approval of this proposal, the following apparatus and equipment as per the specifications attached:

The US Dollar pricing listed in this proposal is valid for the duration stated.

One (1) NEW Smeal 100' Platform.

The price below includes a discount which meets the minimum discount per the Sourcewell contract.

USD price		
Apparatus Base Price	$	2,187,814.00
Performance Bond	$	17,409.00
Subtotal	$	2,205,223.00
PST	$	154,365.61
GST	$	110,261.15
TOTAL	$	2,469,849.76

Due to upcoming expected EPA engine emissions change for 2027, and depending of the timeline of the build of this apparatus, the engine proposed will be updated to the newer emission standard, which is mandated on vehicle manufacturers by the EPA. The price proposed will be increased by the change cost via change order per the OEM, no exceptions.

Each of which are to be built in accordance with the proposed specifications attached, and which are made a part of this agreement and contract, and to make ready for final inspection **600-750 calendar days** after date of accepted order following receipt of signed and accepted proposal and purchase order, completion of order entry process including pre-construction meeting, properly executed, subject to all causes beyond our control.

Force Majeure:

The manufacturing days proposed above are as per current expected operating conditions of the manufacturer. Any delays or impacts due to circumstances outside the control of Safetek and its manufacturers (such as but limited to global pandemic, labour shortages, delayed delivery of component parts) are not accounted for in the manufacturing days as quoted. Schedule adjustments shall be accommodated without penalty should they be necessary.

If this proposal includes a commercial chassis, delivery and order timelines are subject to change per the chassis OEM manufacturer. Should the chassis OEM alter or change the pricing or timeline, the overall project price and terms shall be adjusted.

If this proposal includes the supply and or installation of additional equipment or specification requirements that are supplied by Safetek, delays (such as but limited to global pandemic, labour shortages, delayed delivery of component parts) may affect completion and shall be accommodated without penalty should they be necessary.

Due to Global Supply Issues and the continued volatility of the supply chain and subcontractor/parts vendor pricing, surcharges, if added after the receipt of purchase order will be added to the final invoice.

Any increased cost incurred by Safetek and its manufacturers for this project (Spartan) beyond our control due to changes, additions, to State / Province / Federal Mandates, DOT, FMVSS / CMVSS, EPA, NFPA or ULC standards will be passed along to Customer as an addition to the purchase price.

A Virtual/Webex preconstruction meeting has been offered in the proposed apparatus price. Trips for Two (2) City of Langley are included for a Final Acceptance Inspection. Due to COVID and travel restrictions factory inspections may not be possible, the safety of our customers and staff is our priority. We reserve the right to perform any inspection/meeting via web conference. Any trips not taken will be credited at the final invoice.

Payment terms:

- **PAYMENT TERMS: 50% of the total apparatus price is due Net 14 days after receipt of purchase order. The remainder of the balance owing, including change orders, will be due upon completion of the final inspection at the factory by The City of Langley, Safetek, or a Safetek representative.**

All warranties included are as per the component manufacturer, please see all terms and conditions in the attached warranty documents. Please direct any questions regarding warranty to your sales representative.

The amount named in this proposal shall remain valid to noon on May 31, 2024.

All provincial, federal and local taxes are not included above, but will be added to the final invoice as legally applicable. It is understood by both the Seller and the Buyer that *Change Orders* executed after contract acceptance may delay completion and delivery. It is understood by both the buyer and the seller that *Change Orders* executed after contract acceptance may increase or decrease the price. The purchase price herein is based upon all applicable provincial and federal manufacturing law, regulations, orders, mandates and standards in effect as of the date of this Agreement (hereinafter "Standards) such as, for example, the Standards mandated by the National Fire Protection Association, tentative interim amendments to the National Fire Protection Association Standard, Underwriters Laboratories of Canada, and the Environmental Protection Agency. The purchase price shall be subject to increase due to any provincial or federal Standards that are adopted, issued or mandated following the date of this Agreement that require the apparatus(es) described above to be manufactured and/or delivered in compliance with such Standard(s)

This Proposal in order to be effective and binding upon Seller must be signed and accepted by an authorized officer of Seller. The effective date of this Sales Contract will be the date it is signed and accepted by the Seller.

[X] Bid Bond NOT required. **[ ] Bid Bond Required**

[ ] Performance Bond / Security NOT required. **[X] Performance Bond / Security Required***

** Performance Bond (Surety Bond) will cover standard one year warranty period only and will not cover extended warranties offered by seller or other component manufacturer.*

Electronic Payment is preferred. Electronic payment information will be provided following order acceptance. All cheques must be made payable to Safetek Emergency Vehicles Ltd. only and delivered to Seller at its offices in Abbotsford, British Columbia.

Tax(es) and tariffs as legally applicable at time of importation will be added to the Final Invoice.

Interest will be charged for late payments.

Official ownership documents shall remain property of the seller until the purchase price is paid in full.

Upon receipt of full payment, ownership documents shall be forwarded to purchaser.

Respectfully Submitted,

Sean Montague

Inside Sales Manager

Safetek Emergency Vehicles Ltd,

We agree to accept the above proposal:

_____

_____

Date: _____ / _____ / _____

2122 Peardonville Road, Abbotsford, BC V2T 6J8 Canada
E: sales@firetrucks.ca | T: (604) 504 4590 | TF: 1 (866) 723 3835 | F: (604) 504 2415 | FIRETRUCKS.CA

We anticipate a change in the terms and conditions of the sales process from our OEMS as of January 1st, 2023. Should we be the successful bidder, we will provide a new sales process as required by our manufacturers to the City to review ahead of contract award.

THE SALES PROCESS

The following outline is intended to inform the purchasing customer of the standard process of an apparatus purchase from just after awarding of the contract to Safetek through the final inspection of the truck at the factory. The purpose of this document is to give department personnel a clear understanding of the procedures and the approximate timelines for each step in the apparatus manufacturing process. We look forward to delivering to you the best fire apparatus in the industry!

AFTER THE CONTRACT IS SIGNED

Safetek will submit your order to the Original Equipment Manufacturer (OEM). The OEM will accept the order and insert it into its order intake process. The entire order entry process takes approximately 40-75 days depending on the OEM. There are numerous steps involved in this process, including the following:

- Appoint a shop order number for the order.
- Add the truck to the computer tracking system.
- Assign an initial production schedule slot/completion date.
- Issue a Purchase Order for the chassis and reserve an estimated arrival date at the OEM for the chassis.
- Issue bond documents if/when necessary.
- Begin the engineering process for construction of the apparatus - preliminary approval print, revised amp draw, initial production drawings, etc.
- Create a preconstruction package and send it to the dealership.

The preconstruction package will be sent to the Safetek Emergency Vehicles as soon as possible following order acceptance per the standard timeline of the OEM.

The preconstruction meeting must be scheduled to occur within the OEM's mandated scheduling window.

It is imperative that department personnel plan accordingly in order to keep the process on schedule.

If the preconstruction meeting is delayed, the proposed number of days for completion of each apparatus will be extended.

It is imperative for all parties involved in the preconstruction meeting to thoroughly read each document and review all aspects of the proposed apparatus prior to the meeting occurring.

Nothing is to be taken for granted. The purpose of this meeting is for all parties to have a clear picture of what the finished apparatus will be. This is the time for all questions and concerns to be addressed with clear and concise answers. A correctly conducted preconstruction meeting will eliminate the need for further communication by our OEMs in order to gain additional information to build the truck as expected.

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Safetek OEMs utilizes the bid specification as the starting point for building the apparatus. It is imperative that the department issued specification and the bid specification be cross referenced thoroughly to eliminate possible problems during construction.

CHANGE ORDERS

Change orders are often included in the process of building an apparatus. A change order document is an official extension of the contract or purchase order. Change orders, if necessary, should occur during the period between order intake and the conclusion of the preconstruction meeting. Our OEMs use Safetek's official bid specification as the basis for building the apparatus; therefore Safetek's bid specification is considered the starting point immediately upon award of bid. Any changes or clarifications, regardless how large or small, must be stated on an official change order form. A change order is not considered "official" until properly filled out, properly priced out, signed by an official of the department, the dealer representative and then by official employees of the OEM. Once a change order has been through the entire process and officially signed by the OEM, a copy is sent to the dealership who then sends a copy to the customer.

- Safetek and/or our OEMs reserve the right to reject a change order or any item of a change order. Be aware that certain items of a change order may cause a delay in the delivery of the apparatus. There is a line item location on the official change order form that indicates the number of days an apparatus may be delayed when certain changes are requested.

- All change orders discussed and created during the preconstruction meeting will be officially accepted or rejected by the OEM within one week of completion of the preconstruction meeting. If there is a delay in receiving a change order, a delay of completion of the apparatus can be expected. It is the responsibility of the dealer and customer to have a change order sent to the OEM within this time frame.

- Change orders that occur after the completion of the preconstruction meeting are extremely difficult to incorporate into the building process. The cost of changes, once the truck is considered "work in process", can be very expensive and cause severe delays in production. It is strongly encourage that the customer avoid late changes whenever possible. Should a requested change be deemed "disruptive" to the production schedule, it may be denied by the OEM.

Safetek OEMs order the chassis within a few days of receiving the COP, for both custom and commercial chassis. This is done to reserve a production slot with the supplier and also to allow the supplier to order major components such as engine, transmission, cab, axles, water pump, etc. Changes to any of these components, even at the preconstruction meeting, are difficult to implement and there is no guarantee a change of this type can be accepted.

AFTER THE PRECONSTRUCTION MEETING

After the preconstruction package is received by the partner OEM, a shop order document will be created. Engineering will create job drawings as well as a final approval print. The bid specification and all change orders accepted prior to this stage will be implemented into the shop order document. Purchasing will order components for the apparatus and the build process will begin. A copy of the shop order document will be sent to Safetek along with final approval drawings. Safetek will then pass this information onto the customer. Department officials

should thoroughly review and read the information to ensure accuracy. If any mistakes or questionable information is found, Safetek must be notified immediately and all discrepancies must be cleared up at that time.

MID-POINT INSPECTION

A mid-point inspection, if applicable, will be the next step. The OEM will notify the dealership of the inspection window inspection date. This allows the dealership and department personnel to plan accordingly. The pre-paint window shall consist of a five day period. The exact condition of the truck during the pre-paint inspection may vary depending on how early or late the department arrives during the pre-paint window. OEM manufacturers can not delay the pre-paint window dates. It is the responsibility of Safetek and the customer to schedule accordingly and arrange travel plans to arrive at the OEM within the allotted time frame.

FINAL INSPECTION

The final inspection takes place at the OEM or as proposed. The OEM will notify Safetek two weeks in advance of the final inspection date. The completed apparatus will be located in the showroom. This showroom is designed to allow a quiet atmosphere for department personnel to inspect the truck with minimal interference from the everyday production process. Normally, two full days is required for the final inspection. If discrepancies are found during the inspection, they will be addressed after the final inspection has been completed. A Final Inspection Report will be prepared by Safetek and signed by the fire department, Safetek and the OEM representative. Once any discrepancies have been addressed, the truck is ready for drive away.

If the apparatus contains an aerial device, department training will be provided at a fire department specified location. A training technician will be in contact with department personnel approximately the same time as final inspection notification. The technician, dealership and department personnel shall negotiate an agreed upon training schedule that normally consists of a consecutive three day period. Pumper apparatus training varies and is to be scheduled with the dealership exclusively.

PAYMENT

Safetek Emergency Vehicles issues Pro-Forma invoices for final payment of the apparatus at the time of the two week completion notice. We do this to notify the municipality accounting departments that payment is coming due.

Progress Payment: The progress payment discount, if applicable, is based on the premise that time is money. Payment is to be issued and sent to Safetek per the terms on the invoice, typically 30-days. A copy of the original MSO will be sent, if requested, after chassis payment is received, however, the original MSO will not be sent until payment has been received in full for the complete apparatus. Late receipt of progress payment will result in a interest penalty that will be added to the final invoice. The calculation formula of the penalty amount will be based on the number of days between invoice date and the actual date of receipt of payment.

Final Payment: The final payment terms were accepted by department personnel as described in the Safetek proposal form included with the Safetek bid package or per the sales contract. Payment for the balance is due immediately upon the accepted terms.

Late payment fees will otherwise apply and be calculated from date of invoice to the actual date of receipt of payment.

Once full payment is received, the original MSO will immediately be sent to the department.

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CANADIAN ORDERS – TAX – GST & PST or HST

PST and GST and/or HST will be charged to the customer by Safetek as applicable at date of delivery under the tax laws of Canada.

We understand and accept the Sales Process :

_____

_____

Date: _____ / _____ / _____

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Change Order A info

		Part Number	Description
Delete	BODY	901201	Cold Climate Auxiliary Power-Idle Reduction Battery System
Delete	BODY	101676	Auxiliary Power-Idle Reduction Battery System-Standard Range IMS3H (C)
Delete	BODY	901203	Auxiliary Power-Idle Reduction Additional Cab Heat
Delete	BODY	901204	Auxiliary Power-Idle Reduction Battery Heat
Delete	BODY	901205	Idle Reduction Location, Pump House Dunnage, Tread Plate Lid
Delete	BODY	101686	Ventilation Panel with Fan, Idle Reduction, Driver's Side, Bolt-On, Painted Aluminum
Delete	BODY	112147	Smart Self Leveling (SSL), Leveling System and Display, Multiplex Cab
Delete	BODY	8567	Shelf, Back of Engine Tunnel, Tread Plate
Delete	BODY	UPO_	Glove Boxes, (3), Chassis Interior, Mounting Locations Determined at Pre-Con, Installed Before Final
Delete	CHASSIS	4101-014	Idle Reduction REV Eco Idle-Tec Cold Climate Standard Range
Delete	CHASSIS	5101-020	Batt (3) Group 31 Harris
Delete	CHASSIS	5104-019	Alternator Delco Remy 55SI 430A
Delete	CHASSIS	5106-001	Batt Tray LH Steel
ADD	CHASSIS	5107-002	Batt Box Cover LH Steel w/Black Handle
Delete	CHASSIS	5202-161	Batt Cond Kussmaul Auto Charge 80 LPC w/Remote Batt Select LH RFO Seat Pos w/Cvr
ADD	CHASSIS	4101-001	NO Idle Reduction
ADD	CHASSIS	5101-021	Batt (6) Group 31 Harris
ADD	CHASSIS	5104-002	Alternator Leece-Neville 320A
ADD	CHASSIS	5106-003	Batt Tray (2) R/L Steel
ADD	CHASSIS	5107-007	Batt Box Cover (2) Steel w/Black Handles
ADD	CHASSIS	5202-092	Batt Cond Kussmaul Auto Charge 80 LPC LH RFO Seat Position
Delete	CHASSIS	000618	Back-Up Alarm, Preco, 1059 (this is a duplicate)
ADD	BODY	2434	Receiver Tubes, (2) Total, (1) Each Side
ADD	BODY	111971	D-ring Tie Off Points, Driver's and Officer's Sides, Aerial, (4) Near Stabilizer Panels
ADD	BODY	2538	Discharge, Officer-Side, 2-1/2", NST (250 GPM NFPA Rated)
ADD	BODY	101725	Valve, 2-1/2", Akron, Manual, 8825, Stainless Ball, Innovative Controls (Spartan Style) Push Pull Controller (Operators Panel)
ADD	BODY	100554	Elbow (45 Deg.) 2-1/2" FNH x 2-1/2" MBCT (SE394505MC) - BCT Cap (HCC2808MC), Chrome, South Park There shall be a 7.00 inch molded stainless steel grab handle with a bright finish attached to the front fascia of the cab in the center below the windshield.
ADD	CHASSIS	1527-002	

LANGLEY CITY
100 FT SMEAL REAR MOUNT PLATFORM 23771

SAFETEK

PROPOSED SPECIFICATIONS

VEHICLE

0100-012	**MODEL**	Gladiator	1
8012-002	**CUSTOMERS / OEMS**	Smeal (02070)[1002812]	1
8011-025	**MODEL YEAR**	Model Year - 2025	1
8001-002	**COUNTRY OF SERVICE**	Country of Service Canada	1
8017-007	**CAB AND CHASSIS LABELING LANGUAGE**	Cab and Chassis Labeling Language English/French w/Innovative Control Labels	1
8006-011	**APPARATUS TYPE**	Apparatus Type Rear Mount Quint	1
8066-021	**REAR MOUNT AERIAL DEVICE**	Rear Mount Aerial Device Smeal S53RP-100 / 100 RearMount Platform	1
8008-001	**VEHICLE TYPE**	Vehicle Type Straight Truck	1
8008A-000	**VEHICLE ANGLE OF APPROACH PACKAGE**	Vehicle Angle of Approach NFPA Minimum 8.00 Degrees	1
0104-003	**AXLE CONFIGURATION**	Axle Configuration 6x4 (Rear Tandem Axle Drive Only)	1
0101-011	**GROSS AXLE WEIGHT RATINGS FRONT**	GAWR Front 24000#	1
0102-018	**GROSS AXLE WEIGHT RATINGS REAR**	GAWR Rear 63000#	1
8010-201	**PUMP PROVISION**	Pump Provision Driveline Midship, Pump Mode Prog w/Auto Park Brake "N"	1
8009-004	**WATER & FOAM TANK CAPACITY**	Water & Foam Tank Capacity Up to 750 Gallons	1

CAB

1000-013	**CAB STYLE**	Cab Style EMFD 10" Raised Roof	1
8101-200	**OCCUPANT PROTECTION**	Occupant Protection IMMI 4Front & RollTek w/SRA	1
1501-002	**CAB FRONT FASCIA**	Cab Frt Fascia Classic	1
1518-025	**FRONT GRILLE**	Cab Frt Grille Hinged Classic Styled	1
1551-002	**CAB UNDERCOAT**	Cab Undercoat	1
1552-002	**CAB SIDE DRIP RAIL**	Cab Side Drip Rail	1
1521-001	**CAB PAINT EXTERIOR**	Cab Paint Exterior Single Color	1
1533-002	**CAB PAINT PROCESS/MANUFACTURER**	Cab Paint Process/Manufacturer Sikkens	1
1522-1963	**CAB PAINT PRIMARY/LOWER COLOR**	Cab Paint Primary/Lower Color Sikkens Red FLNA 32648	1
8013-056	**CAB PAINT WARRANTY**	Cab Paint Warranty (10) Year RFW0710	1
1334-039	**CAB PAINT INTERIOR**	Cab Paint Int Multi-tone Onyx Blk	1
1005-001	**CAB ENTRY DOORS**	Cab Entry Doors (4)	1
1101-102	**CAB ENTRY DOOR TYPE**	Cab Entry Door Type Barrier Free w/Pollak Switches	1
1322-007	**CAB INSULATION**	Cab Insulation Nonwoven Polyester Fiber	1
1556-002	**LH MID EMS COMPARTMENT**	LH Mid EMS Compartment 43"H	1
1560-003	**LH MID EMS COMPARTMENT INTERIOR**	LH Mid EMS Cmpt Interior Solid Wall Rear Access	1

1562-006	**LH MID EMS COMPARTMENT INTERIOR ACCESS**	LH Mid EMS Cmpt Interior Access Cargo Net	1
1564-002	**LH MID EMS COMPARTMENT SHELVING**	LH Mid EMS Cmpt Shelving Adj w/Unistrut	1
1557-002	**RH MID EMS COMPARTMENT**	RH Mid EMS Compartment 43"H	1
1561-003	**RH MID EMS COMPARTMENT INTERIOR**	RH Mid EMS Cmpt Interior Solid Wall Rear Access	1
1563-006	**RH MID EMS COMPARTMENT INTERIOR ACCESS**	RH Mid EMS Cmpt Interior Access Cargo Net	1
1565-003	**RH MID EMS COMPARTMENT SHELVING**	RH Mid EMS Cmpt Shelving Adj (2) w/Unistrut	1
5384-005	**MID EMS COMPARTMENT LIGHTING**	Mid EMS Compartment Lighting LED, Rr Dr & Rkr Sw Actv	2
1535-020	**MID EMS COMPARTMENT EXTERIOR FINISH**	Mid EMS Cmpt Ext Finish Multi-tone Onyx Black	1
1536-022	**MID EMS COMPARTMENT INTERIOR FINISH**	Mid EMS Cmpt Interior Finish Multi-tone Onyx Black	1
1002-019	**CAB ROOF TRENCH**	Cab Roof Trench 50"W x 5"D	1
8004-033	**CAB STRUCTURAL WARRANTY**	Cab Structural Warranty (10) Year RFW0602	1
9001-006	**CAB TEST INFORMATION**	Cab Test Information Crash Test ECE-R29/SAE J2420/SAE J2422	1

ELECTRICAL POWER DISTRIBUTION

5000-018	**ELECTRICAL SYSTEM**	Elec System 12V DC Multiplex	1
5008-072	**OEM WIRING**	OEM Wir Smeal ECM Park Brake Input	1
5006-002	**APPARATUS WIRING PROVISION**	Apparatus Wiring Provision (8) Circuit Panel	1
5005-215	**VEHICLE DISPLAY**	Vehicle Display Weldon Vista w/Touchscreen (2) L/R Sw Pnl	1
5004-002	**LOAD MANAGEMENT SYSTEM**	Load Management System Multiplex	1
5622-003	**DATA RECORDING SYSTEM**	Data Recording Sys Vehicle Data Weldon MUX	1
5031-010	**ACCESSORY POWER**	Accessory Pwr & Gnd Stud 40A Batt & 15A Ign w/200A Mstr Sw/300A Batt OEM Conn	1
5030-002	**AUXILIARY ACCESSORY POWER**	Aux Acc Pwr & Gnd Stud Bhd Sw Pnl 40A Mstr Sw	1
5032-003	**ADDITIONAL ACCESSORY POWER**	Addl Acc Pwr & Gnd Stud Bhd Sw Pnl 40A Batt Dir	1
5011-001	**EXTERIOR ELECTRICAL TERMINAL COATING**	Exterior Electrical Terminal Coating Spray On Plasti Dip	1
8014-002	**ELECTRICAL SYSTEM WARRANTY**	Electrical System Warranty (2) Year RFW0202	1

IDLE REDUCTION TECHNOLOGY

4101-014	**IDLE REDUCTION**	Idle Reduction REV Eco Idle-Tec Cold Climate Standard Range	1

ENGINE

1701-171	**ENGINE**	Engine Diesel 565HP Cummins X15 - EPA 2021-26	1
1329-002	**CAB ENGINE TUNNEL**	Cab Engine Tunnel Large	1

1731-002	**DIESEL PARTICULATE FILTER CONTROLS**	DPF Ctrl Regeneration Sw & Inhibit Sw	1
1718-002	**ENGINE PROGRAMMING HIGH IDLE SPEED**	Engine Programming High Idle Speed 1250 RPM	1
1719-005	**ENGINE HIGH IDLE CONTROL**	Engine High Idle Ctrl Automatic and Manual w/Disp Actv	1
1710-001	**ENGINE PROGRAMMING ROAD SPEED GOVERNOR**	Engine Programming Road Speed Governor Enabled	1
1713-010	**AUXILIARY ENGINE BRAKE**	Aux Engine Brake Compression Brake w/VG Turbo	1
1708-040	**AUXILIARY ENGINE BRAKE CONTROL**	Aux Engine Brake Ctrl Off/Low/High Smart Wheel Ctrl w/Disp Ind	1
1715-004	**FLUID FILLS**	Fluid Fills Fwd For Large Displacement Cap	1
1735-001	**ENGINE DRAIN PLUG**	Engine Drain Plug	1
8002-001	**ENGINE WARRANTY**	Engine Warranty Cummins (5) Year/100,000 Miles	1
1707-116	**REMOTE THROTTLE HARNESS**	Rmt Throttle Harness Cab Harness Only Shift Interlock	1
1721-001	**ENGINE PROGRAMMING REMOTE THROTTLE**	Engine Program Rmt Throttle Off	1
1727-001	**ENGINE PROGRAMMING IDLE SPEED**	Engine Programming Idle Speed 700 RPM	1

AIR INTAKE

2801-010	**ENGINE AIR INTAKE**	Engine Air Intake Filtration and Restriction w/Replaceable Element Abv Radiator	1

COOLING

2704-016	**ENGINE FAN DRIVE**	Engine Fan Drive Variable Speed	1
2701-021	**ENGINE COOLING SYSTEM**	Engine Cooling System Serial Flow w/Package Drop-Out Prov	1
2711-005	**ENGINE COOLING SYSTEM PROTECTION**	Engine Cooling System Protection Light Duty Skid Plate Paint Frame Color	1
2708-001	**ENGINE COOLANT**	Engine Coolant Extended Life	1
2707-002	**ENGINE COOLANT FILTER**	Engine Coolant Filter	1
2706-003	**ELECTRONIC COOLANT LEVEL INDICATOR**	Elec Low Coolant Level Indicator	1
2709-001	**COOLANT HOSES**	Coolant Hoses Silicone	1
2710-005	**ENGINE COOLANT OVERFLOW BOTTLE**	Engine Coolant Overflow Expansion Bottle	1
2705-002	**ENGINE PUMP HEAT EXCHANGER**	Engine Pump Heat Exchanger	1

EXHAUST

2901-074	**ENGINE EXHAUST SYSTEM**	Eng Exhaust Sys Under Frm RH Single Module Aftertreatment Inboard Inner Frm Mnt	1
2907-003	**DIESEL EXHAUST FLUID TANK**	Diesel Exhaust Fluid Tank LH 6 Gal Fill Thru Rr Step	1
2902-030	**ENGINE EXHAUST ACCESSORIES**	Engine Exhaust Acc Temp Mitigation w/Drop Tail Pipe	1
2906-002	**ENGINE EXHAUST WRAP**	Engine Exhaust Wrap	1

8018-002	**EMISSIONS SYSTEM WARRANTY**	Emissions System Warranty (5) Year/100,000 Miles RFW0140	1

TRANSMISSION

1801-017	**TRANSMISSION**	Transmission Allison 4000 EVS	1
1806-007	**TRANSMISSION MODE PROGRAMMING**	Transmission Mode Programming 5th Startup/6th Mode S1/S1 Omit Economy Mode	1
1811-004	**TRANSMISSION FEATURE PROGRAMMING**	Transmission Feature Programming Allison Gen 5 & 6-E I/O Package 198/Pumper	1
1807-005	**TRANSMISSION SHIFT SELECTOR**	Transmission GEN 5 & 6-E Shift Sel Key Pad/Push Button	1
1815-002	**ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR**	Elec Transmission Oil Level Indicator	1
1814-002	**TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE**	2nd Gear Pre-Select	1
1808-007	**TRANSMISSION COOLING SYSTEM**	Transmission Cooling System	1
1817-001	**TRANSMISSION DRAIN PLUG**	Transmission Drain Plug	1
8005-001	**TRANSMISSION WARRANTY**	Transmission Warranty Allison (5) Year	1

POWER TAKE OFF

2004-004	**LH PTO**	LH PTO Cust Installed	1
2001-109	**LH PTO MODEL**	LH PTO Model Chelsea 280-GGFJP-B5XD	1
2005-008	**PTO LOCATION**	PTO Location 8:00/1:00	1
2015-030	**LH PTO CONTROL**	LH PTO Ctrl Rkr Enable "Aerial Master"/Rkr Actv "Aerial PTO"	1

DRIVELINE

3001-017	**DRIVELINE**	Driveline MSI 1810/1710 w/Meritor U-Joints w/Thrust Washers	1
3004-003	**DRIVELINE GUARDS**	Driveline Guards (2)	1
3005-074	**MIDSHIP PUMP / GEARBOX**	Midship Pump Jackshaft w/Smeal Aerial Pump Mount Holes	1
3008-152	**MIDSHIP PUMP / GEARBOX MODEL**	Midship Pump/Gearbox Model Hale QMAX Rwd	1
3048-009	**MIDSHIP PUMP GEARBOX DROP**	Midship Driveline Pump Gearbox Drop Hale "R"	1
3009-020	**MIDSHIP PUMP RATIO**	Midship Pump Ratio 2.28:1 (23)	1
3010-1550	**MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE**	Midship Pump Location C/L Suction to C/L Rear Axle 155.0"	1
5013-017	**PUMP SHIFT CONTROLS**	Pump Shift Ctrl Elec Over Air on Disp w/Sep Instructions	1
3049-003	**PUMP SHIFT CONTROL PLUMBING**	Pump Shift Control Plumbing Pre-Plumb Elec/Air	1

FUEL SYSTEMS

3109-064	**FUEL FILTER/WATER SEPARATOR**	Fuel Filter/Wtr Separator Racor GreenMAX 6600R w/Lt & Alarm	1

3111-002	**FUEL LINES**	Fuel Lines Wire Braid	1
3104-017	**FUEL SHUTOFF VALVE**	Fuel Shutoff Valve at Tank and at Primary Filter w/Labels	1
3103-008	**ELECTRIC FUEL PRIMER**	Electric Fuel Primer Engine Sply Electric Lift Pump	1
3112-018	**FUEL COOLER**	Fuel Cooler w/Active Cooling Fan/Temp Ctrl Sw	1
3101-101	**FUEL TANK**	Fuel Tank 50 Gallon	1
3130-001	**FUEL TANK MATERIAL AND FINISH**	Fuel Tank Material Steel & Finish Painted Frame Components Color	1
3131-001	**FUEL TANK STRAP MATERIAL AND FINISH**	Fuel Tank Strap Material Steel & Finish Painted Frame Components Color	1
3132-004	**FUEL TANK MISCELLANEOUS OPTIONS**	Fuel Tank Miscellaneous Options - Additional Draw/Return Tube	1
3102-011	**FUEL TANK FILL PORT**	Fuel Tank Fill Port LH Rwd/RH Mid w/Vent Holes	1
3114-002	**FUEL TANK SERVICEABILITY PROVISIONS**	Fuel Tank Serviceability Prov 8' Fuel Line Extension	1
3115-002	**FUEL TANK DRAIN PLUG**	Fuel Tank Drain Plug Magnetic	1

FRONT AXLE

2401-039	**FRONT AXLE**	Frt Axle Hendrickson STEERTEK NXT Fabricated Box Beam 24000#	1
8059-019	**FRONT AXLE WARRANTY**	Front Axle Warranty Hendrickson STEERTEK NXT	1
2405-001	**FRONT WHEEL BEARING LUBRICATION**	Frt Wheel Bearing Lube Oil	1

FRONT SUSPENSION

2502-006	**FRONT SHOCK ABSORBERS**	Frt Shock Absorbers Suspension Sply	1
2501-019	**FRONT SUSPENSION**	Frt Suspension Parabolic STEERTEK NXT Integrated 18000-24000# Spring Pack	1

STEERING

2601QXX	**STEERING COLUMN/WHEEL**	2601-004 Steering Column/Wheel Tilt/Telescopic 18" 4 Spoke Smart Wheel Visibilty/Brk Pods	1
2609-002	**ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR**	Elec Power Steering Fluid Level Indicator	1
2603-011	**POWER STEERING PUMP**	Power Steering Pump TRW w/Passive Cooler	1
2606-016	**FRONT AXLE CRAMP ANGLE**	Front Axle Cramp Angle 45L/43R Degrees	1
2610-005	**POWER STEERING GEAR**	Power Steering Gear TRW TAS 85 w/Assist	1
2608-001	**CHASSIS ALIGNMENT**	Chassis Alignment	1

REAR AXLE

3401-013	**REAR AXLE**	Rear Axle 63000# Meritor RT-58-185	1
3403-001	**REAR AXLE DIFFERENTIAL LUBRICATION**	Rear Axle Differential Lubrication Oil	1

8061-020	**REAR AXLE WARRANTY**	Rear Axle Warranty Meritor 2025	1
3411-001	**REAR WHEEL BEARING LUBRICATION**	Rear Wheel Bearing Lubrication Oil	1
3407-019	**REAR AXLE DIFFERENTIAL CONTROL**	Rear Axle Differential Ctrl DCDL w/Interaxle Lock Disp	1
3408-003	**VEHICLE TOP SPEED**	Vehicle Top Speed 60 MPH	1
3410-001	**REAR AXLE EXTERNAL VENT**	Rear Axle External Vent OEM Housing Breather	1

REAR SUSPENSION

3501-034	**REAR SUSPENSION**	Rear Susp Ridewell RD-202 Rubber 63000#	1
3503-003	**REAR SHOCK ABSORBERS**	Rear Shock Absorbers Suspension Sply	1

TIRES

3625-002	**TIRE INTERMITTENT SERVICE RATING**	Tire Intermittent Service Ratings Acceptable	1
3601-089	**FRONT TIRE**	Frt Tire 425/65R 22.5 Michelin XZE	2
3602-019	**REAR TIRE**	Rear Tire 315/80R 22.5 Michelin XDN2 Grip	8
3413-614	**REAR AXLE RATIO**	Rear Axle Ratio 6.14	1
3614-030	**TIRE PRESSURE INDICATOR**	Tire Pressure Ind Frt & Rr LED	1

WHEELS

3701-034	**FRONT WHEEL**	Frt Wheel Alcoa Dura-Bright 22.5 x 12.25 Alum	2
3703-050	**REAR WHEEL**	Rr Whl Alcoa Dura-Bright 22.5 x 9.00 Alum	8
3719-002	**BALANCE WHEELS AND TIRES**	Balance Wheels & Tires	1
3702-002	**WHEEL TRIM**	Wheel Trim Hub & Nut Covers SS Shiploose	1

BRAKES

3205-015	**BRAKE SYSTEM**	Brake System ABS/ATC/ESC Tandem Axle Disp Actv	1
3206-003	**FRONT BRAKES**	Frt Brakes Meritor EX225 Disc 17"	1
3207-005	**REAR BRAKES**	Rr Brakes S-Cam Drum 16.5" x 7" Cast Iron Shoe	1
3208-001	**PARK BRAKE**	Prk Brake Rr Wheels Only	1
3219-002	**SUPPLEMENTAL BRAKE**	Supplemental Brake Frt Service Brakes Prk Brk Actv	1
3204-029	**PARK BRAKE CONTROL**	Prk Brake Ctrl LH Tunnel Mnt, Integrated w/Shift Pod, Adjacent To Trans Shifter	1
3214-002	**REAR BRAKE SLACK ADJUSTERS**	Rr Brake Slack Adjusters Haldex	1
3212-002	**REAR BRAKE DUST SHIELDS**	Rr Brake Dust Shields	1
3202-005	**AIR DRYER**	Air Dryer Wabco System Saver 1200 Bhd LH Batt Box	1
3215-009	**FRONT BRAKE CHAMBERS**	Frt Brake Chambers Hendrickson STEERTEK NXT Type 24	1
3210-015	**REAR BRAKE CHAMBERS**	Rr Brake Chambers TSE 30/36 Long Stroke	2

AIR SUPPLY SYSTEMS

3320-001	**AIR COMPRESSOR**	Air Compressor Wabco SS318 18.7 CFM	1
3339-004	**AIR GOVERNOR**	Air Governor Mnt on Air Dryer Bracket	1
3303-024	**MOISTURE EJECTORS**	Moisture Ejectors Manual 1/4 turn w/Auto Wet Tank	1
3307-001	**AIR SUPPLY LINES**	Air Sply Lines Nylon w/Compression Fittings	1
3309-033	**AIR INLET CONNECTION**	Air Inlet Connection	1
3349-002	**AIR INLET LOCATION**	Air Inlet Location LH Lwr Frt Step Fwd	1
3326-002	**AIR INLET/OUTLET FITTING TYPE**	Air Inlet/Outlet Manual Conn Tru-Flate Interchange 1/4"	1
3338-002	**REAR AIR TANK MOUNTING**	Rear Air Tank Mnt Any Bhd Rear Axle Perpendicular w/Frame	1

FRAME

2103-2500	**WHEELBASE**	Wheelbase 250.0"	1
2106-0960	**REAR OVERHANG**	Rear Overhang 96.0"	1
2101-004	**FRAME**	Frame Triple Channel 35.00" Width	1
2111-136	**MISC FRAME OPTIONS**	Misc Frame Options Smeal Aerials 105RM, 100RM, 125RM, 100MM Layout 4	1
2117-004	**FRAME CLEAR AREA**	Frame Clear Area Inside/Outside Rail 30" Rwd Back of Cab	1
2110-101	**FRAME PAINT**	Frame Paint Powder Coat Black	1
8007-036	**FRAME ASSEMBLY STRUCTURAL WARRANTY**	Frame Assembly Structural Warranty (50) Year RFW0305	1
8019-002	**FRAME RAIL CORROSION WARRANTY**	Frame Rail Corrosion Warranty (3) Year RFW0311	1
8022-004	**FRAME COMPONENTS CORROSION WARRANTY**	Frame Components Corrosion Warranty (3) Year RFW0315	1

BUMPER

2201-001	**FRONT BUMPER**	Frt Bumper Stainless Steel Flat	1
2202-003	**FRONT BUMPER EXTENSION LENGTH**	Frt Bumper Extension Length 16"	1
2208-004	**FRONT BUMPER APRON**	Frt Bumper Apron For 16" Extension	1
2237-014	**FRONT BUMPER DISCHARGE**	Front Bumper Discharge 2.5" RH Frame Mnt Plumbing	1
5503-021	**MECHANICAL SIREN**	Mechanical Siren Federal Signal Q2B Recess Mnt	1
2218-017	**MECHANICAL SIREN LOCATION**	Mech Siren Location Frt Bmpr Face LH OB	1
5501-020	**AIR HORN**	Air Horn (2) 21" Round Hadley E-Tone	1
2216-007	**AIR HORN LOCATION**	Air Horn Location (2) Frt Bmpr Face RH	1
2232-002	**AIR HORN RESERVOIR**	Air Horn Reservoir (1) 1200 Cu In	1
5504-060	**ELECTRONIC SIREN SPEAKER**	Elect Siren Speaker 100W Federal Signal Dynamax w/EF Grille	1
2217-008	**ELECTRONIC SIREN SPEAKER LOCATION**	Elec Siren Speaker Location Frt Bmpr Face Ctr	1
2204-001	**FRONT BUMPER TOW EYES**	Frt Bumper Tow Eyes 2" Chrome Below	1

CAB TILT

2301-001	**CAB TILT SYSTEM**	Cab Tilt System	1
2304-002	**CAB TILT ALARM**	Cab Tilt Alarm	1
2305-002	**CAB TILT CONTROL RECEPTACLE**	Cab Tilt Ctrl Receptacle RH Bumper Tail	1
2306-002	**CAB TILT LOCK DOWN INDICATOR**	Cab Tilt Lock Down Indicator	1

CAB GLASS

1401-009	**CAB WINDSHIELD**	Cab Windshield	1
1402-002	**GLASS FRONT DOOR**	Glass Frt Dr Pwr	1
1407-001	**GLASS TINT FRONT DOOR**	Glass Tint Frt Dr Automotive Green	1
1419-008	**GLASS REAR DOOR RIGHT HAND**	Glass Rr Dr RH Pwr	1
1430-002	**GLASS TINT REAR DOOR RIGHT HAND**	Glass Tint Rr Door RH Automotive Dark Gray	1
1412-008	**GLASS REAR DOOR LEFT HAND**	Glass Rr Dr LH Pwr	1
1431-002	**GLASS TINT REAR DOOR LEFT HAND**	Glass Tint Rr Door LH Automotive Dark Gray	1

CLIMATE CONTROL

1640-007	**CABIN AIR FILTRATION**	Cabin Air Filtration System Active Air Pur Upr Rear Wall Horiz Ign/Shore Pwr	1
1614-202	**CLIMATE CONTROL**	Climate Ctrl Htr Defroster A/C SGM Ovrhd Alum	1
1632-002	**CLIMATE CONTROL DRAIN**	Climate Control Drain Gravity	1
1617-108	**CLIMATE CONTROL ACTIVATION**	Climate Ctrl Actv Disp	1
1620-019	**HVAC OVERHEAD COVER PAINT**	HVAC Overhead Cover Paint Multi-tone Onyx Black	1
1610-002	**HEATER HOSE INSULATION**	Heater Hose Insulation	1
1603-002	**A/C CONDENSER LOCATION**	A/C Condenser Location Roof Mnt Mid LH	1
1601-013	**A/C COMPRESSOR**	A/C Compressor TM-31/QP-31	1
1608-017	**CAB CIRCULATION FANS FRONT**	Cab Circulation Fans Frt (2) Outboard Cab Ceiling Toggle Sw/On w/Defrost	1
1530-101	**UNDER CAB INSULATION**	Under Cab Insulation Engine Tunnel & Floor	1

CAB INTERIOR

1327-036	**INTERIOR TRIM FLOOR**	Interior Trim Floor w/Cast Alum Trim	1
1302-001	**INTERIOR TRIM**	Interior Trim Vinyl	1
1368-002	**REAR WALL INTERIOR TRIM**	Rear Wall Interior Trim Vinyl	1
1306-006	**HEADER TRIM**	Header Trim XDuty	1
1305-015	**TRIM CENTER DASH**	Trim Center Dash XDuty w/Gas Cylinder Stay	1
1339-102	**TRIM LEFT HAND DASH**	Trim LH Dash XDuty	1
1321-033	**TRIM RIGHT HAND DASH**	Trim RH Dash XDuty Glove Cmpt w/Lwr Flange/MDT Prov/4.50"H Glovebox/LED Lt	1

1307-002	**ENGINE TUNNEL TRIM**	Eng Tnl Trim Flr Mat	1
5040-085	**POWER POINT DASH MOUNT**	Pwr Pnt Dash Mnt Batt Dir (2) Sw Pnl/(2) Dual USB Blue Sea 2.1A Sw Pnl	1
1303-039	**STEP TRIM**	Step Trim Embossed & Diamond Cut Lwr TPlt Mid	1
1336-002	**STEP TRIM KICKPLATE**	Step Trim Kickplate Treadplate	1
1379-004	**UNDER CAB ACCESS DOOR**	Under Cab Access Door Rear Step LH Tread Plate	1
1102-013	**INTERIOR DOOR TRIM**	Interior Door Trim Painted	1
1323-050	**DOOR TRIM CUSTOMER NAMEPLATE**	Door Trim Customer Nameplate	1
1105-001	**CAB DOOR TRIM REFLECTIVE**	Cab Dr Trim Reflective Vert Stripe/6" Chevron w/Logo	1
1308-007	**INTERIOR GRAB HANDLE "A" PILLAR**	Interior Grab Handle 'A' Pillar 11" Molded Yellow	1
1332-017	**INTERIOR GRAB HANDLE FRONT DOOR**	Interior Grab Handle Frt Door Horiz 9" Yellow	1
1345-003	**INTERIOR GRAB HANDLE REAR DOOR**	Int Grab Handle Rr Dr Alum Window Span 30" Yellow Powder Coat	1
1319-022	**ADDITIONAL INTERIOR GRAB HANDLE REAR DOOR**	Addl Cab Int Grab Hndl Rr Dr Horiz 9" Yellow	1
1301-001	**INTERIOR SOFT TRIM COLOR**	Interior Soft Trim Color Black	1
1337-003	**INTERIOR TRIM SUNVISOR**	Interior Trim Sunvisor Vinyl w/Tinted Extension	1
1304-002	**INTERIOR FLOOR MAT COLOR**	Interior Floor Mat Color Black	1
1335-018	**CAB PAINT INTERIOR DOOR TRIM**	Cab Paint Int Dr Trim Multi-tone Onyx Black	1
1371-021	**HEADER TRIM INTERIOR PAINT**	Header Trim Interior Paint Multi-tone Onyx Black	1
1370-023	**TRIM CENTER DASH INTERIOR PAINT**	Trim Center Dash Interior Paint Multi-tone Onyx Black	1
1378-022	**TRIM LEFT HAND DASH INTERIOR PAINT**	Trim LH Dash Interior Paint Multi-tone Onyx Black	1
1373-022	**TRIM RIGHT HAND DASH INTERIOR PAINT**	Trim RH Dash Interior Paint Multi-tone Onyx Black	1
1344-002	**DASH PANEL GROUP**	Dash Pnl Group 3-Pnl	1
1312-032	**SWITCHES CENTER PANEL**	Switches Ctr Pnl 12 Upr w/Dimmer/Headlight Sw	1
1313-015	**SWITCHES LEFT PANEL**	Switches Left Pnl 0	1
1314-001	**SWITCHES RIGHT PANEL**	Switches Right Pnl 0	1

CAB SEATS

1225-007	**SEAT BELT WARNING**	Seat Belt Warn Disp w/VDR	1
1237-009	**SEAT MATERIAL**	Seat Material Bostrom Durawear Plus Zip Clean	1
1243-001	**SEAT COLOR**	Seat Color Gray/Red Seat Belts	1
1249-001	**SEAT BACK LOGO**	Seat Back Logo Spartan	4
1201-033	**SEAT DRIVER**	Seat Driver Bostrom Firefighter 8-Way Elect 500 Series ABTS	1
1213-025	**SEAT BACK DRIVER**	Seat Back Driver Non-SCBA ABTS	1
1219-001	**SEAT MOUNTING DRIVER**	Seat Mounting Driver	1
8102-200	**OCCUPANT PROTECTION DRIVER**	Occupant Protection Driver 4Front & Mechanical/Elect Seat RollTek w/SRA	1

1231-004	**ADDITIONAL SEAT COVER DRIVER**	Additional Seat Cover Driver Removable Seat Cushion & Back	1
1202-037	**SEAT OFFICER**	Seat Officer Bostrom Firefighter Fixed 500 Series ABTS	1
1214-030	**SEAT BACK OFFICER**	Seat Back Officer SCBA Bostrom SecureAll w/Quick-Adjust	1
1220-002	**SEAT MOUNTING OFFICER**	Seat Mounting Officer	1
8103-200	**OCCUPANT PROTECTION OFFICER**	Occupant Protection Officer 4Front & Mechanical/Elect Seat RollTek w/SRA	1
1232-004	**ADDITIONAL SEAT COVER OFFICER**	Additional Seat Cover Officer Removable Seat Cushion & Back	1
1297-002	**POWER SEAT WIRING**	Power Seats Wiring Battery Direct	1
1273-001	**SEAT BELT ORIENTATION CREW**	Seat Belt Orientation Crew Outboard Shoulder To Inboard Hip	1
1265-001	**SEAT FORWARD FACING OUTER LOCATION**	Seat FFO Location Primary Pos (2) R/L	1
1205-029	**SEAT CREW FORWARD FACING OUTER**	Seat Crew FFO Bostrom Firefighter Fixed 500 Series	2
1217-028	**SEAT BACK FORWARD FACING OUTER**	Seat Back FFO SCBA Bostrom SecureAll w/Quick-Adjust	2
1223-003	**SEAT MOUNTING FORWARD FACING OUTER**	Seat Mounting FFO Inboard	1
8106-102	**OCCUPANT PROTECTION FFO**	Occupant Protection FFO RollTek Belt Pretensioner	1
1235-004	**ADDITIONAL SEAT COVER FFO**	Additional Seat Cover FFO Removable Seat Cushion & Back	2
1269-102	**SEAT FRAME FORWARD FACING**	Seat Frm Fwd Fcg Triple	1
1281-101	**SEAT FRAME FORWARD FACING STORAGE ACCESS**	Seat Frm Fwd Fcg Strg Acc Dr (2) R/L Sd	1
1311-110	**CAB FRONT UNDERSEAT STORAGE ACCESS DOOR**	Cab Frt Undrst Strg Acc Panel	1
1355-023	**SEAT COMPARTMENT DOOR FINISH**	Seat Compartment Door Finish Multi-tone Onyx Black	1

CAB EXTERIOR

1511-201	**WINDSHIELD WIPER SYSTEM**	Windshield Wiper System, Prk Brk Interlock	1
1534-002	**ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR**	Electronic Windshield Fluid Level Indicator	1
1103-004	**CAB DOOR HARDWARE**	Cab Door Hardware Chrome w/Scuff Plate	1
1111-004	**DOOR LOCKS**	Door Locks Power (4) Entry Doors	1
1112-004	**POWER DOOR LOCK COMPARTMENT ACTIVATION**	Power Door Lock Cmpt Actv Key Fob & Keypads	1
1503QXX	**GRAB HANDLES**	Grab Handles SS 18" Yellow Powder Coat	1
1504-015	**REARVIEW MIRRORS**	Mirror Aerodynamic Retrac 613285 Rmt Htd Ltd	1
1529-005	**REARVIEW MIRROR HEAT SWITCH**	Rearview Mirror Heat Sw Disp/On w/Window Defrost	1
1531-019	**AUXILIARY EXTERIOR MIRRORS**	Aux Ext Mir (2) Fwd R/L Rr Dr 6" From Top Of Door	1
1505-009	**TRIM FRONT**	Trim Frt SS Wrap	1
1525-002	**EXTERIOR TRIM REAR CORNER**	Exterior Trim Rear Corner Scuff Plate	1

1513-025	**CAB FENDER**	Cab Fender SS	1
1514-003	**MUD FLAPS FRONT**	Mud Flaps Frt Wide	1
1526-026	**CAB EXTERIOR FRONT & SIDE EMBLEMS**	Cab Ext Frt & Side Emblems Spartan	1
1502-052	**CAB EXTERIOR MODEL NAMEPLATE**	Cab Exterior Model Nameplate Gladiator	1

START / CHARGING SYSTEMS

5109-015	**IGNITION**	Ign Mstr Rkr Sw w/Push-Button Start	1
5101-020	**BATTERY**	Batt (3) Group 31 Harris	1
5106-001	**BATTERY TRAY**	Batt Tray LH Steel	1
5107-002	**BATTERY BOX COVER**	Batt Box Cover LH Steel w/Black Handle	1
5102-001	**BATTERY CABLE**	Batt Cables	1
5108-005	**BATTERY JUMPER STUD**	Batt Jumper Stud Frt LH Lwr Step w/Label	1
5104-019	**ALTERNATOR**	Alternator Delco Remy 55SI 430A	1
5105-001	**STARTER MOTOR**	Starter Motor Delco	1

LINE VOLTAGE ELECTRICAL POWER DISTRIBUTION

5202-161	**BATTERY CONDITIONER**	Batt Cond Kussmaul Auto Charge 80 LPC w/Remote Batt Select LH RFO Seat Pos w/Cvr	1
3314-017	**AUXILIARY AIR COMPRESSOR**	Aux Air Cmp Kussmaul 12V Bhd Drv Seat w/Auto Drain	1
5209-002	**ELECTRICAL INLET LOCATION**	Elec Inlet Location LH Cab Side Mid	1
5204-055	**ELECTRICAL INLET**	Elec Inlet 120V 20A Auto Eject	1
5210-004	**ELECTRICAL INLET CONNECTION**	Elec Inlet Conn to Batt Conditioner	1
5206-002	**ELECTRICAL INLET COLOR**	Elec Inlet Color Yellow	1

LIGHTING

5301-102	**HEADLIGHTS**	Headlights 4 Headlamps LED	1
5337-001	**HEADLIGHT LOCATION**	Headlights Below Frt Warn Lts	1
5303-004	**FRONT TURN SIGNALS**	Frt Turn Signals Whelen 600 LED	1
5336-003	**SIDE TURN/MARKER LIGHTS**	Side Turn/Marker Lts LED Weldon 9186-8589-24	1
5302-003	**MARKER & ICC LIGHTS**	Marker & ICC Lts Face Mnt LED Weldon 9186-1500-20	1
5350-095	**HEADLIGHT AND MARKER LIGHT ACTIVATION**	Hdlt & Mrkr Lt Actv Rkr Sw/Hdlts Prk Brk Ctrl/DRL Ign Sw	1
5305-353	**INTERIOR OVERHEAD LIGHTS**	Interior Overhead Lts Whelen 6" Red/Clear LED	1
5388-003	**INTERIOR OVERHEAD LIGHTING ACTIVATION**	Int Ovrhd Lt Actv Resp Dr & MUX	1
5327-015	**AUXILIARY DOME LIGHT FRONT CENTER**	Auxiliary Dome Lt Frt Whelen 6" Red/Clear LED	1
5403-051	**LIGHTBAR PROVISION**	Lightbar Prov Wire & Mnt (2) Chassis Supply	1

5450N-006	**CAB FRONT LIGHTBAR MODEL**	Cab Front Lightbar Model Whelen F4NMINI (2)	1
5450-999	**CAB FRONT LIGHTBAR**	Cab Front Lightbar - Configured in 5450M Subcategory	1
5450M-002	**FRONT LIGHTBAR LAYOUT**	Cab Front Lightbar Layout	1
5450X-003	**FRONT LIGHTBAR ORIENTATION**	Front Lightbar Orientation - Outboard/Aerial Mnt	1
5450L2-002	**FRONT LIGHTBAR LIGHT POSITION 2**	Cab Front Lightbar Position 2 - Red LH Side	1
5450L4-003	**FRONT LIGHTBAR LIGHT POSITION 4**	Cab Front Lightbar Position 4 - White	1
5450L5-003	**FRONT LIGHTBAR LIGHT POSITION 5**	Cab Front Lightbar Position 5 - White	1
5450L12-003	**FRONT LIGHTBAR LIGHT POSITION 12**	Cab Front Lightbar Position 12 - White	1
5450L13-003	**FRONT LIGHTBAR LIGHT POSITION 13**	Cab Front Lightbar Position 13 - White	1
5450L15-032	**FRONT LIGHTBAR LIGHT POSITION 15**	Cab Front Lightbar Position 15 - Red RH Side	1
5426-008	**LIGHTBAR SWITCH**	Lightbar Sw Disp w/Clear Lt Cutoff	1
5317-210	**FRONT SCENE LIGHTS**	Frt Scene Lts FireTech FT-MB-12-FT-B 12V LED (2) Black	1
5329-006	**FRONT SCENE LIGHT LOCATION**	Frt Scene Lt Loc (2) Outboard Brow Pos	1
5335-044	**FRONT SCENE LIGHTS ACTIVATION**	5335-044 Frt Scene Lts Actv Disp & Smart Wheel	1
5306-150	**SIDE SCENE LIGHTS**	Side Scene Lts Whelen M9 Series Combo Warn 12V LED Chrm Bezel	1
5318-002	**SIDE SCENE LIGHT LOCATION**	Side Scene Lt Loc Upper Front	1
5316-007	**SIDE SCENE ACTIVATION**	Side Scene Actv Indv Disp Actv	1
5308-301	**GROUND LIGHTS**	Ground Lts Amdor H20-HO LED	1
5386-006	**GROUND LIGHTING ACTIVATION**	Ground Lt Actv Prk Brk, Resp Sd Dr, Disp, Rev & Turn Sig	1
5319-041	**UNDER BUMPER LIGHTS**	Under Bmpr Lts 40"/(2) 12" Clr LED Amdor Luma Bar H20-HO Prk Brk/Rev/Dispa	1
5309-028	**LOWER CAB STEP LIGHTS**	Lwr Cab Step Lts Amdor H20-HO LED	1
5382-002	**INTERMEDIATE STEP LIGHTS**	Intermediate Step Lts Whelen OS LED	1
5312-003	**ENGINE COMPARTMENT LIGHT**	Engine Cmpt Work Lt LED (1)	1

OPTICAL WARNING DEVICES

5406-078	**DO NOT MOVE APPARATUS LIGHT**	Do Not Move App Lt Flashing Red Whelen Vertex LED MUX Blk Bzl w/Alarm Abv Drv	1
5422QXX	**MASTER WARNING SWITCH**	5422-013 Mstr Warn Sw MUX w/Eng On	1
5409-002	**HEADLIGHT FLASHER**	Headlight Flasher Alternating	1
5425-003	**HEADLIGHT FLASHER SWITCH**	Headlight Flasher Sw MUX	1
5401-032	**INBOARD FRONT WARNING LIGHTS**	Inboard Frt Warn Lts Whelen M6 LED Chrm Bezel	1
5413-002	**INBOARD FRONT WARNING LIGHTS COLOR**	Inboard Frt Warn Lts Color Red	1
5423-003	**FRONT WARNING SWITCH**	Frt Warn Sw Disp	1
5404-157	**INTERSECTION WARNING LIGHTS**	Intersection Warn Lts Whelen ION T Horiz LED	1
5419-003	**INTERSECTION WARNING LIGHTS COLOR**	Int Warn Lts Color Red w/Clr Lens	1

5420-006	**INTERSECTION WARNING LIGHTS LOCATION**	Intersection Warn Lts Location Behind Cab Radius	1
5402-138	**SIDE WARNING LIGHTS**	Side Warn Lts Whelen ION T LED Blk Flange	1
5418-003	**SIDE WARNING LIGHTS COLOR**	Side Warn Lts Color Red w/Clr Lens	1
5412-002	**SIDE WARNING LIGHTS LOCATION**	Side Warn Lts Location Lwr Mid	1
5434-046	**AUXILIARY SIDE WARNING LIGHTS**	Aux Side Warn Lts Whelen M9 Combo Integrated w/Sd Scene Lts	1
5435-003	**AUXILIARY SIDE WARNING LIGHTS COLOR**	Aux Side Warn Lts Color Red w/Clr Lens	1
5436-025	**AUXILIARY SIDE WARNING LIGHTS LOCATION**	Aux Side Warn Lts Location Integrated w/Scene Lts	1
5424-003	**SIDE AND INTERSECTION WARNING SWITCH**	Side & Intersection Warn Sw Disp	1
5469-004	**TANK LEVEL LIGHTS**	Tank Lvl Lts Whelen PSTANK2 w/Chrm Bzl	1
5470-002	**TANK LEVEL LIGHTS ACTIVATION**	Tank Lvl Lights Actv Prewire Rear of Cab	1
5471-002	**TANK LEVEL LIGHTS LOCATION**	Tank Lvl Lights Loc Rear Cab Sides	1
5449-041	**REAR WARNING LIGHTS**	Rr Warn Lts Prewire & Cutout Whelen TACTL5 Traf Advsr Sw Pnl	1
5410-135	**ROTO-RAYS WARNING LIGHT**	Roto-Rays Warn Lt LED (2) Red & Clr Upr Fascia Ped Mnt	1
5427-003	**ROTO-RAYS WARNING LIGHT SWITCH**	Roto-Ray Warn Lts Sw MUX	1
5407-019	**INTERIOR DOOR OPEN WARNING LIGHTS**	Int Dr Open Warn Lts Amber Weldon 15" LED Dir Flsh	1

AUDIBLE WARNING DEVICES

5510-006	**SIREN CONTROL HEAD**	Siren Ctrl Head Whelen 295HFSA7	1
5514-106	**STEERING WHEEL HORN BUTTON SELECTOR SWITCH**	Horn Btn Sel Sw Elec Horn/Elec Srn MUX	1
5527-004	**AUDIBLE WARNING RH FOOT SWITCH**	Audible Warning RH Foot Switch Siren	1
5527C-001	**MECHANICAL SIREN FOOT SWITCH RH**	Mechanical Siren Foot Switch RH Linemaster 491-S	1
5527D-002	**MECHANICAL SIREN FOOT SWITCH RH LOCATION**	Mechanical Siren Foot Switch RH Location Temporary Firewall Inboard Coiled	1
5512-042	**AIR HORN AUXILIARY ACTIVATION**	Air Horn Actv PB Sw Pnl	1
5513QXX	**MECHANICAL SIREN BRAKE/AUXILIARY ACTIVATION**	5513-511 Mech Siren Actv (1) Rkr Sw/(2) Brk Sw	1
5532-002	**MECHANICAL SIREN INTERLOCK**	Mechanical Siren Interlock Park Brake & Master Warn	1
5515-110	**ELECTRONIC SIREN AUXILIARY ACTIVATION**	Elec Siren Aux Actv Smart Wheel	1
5505-003	**BACK-UP ALARM**	Back-Up Alarm Preco-Matic 1059	1

INSTRUMENTATION

5601-049	**INSTRUMENTATION**	Instrumentation Standard/Metric Hybrid	1

5624-001	**BACKLIGHTING COLOR**	Backlighting Color Red	1
5603-002	**BRAKE APPLICATION PRESSURE GAUGE**	Brake Application Pressure Gauge in Instrument Pnl	1

COMMUNICATIONS SYSTEMS

5701-300	**RADIO**	Radio Jensen WB/AM/FM/BT	1
5736-200	**RADIO LOCATION**	Radio Overhead RH	1
5707-002	**AM/FM ANTENNA**	AM/FM Antenna LH Fwd Cab Roof	1
5737-300	**RADIO SPEAKERS**	Radio Speakers (6) Front/Mid/Rear	1
5706-303	**CAMERA**	Cam in View 360-HD (4) Cam Bird's Eye View System	1
5727-005	**CAMERA RIGHT HAND**	Camera RH Box HD	1
5728-009	**CAMERA REAR**	Camera HD Rear Box	1
5731-036	**CAMERA DISPLAY**	Camera Display RH/Rr Cameras On Disp & 360 Camera System On LH HD Monitor	1
5703-011	**COMMUNICATION ANTENNA**	Comm Ant Base LH Fwd Cab Rf Chassis Sply	1
5708-003	**COMMUNICATION ANTENNA CABLE ROUTING**	Comm Ant Cable Routing Under Rkr Sw Pnl	1
5702-023	**TWO-WAY RADIOS**	Two-Way Radio Exterior Conduit to Under RH Seat	1
5020-002	**PANEL LAYOUT**	Panel Layout	1

ADDITIONAL EQUIPMENT

8806-001	**FIRE EXTINGUISHER**	Fire Extinguisher Shiploose	1
8807-002	**ROAD SAFETY KIT**	Road Safety Kit Shiploose	1
8810-001	**DOOR KEYS**	Door Keys for Manual Locks (4)	1

SALES ADMIN

8003-197	**WARRANTY**	Warranty Cab and Chassis (2) Year RFW0102	1
8030-006	**CHASSIS OPERATION MANUAL**	Chassis Operation Manual Digital Copy (2)	1
8031-022	**ENGINE & TRANSMISSION OPERATION MANUAL**	Eng & Trans Operation Man (2) Eng Hard Copy (2) Trans (2) Eng Owner Digital	1
8032-016	**ENGINE SERVICE MANUAL**	Engine Service Manual Hard Copy Cummins Lg Displacement (2)	1
8033-008	**TRANSMISSION SERVICE MANUAL**	Transmission Service Manual Hard Copy Allison 4000 EVS (2)	1
8805-007	**CAB/CHASSIS AS BUILT WIRING DIAGRAMS**	Cab/Chassis As Built Wiring Diagrams Digital Copy (2)	1
8813-004	**AS BUILT AIR PLUMBING DIAGRAM**	As Built Air Plumbing Diagram Digital Copy	1
8815-004	**AS BUILT FUEL PLUMBING DIAGRAM**	As Built Fuel Plumbing Diagram Digital Copy	1
8039-001	**SALES TERMS**	Sales Terms	1

PROPOSED CHASSIS

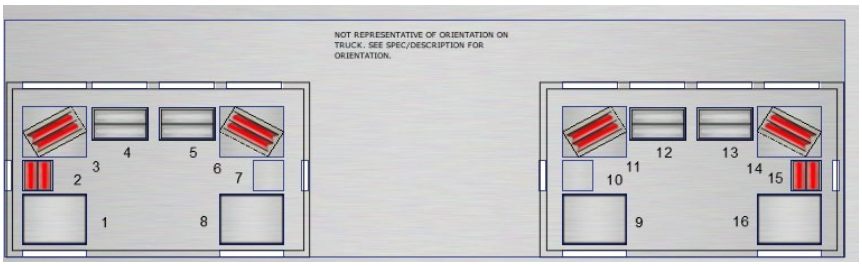
SAFETEK

ENGINEERING

9005-002	**DRIVELINE LAYOUT CONFIRMATION**	Driveline Layout Confirmation Required	1
2124-009	**EFCM/REAR CROSSMEMBERS**	End of Frame Cross Member 2.25" From EOF	1

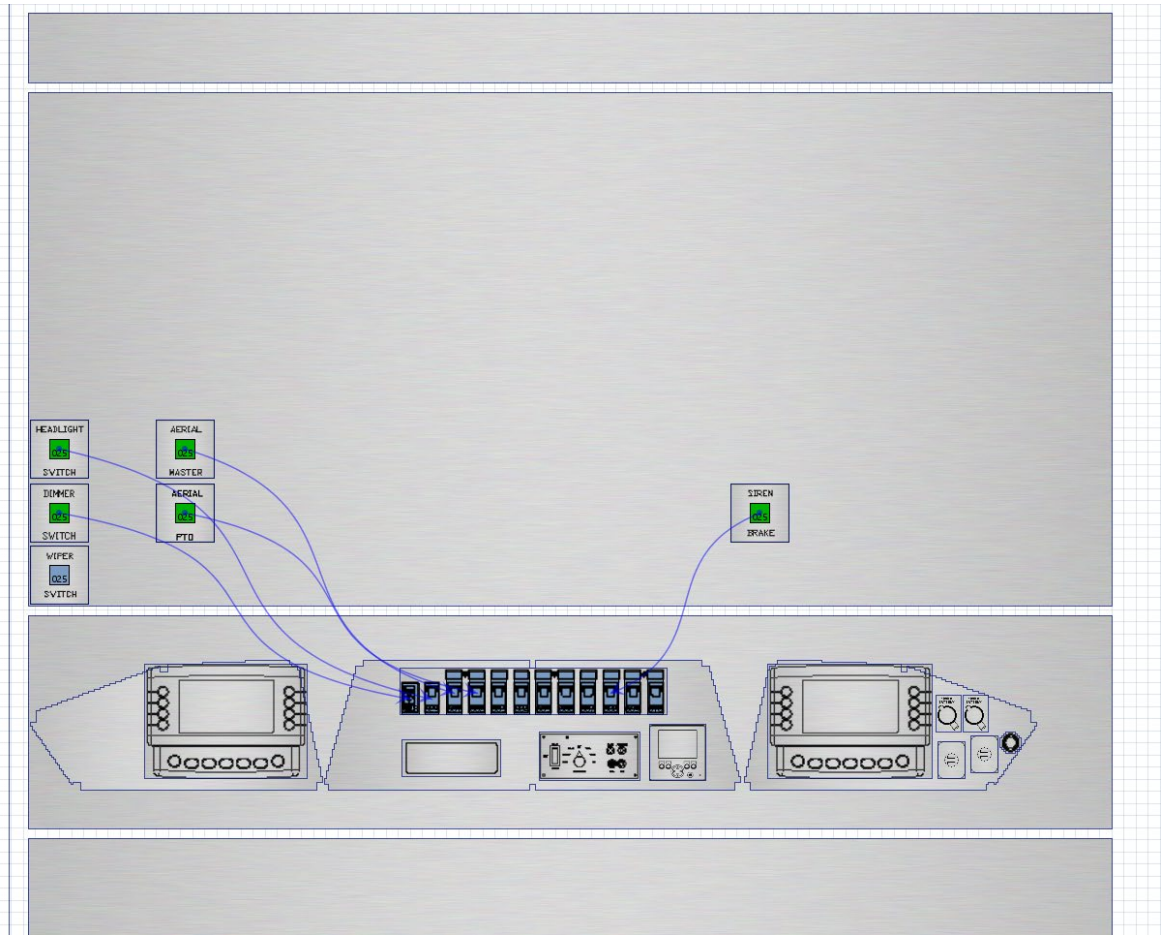
Front Lightbar Layout

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

Panel Layout



Option Description
SWITCH PANEL - MISC PANELS
LEGEND LOCATION
SIREN CONTROL HEAD WHELEN 295HFSA7
SW PNL CTR 12 SWITCHES UPPER W/HEADLIGHT & DIMMER 99"
WHELEN TACTL CONTROLLER CUTOUT
IRT REV ZERORPM DISPLAY CUTOUT
AIR HORN PB 2010 94"
VEHICLE DISPLAY (1) OFFICER PNL 2010 94"
PWR POINT DASH MNT (2) BATT DIR
PWR POINT DASH MNT BATT DIR 10.5 W DUAL USB SW PNL
DUAL USB 10.5 WATT POWER POINT DASH MNT BATT DIR (3)
PWR POINT DASH MNT (4) BATT DIR
VEHICLE DISPLAY (1) DRIVER PNL 2010
LH PTO 'AERIAL MASTER'
PTO AERIAL CONTROL RKR ACTV 'AERIAL PTO'
HDLT & MRKR LT ACTV DIMMER SW
HDLT & MRKR LT RKR SW
WINDSHIELD WIPER SYSTEM SINGLE MOTOR
MECH SIREN BRK RKR SW

Seat Locations

This drawing is for reference purposes only.

0100-012 Gladiator
MODEL

The chassis shall be a Gladiator 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.

8001-002 Country of Service Canada
COUNTRY OF SERVICE

The chassis shall be put in service in the country of Canada (CAN).

The chassis will meet applicable Canadian Technical Standards Document per Canadian Motor Vehicle Safety Regulations as clarified in the incomplete vehicle document which accompanies each chassis. The chassis manufacturer is not responsible for compliance to provincial, 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.

8017-007 Cab and Chassis Labeling Language English/French w/Innovative Control Labels
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 both English and French. 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.

The following labels shall be Innovative Controls brand, each including a decorative chrome bezel (where applicable):

- Shoreline
- Aerial Stowed
- Aerial Breakers 2
- Air Conditioner
- Cab Tilt Plate
- Air Compressor Breaker
- Battery Conditioner Breaker
- Helmet Caution
- Horn Tag
- Q2B Tag
- Load Center Plate
- Not a Step Label
- Occupancy Tag
- Do Not Move
- Occupants Must Be Seated
- Do Not Stand
- Danger Do Not Weld
- Danger--Untrained Operator
- DEF Fill Access (Including Additional 2907 Optional Labels)
- Battery Direct
- Kneeling

- IFS Air Fault
- Engine Brake
- Retarder
- LR 100 Amp Node
- 300 Amp EPU
- 100 Amp Front O/R Node
- 100 Amp T/T Node
- 100 Amp RR O/R Node
- 10 Amp EPU
- Master Power
- 12 Volt Power
- Aerial Hours
- Pump In 4th Gear

Windshield Washer Fluid

8006-011 Apparatus Type Rear Mount Quint
APPARATUS TYPE

The apparatus shall be a Quint vehicle designed for emergency service use. The apparatus shall include a permanently mounted fire pump which has a minimum rated capacity of 750 gallons per minute (3000 L/min), a water tank, a hose storage area, a compliment of ground ladders, and an aerial ladder or elevating platform with a permanently mounted waterway that shall be rear mounted thus providing the following vehicle benefits:

- Improved mobility vs. mid-ship mounted units, due to shorter overall travel length and wheelbase.

- Increased compartment space, hose load, and water capacity in the body, resulting from ladder being raised to clear the cab.

- Shorter vehicle wheelbase.

Shorter overall length of vehicle.

8008-001 Vehicle Type Straight Truck
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 NFPA Minimum 8.00 Degrees
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."

0104-003 Axle Configuration 6x4 (Rear Tandem Axle Drive Only)
AXLE CONFIGURATION

The chassis shall feature a 6 x 4 axle configuration consisting of a tandem rear drive axle set with a single front steer axle.

0101-011 GAWR Front 24000#
GROSS AXLE WEIGHT RATINGS FRONT

The front gross axle weight rating (GAWR) of the chassis shall be 24,000 pounds.

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

0102-018 GAWR Rear 63000#
GROSS AXLE WEIGHT RATINGS REAR

The rear gross axle weight rating (GAWR) of the chassis shall be 63,000 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 Driveline Midship, Pump Mode Prog w/Auto Park Brake "N"
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.

8009-004 Water & Foam Tank Capacity Up to 750 Gallons
WATER & FOAM TANK CAPACITY

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

1000-013 Cab Style EMFD 10" Raised Roof
CAB STYLE

The cab shall be a custom, fully enclosed, EMFD 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 eight (8) 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 99.40 inches wide with a minimum interior width of 91.00 inches. The overall cab length shall be 137.10 inches with 60.00 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 55.88 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.

8101-200 Occupant Protection IMMI 4Front & RollTek w/SRA
OCCUPANT PROTECTION

An IMMI 4Front® occupant protection system shall be installed in the vehicle's cab. The system shall inflate three (3) air bags in the following locations:

- Steering wheel air bag to protect the head and neck of the driver
- Knee bolster air bag to protect the driver's legs
- Knee bolster air bag to protect the officer's legs

The air bags shall use a combination of high-pressure stored argon and oxygen with a pyrotechnic charge for initiation to inflate the bags remain inflated for several seconds.

The system shall be connected to the crash detection sensor that will also activate the driver and first officer integrated belt pretensioners if it detects a frontal crash.

A RollTek™ rollover occupant protection system shall be installed in the apparatus cab. The system shall include an integrated roll sensor (IRS) master module and a slave sensor in applicable configurations.

The IRS shall be a microprocessor-controlled solid-state sensing device that utilizes vehicle-specific calibrations to detect rollovers. The IRS shall be equipped with pyrotechnic loops for connection to the protective countermeasures which shall include seat integrated side roll airbags (SRA), integrated seat belt pretensioners, and air seat pull-downs (S4S), in applicable occupant seat positions.

The IRS shall continuously monitor the truck`s acceleration and angle, and upon detection of an imminent roll-over, shall activate protective countermeasures in a pre-programmed sequence. In addition, the IRS shall also act as a data recorder to record crash events for post-crash evaluation.

1501-002 Cab Frt Fascia Classic
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 Cab Frt Grille Hinged Classic Styled
FRONT GRILLE

The front cab fascia shall include a classic box style, 304 stainless steel front grille. The grille shall measure 55.45 wide X 33.50 inches high X 1.50 inches deep. The upper portion of the grille shall be hinged to provide service access behind the grille. The grille shall include a minimum free air intake of 750.00 square inches.

1551-002 Cab Undercoat
CAB UNDERCOAT

There shall be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening and corrosion protection.

1552-002 Cab Side Drip Rail
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.

1521-001 Cab Paint Exterior Single Color
CAB PAINT EXTERIOR

The cab exterior shall be painted a single color per customers specified paint color.

1533-002 Cab Paint Process/Manufacturer Sikkens
CAB PAINT PROCESS/MANUFACTURER

The cab shall be painted with Sikkens 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 mills, 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.

1522-1963 Cab Paint Primary/Lower Color Sikkens Red FLNA 32648
CAB PAINT PRIMARY/LOWER COLOR

The lower paint color shall be Sikkens FLNA 32648 Red.

8013-056 Cab Paint Warranty (10) Year RFW0710
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 Int Multi-tone Onyx Blk

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 (4)
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.

1101-102 Cab Entry Door Type Barrier Free w/Pollak Switches
CAB ENTRY DOOR TYPE

All cab entry doors shall be barrier clear design resulting in exposed lower cab steps. The doors shall provide approximately 32.00 inches of clearance from the ground to the bottom of the door so cab doors may be opened un-hindered by most obstacles encountered, such as guard rails along interstate highways.

Entry doors shall include Pollak mechanical plunger style switches for electrical component activation.

1322-007 Cab Insulation Nonwoven Polyester Fiber
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.

1556-002 LH Mid EMS Compartment 43"H
LH MID EMS COMPARTMENT

The cab shall include a compartment located in the middle of the wall above the left side wheel well. This compartment shall measure 17.00 inches wide X 43.00 inches high X 23.00 inches deep.

1560-003 LH Mid EMS Cmpt Interior Solid Wall Rear Access
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.

1562-006 LH Mid EMS Cmpt Interior Access Cargo Net
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 a cargo net covered provision that shall include side-release buckle assemblies at the

bottom. The interior access provision shall feature a clear opening of 14.50 inches wide and as tall as possible in the available customer specified left EMS compartment height and access point.

1564-002 LH Mid EMS Cmpt Shelving Adj w/Unistrut
LH MID EMS COMPARTMENT INTERIOR SHELVING

The left hand mid EMS compartment located in crew area of the cab shall include one (1) aluminum shelf which shall be secured using Unistrut channel on two (2) sides of the interior walls of the compartment. The shelf shall include a 1.00 inch lip around the edges. The shelf shall be finished the same as the interior of the compartment.

1557-002 RH Mid EMS Compartment 43"H
RH MID EMS COMPARTMENT

The cab shall include a compartment located in the middle of the wall above the right side wheel well. This compartment shall measure 17.00 inches wide X 43.00 inches high X 23.00 inches deep.

1561-003 RH Mid EMS Cmpt Interior Solid Wall Rear Access
RH MID EMS COMPARTMENT INTERIOR

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

1563-006 RH Mid EMS Cmpt Interior Access Cargo Net
RH MID EMS COMPARTMENT INTERIOR ACCESS

The right hand EMS compartment shall include access from inside the cab. The compartment shall be accessible from the inside of the cab via a cargo net covered provision that shall include side-release buckle assemblies at the bottom. The interior access provision shall feature a clear opening of 14.50 inches wide and as tall as possible in the available customer specified right EMS compartment height and access point.

1565-003 RH Mid EMS Cmpt Shelving Adj (2) w/Unistrut
RH MID EMS COMPARTMENT INTERIOR SHELVING

The right hand mid EMS compartment located in crew area of the cab shall include two (2) aluminum shelves which shall be secured using Unistrut channel on two (2) sides of the interior walls of the compartment. The shelves shall include a 1.00 inch lip around the edges. The shelves shall be finished the same as the interior of the compartment.

5384-005 Mid EMS Compartment Lighting LED, Rr Dr & Rkr Sw Actv
MID EMS COMPARTMENT LIGHTING

The interior portion of each of the mid EMS compartments shall include compartment door, rear crew cab door, and rocker switch activated LED lighting to illuminate all usable surfaces within each compartment.

The rocker switch shall be located on the outside of the EMS compartment.

1535-020 Mid EMS Cmpt Ext Finish Multi-tone Onyx Black
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.

1536-022 Mid EMS Cmpt Interior Finish Multi-tone Onyx Black
MID EMS COMPARTMENT INTERIOR FINISH

The interior of the mid EMS compartment shall be painted with a multi-tone onyx black texture finish.

1002-019 Cab Roof Trench 50"W x 5"D
CAB ROOF TRENCH

The center section of the 10.00 inch raised roof shall include a 50.00 inch wide X 5.00 inch deep trench to accommodate the apparatus equipment or aerial device.

8004-033 Cab Structural Warranty (10) Year RFW0602
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 Crash Test ECE-R29/SAE J2420/SAE J2422
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 Elec System 12V DC Multiplex
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.

5008-072 OEM Wir Smeal ECM Park Brake Input
OEM WIRING

The wiring system shall include a prewire for ECM park brake input and engine ground return circuits located behind the switch panel. The circuits shall include an extra 2.00 feet of wire and shall be labeled “ECM Park Brake Input”.

5006-002 Apparatus Wiring Provision (8) Circuit Panel

APPARATUS WIRING PROVISION

An apparatus wiring panel shall be installed in the center dash area behind the rocker switch panel which shall include eight (8) open circuits consisting of three (3) 20 amp, one (1) 30 amp, three (3) 10 amp, and one (1) 15 amp circuit, with relays and breakers with trigger wires which shall be routed to the rocker switch panel.

5005-215 Vehicle Display Weldon Vista w/Touchscreen (2) L/R Sw Pnl
MULTIPLEX DISPLAY

The multiplex electrical system shall include (2) Weldon Vista IV displays with interactive touchscreens. The displays shall be located one (1) on the right side of the dash in the switch panel and one (1) on the left side of the dash in the switch panel. The Vista IV displays shall feature full color LCD touchscreens. The display shall include a message bar displaying the time of day and important messages requiring acknowledgement by the user on the top of the screen in the order they are received. There shall be eight (8) push button virtual controls, four (4) on each side of the display in addition to the touchscreen virtual controls, for the on-board diagnostics. The display screens shall be video ready for back-up cameras, thermal cameras, and DVD.

The Vista IV displays shall offer varying fonts and background colors. The displays shall be fully programmable to the needs of the customer and shall offer virtually infinite flexibility for screen configuration options.

5004-002 Load Management System Multiplex
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.

5622-003 Data Recording Sys Vehicle Data Weldon MUX
DATA RECORDING SYSTEM

The chassis shall have a Weldon Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the Weldon 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 B USB connection point, remotely mounted in the left side foot well.

5031-010 Accessory Pwr & Gnd Stud 40A Batt & 15A Ign w/200A Mstr Sw/300A Batt OEM Conn
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.

An OEM body connections bracket shall be installed on the chassis near the left hand battery box. The bracket shall include one (1) set each of 200 amp master power switched and 300 amp battery direct fused power and ground studs.

5030-002 Aux Acc Pwr & Gnd Stud Bhd Sw Pnl 40A Mstr Sw
AUXILIARY ACCESSORY POWER

An auxiliary set of power and ground studs shall be provided and installed behind the electrical center cover with a 40 amp breaker. The studs shall be 0.38 inch diameter and capable of carrying up to a 40 amp load switched with the master power switch.

5032-003 Addl Acc Pwr & Gnd Stud Bhd Sw Pnl 40A Batt Dir
ADDITIONAL ACCESSORY POWER

An additional set of power and ground studs shall be provided and installed behind the electrical center cover with a 40 amp breaker. The studs shall be 0.38 inch diameter and capable of carrying up to a 40 amp battery direct load.

5011-001 Exterior Electrical Terminal Coating Spray On Plasti Dip
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 (2) Year RFW0202
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.

1701-171 Engine Diesel 565HP Cummins X15 - EPA 2021-26
ENGINE

The chassis engine shall be a Cummins X15 engine. The X15 engine shall be an in-line six (6) cylinder, four cycle diesel powered engine. The engine shall offer a rating of 565 horse power at 1800 RPM and shall be governed at 2100 RPM. The torque rating shall feature 1850 foot pounds of torque at 1000 RPM with 912 cubic inches (14.9 liter) of displacement.

The X15 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 2021 emissions standards using cooled exhaust gas recirculation and selective catalytic reduction technology.

The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent 15W40 CK-4 low ash engine oil which shall be utilized for proper engine lubrication.

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.

1329-002 Cab Engine Tunnel Large
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 alloy plate. The tunnel shall be a maximum of 46.50 inches wide X 29.00 inches high.

1731-002 DPF Ctrl Regeneration Sw & Inhibit Sw
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.

1718-002 Engine Programming High Idle Speed 1250 RPM
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 Ctrl Automatic and Manual w/Disp Actv
ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with a virtual Vista button and an automatic high-idle speed control. It shall be pre-set so when activated, it will operate the engine at the appropriate RPM to increase alternator output. This device shall operate only when the engine is running and the transmission is in neutral with the parking brake set. The device 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 is released, or when the transmission is placed in neutral. There shall be an indicator on the Vista display and control screen for the high idle speed control.

1710-001 Engine Programming Road Speed Governor Enabled
ENGINE PROGRAMMING ROAD SPEED GOVERNOR

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

1713-010 Aux Engine Brake Compression Brake w/VG Turbo
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.

1708-040 Aux Engine Brake Ctrl Off/Low/High Smart Wheel Ctrl w/Disp Ind
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 individual low/high selector switches on the SmartWheel™ steering wheel. The engine brake status shall be displayed through indicator lights on the Vista display and control screen.

1715-004 Fluid Fills Fwd For Large Displacement Cap
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
ENGINE DRAIN PLUG

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

8002-001 Engine Warranty Cummins (5) Year/100,000 Miles
ENGINE WARRANTY

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

1707-116 Rmt Throttle Harness Cab Harness Only Shift Interlock
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 Program Rmt Throttle Off
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.

1727-001 Engine Programming Idle Speed 700 RPM
ENGINE PROGRAMMING IDLE SPEED

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

2801-010 Engine Air Intake Filtration and Restriction w/Replaceable Element Abv Radiator
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 Variable Speed
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 Serial Flow w/Package Drop-Out Prov
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 Light Duty Skid Plate Paint Frame Color
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 Extended Life
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.

2707-002 Engine Coolant Filter
ENGINE COOLANT FILTER

An engine coolant filter with a shut-off valve for the inlet and outlet shall be installed on the chassis. The location of the filter shall allow for easy maintenance.

Proposals offering engines equipped with coolant filters shall be supplied with standard non-chemical type particulate filters.

2706-003 Elec Low Coolant Level Indicator
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 Silicone
COOLANT HOSES

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

2710-005 Engine Coolant Overflow Expansion Bottle
ENGINE COOLANT OVERFLOW BOTTLE

A remote engine coolant overflow expansion bottle shall be provided in the case of over filling the coolant system. The overflow bottle shall capture the expansion fluid or overfill rather than allow the fluid to drain on the ground.

2705-002 Engine Pump Heat Exchanger
ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant. This shall allow the use of water from the discharge side of the pump to assist in cooling the engine.

2901-074 Eng Exhaust Sys Under Frm RH Single Module Aftertreatment Inboard Inner Frm Mnt
ENGINE EXHAUST SYSTEM

The exhaust system shall include an end-in end-out horizontally mounted single module after treatment device, and downpipe from the charge air cooled turbo. The single module shall include four temperature sensors, diesel particulate filter (DPF), urea dosing module (UL2), and a selective catalytic reduction (SCR) catalyst to meet current EPA standards. The selective catalytic reduction catalyst utilizes a diesel exhaust fluid solution consisting of urea and purified water to convert NOx into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be mixed and injected into the system through the DPF and SCR.

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 single module after treatment 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 module shall be mounted below the frame in the inboard position. The mounting brackets shall be mounted on the inside of the frame.

2907-003 Diesel Exhaust Fluid Tank LH 6 Gal Fill Thru Rr Step
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 six (6) usable gallons and shall be mounted on the left hand side of the chassis frame behind the batteries below the frame.

The DEF tank shall be designed with capacity for expansion in case of fluid freezing. Engine coolant, which shall be thermostatically controlled, shall be 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.

2902-030 Engine Exhaust Acc Temp Mitigation w/Drop Tail Pipe
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.

The tail pipe shall have a drop in it to allow additional clearance from the body.

2906-002 Engine Exhaust Wrap
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.

8018-002 Emissions System Warranty (5) Year/100,000 Miles RFW0140
EMISSIONS SYSTEMS WARRANTY

Purchaser shall receive a Regulated Emissions Systems Five (5) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0140. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

1801-017 Transmission Allison 4000 EVS
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 Castrol TranSynd™ synthetic TES 295 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

1806-007 Transmission Mode Programming 5th Startup/6th Mode S1/S1 Omit Economy Mode
TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will select five (5) speeds of operation. The sixth speed over drive shall be available with the activation of the mode button on the shifting pad. 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 Allison Gen 5 & 6-E I/O Package 198/Pumper
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.

Function ID	Description	Wire assignment
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 GEN 5 & 6-E Shift Sel Key Pad/Push Button
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 Elec Transmission Oil Level Indicator
ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal.

1814-002 2nd Gear Pre-Select
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
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
TRANSMISSION DRAIN PLUG

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

8005-001 Transmission Warranty Allison (5) Year
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.

2004-004 LH PTO Cust Installed
LH PTO

A PTO shall be installed on the transmission by the OEM.

2001-109 LH PTO Model Chelsea 280-GGFJP-B5XD
LH PTO MODEL

A ten (10) bolt Chelsea model 280-GGFJP-B5XD heavy duty transmission driven PTO shall be installed. The clutched shifted PTO is designed specifically for the Allison world transmission and provides an intermittent and continuous torque rating of 360 lb. ft.

2005-008 PTO Location 8:00/1:00
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.

2015-030 LH PTO Ctrl Rkr Enable "Aerial Master"/Rkr Actv "Aerial PTO"
LH PTO CONTROL

Switches for the power take off shall be wired to the V-mux node to be used by the OEM. There shall be an on/off rocker switch labeled "Aerial Master" wired to a V-mux input and output with integral light wired to the v-mux input terminal of the switch that shall illuminate when the switch in on and the v-mux output is active.

There shall be an on/off rocker switch labeled “Aerial PTO” activated by the “Aerial Master” rocker switch with an input to the V-mux node when the switch is on and an integral light activated by an independent V-mux output. The switches shall be located on dash.

3001-017 Driveline MSI 1810/1710 w/Meritor U-Joints w/Thrust Washers
DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with MSI 1810 series universal joints for the main drivelines, and 1710 series for the inter-axle shaft. 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.

3004-003 Driveline Guards (2)
DRIVELINE GUARDS

Two (2) driveline guard loops shall be provided and installed to support the driveline shafts for routine maintenance and in the event of a driveline component failure.

3005-074 Midship Pump Jackshaft w/Smeal Aerial Pump Mount Holes
MIDSHIP PUMP / GEARBOX

A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer. Holes shall be provided in the frame as specified by the OEM for mounting a Smeal aerial pump module.

See PDF for specific hole pattern.

3008-152 Midship Pump/Gearbox Model Hale QMAX Rwd
MIDSHIP PUMP / GEARBOX MODEL

The midship pump/gearbox provisions shall be for a Hale QMAX pump rearward. The pump shall be mounted rearward of the pump gearbox.

3048-009 Midship Driveline Pump Gearbox Drop Hale "R"
MIDSHIP PUMP GEARBOX DROP

The Hale pump gearbox shall have an “R” drop length.

3009-020 Midship Pump Ratio 2.28:1 (23)
MIDSHIP PUMP RATIO

The ratio for the midship pump shall be 2.28:1 (23).

3010-1550 Midship Pump Location C/L Suction to C/L Rear Axle 155.0"
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 155.00 inches.

5013-017 Pump Shift Ctrl Elec Over Air on Disp w/Sep Instructions
PUMP SHIFT CONTROLS

The pump shift controls shall be provided on the Vista display and control screen. This shall include road, pump, and neutral virtual switches with green pump engaged and ok to pump indicators displayed on the MUX screen. One (1) label indicating pump instructions shall be provided and located so it can be read from the driver's position per NFPA **16.10.1.3**.

The neutral switch shall exhaust air from both pump and road sides of the pump gear box shift cylinder.

3049-003 Pump Shift Control Plumbing Pre-Plumb Elec/Air
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/Wtr Separator Racor GreenMAX 6600R w/Lt & Alarm
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 Wire Braid
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.

3104-017 Fuel Shutoff Valve at Tank and at Primary Filter w/Labels
FUEL SHUTOFF VALVE

A fuel shutoff valve shall be installed in the fuel draw line at the primary fuel filter to allow the fuel filter to be changed without loss of fuel to the fuel pump.

A second fuel shutoff valve shall be installed in the fuel draw line, near the fuel tank to allow maintenance to be performed with minimal loss of fuel. The valves shall all include plastic labels indicating the shutoff valve function attached directly to the valve.

3103-008 Electric Fuel Primer Engine Sply Electric Lift Pump
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 50 Gallon
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 Steel & Finish Painted Frame Components Color
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-curved 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 Steel & Finish Painted Frame Components Color
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.

3132-004 Fuel Tank Miscellaneous Options - Additional Draw/Return Tube
FUEL TANK MISCELLANEOUS OPTIONS

The fuel tank shall include an additional draw tube and additional return line for a total of three (3) draw tubes and three (3) return lines.

3102-011 Fuel Tank Fill Port LH Rwd/RH Mid w/Vent Holes
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.

A 1.25 inch diameter hole shall be provided in the left and right frame rails for vent hose routing provisions. The holes shall be located adjacent to the fuel tank and 5.13 inches up from the bottom of each rail.

3114-002 Fuel Tank Serviceability Prov 8' Fuel Line Extension
FUEL TANK SERVICEABILTY PROVISIONS

The chassis fuel lines shall have additional length provided so the tank can be easily lowered and removed for service purposes. The additional 8.00 feet of length shall be located above the fuel tank and shall be coiled and secured. The fuel line fittings shall be pointed towards the right side (curbside) of the chassis.

3115-002 Fuel Tank Drain Plug Magnetic
FUEL TANK DRAIN PLUG

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

2401-039 Frt Axle Hendrickson STEERTEK NXT Fabricated Box Beam 24000#
FRONT AXLE

The front axle shall be a Hendrickson STEERTEK Non-drive front axle, NXT Fire/Rescue model. The axle shall include a 3.74 inch drop and a 70.87 inch 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 to 24,000 pounds.

2405-001 Frt Wheel Bearing Lube Oil
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 Frt Shock Absorbers Suspension Sply
FRONT SHOCK ABSORBERS

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

2501-019 Frt Suspension Parabolic STEERTEK NXT Integrated 18000-24000# Spring Pack
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.

2601QXX 2601-004 Steering Column/Wheel Tilt/Telescopic 18" 4 Spoke Smart Wheel Visibilty/Brk Pods
STEERING COLUMN/ WHEEL

2601-004 Steering Column/Wheel Tilt/Telescopic 18" 4 Spoke Smart Wheel Visibilty/Brk Pods
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 VIP SmartWheel steering wheel located at the driver's

position. The steering wheel shall be covered with black polyurethane foam padding. The spoke area shall contain two (2) switch pods offering ten (10) programmed buttons for vehicle specific activations and controls.

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

The left hand SmartWheel switch pod shall contain primary latching type controls for fog lights, wiper variable, wiper off, wiper wash, and wiper high/low.

The right hand SmartWheel switch pod shall contain primary latching type controls for air horn, engine brake off, engine brake low, engine brake medium, and engine brake high

2609-002 Elec Power Steering Fluid Level Indicator
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.

2603-011 Power Steering Pump TRW w/Passive Cooler
POWER STEERING PUMP

The hydraulic power steering pump shall be a TRW PS and shall be gear driven from the engine. The pump shall be a balanced, positive displacement, sliding vane type. The power steering system shall include an oil to air passive cooler.

2606-016 Front Axle Cramp Angle 45L/43R Degrees
FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 45-degrees to the left and 43-degrees to the right.

2610-005 Power Steering Gear TRW TAS 85 w/Assist
POWER STEERING GEAR

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

2608-001 Chassis Alignment
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.

3401-013 Rear Axle 63000# Meritor RT-58-185
REAR AXLE

The rear axle shall be a Meritor model RT-58-185 tandem drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 63,000 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 Oil
REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

3411-001 Rear Wheel Bearing Lubrication Oil
REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

3407-019 Rear Axle Differential Ctrl DCDL w/Interaxle Lock Disp
REAR AXLE DIFFERENTIAL CONTROL

The tandem axle chassis shall include an inter-axle differential lock, which will allow both axles to be engaged as drive axles. The inter-axle differential lock shall be controlled by a virtual button on the Vista display and control screen. The Vista display shall indicate when positive engagement of the inter-axle differential lock has occurred.

A driver controlled differential lock shall be installed on one of the tandem rear axles. 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 virtual button on the Vista display and control screen. The Vista display shall also indicate when positive engagement of the differential control has occurred.

3408-003 Vehicle Top Speed 60 MPH
VEHICLE TOP SPEED

The top speed of the vehicle shall be approximately 60 MPH +/-2 MPH at governed engine RPM.

3501-034 Rear Susp Ridewell RD-202 Rubber 63000#
REAR SUSPENSION

The tandem rear axle shall feature a Ridewell Dynalastic RD202 with accordion style elastomer springs. The suspension shall incorporate a straddle mount pedestal and urethane pivot bushings, preset load distribution and independent axle movement. The rear tandem suspension shall have 54.00 inch axle centers.

The rear tandem suspension capacity shall be rated at 63,000 pounds.

3503-003 Rear Shock Absorbers Suspension Sply
REAR SHOCK ABSORBERS

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

3625-002 Tire Intermittent Service Ratings Acceptable
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.

3602-019 Rear Tire 315/80R 22.5 Michelin XDN2 Grip
REAR TIRE

The rear tires shall be Michelin 315/80R-22.5 20PR "L" tubeless radial XDN2 Grip all weather tread.

The rear tire stamped load capacity shall be 33,080 pounds per axle with a nominal speed rating of 75 miles per hour when properly inflated to 130 pounds per square inch.

The Michelin Intermittent Service Rating maximum load capacity shall be 35,396 pounds per axle with a maximum speed of 75 miles per hour when properly inflated to 130 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.

3413-614 Rear Axle Ratio 6.14
REAR AXLE RATIO

The rear axle ratio shall be 6.14:1.

3614-030 Tire Pressure Ind Frt & Rr LED
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 Frt Wheel Alcoa Dura-Bright 22.5 x 12.25 Alum
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.

3703-050 Rr Whl Alcoa Dura-Bright 22.5 x 9.00 Alum
REAR WHEEL

The rear wheels shall be Alcoa hub piloted, 22.50 inch X 9.00 inch aluminum wheels with a polished outer surface and Alcoa Dura-Bright® wheel treatment as an integral part of the wheel surface. The inner rear wheels shall be Alcoa hub piloted, 22.50 inch X 9.00 inch aluminum wheels with a polished inner and outer surface and Alcoa Dura-Bright® wheel treatment as an integral part of the wheel surface. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

3719-002 Balance Wheels & Tires
BALANCE WHEELS AND TIRES

All of the wheels and tires, including any spare wheels and tire assemblies, shall be dynamically balanced.

3702-002 Wheel Trim Hub & Nut Covers SS Shiploose
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.

3205-015 Brake System ABS/ATC/ESC Tandem Axle Disp Actv
BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include, at a minimum, a three (3) air tank, four (4) reservoir system with a total of 6236 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 tandem 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 six (6) sensor, six (6) modulator Anti-lock Braking System (ABS) shall be installed on the front and tandem 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 tandem rear axle. The ATC system shall apply the ABS when the drive wheels loose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces.

A virtual style switch 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 Frt Brakes Meritor EX225 Disc 17"
FRONT BRAKES

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

3207-005 Rr Brakes S-Cam Drum 16.5" x 7" Cast Iron Shoe
REAR BRAKES

The rear brakes shall be Meritor 16.50 inch X 7.00 inch S-cam drum type. The brakes shall feature a cast iron shoe.

3208-001 Prk Brake Rr Wheels Only
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.

3219-002 Supplemental Brake Frt Service Brakes Prk Brk Actv
SUPPLEMENTAL BRAKE

A supplemental brake engagement shall be supplied that can only be engaged while the rear spring brakes are engaged. In addition to the mechanical rear brake engagement, the front service brakes shall also be engaged via air pressure, providing additional braking capability. Front service brake activation shall be accomplished with activation of the rear mechanical park brake valve.

3204-029 Prk Brake Ctrl LH Tunnel Mnt, Integrated w/Shift Pod, Adjacent To Trans Shifter
PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake.

The parking brake actuation valve shall be mounted to the left side of the engine tunnel integrated into the transmission shift pod console within easy access of the driver.

3214-002 Rr Brake Slack Adjusters Haldex
REAR BRAKE SLACK ADJUSTERS

Haldex rear brake automatic slack adjusters shall be installed on the axle.

3212-002 Rr Brake Dust Shields
REAR BRAKE DUST SHIELDS

The rear brakes shall be equipped with brake dust shields.

3202-005 Air Dryer Wabco System Saver 1200 Bhd LH Batt Box

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 Frt Brake Chambers Hendrickson STEERTEK NXT Type 24
FRONT BRAKE CHAMBERS

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

3210-015 Rr Brake Chambers TSE 30/36 Long Stroke
REAR BRAKE CHAMBERS

The rear axle shall include TSE 30/36 brake chambers which 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 shoes against the brake drum. The TSE Type 36 brake chamber has a 36.00 square inch effective area.

3320-001 Air Compressor Wabco SS318 18.7 CFM
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 Mnt on Air Dryer Bracket
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.

3303-024 Moisture Ejectors Manual 1/4 turn w/Auto Wet Tank
MOISTURE EJECTORS

An automatic moisture ejector with a manual drain provision shall be installed on the wet tank of the air supply system. Manual ¼ turn type drain valves shall be installed on all reservoirs of the air supply system.

3307-001 Air Sply Lines Nylon w/Compression Fittings
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 and the auxiliary (outlet) will be blue.

Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

3309-033 Air Inlet Connection
AIR INLET CONNECTION

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

3349-002 Air Inlet Location LH Lwr Frt Step Fwd
AIR INLET LOCATION

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

3326-002 Air Inlet/Outlet Manual Conn Tru-Flate Interchange 1/4"
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 Mnt Any Bhd Rear Axle Perpendicular w/Frame
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.

2103-2500 Wheelbase 250.0"
WHEELBASE

The chassis wheelbase shall be 250.00 inches.

2106-0960 Rear Overhang 96.0"
REAR OVERHANG

The chassis rear overhang shall be 96.00 inches.

2101-004 Frame Triple Channel 35.00" Width
FRAME

The frame shall consist of triple side rails and cross members forming a ladder style frame. The side 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 X 0.38 inches thick, with an inner channel 9.44 inches high X 3.13 inches deep X 0.38 inches thick, and a second inner channel, 8.55 inches high X 2.75 inches deep X 0.25 inches thick which shall be provided extending from the rear of the cab to the forward rear suspension cross member. Each rail shall be constructed of 110,000 psi minimum yield high strength low alloy steel. The triple rail section shall be rated by a Resistance Bending Moment (RBM) minimum of 3,921,500 inch pounds and have a minimum section modulus of 35.65 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.

2111-136 Misc Frame Options Smeal Aerials 105RM, 100RM, 125RM, 100MM Layout 4
MISCELLANEOUS FRAME OPTIONS

The frame shall include drillings which shall be specific to mounting a Smeal 105RM, 100RM, 125RM, or 100MM substructure.

See PDF for OEM Specified pattern.

2117-004 Frame Clear Area Inside/Outside Rail 30" Rwd Back of Cab
FRAME CLEAR AREA

The chassis frame shall be left clear of chassis mounted components inside or outside the frame rails within the first 30.00 inches behind the cab to allow space for OEM installed components. Cross members may be installed in the clear area if required for proper frame or driveline configuration.

2110-101 Frame Paint Powder Coat Black
FRAME PAINT

The frame shall be powder coated black prior to any attachment of 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 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.

Any proposals offering painted frame 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.

8007-036 Frame Assembly Structural Warranty (50) Year RFW0305
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.

8019-002 Frame Rail Corrosion Warranty (3) Year RFW0311

FRAME RAIL CORROSION

Purchaser shall receive a Frame Rail Corrosion (Powder Coat) Three (3) Years or 48,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0311. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

8022-004 Frame Components Corrosion Warranty (3) Year RFW0315
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.

2201-001 Frt Bumper Stainless Steel Flat
FRONT BUMPER

A one piece, two (2) rib wrap-around style, polished stainless steel front bumper shall be provided. The material shall be 10 gauge 304 stainless steel, 12" high and 104.50 inches wide.

2202-003 Frt Bumper Extension Length 16"
FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended approximately 16.00 inches ahead of the cab.

2208-004 Frt Bumper Apron For 16" Extension
FRONT BUMPER APRON

The 16.00 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.

2237-014 Front Bumper Discharge 2.5" RH Frame Mnt Plumbing
FRONT BUMPER DISCHARGE

The chassis shall include frame mounted 2.50 inch diameter plumbed pipe intended for use as a discharge trash line. The discharge pipe shall be routed from the right hand front splay rail area behind the bumper to the area rear of the front axle, ahead of the battery box.

The discharge shall pipe shall be a, 2.50 inch stainless steel schedule 10 tube. The discharge shall include a Victaulic groove for connecting to the pump and discharge hose plumbing on each end of the tube.

The apparatus manufacturer shall plumb the discharge pipe to the pump and shall provide all valves as required.

5503-021 Mechanical Siren Federal Signal Q2B Recess Mnt
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.

2218-017 Mech Siren Location Frt Bmpr Face LH OB
MECHANICAL SIREN LOCATION

The siren shall be recess mounted on the driver side of the front fascia of the bumper, in the outboard position.

5501-020 Air Horn (2) 21" Round Hadley E-Tone
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 (2) Frt Bmpr Face RH
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 (1) 1200 Cu In
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.

5504-060 Elect Siren Speaker 100W Federal Signal Dynamax w/EF Grille
ELECTRONIC SIREN SPEAKER

There shall be one (1) Federal Signal Inc. Dynamax® model ES100C, 100 watt speaker provided. The speaker shall measure 5.90 inches tall X 5.50 inches wide X 2.30 inches deep. The speaker shall include a Federal Signal “Electric F” style grille which shall measure 6.61 inches tall X 6.78 inches wide.

2217-008 Elec Siren Speaker Location Frt Bmpr Face Ctr
ELECTRONIC SIREN SPEAKER LOCATION

The electronic siren speaker shall be located on the front bumper face in the center position between the frame rails.

2204-001 Frt Bumper Tow Eyes 2" Chrome Below
FRONT BUMPER TOW EYES

The bumper shall include two (2) chrome plated tow eyes which shall be installed below the front bumper. The tow eyes shall be fabricated from 0.75 inch thick 1020 ASTM-A36 hot rolled steel. The inside diameter of the eye shall be 2.00 inches and include inside/outside chamfered edges.

2301-001 Cab Tilt System
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 above the battery box.

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.

2304-002 Cab Tilt Alarm
CAB TILT ALARM

A Preco Matic model 1059 audible alarm shall be installed and shall automatically activate the pulsed warble sounding alarm when the cab tilt is actuated acting as a notification and warning.

2305-002 Cab Tilt Ctrl Receptacle RH Bumper Tail
CAB TILT CONTROL RECEPTACLE

A six (6) pin Deutsch receptacle that includes a cap shall be installed in the front bumper tail on the right hand side to provide a place to plug in the cab tilt remote control pendant.

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
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 and the parking brake is released.

1401-009 Cab Windshield
CAB WINDSHIELD

The cab windshield shall have a surface area of 2969.88 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 Frt Dr Pwr
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 anodized ring on the exterior.

1407-001 Glass Tint Frt Dr Automotive Green
GLASS TINT FRONT DOOR

The windows located in the left and right front doors shall have a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

1419-008 Glass Rr Dr RH Pwr
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 Rr Door RH Automotive Dark Gray
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 Rr Dr LH Pwr
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 Rr Door LH Automotive Dark Gray
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.

1640-007 Cabin Air Filtration System Active Air Pur Upr Rear Wall Horiz Ign/Shore Pwr

CABIN AIR FILTRATION SYSTEM

An Active Air Purification system will be installed in the cab. The system utilizes RGF's Photohydroionization® Cell (PHI-Cell®) technology which produces hydro-peroxides and hydroxide ions, reducing airborne mold, bacteria, viruses, and odors up to 99%.

The system shall include a stainless-steel housing approximately 7.50 inches high X 16.13 inches wide X 6.6 inches deep in a trapezoid shape and shall be located at the upper portion of the rear wall mounted in a horizontal orientation. The system shall be 12V DC and shall be active either when the ignition power is on, or when the shoreline is connected.

1614-202 Climate Ctrl Htr Defroster A/C SGM Ovrhd Alum

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.

The air delivery plenums provide targeted airflow directly to the vehicle occupants. Six (6) adjustable louvers will provide comfort for the front seat occupants and ten (10) adjustable louvers will provide comfort for the rear crew occupants.

The system shall be capable of producing up to 12 FPM of air velocity at all occupant seating positions. 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 Gravity
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.

1617-108 Climate Ctrl Actv Disp
CLIMATE CONTROL ACTIVATION

The heating, defrosting and air conditioning controls shall be located on the Vista display and control screen.

1620-019 HVAC Overhead Cover Paint Multi-tone Onyx Black
HVAC OVERHEAD COVER PAINT

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

1610-002 Heater Hose Insulation
HEATER HOSE INSULATION

The heater hoses leading from the engine to the cab shall include a foam insulation wrap which runs the length of the hose improving heating in extreme cold climates. The heater hoses which shall be routed inside the cab shall not be insulated.

1603-002 A/C Condenser Location Roof Mnt Mid LH
A/C CONDENSER LOCATION

A roof mounted A/C condenser shall be installed on the left side of the cab, mid-roof.

1601-013 A/C Compressor TM-31/QP-31
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.

1608-017 Cab Circulation Fans Frt (2) Outboard Cab Ceiling Toggle Sw/On w/Defrost
CAB CIRCULATION FANS FRONT

The cab shall include two (2) all metal 6.00 inch air circulation fans installed in the outer front cab corners. Each fan shall be controlled by a toggle switch on each fan. The fans shall automatically activate whenever the HVAC is in defrost mode. The fans can be used to help defog the windshield or to increase air circulation for passenger comfort.

1530-101 Under Cab Insulation Engine Tunnel & Floor
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 cab floor 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.

1302-001 Interior Trim Vinyl
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.

1368-002 Rear Wall Interior Trim Vinyl
REAR WALL INTERIOR TRIM

The rear wall of the cab shall be trimmed with vinyl.

1306-006 Header Trim XDuty
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 XDuty w/Gas Cylinder Stay
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 XDuty
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.

1307-002 Eng Tnl Trim Flr Mat
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.

5040-085 Pwr Pnt Dash Mnt Batt Dir (2) Sw Pnl/(2) Dual USB Blue Sea 2.1A Sw Pnl
POWER POINT DASH MOUNT

The cab shall include two (2) 12 volt cigarette lighter type receptacles in the switch panel to provide a power source for 12 volt electrical equipment. The cab shall also include two (2) Blue Sea dual universal serial bus (USB) charging receptacles in the cab dash to provide a power source for USB chargeable electrical equipment. The USB ports shall be capable of a 5 Volt-2.1 amp total output. The receptacles shall be wired battery direct.

1303-039 Step Trim Embossed & Diamond Cut Lwr TPlt Mid
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 step shall feature a splash guard to reduce water and debris from splashing in to the step. The splash guard shall have drainage holes beneath the back of the step to allow debris and water 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.

1336-002 Step Trim Kickplate Treadplate
STEP TRIM KICKPLATE

The cab steps shall include a kick plate in the rise of each step. The risers shall be trimmed in 3003-H22 bright aluminum tread-plate which is 0.07 inch thick.

1379-004 Under Cab Access Door Rear Step LH Tread Plate
UNDER CAB ACCESS DOOR

The cab shall include an access door in the left crew step riser constructed of aluminum tread plate 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 Painted
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.

1105-001 Cab Dr Trim Reflective Vert Stripe/6" Chevron w/Logo
CAB DOOR TRIM REFLECTIVE

The interior of each door shall include high visibility reflective tape. A white reflective tape shall be provided vertically along the rear outer edge of the door. The lowest portion of each door skin shall include a reflective tape chevron with red and white stripes and a Spartan logo. The chevron tape shall measure 6.00 inches in height.

1308-007 Interior Grab Handle 'A' Pillar 11" Molded Yellow
INTERIOR GRAB HANDLE "A" PILLAR

A rubber covered 11.00 inch grab handle shall be provided on the inside of the cab on the hinge post at the driver and officer doors. The handle shall assist personnel in exiting and entering the cab. The handle shall be yellow in color.

1332-017 Interior Grab Handle Frt Door Horiz 9" Yellow
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 yellow powder coat finish to assist personnel entering and exiting the cab.

1345-003 Int Grab Handle Rr Dr Alum Window Span 30" Yellow Powder Coat
INTERIOR GRAB HANDLE REAR DOOR

A yellow 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.

1319-022 Addl Cab Int Grab Hndl Rr Dr Horiz 9" Yellow
ADDITIONAL INTERIOR GRAB HANDLE REAR DOOR

Each interior rear door shall include an additional grab handle. The handle shall be an ergonomically contoured 9.00 inch long cast aluminum grab handle. Each handle shall be mounted horizontally on the upper interior door trim panel. Each handle shall be textured and feature a yellow powder coat finish and shall assist personnel entering and exiting the cab.

1301-001 Interior Soft Trim Color Black
INTERIOR SOFT TRIM COLOR

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

1337-003 Interior Trim Sunvisor Vinyl w/Tinted Extension
INTERIOR TRIM SUN VISOR

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.

In addition to the padded sun visors, two (2) 7.00 inches high X 18.00 inches wide impact resistant, transparent acrylic polycarbonate sun visors with a smoke gray tint shall be provided and installed on the header above the driver and officer.

The see thru visors are designed for maximum flexibility of positioning utilizing an arm with virtually unlimited adjustability with 13.50 inch long lateral travel of the tinted visor at the end of the arm which can be locked in place by a thumbscrew.

The visors are easily adjusted and can be placed into a chosen position with one hand. The sun visors will help protect vehicle occupants from solar glare without obscuring their vision.

1304-002 Interior Floor Mat Color Black
INTERIOR FLOOR MAT COLOR

The cab interior floor mat shall be black in color.

1335-018 Cab Paint Int Dr Trim Multi-tone Onyx Black
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 Multi-tone Onyx Black
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 Multi-tone Onyx Black
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 Multi-tone Onyx Black
TRIM LH DASH INTERIOR PAINT

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

1373-022 Trim RH Dash Interior Paint Multi-tone Onyx Black
TRIM RIGHT HAND DASH INTERIOR PAINT

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

1344-002 Dash Pnl Group 3-Pnl
DASH PANEL GROUP

The main center dash area shall include three (3) 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 center panel shall be within comfortable reach of both the driver and officer.

1312-032 Switches Ctr Pnl 12 Upr w/Dimmer/Headlight Sw
SWITCHES CENTER PANEL

The center dash panel shall include twelve (12) rocker switch positions in a single row across the top of the panel. Starting from the left end of the panel the switches shall be oriented with one (1) dimmer switch, one (1) headlight switch followed by ten (10) rocker switch positions.

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.

1313-015 Switches Left Pnl 0
SWITCHES LEFT PANEL

The left dash panel shall include no rocker switches or legends.

1314-001 Switches Right Pnl 0
SWITCHES RIGHT PANEL

The right dash panel shall include no rocker switches or legends.

1225-007 Seat Belt Warn Disp w/VDR
SEAT BELT WARNING

A Weldon 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 Vista 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.

1237-009 Seat Material Bostrom Durawear Plus Zip Clean
SEAT MATERIAL

The Bostrom Firefighter seats shall include a covering of extra high strength, tear resistant, and waterproof fabric made of durable Durawear Plus™ 1800 denier ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Durawear Plus shall include low seam stitching to eliminate seam wear. Durawear Plus™ meets or exceeds specification of the common trade name Imperial 1800. The material meets FMVSS 302 flammability requirements.

Seats shall be Foam Block™ encapsulated foam with Zip Clean covers. The encapsulated Foam Block™ feature shall resist gas and liquid absorption in the cushion. Seat cushions, head rest and side bolsters shall zip off using a heavy duty skirted zipper to allow for quick removal and easy cleaning. All Zip off covers are designed for machine washing and air drying.

One (1) extra seat cushion and applicable back cover(s) shall be provided per seating position.

If applicable, Theatre style seats located in the cab shall be high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear.

1243-001 Seat Color Gray/Red Seat Belts
SEAT COLOR

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

1249-001 Seat Back Logo Spartan
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.

1201-033 Seat Driver Bostrom Firefighter 8-Way Elect 500 Series ABTS
SEAT DRIVER

The driver's seat shall be an H.O. Bostrom 500 Series Firefighter Sierra model seat. The seat shall feature eight-way electric positioning. The eight positions shall include up and down, fore and aft with 8.00 inches of travel, back angle adjustment and seat rake adjustment. The seat shall 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, automatic retractor and buckle as an integral part of the seat assembly. 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 measured with the seat height adjusted to the lowest position of travel.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207, 209, and 210 in effect at the time of manufacture. 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.

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.

1213-025 Seat Back Driver Non-SCBA ABTS
SEAT BACK DRIVER

The driver’s seat shall include a standard seat back incorporating the all belts to seat feature (ABTS). The seat back shall feature a contoured head rest.

1219-001 Seat Mounting Driver
SEAT MOUNTING DRIVER

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

8102-200 Occupant Protection Driver 4Front & Mechanical/Elect Seat RollTek w/SRA
OCCUPANT PROTECTION DRIVER

The driver's position shall be equipped with the IMMI 4Front and RollTek™ Systems which shall secure belted occupants and increase the survivable space within the cab. The 4Front and RollTek™ Systems shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, and rollover events.

The Driver's seating area protection shall include:

- Drivers airbag **DAB** - inflates a steering wheel airbag to protect the head and neck of the driver.
- Driver's knee airbag **DKAB** - inflating knee bolster airbags to protect the knees.
- Integrated roll sensor **IRS** - detects an imminent rollover, activates protective devices and records crash events.
- Integrated belt pretension **IBP -** device for mechanical and/or electrical seats tightens the seat belt, securing driver in seat and positions driver for contact with seat integrated head cushion side roll airbag.

Inflatable head cushion seat integrated side roll airbag **SRA** - protects driver's head/neck and shields driver from dangerous surfaces.

1231-004 Additional Seat Cover Driver Removable Seat Cushion & Back
ADDITIONAL SEAT COVER DRIVER

One (1) set of additional seat cushion and seat back covers shall be provided for the driver's position. The seat back cover shall either be a single piece for non-SCBA backs or a set of covers for bolsters and head cushions around the SCBA backs, dependent on seat back style.

1202-037 Seat Officer Bostrom Firefighter Fixed 500 Series ABTS
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.

1214-030 Seat Back Officer SCBA Bostrom SecureAll w/Quick-Adjust
SEAT BACK OFFICER

The officer's seat shall feature a SecureAll™ SCBA locking system which shall be one bracket model and store most U.S. and International SCBA brands and sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters. All adjustment points shall utilize similar hardware and adjustments shall be made with one tool.

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

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

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

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

1220-002 Seat Mounting Officer
SEAT MOUNTING OFFICER

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

8103-200 Occupant Protection Officer 4Front & Mechanical/Elect Seat RollTek w/SRA
OCCUPANT PROTECTION OFFICER

The officer's position shall be equipped with the IMMI 4Front and RollTek™ Systems which shall secure belted occupants and increase the survivable space within the cab. The 4Front and RollTek™ Systems shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, and rollover events.

The Officer's seating area protection shall include:

- Officer's knee airbag **OKAB** - inflating knee bolster airbags to protect the knees.

- Integrated roll sensor **IRS** - detects an imminent rollover, activates protective devices and records crash events.

- Integrated belt pretension **IBP -** device for mechanical and/or electrical seats tightens the seat belt, securing officer in seat and positioning officer for contact with seat integrated head cushion side roll airbag.

- Inflatable head cushion seat integrated side roll airbag **SRA** - protects officer's head/neck and shields officer from dangerous surfaces.

1232-004 Additional Seat Cover Officer Removable Seat Cushion & Back
ADDITIONAL SEAT COVER OFFICER

One (1) set of additional seat cushion and seat back covers shall be provided for the officer's position. The seat back cover shall either be a single piece for non-SCBA backs or a set of covers for bolsters and head cushions around the SCBA backs, dependent on seat back style.

1297-002 Power Seats Wiring Battery Direct
POWER SEAT WIRING

The power seat or seats installed in the cab shall be wired directly to battery power.

1273-001 Seat Belt Orientation Crew Outboard Shoulder To Inboard Hip
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.

1265-001 Seat FFO Location Primary Pos (2) R/L
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.

1205-029 Seat Crew FFO Bostrom Firefighter Fixed 500 Series
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 back and cushion.

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.

1217-028 Seat Back FFO SCBA Bostrom SecureAll w/Quick-Adjust
SEAT BACK FORWARD FACING OUTER

The forward facing outboard seat shall feature a SecureAll™ self contained breathing apparatus (SCBA) locking system which shall be one bracket model and store most U.S. and International SCBA brands and sizes while in transit

or for storage within the seat back. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters. All adjustment points shall utilize similar hardware and adjustments shall be made with one tool.

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

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

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

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

1223-003 Seat Mounting FFO Inboard
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.

8106-102 Occupant Protection FFO RollTek Belt Pretensioner
OCCUPANT PROTECTION FFO

The forward facing outer seat positions shall be equipped with the RollTek™ rollover occupant protection system which shall secure occupants, increase the survivable space within the cab and protect against head/neck injuries in the event of a roll over accident.

The system shall function using a microprocessor-controlled, solid-state sensing device which, when the system detects a side roll shall provide instantaneous occupant protection (less than 0.3 seconds from trigger to total deployment) by automatically initiating the following sequence:

1. The seat belt shall tighten around the occupant.

System Components Shall Include:

Integrated Roll Sensor **IRS** - detects an imminent rollover, activates protective devices and records crash events.
Integrated Belt Pretension **IBP** with flip-up (non theatre) and fixed mechanical seats - tightens the seat belt around occupant, securing occupant in seat.

Integrated Gas Pretension **IGP** with flip-up theatre style seats - tightens the seat belt around occupant, securing occupant in seat.

1235-004 Additional Seat Cover FFO Removable Seat Cushion & Back
ADDITIONAL SEAT COVER FFO

One (1) set of additional seat cushion and seat back covers shall be provided for each forward-facing outer position. The seat back cover shall either be a single piece for non-SCBA backs or a set of covers for bolsters and head cushions around the SCBA backs, dependent on seat back style in each position.

1269-102 Seat Frm Fwd Fcg Triple
SEAT FRAME FORWARD FACING

The forward facing center seating positions shall include an enclosed style seat frame located and installed at the rear wall. The seat frame shall measure 62.38 inches wide X 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.

1281-101 Seat Frm Fwd Fcg Strg Acc Dr (2) R/L Sd
SEAT FRAME FORWARD FACING STORAGE ACCESS

There shall be two (2) access points to the seat frame storage area, one (1) on each side of the seat frame. Each access point shall be covered by a hinged door which measures 15.00 inches in width X 10.63 inches in height with an opening that measures 13.75 inches wide X 10.00 inches high.

1311-110 Cab Frt Undrst Strg Acc Panel
CAB FRONT UNDERSEAT STORAGE ACCESS

The left and right under seat storage areas shall have a removable aluminum cover.

1355-023 Seat Compartment Door Finish Multi-tone Onyx Black
SEAT COMPARTMENT DOOR FINISH

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

1511-201 Windshield Wiper System, Prk Brk Interlock
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. The windshield wipers shall be interlocked with the park brake allowing activation only when the park brake is released.

1534-002 Electronic Windshield Fluid Level Indicator
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.

1103-004 Cab Door Hardware Chrome w/Scuff Plate
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 aluminum with a chrome plated 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.

The exterior pull handles shall include a scuff plate behind the handle constructed of polished stainless steel to help protect the cab finish.

1111-004 Door Locks Power (4) Entry Doors
DOOR LOCKS

The cab entry doors shall include a Controller Area Network (CAN) based electronic door lock system which shall include two (2) external keypads, one (1) located on the left side next to the front grab handle and one (1) on the right side next to the front grab handle. There shall be one (1) red rocker switch provided on the inside of each front cab entry door to actuate the cab door locks. Each door lock may also be manually actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door. The electronic door lock system shall include four (4) key fobs for actuation with buttons for cab entry door locks and for compartment door locks.

When the doors are unlocked using the external keypad or the key fobs the interior dome lights shall illuminate and remain on for a period of twenty (20) seconds. The interior dome safety feature shall require the interior lighting power to be battery direct.

Wiring shall also be provided for up to four (4) exterior cab compartments and up to four (4) body compartments.

1112-004 Power Door Lock Cmpt Actv Key Fob & Keypads
POWER DOOR LOCK COMPARTMENT ACTIVATION

The power door lock feature shall include activation for exterior compartment door locks through the key fob and keypads.

1503QXX Grab Handles SS 18" Yellow Powder Coat
GRAB HANDLES

The cab shall include one (1) yellow powder coated 18.00 inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The grab handle shall be made of SAE 304 stainless steel and be 1.25 inch diameter to enable non-slip assistance with a gloved hand.

1504-015 Mirror Aerodynamic Retrac 613285 Rmt Htd Ltd
REARVIEW MIRRORS

Retrac Aerodynamic West Coast style single vision mirror heads model 613285 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 8.00 inch convex mirrors with a stainless steel back, model 980-4, installed below the flat glass to provide a wider field of vision. The flat mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver. The convex mirrors shall be manually adjustable. The flat mirror glass shall be heated for defrosting in severe cold weather conditions.

The mirror backs shall be constructed of vacuum formed chrome plated ABS plastic housings that are corrosion resistant and shall include an amber marker light. The mirrors shall be manufactured with the finest quality non-glare glass.

1529-005 Rearview Mirror Heat Sw Disp/On w/Window Defrost
REARVIEW MIRROR HEAT SWITCH

The heat for the rearview mirrors shall be controlled through a virtual button on the Vista display and control screen and shall automatically turn on when the defroster is activated.

1531-019 Aux Ext Mir (2) Fwd R/L Rr Dr 6" From Top Of Door
AUXILIARY EXTERIOR MIRRORS

The cab exterior shall include two (2) Retrac rectangular convex look out mirrors. Each mirror shall measure 5.50 inches X 7.50 inches and shall be located ahead of the rear crew doors, one (1) each side providing crew members better visibility to the rear of the vehicle prior to exiting the vehicle. The mirrors shall be mounted so the top of each mirror is located approximately 3.50 inches below the top upper most rear crew door window.

1505-009 Trim Frt SS Wrap
TRIM FRONT

A polished stainless steel band shall be installed on the front of the cab and wrap around the cab radius, encompassing the headlamp and warning lamp bezels. The band shall extend from front door hinge to front door hinge with trim molding on the top and bottom edges.

1525-002 Exterior Trim Rear Corner Scuff Plate
EXTERIOR TRIM REAR CORNER

There shall be mirror finish stainless steel scuff plates on the outside corners at the back of the cab. The stainless steel plate shall be affixed to the cab using two sided adhesive tape.

1514-003 Mud Flaps Frt Wide
MUD FLAPS FRONT

The front wheel wells shall have mud flaps installed on them. The mud flaps shall extend from the outer edge of the wheel well to the inner edge of the wheel well to provide additional protection from road spray.

1526-026 Cab Ext Frt & Side Emblems Spartan
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.

5109-015 Ign Mstr Rkr Sw w/Push-Button Start
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.

5101-020 Batt (3) Group 31 Harris

BATTERY

The single start electrical system shall include three (3) Harris BCI 31 925 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541.

5106-001 Batt Tray LH Steel
BATTERY TRAY

The batteries shall be installed on a steel battery tray located on the left side of the chassis, securely bolted to the frame rails. The battery tray shall be coated with the same material as the frame.

The battery tray 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 tray to allow for air flow and help prevent moisture build up. The batteries shall be held in place by non-conducting phenolic resin hold down boards.

5107-002 Batt Box Cover LH Steel w/Black Handle
BATTERY BOX COVER

The battery box shall include a steel cover which protects the top of the batteries on the left hand side of the vehicle. The cover shall include flush latches which shall keep the cover secure as well as a black powder coated handle for convenience when opening.

5102-001 Batt Cables
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.

5108-005 Batt Jumper Stud Frt LH Lwr Step w/Label
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. 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. A label stating “12V Jumper Studs” will be provided above the battery jump studs.

5104-019 Alternator Delco Remy 55SI 430A
ALTERNATOR

The charging system shall include a 430 amp Delco Remy 55SI 12 volt alternator. The alternator shall include a self-exciting integral regulator.

5105-001 Starter Motor Delco
STARTER MOTOR

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

5202-161 Batt Cond Kussmaul Auto Charge 80 LPC w/Remote Batt Select LH RFO Seat Pos w/Cvr
BATTERY CONDITIONER

A Kussmaul Auto Charge 80 LPC battery conditioner shall be supplied. The battery conditioner shall provide an 80 amp output for the chassis batteries and a 15 amp output circuit for accessory loads. The charger allows for remote battery type select to select between lead-acid and lithium-ion. The battery conditioner shall be mounted in the cab in the LH rear facing outer seating position. The battery conditioner shall include an open-ended aluminum treadplate cover.

3314-017 Aux Air Cmp Kussmaul 12V Bhd Drv Seat w/Auto Drain
AUXILIARY AIR COMPRESSOR

A Kussmaul Pump 12V air compressor shall be supplied. The air compressor shall be installed behind the driver's seat. The air compressor shall be plumbed to the air brake system to maintain air pressure. The air compressor shall include an auto drain as an extra precaution to prevent moisture from entering the air system. The automatic moisture drain shall be plumbed into the system between the auxiliary air compressor pump and the air tanks.

5209-002 Elec Inlet Location LH Cab Side Mid
ELECTRICAL INLET LOCATION

An electrical inlet shall be installed on the left hand side of cab over the wheel well.

5204-055 Elec Inlet 120V 20A Auto Eject
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 40/20 Charger - 8.5 Amps
Kussmaul 80 LPC Charger - 13 Amps
Kussmaul EV-40 - 6.2 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

5210-004 Elec Inlet Conn to Batt Conditioner
ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery conditioner.

5206-002 Elec Inlet Color Yellow
ELECTRICAL INLET COLOR

The electrical inlet connection shall include a yellow cover.

5301-102 Headlights 4 Headlamps LED
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 Headlights Below Frt Warn Lts
HEADLIGHT LOCATION

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

5303-004 Frt Turn Signals Whelen 600 LED
FRONT TURN SIGNALS

The front fascia shall include two (2) Whelen model 600 4.00 inches X 6.00 inches programmable amber LED turn signals which shall be installed in an outboard position within the front fascia chrome bezel.

5336-003 Side Turn/Marker Lts LED Weldon 9186-8589-24
SIDE TURN/MARKER LIGHTS

The sides of the cab shall include two (2) Weldon 9186-8589-24 LED round side marker lights which shall be provided just behind the front cab radius corners.

5302-003 Marker & ICC Lts Face Mnt LED Weldon 9186-1500-20
MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) Weldon 9186-1500-20 LED cab marker lamps designating identification, center and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level.

5350-095 Hdlt & Mrkr Lt Actv Rkr Sw/Hdlts Prk Brk Ctrl/DRL Ign Sw
HEADLIGHT AND MARKER LIGHT ACTIVATION

The headlights and marker lights shall be controlled through a rocker switch within easy reach of the driver. The headlights and daytime running lights shall turn off when the park brake is engaged. There shall be a dimmer switch within easy reach of the driver to adjust the brightness of the dash lights. The headlamps shall be equipped with the "Daytime Running" light feature, which shall illuminate the headlights when the ignition switch is in the "On" position and the parking brake is released.

5305-353 Interior Overhead Lts Whelen 6" Red/Clear LED
INTERIOR OVERHEAD LIGHTS

The cab shall include a Whelen 60CREGCS LED dome lamp located over each door. The dome lamps shall be circular in shape and shall measure approximately 6.00 inches in diameter. The lights shall include push buttons on each lamp to activate both the clear and red portions of the light individually.

5388-003 Int Ovrhd Lt Actv Resp Dr & MUX
INTERIOR OVERHEAD LIGHTS ACTIVATION

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

5327-015 Auxiliary Dome Lt Frt Whelen 6" Red/Clear LED
AUXILIARY DOME LIGHT FRONT CENTER

The cab shall include a Whelen 60CREGCS LED dome lamp as an auxiliary dome light. The dome lamp shall be circular in shape and shall measure approximately 6.00 inches in diameter. The auxiliary dome light shall be located over the engine tunnel. The light shall include push buttons to activate both the clear and red portions of the light individually.

5403-051 Lightbar Prov Wire & Mnt (2) Chassis Supply
LIGHTBAR PROVISION

There shall be two (2) light bars installed on the cab roof. The light bars shall be provided and installed by the chassis manufacturer. The light bar installation shall include mounting and wiring to a control switch on the cab dash.

5450N-006 Cab Front Lightbar Model Whelen F4NMINI (2)
CAB FRONT LIGHTBAR MODEL

The cab shall be provided with two (2) Whelen model F4NMINI light bars. Each light bar shall be 21.50 inches in length and feature eight (8) customizable pods.

See the light bar layout for specific details.

5426-008 Lightbar Sw Disp w/Clear Lt Cutoff
LIGHTBAR SWITCH

The light bar shall be controlled through a virtual button on the Vista display and control screen. There shall be an additional button located on the Vista display and control screen to control the clear lights.

5317-210 Frt Scene Lts FireTech FT-MB-12-FT-B 12V LED (2) Black
FRONT SCENE LIGHTS

The front of the cab shall include two (2) HiViz model Firetech FT-MB-12-FT-B scene lights installed on the brow of the cab.

Each lamp head shall operate on 12 volt DC and incorporate a 12 LED optic that combines both spot and flood lighting. Each lamp head shall draw 5.0 amps, generate 6,336 total lumens, and measure approximately 2.00 inches in height X 16.00 inches in width. The lamp heads and brackets shall be powder coated black.

5329-006 Frt Scene Lt Loc (2) Outboard Brow Pos
FRONT SCENE LIGHT LOCATION

There shall be two (2) scene lights mounted to the front brow of the cab in the outboard position.

5335-044 5335-044 Frt Scene Lts Actv Disp & Smart Wheel
FRONT SCENE LIGHTS ACTIVATION

The front scene lighting shall be activated by a virtual button on the Vista display and control screen and Smart wheel button.

Same as Langley City 223053-01 SPARTAN ER RM PUMPER (4S9ADEUB4RB559527)

5306-150 Side Scene Lts Whelen M9 Series Combo Warn 12V LED Chrm Bezel

SIDE SCENE LIGHTS

The side of the cab shall include two (2) Whelen M9 Series LED combination scene and warning lights, one (1) each side which shall be surface mounted within a chrome bezel. Each light head shall measure approximately 6.50 inches high X 10.38 inches wide X 2.70 inches deep. The scene light portion of each lighthead shall consist of six (6) white Super-LEDs. The scene light lens shall include a metalized angled reflector.

5318-002 Side Scene Lt Loc Upper Front
SIDE SCENE LIGHT LOCATION

The scene lights located on the left and right sides of the cab shall be mounted in the upper front raised roof portion of the cab above the front doors.

5316-007 Side Scene Actv Indv Disp Actv
SIDE SCENE ACTIVATION

The scene lights shall be activated by two (2) virtual buttons on the Vista display and control screen(s), one (1) for each light.

5308-301 Ground Lts Amdor H20-HO LED
GROUND LIGHTS

Each door shall include Amdor H2O High Output LED ground lighting mounted to the underside of the cab step below each door. The lights shall be 12.00 inches in length.

5386-006 Ground Lt Actv Prk Brk, Resp Sd Dr, Disp, Rev & Turn Sig
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 Vista display and control screen, when the truck is placed into reverse, and by the respective side turn signal.

5319-041 Under Bmpr Lts 40"/(2) 12" Clr LED Amdor Luma Bar H20-HO Prk Brk/Rev/Dispa
UNDER BUMPER LIGHTS

There shall be one (1) 40.00 inches long clear LED Amdor Luma Bar H2O™ High Output ground light mounted under the forward face of the bumper between the frame rails. There shall also be two (2) 12.00 inches long LED Amdor Luma Bar H2O™ High Output ground lights mounted under the forward face of the bumper outside of the frame rails. The under bumper ground lighting shall be interlocked with the park brake as well as activated when the truck is placed in reverse, and a button on the vista screen.

5309-028 Lwr Cab Step Lts Amdor H20-HO LED
LOWER CAB STEP LIGHTS

The middle step located at each door shall include an Amdor brand Luma Bar™ H2O High Output 12.00 inch long LED strip light which shall activate with the opening of the respective door.

5382-002 Intermediate Step Lts Whelen OS LED
INTERMEDIATE STEP LIGHTS

The intermediate step well area at each door shall include a Whelen OS Series Super LED light within a chrome housing. The 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 Cmpt Work Lt LED (1)
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 include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The light shall activate automatically when the cab is tilted.

5406-078 Do Not Move App Lt Flashing Red Whelen Vertex LED MUX Blk Bzl w/Alarm Abv Drv
DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a Whelen Vertex red flashing light in a black surface mount flange, located above the driver. The light shall be .875 inches high X 1.50 inches in wide and shall be clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be programmed into the MUX system which shall sound when a door is open and the parking brake is released.

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

5422QXX 5422-013 Mstr Warn Sw MUX w/Eng On
MASTER WARNING SWITCH

5422-013 Mstr Warn Sw MUX w/Eng On

A master switch shall be included, as a virtual button on the Vista 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. The master warn switch shall be active when the engine is running.

5409-002 Headlight Flasher Alternating
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 Sw MUX
HEADLIGHT FLASHER SWITCH

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

5401-032 Inboard Frt Warn Lts Whelen M6 LED Chrm Bezel
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

5413-002 Inboard Frt Warn Lts Color Red
INBOARD FRONT WARNING LIGHTS COLOR

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

5423-003 Frt Warn Sw Disp
FRONT WARNING SWITCH

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

5419-003 Int Warn Lts Color Red w/Clr Lens
INTERSECTION WARNING LIGHTS COLOR

The intersection lights shall be red with a clear lens.

5420-006 Intersection Warn Lts Location Behind Cab Radius
INTERSECTION WARNING LIGHTS LOCATION

The intersection lights shall be mounted on the side of the cab rearward from the front cab corner radius ahead of the cab doors.

5418-003 Side Warn Lts Color Red w/Clr Lens
SIDE WARNING LIGHTS COLOR

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

5412-002 Side Warn Lts Location Lwr Mid
SIDE WARNING LIGHTS LOCATION

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

5434-046 Aux Side Warn Lts Whelen M9 Combo Integrated w/Sd Scene Lts
AUXILIARY SIDE WARNING LIGHTS

The cab shall include an auxiliary set of Whelen M9 Series warning lights integrated within the side scene lighting. Each warning light portion of each light head shall consist of twelve (12) Super-LEDs. The warning light portion of each lighthead shall have an optic collimator and metalized reflector. Each light shall feature multiple flash patterns including steady burn.

5435-003 Aux Side Warn Lts Color Red w/Clr Lens
AUXILIARY SIDE WARNING LIGHTS COLOR

The auxiliary warning lights located on the side of the cab shall be red with clear lens.

5436-025 Aux Side Warn Lts Location Integrated w/Scene Lts

AUXILIARY SIDE WARNING LIGHTS LOCATION

The auxiliary warning lights on the side of the cab shall be integrated within the side scene lighting.

5424-003 Side & Intersection Warn Sw Disp
SIDE AND INTERSECTION WARNING SWITCH

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

5469-004 Tank Lvl Lts Whelen PSTANK2 w/Chrm Bzl
TANK LEVEL LIGHTS

There shall be two (2) Whelen Strip-Light Plus XL tank lights surface mounted within a chrome bezel.

The light strips shall feature four (4) colors of LED lights to indicate the fluid level of a tank. The lights shall change in color to indicate the water level of the tank in ¼ tank increments, the colors shall change from green indicating a full tank to blue, amber, and red as the tank level drops.

5470-002 Tank Lvl Lights Actv Prewire Rear of Cab
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.

5471-002 Tank Lvl Lights Loc Rear Cab Sides
TANK LEVEL LIGHTS LOCATION

There shall be water level lights mounted on each side of the cab, behind the rear cab doors.

5449-041 Rr Warn Lts Prewire & Cutout Whelen TACTL5 Traf Advsr Sw Pnl
REAR WARNING LIGHTS

The cab shall be prewired and contain a cutout for a Whelen TACTL5 Traffic Advisor control head to be installed by the body builder. The prewire shall be coiled under the center dash panel.

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.

5410-135 Roto-Rays Warn Lt LED (2) Red & Clr Upr Fascia Ped Mnt
ROTO-RAYS WARNING LIGHT

A Roto-Rays® warning light shall be provided on the cab. The Roto-Rays light shall consist of three (3) round chrome heads, each equipped with an LED light. The LED lights shall be two (2) red and one (1) clear in color. The Roto-Rays light shall be installed on the top center of the cab front fascia using a custom bracket.

When activated, the entire light head assembly shall rotate at 200 RPM.

5427-003 Roto-Ray Warn Lts Sw MUX
ROTO-RAYS WARNING LIGHT SWITCH

The Roto-Rays® front warning light(s) shall be separately controlled through a virtual button on the Vista display and control screen. When the parking brake is engaged the light shall stop rotating.

5407-019 Int Dr Open Warn Lts Amber Weldon 15" LED Dir Flsh
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.

5510-006 Siren Ctrl Head Whelen 295HFSA7
SIREN CONTROL HEAD

A Whelen 295HFSA7 electronic siren control head with remote dual 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, 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.

5527-004 Audible Warning RH Foot Switch Siren
AUDIBLE WARNING RH 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 officer actuation.

5527C-001 Mechanical Siren Foot Switch RH Linemaster 491-S
MECHANICAL SIREN FOOT SWITCH RH

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

5527D-002 Mechanical Siren Foot Switch RH Location Temporary Firewall Inboard Coiled
MECHANICAL SIREN FOOT SWITCH RH LOCATION

The mechanical siren foot switch shall be temporarily tied up with a coiled wire drop at the firewall inboard for installation by the customer on the right hand side accessible to the officer.

5512-042 Air Horn Actv PB Sw Pnl
AIR HORN AUXILIARY ACTIVATION

The air horn activation shall be accomplished by a black momentary push button on the switch panel. An air horn activation circuit shall be provided to the chassis harness pump panel harness connector.

5513QXX 5513-511 Mech Siren Actv (1) Rkr Sw/(2) Brk Sw
MECHANICAL SIREN BRAKE/AUXILIARY ACTIVATION
5513-511 Mech Siren Actv (1) Rkr Sw/(2) Brk Sw

The mechanical siren shall be actuated by one (1) momentary rocker switch in the switch panel on the dash. Two (2) red momentary siren brake rocker switches shall be provided in the switch panel on the dash

5532-002 Mechanical Siren Interlock Park Brake & Master Warn
MECHANICAL SIREN INTERLOCK

The siren activation shall be interlocked with the park brake and shall only be active when master warning switch is on to prevent accidental engagement.

5505-003 Back-Up Alarm Preco-Matic 1059
BACK-UP ALARM

A Preco-Matic model 1059 dual function, dual sound backup alarm shall be installed at the rear of the chassis with an auto-adjusting output level of 87 dB to 112 dB. The alarm shall automatically activate when the transmission is placed in reverse.

5601-049 Instrumentation Standard/Metric Hybrid
INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. Each gauge shall be backlit with LED lamps. Stepper motor movements shall drive all gauges. The instrumentation system shall be multiplexed and shall receive ABS, engine, and transmission information over the J1939 data bus to reduce redundant sensors and wiring.

A twenty eight (28) icon lightbar message center with integral LCD odometer/trip odometer shall be included. The odometer shall display up to 999,999.9 kilometers. The trip odometer shall display 9,999.9 kilometers. The LCD message center screen shall be capable of custom configuration by the users for displaying certain vehicle status and diagnostic functions.

The instrument panel shall contain the following gauges:

One (1) three-movement gauge displaying vehicle speed, fuel level, and Diesel Exhaust Fluid (DEF) level. The primary scale on the speedometer shall read from 0 to 160 KM/H, and the secondary scale on the speedometer shall read from 0 to 100 MPH. The scale on the fuel and DEF level gauges shall read from empty to full as a fraction of full tank capacity. Red indicator lights in the gauge and an audible alarm shall indicate low fuel or low DEF at $1/8^{th}$ tank level.

One (1) three-movement gauge displaying engine RPM, and primary and secondary air system pressures shall be included. The scale on the tachometer shall read from 0 to 3000 RPM. The scale on the air pressure gauges shall read from 0 to 150 pounds per square inch (PSI) with a red line zone indicating critical levels of air pressure. Red indicator lights in the gauge and an audible alarm shall indicate low air pressure.

One (1) four-movement gauge displaying engine oil pressure, coolant temperature, voltmeter, and transmission temperature shall be included. The scale on the engine oil pressure gauge shall read from 0 to 100 pounds PSI with a red line zone indicating critical levels of oil pressure. A red indicator light in the gauge and audible alarm shall indicate low engine oil pressure. The scale on the coolant temperature gauge shall read from 40 to 120 degrees Celsius (C) with a red line zone indicating critical coolant temperatures. A red indicator light in the gauge and audible alarm shall indicate high coolant temperature. The scale on the voltmeter shall read from 9 to 18 volts with a red line zone indicating critical levels of battery voltage. A red indicator light in the gauge and an audible alarm shall indicate high or low system voltage. The low voltage alarm shall indicate when the system voltage has dropped below 11.8 volts for more than 120 seconds in accordance with the requirements of NFPA 1901. The scale on the transmission temperature gauge shall read from 40 to 150 degrees Celsius (C) with a red line zone indicating critical temperatures. A red indicator light in the gauge and an audible alarm shall indicate a high transmission temperature.

The light bar portion of the message center shall include twenty-eight (28) LED backlit indicators. The lightbar shall be split with fourteen (14) indicators on each side of the LCD message screen. The lightbar shall contain the following indicators and produce the following audible alarms when supplied in conjunction with applicable configurations:

RED INDICATORS

Stop Engine - indicates critical engine fault
Air Filter Restricted - indicates excessive engine air intake restriction
Park Brake - indicates parking brake is set
Seat Belt - indicates a seat is occupied and corresponding seat belt remains unfastened
Low Coolant - indicates critically low engine coolant
Cab Tilt Lock - indicates the cab tilt system locks are not engaged.

AMBER INDICATORS

Malfunction Indicator Lamp (MIL) - indicates an engine emission control system fault
Check Engine - indicates engine fault
Check Transmission - indicates transmission fault
Anti-Lock Brake System (ABS) - indicates anti-lock brake system fault
High exhaust system temperature – indicates elevated exhaust temperatures
Water in Fuel - indicates presence of water in fuel filter
Wait to Start - indicates active engine air preheat cycle
Windshield Washer Fluid – indicates washer fluid is low
DPF restriction - indicates a restriction of the diesel particulate filter
Regen Inhibit-indicates regeneration of the DPF has been inhibited by the operator
Range Inhibit - indicates a transmission operation is prevented and requested shift request may not occur.
SRS - indicates a problem in the supplemental restraint system
Check Message - indicates a vehicle status or diagnostic message on the LCD display requiring attention.

GREEN INDICATORS

Left and Right turn signal indicators
ATC - indicates low wheel traction for automatic traction control equipped vehicles, also indicates mud/snow mode is active for ATC system
High Idle - indicates engine high idle is active.
Cruise Control - indicates cruise control is enabled
OK to Pump - indicates the pump is engaged and conditions have been met for pump operations
Pump Engaged - indicates the pump transmission is currently in pump gear
Auxiliary Brake - indicates secondary braking device is active

BLUE INDICATORS

High Beam indicator

AUDIBLE ALARMS

Air Filter Restriction
Cab Tilt Lock
Check Engine
Check Transmission
Open Door/Compartment
High Coolant Temperature
High or Low System Voltage

High Transmission Temperature
Low Air Pressure
Low Coolant Level
Low DEF Level
Low Engine Oil Pressure
Low Fuel
Seatbelt Indicator
Stop Engine
Water in Fuel
Extended Left/Right Turn Signal On
ABS System Fault

5624-001 Backlighting Color Red
BACKLIGHTING COLOR

The instrumentation gauges and the switch panel legends shall be backlit using red LED backlighting.

5603-002 Brake Application Pressure Gauge in Instrument Pnl
BRAKE APPLICATION PRESSURE GAUGE

Within the instrument panel, a brake application pressure gauge shall be installed which shall measure the application air pressure when the brakes are applied.

5701-300 Radio Jensen WB/AM/FM/BT
RADIO

A Jensen brand radio with weather band, AM/FM stereo receiver, rear RCA input pigtail connector, Bluetooth, satellite radio capability, and a covered front auxiliary mini stereo input with iPod ready front and rear USB inputs shall be installed in a customer specified location.

5736-200 Radio Overhead RH
RADIO LOCATION

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

5707-002 AM/FM Antenna LH Fwd Cab Roof
AM/FM ANTENNA

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

5737-300 Radio Speakers (6) Front/Mid/Rear
RADIO SPEAKERS

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

5706-303 Cam in View 360-HD (4) Cam Bird's Eye View System
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, 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.

5727-005 Camera RH Box HD
CAMERA RIGHT HAND

One (1) Audiovox Voyager heavy duty rearview HD box shaped camera shall be mounted on the officer side of the cab above the front door. The camera display shall activate when the right side turn signal is activated.

5728-009 Camera HD Rear Box
CAMERA REAR

One (1) Audiovox Voyager heavy duty box shaped HD camera shall be shipped loose for OEM installation in the body to afford the driver a clear view to the rear of the vehicle.

The camera system shall include a one-way communication device that shall be an integral part of the rear camera for the use of voice commands directly to the driver. The rear camera display shall activate when the vehicle's transmission is placed in reverse.

5703-011 Comm Ant Base LH Fwd Cab Rf Chassis Sply
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 Comm Ant Cable Routing Under Rkr Sw Pnl
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.

5702-023 Two-Way Radio Exterior Conduit to Under RH Seat
TWO-WAY RADIOS

A radio wire conduit with a pull wire included shall be installed and routed from behind the dash to under the officer's seat for radio installation by the customer. The officer's under seat storage area shall include an access hole for the conduit cut into the rear face of the seat box. The hole shall be approximately 1.00 inch from the bottom and 1.00 from the inner wall of the seat box.

8806-001 Fire Extinguisher Shiploose

FIRE EXTINGUISHER

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

8807-002 Road Safety Kit Shiploose
ROAD SAFETY KIT

The cab and chassis shall include one (1) emergency road safety triangle kit.

8810-001 Door Keys for Manual Locks (4)
DOOR KEYS

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

8003-197 Warranty Cab and Chassis (2) Year RFW0102
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.

8030-006 Chassis Operation Manual Digital Copy (2)
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.

8031-022 Eng & Trans Operation Man (2) Eng Hard Copy (2) Trans (2) Eng Owner Digital
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:
(2) Hard copies of the Engine Operation and Maintenance manual digital copy.
(2) Digital copies of the Transmission Operator's manual
(2) Digital copies of the Engine Owner's manual

8032-016 Engine Service Manual Hard Copy Cummins Lg Displacement (2)
ENGINE SERVICE MANUALS

There shall be two (2) printed hard copy sets of Cummins engine service reference manuals which shall be provided with the chassis.

8033-008 Transmission Service Manual Hard Copy Allison 4000 EVS (2)
TRANSMISSION SERVICE MANUALS

There shall be two (2) printed hard copy sets of Allison 4000 transmission service manuals included with the chassis.

8805-007 Cab/Chassis As Built Wiring Diagrams Digital Copy (2)
CAB/CHASSIS AS BUILT WIRING DIAGRAMS

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

8813-004 As Built Air Plumbing Diagram Digital Copy
AS BUILT AIR PLUMBING DIAGRAM

The cab and chassis shall include one (1) digital copy of the as built air plumbing system and option air plumbing diagrams.

8815-004 As Built Fuel Plumbing Diagram Digital Copy
AS BUILT FUEL PLUMBING DIAGRAM

The cab and chassis shall include one (1) digital copy of the as built fuel system plumbing diagram.

8039-001 Sales Terms
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 Required
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. The OEM engineer shall provide approval to the driveline engineer prior to driveline bills of materials being released.

Quote Summary with Notes

Customer:

Dealership: Smeal Fire Apparatus
610 West 4th St
PO BOX 8

Quote No: 0023771 **Quote Name:** City of Langley Copy of S5500 Safetek QDX Platform Q2 23
S.O.#: **Unit Type:**

Option ID	Description
General Info	**General Info Section**
950010	**Spartan 100' Rear Mount Platform**
	Shop Note: *All badging and Logo's shall be Spartan branded*
100972	Spartan Branded Badging and Logo's
	Shop Note: *Ship loose*
911086	Destination, International
901181	Safety Warning Labels Verbiage, English
900998	Intent of Specifications, Aerial, Pump
901160	Engine Availability
911063	Standards Version, CANULC-S515-13-EN-EL / NFPA
980017	Performance Bond and Payment Bond, Required, 100%
911064	Inspection Certificate, NFPA Compliance
911070	Documentation, NFPA
980016	Owner's Manuals, Electronic, (1) USB Drive
901037	Aerial Operations/Parts/Maintenance Manuals, (1) Printed Copy, (1) USB Drive
121745	Aerial Demonstration, Aerial Platform, (3) Consecutive Days
911081	Misc. Equipment Allowance, 2,500 Lb.
901080	Tilt Table Test, Not Required, Chassis ESC
980013	Pump Certification, ULC
911068	Pump Certification Measure, Imperial GPM
911304	Apparatus Production Photos
UPOxxxxxxx	Pre-Construction Meeting, Webinar, Dealer, Department Location
911074	Final Inspection, OEM Factory, Required
980011	Final Inspection Option, Water Tank Filled
900499	Overall Height, 151" (12'-7")
900347	Overall Length, 592 (49'-4")
900598	Wheelbase, 250 (20'-10")
900653	Angle of Approach, 8 Degrees
900674	Angle of Departure, 8 Degrees
Chassis	**Chassis Section**

Option ID	Description
910013	**Custom Chassis, Spartan, Gladiator**
910020	Axles, Tandem
001360	OEM Chassis Preparations, Spartan Metro Star/Gladiator
001200	Mud Flaps, Front Chassis Provided, Rear OEM Provided
910021	Cab Electrical, Multiplex
111519	Route Manual Moisture Ejector, Chassis, Outside of Body, Terminate With Turn Valve
001379	Heat Exchanger, Chassis Supplied and Installed
100964	Relocate Cab Tilt Pendant, Standard Location
910156	Front Bumper, Chassis Supplied and Installed
111635	Storage Well, Front Bumper, Full Width, Headlight-to-Headlight, Tread Plate Raised Cover W/Notch
	Shop Note: *The hose well shall be sized to accommodate 100 feet of 1.75 inch double jacket hose and nozzle.*
111567	Front Bumper Storage Well Flooring, Black Dri-Dek, (1) Storage Well
911284	Battery Charger, Chassis Supplied and Installed
000366	Door Open Warning Circuit, Wired to Light in Cab
UPOxxxxxxx	Mounting Plate, On Engine Tunnel, Aluminum, MultiSpec, Onyx, Four (4) Cup Holders Provided
008567	Shelf, Back of Engine Tunnel, Tread Plate
UPOxxxxxxx	Glove Boxes, (3), Chassis Interior, Mounting Locations Determined at Pre-Con, Installed Before Final
100434	Glove Box Finish, Multi-Tone
007616	Receptacle, 120V, 5-20R Straight Blade, Duplex, Wired to Shoreline
910048	Outlet Location, EMS Compartment, Inside
	Shop Note: *Officer side high on back wall inboard*
007616	Receptacle, 120V, 5-20R Straight Blade, Duplex, Wired to Shoreline
910048	Outlet Location, EMS Compartment, Inside
	Shop Note: *driver side high on back wall inboard*
007616	Receptacle, 120V, 5-20R Straight Blade, Duplex, Wired to Shoreline
910044	Outlet Location, Engine Tunnel, Driver's Side
007616	Receptacle, 120V, 5-20R Straight Blade, Duplex, Wired to Shoreline
910045	Outlet Location, Engine Tunnel, Officer's Side
Water/Foam Tanks	**Water/Foam Tanks Section**
121503	Water Tank, UPF, As Much As Possible, U.S. Gallons (Engineering to Determine) - SPECIAL
008185	Water Tank Mounting, UPF, Non 77' Rear Mount Aerials
002230	Water Tank Drain, 1-1/2" Valve, Aerials
	Shop Note: *The water tank drain control will be located under the officer side front of body.*
910160	Water Tank Fill Tower, UPF, Black
002931	Water Tank Level Gauge, FRC Tankvision Pro 300 (WLA300-A00), Pump Operator's Panel, Officer's Side Pump Panel (WLA300-B00)

Option ID	Description
000348	Water Tank Overflow, UPF, 4", Pumpers w/ EHL, Aerials
000251	**Foam Cell, UPF, 20 U.S. Gallon**
910172	Foam Cell Type, Class A
910169	Foam Cell Fill Tower, UPF, Black
003110	Foam Cell Level Gauge, FRC Tankvision Pro 300, WLA360-A00, Class A Foam
Hose Bed	**Hose Bed Section**
003506	Hose Bed, EHL, Black Bedliner Coating Finish (107'/125")
911302	EHL Hose Load, Double-Jacket Hose, 800' of 5" and 200' of 2-1/2"
010161	Hose Bed Divider (1), EHL, 3/16" Alum., Bedliner Coating, Black
Body / Pump Module	**Body / Pump Module**
002650	**Body, 100" Wide, Rear Mount Aerial, Tandem-Axle, Aluminum, 1/8" (100' RMP/125')**
121763	Side Compartment Doors, Roll-Up Doors, ROM, Painted Doors and Trim
120865	Side Compartment Doors, Roll-Up Doors, ROM, Painted Doors and Trim (10)
UPOxxxxxxx	Compartment Door Handles, Roll-up Doors, All Locking, Offset Lock (10), Power Locking
120475	Drip Trays, Roll-up Door, ROM, All Compartments
UPOxxxxxxx	OEM Supplied Black Pull Down Straps, Two (2), for SR1 and SL1 Pan Style Doors
UPOxxxxxxx	Rear Exteneded Height Compartment Door, (1), Painted Lap Door, Grab Handle, Extended Height, Bed Liner Coated Upper
901195	Inner Door Face, (1) Rear Door, Painted Main Body Color
UPOxxxxxxx	Compartment Lighting,, AMDOR, LED (20)
000934	Compartment Finish, Bedliner Coating, Gray
120472	Flooring, Black Dri-Dek Tiles, All Interior Body Compartment Floors / Floor Mounted Trays and Shelves / Adjustable Trays *Shop Note:* *Shop Note: Dri-Dek shall be installed in the front bumper hosewell*
000474	Air Release and Drain Holes, All Compartments
000441	Sill Protectors, Anodized Aluminum, Lap Door
112149	Fuel Fill, OEM Brushed Door, Driver's Side
121956	**Wheel Well Storage Design, Tandem Axle, Smart Storage**
121548	**Driver's (Left) Side Body, Full-Size RMA, Tandem Axle, L1 Full, L2 Upper, L3 Upper, L4 Full, L5 Full**
L1	**L1 Components**
Height	Height - 57"
Width	Width - 36"
Upper Depth	Upper Depth - 14"
Lower Depth	Lower Depth - 23"
Divide Height	Intermediate Divide Height - 27"
120304	Shelves (2), Adjustable, Aluminum, Shallow Depth (2 Struts), Bedliner Coating
002502	Tray (1), Floor-Mounted Roll Out, Austin Hardware, 300#, 100% Extension, Bedliner Coating, With Front Drawer Release

Option ID	Description
120785	Compartment Struts, Vertical, Welded Aluminum
Cmpt. Layout	
L2	**L2 Components**
Height	Height - 27"
Width	Width - 52"
Upper Depth	Upper Depth - 14"
Lower Depth	Lower Depth - 14"
Divide Height	Intermediate Divide Height - 0"
000681	Tool Board (1), Swing-Out Aluminum, Standard Height, Abraded Pegboard
120785	Compartment Struts, Vertical, Welded Aluminum
Cmpt. Layout	
L3	**L3 Components**
Height	Height - 27"
Width	Width - 52"
Upper Depth	Upper Depth - 14"
Lower Depth	Lower Depth - 14"
Divide Height	Intermediate Divide Height - 0"
120339	Trays (2), Adjustable-Height Tilt Down, Innovative Ind. 250# (Model SMT), Bedliner Coating
120785	Compartment Struts, Vertical, Welded Aluminum
Cmpt. Layout	
L4	**L4 Components**
Height	Height - 52"
Width	Width - 25"
Upper Depth	Upper Depth - 14"
Lower Depth	Lower Depth - 24"
Divide Height	Intermediate Divide Height - 27"
120304	Shelves (2), Adjustable, Aluminum, Shallow Depth (2 Struts), Bedliner Coating
002502	Tray (1), Floor-Mounted Roll Out, Austin Hardware, 300#, 100% Extension, Bedliner Coating, With Front Drawer Release
120785	Compartment Struts, Vertical, Welded Aluminum
Cmpt. Layout	
L5	**L5 Components**
Height	Height - 43"
Width	Width - 45"
Upper Depth	Upper Depth - 14"
Lower Depth	Lower Depth - 22"
Divide Height	Intermediate Divide Height - 18"
120304	Shelves (2), Adjustable, Aluminum, Shallow Depth (2 Struts), Bedliner Coating
002502	Tray (1), Floor-Mounted Roll Out, Austin Hardware, 300#, 100% Extension, Bedliner Coating, With Front Drawer Release
120785	Compartment Struts, Vertical, Welded Aluminum
Cmpt. Layout	

Option ID	Description
121932	WL2, Smart Storage, Extinguisher/Water Can Storage, OEM Brushed SS Drop-Down Door
121936	WL3, Smart Storage, Air Bottle Storage, OEM Brushed SS Door, Triple Triangle Design
121588	**Officer's (Right) Side Body, Full-Size RMA, Tandem Axle, R1 Full, R2 Upper, R3 Upper, R4 Full, R5 Full**
R1	**R1 Components**
Height	Height - 57"
Width	Width - 36"
Upper Depth	Upper Depth - 14"
Lower Depth	Lower Depth - 23"
Divide Height	Intermediate Divide Height - 27"
120304	Shelves (2), Adjustable, Aluminum, Shallow Depth (2 Struts), Bedliner Coating
002502	Tray (1), Floor-Mounted Roll Out, Austin Hardware, 300#, 100% Extension, Bedliner Coating, With Front Drawer Release
120785	Compartment Struts, Vertical, Welded Aluminum
Cmpt. Layout	
R2	**R2 Components**
Height	Height - 27"
Width	Width - 52"
Upper Depth	Upper Depth - 14"
Lower Depth	Lower Depth - 14"
Divide Height	Intermediate Divide Height - 0"
000681	Tool Board (1), Swing-Out Aluminum, Standard Height, Abraded Pegboard
120785	Compartment Struts, Vertical, Welded Aluminum
Cmpt. Layout	
R3	**R3 Components**
Height	Height - 27"
Width	Width - 52"
Upper Depth	Upper Depth - 14"
Lower Depth	Lower Depth - 14"
Divide Height	Intermediate Divide Height - 0"
120340	Trays (2), Adjustable-Height Tilt Down, On-Scene, 250# (150# Over 48" Wide) Bedliner Coating
120785	Compartment Struts, Vertical, Welded Aluminum
Cmpt. Layout	
R4	**R4 Components**
Height	Height - 52"
Width	Width - 25"
Upper Depth	Upper Depth - 14"
Lower Depth	Lower Depth - 24"
Divide Height	Intermediate Divide Height - 27"
120304	Shelves (2), Adjustable, Aluminum, Shallow Depth (2 Struts), Bedliner Coating

Option ID	Description
002502	Tray (1), Floor-Mounted Roll Out, Austin Hardware, 300#, 100% Extension, Bedliner Coating, With Front Drawer Release
120785	Compartment Struts, Vertical, Welded Aluminum
Cmpt. Layout	
R5	**R5 Components**
Height	Height - 43"
Width	Width - 21"
Upper Depth	Upper Depth - 14"
Lower Depth	Lower Depth - 22"
Divide Height	Intermediate Divide Height - 15"
120304	Shelves (2), Adjustable, Aluminum, Shallow Depth (2 Struts), Bedliner Coating
120371	Tool Boards (2), Slide Out Aluminum, Full Height, Split Depth, Single-Faced PAC TRAC (Both Sides), Locking Roller Assembly
120785	Compartment Struts, Vertical, Welded Aluminum
000471	Vertical Partition, Bolt-In, Full Height
Cmpt. Layout	
121942	WR1, Smart Storage, Air Bottle Storage, OEM Brushed SS Door, Triple Triangle Design
121948	WR2, Smart Storage, Extinguisher/Water Can Storage, OEM Brushed SS Drop-Down Door
121952	WR3, Smart Storage, Air Bottle Storage, OEM Brushed SS Door, Triple Triangle Design
901045	**Rear Side Body, Rear Mounts, Torque Box Compartment**
008774	Sub Frame Body Mounts, GS-36, Hot-Dip Galvanized Steel, Aerial (100' RMP/125')
005118	Rub Rails, "C" Channel Design (No Rubber Inserts)
000516	Tow Option, Rear, Tow Eye, Two (2), Chrome
121960	Wheel Wells, Rear, Tandem Axle, Black Polymer, Smart Storage
121958	Fenderettes, (4), Tandem Axle, Stainless Steel, Smart Storage
120490	Exhaust Heat Deflector Shield, 5"
002427	License Plate Bracket
006375	Stainless Steel Screws, Aerial
911283	NO Bag of Bolts
900963	Walkways/Overlays/Stepping Surfaces, Tread Plate, NFPA
101207	Turntable Access Ladder, Officer's Side, Grote LED Light, Hansen Handrails, Backlit White, Knurled Aluminum, Rear Mounts
900027	**NO FRONT TREADPLATE OVERLAY**
901163	Handrail Material, Knurled Aluminum, Hansen LED (White) Backlit
000531	Handrail, Pump Module, Above Pump Panel, Horizontal, Officer's Side, Knurled Aluminum
	Shop Note: *Shall be mounted above the right side pump module access door.*
001317	**Ladder Storage, In Torque Box, (2) Enclosed Compartments (100' RMP/125')**

Option ID	Description
121677	Ground Ladder Package, Duo-Safety, (1) 10' Attic (585-A), (1) 14' Fresno (701), (1) 16' Roof (875-A), (1) 24' Two-Section (900-A), (1) 35' Two-Section (1200-A)
UPO0068368	Pike Pole Storage, Rear Body Access, (6) Tubes
UPOxxxxxxx	Pike Pole Package, Duo-Safety, Fiberglass, NY Roof Hooks, (2) 6' Poles (RH-6), (2), (2) 10' Poles (RH-10)
009226	**Pike Pole Storage, In Upper Portion of Torque Box, (2) Trays**
121255	Pike Poles (2), Duo-Safety, 4' Fiberglass, Standard Hook, D-Handle, FP4D
900951	**Wheel Chock Storage, Under Front of Body, Driver's Side**
001204	Wheel Chocks, (1) Pair, Zico SAC-44 and Bracket, OEM Installed
900952	**Wheel Chock Storage, Under Front of Body, Officer's Side**
001204	Wheel Chocks, (1) Pair, Zico SAC-44 and Bracket, OEM Installed
121710	**Pump Module, Rear Mount Aerial, Independent, 1/8" Aluminum, Enclosed Both Side Panels (100' RMP/125')**
000080	Enclosed Pump Panels Doors, (2) ROM Roll-Up Door Construction, Painted Door, Sills, and Tracks
UPOxxxxxxx	Hose Compartment Vertical, Driver's Side Pump Panel, Flange & Interior Black Bed liner, On-Scene Straps
004731	Pump Compartment Internal Lighting, LED, On-Scene Night Axe
009855	Pump Compartment Heater, (1) 40,000 BTU, Switch on Pump Panel
000458	Heat Shield, Auminum
009890	Running Board, Driver's Side, Integral, Tread Plate
010132	Running Board, Officer's Side, Integral, Tread Plate
UPO0068369	Pull Out Platform, (1), Driver's Side Pump Module, Innovative Industries, Enclosed with Treadbrite Containment Enclosure
009985	Tread Plate Dunnage, Above Pump Module, Tread Plate Cover
101690	Pump Panels, Rear Mount Aerial & Platform, Controls on Driver's Side, Stainless Steel Panels, Polish SST Trim Rings, IC (Spartan) Bezels/Labels
000076	Pump Panel Lighting, Enclosed Sides (4) ROM LED Lights
910613	Pump Panel Lighting Activation, Automatic with Roll-Up Door Open
Pump / Foam System	**Pump / Foam System**
100222	**Pump, Hale, Single-Stage, 2250 GPM, Qmax, K-Series**
000037	Mechanical Seals, Hale
002793	Anodes, Hale, Alloy, 2 Discharge, 2 Intake
910637	Pump Rating, 1500 IGPM
910640	Pump Mounting, Independent Pump Module
101764	Pump Shift, Chassis Sup/Instl, Air, Lights Incorporated with Pres. Gov.
009531	Governor, Pump Boss 400, FRC
	Shop Note: *The pressure governor will be ordered in IGPM*
002210	Intake Relief Valve, Pump, Elkhart, Factory Preset
100295	Primer, Hale ESP, PVG (538-0280-52-0), Remote Prime on Officer's Side Main Intake (538-02801-02-0)
000112	Master Drain Valve, Trident

Option ID	Description
003837	Thermal Relief Valve (TRV), Hale, With Lights and Buzzer
910645	Pump Color Primed Black - Intakes Unpainted
910648	Pump Manuals Hale, (2)
111069	Pump and Engine Cooling System, Inn. Cntrls, 3/8" I.D., Hose, Controls on Pump Panel
100724	Foam System, FoamPro, 2002, Single System, Class A Foam, Flush System
004931	Refill System, FoamPro, Power-Fill, Single System
980014	Foam System Testing, Single System
006646	Manifold, Hale, Standard, Side Mounts, Foam
901207	Akron 8800/8600 - Push/Pull Discharges (RC-10 on 3" or Larger) - Manual Intakes (Spartan Style Push/Pull Handles)
911031	Gauge Brand, Inn. Cntrls, 2-1/2" TC Series, Liquid Filled Gauges - PSI 0-400, LED Backlit
111059	Master Pressure Gauge Assembly with Test Ports, Inn. Cntrls, 4" TC Series, Liquid Filled, Nylon Case Gauges, PSI -30-0-400, Both White LED Backlit
911038	Include with Master Pressure Gauge Assembly
901171	Hardware Brand, South Park, BCT Intake Swivels, NST Discharges with BCT Adapters, 1.5" Discharges NPSH, Kochek Storz
100377	Drains, Innovative Controls, Manual Lift Handle
101527	Wash-Down Warm Water Station, Garden Hose Discharge
911305	Plumbing Labels, OEM Standard
Tank/Pump Plumbing Labels	Tank/Pump Plumbing Labels - The tank plumbing valves and controllers shall have the OEM Standard label package unless stated otherwise. The Pump-to-Tank Fill shall be labeled "TANK FILL" and shall have a light blue label color. The Tank-To-Pump shall be labeled "TANK TO PUMP" and shall have a Navy Blue label color.
101704	Pump to Tank Fill, 2", Akron 8800 2" Manual Valve, IC (Spartan Style) Push-Pull Handle
101710	Tank to Pump, 3", Akron 8800 3" Manual Valve, IC (Spartan Style) Push-Pull Handle
Intakes	**Intakes**
100381	**Main Intake, Driver Side, 6", Short Tube, Full-Body Pump, MNST**
111086	Butterfly Valve, Side Main Intake, 6" Electric, Hale MIV-E 2.0, Manual Override Access
001076	Bleeder Valve, Hale
911057	Intake Relief Valve, Main Intake, Hale, Included with MIV
101372	Elbow (30 Deg.) 6" FNH (Long Handle) x 4" Storz (SKE4T6L) - Storz Cap (CC407), Kochek, KBright
002588	**Auxiliary Intake, Driver-Side, 2-1/2", Fully Recessed**
007059	Valve, 2-1/2", Akron, Manual, 8825, Stainless Ball, TS Handle
008047	Plug, BCT, 2-1/2", Trident, 01.S07.6
100385	**Main Intake, Officer Side, 6", Short Tube, Full-Body Pump, MNST**
111086	Butterfly Valve, Side Main Intake, 6" Electric, Hale MIV-E 2.0, Manual Override Access
001076	Bleeder Valve, Hale
911057	Intake Relief Valve, Main Intake, Hale, Included with MIV

Option ID	Description
101465	Elbow (30 Deg.) 6" FNH (Long Handle) x 4" Storz (SKE4T6L) - Storz Cap (CC407), Kochek, Powder Coat
002587	**Auxiliary Intake, Officer-Side, 2-1/2", Fully Recessed**
007059	Valve, 2-1/2", Akron, Manual, 8825, Stainless Ball, TS Handle
003469	Plug, BCT, 2-1/2", South Park, HPC3008MC
Intake Labels	Intake Labels - See label order form (required)
Discharges	**Discharges**
002545	**Discharge, Driver-Side, 2-1/2", NST (250 GPM NFPA Rated)**
101338	Valve, 2-1/2", Akron, Electric, 8625, Stainless Ball, 9333 Navigator Pro Controller (Valve Only)
111050	Pressure Gauge, Inn. Cntrls, 2-1/2" TC Series, Liquid Filled - PSI 0-400
100574	Elbow (30 Deg.) 2-1/2" FNH x 2-1/2" MBCT (SE393010MC) - BCT Cap (HCC2808MC), Chrome, South Park
002545	**Discharge, Driver-Side, 2-1/2", NST (250 GPM NFPA Rated)**
101338	Valve, 2-1/2", Akron, Electric, 8625, Stainless Ball, 9333 Navigator Pro Controller (Valve Only)
111050	Pressure Gauge, Inn. Cntrls, 2-1/2" TC Series, Liquid Filled - PSI 0-400
100574	Elbow (30 Deg.) 2-1/2" FNH x 2-1/2" MBCT (SE393010MC) - BCT Cap (HCC2808MC), Chrome, South Park *Shop Note:* *special thread is BCT*
002538	**Discharge, Officer-Side, 2-1/2", NST (250 GPM NFPA Rated)**
101338	Valve, 2-1/2", Akron, Electric, 8625, Stainless Ball, 9333 Navigator Pro Controller (Valve Only)
121425	Pressure Gauge, Inn. Cntrls, 2-1/2" TC Series, Liquid Filled - PSI 0-400, Red LED Backlit
100554	Elbow (45 Deg.) 2-1/2" FNH x 2-1/2" MBCT (SE394505MC) - BCT Cap (HCC2808MC), Chrome, South Park
002553	**Discharge, Officer-Side, 4", NST (625 GPM NFPA Rated)**
101341	Valve, 3", Akron, Electric, 8630, Stainless Ball, 9333 Navigator Pro Controller (Valve Only)
111050	Pressure Gauge, Inn. Cntrls, 2-1/2" TC Series, Liquid Filled - PSI 0-400
101399	Elbow (30 Deg.) 4" FNH x 4" Storz (SKE44R) - Adapter, 4" Storz x 2-1/2" Male Special Thread (S36S425-SPECIAL), Kochek, Kbright - Cap (HCC2808MC), Chrome, South Park *Shop Note:* *special thread is BCT*
121832	**Discharge, Front Bumper Driver-Side, 2-1/2", Chassis Installed Plumbing, Above Gravelshield, NST (250 GPM NFPA Rated)**
910534	Foam Capable Discharge
101724	Valve, 2-1/2", Akron, Manual, 8825, Stainless Ball, Innovative Controls (Spartan Style) Push Pull Controller
121425	Pressure Gauge, Inn. Cntrls, 2-1/2" TC Series, Liquid Filled - PSI 0-400, Red LED Backlit
910526	Preconnect Discharge
110278	**Crosslays, Above Pump Panel, (3) 1-1/2" and (1) 2-1/2", (2) 9" On-Scene Night Axe Lights**
007013	Pre-connect Hose Bed Housing Coating, Abraded Finish

Option ID	Description
007018	Flooring, Dura-Dek
000205	Crosslay Rollers
009845	Crosslay Dividers (3), Abraded Aluminum
110310	Crosslay Top / End Covers, Vinyl, C-Rail and Velcro Top and Bungee on Bottom, Red
910650	Crosslay End Covers, Incorporated with the Top Cover
900026	**Pre-connect, Swivel, Crosslay/Speedlay, 1-1/2", NPSH**
910654	Crosslay Load, 200' of 1-3/4" Hose, Single Stack
910534	Foam Capable Discharge
101719	Valve, 2", Akron, Manual, 8820, Stainless Ball, Innovative Controls (Spartan Style) Push Pull Controller
121425	Pressure Gauge, Inn. Cntrls, 2-1/2" TC Series, Liquid Filled - PSI 0-400, Red LED Backlit
910526	Preconnect Discharge
900026	**Pre-connect, Swivel, Crosslay/Speedlay, 1-1/2", NPSH**
910654	Crosslay Load, 200' of 1-3/4" Hose, Single Stack
910534	Foam Capable Discharge
101719	Valve, 2", Akron, Manual, 8820, Stainless Ball, Innovative Controls (Spartan Style) Push Pull Controller
121425	Pressure Gauge, Inn. Cntrls, 2-1/2" TC Series, Liquid Filled - PSI 0-400, Red LED Backlit
910526	Preconnect Discharge
900026	**Pre-connect, Swivel, Crosslay/Speedlay, 1-1/2", NPSH**
910654	Crosslay Load, 200' of 1-3/4" Hose, Single Stack
910534	Foam Capable Discharge
101719	Valve, 2", Akron, Manual, 8820, Stainless Ball, Innovative Controls (Spartan Style) Push Pull Controller
121425	Pressure Gauge, Inn. Cntrls, 2-1/2" TC Series, Liquid Filled - PSI 0-400, Red LED Backlit
910526	Preconnect Discharge
910702	**Pre-connect, Swivel, Crosslay/Speedlay, 2-1/2", NST**
910651	Crosslay Load, 150' of 2-1/2" Hose, Single Stack
101724	Valve, 2-1/2", Akron, Manual, 8825, Stainless Ball, Innovative Controls (Spartan Style) Push Pull Controller
111050	Pressure Gauge, Inn. Cntrls, 2-1/2" TC Series, Liquid Filled - PSI 0-400
UPOxxxxxxx	Adapter, 2-1/2" FNH x 2-1/2" MBCT - Pre-connect, Chrome, South Park
007597	**Discharge, Aerial Waterway, 5" (100' RMP)**
101350	Valve, 4", Akron, Electric, 8940, Composite Ball, 9335 Navigator Pro Controller (Valve, Pressure, Flow)
Discharge Labels	Discharge Labels - All discharges shall have the OEM Standard label package unless stated otherwise. Each discharge label shall be a unique color. Specific verbiage and colors on each discharge label tag shall be determined at the pre-construction meeting.
Low Voltage	**Low Voltage**
002956	Electrical System, Aerial, Weldon V-MUX Multiplex, QL-12 Harnesses, Sealed Switches
911058	Electrical System Test, 12 Volt

Option ID	Description
000843	Tail Lights, LED, Whelen, M6 Series, Stop-Tail (Combination) (M62BTT)/Turn (M62T)/Backup (M62BU)/Warning, 4-Light Vertical Casting
UPOxxxxxxx	Switch, Rear Work Light, At Rear/Reverse
005907	Additional Activation, Back-Up Lights Wired to Rear Work Light Switch / In-Cab Switch
008730	Turn Signals, (2) in Rub Rail, LED, Truck-Lite, Model 21
110361	Ground Lights, LED, Amdor Lumabar, 20", Activation by Park Brake and Reverse
007397	Clearance Lights, With Rubber Extension Arms, LED, Grote (65282) and Truck-Lite (35741R ID), Red
UPOxxxxxxx	Camera Systems, (2), Single Back-Up, Chassis Supplied, OEM Installed, FRC InView 360, Chassis Supplied, OEM Installed Three Cameras
000618	Back-Up Alarm, Preco, 1059
000621	Alarm, Door Open Warning Circuit
100047	Intercom System, David Clark 3800, 5 Cab Position, Wired Driver/Officer (H3442), 3 Wired Crew (H3442)
100062	Additional Intercom Position, (1) Pump Panel, David Clark 3800
UPOxxxxxxx	Additional Intercom Position, (1) Rear Body, Driver's Side, Turn Table, Platform Basket, David Clark 3800
100012	Radio Interface Cable, David Clark (C3821), Motorola
Radio Model	Radio Model - Motorola 6500
911317	Upper Zone A, Chassis Supplied and Installed
UPOxxxxxxx	Upper Zone C, Rotating/Warning Beacons (2), Whelen, M9V LED $2,493.00
Upper Zone C Light/Lens Color	Light/Lens Color - The lights shall be read in color. The rear side scene light(s) shall be controlled by a switch located on the V-Mux display in the chassis cab. One (1) rocker switch shall be located on the pump panel for each side of scene lights, for a total of two (2). The switch at the pump panel shall have an indicator that shall illuminate when the switch is in the “ON” position. The activation for the driver's side scene lights on the V-Mux display and the pump panel switch shall be labeled "LEFT SCENE" and the officer's side shall be labeled "RIGHT SCENE."
UPOxxxxxxx	Upper Zone B/D, Warning Lights (4), Whelen, LED, M9V2 Series, (2), Whelen, LED, ION Wide Angle, Black Housing
Upper Zone B/D Light/Lens Color	Light/Lens Color - The lights shall be read in color. The driver's side and officer's side scene light(s) shall be controlled by a switch located on the V-Mux display in the chassis cab. One (1) rocker switch shall be located on the pump panel for each side of scene lights, for a total of two (2). The switch at the pump panel shall have an indicator that shall illuminate when the switch is in the “ON” position. The activation for the driver's side scene lights on the V-Mux display and the pump panel switch shall be labeled "LEFT SCENE" and the officer's side shall be labeled "RIGHT SCENE."
110487	Lower Zone Warning Lights (4 OEM Provided), A (0), B (1), C (2), D (1), Whelen, LED, M6 Series
Lower Zone Light/Lens Color	Light/Lens Color - Red LED's and Clear Lenses
111415	Warning Lights, Additional (2), Upper Zone C, Whelen, LED, 600 Series

Option ID	Description
	Shop Note: *Aux Mid Zone C Lights are Red Upper with Red Lenses and Amber Lower with Amber Lenses - located directly above the M9V lights.*
Additional Light/Lens Color	Light/Lens Color - Amber lens Whelen TAM83 TIR3 Super LED-Amber & Red lights (30.36" 8 light) - center 6 lights to be amber, 1 outboard left/right lights to be red
110541	Opticom, 792H Emitter, Above Windshield
004948	Traffic Advisor, Whelen, 6-Light, TIR6 LED Low-Profile, TAM65, TACTL5 Controller
910739	Traffic Directional Light Location, Rear Body Face, Surface Mounted
	Shop Note: *Light shall be located above the rear EHL door*
000890	Air Horn Activation, Push Button on Pump Panel, Driver's Side
	Shop Note: *air horn to be in scene light switch bank on the pump panel wiht a red switch*
110979	Power and Ground Lead, 12V Drop, Ignition, 30 Amp, 6-Position Distribution Panel
900019	Power Lead Location, In R1 Cmpt
010221	Power and Ground Lead, 12V Drop, Battery Direct, 30 Amp, 6-Position Distribution Panel
900020	Power Lead Location, In R2 Cmpt
010221	Power and Ground Lead, 12V Drop, Battery Direct, 30 Amp, 6-Position Distribution Panel
900021	Power Lead Location, In R3 Cmpt
010221	Power and Ground Lead, 12V Drop, Battery Direct, 30 Amp, 6-Position Distribution Panel
900022	Power Lead Location, In R4 Cmpt
010221	Power and Ground Lead, 12V Drop, Battery Direct, 30 Amp, 6-Position Distribution Panel
900023	Power Lead Location, In R5 Cmpt
010221	Power and Ground Lead, 12V Drop, Battery Direct, 30 Amp, 6-Position Distribution Panel
900014	Power Lead Location, In L1 Cmpt
010221	Power and Ground Lead, 12V Drop, Battery Direct, 30 Amp, 6-Position Distribution Panel
900015	Power Lead Location, In L2 Cmpt
010221	Power and Ground Lead, 12V Drop, Battery Direct, 30 Amp, 6-Position Distribution Panel
900016	Power Lead Location, In L3 Cmpt
010221	Power and Ground Lead, 12V Drop, Battery Direct, 30 Amp, 6-Position Distribution Panel
900017	Power Lead Location, In L4 Cmpt
010221	Power and Ground Lead, 12V Drop, Battery Direct, 30 Amp, 6-Position Distribution Panel
900018	Power Lead Location, In L5 Cmpt
Line Voltage	**Line Voltage**
901201	Cold Climate Auxiliary Power-Idle Reduction Battery System

Option ID	Description
101676	Auxiliary Power-Idle Reduction Battery System-Standard Range IMS3H (C)
901203	Auxiliary Power-Idle Reduction Additional Cab Heat
901204	Auxiliary Power-Idle Reduction Battery Heat
901205	Idle Reduction Location, Pump House Dunnage, Tread Plate Lid
101686	Ventilation Panel with Fan, Idle Reduction, Driver's Side, Bolt-On, Painted Aluminum
007616	Receptacle, 120V, 5-20R Straight Blade, Duplex, Wired to Shoreline
910912	Receptacle Location, In L1 Cmpt
007616	Receptacle, 120V, 5-20R Straight Blade, Duplex, Wired to Shoreline
910914	Receptacle Location, In L3 Cmpt
007616	Receptacle, 120V, 5-20R Straight Blade, Duplex, Wired to Shoreline
910915	Receptacle Location, In L4 Cmpt
007616	Receptacle, 120V, 5-20R Straight Blade, Duplex, Wired to Shoreline
910916	Receptacle Location, In L5 Cmpt
007616	Receptacle, 120V, 5-20R Straight Blade, Duplex, Wired to Shoreline
910917	Receptacle Location, In R1 Cmpt
007616	Receptacle, 120V, 5-20R Straight Blade, Duplex, Wired to Shoreline
910919	Receptacle Location, In R3 Cmpt
007616	Receptacle, 120V, 5-20R Straight Blade, Duplex, Wired to Shoreline
910920	Receptacle Location, In R4 Cmpt
007616	Receptacle, 120V, 5-20R Straight Blade, Duplex, Wired to Shoreline
910921	Receptacle Location, In R5 Cmpt
Aerial	**Aerial**
001486	Construction and Dimensions, Rear Mount Ladder Structure (100' RMP)
911153	Ladder Specifications (100' RMP)
001837	Aerial Information Specification Plate
121501	Aerial Test, ULC Certification
901000	Aerial Test, Structural Safety Factor, Stability Factor and Testing
911156	Rung Covers
001510	Ladder Travel Support/Cradle, Light, Cradle Interlock System (100' RMP/125')
001515	Elevation System (100' RMP/125')
911163	Extension/Retraction System (100' RMP)
911168	Wear Pads/Bearing Surfaces
911171	Rotation System, Bearing/Gear Box/Interlocks (100' RMP/125')
911175	Cab / Body Damage Protection Interlock System
001632	Aerial Power Take-Off
001637	Hydraulic Pump with "Thru-Drive" (100' RMP/125')
001643	Hydraulic System (100' RMP)
111765	Hydraulic Pressure Gauge, Rear Control Station, Inn. Cntrls, 2-1/2", TC Series, psi 0-5000
001647	Hydraulic Pressure Filter, 3 Micron (Platforms)
003770	Reservoir Isolation Kit
001650	Emergency Hydraulic Pump, Extra Duty (125'/Platforms)

Option ID	Description
911194	Swivel
001855	Aerial Angle Indicator, Base Section and Platform, Rear Mount
001807	Aerial Extension Tape
001464	Aerial Tool, Manual Rotation Drive Tool
007725	Torque Box, Painted Black, AkzoNobel #41878 (100' RMP/125')
010212	**Stabilizers, Front and Rear "H" Style, 18' Spread, Additional Penetration Stroke, NO Stabilizer Pins (100' RMP/125')**
911177	Stabilizer Extension System (100' RMP/125')
001594	Stabilizer Angle Level Gauges (2)
001603	Ground Control System, Electric Over Hydraulic Controls, Front and Rear Stabilizers, Lower Center Rear, Horizontal, Brushed Stainless Doors
112147	Smart Self Leveling (SSL), Leveling System and Display, Multiplex Cab
001598	Stabilizer 2" Auxiliary Pads (4) with Racks Below Body
111740	Stabilizer Cover Warning Lights (4), Whelen, M6 Super-LED (M6RC), Red with Clear Lens, Activated with Aerial Master and Emergency Master
008768	Stabilizer Arm Warning Lights (8), Whelen, 5G Series Super-LED (5GR00FRR), Red
003737	Stabilizer Work Lights (4), Truck-LiteLED (81380), Clear
008330	**Turntable, Standard (100' RMP)**
008346	Turntable Handrails, Knurled SS, Standard Turntable, (2) Openings
008344	Turntable Restraints, (2) ManSaver Bars
101661	Turntable Work Lights (5), Whelen LED, PEL2C, Chrome Flange, (1) 4" Whelen LED
001614	Ladder Hour Meter, At Turntable
007399	Turntable Control Console, Painted, AL-11, IC Panel, On-Scene LED Light Under Lid (100' RMP)
111973	System Lock Control, Red Mushroom Switch on Turntable Console
007407	Load Sensing System, Programmed into AL-11
000877	Air Horn Activation, Push Button on Turntable Control Console
008269	Load Chart (100' RMP)
001659	Communication System, 2-Way, Turntable-Tip, Atkinson (100' RMP)
101354	Ladder Alignment Arrows, Turntable
101321	Tracking Lights (2), 12V, On Front of Cradle, Whelen LED Pioneer Micro (MPBW).
111842	Tracking Lights Switch, AL-11
007224	Breathing Air System, Dual Cylinders, 6000 PSI (100' RMP)
111829	Breathing Air Connections, Turntable (1) and Front Wall of Platform (2), Hansen Air Outlets
007408	Breathing Air Level and Warning System, Programmed into AL-11
001615	**Platform Design/Construction/Deck Surface, Rear Mount Platform, Single Monitor**
911184	Platform Deck Work Lights, Optronics Mini LED (LPL-31CB)
911186	Platform Access Gates, Rear Mount Platforms
007573	Platform Control Console, AL-11, IC Panels
911188	Platform Auto Ramping Control

Option ID	Description
911189	Platform Extending Egress Handrails
911285	Platform Fall Protection Equipment, "D" Rings (6)
911191	Platform Heat Shielding
911192	Platform Leveling System
911193	Platform Load Lifting Eyes
006091	Platform Parapet Ground Ladder Attachment, Single Monitor Platforms
001818	Platform Rappelling Arm with Stokes, 500 lb
001627	Platform Equipment Storage Box (1)
007798	Axe Mounting Bracket (1), Fly Section, WITH Pickhead Axe (FAP-6)
UPO0068373	Landing Light, One (1), 12V, Whelen, LED MicroPioneer (MPRW) White
003167	Platform Marker Lights, Rear Mounts
UPO0068374	Platform Warning Lights (4), Whelen, M7 Series Super LED, Red LED's W/ Clear Lenses
101932	12V Aerial Wiring (100' RMP)
UPO0068375	Tip Light (2), 12V, Whelen, LED Micro Pioneer (MPPWS)
911216	Tip Lights Locations, Front of Platform, Both Sides of Center
111883	Tip Light(s) Switch, AL-11
010027	Locator Lights (2), 12V, Tomar, Micro IV Strobe (470-S-1280-B), Blue, Activated by Aerial Master
911223	Locator Lights Locations, Platform, Lower Outboard Base Structure, Both Sides
911202	Waterway System (100' RMP)
911242	Standard Waterway, Non-Positional
001713	Waterway Relief Valve / Drain Valve
001719	Waterway Inlet, Rear, 5" Inlet and 5" Plumbing (100' RMP/125')
101329	Butterfly Valve, 5", Akron, Electric, 7950, 9333 Controller (Valve Only)
101250	Intake Relief Valve, Aerial, Elkhart, Factory Preset
101475	Bushing, 5" NPT x 5" NH (IL3530AC) South Park - Elbow (30 Deg.) 5" FNH x 4" Storz (SKE45R) - Storz Cap (CC407), Rocker Lug, Kochek, Powder Coat
UPO0068376	Monitor, Electric, Akron, StreamMaster II with AVM 3486 S4, (1) 2-1/2" NST Left Gated Discharge, with Drain, NO Extended Vertical Range , Adapter, 2-1/2" FNST x 2-1/2" MCSA - CSA Cap
112013	Monitor Color, Akron Red, Powder Coat, AkzoNobel Interpon PG000QF, No Texture
901218	Aerial Valve Monitor (AVM) Color, Akron Standard, Unpainted
004573	Nozzle, Electric, Akron Akromatic 2000 GPM, 5178, 3-1/2" NH
911207	Monitor Sweep, Platform, Single Monitor
901162	Monitor Shut Off Valve Included with AVM or VUM
911210	Master Stream Controls, Turntable and Platform
111814	Akron Handheld Wireless Remote, 6047
001729	Pre-connect, In Platform, 1-1/2", NST (100' RMP)
111929	Rung Lighting, Blue LED (100' RMP)
111933	Rung Lighting Switch, AL-11
007022	Ladder Signs (2), On Base Section
111948	Solid Beam Roof Ladder Storage, Officer's Side Base Section

Option ID	Description
001294	Ladder (1), Duo-Safety, 16' Aluminum Roof, 875-A
111956	**Pike Pole Storage, Officer's Side Fly Section, 6' Pole**
008204	Pike Pole (1), Duo-Safety, 6' Fiberglass, Standard Hook, D-Handle, FP6D
Paint / Striping / Decals	**Paint / Striping / Decals**
900717	**Chassis Paint, Chassis Manufacturer Painted, Single Tone**
009165	Body Paint, Single Tone, Aerial, Aluminum Material
901219	Non-Metallic Paint
101843	Body Paint Color, Aerial, Single Tone, Red, AkzoNobel
101870	Ladder Paint Color, White, AkzoNobel (100' MMP/100' RMP/125')
901219	Non-Metallic Paint
901036	Aerial Corrosion Protection
101877	Platform Paint Color, White, AkzoNobel
901219	Non-Metallic Paint
911225	Ladder Sign Paint, Match Aerial Ladder Structure Color
001170	Under Body Finish, Two-Step Undercoating Process
006089	Corrosion Protection, Electrolysis Corrosion Kontrol (ECK)
900875	Coating Material Technical Specification, Bedliner Coating
001033	Sample Paint Card with Paint Formula
911237	Reflective Lettering, White
120235	6" Lettering (40), Reflective, With Outline
120275	12" Lettering (60), Reflective, With Outline
900879	**Front Cab Striping, Wrap to Grill**
004523	Rub Rail Striping, 2", Silver, Reflective, Aerial
002615	Body Striping, Aerial, 1"-6"-1", Low Angle Transition
900888	Upper Stripe Color, White
900906	Main Stripe Color, White
900924	Lower Stripe Color, White
121751	**Stabilizer Beam Striping, Front and Rear, (4) Stabilzers, Chevron To Match Rear**
100952	Chevron Color, Red / White, 3M 3992 & 3990
007383	Chevron Layout, Rear Body Surface, Torque Box Lap Door, Ladder Storage Doors
005725	Sign, Reflective, Rear Lap Door, 'Keep Back 150 Metres'
UPOxxxxxxx	Decal, Reflective, 9" Wavy Canadian Flag
000857	Decals (2), Reflective, 14" x 14" Custom on Door
Decal/Striping Clarifications	Decal/Striping Clarifications - Decal files to be supplied by the department at the pre-construction meeting.
Warranties	**Warranties**
RFW0002	General Two (2) Years or 36,000 Miles Limited Warranty
RFW0502	Body Structure (Aluminum) Ten (10) Years or 100,000 Miles Limited Warranty
RFW0403	Aerial Ladder Structure Twenty (20) Years or 100,000 Miles Limited Warranty
RFW0421	Aerial Leak-Free Hydraulics Three (3) Years or 48,000 Miles Limited Warranty

Option ID	Description
RFW0810	Aerial Waterway Ten (10) Years or 100,000 Miles Limited Warranty
RFW0202	Electrical Two (2) Years or 36,000 Miles Limited Warranty
RFW0800	Plumbing and Piping (Stainless Steel) Ten (10) Years or 100,000 Miles Limited Warranty
WLF800	Warranty, Water Tank, UPF, Standard Lifetime
RFW0710	Paint and Finish (Exterior Clear coated) Ten (10) Years Limited Warranty
W05800	Warranty, Pump, Hale, Standard 5 Year

PROPOSED SPECIFICATIONS

INTENT OF SPECIFICATIONS

It is the intent of these specifications to cover the furnishing and delivery to the purchaser of a complete apparatus equipped as herein specified. With a view to obtaining the best results and the most acceptable apparatus for service in the fire department, these specifications cover the general requirements as to the type of construction, together with certain details as to finish, equipment, and appliances with which the successful bidder must 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 of all features.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of 50 years.

Each bidder shall furnish satisfactory evidence of his ability to construct the apparatus specified. The bidder shall also show that they are in a position to render prompt service and furnish replacement parts for said apparatus.

Aerials containing load ratings and capabilities of the highest level within the respective model class shall be accepted. Bids submitted containing medium duty or light duty aerial ladders shall not be considered as meeting minimum requirements and will automatically be rejected.

CONTRACTOR'S SPECIFICATIONS

Each bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished under contract shall conform.

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

The submitted bids shall clearly describe the capabilities of the aerial device. Items such as safety factor certification, horizontal reach, vertical reach, scrub chart information, load capabilities, flow ratings, monitor capabilities, short set capabilities, safety interlock information, estimated completed weight information and other pertinent information shall be either submitted with the bid or readily available if requested.

TIMELY PROPOSALS

It is the bidder's responsibility to see that their proposals arrive on time. Late proposals, facsimiles, e-mails, telegram, or telephone bids shall not be considered.

DRAWINGS

All bid drawings shall be stamped PROPOSAL.

- A total of six (6) drawings shall be supplied. The provided drawings can be printed to any paper size, but the scale will only be valid when printed to the paper size listed in the title block
- Drawings shall show five (5) views: left (drivers), right (officers), front, rear, and top

- OAL (overall length) in feet and inches. The estimated length shall be rounded up to the nearest inch
- OAH (overall height) in feet and inches. The estimated height shall be rounded up to the nearest inch
- Wheelbase in inches
- Pump house width in inches
- Front of the body to the centerline of the rear axle in inches
- Front and rear overhang in inches
- Angle of approach and departure
- Roll up doors will be shown in open position. Lap doors will be shown in the closed position
- Compartment dimensions shall be shown in a table on the drawing. The table shall display

1. Clear door opening - The width/height of the clear door opening
2. Interior dimensions - The interior compartment dimensions excluding any accessories or pockets (i.e. roll up door drums, hard suction hose pans, suspension pockets, etc.)
3. Divide heights - The measurement where the compartment changes from full depth to shallow depth
4. Compartment depths - Depth of the compartment with the door closed

- Ground ladders shall be labeled with a letter designation referring to the table for an explanation of the ladder
- No pump panel or instrument panel controls, discharges or inlets shall be shown. The panel space is to be left blank and labeled "Pump Panel"
- Rear plumbing, such as 2-1/2" discharges, rear steamers, and direct tank fills, shall be shown
- Water tank outline (if applicable)
- Water tank and foam cell fill towers (If applicable)

- Generator outline (if applicable)
- Warning lights
- D.O.T. lights

Text Block Items

- Chassis make/model
- Fire pump make/model
- Water tank capacity (if applicable)
- Foam cell capacity (if applicable)
- Body material
- Hose bed capacity in cubic feet (if applicable)

- Total compartment cubic feet
- Utilize an unique bid number
- Drawings shall be printed on white paper with black ink

PURCHASER'S OBLIGATIONS

The purchaser reserves the right to accept or reject any or all bids on such basis as the purchaser deems to be in its best interest. All bidders shall be advised that the purchaser is not bound in any manner to automatically accept the lowest bid. The purchaser shall only be obligated to purchase the lowest bid that meets these detailed specifications as closely as possible.

SPECIALIZATION

Due to the complexity of the apparatus proposed, it is the desire of the purchaser to obtain equipment that is built by companies that specialize in the construction in accordance with NFPA, current edition compliant aerial devices.

The aerial device shall be engineered and fabricated by a manufacturer with a minimum of 40 years of experience in the aerial field. No exceptions shall be allowed.

No prototype devices or aerials without a proven field record shall be acceptable. The aerial device provided shall be of the highest quality available in the industry.

SAFETY REQUIREMENTS

It is required that the bidder shall meet all State and Federal safety standards and laws that are in effect on the date of the bid for the item(s) that are specified and the particular use for which they are meant.

ACQUAINTANCE WITH SPECIFICATIONS

It is the responsibility of the bidder to review all of the bidding requirements. Failure of a bidder to be acquainted with this information shall not relieve them from any obligations of the bid requirements.

QUALITY AND WORKMANSHIP

The design of the apparatus shall embody the latest approved automotive engineering practices. Experimental designs and methods shall not be acceptable.

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

Construction shall be rugged and ample safety factors shall be provided to carry loads as specified.

GENERAL CONSTRUCTION

The complete apparatus, assemblies, sub-assemblies, component parts etc., shall be designed and constructed with due consideration to the nature and distribution of the load to be sustained and to the general character of service which the apparatus is to be subjected when placed in service.

All parts of the apparatus shall be strong enough to withstand the general service under full load. The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment, and repair.

The apparatus shall be designed and constructed, and the equipment mounted, with due consideration to the distribution of the load between the front and rear axles, and side to side loading that all specified equipment, including a full complement of specified ground ladders, full water tank, loose equipment, and firefighters; shall be carried without overloading or damaging the apparatus in accordance with NFPA, current edition requirements.

LIABILITY

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

WARRANTY

A copy of the warranties for the chassis, pump, body, paint, water tank (if applicable), aerial device, waterway, and waterway seals shall be furnished with each bidder's proposal.

INFORMATION REQUIRED UPON DELIVERY

The manufacturer shall supply at the time of delivery at least two copies of a complete operation and maintenance manual covering the completed aerial device as delivered.

Parts manuals, where possible, shall be cross-referenced to show the actual manufacturer's name, part number and description on all parts and fittings that are commercially available.

DESIGN / CONSTRUCTION / TESTING CRITERIA

The following criteria shall be applicable to this specification to the extent specified herein:

- NFPA, Current Edition
- American Society for Testing and Materials (ATSM A-36)
- Society of Automotive Engineers, Inc. (SAE) "SAE Handbook"
- American Welding Society (AWS) AWSO 14.4-77
- American Welding Society (AWS) D1.1 and D1.2
- American Society of Non-Destructive Testing (ASNT) "ASNT CP-189

The aerial ladder shall be designed, fabricated, and tested in accordance with the above codes and specifications, as well as all other applicable codes, standards, and specifications that may be referenced by any of the above.

NON-DESTRUCTIVE TESTING

Steel ladders, turntable, stabilizers, and torque box shall have 100% of all welds tested using both magnetic particle method and visual testing method. Aerials that are fabricated of aluminum shall have 100% of all welds tested using dye penetrant method and visual method. All testing shall be performed by certified technicians, which are employees of an independent nationally recognized and certified third-party testing company. Manufacturers who rely on visual inspection (either in-house or by a third

party) as the primary method of testing, and magnetic particle or dye penetrant as a secondary or "proving" test method for only suspect areas shall not be acceptable. In any case, welds shall be tested using two (2) separate NDT inspection methods regardless of the material used to construct the aerial device.

THIRD PARTY CERTIFICATION

All bids shall include copies of the certification of testing of the aerial device. The purchaser desires a device that has been tested by a third party for compliance with the minimum 2 to 1 safety factor specified in accordance with NFPA, current edition. Devices that have not been certified by a third party engineering firm that is independent of the manufacturer shall not be acceptable, no exceptions.

AERIAL DEVICE SAFETY FACTOR AND RATED CAPACITY

The purchaser desires to purchase, using these specifications, an aerial device with a minimum 2.0:1 Safety Factor as required and defined in accordance with NFPA, current edition. Therefore, the aerial manufacturer shall hereby certify, by submitting a bid for these specifications that the aerial device meets or exceeds all requirements and conditions in these specifications, no exceptions.

BID FORMS / SPECIFICATIONS

All bid forms shall be submitted on the attached bid form. The bid form and/or these specifications shall be filled out by checking either the "YES" or "NO" column for each and every section/paragraph. Failure to use this form and/or these specifications shall be cause for immediate rejection of any bid.

EXCEPTION TO SPECIFICATIONS

The following chassis, pump, and body specifications shall be strictly adhered to. Exceptions shall be allowed if they are equal to or superior to that specified and provided, they are listed and fully explained on a separate page entitled "EXCEPTIONS TO SPECIFICATIONS". Exception lists shall refer to the specification page number. Each check in the "NO" column shall be listed and fully explained. Where no check is made in a particular paragraph either "YES" or "NO", it shall be assumed the bidder is taking exception to that paragraph. If a paragraph contains an empty column, where the bidder neglected to check the proper "YES" or "NO" column, it is assumed the bidder is not conforming to the requirements of this paragraph. If no explanation is given in the "EXCEPTIONS TO SPECIFICATIONS" document, the bid is subject to immediate rejection.

PROPOSALS TAKING TOTAL EXCEPTION TO THESE SPECIFICATIONS WILL BE IMMEDIATELY REJECTED.

The buyer is aware that all bidders shall have to take some exceptions, therefore; BIDDERS THAT TAKE NO EXCEPTIONS shall BE REQUIRED TO MEET EVERY PARAGRAPH TO THE FULLEST EXTENT SHOULD THEIR BID BE ACCEPTED. It is the intent of the purchaser to receive bids that do not require telephone calls or other communications to ascertain what a bidder is intending to supply.

Upon delivery, the apparatus shall be inspected against these specifications and not those supplied by the bidder with their proposal. Deviations shall not be acceptable unless noted as exceptions at the time of bid. The apparatus shall be rejected until said deviations are corrected to the satisfaction of the

buyer.

Decisions regarding equal to or better than shall be the sole responsibility of the recipient of the bids rather than companies submitting bids. All deviations, regardless of significance, must be explained in the "EXCEPTIONS TO SPECIFICATIONS" section of the bid.

When exceptions are not taken but inconsistencies are noted in the submitted detailed specifications, the bid may be rejected.

ROADABILITY

The apparatus, when fully equipped and loaded, shall be capable of the following performance while on dry paved roads that are in good condition:

- Accelerating from 0 to 35 mph within 25 seconds on a 0 percent grade
- Attaining a speed of 50 mph on 0 percent grade
- Maintaining a speed of at least 20 mph on any grade up to and including 6 percent
- The maximum top speed of the apparatus shall not exceed the tire manufacturer's maximum speed rating for the tires installed on the apparatus

FAILURE TO MEET TESTS

In the event the apparatus fails to meet the test requirements of these specifications on the first trials, second trials may be made at the option of the bidder within 30 days of the date of the first trials.

Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Failure to comply with changes as required to conform to any clause of the specifications within 30 days after notice is given to the bidder of such changes, shall be cause for rejection of the apparatus.

Permission to keep or store the apparatus in any building owned or occupied by the department during the specified period, with the permission of the bidder, shall not constitute acceptance.

PROPOSAL SEQUENCE

Bid specifications shall be submitted in the same sequence as these specifications for ease of checking compliance. No exceptions shall be allowed to this requirement. The apparatus committee intends to be thorough during the evaluation of bids process. In order to maximize efficiency and minimize time to thoroughly evaluate all received bids, this requirement must be strictly enforced.

AWARD OF CONTRACT

All bids submitted shall be valid for a minimum of 30 days during which time bid securities submitted with the proposals shall be held by the purchaser. Criteria for the award shall include, but not be limited to, the following:

- Apparatus Performance And Safety Levels / Considerations
- Completeness of proposal
- Accuracy of accompanying data

- Past performance of bidder
- Compliance with the detailed specifications
- Compliance with purchasers request(s) for personnel qualifications or certifications
- Exceptions and clarifications
- Financial stability of bidder
- Local representation of the manufacturer
- Serviceability of the proposed apparatus
- Service capabilities of the bidder's local representative
- Compliance with NFPA, current edition
- Any other factor the purchaser deems relevant

After the evaluation and award process is complete, all bidders shall be notified of the results and securities shall be returned.

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.

ULC STANDARD FIRE FIGHTING APPARATUS

Notwithstanding any other requirements, all fire fighting apparatus shall meet the requirements contained in the Canadian Motor Vehicle Safety Standards (CMVSS), and all applicable regulations and requirements from the authority having jurisdiction.

All fire fighting apparatus shall meet the requirements the following chapters of the CANULC-S515-13-EN-EL standard.

- Chapter 3, General Requirements;
- Chapter 11, Chassis, Engine, and Apparatus Components;
- Chapter 12, Low-Voltage Electrical Systems and Wiring Devices;
- Chapter 13, Driving and Crew Areas; and
- Chapter 14, Body, Compartments, and Equipment Mounting.

NFPA

The National Fire Protection Association "Standard for Automotive Fire Apparatus",, is hereby adopted and made a part of these specifications, the same as if it were written out in full detail, with the exception of the section dealing with "Equipment Recommended for Various Types of Apparatus".

Bidders shall provide the equipment requested herein and the buyer shall supply the rest before the apparatus is put into service. It is the intent of the purchaser to purchase an apparatus that meets 100% of the minimum standards defined and outlined in NFPA. There are to be no exceptions to this requirement.

PERFORMANCE BOND AND PAYMENT BOND 100%

The manufacturer shall provide, within thirty (30) days after award of contract, and along with a signed copy of the contract, a performance bond, which guarantees performance of all terms and conditions of the contract and of the Basic One (1) Year Limited Warranty agreement, and a payment bond, which shall guarantee payment for labor, materials, and equipment furnished for use in the performance of the contract. The performance bond will specifically cover the performance of the contract according to its terms and conditions. The payment bond will cover payment of labor, materials, and equipment furnished for use in the performance of the contract. This performance bond and payment bond will be issued by a surety company who is listed by the U.S. Treasury Department's list of approved sureties, as published in Circular 570, as of the bid date. The performance bond and payment bond will be issued in an amount equal to 100% of the contract amount and will be dated concurrent to, or subsequent to, the date of the contract.

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

INSPECTION CERTIFICATE - NFPA COMPLIANCE

An OEM inspection certificate for the apparatus shall be furnished upon delivery. The purpose of this NFPA compliance inspection shall be to serve as proof to the customer that all applicable standards have been met or exceeded by the responsible manufacturer.

The following objectives shall be achieved as a result (this listing shall not be construed as being all inclusive):

- Ensure that understanding of all parties respective responsibilities have been addressed by the actual referencing of NFPA and the amendments in these specifications and the purchase contract and documentation.
- Ensure that only structural materials complying with appropriate standards and codes are used for construction.
- Ensure the applicable standards of design and manufacturing have been met or exceeded.
- Ensure that safety factors have been met or exceeded where required.
- Ensure that applicable standards for testing and inspection have been met or exceeded by personnel with the appropriate qualifications, experience, and certifications.
- Ensure that where applicable components, equipment, and loose equipment carry the

appropriate characteristics, classifications, and/or certifications.

- Ensure that in general and as a whole, all applicable requirements set forth in NFPA, and those codes, standards, and specifications referenced by said parties are met, exceeded, and/or addressed.

CONSTRUCTION DOCUMENTATION

The contractor shall supply, at the time of delivery, at least one (1) copy of the following documents:

1. The manufacturer's record of apparatus construction details, including the following information:

- Owners 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 or kilograms
- Rear tire size and total rated capacity in pounds or kilograms
- Chassis weight distribution in pounds with water and manufacturer mounted equipment (front and rear)
- Engine make, model, serial number, rated horsepower, related speed, and governed speed
- Type of fuel and fuel tank capacity
- Electrical system voltage and alternator output in amps
- Battery make, model, and capacity in cold cranking amps (CCA)
- Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio
- If applicable, the pump make, model, rated capacity in gallons or liters per minute, and serial number
- Pump transmission make, model, serial number, and gear ratio, if unit is equipped with a pump
- If applicable, the auxiliary pump make, model, rated capacity in gallons or liters per minute, and serial number
- Water tank certified capacity in gallons or liters
- On aerial apparatus, the device type, rated vertical height in feet or meters, rated horizontal reach in feet or meters, and rated capacity in pounds or kilograms
- Paint manufacturer and paint number(s)
- Company name and signature of responsible company representative

2. Certification of slip resistance of all stepping, standing, and walking surfaces

3. If the apparatus has a fire pump, a copy of the following shall be provided: pump manufacturers certification of suction capability, apparatus manufacturers approval for stationary pumping applications, engine manufacturers certified brake horsepower curve showing the maximum governed speed, pump manufacturers certification of the hydrostatic test, and the certification of inspection and test for the fire pump

4. If the apparatus has an aerial device, the certification of inspection and test for the aerial device, and all the technical information required for inspections to comply with NFPA 1914, Standard for Testing Fire Department Aerial Devices

5. If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source

6. If the apparatus is equipped with an air system, test results of the air quality, the SCBA fill station, and the air system installation

7. Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (with the water tank full but without personnel, equipment, and hose)

8. Written load analysis and results of the electrical system performance tests

9. When the apparatus is equipped with a water tank, the certification of water tank capacity

OPERATION AND SERVICE DOCUMENTATION

The contractor shall supply at the time of delivery, at least two (2) sets of complete operation and service documentation covering the completed apparatus as delivered and accepted. The documentation shall address at least the inspection, service, and operations of the fire apparatus and all major components thereof. The contractor shall also provide documentation of the following items for the entire apparatus and each major operating system or major component of the apparatus:

- Manufacturers name and address
- Country of manufacturer
- Source of service and technical information
- Parts and replacement information
- Descriptions, specifications, and ratings of the chassis, pump, and aerial device
- Wiring diagrams for low voltage and line voltage systems to include the following information: representations of circuit logic for all electrical components and wiring, circuit identification, connector pin identification, zone location of electrical components, safety interlocks, alternator-battery power distribution circuits, and input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems
- Lubrication charts
- Operating instructions for the chassis, any major components such as a pump or aerial device, and any auxiliary systems
- Precautions related to multiple configurations of aerial devices, if applicable
- Instructions regarding the frequency and procedure for recommended maintenance
- Overall apparatus operating instructions
- Safety considerations
- Limitations of use
- Inspection procedures
- Recommended service procedures
- Troubleshooting guide
- Apparatus body, chassis, and other component manufacturers warranties
- Special data required by this standard

- Copies of required manufacturer test data or reports, manufacturer certifications, and independent third-party certifications of test results
- A material safety data sheet (MSDS) for any fluid that is specified for use on the apparatus
- One (1) copy of the FAMA Safety Guide

The contractor shall deliver with the apparatus all manufacturers operations and service documents supplied with components and equipment that are installed or supplied by the contractor.

STATEMENT OF EXCEPTIONS

The proposed apparatus as described in this specification document and all related material with the bid package shall meet or exceed all applicable sections for the category of apparatus as defined by NFPA unless specifically noted within this specification or other official documents associated with this bid.

Should any area, section or portion of the apparatus not meet the intent and applicable requirements, a clearly defined listing or explanation of what and why compliance was not achieved shall be provided to the purchaser at the time of delivery.

OWNER'S MANUAL

An owner's manual containing the construction, operation, and service documentation shall be provided on a USB Drive. One (1) copy of the USB shall be provided with the apparatus.

ELECTRICAL MANUAL

A complete electrical manual for the apparatus shall also be provided on the USB Drive. This manual shall be specifically prepared for this individual unit rather than a generic schematic manual designed to accommodate all apparatus. The electrical manual shall also include electrical schematics, harness layouts, V-Mux specifications (including Node Input/output Spreadsheet and Node Relationship Spreadsheet), and Master Wire Listing. A contact letter shall also be provided by the electrical engineer, who built the manual, with instructions on using the manual and contact information for assistance with electrical manual questions.

ELECTRICAL SCHEMATICS

A section of the electrical manual shall include schematics of the electrical system and components on the apparatus. These schematics shall be specifically prepared for this individual unit rather than a generic schematic designed to accommodate all apparatus.

PUMP PLUMBING SCHEMATICS (if applicable)

A section of the electrical manual shall include a schematic of the pump plumbing. This schematic shall be specifically prepared for this individual unit rather than a generic schematic designed to accommodate all apparatus.

HYDRAULIC SCHEMATICS (if applicable)

A section of the electrical manual shall include schematics of the hydraulic components on the apparatus including but not limited to:

- Ladder Rack(s) and Hose Bed Door(s) (if applicable)
- Aerial - Retraction/Extension (if applicable)
- Aerial - Rotation (if applicable)
- Tiller - HVAC Hydraulics System (if applicable)

FIRE APPARATUS SAFETY GUIDE

One (1) printed copy of the FAMA Fire Apparatus Safety Guide shall be provided with the apparatus. This guide provides safety instructions for operations of the fire apparatus.

AERIAL OPERATION/PARTS/MAINTENANCE MANUALS

One (1) printed aerial operation and maintenance manual shall be provided with the apparatus at the time of delivery. These manuals shall be written in a "step by step" format for ease of reference. One (1) USB shall be provided with a digital copy of the aerial manuals included with the printed version. Finally, a digital version of the aerial manuals will also be included with the complete Owner's Manual USB for the apparatus.

Information included in the manuals shall include, but no be limited to the following:

1. Manufacturer Defined Terminology; (to help impart full understanding of terminology used in the manuals)
2. Safety Information and Warnings; (to warn of dangerous conditions/personnel injury/equipment damage)
3. Complete Rated Capacities Information; (allowable loads and GPM flows)
4. Complete and Detailed Operating Systems Descriptions; (to impart understanding of operation/capabilities/working principles)
5. Instruction For Manufacturer Recommended Deployment and Operation Of All Systems During All Specific Conditions; (to ensure safer, more efficient operation of the aerial device)
6. Current, Actual Illustrations Of Aerial Components Throughout The Manual; (to aid in location of specific components, being addressed in the manual)
7. Complete Maintenance Instructions/Methods/Materials/Intervals/Inspections.

AERIAL PLATFORM DEVICE DEMONSTRATION - (3) DAYS

A factory trained and authorized instructor shall provide three (3) consecutive days of on-site classes after apparatus acceptance.

Topics covered in the class shall include:

- General familiarization and demonstration of aerial device

- Aerial apparatus safety including a review of all safety devices, interlocks. and operational hazards
- Positioning and locating the vehicle for safe operations
- Chassis parking brakes and engagement of hydraulic system
- Deployment of stabilization devices and use of ground pads
- Operation of elevation, extension, and rotation of the aerial device
- Operation of waterway, nozzle, and other firefighting devices of aerial device
- Operation and use of breathing air system
- Specific aerial device maintenance and service areas for operators
- Shutdown and return to service operations
- Operation of tip controls and platform controls if equipped

Classes shall consist of presentations as well as hands-on demonstration.

MISCELLANEOUS EQUIPMENT ALLOWANCE

The Gross Axle Weight Rating (GAWR) and the Gross Combined Weight Rating (GCWR) or Gross Vehicle Weight Rating (GVWR) of the chassis shall be adequate to carry the weight of the unequipped apparatus with the water tank and other tanks full, specified hose load, unequipped personnel weight, ground ladders, and miscellaneous equipment allowance of 2,500 pounds.

TILT TABLE TESTING NOT REQUIRED

The chassis of the apparatus is equipped with Electronic Stability Control (ESC), which is in accordance with NFPA, current edition. requirement of maintaining a stability of 26.5 degrees in both directions.

VEHICLE STABILITY

The apparatus shall comply with the requirements of NFPA, current edition as it applies to vehicle stability. The particular apparatus as described in the specification provided within the bid package shall be classified into one of the following categories:

- The apparatus shall go through actual tilt table testing which shall be determined by the apparatus manufacturer.
- The apparatus shall be equipped with a rollover stability control system as defined in section

4.13.1.2 of NFPA, current edition.

- The apparatus shall be deemed a similar apparatus and meeting the intent of section 4.13.1.1.2 of NFPA, current edition.

ULC PUMP CERTIFICATION

The fire pump shall be tested and certified by Underwriters Laboratories of Canada to perform as listed below:

- 100% of rated capacity at 1000 kPa net pressure
- 70% of rated capacity at 1350 kPa net pressure
- 50% of rated capacity at 1700 kPa net pressure

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall comply with the applicable requirements of Standard for Automotive Fire Fighting Apparatus "CAN/ULC-S515". The pump shall be free from objectionable pulsation under all normal operating conditions.

PUMP CERTIFICATION

The pump shall be certified in imperial gallons per minute (IGPM).

ONLINE CUSTOMER INTERACTION

Smeal Holding LLC. shall provide the capability for online access.

The fire department shall be able to view digital photos of their apparatus in the specified phases of construction.

The following phases will be captured and displayed:

- Chassis arrival to the OEM
- Fabrication
- Pump and Plumbing
- Paint
- Assembly
- Completion of production

The photos shall be uploaded to a secure website, only accessible to the customer and representatives of the OEM.

PRE-CONSTRUCTION MEETING VIA WEBINAR

A pre-construction meeting shall be held via a webinar. Fire department personnel, dealer representative(s) and factory representative(s) shall be present during the pre-construction meeting process. The purpose of conducting this meeting at the factory is to allow the fire department personnel to see various features of or similar components on other apparatus that may be found on the production floor. The pre-construction meeting is the most important meeting during the after-sale production process. The purpose of this meeting is to finalize all aspects of the specifications, discuss and clarify all design details of the apparatus, and to share or provide all information so all parties are in agreement on the apparatus being constructed. The ultimate goal of the pre-construction meeting is for the fire department officials, dealer representative(s), and factory representative(s) to discuss and clarify all aspects of the proposed apparatus and to provide all necessary information to the apparatus manufacturer that will ensure the apparatus is built to the satisfaction of all parties involved.

The apparatus manufacturer shall create and forward to the dealer a "Pre-construction" document containing the following items:

â€¢ Complete specifications of the apparatus including the chassis

â€¢ Detailed amp draw report

â€¢ Listing of clarifications or questions from the manufacturer that require attention (shelf locations, lettering details, etc.)

â€¢ A total of six (6) packets of 11" x 17" drawings, each packet complete with a single view drawing for each side of the apparatus shall be supplied

â€¢ All drawings shall be drawn and printed to an appropriate scale to maximize the size of the apparatus on each 11" x 17" sheet of paper.

During this pre-construction meeting, any changes or clarifications must be documented on a manufacturer issued change order. The change order shall be signed by the customer and dealership and ultimately by the apparatus manufacturer. The change order becomes an extension of the contract with the official signatures of all three parties. All change order items resulting from the pre-construction meeting shall be implemented into the official shop order document.

FINAL INSPECTION

The department/dealer representative will inspect the final apparatus prior to it leaving the apparatus body manufacturer's facility. This will allow any changes that may be required, to be done so in a timely manner. After leaving the facility, all repairs or alterations will be performed by either the dealer or an OEM-approved service center.

The water tank shall be filled to capacity for the final inspection to allow the department to operate the

pump.

MAXIMUM OVERALL HEIGHT

The overall height of the apparatus shall not exceed 151" (12'-7") from the ground. This measurement shall be taken with the tires properly inflated and with the apparatus in the unloaded condition to ensure a maximum overall height. In order to provide the maximum overall height, proposed units using calculated weight as a means to achieve a lower overall height shall not be accepted. The measurement shall be taken at the highest point of the apparatus.

MAXIMUM OVERALL LENGTH

The overall length of the apparatus shall not exceed 592" (49'-4").

WHEELBASE

The wheelbase of the apparatus shall not exceed 250".

ANGLE OF APPROACH

The angle of approach of the apparatus shall be a minimum of 8 degrees.

ANGLE OF DEPARTURE

The angle of departure of the apparatus shall be a minimum of 8 degrees.

SPARTAN GLADIATOR CHASSIS

The chassis shall be a Spartan Gladiator.

MUD FLAPS

In addition to the chassis supplied front mud flaps, two (2) mud flaps shall be provided rearward of the rear axles on the apparatus.

EXTEND AIR TANK DRAINS

The chassis air tank drains shall be extended to the outside of the body and terminate with turn valves.

The chassis supplied and installed heat exchanger shall be attached to the pump by the OEM manufacturer.

RELOCATE CAB TILT

The cab tilt pendant shall be relocated as deemed best fit by the OEM.

FRONT BUMPER STORAGE WELL

A full-width storage well shall be provided above the front bumper. The storage well shall be the width of the headlights.

STORAGE WELL COVER

An aluminum tread plate cover shall be installed on the storage well. The cover shall be the full length of the bumper and include two (2) gas cylinders to hold it in the open position. A handle shall be installed on the center of the cover, with a rubber hold down on each side. The cover shall be notched to allow for the stored hose to be preconnected.

Shop Note: The hose well shall be sized to accommodate 100 feet of 1.75 inch double jacket hose and nozzle.

One (1) front bumper storage well shall utilize Dri-Dek interlocking squares. For maximum slip resistance and drainage, each square shall have a knobby perforated surface.

A hazard warning circuit shall be tied to the circuit for the "open door" warning light in the chassis in addition to the Vista display to alert the driver of an unsafe condition for moving the apparatus. The Vista display shall have a specific screen to show the displayed alert. The screen shall show the apparatus in full driver's side, officer's side and rear views. The door, component or device that is not properly closed or stowed will be shown on the screen in the appropriate view. The light shall be illuminated automatically when the parking brake is not fully engaged and any of the following conditions exist:

- Any equipment compartment door that is not closed (excluding compartments with 4 cubic foot (0.1 cubic meter) or less of volume; or have an opening of 144 square inches (92,000 square mm) or less; or doors that do extend sideways beyond the mirrors or up above the top of the fire apparatus);

- Any ladder or equipment rack that is not in the stowed position;

- Any device or component that is permanently attached to the apparatus that is open, extended, or deployed in a manner that is likely to cause damage to the apparatus that has been specified as being tied to the hazard warning circuit.

A warning placard shall be near the warning light that reads "DO NOT Move Apparatus When Light Is On."

ALUMINUM MOUNTING PLATE ON ENGINE TUNNEL

A 3/16" aluminum mounting plate shall be on the top of the chassis engine tunnel for the mounting of equipment. The plate shall be mounted on 3/4" spacers and will be on the flat portion of the engine tunnel only. The mounting plate shall have an onyx MultiSpec MS90 finish.

Four (4) cup holders shall be provided and mounted on the mounting plate.

ENGINE TUNNEL TREAD PLATE SHELF

One (1) aluminum tread plate shelf shall be installed on the rear of the engine tunnel. The shelf shall have a mounting surface of approximately 6".

GLOVE BOXES

Three (3) glove boxes shall be provided and mounted in locations determined at the pre-construction meeting. Glove boxes will be mounted before final inspection.

The Glove Box compartment exterior and interior shall have a multi-tone finish to match the interior.

120V RECEPTACLE

One (1) NEMA 5-20R, 120-volt, duplex, 3-wire, straight blade (household type) receptacle shall be installed on the apparatus and wired to the shoreline. The receptacle shall have a 20-amp rating and include a spring loaded weather resistant cover if mounted in an exterior location.

The outlet shall be located inside the EMS compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

Shop Note: Officer sidehigh on back wall inboard

120V RECEPTACLE

One (1) NEMA 5-20R, 120-volt, duplex, 3-wire, straight blade (household type) receptacle shall be installed on the apparatus and wired to the shoreline. The receptacle shall have a 20-amp rating and include a spring loaded weather resistant cover if mounted in an exterior location.

The outlet shall be located inside the EMS compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

Shop Note: driver sidehigh on back wall inboard

120V RECEPTACLE

One (1) NEMA 5-20R, 120-volt, duplex, 3-wire, straight blade (household type) receptacle shall be installed on the apparatus and wired to the shoreline. The receptacle shall have a 20-amp rating and include a spring loaded weather resistant cover if mounted in an exterior location.

The outlet shall be located inside the chassis cab, on the driver's side of the engine tunnel.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

120V RECEPTACLE

One (1) NEMA 5-20R, 120-volt, duplex, 3-wire, straight blade (household type) receptacle shall be installed on the apparatus and wired to the shoreline. The receptacle shall have a 20-amp rating and include a spring loaded weather resistant cover if mounted in an exterior location.

The outlet shall be located inside the chassis cab, on the officer's side of the engine tunnel.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

WATER TANK

The apparatus shall be equipped with a United Plastic Fabricating (UPF) water tank with as much water as possible to meet weight calculations and any other restrictions on the apparatus. SFA Engineering

shall have final approval of the amount of water on the apparatus.

WATER TANK MOUNTING

The water tank carrier shall be designed specifically for this apparatus. The carrier structure shall be supported by and welded directly to the top plate of the torque-box.

WATER TANK DRAIN

A 1-1/2" drain valve shall be provided in the pump compartment to drain the water tank. The valve shall include a locking lever to prevent accidental draining of the water tank.

Shop Note: The water tank drain control will be located under the officer side front of body.

WATER TANK FILL TOWER

The tank shall have a combination vent and manual fill tower, marked "Water Fill", located at the driver's side front corner of the tank. The fill tower shall be constructed of black 1/2" PT2E polypropylene and be a minimum dimension of 8" x 8" at the outer perimeter. The tower shall have a 1/4" thick removable polypropylene screen and a PT2E polypropylene hinged-type cover.

WATER TANK LEVEL GAUGE

One (1) Fire Research, model WLA300-A00, TankVision Pro 300 water tank level gauge shall be provided on the pump operator's control panel.

The gauge shall have nine (9) easy to see super bright RGB LEDs to show the tank volume. The display shall use a two-dimensional, two-element lens to refract the light from the LEDs to provide full 180° visibility for the level indication. The gauge shall start to flash when the tank volume is at 1/4 tank or less and use down scrolling LEDs to alert the pump operator when the tank is almost empty.

SECONDARY WATER TANK LEVEL GAUGE

One (1) secondary remote mounted Fire Research, model WLA300-B00, TankVision Pro 300 water tank level gauge shall be provided on the officer's side pump panel. The additional water tank level gauge shall be connected to the master water tank gauge on the pump panel.

4" WATER TANK OVERFLOW

The tank shall be equipped with a minimum of a 4" schedule 40 polypropylene overflow/air vent pipe installed in the fill tower extending through the tank and dumping behind the rear axle.

<b>The water tank overflow shall be extended below the fuel tank and rear axle so the overflow does not dump or spray on top of either.

FOAM CELL

One (1) United Plastic Fabricating (UPF) 20 U.S. gallon foam cell shall be incorporated into the water tank. One (1) pressure/vacuum vent shall be installed and one (1) drain hose shall be connected to the foam cell. The drain shall have a quarter-turn valve installed inside the pump compartment and it shall drain below the frame rail of the chassis.

The foam cell shall be designed for use with Class "A" foam.

The foam cell shall have a manual fill tower constructed of 1/2" PT3 polypropylene and shall be a minimum dimension of 8" x 8" outer perimeter. The foam fill tower shall be black in color, indicating the type of foam to be utilized and located on the officer's side front corner of the water tank. The capacity of the cell shall be engraved on the top of the fill tower lid. The tower shall have a 1/4" thick removable polypropylene screen and a stainless steel hinged-type cover. Inside the fill tower, approximately 1.5" down from the top, there shall be an anti-foam fill tube that extends down to the bottom of the cell. A pressure vacuum vent shall be provided in the lid of the fill tower.

FOAM CELL LEVEL GAUGE

One (1) Fire Research, model WLA360-A00, TankVision Pro 300 foam tank level gauge shall be provided on the pump operator's control panel.

The gauge shall have nine (9) super bright RGB LEDs to show the tank volume. The display shall use a two-dimensional, two-element lens to refract the light from the LEDs to provide full 180° visibility for the level indication. The gauge shall use a pressure transducer installed near the bottom of the foam tank to determine the correct volume in the tank. The gauge shall be self-calibrating by filling the tank at a steady flow rate. Self-diagnostics capabilities shall be standard on the gauge. The gauge shall start to flash when the tank volume is at 1/4 tank or less and use down scrolling LEDs to alert the pump operator when the tank is almost empty.

The gauge shall have a label that indicates it is for the foam cell that contains Class "A" foam.

HOSE BED

The hose bed shall be located within the enclosed torque box and accessible from the rear of the apparatus. The hose bed shall allow department personnel to deploy and reload hose from ground level without the use of steps or climbing on the apparatus. Hose bed designs that require department personnel to climb on the apparatus to reload hose into the hose bed area, or that utilize hose chutes in

the design, shall only be acceptable if they provide guard railings around the perimeter of reloading area and tether capabilities to protect firefighters and aid in preventing them from accidently falling off the apparatus.

Storage capacity shall be for a minimum of 1,000 feet of 5" double-jacket or rubber, large diameter fire hose in 100' lengths. The hose shall be stored in a storage box specifically designed for ease of operation and maximum safety. The hose box shall be located within the torque box when the apparatus is in travel condition. The storage box shall contain a bottom floor, two sidewalls, and a front wall. For rapid ease of unloading hose, there shall be no rear wall. The hose storage structure shall contain a mechanical means that shall extend and lower the storage box out the rear of the truck for ease of loading the hose. Once reloading operations have been completed the structure shall raise and retract into the bedded condition.

The aerial hydraulic pump shall be the power source for the mechanical operational functions of the storage box system. The operational control shall consist of an electric switch that shall be located at the rear of the apparatus for ease of operation. When the box is fully extended and lowered to reload position, it shall extend out the rear of the apparatus approximately 12' 6". For ease of reloading hose, the top portion of the storage box shall be no higher than 50" from ground level when in the reload position while on flat terrain. A hydraulic motor pinion gear assembly shall be utilized for the extension/retraction function. One hydraulic cylinder shall be utilized for the lowering/raising function. Provisions shall allow for this system to be manually positioned to the travel position should a mechanical malfunction occur.

The extending substructure shall consist of heavy-duty steel structural members. The storage box shall be fabricated from 3/16" aluminum. The approximate dimensions shall be 144" long x 15-1/2" high x 32" wide. Drain holes shall be located in the bottom of the aluminum storage box. The interior of the hose bed shall be coated with black Bedliner Coating, a thermoplastic polyurethane coating.

Two flashing warning lights shall be installed, one (1) each side on the end of the substructure tubes that alert personnel of the deployed position of the hose box structure. An aluminum side safety shield shall be installed designed to keep items from being caught and damaged when the structure is being lowered and raised. There shall be a 4" white reflective striping secured to the safety shield to alert motorist during night operations.

Nylon wear pads impregnated with molybdenum disulfide and high in molecular weight shall be used between the telescoping sections for maximum weight distribution, strength, and smoothness of operation. The system shall be designed in such a manner to only allow activation of the down function after full-extension has been achieved. The retraction function will not be activated until the maximum upward travel has been reached.

The torque box enclosure door shall not be connected to the open door warning light system. The hose bed shall include a separate warning light in the cab to specifically warn the driver that the hose bed structure is not in the stowed position. The inside, upper portion of the torque box area shall be free of items that may cause interference with the rapid deployment of the hose. The design shall ensure that hose couplers do not bind up or get caught during the deployment operation.

The floor of the hose bed shall be constructed of Dura-Dek fiber reinforced plastic material to prevent

the accumulation of water and to allow ventilation to aid in drying hose. The flooring shall be fabricated of "T" beam pultrusions in parallel connected with cross slats that are first mechanically bonded and then epoxied, forming a large sheet. The top portion of each "T" cross section shall measure 1-1/4" wide and 3/16" thick with beaded ends. The vertical portion shall be 3/8" thick, beading out at the bottom to a thickness of 1/2" and tall enough to result in an overall height of 1". The "T" sections shall be spaced 3/4" apart to allow for drainage and ventilation.

Each "T" beam shall be constructed utilizing a core of 250,000 continuous glass fiber strands that are high in resistance to tension, compression, and bending. An outer sheath consisting of a continuous strand mat to prevent linear splitting and slipping shall surround the core. The sheath shall also serve to draw the protective resin to the bar surface. Both reinforcements shall be pulled through an isophthalic polyester resin, treated with antimony trioxide for fire resistance, to form a solid length.

The flooring shall then be protected with a polyurethane coating to screen out ultraviolet rays. The bright white coating shall be baked on.

The hose bed shall contain the following hose load:

800' of 5" and 200' 2-1/2" double jacket hose

HOSE BED DIVIDER

One (1) hose bed divider, fabricated from 3/16" smooth aluminum plate and an aluminum extrusion, shall be installed in the EHL hose bed. The divider shall have a black Bedliner Coating finish and shall be mounted on aluminum "C" channel slide rail at the front, center and rear of the EHL hose bed. The slide rails shall allow full movement of the divider along the width of the EHL hose bed. This shall provide the capability for variable hose load configurations and capacities. There be less than a 1/2" gap between the bottom of the divider and the Dura-Dek flooring to prevent the chance of any hose becoming snagged in the EHL hose bed during deployment.

ALUMINUM BODY CONSTRUCTION

The apparatus body shall be fabricated from 1/8" 5052-H32, smooth aluminum sheet. The total outside width of the apparatus body shall not exceed 100 inches. The width measurement of the sidewalls shall be made from the outside wall of the two opposite sides of the body.

The complete apparatus body shall be fabricated utilizing the break and bend techniques in order to form a strong, yet flexible, uni-body structure. The body shall be constructed with holding fixtures to ensure proper dimensioning. Each apparatus body is specific in design in order to meet the unique requirements of the purchasing fire department.

The main body compartments on each side, as well as the rear center compartment if applicable, shall contain a sweep out floor design. Each compartment shall be made to the most practical dimensions in order to provide maximum storage capacity for the fire department's equipment. The door opening

threshold shall be positioned lower than the compartment floor permitting easy cleaning of the compartments.

Continuous, solid welded seams shall be located at the upper front and upper rear corners of the apparatus body. The flooring of all lower, main body compartmentation shall also have solid weld seams. All door jams, on both the top and the bottom, shall be solid welded as well. Each main door jam shall consist of a double jam design; this is comparable to a double struck frame design, which provides superior strength and durability. All double door jams are to be welded together utilizing the plug weld technique. All remaining compartment walls shall be stitch welded.

The compartment floors, specifically L1 and R1, shall have a minimum of two (2) 2" x 2" square tubes welded to the entire width of the compartment floor. The two (2) rear side compartments as well as the rear center compartment, if applicable, shall be welded to the rear deck support structure. This rear deck support structure is specially designed for the galvanized apparatus body substructure. Each lower, rear compartment shall be adequately stitch welded to the cross tubes providing strength and durability to the entire apparatus body.

The body design shall include a "false wall" design in the lower portion of each lower, rear compartment. This "false wall" is required in order to allow for easy accessibility to the rear electrical components found in the rear tail light cluster area.

On the upper area of the apparatus body, directly above the side compartment door openings, a header is to be fabricated from smooth, aluminum sheet. This area shall be free of any body seams and shall be painted the same color as the apparatus body. The height of the header may vary depending on the following factors: apparatus design, lettering requirements, scene lights and warning light requirements as well as various other options. A "J" channel shall be incorporated into the body design in order to provide a rain gutter to further assist in preventing excessive moisture from getting into the compartments.

SIDE COMPARTMENT DOORS

ROM roll-up doors shall be installed on each side body compartment, ten (10) total. Each door shall be a shutter type with slats that roll onto a spool at the top of the compartment. Each slat shall be equipped with nylon end shoes to assure operation without the need for constant lubrication. The door slats and tracks shall be wet painted by the door manufacturer to match the apparatus body.

Each ROM roll-up door shall be supplied with a full-width lift bar and finger pull handle integrated into the bottom rail for easy one hand operation.

LOCKING ROBINSON ROLL UP DOOR HANDLES

Each roll-up door be supplied with a full width handle for ease of opening with only one hand, allowing quick access to equipment and Nylon end shoes on every slat to assure operation without constant lubrication.

DOOR LOCKS

There be a door lock with key provided on each Robinson roll-up type door. Only one per door so that the CPI switches can be installed on the opposite side.

POWER DOOR LOCKS

There be a power operated door lock provided on each Robinson roll-up type door. A switch be located in the chassis cab to lock and unlock all roll-up doors with power door locks.

WEATHERPROOF DOOR SWITCHES

The compartment doors shall utilize weatherproof CPI switches. The switches shall be used for activation of the compartment lights and provide a signal to the door open circuit in the cab.

DRIP TRAYS

Drip trays with drains shall be provided in the upper section of all body compartments with roll-up doors. Each drip tray shall prevent moisture from the roll-up door spool from entering the compartment interior.

PULL DOWN STRAP

There shall be black OEM supplied pull down straps installed on the SR1 and SL1 compartment doors.

One (1) horizontally hinged lap type compartment door shall be installed on the compartment face. The lap door shall be a single panel construction and fabricated of aluminum. The door shall be painted job color. The edges of the door shall be formed to an inward angle for added rigidity. Rubber molding shall be installed in the overlap area of the door to ensure a weatherproof seal and prevent water from collecting in the door sill. The compartment door shall have a polished stainless steel continuous hinge with a rubber seal installed between the hinge and the aluminum door to separate the dissimilar metals. The hinge pin shall be stainless steel with a minimum diameter of 1/4".

The rear compartment door shall be extended taller to provide access to storage area in the upper rear portion of the body. Same interior coating as all other compartments

The compartment door handle shall be a non-locking grab handle.

Two (2) pressurized gas-filled cylinders shall be furnished on the compartment door. The cylinders shall hold the door in the open position and assist in raising it. The gas filled cylinders shall assist in closing the door automatically when the door is positioned over center.

The inner door face shall be painted the primary body color. The panels shall have a grade "B" paint

finish, therefore it will not be buffed and may be subject to imperfections.

BODY COMPARTMENT LIGHTING

A total of twenty (20) Amdor Luma Bar LED compartment lights shall be installed in the body compartments. Each light shall be enclosed within a high impact polycarbonate enclosure. Each Luma Bar shall offer a wide angle surface mount LED installed on a printed circuit board for shock and vibration resistance.

COMPARTMENT COATING

The interior of the body compartments shall be coated with gray Bedliner Coating unless otherwise specified. The coating shall be durable enough to withstand the everyday wear and tear of equipment removal and shifting.

DRI-DEK TILES

Black Dri-Dek interlocking squares shall be provided in all body compartments. The Dri-Dek shall be applied in all body compartment shelves, adjustable-height trays, floor-mounted trays, and on compartment floors that do not contain floor-mounted trays. No Dri-Dek shall be applied on compartment floors underneath floor-mounted trays. For maximum slip resistance and drainage each square shall have a knobby perforated surface.

Shop Note: Shop Note: Dri-Dek shall be installed in the front bumper hosewell

COMPARTMENT AIR RELEASE

Each compartment shall be vented to help remove trapped air when closing the compartment door. The vent shall be a rubber gasket in the area of the outboard corners of the compartment. Wiring may also be run through these areas.

COMPARTMENT DRAIN HOLES

Each body compartment shall be equipped with drain holes to allow standing water to exit underneath the apparatus.

SILL PROTECTORS

An anodized aluminum angle sill protector shall be installed on the bottom sill area of the compartment with lap style doors to aid in reducing paint damage from equipment. The sill protectors shall be attached using permanent-bonding double-sided tape.

FUEL FILL

The fuel fill pocket shall be located in the driver's side rear wheel well area. The fuel fill shall utilize a stainless steel OEM door with a brushed finish. The hinge and frame shall all be constructed out of stainless steel material.

Fuel Tank Vent Line

The fuel fill vent line shall be attached to the hose barb using a hose clamp.

WHEEL WELL "SMART STORAGE"

The wheel wells shall be designed to accept "Smart Storage" modules for maximum compartment efficiency.

DRIVER'S (LEFT) SIDE BODY COMPARTMENTS

COMPARTMENT L1
A full height compartment shall be located ahead of the rear wheels on the driver's side of the apparatus body. This compartment shall be designated as L1 within these specifications and any ensuing paperwork or drawings after contract execution.

The dimensions of the compartment shall be:
- Height: 57"
- Width: 36"
- Depth: 14" Upper and 23" Lower
- Intermediate Divide Height: 27"

COMPARTMENT L2
A standard height compartment shall be located above the rear wheels on the driver's side of the apparatus body. This compartment shall be designated as L2 within these specifications and any ensuing paperwork or drawings after contract execution.

The dimensions of the compartment shall be:
- Height: 27"
- Width: 52"
- Depth: 14" Upper and 14" Lower
- Intermediate Divide Height: 0"

COMPARTMENT L3
A standard height compartment shall be located above the rear wheels on the driver's side of the apparatus body. This compartment shall be designated as L3 within these specifications and any ensuing paperwork or drawings after contract execution.

The dimensions of the compartment shall be:
- Height: 27"
- Width: 52"
- Depth: 14" Upper and 14" Lower
- Intermediate Divide Height: 0"

COMPARTMENT L4
A full height compartment shall be located behind the rear wheels on the driver's side of the apparatus body. This compartment shall be designated as L4 within these specifications and any ensuing paperwork or drawings after contract execution.

The dimensions of the compartment shall be:
- Height: 52"
- Width: 25"
- Depth: 14" Upper and 24" Lower
- Intermediate Divide Height: 27"

COMPARTMENT L5
A full height compartment shall be located behind the rear wheels on the driver's side of the apparatus body. This compartment shall be designated as L5 within these specifications and any ensuing paperwork or drawings after contract execution.

The dimensions of the compartment shall be:
- Height: 43"
- Width: 45"
- Depth: 14" Upper and 22" Lower
- Intermediate Divide Height: 18"

L1 Components

ADJUSTABLE SHELVES

Two (2) aluminum adjustable shallow-depth shelves shall be installed in the compartment. Each shelf

shall be constructed of 3/16" aluminum sheet with a minimum of 2" lips. The shelves shall be coated with Bedliner Coating and shall be designed in such a manner as to allow liquids to readily drain.

FLOOR MOUNTED ROLL OUT TRAY

One (1) roll out equipment tray shall be installed on the floor of the compartment. The tray shall be equipped with an Austin Hardware drawer slide. The roller assembly shall have a rated capacity of 300 lbs. distributed load and shall have 100% extension capability. The tray shall be constructed of 3/16" aluminum sheet with 3" lips. The tray shall be coated with a bedliner finish and shall be equipped with a locking slide in order to hold the tray in either a fully extended or closed position. The tray shall be equipped with the Austin Hardware front drawer release system which allows for one handed operation of the system.

COMPARTMENT STRUTS

Aluminum vertical strut channels shall be welded in the compartment. Two (2) struts shall be provided for any full depth portion and one (1) strut shall be provided for any shallow depth portion.

L2 Components

TOOL BOARD

One (1) swing-out aluminum tool board shall be located in the standard height compartment. The tool board shall be constructed of 3/16" aluminum. The tool board shall be mounted to horizontal struts to allow the board to be relocated for depth in the compartment. There shall be a positive latching mechanism that shall secure the board in the compartment. The tool board shall utilize friction washers to hold it in both the opened and closed position.

The tool board shall have a maintenance-free abraded finish and be of a pegboard pattern design.

COMPARTMENT STRUTS

Aluminum vertical strut channels shall be welded in the compartment. Two (2) struts shall be provided for any full depth portion and one (1) strut shall be provided for any shallow depth portion.

L3 Components

ADJUSTABLE TILT-DOWN TRAYS

Two (2) tilt-down roll out trays shall be installed in the compartment. Each tray shall be provided with an

Innovative Industries roller type assembly. The roller assembly shall have a rated capacity of 250 lb. distributed load, 90% extension capability, and 30-degree tilt down capability. The roller assembly shall be bolted to vertical struts to allow for height adjustment of the tray. A mechanical lock assembly shall be provided to lock each tray in the extended position and the retracted position. The trays shall be constructed of 3/16" aluminum sheet with 3" lips and shall be coated with Bedliner Coating. Each roller assembly shall have a powder coated finish for added corrosion protection.

COMPARTMENT STRUTS

Aluminum vertical strut channels shall be welded in the compartment. Two (2) struts shall be provided for any full depth portion and one (1) strut shall be provided for any shallow depth portion.

L4 Components

ADJUSTABLE SHELVES

Two (2) aluminum adjustable shallow-depth shelves shall be installed in the compartment. Each shelf shall be constructed of 3/16" aluminum sheet with a minimum of 2" lips. The shelves shall be coated with Bedliner Coating and shall be designed in such a manner as to allow liquids to readily drain.

FLOOR MOUNTED ROLL OUT TRAY

One (1) roll out equipment tray shall be installed on the floor of the compartment. The tray shall be equipped with an Austin Hardware drawer slide. The roller assembly shall have a rated capacity of 300 lbs. distributed load and shall have 100% extension capability. The tray shall be constructed of 3/16" aluminum sheet with 3" lips. The tray shall be coated with a bedliner finish and shall be equipped with a locking slide in order to hold the tray in either a fully extended or closed position. The tray shall be equipped with the Austin Hardware front drawer release system which allows for one handed operation of the system.

COMPARTMENT STRUTS

Aluminum vertical strut channels shall be welded in the compartment. Two (2) struts shall be provided for any full depth portion and one (1) strut shall be provided for any shallow depth portion.

L5 Components

ADJUSTABLE SHELVES

Two (2) aluminum adjustable shallow-depth shelves shall be installed in the compartment. Each shelf

shall be constructed of 3/16" aluminum sheet with a minimum of 2" lips. The shelves shall be coated with Bedliner Coating and shall be designed in such a manner as to allow liquids to readily drain.

FLOOR MOUNTED ROLL OUT TRAY

One (1) roll out equipment tray shall be installed on the floor of the compartment. The tray shall be equipped with an Austin Hardware drawer slide. The roller assembly shall have a rated capacity of 300 lbs. distributed load and shall have 100% extension capability. The tray shall be constructed of 3/16" aluminum sheet with 3" lips. The tray shall be coated with a bedliner finish and shall be equipped with a locking slide in order to hold the tray in either a fully extended or closed position. The tray shall be equipped with the Austin Hardware front drawer release system which allows for one handed operation of the system.

COMPARTMENT STRUTS

Aluminum vertical strut channels shall be welded in the compartment. Two (2) struts shall be provided for any full depth portion and one (1) strut shall be provided for any shallow depth portion.

DRIVER'S SIDE SMART STORAGE - WL2

A Smart Storage compartment shall be installed in the rear wheel well area between the tandem axles on the driver's side of the apparatus. The compartment shall be designed to store one (1) 2.5 gallon water can and one (1) 20 lbs. fire extinguisher. The compartment door and hinge shall be constructed of stainless steel material. The door shall have a rubber gasket to create a 100% seal against an aluminum flange to protect the interior of the compartment. The door shall have a brushed stainless steel finish.

DRIVER'S SIDE SMART STORAGE - WL3

A three (3) air bottle Smart Storage compartment shall be installed in the rearward portion of the rear wheel well area, on the driver's side of the apparatus. The compartment shall be a triangle design. The compartment door and hinge shall be constructed of stainless steel material. The door shall have a rubber gasket to create a 100% seal against an aluminum flange to protect the interior of the compartment. The door shall have a brushed stainless steel finish.

OFFICER'S (RIGHT) SIDE BODY COMPARTMENTS

COMPARTMENT R1
A full height compartment shall be located ahead of the rear wheels on the officer's side of the apparatus body. This compartment shall be designated as R1 within these specifications and any ensuing paperwork or drawings after contract execution.

The dimensions of the compartment shall be:

- Height: 57"
- Width: 36"
- Depth: 14" Upper and 23" Lower
- Intermediate Divide Height: 27"

COMPARTMENT R2
A standard height compartment shall be located above the rear wheels on the officer's side of the apparatus body. This compartment shall be designated as R2 within these specifications and any ensuing paperwork or drawings after contract execution.

The dimensions of the compartment shall be:
- Height: 27"
- Width: 52"
- Depth: 14" Upper and 14" Lower
- Intermediate Divide Height: 0"

COMPARTMENT R3
A standard height compartment shall be located above the rear wheels on the officer's side of the apparatus body. This compartment shall be designated as R3 within these specifications and any ensuing paperwork or drawings after contract execution.

The dimensions of the compartment shall be:
- Height: 27"
- Width: 52"
- Depth: 14" Upper and 14" Lower
- Intermediate Divide Height: 0"

COMPARTMENT R4
A full height compartment shall be located behind the rear wheels on the officer's side of the apparatus body. This compartment shall be designated as R4 within these specifications and any ensuing paperwork or drawings after contract execution.

The dimensions of the compartment shall be:
- Height: 52"
- Width: 25"
- Depth: 14" Upper and 24" Lower
- Intermediate Divide Height: 27"

COMPARTMENT R5

A full height compartment shall be located behind the rear wheels on the officer's side of the apparatus body. This compartment shall be designated as R5 within these specifications and any ensuing paperwork or drawings after contract execution.

The dimensions of the compartment shall be:

- Height: 43"
- Width: 21"
- Depth: 14" Upper and 22" Lower
- Intermediate Divide Height: 15"

R1 Components

ADJUSTABLE SHELVES

Two (2) aluminum adjustable shallow-depth shelves shall be installed in the compartment. Each shelf shall be constructed of 3/16" aluminum sheet with a minimum of 2" lips. The shelves shall be coated with Bedliner Coating and shall be designed in such a manner as to allow liquids to readily drain.

FLOOR MOUNTED ROLL OUT TRAY

One (1) roll out equipment tray shall be installed on the floor of the compartment. The tray shall be equipped with an Austin Hardware drawer slide. The roller assembly shall have a rated capacity of 300 lbs. distributed load and shall have 100% extension capability. The tray shall be constructed of 3/16" aluminum sheet with 3" lips. The tray shall be coated with a bedliner finish and shall be equipped with a locking slide in order to hold the tray in either a fully extended or closed position. The tray shall be equipped with the Austin Hardware front drawer release system which allows for one handed operation of the system.

COMPARTMENT STRUTS

Aluminum vertical strut channels shall be welded in the compartment. Two (2) struts shall be provided for any full depth portion and one (1) strut shall be provided for any shallow depth portion.

R2 Components

TOOL BOARD

One (1) swing-out aluminum tool board shall be located in the standard height compartment. The tool board shall be constructed of 3/16" aluminum. The tool board shall be mounted to horizontal struts to

allow the board to be relocated for depth in the compartment. There shall be a positive latching mechanism that shall secure the board in the compartment. The tool board shall utilize friction washers to hold it in both the opened and closed position.

The tool board shall have a maintenance-free abraded finish and be of a pegboard pattern design.

COMPARTMENT STRUTS

Aluminum vertical strut channels shall be welded in the compartment. Two (2) struts shall be provided for any full depth portion and one (1) strut shall be provided for any shallow depth portion.

R3 Components

ADJUSTABLE TILT-DOWN TRAYS

Two (2) tilt-down roll out trays shall be installed in the compartment. Each tray shall be provided with an On-Scene Cargo Slide roller type assembly. The out and down roller assembly shall have a rated capacity of 250 lb. distributed load up to 47" wide, 90% extension capability, and a 30-degree tilt down capability. Roller assemblies wider than 47" shall be rated for 150 lb. distributed load. The roller assembly shall be bolted to vertical struts to allow for height adjustment of the tray. A mechanical lock assembly shall be provided to lock each tray in the extended position and the retracted position. The trays shall be constructed of 3/16" aluminum sheet with 3" lips and shall be coated with Bedliner Coating. Each roller assembly shall be constructed of anodized aluminum and stainless steel fasteners.

COMPARTMENT STRUTS

Aluminum vertical strut channels shall be welded in the compartment. Two (2) struts shall be provided for any full depth portion and one (1) strut shall be provided for any shallow depth portion.

R4 Components

ADJUSTABLE SHELVES

Two (2) aluminum adjustable shallow-depth shelves shall be installed in the compartment. Each shelf shall be constructed of 3/16" aluminum sheet with a minimum of 2" lips. The shelves shall be coated with Bedliner Coating and shall be designed in such a manner as to allow liquids to readily drain.

FLOOR MOUNTED ROLL OUT TRAY

One (1) roll out equipment tray shall be installed on the floor of the compartment. The tray shall be

equipped with an Austin Hardware drawer slide. The roller assembly shall have a rated capacity of 300 lbs. distributed load and shall have 100% extension capability. The tray shall be constructed of 3/16" aluminum sheet with 3" lips. The tray shall be coated with a bedliner finish and shall be equipped with a locking slide in order to hold the tray in either a fully extended or closed position. The tray shall be equipped with the Austin Hardware front drawer release system which allows for one handed operation of the system.

COMPARTMENT STRUTS

Aluminum vertical strut channels shall be welded in the compartment. Two (2) struts shall be provided for any full depth portion and one (1) strut shall be provided for any shallow depth portion.

R5 Components

ADJUSTABLE SHELVES

Two (2) aluminum adjustable shallow-depth shelves shall be installed in the compartment. Each shelf shall be constructed of 3/16" aluminum sheet with a minimum of 2" lips. The shelves shall be coated with Bedliner Coating and shall be designed in such a manner as to allow liquids to readily drain.

TOOL BOARDS

Two (2) full height slide out aluminum tool boards shall be located in the split depth compartment. Each tool board shall utilize a locking roller assembly to lock it in both the opened and closed position. The tool boards shall be mounted to a horizontal strut to allow the boards to be relocated for the best fit in the compartment.

The tool boards shall have single-faced PAC TRAC tool mounting installed on each side of the pull-out tool boards. The PAC TRAC sections shall be constructed of 7/8" thick, 6063-T5 extruded aluminum.

COMPARTMENT STRUTS

Aluminum vertical strut channels shall be welded in the compartment. Two (2) struts shall be provided for any full depth portion and one (1) strut shall be provided for any shallow depth portion.

VERTICAL PARTITION

One (1) bolt-in vertical partition shall be installed in the full height compartment. The partition finish shall match the compartment interior.

OFFICER'S SIDE SMART STORAGE - WR1

A three (3) air bottle Smart Storage compartment shall be installed in the forward portion of the rear wheel well area, on the officer's side of the apparatus. The compartment shall be a triangle design. The compartment door and hinge shall be constructed of stainless steel material. The door shall have a rubber gasket to create a 100% seal against an aluminum flange to protect the interior of the compartment. The door shall have a brushed stainless steel finish.

OFFICER'S SIDE SMART STORAGE - WR2

A Smart Storage compartment shall be installed in the rear wheel well area between the tandem axles on the officer's side of the apparatus. The compartment shall be designed to store one (1) 2.5 gallon water can and one (1) 20 lbs. fire extinguisher. The compartment door and hinge shall be constructed of stainless steel material. The door shall have a rubber gasket to create a 100% seal against an aluminum flange to protect the interior of the compartment. The door shall have a brushed stainless steel finish.

OFFICER'S SIDE SMART STORAGE - WR3

A three (3) air bottle Smart Storage compartment shall be installed in the rearward portion of the rear wheel well area, on the officer's side of the apparatus. The compartment shall be a triangle design. The compartment door and hinge shall be constructed of stainless steel material. The door shall have a rubber gasket to create a 100% seal against an aluminum flange to protect the interior of the compartment. The door shall have a brushed stainless steel finish.

REAR BODY COMPARTMENT

A compartment shall be located at the rear of the apparatus that extends into the apparatus torque box.

HOT-DIP GALVANIZED STEEL BODY MOUNT SUB FRAME

The main body mount sub frame shall be constructed from formed steel channel bolted and welded to the torque box. The sub frame shall be located at the front and rear of the body and in front of, above, and rear of the wheel well opening.

The compartment area behind the rear axle shall be supported by a drop frame fabricated of steel tube and angles. All drop frame structures shall be welded directly to the torque box to allow the body to be a completely separate structure from the chassis.

BODY RUB RAILS

Rub rails shall be installed beneath the compartment doors to protect the apparatus body from damage should the body be brushed or rubbed against another object. The rub rails shall be 2-1/2" x 1" , 3/16"

aluminum channel. The rub rails shall be highly polished and then bright dip anodized.

The rub rails shall be installed on the body utilizing non-corrosive nylon spacers and secured with stainless steel bolts. The outside edge of the rub rails shall be even with the fenderettes and bolt-on steps to prevent snagging.

TWO REAR TOW EYES

Two (2) chrome plated tow eyes shall be installed at the rear of the apparatus above the rear step area. The tow eyes shall be bolted to a heavy-duty assembly that is welded to the torque box. The tow eyes shall have a 2-1/2" ID hole.

REAR 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.

STAINLESS STEEL FENDERETTES

Four (4) stainless steel fenderettes shall be installed at the outboard edge of the rear wheel well area, two (2) on 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 between the fender crown fasteners (screws) and the fender sheet metal to resist deterioration. The fenderettes shall be constructed of stainless steel that has been polished to a high-quality finish.

EXHAUST HEAT DEFLECTOR SHIELD

A 5" heat deflector shield shall be installed over the exhaust to aid in dissipating the heat to prevent exhaust heat from adversely affecting contents stored in the body.

LICENSE PLATE BRACKET

A license plate bracket shall be mounted on the rear of the apparatus. A clear LED light shall be incorporated into the bracket.

TRIMRITE STAINLESS STEEL FASTENERS

TrimRite stainless steel fasteners shall be provided for all exposed and unpainted fasteners throughout

the body in locations such as overlays, pump panels, and other numerous hardware mounting locations. TrimRite stainless is a hardenable martensitic stainless steel that provides a high level of corrosion resistance, hardness up to Rockwell C 51, good cold formability and ease of heat treatment, all of which combine to provide an alloy which has been used for many applications. TrimRite stainless is tested to salt spray standard ASTM B117, which is a 200-hour salt spray test. The OEM shall use TrimRite stainless with an added blue patch which provides improved vibration resistance for the fasteners.

WALKWAYS AND OVERLAYS

All exterior surfaces designated by the manufacturer as stepping, standing, or walking areas shall be overlaid with 3003 H22 bright tread plate to provide a slip resistant surface, even when the surface is wet. All interior surfaces designated by the manufacturer as stepping, standing, or walking areas shall be slip resistant when the surface is dry. The degree of slip resistance shall be in accordance with NFPA, current edition.

Horizontal walkways shall have .080" aluminum tread plate overlays installed and vertical surfaces shall have .125" aluminum tread plate overlays. Overlays shall be installed that are totally insulated from the apparatus with nylon shoulder washers that extend into holes in the body. Stainless steel cap nuts shall be employed where bolt ends may damage equipment or cause injury. After the apparatus is painted and the overlays are reinstalled, they shall be additionally sealed at the edges with a caulking compound. The exterior top tread plate overlay shall be mounted flush with the outer edges of the apparatus body.

Any designated horizontal standing or walking surface higher than 48" from the ground and not guarded by a railing, or structure at least 12" high shall have a "safety yellow line" marking the outside perimeter of the designated standing or walking surface area. Yellow reflective SCENEdots shall be used to create the line along the outside edges of standing and walking surfaces. Steps and ladders shall not be required to have the yellow line.

STEPPING SURFACES

All steps shall have a surface area of at least 35 square inches and shall be able to withstand a load of at least 500 pounds. Steps shall be provided at any area that personnel may need to climb and shall be adequately lit.

TURNTABLE ACCESS LADDER - OFFICER'S SIDE

For access to the turntable, a turntable access ladder shall be furnished on the officer's side of the apparatus. The ladder design shall utilize two (2) air cylinders to aid in the deployment of the ladder into the climbing position and a positively locking mechanism to lock the ladder assembly into the travel position. The main structural members of the assembly shall be fabricated from 12 gauge 304 stainless steel with aluminum tread plate overlays on the step area. The degree of slip resistance shall be in accordance with NFPA, current edition.

The access ladder shall be designed as a two (2) part assembly. The lower ladder assembly shall swing

out and down and the upper ladder assembly will angle when the lower assembly is in the down position to an approximate slope of 81 degrees to provide ease of access from the ground to the first step and allow for the maximum angle of departure of the apparatus. When the access ladder is in the down position, the maximum height from the ground to the first step shall not exceed 24". All remaining steps shall have a maximum stepping height that shall not exceed 18".

The access ladder shall be connected to the door open warning circuit to warn the driver it is not in the stored position. The access ladder shall be illuminated for night time operation with Grote LED lighting. The lights shall be activated by the parking brake. To aid in ascending and descending the access ladder, knurled aluminum handrails shall be provided on each side, as well as one (1) on top of the body above the steps. The handrails shall utilize white colored LED backlighting. The lower bracket on the vertical handrails shall have a drain hole drilled in it at the lowest point.

BACKLIT HANDRAILS

All handrails, unless otherwise stated, shall be constructed of knurled aluminum with white colored LED backlighting. All railing shields and brackets shall be chrome plated and shall be bolted to the body with stainless steel bolts. The lower bracket on all vertical handrails shall have a drain hole drilled in it at the lowest point.

The following handrails shall be provided on the apparatus:

A horizontal handrail shall be installed above the officer's side pump panel.

Shop Note: Shall be mounted above the right side pump module access door.

GROUND LADDER STORAGE

The ground ladders shall be stored within the two enclosed compartments, located between the torque box and the inside wall of the side compartments. The ladders shall be removable from the rear of the apparatus. The ladders shall be enclosed so road dirt and debris cannot foul or damage the ladders. The ladders shall rest in full-length slides and be arranged so they can be removed individually. Access to the ladder(s) in each enclosed compartment shall be from the rear of the apparatus through a door matching the same material and finish as the torque box compartment door.

The following ground ladders shall be supplied with the apparatus:

One (1) Duo-Safety, model 585-A, 10' aluminum folding ladder shall be provided.

One (1) Duo-Safety, model 701, 14' aluminum "Fresno" attic extension ladder with a 13" rail width shall be provided.

One (1) Duo-Safety, model 875-A, 16' aluminum roof ladder with folding roof hooks shall be provided.

One (1) Duo-Safety, model 900-A, 24' aluminum two-section extension ladder shall be provided.

One (1) Duo-Safety, model 1200-A, 35' aluminum two-section extension ladder shall be provided.

PIKE POLE STORAGE

Six (6) aluminum tubes for the storage of pike poles shall be located in the torque box compartment and the surrounding areas as depicted in the drawing. Pole locations shall match the drawing.

The following pike poles shall be supplied with this location on the apparatus:

Two (2) Fire Hooks Unlimited, model RH-6, 6' steel shaft pike poles with a New York Roof Hook and ram knob end shall be provided.

Two (2) Fire Hooks Unlimited, model RH-10, 10' steel shaft pike poles with a New York Roof Hook and chisel end shall be provided.

PIKE POLE STORAGE

Two (2) aluminum trays for the storage of pike poles shall be installed inside the upper portion of the torque box.

The following pike poles shall be supplied with this location on the apparatus:

Two (2) Duo Safety, model FP4D, 4' fiberglass pike poles with a standard hook and an aluminum "D" style handle shall be provided.

WHEEL CHOCK STORAGE

The wheel chocks shall be stored in locations that are easily accessible under the front of the body on the driver's side of the apparatus.

WHEEL CHOCKS

One (1) pair of Zico, model SAC-44, wheel chocks shall be provided with the apparatus. The wheel chocks shall be mounted in Zico model, SQCH-44-H, mounting brackets.

WHEEL CHOCK STORAGE

The wheel chocks shall be stored in locations that are easily accessible under the front of the body on the officer's side of the apparatus.

WHEEL CHOCKS

One (1) pair of Zico, model SAC-44, wheel chocks shall be provided with the apparatus. The wheel chocks shall be mounted in Zico model, SQCH-44-H, mounting brackets.

INDEPENDENT ALUMINUM PUMP MODULE

The pump module shall be fabricated from 1/8" 5052-H32 smooth aluminum sheet. The module shall be fabricated as an individual unit independent from the body. The module shall be fabricated utilizing the break and bend technique in order to form a strong yet flexible structure. The pump module shall be fabricated using precision holding fixtures to ensure proper dimensions and all attachment points shall be heavily reinforced.

ENCLOSED PUMP PANELS

The pump module shall be extended to the outside edges of the body to accommodate a roll-up door that shall be used to fully enclose both side pump panels. The interior enclosed areas shall be coated with black Bedliner Coating.

ENCLOSED PUMP PANEL DOORS

One (1) ROM roll-up door shall be installed on the compartment face on each side of the enclosed pump module, for a total of two (2) doors. The doors shall be a shutter type with 34-millimeter slats that roll onto a spool at the top of the compartment. Each slat shall be equipped with nylon end shoes to assure operation without the need for constant lubrication. The doors slats, tracks, and bottom sill shall be wet painted by the door manufacturer to match the apparatus body.

VERTICAL HOSE COMPARTMENT

There shall be a vertical hose compartment recessed into the driver's side pump panel. The interior wall and flange of the compartment shall be black bed liner to match the pump panel finish. On-Scene Straps to be provided.

PUMP COMPARTMENT LIGHTS

Two (2) 9" On-Scene Night Axe LED lights shall be installed in the pump compartment. The lights shall be rated at 100,000 hours of service. The lights shall be waterproof and magnesium chloride resistant. The

lights shall be enclosed in tough 5/8" Lexan tube.

PUMP COMPARTMENT HEATER

A 40,000 BTU marine heater shall be installed in the pump compartment in the lowest optimal position. The heater shall meet Coast Guard requirements for ignition protection and all hardware shall be marine grade. The heater shall have an electric fan to circulate the heat throughout the pump compartment. The heating coil shall be connected to the engine cooling circuit with heater hose and valves shall be located in the engine compartment in order to turn off the flow to the heater in the event of hose failure. A switch shall be located on the pump operator's control panel to turn the heater fan on or off and an indicator light shall illuminate when the fan is activated.

PUMP COMPARTMENT HEAT PAN

An aluminum heat pan shall be installed beneath the pump compartment to contain the engine heat and assist in preventing the freezing of valves and plumbing in cold weather.

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.

DRIVER'S SIDE RUNNING BOARD

An integral running board shall be installed on the driver's side of the pump module. The running board shall be constructed of aluminum and overlaid with anti-slip tread plate. The outside edge of the running board shall be covered by a rub rail and shall be flush with the rub rail that is installed on the body to maintain a uniform appearance.

OFFICER'S SIDE RUNNING BOARD

An integral running board shall be installed on the officer's side of the pump module. The running board shall be constructed of aluminum and overlaid with anti-slip tread plate. The outside edge of the running board shall be covered by a rub rail and shall be flush with the rub rail that is installed on the body to maintain a uniform appearance.

PULL-OUT PLATFORM

One (1) Innovative Industries pull-out platform shall be located on the driver's side of the pump module. The top surface of the platform shall be constructed of aluminum serrated bar grating for ease of maintenance and to provide a slip resistant surface for the operator. The platform shall lock in both the retracted and the extended position. The pull-out platform shall be capable of supporting a maximum of 500 pounds and shall be wired to the door ajar circuit.

The pull-out platform's roller assembly shall have a powder coat finish for added corrosion protection. The pull-out platform will have an enclosure fabricated from treadbrite material with a drop down door on front for access. The door shall have two compression latches.

DUNNAGE COMPARTMENT

A dunnage compartment shall be located above the pump module. The dunnage compartment floor shall be constructed of tread plate.

The dunnage compartment shall have a hinged cover constructed from anti-slip tread plate material.

CONTROL PANEL

The driver's side of the pump enclosure shall be divided into two sections. The lower section shall be where all valve controls, the primer control, the discharge relief valve controls (pilot valve), and other mechanical controls are located. This surface shall be referred to as the "control panel".

All valve controls shall be the self-locking type, activated by either direct control or with a direct linkage utilizing friction locking bell cranks and universal ball swivels. The primary valve handles shall have color coded tags installed in a recessed area to clearly denote the purpose of each control.

INSTRUMENT PANEL

The surface up above the control panel shall contain all instruments, gauges, test fittings, and optional controls. This surface shall be referred to as the "instrument panel". The instrument panel shall be independent and hinged and latched so that it may be opened. All instruments, gauges, and other equipment shall be installed with sufficient slack in any cabling, tubing, or plumbing to allow the panel to swivel to the fully open position.

The instrument and gauge panel shall be vertically hinged "swing out" to provide access for service.

OFFICER'S SIDE PUMP PANEL

A single panel shall be installed on the officer's side of the pump enclosure. This shall be the area where any officer's side discharges, inlets, steamers, and other pump-associated equipment are located. This panel shall be easily removable and held in place with quick release push latches. It shall be fully removable for pump and plumbing access without the need to use hand tools. Any electrical equipment that may be installed shall be equipped with connectors so they may be easily separated from the opening created when the below described front access panel is removed.

PANEL SURFACES

The control panel, instrument panel, and officer's side pump panel shall be fabricated from a minimum

of 16 gauge stainless steel with #4 brushed finish.

GARNISH RING BEZELS, POLISH STAINLESS STEEL

Polish Stainless steel intake and discharge garnish rings shall be installed on the apparatus.

VERBIAGE TAG BEZEL ASSEMBLIES (Spartan Style)

Innovative Controls (Spartan Style) verbiage tag and bezels shall be installed. The assemblies will be used to identify apparatus components.

SAFETY MESSAGE BEZEL ASSEMBLIES

Innovative Controls safety message and bezels shall be installed. The bezel assemblies will be used to identify, instruct, or warn the operators.

The Innovative Controls verbiage and safety message 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 specified assemblies shall feature a chrome-plated panel-mount bezel with durable UV resistant polycarbonate inserts. These UV resistant polycarbonate graphic inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. All insert labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and is in accordance with NFPA, current edition.

PUMP PANEL LIGHTING

The compartment shall have two (2) 53"Â Amdor Luma Bar integral LED compartment lights installed in the enclosed pump module, one (1) on each side of the opening, for a total of four (4) lights. Each light shall be enclosed within a high impact polycarbonate enclosure. Each Luma Bar shall offer a wide angle surface mount LED installed on a printed circuit board for shock and vibration resistance.

The pump panel lighting shall become energized automatically upon opening the pump module roll-up door so the gauge information may be consulted at any time the pump module door is open.

MIDSHIP MOUNT FIRE PUMP

The pump shall be a Hale model Qmax 2250 U.S. GPM fire pump. The pump shall be a single stage centrifugal class "A" rated fire pump, designed specifically for the fire service.

The pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI. All moving parts in contact with water shall be of high-quality bronze or stainless steel. Pumps utilizing castings made of lower tensile strength cast iron are not acceptable.

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

IMPELLER

The pump shall have one (1) double suction impeller. The pump body shall have two (2) opposed discharge volute cutwaters to eliminate radial unbalance.

The pump shaft shall be rigidly supported by three bearings for minimum deflection. One high lead bronze sleeve bearing shall be located immediately adjacent to the impeller. The sleeve bearing shall be lubricated by a force-fed, automatic oil lubricated design, pressure balanced to exclude foreign material. The remaining bearings shall be heavy-duty, deep groove ball bearings in the gearbox and they shall be splash lubricated.

PUMP GEARBOX

The pump shall have a Hale K series gearbox. The K series gearbox shall be assembled and tested at the pump manufacturer factory. The pump gearbox shall be of sufficient size to withstand up to 18,500 ft. lbs. of torque in road operating conditions. The drive unit shall be designed with ample capacity for lubrication reserve and to maintain the proper operating temperature. The gearbox drive shafts shall be of heat-treated chrome nickel steel and at least 2-3/4 inches in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine. All pump drive gears shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated, shaved, hardened and ground to give an extremely accurate gear for long life, smooth quiet running, and higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust. The pump-ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected. Oil shall be supplied with the pump gearbox.

MECHANICAL SEAL

The pump shall be equipped with a mechanical seal. Only one (1) shall be required and it shall be located on the suction (inboard) side of the pump. The mechanical seal shall be two (2) inches in diameter and shall be spring loaded, maintenance free and self-adjusting. Mechanical seal construction shall consist of a carbon sealing ring, stainless steel coil spring, Viton rubber cup, and a carbide seat with Teflon backup seal.

ALLOY ANODES

Four (4) Hale alloy anodes shall be provided with the fire pump. The anodes shall aid in preventing galvanic corrosion within the water pump and be easily replaceable. The anodes shall be installed as follows:

- Two (2) in the suction manifold of the fire pump
- Two (2) in the discharge manifold of the fire pump.

The pump shall be rated at 1500 imperial gallons per minute.

FIRE PUMP MOUNTING

The fire pump shall be mounted within a separate body module that is not directly connected to the apparatus body.

The pump shall be frame mounted; therefore minimizing the likelihood of the pump casing cracking should the apparatus be involved in a collision.

The pump module shall be mounted to the frame in a minimum of four (4) locations and shall be reinforced appropriately in order to carry the expected load for the life of the apparatus.

PUMP SHIFT

The pump shift shall be supplied and installed by the chassis manufacturer.

The pump system shift indicator lights in the chassis cab shall be supplied and installed by the chassis manufacturer.

The pump system shift indicator lights on the operator's panel shall be incorporated with the pump pressure governor.

PRESSURE GOVERNOR

A Fire Research Pump Boss 400 pressure governor and monitoring display system shall be installed. The system shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 6 3/4" high by 4 5/8" wide by 1-1/2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red control module. Inputs for monitored information shall be a J1939 data bus or independent sensors. Outputs for engine control shall be on the J1939 data bus or engine specific wiring. Inputs to the control module from the pump discharge and intake pressure sensors shall be electrical.

The following continuous displays shall be provided:

- Engine RPM; shown with four daylight bright LED digits more than 1/2" high
- Check engine and stop engine warning LEDs
- Oil pressure; shown on a dual color (green/red) LED bar graph display
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- Transmission Temperature: shown on a dual color (green/red) LED bar graph display

- Battery voltage; shown on a dual color (green/red) LED bar graph display
- Pressure and RPM operating mode LEDs
- Pressure / RPM setting; shown on a dot matrix message display
- Throttle ready LED

The dot-matrix 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. LED intensity shall be automatically adjusted for day and night time operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. The kit 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. A USB port shall be located at the rear of the control module to upload future firmware enhancements.

The 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 LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the 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 governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 PSI. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

An interlock system shall be provided to prevent advancement of the engine speed at the pump operator's panel unless the apparatus has 'Throttle Ready' indication.

The pressure governor and monitoring pressure display shall be programmed to interface with a specific engine.

Shop Note: The pressure governor will be ordered in IGPM

INTAKE RELIEF VALVE

An Elkhart Brass intake relief valve shall be installed on the suction side of the pump. The valve shall be the preset type, adjustable from 75 to 250 PSI, and shall be designed to prevent vibration from altering the setting. The relief outlet shall be directed below the pump with the discharge terminating in a 2-1/2" male NH threads connection. The discharge shall be away from the pump operator and labeled "Do Not Cap".

PUMP PRIMING SYSTEM - MULTI-LOCATION

A Hale, model ESP, environmentally safe priming pump shall be included with the pump. The pump shall be a positive displacement, rotary vane type unit that is self-lubricating, thereby requiring no oil that could leak onto the ground. The pump shall be controlled from the pump operator's panel. An indicator light on the pump panel shall show when the primer motor is engaged. The pump shall be capable of creating suction and discharging water from a lift of 10 feet through 20 feet of suction hose of the appropriate size, in not more than 30 seconds starting with the pump dry. It shall be capable of developing a vacuum of 22 inches at an altitude of up to 1000 feet.

A Hale PVG manual primer valve shall be installed on the apparatus.

A Hale PVG manual priming valve shall be installed on the officer's side main intake of the apparatus.

MASTER DRAIN VALVE

A Trident manifold drain valve assembly shall be supplied. This drain shall provide the capability to drain the entire pump by turning a single control. The valve assembly shall consist of a stainless steel plate and shaft in a bronze body with multiple ports. The drain valve control shall be mounted on the driver's side pump panel and labeled "Master Drain".

THERMAL RELIEF VALVE WITH INDICATOR LIGHT AND BUZZER

A thermal relief valve, model TRV-L120, shall be installed on the pump. The relief valve shall automatically relieve water from the pump when the temperature of the pump water exceeds 120º Fahrenheit. The valve shall automatically reset after activation.

A light and buzzer shall be installed on the pump operator's panel that shall indicate when the valve has been activated so the pump operator may take corrective action. A "push to test" button shall be installed beneath the indicator lamp to allow the pump operator to test the lamp.

PUMP PRIMED BLACK BY PUMP MANUFACTURER

The pump shall be primed black by the pump manufacturer.

The main intake(s) shall be unpainted and any auxiliary intake(s) shall be the same color as they arrived

from the valve manufacturer.

PUMP MANUALS

Two (2) Pump Operation and Maintenance manuals shall be provided in digital format with the apparatus.

PUMP AND ENGINE COOLING SYSTEM

A pump and engine cooling system shall be provided on the apparatus. The cooling system shall keep the engine cool when running for long periods of time and the pump cool during long periods of pumping when water is not being discharged. The cooling system shall also be set up in a way that the cooling system lines can be easily drained through the master pump drain.

The cooling system lines shall consist of high-temperature 3/8" (inside diameter) hose. The engine cooling lines shall be installed with one (1) line going from the discharge side of the water pump through an Innovative Controls model 3008220-2-2, 3/8" in-line quarter turn ball valve assembly and continuing on to the chassis heat exchanger. The return line from the heat exchanger shall then run into the suction side of the pump. The pump cooling lines shall be installed with one (1) line going from the discharge side of the water pump through an Innovative Controls model 3008220-2-2, 3/8" in-line quarter-turn ball valve assembly up to the water tank. At the water tank, the pump cooling line shall be plumbed into a 3/8" check valve on the "Tank Fill" valve. The check valve shall prevent tank water from back flowing into the pump when the cooling system is not in use. A return line from the water tank shall be plumbed into the water pump.

The engine cooling system valve shall be controlled on the operator's panel, and shall be clearly labeled, "Engine Cooler".

The pump cooling system valve shall be controlled on operator's panel, and shall be clearly labeled, "Pump Cooler".

FOAM SYSTEM

A FoamPro 2002 single foam system shall be installed on the apparatus. The system shall be an electronic, fully automatic, variable speed, direct injection, and discharge side foam proportioning system. The system shall be capable of handling Class A foam concentrates and most Class B foam concentrates. The system shall be set up to utilize Class A foam. The foam proportioning operation shall be based on direct measurement of water flows, and remain consistent within the specified flows and pressures. The system shall be equipped with a digital electronic control display, suitable for installation on the pump panel. Incorporated within the control display shall be a microprocessor that receives input from the system flow meter, while also monitoring foam concentrate pump output, comparing values to ensure that the operator'sÂ preset proportional amount of foam concentrate is injected into the discharge side of the fire pump.

A paddlewheel type flow meter shall be installed in a manifold for the specified foam capable discharges.

The digital computer control display shall enable the pump operator to perform the following control and operation functions for the foam proportioning system:

- Provide push-button control of foam proportioning rates from 0.1% to 9.9% in 0.1% increments.
- Show current gallon-per-minute water flow rate.
- Show total gallons of water discharged, during and after foam operations are completed.
- Show total gallons of foam concentrate consumed.
- Simulate flow rates for manual operation.
- Perform set-up and diagnostic functions for the computer control microprocessor.
- Flash a "low concentrate" warning when the foam concentrate tank(s) run(s) low.
- Flash a "no concentrate" warning and shut the foam concentrate pump off, preventing damage to the pump, should the foam tank(s) empty.

A 12-volt electric motor driven positive displacement foam-concentrate pump, rated up to 5 GPM with operating pressures up to 400 PSI, shall be installed in a suitable compartment near the apparatus pump house. A pump motor electronic driver (mounted to the base of the pump) shall receive signals from the computer control display, and power the 3/4 horsepower electric motor directly coupled to the concentrate pump in a variable speed duty cycle to ensure that the correct proportion of concentrate preset by the pump operator is injected into the water stream.

System capacity shall be as follows:

- 0.2% Foam Concentrate / 2500 Maximum GPM
- 0.5% Foam Concentrate / 1000 Maximum GPM
- 1.0% Foam Concentrate / 500 Maximum GPM
- 3.0% Foam Concentrate / 166 Maximum GPM

A full flow check valve shall be provided to prevent foam contamination of fire pump and water tank or water contamination of foam tank.

Components of the complete proportioning system as described above shall include:

- Operator control and display
- One (1) Paddlewheel flow meter
- Pump and electric motor/motor driven
- Wiring harnesses
- Foam injection check valve
- One (1) low-level foam tank switch

An installation and operation manual shall be provided for the unit, along with a one (1) year limited warranty. A system-schematic-placard and a system-rating-placard shall be supplied and installed in accordance with NFPA, current edition.

FLUSH SYSTEM

A single foam flush system shall be installed to provide a clean water flush of the foam concentrate pump preventing foam concentrates from mixing and possible jelling. Clean water from the booster tank shall be plumbed to a 1/4 turn valve located on the pump panel. The valve shall be capable of operating pressures to 500 PSI.

FOAM REFILL SYSTEM

The apparatus shall be equipped with a FoamPro single foam, electronic, automatic concentrate refill system. It shall be separate from the proportioning system to allow for simultaneous operations. The system shall be capable of handling Class A or Class B foam concentrate. The apparatus shall be plumbed from the externally accessed intake/ flush port to the foam cell. The external intake/flush connection shall be quick connect, cam-lock type and incorporated a check valve to prevent back flow. The refill line shall be positioned in the lower portion of the foam cell to minimize agitation. The refill operation shall be based on direct measurement of the concentrate level in the cell and the refill pump intake performance. The system must be capable of automatically stopping when the foam cell is full and warn the operator when the concentrate source is empty or any other conditions preventing flow occurs. The system shall be equipped and electronic control suitable for installation on the pump panel. Incorporated within the control shall be a microprocessor that receives input from the system while also monitoring foam concentrate pump output. An all bronze three-way valve shall be included to allow that operator to flush the system after use.

A 12-volt electric motor driven positive concentrate pump, with a minimum of 10 U.S. GPM @ 20 PSI rating, with concentrate viscosity exceeding 5500 CPS, shall be installed per manufacturer recommendations. A pump motor electronic driver shall receive signals from the computer control display and power the electric motor directly coupled to the concentrate pump. The system shall receive readings when the concentrate tank is full and stop operation to prevent overfill. The system shall terminate operations when flow is not detected on the intake side for twelve (12) seconds.

FOAM PROPORTIONING SYSTEM TESTING

The foam proportioning system shall be tested and certified after final installation in accordance with NFPA, current edition.

PLUMBING MANIFOLD

The plumbing manifold shall consist of the inlet side manifold and the discharge side manifold. Galvanized Victaulic couplings shall be used wherever possible for ease of maintenance and superior corrosion protection.

The inlet side of the plumbing manifold shall utilize schedule 10, 304-grade stainless steel tubing and preformed elbows for inlets that are larger than 3". Side auxiliary inlets that are 3" or smaller shall utilize schedule 40, 304-grade stainless steel threaded tubing and preformed elbows. The inlet manifold shall

thread into the pump auxiliary inlet ports and each inlet valve shall thread onto the inlet manifold.

The discharge side of the plumbing manifold shall utilize schedule 40, 304-grade stainless steel tubing and preformed elbows to ensure the quality of the manifold where welds are required. The discharge manifold shall connect to the pump discharge ports using 1/2" stainless steel flanges that shall be machined to seat an O-ring to ensure a leak proof seal. Each discharge shall derive from a port on the manifold assembly connected to a discharge valve with 1/2" 304-grade stainless steel flanges. Discharges that terminate in a location other than the pump module (i.e. rear discharges) that do not require welding shall utilize a combination of high-pressure flex hose and schedule 10, 304-grade stainless steel tubing to allow flexibility between the body and the pump module.

A 3/4" quarter turn drain valve shall be included. A chrome plated rectangular handle shall be provided on the drain valve to facilitate use with a gloved hand. The drain valve shall be located just above the running board and below the pump panel to reduce clutter in the pump panel area. 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. A matching color coded bezel shall be included.

INNOVATIVE CONTROLS DISCHARGE GAUGES - 2-1/2" - 0-400PSI - LED BACKLIT

The valve discharge gauges shall be 2-1/2" (63mm) diameter Innovative Controls TC Series Nite-Glo pressure gauges with 12 volt internal illumination LEDs. The gauges shall have a glass-filled nylon case, a clear scratch-resistant lens, and a highly-polished stainless steel bezel. The gauge shall be fully-filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation, and ensure proper operation from 40° F to +160° F.

The gauges shall meet or exceed ASME B40.100 Grade B requirements with an accuracy of +/- 1.5% full scale and include an internal thermal expansion bladder that allows the gauge fill to expand in high temperature environments. The gauges shall also include a KEM-X Socket Saver diaphragm in the stem to eliminate freeze-up and contain a low temperature instrument oil that fills and protects the socket and bourdon tube.

Each discharge gauge shall include a line fitting and be installed into a proprietary chrome-plated Smeal decorative bezel that features an area for the installation of a discharge color-coding label.

The gauge shall display range from 0 to 400 PSI. Each gauge will have black markings on a white dial and be internally illuminated with light.

MASTER PRESSURE CENTER ASSEMBLY

The master gauges shall be installed on the pump panel no more than 6 inches apart in an integrated master pressure assembly that includes the two (2) master gauges, audible alarm, a test port manifold, a graphic overlay that identifies the master intake with burgundy and master discharge with black, verbiage to label the vacuum and pressure test ports and a decorative chrome-plated zinc mounting bezel. The test port manifold is solid cast brass with chrome-plated plugs and is plumbed to the master gauges.

The master intake and master discharge gauges shall be 4" (100mm) diameter Innovative Controls TC series (Temperature Compensation) Nite-Glo pressure gauges. Each gauge shall have a glass-filled nylon case, a clear scratch-resistant lens, and a highly-polished stainless steel bezel. The gauge shall be fully-filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation, and ensure proper operation from 40° F to +160° F.

Each gauge shall meet or exceed ASME B40.100 Grade B requirements with an accuracy of +/- 1.5% full scale and include an internal thermal expansion bladder that allows the auge fill to expand in high temperature environments. The gauges shall also include a KEM-X Socket Saver diaphragm in the stem to eliminate freeze-up and contain a low temperature instrument oil that fills and protects the socket and bourdon tube.

The gauge on the left shall be the master pump intake gauge and display a range from -30 to 400 PSI with proprietary Smeal black markings on a white dial and shall be internally illuminated with white light. The gauge on the right shall be the master pump discharge gauge and display a range from 0 to 400 PSI with proprietary Smeal black markings on a white dial and shall be internally illuminated with white light.

HARDWARE BRAND

The non-Storz discharge and intake fittings provided on this apparatus shall be South Park Corp. Brand. The adapter/cap/plug fittings shall be manufactured from high-quality brass that shall be polished to remove manufacturing irregularities with a chrome finish applied to the polished surface.

The Storz discharge and intake fittings provided on this apparatus shall be Kochek Brand.

The auxiliary intake(s) shall terminate with BCT swivels, the discharges shall terminate with NH male threads with BCT adapters, and the 1-1/2" discharges shall terminate NH threads.

DISCHARGE, PRE-CONNECT, AND INTAKE DRAINS

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 a verbiage tag that angles upward so that it can easily be seen and read by the operator before opening. The drain valve shall be located just above the running board and below the pump panel to reduce clutter in the pump panel area. 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. A matching color coded bezel shall be included.

AUTOMATIC DRAINS

A Class 1 automatic drain shall be installed on the deluge valve (if applicable). The drains shall also be located in low laying areas (i.e., front discharge) The Drains will open whenever the pressure in the line drops below 6 PSI.

WASH DOWN WARM WATER SYSTEM

A discharge from the pump shall be provided with a garden hose outlet/threads suitable for simple wash-down operations.

The system shall be comprised of a cold-water side and a hot-water side (heat exchanger) with independent valve controls for each system.

The cold-water system shall be activated using an illuminated rocker switch controlling a 1.00 inch (25.40 mm) ball valve at the tank and a 12 volt pump. The system shall be capable of a minimum of 5 GPM and 70 PSI. The plumbing to the pump shall contain a strainer connected to the master drain to prevent freezing.

The hot-water side shall be activated by using a quarter turn control controlling a 1.00 inch valve connected to the apparatus engine heat exchanger system.

The systems shall be plumbed in such a way that the hot-water side and the cold-water side can operate independently or be mixed together to provide warm water at the discharge of the system.

The discharge shall terminate with a garden hose outlet. A coiled wash down hose shall be provided.

The discharge shall be labelled "NON-POTABLE WASH DOWN WATER".

PLUMBING LABELS

Innovative Controls brand labels shall be used to identify any pump valve controller, gauge, or drain on the apparatus. The labels shall be color coded in accordance with NFPA, current edition. compliance. The colors and verbiage of the labels shall be the OEM standard label package. Each discharge label shall have a unique color and shall have verbiage to identify it.

For easy identification of each component, the verbiage of each label shall be size 22 pt, font "Helvetica Neue Condensed Bold"

The tank plumbing valves and controllers shall have the OEM Standard label package unless stated otherwise.The Pump-to-Tank Fill shall be labeled "TANK FILL" and shall have a light blue label color.The Tank-To-Pump shall be labeled "TANK TO PUMP" and shall have a Navy Blue label color.

2" TANK FILL

A 2" tank fill shall be plumbed from the pump to the tank. Installation shall be completed with 2" rubber hose and stainless steel hose couplings.

An Akron Brass, model 8820, 2" Swing-Out valve shall be provided. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts, and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be actuated by a manual actuator installed on the valve. The manual actuator shall be controlled by a Spartan Style Innovative Controls push/pull T-handle.

The valve shall carry a ten (10) year warranty by the valve manufacturer.

3" TANK-TO-PUMP

A 3" tank-to-pump shall be plumbed with a flexible hose from the tank to the suction side of the pump. An Akron Brass, model 8830, 3" Swing-Out valve shall be provided. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall also include a necessary B3-SH pump flange adapter, which shall be specifically used for the tank-to-pump line to properly adjust the plumbing based on the pitch of the pump. The valve shall carry a ten (10) year warranty by the valve manufacturer.

A check valve shall be between the pump suction and the booster tank valve. The check valve shall eliminate back flow into the water tank when the pump is connected to a pressurized source.

The valve shall be actuated by a manual actuator. The manual actuator shall be controlled by a Spartan Style Innovative Controls push/pull T-handle.

6" DRIVER SIDE MAIN INTAKE

A 6" main intake shall be located on the driver's side of the pump module. The suction fittings shall include a removable die-cast screen to provide cathodic protection for the pump thus reducing corrosion. A short steamer barrel shall be installed to accommodate an intake valve without exceeding the legal overall body width. The intake shall terminate male NH threads.

BUTTERFLY VALVE

A Hale, model MIV-E 2.0, butterfly valve shall be provided. The valve shall be a 6" full flow type valve with a suction tube attached terminating in 6" NH thread. The valve shall be operated by a 12V DC

electric motor with remote capabilities. A panel placard shall be provided with the valve for indicating control operations. The placard shall have status lights to indicate whether the valve is opening, closing, or traversing from one position to another. A manual override shall be provided to permit operation of the electric control valve in the event of abnormal operating conditions. The manual override shall be designed to permit operation of the valve without the use of special tools or disassembly of the pump panel or valve.

A panel mounted manual override shall be provided to permit operation of the electric remote control valve in the event of abnormal operating conditions. The manual override shall be designed to permit operation of the valve without the use of special tools or disassembly of the pump compartment panel or valve.

A Hale air bleeder valve shall be provided on the main intake. The valve shall be used to bleed off air in accordance with NFPA, current edition.

An intake relief valve shall be included with the Hale valve. The relief valve shall be factory set to 125 PSI and is field adjustable from 75 to 250 PSI.

One (1) 4" full time swivel Storz x 6" female NH thread long handle swivel 30 degree elbow adapter shall be provided in a KBrite silver finish.

One (1) 4" Storz blind cap, complete with lanyard, shall be provided in a KBrite silver finish.

2-1/2" DRIVER'S SIDE AUXILIARY INTAKE

A 2-1/2" gated auxiliary intake with 2-1/2" plumbing shall be provided on the driver's side of the pump module. The auxiliary intake shall be fully recessed behind the panel in order to keep the valve protected from the elements.

An Akron Brass, model 8825, 2-1/2" Swing-Out valve shall be provided. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be manufactured and assembled in the United States. The valve shall carry a ten (10) year warranty by the valve manufacturer.

The valve shall be actuated by an Akron Brass, model TS manual actuator installed directly on the valve. The handle shall allow the valve to be controlled directly at the valve.

One (1) 2-1/2" BCT thread rocker lug chrome plated vented plug, complete with cable or chain, shall be

provided.

6" OFFICER SIDE MAIN INTAKE

A 6" main intake shall be located on the officer's side of the pump module. The suction fittings shall include a removable die-cast screen to provide cathodic protection for the pump thus reducing corrosion. A short steamer barrel shall be installed to accommodate an intake valve without exceeding the legal overall body width. The intake shall terminate male NH threads.

BUTTERFLY VALVE

A Hale, model MIV-E 2.0, butterfly valve shall be provided. The valve shall be a 6" full flow type valve with a suction tube attached terminating in 6" NH thread. The valve shall be operated by a 12V DC electric motor with remote capabilities. A panel placard shall be provided with the valve for indicating control operations. The placard shall have status lights to indicate whether the valve is opening, closing, or traversing from one position to another. A manual override shall be provided to permit operation of the electric control valve in the event of abnormal operating conditions. The manual override shall be designed to permit operation of the valve without the use of special tools or disassembly of the pump panel or valve.

A panel mounted manual override shall be provided to permit operation of the electric remote control valve in the event of abnormal operating conditions. The manual override shall be designed to permit operation of the valve without the use of special tools or disassembly of the pump compartment panel or valve.

A Hale air bleeder valve shall be provided on the main intake. The valve shall be used to bleed off air in accordance with NFPA, current edition.

An intake relief valve shall be included with the Hale valve. The relief valve shall be factory set to 125 PSI and is field adjustable from 75 to 250 PSI.

One (1) 4" swivel Storz x 6" female NH thread long handle swivel 30 degree elbow adapter shall be provided in a powder coat finish.

One (1) 4" Storz blind cap, complete with lanyard, shall be provided in a powder coat finish.

2-1/2" OFFICER'S SIDE AUXILIARY INTAKE

A 2-1/2" gated auxiliary intake with 2-1/2" plumbing shall be provided on the officer's side of the pump module. The auxiliary intake shall be fully recessed behind the panel in order to keep the valve protected from the elements.

An Akron Brass, model 8825, 2-1/2" Swing-Out valve shall be provided. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be manufactured and assembled in the United States. The valve shall carry a ten (10) year warranty by the valve manufacturer.

The valve shall be actuated by an Akron Brass, model TS manual actuator installed directly on the valve. The handle shall allow the valve to be controlled directly at the valve.

One (1) 2-1/2" BCT thread rocker lug chrome plated vented plug, complete with cable or chain, shall be provided.

See label order form (required)

2-1/2" DRIVER'S SIDE DISCHARGE

A 2-1/2" discharge with 2-1/2" plumbing shall be located on the driver's side of the pump compartment. The discharge shall terminate with male NH thread.

An Akron Brass, model 8625, 2-1/2" Swing-Out valve shall be provided. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts, and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be manufactured and assembled in the United States. The valve shall carry a ten (10) year warranty by the valve manufacturer.

The valve shall be actuated by an Akron Brass electric actuator installed on the valve. The electric actuator shall have a 16:1 gear ratio, which actuates from fully open to fully closed in five (5) seconds, a clutchless motor, and utilizes an electric controller with current limiting design.

The electric actuator shall be controlled by an Akron Brass, model 9333, Navigator Pro electric valve controller. The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open, close as well as an optional one (1) touch full open feature to operate the actuator. Two (2) additional buttons shall be available to be used for preset selection, preset activation and menu navigation. The controller shall have up to three (3) preset locations that can be user set and easily recalled upon each use. The unit shall be capable of being used in conjunction with at least two (2) additional displays to control one (1) valve. The unit shall provide position indication through a full color backlit LCD display. The display shall

be a full color LCD display with a backlight. It shall have manual adjustment of the brightness as well as an auto-dimming option. The unit shall carry a five (5) year warranty.

The discharge shall have a 2-1/2" (63mm) glass filled nylon 66 case TC series gauge with bezel and a display range from 0 to 400 PSI. The gauge shall have a black dial graphic and pointer.

One (1) 2-1/2" female NH thread swivel rocker lug x 2-1/2" male BCT thread 30 degree elbow adapter shall be provided.

One (1) 2-1/2" BCT thread rocker lug chrome plated vented cap, complete with cable or chain, shall be provided.

2-1/2" DRIVER'S SIDE DISCHARGE

A 2-1/2" discharge with 2-1/2" plumbing shall be located on the driver's side of the pump compartment. The discharge shall terminate with male NH thread.

An Akron Brass, model 8625, 2-1/2" Swing-Out valve shall be provided. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts, and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be manufactured and assembled in the United States. The valve shall carry a ten (10) year warranty by the valve manufacturer.

The valve shall be actuated by an Akron Brass electric actuator installed on the valve. The electric actuator shall have a 16:1 gear ratio, which actuates from fully open to fully closed in five (5) seconds, a clutchless motor, and utilizes an electric controller with current limiting design.

The electric actuator shall be controlled by an Akron Brass, model 9333, Navigator Pro electric valve controller. The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open, close as well as an optional one (1) touch full open feature to operate the actuator. Two (2) additional buttons shall be available to be used for preset selection, preset activation and menu navigation. The controller shall have up to three (3) preset locations that can be user set and easily recalled upon each use. The unit shall be capable of being used in conjunction with at least two (2) additional displays to control one (1) valve. The unit shall provide position indication through a full color backlit LCD display. The display shall be a full color LCD display with a backlight. It shall have manual adjustment of the brightness as well as an auto-dimming option. The unit shall carry a five (5) year warranty.

The discharge shall have a 2-1/2" (63mm) glass filled nylon 66 case TC series gauge with bezel and a display range from 0 to 400 PSI. The gauge shall have a black dial graphic and pointer.

One (1) 2-1/2" female NH thread swivel rocker lug x 2-1/2" male BCT thread 30 degree elbow adapter shall be provided.

One (1) 2-1/2" BCT thread rocker lug chrome plated vented cap, complete with cable or chain, shall be provided.

Shop Note: special thread is BCT

2-1/2" OFFICER'S SIDE DISCHARGE

A 2-1/2" discharge with 2-1/2" plumbing shall be located on the officer's side of the pump compartment. The discharge shall terminate with male NH thread.

An Akron Brass, model 8625, 2-1/2" Swing-Out valve shall be provided. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts, and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be manufactured and assembled in the United States. The valve shall carry a ten (10) year warranty by the valve manufacturer.

The valve shall be actuated by an Akron Brass electric actuator installed on the valve. The electric actuator shall have a 16:1 gear ratio, which actuates from fully open to fully closed in five (5) seconds, a clutchless motor, and utilizes an electric controller with current limiting design.

The electric actuator shall be controlled by an Akron Brass, model 9333, Navigator Pro electric valve controller. The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open, close as well as an optional one (1) touch full open feature to operate the actuator. Two (2) additional buttons shall be available to be used for preset selection, preset activation and menu navigation. The controller shall have up to three (3) preset locations that can be user set and easily recalled upon each use. The unit shall be capable of being used in conjunction with at least two (2) additional displays to control one (1) valve. The unit shall provide position indication through a full color backlit LCD display. The display shall be a full color LCD display with a backlight. It shall have manual adjustment of the brightness as well as an auto-dimming option. The unit shall carry a five (5) year warranty.

The discharge shall have a 2-1/2" (63mm) glass filled nylon 66 case TC series gauge with bezel and a display range from 0 to 400 PSI. The gauge shall have a black dial graphic and illuminated with red light.

One (1) 2-1/2" female NH thread swivel rocker lug x 2-1/2" male BCT thread 45 degree elbow adapter

shall be provided.

One (1) 2-1/2" BCT thread rocker lug chrome plated vented cap, complete with cable or chain, shall be provided.

4" OFFICER'S SIDE DISCHARGE

A 4" large diameter discharge, with 4" plumbing, shall be located on the officer's side of the pump compartment. The discharge shall terminate with male NH thread.

An Akron Brass, model 8630, 3" Swing-Out valve shall be provided. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts, and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be manufactured and assembled in the United States. The valve shall carry a ten (10) year warranty by the valve manufacturer.

The valve shall be actuated by an Akron Brass electric actuator installed on the valve. The electric actuator shall have a 16:1 gear ratio, which actuates from fully open to fully closed in five (5) seconds, a clutchless motor, and utilize an electric controller with current limiting design.

The electric actuator shall be controlled by an Akron Brass, model 9333, Navigator Pro electric valve controller. The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open, close as well as an optional one (1) touch full open feature to operate the actuator. Two (2) additional buttons shall be available to be used for preset selection, preset activation and menu navigation. The controller shall have up to three (3) preset locations that can be user set and easily recalled upon each use. The unit shall be capable of being used in conjunction with at least two (2) additional displays to control one (1) valve. The unit shall provide position indication through a full color backlit LCD display. The display shall be a full color LCD display with a backlight. It shall have manual adjustment of the brightness as well as an auto-dimming option. The unit shall carry a five (5) year warranty.

The discharge shall have a 2-1/2" (63mm) glass filled nylon 66 case TC series gauge with bezel and a display range from 0 to 400 PSI. The gauge shall have a black dial graphic and pointer.

One (1) 4" Storz x 4" female NH thread swivel rocker lug 30 degree elbow adapter shall be provided. The elbow shall have a KBrite silver finish.

One (1) 4" rigid Storz coupling and a 2-1/2" male special thread rigid adapter shall be provided.

One (1) 2-1/2" special thread rocker lug chrome plated vented cap, complete with cable or chain, shall be provided.

Shop Note: special thread is BCT

2-1/2" FRONT BUMPER DISCHARGE

A 2-1/2" discharge shall be located above the gravel shield on the driver's side of the front bumper. The discharge shall be plumbed with 2-1/2" chassis installed stainless steel plumbing and OEM installed stainless steel plumbing and high-pressure flex hose with stainless steel couplings. The discharge shall terminate in male NH thread.

The discharge shall have Class1 automatic drains installed in the low routed areas below the manual drain. The automatic drains shall open whenever the pressure in the line drops below 6 PSI.

The discharge shall be foam capable.

An Akron Brass, model 8825, 2-1/2" Swing-Out valve shall be provided. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be manufactured and assembled in the United States. The valve shall carry a ten (10) year warranty by the valve manufacturer.

The valve shall be actuated by a manual actuator installed on the valve. The manual actuator shall be controlled by a Spartan Style Innovative Controls push/pull T-handle.

The discharge shall have a 2-1/2" (63mm) glass filled nylon 66 case TC series gauge with bezel and a display range from 0 to 400 PSI. The gauge shall have a black dial graphic and illuminated with red light.

The discharge shall be designated as a pre-connect so no cap and chain shall be required.

CROSSLAY CONFIGURATION

Three (3) 1-1/2" and one (1) 2-1/2" crosslay pre-connects shall be located above the pump panel. High-pressure flex hose with stainless steel couplings shall be used in the plumbing.

A 90 degree swivel elbow shall be utilized to keep the hose from kinking when pulled from either side of the apparatus. The swivel for each crosslay shall be located outboard for ease of making connections while changing hose.

There shall be (2) 9" On-Scene Night Axe lights with housings in the crosslay area to provide adequate lighting to meet requirements. The lights will be activated when the park brake is set.

The pre-connect hose beds shall be sized to accommodate the following hose load:

The interior of the pre-connect hose bed shall have a maintenance free abraded finish.

FLOORING

The floor of the pre-connect area shall be covered with Dura-Dek fiber reinforced material. The Dura-Dek shall have "T" beams in parallel connected with cross slats that are first mechanically bonded and then epoxied. The "T" sections shall be spaced 3/4" apart to allow for drainage and ventilation.

ROLLERS

Stainless steel rollers shall be provided at each end of the crosslay hose bed to facilitate deployment of hose. Vertical rollers shall be installed on each side of the hose bed opening and a horizontal roller shall be installed under the opening.

DIVIDERS

Three (3) dividers shall be in the crosslay area. Each divider shall be fabricated of 3/16" aluminum and shall be mounted in a channel on each end for adjustability. The dividers shall have a maintenance free abraded finish.

TOP/END COVERS

A heavy duty cover shall be located over the top and on each end of the preconnected crosslays. The top of the cover shall be connected to the top-forward portion of the crosslays through a C-Rail channel and shall attach on the top-rear portion using Velcro. The bottom of the end covers shall be attached to the pump module utilizing hooks and bungee cord. The cover color shall be red.

END COVERS

The end covers of the crosslays shall be incorporated with the top cover.

1-1/2" PRE-CONNECT

A 1-1/2" pre-connect with 2"Â plumbing shall be provided. The pre-connect shall terminate out a swivel

NPSH.

The 1-1/2" crosslay pre-connect shall have a capacity of 200' of 1-3/4" double jacket fire hose stored in a single stack.

The discharge shall be foam capable.

An Akron Brass, model 8820, 2" Swing-Out valve shall be provided. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be manufactured and assembled in the United States. The valve shall carry a ten (10) year warranty by the valve manufacturer.

The valve shall be actuated by a manual actuator installed on the valve. The manual actuator shall be controlled by a Spartan style Innovative Controls push/pull T- handle.

The discharge shall have a 2-1/2" (63mm) glass filled nylon 66 case TC series gauge with bezel and a display range from 0 to 400 PSI. The gauge shall have a black dial graphic and illuminated with red light.

The discharge shall be designated as a pre-connect so no cap and chain shall be required.

1-1/2" PRE-CONNECT

A 1-1/2" pre-connect with 2"Â plumbing shall be provided. The pre-connect shall terminate out a swivel NPSH.

The 1-1/2" crosslay pre-connect shall have a capacity of 200' of 1-3/4" double jacket fire hose stored in a single stack.

The discharge shall be foam capable.

An Akron Brass, model 8820, 2" Swing-Out valve shall be provided. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of

swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be manufactured and assembled in the United States. The valve shall carry a ten (10) year warranty by the valve manufacturer.

The valve shall be actuated by a manual actuator installed on the valve. The manual actuator shall be controlled by a Spartan style Innovative Controls push/pull T- handle.

The discharge shall have a 2-1/2" (63mm) glass filled nylon 66 case TC series gauge with bezel and a display range from 0 to 400 PSI. The gauge shall have a black dial graphic and illuminated with red light.

The discharge shall be designated as a pre-connect so no cap and chain shall be required.

1-1/2" PRE-CONNECT

A 1-1/2" pre-connect with 2"Â plumbing shall be provided. The pre-connect shall terminate out a swivel NPSH.

The 1-1/2" crosslay pre-connect shall have a capacity of 200' of 1-3/4" double jacket fire hose stored in a single stack.

The discharge shall be foam capable.

An Akron Brass, model 8820, 2" Swing-Out valve shall be provided. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be manufactured and assembled in the United States. The valve shall carry a ten (10) year warranty by the valve manufacturer.

The valve shall be actuated by a manual actuator installed on the valve. The manual actuator shall be controlled by a Spartan style Innovative Controls push/pull T- handle.

The discharge shall have a 2-1/2" (63mm) glass filled nylon 66 case TC series gauge with bezel and a display range from 0 to 400 PSI. The gauge shall have a black dial graphic and illuminated with red light.

The discharge shall be designated as a pre-connect so no cap and chain shall be required.

2-1/2" PRE-CONNECT

A 2-1/2" pre-connect with 2-1/2" plumbing shall be provided. The pre-connect shall terminate out a swivel NST.

The 2-1/2" crosslay pre-connect shall have a capacity of 150' of 2-1/2" double jacket fire hose stored in a single stack.

An Akron Brass, model 8825, 2-1/2" Swing-Out valve shall be provided. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be manufactured and assembled in the United States. The valve shall carry a ten (10) year warranty by the valve manufacturer.

The valve shall be actuated by a manual actuator installed on the valve. The manual actuator shall be controlled by a Spartan Style Innovative Controls push/pull T-handle.

The discharge shall have a 2-1/2" (63mm) glass filled nylon 66 case TC series gauge with bezel and a display range from 0 to 400 PSI. The gauge shall have a black dial graphic and pointer.

One (1) 2-1/2" female NH thread rocker lug x 2-1/2" male BCT thread rigid chrome plated adapter shall be provided.

The discharge shall be designated as a pre-connect so no cap and chain shall be required.

AERIAL WATERWAY DISCHARGE

A discharge shall be plumbed to the aerial waterway with 5" plumbing. The plumbing shall be constructed from schedule 10 stainless steel components.

An Akron Brass, model 8940, 4" Swing-Out valve shall be provided. The valve shall have an all brass body with flow optimizing Fusion CF composite ball with Hydromax technology. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of swinging out of the waterway for maintenance by the removal of four bolts. The valve shall carry a ten (10) year warranty by the valve manufacturer.

The valve shall be actuated by an Akron Brass electric actuator installed on the valve. The electric actuator shall have a 25:1 gear ratio, which actuates from fully open to fully close in eight (8) seconds, a clutchless motor, and utilize an electric controller with current limiting design.

The electric actuator shall be controlled by an Akron Brass, model 9335, Navigator Pro valve controller. The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open, close as well as an optional one (1) touch full open feature to operate the actuator. Three (3) additional buttons shall be available to be used for preset selection, preset activation, CAFS activation and menu navigation. The unit shall be capable of being connected to a Pressure Sensor and provide an LCD display showing pressure as well as valve position indication. Valve position indication shall be determined from true position feedback and indicate the exact position of the valve. The unit shall be capable of being used in conjunction with at least two (2) additional displays to control one (1) valve. The unit shall be able to be programmed to Bar, PSI or kPa for pressure. The unit shall have programmed pipe sizes and be capable of custom calibration to high and low flow ranges. The unit shall also be capable of turning on and off a solenoid used in a CAFS system. The only calibration required is to set the unit to the valve during initial set up. No other calibration shall be required. The display shall be a full color LCD display with a backlight. It shall have manual adjustment of the brightness as well as an auto-dimming option. Unit shall carry a five (5) year warranty.

All discharges shall have the OEM Standard label package unless stated otherwise.Each discharge label shall be a unique color. Specific verbiage and colors on each discharge label tag shall be determined at the pre-construction meeting.

ELECTRICAL SYSTEM

Wiring harnesses shall be the automotive type, engineered specifically for the builder's apparatus, and shall meet the following criteria. Under no circumstances shall diodes, resistors, or fusible links be located within the wiring harness. All such components shall be located in an easy to access wiring junction box or the main circuit breaker area. All wire shall meet white book, baseline advanced design transit coach specification and Society of Automotive Engineers recommended practices. It shall be stranded copper wire core with cross-linked polyethylene insulation complying with SAE specification J1128. Each wire shall be hot stamp function coded every three inches starting one inch from the end and continuing throughout the entire harness. In addition to function coding, each wire shall be numbered, colored, and gauge coded.

Wire harnesses shall be protected by 275 degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.

Harnesses shall be modular in design; main harness system subdivided into several smaller sub-harnesses. The harness subsections shall be connected using Deutsch branded, heavy duty, environmentally sealed, connectors with silicone seals and a rear insertion/removal contact system. For isolation of electrical "zones" the harness subsections shall consist of a main harness, a pump harness with a separate pump gauge panel harness, a left body harness with a separate left compartment harness, a right body harness with a separate right compartment harness, and a rear body harness with

two separate rear compartment harnesses.

The main harness and three body harnesses shall interconnect at a central, easy to reach location and their connectors shall not be obstructed by other harnesses or fuel/air lines. In addition, the main and body harness connectors shall be color-coded for ease of identification with their respective colors noted on the accompanying electrical diagrams.

Where connectors are not provided by the electrical component manufacturer, all 12-volt lights and other electrical components (excluding rocker and toggle switches) shall connect to the harnesses using Deutsch brand connectors; butt connectors are considered unacceptable.

All Deutsch connectors shall meet the following criteria:

- All connectors shall be rated for three feet submersion in water.
- Temperature range from -67° F to 257° F continuous at rated current.
- All contacts shall be soldered unless a crimping tool or machine is used that gives an even and precise pressure for the terminal being used.
- All contacts shall be pull-tested to ensure their integrity.

WEATHERPROOF DOOR SWITCHES

Because of the harsh environment and susceptibility to moisture on the fire ground, the fire apparatus compartment doors shall utilize weatherproof switches. No Exceptions.

The switches shall be used for activation of the compartment lights and to provide a signal to the door open circuit in the cab.

V-MUX ELECTRICAL MANAGEMENT SYSTEM

The apparatus shall be equipped with a V-MUX Multiplex System. There are several key benefits to multiplexing, one is to reduce the number of connections in a vehicle's electrical system, because of this it is important to limit the amount of modules that control certain functions of the vehicle.

Outputs:

The outputs shall perform all the following items without added modules to perform any of the tasks:

- Load Shedding: The System shall have the capability to Load Shed with 8 levels any output. This means you can specify which outputs (barring NFPA restrictions) you would like Load Shed. Level 1 - 12.9v, Level 2 - 12.5V, Level 3 - 12.1V, Level 4 - 11.7V, Level 5 - 11.3V, Level 6 - 10.9V, Level 7 - 10.5, Level 8 - 10.1. Unlike conventional load shedding devices you can assign a level to any or all outputs. No add-on modules shall be acceptable; the module with the outputs must perform this function.
- Load Sequencing: The System shall be able to sequence from 0 8 levels any output. With 0 being no delay and 1 being a 1-second delay, 2 being a 2-second delay and so on. Sequencing reduces

the amount of voltage spikes and drops on your vehicle, and can help limit damage to your charging system. No add-on modules shall be acceptable; the module with the outputs must perform this function.

- Output Device: The System shall have solid-state output devices. Each solid-state output shall be a MOS-FET (Metal Oxide Semiconductor - Field Effect Transistors); MOS-FETs are solid-state devices with no moving parts to wear out. A typical relay, when loaded to spec, has a life of 100,000 cycles. The life of a FET is more than 100 times that of a relay. No add-on modules shall be acceptable; the module with the outputs must perform this function.
- Flashing Outputs: The System shall be able to flash any output in either A or B phase, and logic is used to shut down needed outputs in park, or any one of several combined interlocks. The flash rate can be selected at either 80, or 160 FPM. This means any light can be specified with a multiplex truck with no need to add flashers. Flashing outputs can also be used to warn of problems. No add-on modules shall be acceptable; the module with the outputs must perform this function.
- PWM: The modules shall have the ability to PWM at some outputs so that a Headlight PWM module is not needed. No add-on modules shall be acceptable; the module with the outputs must perform this function.
- Diagnostics: An output shall be able to detect either a short or open circuit.

Inputs:

The inputs shall have the ability to be switched by a ground or battery signal.

The inputs shall be filtered for noise suppression via hardware and software so that RF or dirty power will not trick an input into changing its status.

System Network:

The Multiplex system shall contain a Peer-to-Peer network. A Master-Slave Type network is not suitable for the Fire/Rescue industry. A Peer-to-Peer network means that all the modules are equal on the network; a Master is not needed to tell other nodes when to talk.

System Reliability:

The Multiplex system shall be able to perform in extreme temperature conditions, from -40° to +85° C (-40 degree to +185 degree Fahrenheit) The system shall be sealed against the environment, moisture, humidity, salt or fluids such as diesel fuel, motor oil or brake fluid. The enclosures shall be rugged to withstand being mounted in various locations or compartments around the vehicle. The modules shall be protected from over voltage and reverse polarity.

12-VOLT SYSTEMS TEST

After completion of the unit, the 12-volt electrical system shall undergo a battery of tests as listed in NFPA, current edition. These tests shall include, but not be limited to:

- Reserve capacity test
- Alternator performance test at idle

- Alternator performance test at full load
- Low voltage alarm test

Certification of the results shall be supplied with the apparatus at the time of delivery.

TAIL LIGHTS

A Whelen M6 series LED tail light assembly shall be installed on each side of the rear of the apparatus. Each assembly shall include the following:

- One (1) red LED stop/tail combination light
- One (1) amber LED turn light with arrow
- One (1) clear LED backup light

The lights shall be mounted in a four (4) light chrome plated composite housing. The remaining slot in the housing shall be populated with a warning light specified in the warning light section.

REAR WORK LIGHT SWITCH

A switch shall be installed inside the driver side outrigger control box. The switch shall be wired to the backup lights to provide additional work lighting. The rear work light circuit shall be deactivated when the park brake is disengaged. In addition to the lights being activated by the above switch, the lights shall also come on when the transmission is placed in reverse.

REAR WORK LIGHT WIRING

The backup lights shall be wired to the rear work light switch. This switching circuit shall be deactivated when the parking brake is released. The lights shall also be activated when the transmission is placed in reverse.

CAB SWITCH

A switch shall be provided in the cab to activate the backup lights. This switching circuit shall be deactivated when the parking brake is released.

MIDSHIP TURN SIGNALS

Two (2) Truck-Lite model 21 LED midship auxiliary/turn signal lights shall be installed in the rub rail, one (1) on each side of the body.

PERIMETER GROUND LIGHTING

Amdor Luma Bar H2O 20" LED lights with a full-length aluminum extrusion shall be installed beneath the apparatus in areas where personnel may be expected to climb on and off the apparatus. The lights shall illuminate the ground within 30" of the apparatus to provide visibility of any obstructions or hazards. These areas shall include, but not be limited to, side running boards and the rear step area.

The lights shall be activated when the parking brake is engaged or when the transmission is placed in reverse.

CLEARANCE LIGHTS

Grote red LED clearance lights shall be installed in the outside corners of the rear bumper and a Truck-Lite bar cluster located in the lower middle portion of the rear of the apparatus. Clearance reflectors shall be placed on the apparatus to be in full compliance with applicable ICC and DOT codes and regulations.

Two (2) extension marker lights (rubber arm style) shall be installed at the rear portion of the body. The lights shall be attached to the back wall of the rear flex joint area. These lights shall aid the driver as to the location of the rear of the body during driving operations. The lights shall have forward facing amber bulbs and rearward-facing red bulbs.

CAMERA CHASSIS SUPPLIED

An FRC branded InView 360 heavy duty 360 degree camera system powered by SEON shall be supplied by the chassis . Three (3) ultra wide 1080p cameras with surface mount housings shall be shipped loose for Smeal installation in the body to afford the driver a clear view to the rear and sides of the vehicle and one (1) chassis installed camera shall be mounted on the front of the cab, above the windshield.

The system shall provide a dual camera view. One (1) view shall be a stitched bird's eye 360 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.

The cameras shall be wired to the Vista screens.

CHASSIS SUPPLIED BACK UP CAMERA SYSTEM

A backup camera system shall be installed in the cab with the chassis. The camera shall be installed on the rear center upper portion of the apparatus.

BACK-UP ALARM

A Preco, model 1059, self-adjusting electric back-up alarm, that is activated when the transmission is

placed in reverse, shall be provided. The sound level of the alarm shall adjust from 87 to 112 decibels.

DOOR OPEN AUDIBLE ALARM

An audible alarm shall be provided and connected to the door open circuitry.

DAVID CLARK INTERCOM SYSTEM

A David Clark 3800 position intercom system shall be provided on the apparatus. The system shall have the option of connecting to mobile radios, allowing all personnel to listen to the radio and selected stations to transmit over the radio. The system shall be of rugged and serviceable modular design. All system components shall be designed as weather tight. The intercom control head shall be located in the optimal position by the apparatus manufacturer unless a specific location is clarified in the shop note.

CAB POSITIONS

The David Clark intercom system shall accommodate one (1) wired driver position, one (1) wired officer position, and three (3) wired crew positions in the chassis cab.

Five (5) David Clark headset plug-in module shall be installed, one (1) for each wired position. Each module shall be designed for interior mounting and shall accommodate a David Clark single plug headset. The exact location shall be determined by the apparatus manufacturer unless a specific location is clarified in the shop note.

Two (2) David Clark, model H3442, under the helmet, radio-transmit headset shall be provided, one (1) each for the driver and officer. Each headset shall have a soft head strap designed to be worn under a helmet, a flex microphone boom that rotates 200 degrees for use on either side and an earpiece-mounted microphone on/off button. The microphone shall be noise canceling with a windscreen.

Three (3) David Clark, model H3442, under the helmet, intercom only headsets shall be provided, one (1) for each of the crew positions. Each headset shall have a soft head strap designed to be worn under a helmet, a flex microphone boom that rotates 200 degrees for use on either side and an earpiece-mounted microphone on/off button. The microphone shall be noise canceling with a windscreen.

Each headset shall be complete with a hanger to hold the headset when not in use. The driver's and officer's hangers shall be mounted inboard of each position, and all hangers shall be located in the optimal position based on cab and seat configuration by the apparatus manufacturer unless a specific location is clarified in the shop note.

PUMP PANEL POSITION

The David Clark intercom system shall accommodate one (1) position at the pump operator's panel. One (1) headset plug-in module shall be located at the pump operator's panel.

REAR OF APPARATUS POSITION

The David Clark intercom system shall accommodate one (1) position at the driver's side rear body area of the apparatus. One (1) headset plug-in module shall be located at the rear of the body.

APPARATUS TURNTABLE POSITION

The David Clark intercom system shall accommodate one (1) position at the turntable control console. One (1) headset plug-in module shall be located at the rear of the body.

APPARATUS PLATFORM POSITION

The David Clark intercom system shall accommodate one (1) position at the platform basket control console. One (1) headset plug-in module shall be located at the rear of the body.

RADIO INTERFACE

One (1) David Clark mobile radio interface cable shall be supplied with the intercom system. The cable shall be radio specific and shall allow the David Clark intercom system to interface with the Motorola mobile radio system. The model of headsets used shall determine which personnel shall have radio transmit ability.

The radio interface cable drop shall be routed to the general area of the termination of the radio antenna(s) or center dash if no antenna is required.

Motorola 6500

UPPER ZONE A

The upper zone A warning lights shall be supplied and installed by the chassis manufacturer.

UPPER ZONE C REAR WARNING LIGHTS

Two (2) Whelen M9V2 Series Super-LED warning/scene lights with chrome flanges shall be installed, one (1) each in Upper Zone C. The M9V2 shall incorporate Linear Super-LED and Smart LED technology. The configuration of the M9V2 lights shall be an M9 V-series warning light and a perimeter light with a split non-optic polycarbonate lens. The warning light shall consist of four (4) PC boards containing three (3) Super-LEDs on each PC board. The warning light PC boards will be installed on a V-shaped mounting bracket. Two (2) sets of three (3) red Super-LEDs shall be installed on the main PC board to the left and right sides of The V-shaped bracket. Clear V-shaped optic collimator and metalized reflector will be

installed over the PC boards for maximum illumination. The scene light shall consist of eighteen (18) Super-LEDs installed on the main PC board. The scene light will be furnished with a clear optic collimator and metalized angled reflector for supreme radiance.

The warning lights shall include an internal flasher with 25 Scan-Lock flash patterns including low power and steady burn. The M9V2 shall also be provided with a synchronize feature. The M9V2 warning lights shall meet KKK 1822F, NFPA, current edition, and NFPA 1917 specifications. The M9V2 perimeter lights shall meet AMD 024 with two (2) M9V2 on each side of the vehicle and NFPA 13.10.1.2 for one M9V2 up to six feet.

The lens/reflector assembly shall be sealed and resistant to water, moisture, dust, and other environmental conditions. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The light engine shall be installed at the rear of the unit and be vacuum tested to ensure proper sealing. The PC boards shall be conformal coated for additional protection.

The lights shall be read in color.The rear side scene light(s) shall be controlled by a switch located on the V-Mux display in the chassis cab. One (1) rocker switch shall be located on the pump panel for each side of scene lights, for a total of two (2). The switch at the pump panel shall have an indicator that shall illuminate when the switch is in the "ON" position.The activation for the driver's side scene lights on the V-Mux display and the pump panel switch shall be labeled "LEFT SCENE" and the officer's side shall be labeled "RIGHT SCENE."

UPPER ZONE B/D SIDE WARNING LIGHTS

Four (4) Whelen M9V2 Series Super-LED warning/scene lights with chrome flanges shall be installed, two (2) each in Upper Zone B and Upper Zone D. The M9V2 shall incorporate Linear Super-LED and Smart LED technology. The configuration of the M9V2 lights shall be a M9 V-series warning light and a perimeter light with a split non-optic polycarbonate lens. The warning light shall consist of four (4) PC boards containing three (3) Super-LEDs on each PC board. The warning light PC boards will be installed on a V-shaped mounting bracket. Two (2) sets of three (3) red Super-LEDs shall be installed on the main PC board to the left and right sides of The V-shaped bracket. Clear V-shaped optic collimator and metalized reflector will be installed over the PC boards for maximum illumination. The scene light shall consist of eighteen (18) Super-LEDs installed on the main PC board. The scene light will be furnished with a clear optic collimator and metalized angled reflector for supreme radiance.

The warning lights shall include an internal flasher with 25 Scan-Lock flash patterns including low power and steady burn. The M9V2 shall also be provided with a synchronize feature. The M9V2 warning lights shall meet KKK 1822F, NFPA, current edition, and NFPA 1917 specifications. The M9V2 perimeter lights shall meet AMD 024 with two (2) M9V2 on each side of the vehicle and NFPA 13.10.1.2 for one M9V2 up to six feet.

The lens/reflector assembly shall be sealed and resistant to water, moisture, dust, and other environmental conditions. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The light engine shall be installed at the rear of the unit and be vacuum tested to ensure proper sealing. The PC boards shall be conformal coated for additional protection.111339 &

UPPER ZONE B/D SIDE WARNING LIGHTS

Two (2) Whelen ION Series Super-LED lights with black housing shall be installed, one (1) each in Upper Zone B and Upper Zone D. The wide angle warning lights shall incorporate six Super-LEDs, a clear optic hard coated polycarbonate lens, and utilize a TIR reflector for maximum output. The lights shall be compliant with NFPA KKK1822F requirements. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The conformal coated PC board and liquid injection molded lens/gasket assembly shall provide additional protection against environmental elements. The solid state warning lights shall be vibration resistant.

The lights shall be read in color.The driver's side and officer's side scene light(s) shall be controlled by a switch located on the V-Mux display in the chassis cab. One (1) rocker switch shall be located on the pump panel for each side of scene lights, for a total of two (2). The switch at the pump panel shall have an indicator that shall illuminate when the switch is in the "ON" position.The activation for the driver's side scene lights on the V-Mux display and the pump panel switch shall be labeled "LEFT SCENE" and the officer's side shall be labeled "RIGHT SCENE."

LOWER ZONE WARNING LIGHT PACKAGE

Four (4) Whelen M6 Series Linear Super-LED lights with chrome flanges shall be installed in the lower zone of the apparatus to be in accordance with NFPA, current edition. compliance. The warning lights shall incorporate Linear Super-LED and Smart LED technology. The M6 configuration shall consist of eighteen (18) clear Super-LEDs and a clear optic polycarbonate lens. The warning lights, with the aid of two screws, shall have the ability to be installed as surface mount warning lights.

The M6 shall utilize optic collimators and a metalized reflector for maximum illumination. The warning lights shall include an internal flasher with 164 Scan-Lock flash patterns including a variety of CA Title 13 compliant patterns, left/right, top/bottom, in/out, and steady burn. The lights shall also provide synchronize and low power features.

The lens/reflector assembly shall be sealed and resistant to water, moisture, dust, and other environmental conditions. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The light engine shall be installed at the rear of the unit and be vacuum tested to ensure proper sealing. The PC board shall be conformal coated for additional protection.

Red LED's and Clear Lenses

UPPER ZONE C - ADD. WARNING LIGHTS

Two (2) Whelen 600 Series Super-LED lights with chrome-plated flanges shall be installed in Upper Zone C. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses.

The conformal coated PC board and sealed lens/reflector assembly shall provide additional protection against environmental elements. The solid state warning lights shall be vibration resistant.

Shop Note: Aux Mid Zone C Lights are Red Upper with Red Lenses and Amber Lower with Amber Lenses - located directly above the M9V lights.

Amber lensWhelen TAM83 TIR3 Super LED-Amber & Red lights (30.36" 8 light) - center 6 lights to be amber, 1 outboard left/right lights to be red

OPTICOM EMITTER

One (1) stand-alone low profile Opticom emitter shall be located above the windshield on the chassis cab. The emitter shall have a performance range of up to 2,500 feet to provide preemption at all intersections equipped with the Opticom strobe system. The emitter shall be wired in such a manner as to be disabled when the park brake is set. A switch in the main switch panel shall control the unit in conjunction with the park brake circuit.

TRAFFIC ADVISOR

One (1) Whelen model TAM65 LED Traffic Advisor shall be installed on the apparatus. The traffic directional light shall contain six (6) high intensity LED lamps in a black low profile flat style housing.

A Whelen, model TACTL5 Traffic Advisor control head shall be provided with the traffic advisor. The control head shall be housed in a rugged extruded aluminum case and shall offer four (4) programmable sequence flash patterns.

The traffic directional light shall be surface mounted on the rear of the body.

Shop Note: Light shall be located above the rear EHL door

AIR HORN ACTIVATION

One (1) air horn button shall be provided on the driver's side pump panel. The button shall be red in color and include a label reading "AIR HORN".

Shop Note: air horn to be in scene light switch bank on the pump panel wiht a red switch

12V POWER LEAD DROP

One (1) 12-volt power lead drop with a 6-position Blue Sea Systems ATO style fuse block with cover shall be provided. The power lead drop shall consist of one (1) hot and one (1) ground wire run from the batteries to the specified location. The power lead drop shall be activated by the chassis ignition switch and have a minimum of a 30 amp fuse provided with the power circuit. The distribution panel shall be designed with a grounding pad and compact, lightweight construction. The distribution panel shall be capable of using ATC/ATO blade fuses or ATC style DC circuit breakers.

The power lead shall be located in the R1 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

12V POWER LEAD DROP

One (1) 12 volt power lead drop with a 6-position Blue Sea Systems ATO style fuse block with cover shall be provided. The power lead drop shall consist of one (1) hot and one (1) ground wire run from the batteries to the specified location. The power lead drop shall be battery direct and have a minimum of a 30 amp fuse provided with the power circuit. The distribution panel shall be designed with a grounding pad and compact, lightweight construction. The distribution panel shall be capable of using ATC/ATO blade fuses or ATC style DC circuit breakers.

The power lead shall be located in the R2 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

12V POWER LEAD DROP

One (1) 12 volt power lead drop with a 6-position Blue Sea Systems ATO style fuse block with cover shall be provided. The power lead drop shall consist of one (1) hot and one (1) ground wire run from the batteries to the specified location. The power lead drop shall be battery direct and have a minimum of a 30 amp fuse provided with the power circuit. The distribution panel shall be designed with a grounding pad and compact, lightweight construction. The distribution panel shall be capable of using ATC/ATO blade fuses or ATC style DC circuit breakers.

The power lead shall be located in the R3 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

12V POWER LEAD DROP

One (1) 12 volt power lead drop with a 6-position Blue Sea Systems ATO style fuse block with cover shall

be provided. The power lead drop shall consist of one (1) hot and one (1) ground wire run from the batteries to the specified location. The power lead drop shall be battery direct and have a minimum of a 30 amp fuse provided with the power circuit. The distribution panel shall be designed with a grounding pad and compact, lightweight construction. The distribution panel shall be capable of using ATC/ATO blade fuses or ATC style DC circuit breakers.

The power lead shall be located in the R4 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

12V POWER LEAD DROP

One (1) 12 volt power lead drop with a 6-position Blue Sea Systems ATO style fuse block with cover shall be provided. The power lead drop shall consist of one (1) hot and one (1) ground wire run from the batteries to the specified location. The power lead drop shall be battery direct and have a minimum of a 30 amp fuse provided with the power circuit. The distribution panel shall be designed with a grounding pad and compact, lightweight construction. The distribution panel shall be capable of using ATC/ATO blade fuses or ATC style DC circuit breakers.

The power lead shall be located in the R5 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

12V POWER LEAD DROP

One (1) 12 volt power lead drop with a 6-position Blue Sea Systems ATO style fuse block with cover shall be provided. The power lead drop shall consist of one (1) hot and one (1) ground wire run from the batteries to the specified location. The power lead drop shall be battery direct and have a minimum of a 30 amp fuse provided with the power circuit. The distribution panel shall be designed with a grounding pad and compact, lightweight construction. The distribution panel shall be capable of using ATC/ATO blade fuses or ATC style DC circuit breakers.

The power lead shall be located in the L1 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

12V POWER LEAD DROP

One (1) 12 volt power lead drop with a 6-position Blue Sea Systems ATO style fuse block with cover shall be provided. The power lead drop shall consist of one (1) hot and one (1) ground wire run from the batteries to the specified location. The power lead drop shall be battery direct and have a minimum of a

30 amp fuse provided with the power circuit. The distribution panel shall be designed with a grounding pad and compact, lightweight construction. The distribution panel shall be capable of using ATC/ATO blade fuses or ATC style DC circuit breakers.

The power lead shall be located in the L2 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

12V POWER LEAD DROP

One (1) 12 volt power lead drop with a 6-position Blue Sea Systems ATO style fuse block with cover shall be provided. The power lead drop shall consist of one (1) hot and one (1) ground wire run from the batteries to the specified location. The power lead drop shall be battery direct and have a minimum of a 30 amp fuse provided with the power circuit. The distribution panel shall be designed with a grounding pad and compact, lightweight construction. The distribution panel shall be capable of using ATC/ATO blade fuses or ATC style DC circuit breakers.

The power lead shall be located in the L3 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

12V POWER LEAD DROP

One (1) 12 volt power lead drop with a 6-position Blue Sea Systems ATO style fuse block with cover shall be provided. The power lead drop shall consist of one (1) hot and one (1) ground wire run from the batteries to the specified location. The power lead drop shall be battery direct and have a minimum of a 30 amp fuse provided with the power circuit. The distribution panel shall be designed with a grounding pad and compact, lightweight construction. The distribution panel shall be capable of using ATC/ATO blade fuses or ATC style DC circuit breakers.

The power lead shall be located in the L4 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

12V POWER LEAD DROP

One (1) 12 volt power lead drop with a 6-position Blue Sea Systems ATO style fuse block with cover shall be provided. The power lead drop shall consist of one (1) hot and one (1) ground wire run from the batteries to the specified location. The power lead drop shall be battery direct and have a minimum of a 30 amp fuse provided with the power circuit. The distribution panel shall be designed with a grounding pad and compact, lightweight construction. The distribution panel shall be capable of using ATC/ATO

blade fuses or ATC style DC circuit breakers.

The power lead shall be located in the L5 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

IDLE REDUCTION BATTERY SYSTEM - 2.0 kWh

A battery and power management system shall be provided to reduce idle time of the chassis engine and provide a zero-emission solution to power the chassis with the chassis' engine off. Additionally, the operation of the power pack shall eliminate the noise of the chassis engine as well as eliminate dangerously hot exhaust temperatures of a vehicle in a regen cycle. The idle management system shall manage battery levels and charging cycles as well as engine on-off cycles. The battery shall provide 12-volt power to all devices except for the chassis starting system. The 12-volt power supply shall be uninterrupted as the engine is cycled off and on to eliminate damaging voltage spikes. Battery systems that switch between batteries will not be considered.

The battery capacity shall be 200 amp-hours. From a fully charged state to a minimum state of 20% charge, the battery shall provide for up to 45 minutes of idle-free operation on a 200 amp draw or up to 90 minutes on a 100-amp draw.

IDLE REDUCTION OPERATION

The chassis engine will shut down during a parked idle when the following criteria is met:

Battery and ignition are on.
Chassis park brake is set.
Transmission is in neutral.
Cab is lowered and locked.
Vehicle is running.
Pump or PTO accessories are not active.
Idle reduction deactivation switch is off.

The chassis engine will shut down based on the time setting on the user interface once all idle reduction criteria is met. The power to all 12-volt devices will continue without interruption. During the engine-off time the graphic user interface will display the following:

Power pack charge (volts)
Starting battery charge (volts)
Current usage (amperes)
Chassis engine status
Estimated reserve time before chassis engine startup
Diagnostic menu

During the engine-off time the cab heat is supplied by latent engine heat through the normal cab HVAC

system unless an additional auxiliary heater is specified.

Return to engine-on operation can be through operator intervention at any time. The engine will automatically restart once the batteries have reached minimum charge levels. Upon restarting, the electrical system will first charge the lead-acid starting batteries and then automatically switch to charging the lithium-ion battery.

Cellular telematics are included for remote troubleshooting as well as calculating fuel and emissions savings. Connectivity is included at no additional cost from time of in-service for three years.

If the unit is equipped with a winch or has provisions for a winch, proper labeling will be provided to disable the Eco-Idle system before using.

VERIFIED IDLING REDUCTION TECHNOLOGIES

EPA has evaluated idle reduction technologies/devices as part of grants, cooperative agreements, emissions testing, engineering analyses, modeling, demonstration projects and external peer reviewed reports to study the effects of idling on air quality, fuel consumption and driver health. Based on this evaluation and research, EPA has determined that a variety of idle reduction technologies save fuel and reduce emissions when compared to idling the chassis engine.

Idle reduction technology allows engine operators to refrain from long-duration idling of the chassis engine by using an alternative technology. Idle reduction technology is generally defined as the installation of a technology or device that:

Is installed on a vehicle
Reduces unnecessary chassis engine idling of the vehicle or equipment
Designed to provide services (e.g., heating, air conditioning, and/or electricity) to the vehicle or equipment that would otherwise require the operation of the chassis engine while the vehicle or equipment is temporarily parked or remains stationary.

SUPERIOR BATTERY TECHNOLOGY

Lithium-ion battery technology (LiFePO4) is the latest in mobile, marine, and military battery technology. The benefits of these batteries over traditional lithium-ion batteries are:

Wide operating range: -4°F to 150°F (-20° to 65.6°C)
The phosphate-based technology has far better thermal and chemical stability as compared to traditional lithium-ion batteries. This technology has been subjected to testing to simulate damage and is intrinsically safe, preventing a thermal runaway event.
The lithium-ion battery technology offers a significantly longer life cycle, sustaining 3 to 5 times the charging cycles of lithium-ion batteries.
The battery is composed of nontoxic materials. This makes end-of-life disposal or handling of damaged cells a concern and protect the environment.
Higher energy density enabling faster charging and more cycles for a given time period.
Reduced weight allowing for minimum impact to the weight of the apparatus.

For the above reasons, battery systems that utilize lithium-ion batteries will not be considered.

Estimated life cycles:

80% discharge/recharge 1 time per day = 7 years
50% discharge/recharge 1 time per day = 15 years
30% discharge/recharge 1 time per day = 35 years

17,000 BTU HEATER FUEL FIRED

The apparatus shall have a 17,000 BTU heater system installed. The system shall be provided fuel by the chassis fuel tank. The unit shall be connected to the engine coolant and have a pump for coolant circulation. The heater function will be automatic as required by the user interface for idle reduction. The heater unit shall be CARB approved for Ultra Low Emission Vehicles idle reduction requirements. Auxiliary engines utilized for heat will not be considered.

LOW-TEMPERATURE AMBIENT OVERRIDE -10°F (-23°C)

The batteries will be warmed by engine coolant extending idle reduction temperatures to ambient temperatures of -10°F (-23°C) or less.

IDLE REDUCTION LOCATION

The idle reduction shall be located in the dunnage, under the cover to keep the system out of the elements, that was selected in the pump house section.

IDLE REDUCTION VENTILATION

A bolt-on painted aluminum panel shall be on the upper portion of the driver's side of the pump module to allow access to the Idle Reduction System. The panel shall be of the single pan design and shall be secured utilizing stainless steel fasteners. The panel shall have high-definition precision cuts of an area as large as possible on the panel to allow proper air flow.

A cooling fan shall be provided for additional cooling.

120V RECEPTACLE

One (1) NEMA 5-20R, 120-volt, duplex, 3-wire, straight blade (household type) receptacle shall be installed on the apparatus and wired to the shoreline. The receptacle shall have a 20-amp rating and include a spring loaded weather resistant cover if mounted in an exterior location.

The receptacle shall be located in the L1 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

120V RECEPTACLE

One (1) NEMA 5-20R, 120-volt, duplex, 3-wire, straight blade (household type) receptacle shall be installed on the apparatus and wired to the shoreline. The receptacle shall have a 20-amp rating and include a spring loaded weather resistant cover if mounted in an exterior location.

The receptacle shall be located in the L3 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

120V RECEPTACLE

One (1) NEMA 5-20R, 120-volt, duplex, 3-wire, straight blade (household type) receptacle shall be installed on the apparatus and wired to the shoreline. The receptacle shall have a 20-amp rating and include a spring loaded weather resistant cover if mounted in an exterior location.

The receptacle shall be located in the L4 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

120V RECEPTACLE

One (1) NEMA 5-20R, 120-volt, duplex, 3-wire, straight blade (household type) receptacle shall be installed on the apparatus and wired to the shoreline. The receptacle shall have a 20-amp rating and include a spring loaded weather resistant cover if mounted in an exterior location.

The receptacle shall be located in the L5 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

120V RECEPTACLE

One (1) NEMA 5-20R, 120-volt, duplex, 3-wire, straight blade (household type) receptacle shall be installed on the apparatus and wired to the shoreline. The receptacle shall have a 20-amp rating and

include a spring loaded weather resistant cover if mounted in an exterior location.

The receptacle shall be located in the R1 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

120V RECEPTACLE

One (1) NEMA 5-20R, 120-volt, duplex, 3-wire, straight blade (household type) receptacle shall be installed on the apparatus and wired to the shoreline. The receptacle shall have a 20-amp rating and include a spring loaded weather resistant cover if mounted in an exterior location.

The receptacle shall be located in the R3 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

120V RECEPTACLE

One (1) NEMA 5-20R, 120-volt, duplex, 3-wire, straight blade (household type) receptacle shall be installed on the apparatus and wired to the shoreline. The receptacle shall have a 20-amp rating and include a spring loaded weather resistant cover if mounted in an exterior location.

The receptacle shall be located in the R4 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

120V RECEPTACLE

One (1) NEMA 5-20R, 120-volt, duplex, 3-wire, straight blade (household type) receptacle shall be installed on the apparatus and wired to the shoreline. The receptacle shall have a 20-amp rating and include a spring loaded weather resistant cover if mounted in an exterior location.

The receptacle shall be located in the R5 compartment.
The exact location will be determined by the apparatus manufacturer, unless a specific location is clarified in the shop note.

100' AERIAL PLATFORM CONSTRUCTION STANDARDS

The aerial platform shall be of the rear mount design with the turntable mounted directly over the rear

axles of the apparatus, and the ladder extending toward the front of the apparatus when in the bedded position. The aerial platform shall be comprised of three sections and shall extend to a nominal height of 100' at 72 degrees, measured in a vertical plane from the platform handrail to the ground. To maintain a maximum level of safety, units exceeding a 76 degree angle of inclination, in accordance with NFPA 1931/1932, current edition, shall not be acceptable.

OPERATIONAL ENVELOPE/REACH

The aerial platform shall have an operations range of -12 degrees elevation to +72 degrees elevation.

While on a flat surface a minimum vertical reach of 100' shall be measured from the ground to the top of the handrail of the platform while at maximum extension and elevation.

A minimum horizontal reach of 98' shall be measured from the turntable centerline to the leading edge of the platform with the aerial at 0 degrees elevation.

Reach and height shall be measured in accordance with NFPA, current edition.

STRUCTURAL MATERIAL

The primary load support members of the ladder shall be constructed of certified 100,000 PSI yield strength (minimum) steel tubing. Each section shall be trussed diagonally, vertically, and horizontally using welded steel tubing. All critical points shall be reinforced for extra rigidity and to provide a high strength to weight ratio.

All ladder rungs shall be constructed of A606 Type 4 certified steel tested per ASTM A370 standards. A606 Type 4 exhibits superior corrosion resistance over regular carbon steel as a result of the development of a protective oxide film on the surface. A606 Type 4 shall meet a minimum 6.0 Atmospheric Corrosion Factor. The ladder rungs shall be round and welded to each section utilizing "K" bracing for torsional rigidity.

All welding of structural components, including the aerial ladder sections, turntable, pedestal, and outriggers, will be in compliance with the American Welding Society standards. All welding personnel will be certified, as qualified under AWS welding codes. Materials used to manufacture the structural components are to be certified by the mill that manufactured the materials. Certifications or re-certifications of structural materials by vendors other than the mill they were manufactured at will not be acceptable. Any material testing that is performed after the mill test will be for verification only and not completed with the intent of changing the classification. Any welded structural component for the ladder will be traceable to their mill lots.

PRIMARY DIMENSIONS

The inside dimensions of the ladder shall be as follows:

- Base Section - 39.250"
- First Fly Section - 33.500"
- Last Fly Section - 26.750"

The height of the handrails above the center line of the rungs shall be as follows:

- Base Section - 30.875"
- First Fly Section - 26.875"
- Last Fly Section - 22.875"

NFPA SAFETY FACTOR AND RATED CAPACITIES

The methodology, definitions, testing, and criteria used by the aerial manufacturer to determine the preceding and following Safety Factor and Rated Capacity of the aerial device shall be in strict compliance with the definitions of such, in accordance with NFPA, current edition., and these specifications. Any apparatus claiming to exceed the testing requirements of NFPA, current edition shall provide certified documentation of the tests.

AERIAL DEVICE SAFETY FACTOR AND RATED CAPACITY

The purchaser desires to purchase with these specifications, an aerial device with a minimum 2.0:1 safety factor as required and in accordance with NFPA, current edition. Therefore, the aerial manufacturer shall hereby certify, by submitting a bid for these specifications; that the aerial device meets or exceeds the following requirements.

The design stress or primary stress within all structural load supporting members of the aerial device shall not exceed 50% of the minimum as welded yield strength of the material based on the combination of:

- The dead load of the aerial plus the rated capacity of 500 lbs. in the platform; while flowing 2000 GPM, at a 90-degree angle to ladder centerline, and at a 45-degree angle above the horizontal plane,

OR

- The dead load of the aerial plus the rated capacity of 1250 lbs. in the platform; with the waterway uncharged;

With the structural load supporting members of the aerial device, at either; an ambient temperature of 70 degrees F or an elevated temperature of 350 degrees F-, thereby exhibiting a minimum 2.0:1 safety factor in all feasible operational conditions. These capabilities shall be valid and true when the apparatus is deployed in the unsupported configuration, based upon 360-degree rotation, up to full extension, and at any degree of elevation (-12 to +72).

AERIAL DEVICE SAFETY FACTOR SERVICE LIFE

The purchaser desires to purchase an aerial device with a safety factor that remains NFPA compliant and

constant throughout the life of the aerial device. The safety factor of every structural load bearing member in the aerial device shall remain above 2.0:1 for a "Safety Factor Service Life" of up to 20 years minimum. Any apparatus claiming to exceed the guidelines of NFPA, current edition shall provide certified documentation.

AERIAL SPECIAL LABELS

Legible, permanent signs shall be installed in positions readily visible to the operator to provide operational directions, warnings, and cautions. The signs shall describe the function of each control and provide operating instructions.

Warning and caution signs shall indicate hazards inherent in the operation of the aerial device. These hazards shall include, but shall not be limited to:

Electrical hazards involved where the aerial device does not provide protection to the personnel from contact with, or near proximity to, an electrically charged conductor.

Electrical hazards involved where the aerial device does not provide protection to ground personnel who might contact the vehicle when in contact with energized electrically charged conductors.

Hazards from stabilizer motion.

Hazards that can result from failure to follow the manufacturer's operating instructions.

AERIAL DEVICE SERIAL NUMBER PLATE

A permanent label shall disclose the following information relative to the aerial device (See turntable console lid):

Model

Serial number

Shop Order Number

OTHER LABELS

Maximum hydraulic system pressure

Hydraulic oil type

All other appropriate labels to ensure safe operation of the aerial device shall be supplied in conspicuous locations.

ULC AERIAL CERTIFICATION

The aerial device shall be tested under Underwriters Laboratory of Canada standards.

STRUCTURAL SAFETY FACTOR

The purchaser desires a device that has been tested by a third party for compliance with the 2 to 1 safety factor specified by NFPA, current edition. Devices that have not been certified by an engineer that is independent of the manufacturer shall not be acceptable.

NFPA AERIAL STABILITY FACTOR AND TESTING

A one and one-half to one (1.5:1) stability factor shall be provided. These capabilities shall be established in an unsupported configuration. Since the device is rated while flowing water, stability testing shall account for the distributed weight of water in a full waterway and water reactionary force as required by NFPA, current edition.

The following are specific descriptions of what tests are to be performed, and conditions they shall be performed under, and strictly adhered to by the aerial manufacture set forth in these specifications and the current edition of NFPA, current edition.

For both of the following tests, the only obstructions to a full 360-degree rotation with the aerial at 0 degrees elevation and full extension; shall be presented by the apparatus itself, and not external obstructions at the manufacturer's test location. This means that the aerial device manufacturer shall ensure that the testing grounds present no obstruction (trees, buildings, etc.) to the full 360-degree rotation at 0 degrees elevation and full extension, which may cause the need to raise the aerial to clear the obstruction.

Additionally, the apparatus shall be tested for stability only after the entire apparatus is complete. Manufacturers using a third-party to manufacture the aerial device must provide certified documentation the unit was tested by the manufacturer of the aerial and the final OEM manufacturer. This requirement is specified in NFPA, current edition as the apparatus being in "service-ready condition". There shall be no exception to this requirement due to the fact that it would be unlikely that actual weight distribution could be accurately simulated for the stability testing.

TEST 1

After the above conditions have been satisfied, the aerial shall be subjected to the following test in the presence of the third party testing company that is in compliance with these specifications. Specifically, the aerial device shall be placed on level ground with the stabilizers deployed per manufacturer recommendations. The aerial device then shall have 1.5 times the rated capacity placed at the tip of the aerial, with the device at full extension and at 0 degrees elevation, which is the most stringent configuration. The device shall be rotated 360 degrees raising and lowering the aerial as needed to clear the cab of the apparatus. The aerial shall prove to be stable during the entire test and no component of the aerial shall permanently deform.

TEST 2

After the above conditions have been satisfied, the aerial shall be subjected to the following test in the presence of the third party testing company that complies with these specifications. Specifically, the aerial device shall be placed on a 5-degree downward slope with the stabilizers deployed per manufacturer recommendations. The aerial device then shall have 1.33 times the rated capacity placed at the tip of the aerial, with the device at full extension and at 0 degrees elevation, which is the most stringent configuration. The device shall be rotated 360 degrees raising and lowering the aerial as needed to clear the cab of the apparatus. The aerial shall prove to be stable during the entire test and no component of the aerial permanently deform.

RUNG COVERS

Each rung shall be covered with secure, heavy duty, deeply serrated rubber sheathing. The rung cover shall be installed on a minimum of sixty percent (60%) of each ladder rung. Attachment of the sheathing to the rung shall be by mechanical means and an adhesive application. Under no circumstance shall the rung covers turn when a rung is at ambient temperature (75 degrees F) or at an elevated temperature (350 degrees F); there shall be no exception to this requirement for the safety of persons climbing the ladder sections.

The sheathing shall be easily replaceable if the rubber becomes worn, however, the rung covers shall be designed, constructed, and installed with lifetime service as the objective. To ensure ease of maintenance if damaged, manufacturers using embossed metal in place of the rubber rung covers are not acceptable.

To prevent corrosion of the rungs by introducing air to the inside, under no circumstances will rung covers attached with screws or rivets be acceptable.

HEAVY DUTY LADDER TRAVEL SUPPORT

A heavy duty ladder rest with poly pads shall be provided for support of the ladder in the travel position. The location of the travel support shall be directly behind the chassis cab. The travel support shall be fabricated from heavy duty steel and painted to match the primary body color. If the body is a two-tone design, the travel support shall be painted to match the top body color. The travel support shall be designed to be easily removable to allow for ease of maintenance and repair if necessary.

The base section of the ladder shall contain stainless steel scuff plates where the ladder comes into contact with the ladder support.

An indicator light shall be provided on the turntable to indicate when the ladder is aligned with the travel support and may be lowered into it. The ladder rest shall be attached to the front outrigger box assembly for added stability.

The ladder rest shall be illuminated for night time operation. The illumination light shall automatically activate with the aerial master switch.

CRADLE INTERLOCK SYSTEM

A cradle interlock system shall be provided to prevent the lifting of the ladder from the nested position until the operator has positioned all of the stabilizers in a load supporting configuration. An interlock switch shall be installed at the cradle to prevent operation of the stabilizers once the aerial has been elevated from the nested position.

ELEVATION SYSTEM

Two (2) double acting lift cylinders shall be utilized to provide smooth precise elevation from 8 degrees below horizontal to 72 degrees above horizontal. The lift cylinders shall have a 7" internal diameter (bore) and a 4" solid cylinder rod. The lift cylinders shall be equipped with integral holding valves located on the cylinder to prevent the unit from lowering should the charged lines be severed at any point within the hydraulic system.

The lowering of the ladder shall be controlled by a pressure limiting valve, to limit the downward pull of the ladder when it is bedded. Both raising and lowering functions shall be influenced by flow compensation, which shallÂ maintain ladder tip speed within the design speed regardless of load, angle, or extension. Ladder tip speed shall be decelerated above 65 degrees in order to reduce "tip-lash". Ladder lowering shall be controlled on the down motion to prevent the cylinders from completely retracting, thus allowing a cushion of oil for continuous ladder load readout.

The elevation cylinder upper and lower pivot pins shall be installed with a secondary tensioning system to secure the pins and prevent them from slipping out over time. The design shall not inhibit the pins from being removed for future servicing purposes.

EXTENSION/RETRACTION SYSTEM

A fully hydraulic powered extension and retraction system shall be provided using two (2) sets of Siamese hydraulic cylinders and cables. Each set shall be capable of operating the ladder in the event of a failure of the other. The extension cylinders shall each have a 3.5" internal diameter (bore) and a 1.5" diameter solid rod. Extension and retraction of the telescopic sections shall be internally limited within the cylinders, eliminating excess strain on the cables, sheaves, and ladder structure. Each of the cylinder, cable, and sheave assemblies shall be completely independent of the other, to provide a safety factor wherein a failure of one assembly will not affect the function and operation of the other. The extension cylinders shall be equipped with counter balance holding valves to synchronize the cylinders for smoother operation and prevent the unit from retracting should the charged lines be severed at any point within the hydraulic system. The holding valves shall be mounted directly on the cylinders with no hoses between the valve and the cylinder.

The reeling of the cable shall be such to provide synchronized, simultaneous movement of all sections from full extension to full retraction. All pulleys and sheaves shall be enclosed as an added safety feature as well as to prevent personnel on the ladder from becoming entangled in them.

HIGH DUTY CYCLE SHEAVE BEARINGS

For maximum performance in high duty cycle environments, the aerial sheaves shall be provided with bearings made from type 660 bearing bronze. This bronze alloy shall be hard, strong and resistant to wear and galling.

A grease zerk shall be provided for each sheave bearing for reliable, long-term performance.

AERIAL CABLES

To ensure a maximum level of safety the following standards shall be used on the extension and retraction cable system with no exception:

- Cables shall have a 5:1 safety factor based on ultimate strength under all safe operating conditions.
- The factor of safety shall remain above 2:1 during any extension or retraction system stall
- The minimum ratio of the diameter of cable to the diameter of sheave shall be 1:12

All cables shall be pre-stressed, proof-loaded, and certified by the cable manufacturer to minimize changes to the cable lengths and performance.

CERTIFIED CABLE SWAGED SHACKLES

All swaged shackle ends shall have a certification test from the manufacturer of the assembly.

ENERGY CHAIN

The electrical cable, hydraulic hose and/or air hose shall be routed through the interior of the structural tubing of the ladder sections as well as utilizing energy chain. The energy chain shall be routed through the inside section of the vertical side walls of the aerial ladder device. The cable and/or hose routing shall use one or both bottom cord rectangular tube(s) on the base section of the ladder and the bottom cord rectangular tube(s) on the last ladder fly section. The ladder sections between the base and last fly shall utilize the energy chain in order to route all electrical cables and hose lines.

Each model of energy chain used shall be adequately sized to fit the application.

Rollers, which are located in the lower portion of the ladder section(s), shall be constructed of a nylon plastic material that is specifically designed for these types of applications. Spacer pads, made from the same material as the rollers, shall be installed and evenly spaced in order to secure the Igus energy chain within the specifically designed carrier shield(s).

The electrical cables used to transfer power up to the ladder tip shall be energy chain flex cables. These cables are specially designed and custom fit for each aerial apparatus.

the energy chain is virtually wear-free and offers extremely quiet operation. The energy chain is very well suited to resist the harsh environmental conditions by being able to withstand extreme temperatures and is also UV resistant.

WEAR PADS/BEARING SURFACES

Nylon wear pads impregnated with molybdenum disulfide and high in molecular weight shall be used between the telescoping sections for maximum weight distribution, strength, and smoothness of operation. This impregnation shall provide a lubricating function.

Stainless steel adjustment screws shall be provided on the wear pads to permit proper side tension. Plates shall be installed on the sides of the slide pads where adjustment screws come into contact with them. No exceptions shall be allowed to this requirement to prohibit the adjustment screws from embedding themselves into the pads, which may cause the pad to crack and fail.

To prevent additional maintenance and pressure points from the limited surface area, roller systems in place of wear pads will not be considered acceptable.

ROTATION BEARING

A 48-inch diameter external tooth, swing circle bearing shall be used for the rotation system. The bearing shall provide 360 degrees continuous rotation. The bearing shall be designed specifically for the aerial device in lieu of the aerial device being designed to accommodate a particular bearing.

The bearing shall be bolted to the turntable and to the base support structure with SAE grade 8 bolts.

The turntable base and the torque box bearing plate shall be machined to match, providing an even distribution of forces and reducing the chance of fracturing the bearing.

The turntable base and the torque box bearing plate surfaces that contact the bearing shall be machined to prevent loading the bearing when the attaching bolts are brought to full torque. Machining of the surfaces shall be done after all welding to assure no further distortion of the material.

Shims shall not be acceptable as they reduce the surface contact area significantly thereby causing a concentration of forces at the shims.

BOLT TORQUING FROM TOP SIDE

All rotation bearing bolts shall be torqued from the top side of the turntable without the bolt or nut being held under the turntable by a person. Units requiring removal of equipment to access the torque bolts shall be considered unacceptable.

This design shall prevent the bolt from "spinning" while torque is being applied to the fastener. Application of Loctite or a similar compound alone, without any other means provided to hold the fastener shall not be acceptable. Additionally, this design feature shall not incorporate drilling, bending, welding on, or in any way modifying the structural fastener, nut, or washers.

ROTATION GEAR REDUCTION BOX

A hydraulically driven planetary gearbox with a drive speed reducer shall be used to provide infinite and minute rotation control throughout the entire rotational travel. The rotation gear reduction box shall be installed on the top side of the turntable so that it is easily accessible, yet it shall be installed so that it does not provide an obstruction or tripping hazard to persons on the turntable. Specifically, it shall be installed toward the front of the turntable, under the aerial ladder base section. Under no circumstance shall the gear box present any interference with the aerial device, even at low elevations.

Due to the additional maintenance required to keep two (2) rotation motors functioning properly without binding, units requiring more than one (1) rotation motor are not considered acceptable.

A spring applied, hydraulically released disc type swing brake shall be furnished to provide positive braking of the turntable assembly.

Provisions shall be made for manual operation of the rotation system should complete loss of hydraulic power occur. These provisions shall include a manual rotation drive tool supplied with the apparatus.

The hydraulic system shall be equipped with pressure relief valves, which shall limit the rotational torque to a nondestructive power. All moving parts of the rotation gear reduction box shall be enclosed or under the turntable decking eliminating safety hazards.

ROTATION INTERLOCK SYSTEM

The aerial device shall be equipped with a rotation interlock system to prevent the ladder from being rotated to any side where the stabilizers are not sufficiently extended to provide for the full tip load rating.

The system shall monitor the stabilizers for extension. When a stabilizer is not sufficiently extended (short-jacked) to provide full tip load rating, the system shall prevent the aerial from being rotated more than 12 degrees past the front or rear center line into the short-jacked side of the apparatus.

A slowdown feature shall be built into the rotation interlock system. When the aerial is operating in a short-jacked mode, the rotational speed shall be automatically reduced, by approximately 50%, when the aerial is rotated to within approximately 10 degrees of the front or rear center line of the apparatus. The rotational speed shall remain reduced throughout an arc of approximately 20-degrees over the front or rear of the apparatus, regardless of the direction of the rotation movement.

The rotation function shall automatically stop when the aerial approaches the front or rear corner area of the short-jacked side of the apparatus.

The rotation interlock system shall allow for normal operation on the side of the apparatus where the stabilizers are sufficiently extended for full tip load rating.

An override system, activated by pull knobs within the main turntable control pedestal, shall be provided that allows the operator to rotate the aerial into the non-recommended (short-jacked) side of the apparatus, should the situation absolutely demand it.

To ensure the maximum amount of safety, units allowing aerial rotation to the short-jacked side of the apparatus or systems which only include a visual and audio warning without automatically stopping rotation shall not be acceptable.

AERIAL STOW OPERATION INTERLOCK SYSTEM

A safety feature shall be included in the aerial operational system that limits the possibility of damage to the apparatus when stowing the aerial.

When a rear mounted aerial is positioned over the cab area of the apparatus, the interlock system shall not allow the downward movement of the aerial below a preset angle of elevation, unless the aerial is rotated into the bed-zone envelope. The bed-zone shall be approximately 2 degrees of rotation to the left and right side of the center of the aerial bed support. Once this bed-zone envelope is attained, downward movement of the aerial shall be allowed for proper positioning into the bed support.

An indicator light shall be located at the turntable control station to inform the aerial operator when the bed-zone envelope is attained.

COLLISION PROTECTION INTERLOCK

The apparatus shall be equipped with a cab collision protection interlock. This interlock shall be enabled while rotating the aerial device at elevations as low as, or lower than the cab of the apparatus.

Should the operator accidentally rotate the aerial device toward the cab at an elevation low enough to cause a collision with the cab, the interlock shall automatically stop rotation of the aerial at a point that is within a few degrees of the cab.

A manual override shall be provided to override the interlock system.

APPARATUS BODY DAMAGE CONTROL INTERLOCK SYSTEM

A safety feature shall be included in the aerial operational system that minimizes the possibility of damage to the apparatus body at all angles for all standard (non-override) operational modes.

The system shall automatically stop the downward movement of the aerial at a preset angle of elevation unless the aerial has been rotated at least 80-degrees, left or right, from the center of the ladder support. Once this rotation point is reached, full range downward movement (to -8 degrees) shall be allowed.

The aerial manufacturer shall determine and set the angle of elevation where downward aerial movement is stopped. The highest point of an apparatus, in relation to the distance from the turntable, shall be used to determine the pre-set elevation angle stopping point.

The system shall also minimize the possibility of accidental damage to the apparatus body from aerial rotation whenever the aerial elevation is below the preset elevation angle stopping point.

Rotational speed shall be reduced by approximately 50% when the aerial is rotated within a minimum of 10 degrees of a body avoidance stopping point. Aerial rotation shall automatically stop before the aerial contacts the body of the apparatus.

The body damage interlock system shall have no effect on aerial operation when the aerial is raised above the preset downward movement stopping point.

The body damage interlock system shall not eliminate the possibility of damage to components such as telescopic lights that are in a raised position.

A manual override shall be provided that will override the interlock system.

POWER TAKE-OFF

The apparatus shall be equipped with a power take-off (PTO) driven by the chassis transmission and actuated by an electric shift, located inside the cab. The PTO, which drives the hydraulic pump, shall meet all the requirements for the aerial unit operations.

"THRU-DRIVE" HYDRAULIC PUMP

The hydraulic system shall be supplied by a pressure compensated, load sensing, variable gallonage type pump. The pump shall provide adequate fluid volume to allow all ladder functions to operate simultaneously, without noticeable loss of speed. The pump shall supply oil only when the ladder is in motion, thereby preventing overheating of the hydraulic oil.

The pump shall be a "thru-drive" design. This design shall be provided for applications that require a power source for additional hydraulically operated accessories or tools.

An interlock shall be provided that allows operation of the aerial device PTO shift only after the chassis spring brake has been applied and the chassis transmission has either been placed in the neutral position or the drive position if the driveline has been disengaged from the rear axle.

HYDRAULIC SYSTEM

The tubing and hoses used in the hydraulic system shall have a high-pressure rating, with the tubing having a minimum burst pressure of 9,600 to 17,400 PSI and the hoses being a minimum of 8,000 to 13,000.

The hydraulic oil tank shall have an approximate capacity of 50 gallons. A dipstick shall be provided to check the oil level. The oil fill shall be furnished with a cap that shall act as a ventilator to provide clean fresh air into the oil tank and a 40-micron filter to provide positive protection from contaminates. A magnetic drain plug shall be provided in a low point of the oil tank. An easily accessible 3-micron replaceable oil filter shall be installed on the hydraulic oil tank. The hydraulic oil tank shall be furnished with two pick-up tubes, one tube for normal operation and the other for emergency operation. The

emergency pick-up tube shall extend further down into the oil tank to provide for reserve oil in case a hydraulic line is broken.

The hydraulic system shall be protected from possible hydraulic pump malfunctions by a relief valve, which shall route the excess oil into the oil tank when the pressure in the hydraulic system exceeds 3,500 PSI. The hydraulic control valves shall also be protected by being plumbed to a pressure relief valve to protect them from high pressure.

The hydraulic system shall be designed in such a way that all non-sealing moving components whose failure could result in motion of the aerial device shall have a minimum bursting strength of four times the maximum operating pressure to which the component is subjected. The hydraulic system shall have adequate cooling for continuous operation of not less than 2-1/2 hours.

HYDRAULIC PRESSURE GAUGE

A 2-1/2" Innovative Controls 5,000 PSI, pressure gauge model IC-3010339-21933E-OTP, shall be located at the ground level control station to monitor the hydraulic system pressure. The gauge shall be liquid filled to prevent gauge shock when the hydraulic system is energized. The liquid shall not be vulnerable to freezing in subzero temperatures.

3-MICRON HIGH-PRESSURE FILTER

A 3-micron filter shall be installed in the output line of the hydraulic system, after the hydraulic pump.

RESERVOIR ISOLATION KIT

Two (2) 1/4 turn ball valves shall be installed on the hydraulic reservoir to isolate it from the hydraulic system. This shall minimize hydraulic fluid loss when changing filter elements during routine maintenance.

EMERGENCY PUMP

The apparatus shall be equipped with one (1) emergency hydraulic pump electrically driven from the chassis battery system. The emergency pump shall be capable of providing adequate ladder functions to stow the aerial and stabilizers in the case of main hydraulic pump failure.

Two (2) control switches for this emergency pump shall be provided. One switch shall be installed at the turntable control console and the stabilizer control station. The switches shall be labeled EPU.

Each control shall be a spring loaded momentary switch. A red indicator light shall be mounted adjacent to each switch to indicate activation of the emergency pump.

HYDRAULIC SWIVEL

The aerial ladder shall be equipped with a swivel at the turntable. The swivel shall connect the hydraulic lines from the hydraulic pump and reservoir to the aerial control bank at the turntable, above the point of rotation.

The swivel shall connect all the electrical circuits through the rotation point. A minimum of thirty-two (32) collector rings shall be provided. All collector rings shall be enclosed and protected with desiccant plugs to protect against condensation and corrosion. Due to the possibility of paint contamination and dirt attraction, units requiring oil or silicone to protect the collector rings shall not be acceptable.

The swivel shall allow for 360 degrees of continuous rotation of the aerial device with no loss of speed or capacity in functions.

ANGLE INDICATOR

A liquid filled angle indicator shall be mounted on the base section of the ladder. The indicator shall give accurate elevation in degrees from -20 to +80 degrees in relation to level. The liquid shall be of proper viscosity and composition to remain in liquid form even when exposed to below zero temperatures. Reading of the indicator shall be accomplished by observing the position of a suspended ball in relation to the degrees of elevation as marked on the indicator housing. The indicator shall be backlit for visibility in low light conditions.

An additional angle indicator shall be on the fly section near the platform. The angle indicator shall be backlit for low light conditions.

EXTENSION INDICATORS

Numerals shall be applied to the inside of the handrail of the base section opposite the turntable control console. The numerals shall be at appropriate intervals indicating total aerial extension in 5-foot increments. A band on the first fly section shall align with these marks at the appropriate extension distance. The extension indicator color shall provide a high contrast with the color of the ladder section to which it is applied. This shall make the length of aerial extension easily readable by the operator by merely glancing at the indicators. Numerals indicating the length of extension shall be placed adjacent to indicating bands.

MANUAL ROTATION DRIVE TOOL

As required by NFPA, current edition, one (1) manual rotation drive tool shall be provided as a means to rotate the turntable in the unlikely event of power loss. This drive tool shall be provided as standard equipment.

TORQUE BOX

A "torsion box" subframe shall be installed on the chassis frame rails, integral with the stabilizers. The torque box shall be constructed of steel plate. The steel plates shall have a minimum yield strength of 36,000 psi and ultimate tensile strength of 58,000 - 80,000 psi. The torque box subframe assembly shall be capable of withstanding all torsional and horizontal loads when the apparatus is supported by the stabilizers. The torque box shall be bolted in place to the chassis frame rails.

The torque box shall have a section modulus of 516.9 cubic inch and a resistance to bending moment of 18,611,273 inch pounds.

The aerial torque box shall be painted with AkzoNobel High Solids polyurethane paint. The color shall be black.

To prevent unnecessary stress on the chassis, apparatus that use the chassis frame in place of a true torque box shall not be acceptable.

The torque Box will be adequately lit for night time operations.

FRONT AND REAR STABILIZERS

Two (2) sets of stabilizers shall be installed for stability. Each set of stabilizers shall have an 18' spread, measured from the outermost edge of the stabilizers on each side of the apparatus. Both sets shall be an extending box beam "H" style. In order to get the true stabilizer spread, apparatus using measurements other than from each outside edge of the stabilizers shall not be considered acceptable

The front stabilizers shall be located directly behind the chassis cab rear wall for maximum setup ability with minimal cab deflection. The stabilizers shall be an integral part of the torque box. A heavy-duty undersling assembly shall attach the front stabilizers to the front portion of the torque box. The overlap of the undersling and the torque box shall be a minimum of 24". The bottom side of the tubes shall contain a truss assembly that shall maximize the torsional strength of the undersling assembly.

The front stabilizers and torque box shall be attached to the truck frame in six (6) separate locations, three (3) on each side of the apparatus, utilizing steel plate.

The rear stabilizers shall be located directly behind the chassis rear wheels. The stabilizers shall be an integral part of the torque box.

The stabilizers shall be of the double box tube design with jack cylinders that have a 5" internal diameter (bore) and a 2.5" diameter solid cylinder rod. The jack cylinders shall be equipped with integral holding valves, which shall hold the cylinders either in the stowed or the working position, should a charged line be severed at any point within the hydraulic system.

The steel used to build the stabilizer system shall have a minimum yield strength of 36,000 psi and ultimate tensile strength of 58,000 80,000 psi.

Vertical jack cylinder rods shall be fully enclosed by a telescoping inner box to protect the cylinder rods,

seal glands and pistons against damage from nicks, abrasion, and chrome damage. All vertical stabilizer cylinders shall be removable from the top of the box tube. The inner double box system shall be further designed to stabilize the column load imparted upon the cylinder rod, thereby also protecting against damage which may occur from lateral loading possibly caused by side slopes, shifting or sliding of the apparatus on icy or unstable surfaces, sudden sinking of one or more jack pads, or on scene collision while the aerial device is deployed. Vertical stabilizers that require cylinders to be removed from the bottom, or have the vertical stabilizer cylinders exposed, shall not be acceptable.

The stabilizers shall be connected to the hazard light circuit to warn the driver if they are not stowed when the parking brake is released.

Each extending style stabilizer shall have a polished stainless steel stabilizer cover. The cover shall be adjustable to allow for a proper fit.

The stabilizers shall not include mechanical stabilizer pin locks, pin storage holders, or pin holes machined in the stabilizer extending beams.

ADDITIONAL STABILIZER STROKE

The stroke of the stabilizer jack cylinders shall be a minimum of 33". The stabilizer pad shall be maintained at a stored height of approximately 12" to 15" (dependent on required ground clearance and angle of departure) resulting in a minimum ground penetration of 18" or greater.

STABILIZER FINISH

The extending front/rear stabilizer beams, inner jack tubes, and stabilizer pads shall be shot blasted to remove any mill scale or contamination. The individual components shall then be hot dip galvanized. The galvanizing process shall require that the entire assembly is completely submerged. Following the galvanizing process, the surface shall be ground smooth to remove dross. This preparation shall provide maximum protection for these critical components. No exceptions shall be allowed to this requirement due to stabilizers exposure to salt spray and road debris.

The outer tubes shall be finished with a water-based, high quality, single component acrylic primer. The primer color shall be black.

STABILIZER EXTENSION SYSTEM

Extension of the front and rear horizontal beams shall be activated by dual extension cylinders, which shall each have a 2.5" internal diameter (bore) and a 1.5" diameter cylinder rod. The extension cylinders shall be totally enclosed within the extension beams to prevent damage to the rod and hoses. The extension beams shall be 8.00" x 10.00" x .375" wall steel tubing with a 1.5" steel plate welded to the top and bottom of each beam.

WEAR PADS/BEARING SURFACES

Nylon wear pads impregnated with molybdenum disulfide and high in molecular weight shall be used

between the stabilizer housing assembly and the extension tube for maximum smoothness of operation.

Two (2) Nylatron wear pads shall be installed in each stabilizer extension system. There shall be one wear pad located on the top back portion of the extension tube assembly that shall glide on the inner wall of the top housing tube wall. There shall be an additional pad located on the inner wall of the bottom housing tube wall that shall separate the bottom side of the extension tube and the bottom wall of the housing tube. The pads shall be installed in such a manner as to reduce friction for ease of operation and to reduce the amount of metal to metal contact.

Each stabilizer down jack housing tube shall contain four wear pads, one (1) on each side of the tubes.

STABILIZER ANGLE LEVEL GAUGES

One (1) manual angle level gauge shall be located on the rear of the apparatus. The gauge shall have a sight bubble that will measure the side-to-side angle of the apparatus in 2 degree increments.

One (1) manual angle level gauge shall be located on the side of the apparatus, near the rear. The gauge shall have a sight bubble that will measure the fore-to-aft angle of the apparatus in 2 degree increments.

ELECTRIC / HYDRAULIC STABILIZER CONTROLS

The stabilizer controls shall be located at the rear of the apparatus. Two (2) stations shall be installed, one (1) on each side at the rear, arranged so that the operator has full view of the stabilizer being positioned. All stabilizer control functions shall be of the electric paddle joystick style. The make and model of the joysticks shall be P-Q controls, model M105. The controls shall be designed to allow stabilizers to be operated independently so that the vehicle may be set up in a restricted area or uneven terrain.

An electrically actuated diverter valve shall be provided in conjunction with the stabilizer controls as a safety device. The diverter valve shall allow the hydraulic fluid to flow either to the stabilizer circuit or the turntable and ladder circuit.

A stabilizer deployment warning alarm, activated by stabilizer mode, shall be provided at each stabilizer to warn personnel. The warning alarm shall deactivate only when all stabilizers are in the load supporting configuration, or when the diverter switch is no longer in the stabilizer mode.

The stabilizer controls shall each be accessible through a brushed stainless steel door.

GROUND CONTROL STATION

A control station shall be located at the rear of the apparatus in an easily accessible area. The control panel shall be illuminated for night time operation. The following items shall be furnished at the control console, clearly identified and located for ease of operation and viewing:

- Individual stabilizer down indicator lights
- Aerial PTO engaged indicator light
- High idle switch with indicator light
- Emergency hydraulic pump control with indicator light
- Stabilizer/Aerial diverter control with indicator light
- Side to side leveling bubble

A weather proof compartment shall be furnished behind the control panel and shall contain the aerial circuit breakers, interlock components and control circuit distribution terminals. The control station shall be accessible through a brushed stainless steel door.

The stabilizer controls and ground control station surfaces shall be fabricated from 3mm thick solid core aluminum composite panel with double-sided painted aluminum outer surfaces bonded to a solid polyethylene core. They shall include an Innovative Controls graphic overlay design and supply a second-surface printed UV and scratch-resistant polycarbonate graphic overlay backed with UL 969-compliant outdoor adhesive.

SMART SELF LEVELING STABILIZER SYSTEM

The apparatus shall contain a Smart Self Leveling (SSL) stabilizer leveling system. The SSL automatic system shall provide an easy to operate push-button feature that enables the aerial operator the ability to quickly and efficiently setup the aerial stabilizer system. The SSL stabilizer system shall automatically level the apparatus, when setup on slopes within the defined parameters as defined by the Aerial Operations Manual, to within + or - 1-degree of level. In order to maximize safety as well as to allow the ability of "short-set" operations, the SSL shall be devoted to the down function of the stabilizer system. The extension/retraction functions are to be conducted manually. The controls and indicators shall be located at the rear of the apparatus. A Class 1 UV450 display shall give the operator an actual, instantaneous visual indication of the level status of the apparatus.

CAB DISPLAY

The Smart Self Leveling System shall have an indicator incorporated into the V-Mux multiplex system. The display shall state if the truck is within the limits for it to proceed with the leveling operation.

AUXILIARY STABILIZER PADS

An auxiliary pad for additional load distribution on soft surfaces shall be supplied for each stabilizer. The pads shall be constructed of ultra-high molecular weight composite material that is a minimum of 2" thick with a minimum surface area of 576 square inches. The auxiliary pads shall be stored in locations that are readily accessible.

STABILIZER COVER WARNING LIGHTS

One (1) Whelen M6 Series Super-LED flashing light shall be installed on each extending stabilizer cover

panel, for a total of four (4). These lights shall be red in color with a clear lens and activated by the aerial master switch and emergency master switch.

STABILIZER ARM WARNING LIGHTS

Eight (8) Whelen 5G Series Super-LED red flashing lights shall be mounted on the stabilizer beams. Each stabilizer beam shall include two (2) lights, one (1) facing forward and one (1) facing rearward. The lights shall be mounted inboard of vertical jack tubes. The warning lights shall be activated by the aerial master switch.

STABILIZER WORK LIGHTS

Four (4) Truck-Lite LED clear floodlights shall be provided at each stabilizer location to illuminate the surrounding area. The lights shall be located under the stabilizer beams and activated by the aerial master switch.

TURNTABLE

The turntable shall be designed in such a manner as to allow a generous working area, regardless of the position of the aerial, including when positioned at maximum elevation. The turntable shall also be designed to allow for the most efficient use of space on the apparatus body.

The turntable shall be a minimum of 96" side to side and 95" forward to aft.

It shall be covered with Tread-Grip Safe-Deck pattern decking to allow the walking surface to shed liquids with unparalleled ease and comply with NFPA intent, to provide secure footing for the operator in all weather conditions.

A downward lip shall "skirt" the turntable decking around the entire circumference to provide protection from hazards.

All hoses and electrical lines shall be routed under removable covers in order to prevent a tripping hazard. The covers shall also be designed to prevent damage from occurring to these components. Likewise, the center of the turntable shall have a removable step cover to prevent tripping hazards as well as provide for an easier transition to the first rung of the aerial ladder.

To prevent unnecessary added weight to the apparatus, the turntable shall not be built entirely from solid materials.

AERIAL PIVOT PINS

The aerial device pivot pins shall be located on the turntable and shall attach the aerial device base section to the turntable. To maintain a suitable safety factor, the pivot pins shall be composed of certified structural steel, thereby ensuring structural integrity.

In the interest of safety, the pivot pins shall be located as low as possible and shall be at the aerial device base rails. This shall keep the pivot points away from the areas where persons regressing to and from the aerial base section, might place their hand(s).

Aerial pivot pins shall be installed with a means to keep the pins in place. The design shall not inhibit the pins from being removed by a qualified mechanic.

TURNTABLE HANDRAILS

Three (3) handrails shall be of one piece construction and provide large sweep corners at the edge of the turntable. Each shall be 42" high and shall be constructed of knurled stainless steel. The handrails shall be installed around the rear 180 degree perimeter of the turntable for operator and personnel safety. Each individual handrail shall be secured to the turntable by the use of two (2) minimum 5/8" anchor bolts on the underside of the turntable. Additionally, chrome plated stanchions with rubber gaskets shall be provided on the top surface of the turntable where each railing meets the decking surface.

There will be two (2) openings in the handrails for access from the turntable access ladders.

TURNTABLE RESTRAINTS

Two (2) FRC ManSaver Bars, without covers, shall be installed in the spaces between the handrails. They shall be permanently attached at one end.

TURNTABLE WORK LIGHTING

The turntable shall be lighted for night time operation with five (5) Whelen model PEL2C LED lights, which shall be automatically activated by the aerial master switch (day or night). The work lights shall be positioned so the light is directed toward the decking. The lights shall have integral chrome hoods to keep light from glaring upward into the operator's eyes. Four (4) lights shall be located on the turntable step, two (2) at the front and (2) at the rear, and additional light shall be located on the upright on the opposite side of the control station.

An additional Whelen LED light shall be mounted in the front access door of the control stand.

AERIAL HOUR METER

An hour meter shall be installed at the turntable control station connected to the system engagement control for the aerial. The meter shall register the total hours of aerial use for scheduling periodic maintenance.

Hour meters that are not connected to the aerial system engagement are not considered acceptable in order to capture true aerial operational hours.

TURNTABLE CONTROL CONSOLE

The turntable control console shall be located on the turntable, on the driver's side of the apparatus. The console shall be illuminated by an On-Scene Night Axe LED light with mounting clips for night time operation and have a hinged weather cover. A pressurized gas filled cylinder shall be furnished on the cover to hold it in the open position. The gas filled cylinder shall assist in closing the cover automatically when it is positioned over theÂ center. The console surface shall be angled toward the operator so controls may be viewed and operated ergonomically. Rubber bumpers shall be provided so that when the control console lid is closed, the lid and the control panel will be protected from each other (no metal to metal contact).

Three (3) handles for the ladder hydraulic functions (elevation, rotation, and extension) shall be installed at the control console. The controls shall be manual for safety and durability reasons. The function of each control lever shall be cast into the plate under the appropriate lever. The controls shall be capable of being operated independently or simultaneously with a gloved hand. The speed of movement caused by moving any control shall be minimally affected when multiple controls are activated.

The control console surface shall be fabricated from aluminumÂ and shall include a graphic overlay. The overlay shall be Innovative Controls design and supply a second surface-printed UV and scratch-resistant polycarbonate graphic overlay backed with UL 969-compliant outdoor adhesive.

A hinged door shall be provided on the front of the control console with a pop latch. This door shall allow access to the inner components for inspection purposes. A recessed work light shall be provided in the access door. There shall be a hinged access door provided on the outboard side of the control panel. The door shall be provided with a spring loaded, slotted head latch. The opening shallÂ allowÂ access to the electrical components for service purposes.

The following items shall be furnished at the console, clearly identified and located for ease of operation and viewing:

- Elevation, Extension and Rotation Controls
- Lighted Push/Pull Button to Deactivate Hydraulic and Electrical System
- Panel Light Mounted in Cover
- Ladder Overload Warning Horn
- Monitor Function Controls
- Intercom with Controls
- Operators Load Chart
- Warning Signs

To minimize the chance of failed components, turntable consoles requiring a fan to cool interior components shall not be considered acceptable.

AL-11 AERIAL INFORMATION SYSTEM

Aerial Logic Display

The aerial shall be equipped with a 7" color transmissive TFT LCD display located at the turntable control console. The display shall be viewable in direct sunlight, with a resolution of WVGA, 800 x 480 pixels, 16-bit color and an aspect ratio of 16:9.

The display shall feature LED backlighting, 1000 nit typical brightness (40,000 h lifetime). The display shall include an internal microprocessor Freescale IMX. 375 32bit, 532 MHz utilizing a QNX operating system. The display shall have a minimum 2 GB RAM flash memory and 128 Mbytes SDRAM. The display shall support J1939 and NMEA 2000 protocols.

For protection against extreme environmental conditions, connections shall utilize 2 Ampseal 23 pin connectors AMP770680-1 and AMP770680-4. User inputs shall be accomplished utilizing 14 tactile buttons located directly on the display. The display shall be capable of operating -40º C to +85º C and a minimum IP67 rating front and back. For maximum protection, the display case shall be constructed of Polycarbonate capable of random vibration, 7.86 Grms (5.2000 Hz), 3 axis and a shock of +/- 50G in 3 axis.

The display will gather ladder positional data from an array of sensors. This data will not only be displayed for the device operator, but the rotation and elevation sensors will also be used to protect the body, cab, and installed components from collision damage caused by the aerial device.

Soft Keys

Columns of vertical keys shall be located to the left and/or right of the display. The soft keys correspond to the soft key commands and allowÂ selections with a gloved hand. Icons shall be displayed on the screen adjacent to the soft key and will change according to the options available for the screen being displayed.

Screens

The display shall provide the operator with critical aerial information and switching of aerial electrical components in an easy to read format as follows:

- Extension Retraction Percentage Digital readout shown 0% - 100%
- Ladder Angle -15 to 90 Degrees (Operational range of Aerial -8 to +72 Degrees)
- Rotation Position 0 - 360 Degrees
- Ladder Load Percentage - Display live loads acting on the aerial structure shown as 0 - 100%
- Breathing Air 0-6000 Psi (This is available only if optional breathing air has been specified)
- Bed Zone Alignment Light When the aerial is aligned and within the bed zone the indicator shall change to a bright color to indicate it is safe to bed the aerial.
- Rung alignment light When the aerial rungs of each section are aligned the indicator shall change to a bright color to indicate the rungs are aligned to provide safer climbing of the aerial.

Soft keys located on each side of the display shall be programmed to allow the operator to quickly change screens to view the following:

- High Idle Label shall read "High Idle". Pressing this soft key shall increase engine RPM to the

chassis pre-set high idle, pressing the button again shall return engine RPM to the chassis pre-set idle. The indicator shall change to a bright color to indicate the high idle has been activated.

- Emergency Power Unit - Label shall read "EPU". Pressing this soft key shall activate the electric over hydraulic emergency power unit.

Engine Information Screen An icon depicting an engine shall be displayed next to the soft key. Pressing this button shall allow the operator to switch to the screen displaying chassis engine information.

Day/Night Display Mode - An icon depicting the sun or theÂ moon shall be displayed next to the soft key, pressing this button shall switch the display to from a bright format for daytime use or a subdued format for nighttime use to maintain greater vision of the operator.

Lighting /Customer Information Screen - An icon depicting a light bulb shall be displayed next to the soft key, pressing this button shall switch the screen from its current screen to the screen to control lighting on the aerial.

The following information shall be displayed on the aerial logic display:

- Customer name
- Production number
- Aerial device type
- Aerial device model number
- Aerial device serial number
- Rated vertical height
- Rated horizontal reach
- Rated capacity
- Contact information for the fire apparatus manufacturer. Information shall include name, address, phone number and website

Chassis Engine Information Screen

- Engine coolant temperature
- Oil pressure
- Transmission temperature
- Fuel level
- Battery voltage
- Engine RPM
- Engine Warnings To include: Check Engine, Stop Engine, DPF Regeneration Required, Regeneration Status and High Exhaust Temperature

SYSTEM LOCK CONTROL

A push/pull systems engagement control shall be installed at the turntable control console. The control shall energize the hydraulic system for the ladder function and provide the flow of hydraulic fluid to the

master valve bank. An automatic throttle switch shall be attached to the systems engagement control that advances the engine speed to a preset RPM when the engagement control is in the "RUN" position. In the "LOCK" position, the engine speed shall return to the normal idle RPM and the hydraulic system be de-energized.

LOAD SENSING AL-11 SYSTEM

Indication for the load sensing system shall be programmed into the AL-11 system at the turntable control console.

AIR HORN ACTIVATION

An air horn button shall be provided on the aerial turntable console. The button shall be red in color and include a label reading "AIR HORN".

AERIAL PLATFORM LOAD CHARTS

Two (2) load charts installed on the aerial platform; one (1) at the turntable control console, and one (1) in the platform at the tip of the aerial. The load charts shall illustrate the full operating range of the platform, with the waterway dry or flowing water.

AERIAL COMMUNICATION SYSTEM

An Atkinson Dynamics two (2) station communication system shall be provided between the aerial platform and the turntable control console. The communication system shall be a two-way system with the communication speaker at the platform requiring no operator attention to transmit or receive. The transmitting and receiving volume controls shall be located at the turntable control console.

ALIGNMENT ARROWS

There will be painted aluminum ladder alignment arrows installed on the apparatus. The arrows will be placed one (1) on the top surface of the turntable near the control station and the other arrow will be place on the top of the body so that they are lined up when the ladder is bedded.

The color that the arrows shall be painted will be determined by the apparatus manufacturer, unless a specific color is clarified in the shop note.

TRACKING LIGHTS

Two (2) Whelen MPBW lights shall be installed low ahead of the cradle, on the base section of the ladder, one (1) on each side. The light fixtures shall have a white die cast aluminum housing, powder

coated white

The LED work lights shall be rated to last 100,000 hours and produce over 3600 lumens with an amp draw of 4 amps. The light shall have a 90-degree x 20-degree wide flood pattern. The lights shall be controlled from the operator control station at the base of the ladder

A bolt-on bracket to support the light shall be included.

The tracking lights shall be controlled through the AL-11 system.

BREATHING AIR SYSTEM

Breathing air shall be supplied to the aerial platform. The air system shall include two (2) 6000 PSI, 509 cubic foot air cylinders. The cylinders shall be mounted to the base section of the ladder using bracket mounts. The air cylinders shall be interconnected to the air system through a pressure regulator. A shut-off valve shall be supplied with each cylinder. In order to protect the valve and the regulator, a tread plate guard shall be installed over the end of each cylinder. The air system shall be routed to the platform using hose specially designed for use in breathing air systems. At the platform, the breathing air shall be piped to two (2) air mask quick disconnects located on the front wall. A 50' refill hose shall be provided for refilling the air cylinder without having to remove the tank from its mounting.

AERIAL AIR CONNECTIONS

Three (3) quick disconnect air outlets shall be provided. One (1) shall be mounted at the turntable console and two (2) shall be mounted on the front wall of the platform.

BREATHING AIR OUTLETS

The quick disconnect air outlets shall be Hansen brand.

BREATHING AIR LEVEL AND WARNING SYSTEM

The apparatus shall be equipped with a breathing air level warning system to provide the operator a visible indication of the air remaining in the breathing air system, plus offer a visual and audible warning when the level becomes too low. The indication readout for this system shall be shown on the AL-11 display.

The breathing air level system shall include a weatherproof pressure transducer mounted in the air line between the air cylinders and the high-pressure regulator.

REAR MOUNT PLATFORM DESIGN AND CONSTRUCTION - SINGLE MONITOR

The platform frame shall be constructed of certified 6061-T extruded aluminum tubing and certified plate as a minimum. The construction of the platform frame shall be modular, with each module being welded in fixtures to ensure tight tolerances, prevent warpage, and eliminate excessive annealing. In an effort to account for a maximum working area inside of the platform, any design having less than 18 square feet of working area shall not be considered acceptable.

Platforms that are not of modular construction shall not be acceptable due to extreme warpage during welding (causing base material damage and poor component fit). Additionally, the inability to replace a portion of the platform should it become damaged during rescue/firefighting operations.

When completed, the individual modules shall be assembled with certified structural fasteners.

The finished assembly shall be attached to the aerial ladder in a manner that shall be easily replaceable should it become damaged.

Heavy duty, extruded rubber bumpers shall be provided on the underside of the platform frame for safe "landing" on rooftops or the ground.

This style of a platform shall be able to accommodate a single monitor.

PLATFORM DECK SURFACE

The floor of the platform shall be aluminum grating with an aggressive serrated surface. This decking shall provide excellent footing in all environments and working conditions. Simple bar type grating or tread plate shall not be acceptable because they become slippery under many conditions or do not sufficiently shed liquids.

To provide a maximum working surface for victim rescue, the aggressive decking shall extend outside of the enclosed portion of the platform a minimum of 4" on the sides and 10" on the front. The front and side leading edges of the platform shall be protected by a heavy duty, "D" type extruded rubber bumper.

The decking shall be of a design that shall allow debris to fall through to the anodized aluminum heat shield underneath. This design shall prevent debris from interfering with operator footing, yet shall prevent the debris from falling below the platform.

PLATFORM DECK WORK LIGHTING

Optronics mini LED lights shall be installed for platform deck working lights. The lights shall provide adequate lighting within the platform to illuminate the entire floor area during nighttime operations. The lights shall be hooded to direct all light downward and shall automatically energize anytime the aerial system is activated. The lights shall be installed inside of the platform in such a manner to prevent damage during operation by moving or shifting equipment in the platform.

PLATFORM ACCESS GATES

Two (2) gates shall be supplied at the front of the platform. Each gate shall have a positive latching mechanism that can be operated from inside or outside of the gate. The latch shall require no operation to close the gate. Each gate shall be double hinged in such a manner that it may be fully opened while the platform's leading front edge is against a building. The double hinged doors shall operate in a manner to allow personnel and victims to get in and out of the platform without having to move to allow the doors to swing. All hinges shall be stainless steel piano style. Automatically engaging and disengaging provisions shall be made to positively hold each gate in the fully open position.

Each gate shall be capable of withstanding a 1000 pounds of force applied in the least favorable position and the least favorable direction, without opening outward.

Additional safety shall be provided by a hinged safety bar above each gate entrance, which may remain closed while the gate is open and still allow personnel to egress to and from the platform. This bar shall have a large sweep corner and be completely covered with deeply serrated rubber sheathing for outstanding grip in all environmental conditions. The safety bar shall be provided with a positive latching mechanism that can be operated from both sides of the platform. The latch shall require no operation to close the safety bar.

PLATFORM CONTROL STATION

Controls for the platform functions shall be located front and center of the work area in a manner that is consistent with the pedestal at the base.

The console shall be constructed of smooth, aluminum plate and shall be painted to match the existing construction. Controls shall be widely spaced to allow for easy operation with a gloved hand. The center of the control console shall have a removable plate where the extension, elevation, and rotation controls are located.

The extension, elevation, and rotation control levers shall be spring loaded joystick type controls with an automatic lockout feature that prevents operation of the control if it is merely bumped or accidentally actuated. No Exception shall be allowed to this design, as anyÂ accidental movement of the platform shall be unacceptable.

A platform master control switch shall be located on platform control station. The master switch shall stop power to the platform control station, which will stop ladder structure movements.

A minimum of two (2) control panel illumination LED lights shall be provided to illuminate the control console during nighttime operation. The lights shall be mounted above the panel surface to cast maximum illumination on the panel's surface. The lights shall be hooded so that all light is directed toward the panel and not at the operator.

The control console surface shall be fabricated from aluminumÂ and shall include a graphic overlay. The overlay shall be Innovative Controls design and supply a second surface-printed UV and scratch-resistant polycarbonate graphic overlay backed with UL 969-compliant outdoor adhesive.

All wiring and hoses shall be routed in such a manner (hidden) that there be no possibility of snagging or damage by the operator or occupants during operations.

Controls within the platform area shall include:

- Elevation, extension and retraction controls
- Platform safety override leveling button and light
- Water curtain control
- Loadminder readout with alarm
- Two hooded control station panel illumination lights
- Monitor function controls
- Intercom
- Warning signs
- Three-position speed selector switch

SHIFT ON THE FLY" PLATFORM SPEED SELECTOR SWITCH

A "Shift On The Fly" speed selector switch shall be located at the platform control station. This speed selector shall provide the operator in the platform with unmatched operation capabilities for use during all situations and operations.

The switch shall have three (3) positions consisting of high, medium and low-speed settings. By positioning the "Shift On The Fly" speed selector in one of these three positions, the speed of the aerial functions may be finitely controlled, and quickly and safely changed from the platform control station.

POSITION 1:

"High" This position allows the platform to operate at the maximum allowable speed setting of each aerial function.

POSITION 2:

"Medium" This position allows the platform to operate at approximately 50% of the maximum allowable speed setting of each aerial function.

POSITION 3:

"Low" This position allows the platform to operate at approximately 15% of the maximum allowable speed setting of each aerial function.

"SHIFT ON THE FLY" OPERATIONS

While the platform is moving in any direction at any speed, the operator may choose to "Shift On The Fly" to a different speed; either slower or faster, without having to stop platform movement or "feather" a control. This design and capability is unequaled within the industryÂ and allows the operator to achieve consistent and reproducible operational speeds.

Additionally, the "Shift On The Fly" design allows less experienced operators to be more consistent and perform safer operators due to the fact that they need not become accustomed to "feathering" the joystick control to achieve differing speeds. Instead, they need only fully actuate the joystick and then utilize the "Shift On The Fly" feature.

Designs that require the operator to rely solely on "feathering", the function control handle in the platform to change the speed of any function, shall be unacceptable.

No Exceptions shall be allowed to this design in the interest of operator safety and enhanced platform operation capabilities.

AL-11 AERIAL INFORMATION DISPLAY

One (1) AL-11 display shall be located at the platform control console.

PLATFORM CONTROLS SYSTEM LOCK

A platform control system lock shall be provided at the platform control console. The platform control system lock switch shall be a push/pull systems engagement control. The control shall disable the platform controls at the platform control console, but still allow platform and aerial ladder movement from the turntable control console.

AUTO RAMP PLATFORM CONTROL

Platform elevation, extension, and rotation function controls in the platform shall be equipped with an electric "Auto Ramp" feature. This ramping feature shall allow the operator in the platform to engage the controls abruptly without resulting in "tip lash" or sudden jerking of the platform.

When one of the above controls is engaged or disengaged abruptly; the hydraulic pressure shall "Auto Ramp" up or down to the speed the function level is being held at, thus providing a smooth transition from start to stopÂ or stop to start. No Exception shall be allowed to this design in the interest of operator safety.

The "Auto Ramp" feature additionally shall aid less experienced operators in safely and successfully operating the platform.

AUTOMATIC EXTENDING PLATFORM EGRESS HANDRAILS

Automatically extending handrails shall be provided between the rear entrance to the platform and the tip of the fly section. These handrails shall be constructed of a minimum 1-1/4" tubing and shall be covered full length with deeply serrated rubber sheathing for maximum grip in all environments.

The handrails shall effectively maintain a plane consistent with the fly section handrails as the aerial platform is elevated and extended and shall serve to aid in the transition to and from the platform, by extending the handrails of the fly section to meet the rear of the platform. In order to provide the

maximum amount of safety for personnel entering and exiting the platform, handrails that are attached only to the platform or the fly section, and not both, will not be considered acceptable.

Additionally, two (2) or more chrome grab handles shall be provided in the rear opening of the platform to aid in the transition.

FALL PROTECTION EQUIPMENT "D" RINGS

A minimum of six (6) heavy duty "D" rings shall be installed in the platform to allow attachment of safety belts/fall protection equipment. The rings shall be installed in a manner to allow occupants in any location within the platform to be safely anchored.

PLATFORM HEAT SHIELDING

The rear, sides, front, front gates, and the entire underside of the platform shall be covered with smooth anodized aluminum sheet material to act as heat shields and protect platform occupants. The heat shields shall also serve to protect the platform structure from excessive heat exposure by reflecting heat energy, and by inhibiting heat transfer from the shields to structural members due to theÂ spacing between the shields and the structure.

The heat shields shall be attached to the platform utilizing stainless steel fasteners. The fasteners shall be installed with protective nylon washers with shoulders. This design shall allow easy removal and replacement of any heat shield should it become damaged during rescue/ firefighting operations.

Designs that allow "permanent" attachment of the heat shields shall not be acceptable for the above reason. "Permanent" shall be defined as rivets, welding, or integral with the platform in any way.

To further protect from any heat below the platform, a water curtain nozzle with a circular pattern shall be mounted in the center of the underside of the platform. This device shall be electrically actuated from the platform control station and provide a minimum of a 75 GPM spray.

Additionally, the heat shields on the underside of the platform shall serve to prevent debris or small equipment that has passed through the serrated aluminum grating decking from falling from the platform. This design shall keep the debris from interfering with operator footing.

The heat shield shall be designed to allow for easy cleaning with a water hose or spray nozzle without having to remove the shields to clean their top sides.

PLATFORM LEVELING SYSTEM

An electronic over hydraulic platform leveling system shall be installed, self-contained within the platform. The system shall electronically monitor the position of the platform relative to the earth and not the position of the apparatus should it be sitting on uneven ground. Each individual leveling cylinder shall contain two (2) counterbalance valves to assure equal distribution of load. A failsafe system shall

freeze the position of the platform if it should become more than four degrees out of level with the earth for a period of 2 seconds. This system shall prevent the platform from tipping forward in an unlikely event such as a hydraulic line break or electrical system malfunction.

An override button shall be provided to allow the operator to reset the platform and regain control of all function.

LOAD LIFTING EYES

Two (2) load lifting eyes shall be installed on the underside of the platform. The eyes shall be sufficiently spaced to allow even balancing of a load. The eyes, as a pair, shall be rated not to exceed the tip load of the ladder structure.

Permanently attached aluminum alloy labels shall be installed adjacent to the eyes. The labels shall state the rated capacity of the eyes. The information on the labels shall be professionally engraved or stamped into the label for lasting quality.

PARAPET GROUND LADDER ATTACHMENT

A removable ground ladder attachment mechanism shall be located at the front of the single monitor platform. This mechanism shall provide a temporary attachment for a 14' or shorter certified ground ladder to aid the department in clearing a parapet wall.

The mechanism shall be designed to minimize interference with other platform components such as monitors, nozzles, and swing-out gates. The design shall utilize the insertion of two (2) solid shaft pins through the hollow rungs of the ground ladder.

For maximum security, the ground ladder shall rest within the attachment mechanism at two (2) points, near the height of the platform handrails and near the platform floor area.

PLATFORM RAPPELLING ARM WITH STOKES MOUNTING

One (1) 500 lb. capacity rappelling arm shall be mounted on the front of the aerial platform. The arm shall be capable of folding into a stored position, yet remain permanently attached to the platform for safety reasons. To maintain a rigid, safe structure; the arm itself shall not have any hinging in its structural members. The arm shall be equipped with two (2) rappelling eyes to attach rappelling gear or a Stokes basket safely and quickly. Detachable arms that require the operator to physically install it for operation shall be unacceptable, regardless of design, for safety reasons.

The arm shall be permanently mounted and utilize a spring loaded, locking pivot. When pivoted into a working position, the arm shall automatically lock into that position. When the arm is in the stowed or operational position, it shall not interfere in any manner with the operation of the monitor(s), spotlights, or platform gates.

Specifically, the arm shall be mounted as close to front and center as possible to help ensure that any applied load is centered. Platform arms that are mounted on or near the corner(s) of the platform shall not be acceptable due to their off-center location.

There shall be provisions made in the design of the platform that shall allow for a Stokes basket to be temporarily but securely mounted on the platform for rescue operations.

The design of the platform shall ensure that normal access to the platform control station for normal operation is attainable when a Stokes basket is being utilized in a rescue condition.

The design shall utilize two mounting brackets, Kinedyne Track Fitting, that shall be located on the inside of the platform.

One (1) set of securing straps with spring loaded latch assemblies, shall be supplied that securely hold a Stokes basket on the side hand rail assembly of the platform back wall area and the lifting arm device located on the front of the platform.

PLATFORM EQUIPMENT STORAGE BOX

An equipment storage box shall be provided on the platform. The storage box shall be constructed of smooth aluminum plate, and shall be painted to match the existing platform structure. The box shall be located on the rear / outside walls of the platform. The box shall be constructed to be weather tight and come with a painted aluminum hinged lid and a lift and turn latch that is easily operated with a gloved hand. The box shall be suitable for storage of tools and air masks / equipment.

FLY SECTION MOUNTED AXE

An axe mounting bracket and retention strap shall be installed on the fly section.

One (1) Fire Hooks Unlimited, model FAP-6, pickhead axe with fiberglass handle shall be provided.

WHELEN MICRO PIONEER LANDING LIGHT

One (1) Whelen MicroPioneer MPRW recessed landing light shall be installed partially recessed into the underside of the platform. The light shall aid the operator when "landing" the platform on a surface by clearly illuminating the area under the platform. The housing shall incorporate internal heat-dissipating finish. The light shall be activated through the AL-11.

PLATFORM MARKER LIGHTING

A minimum of three (3) amber LED marker lights shall be installed on the front of the platform to provide additional marker light capabilities. These lights shall be required when the standard marker

lights on the cab are blocked by the platform.

PLATFORM LED WARNING LIGHTS

Four (4) Whelen M7 Series SuperÂ-LED lights installed on the platform. The LED lights shall be installed one on each side of the platform and two on the front of the platform. The LED lights shall be red in color with clear lenses and flash anytime the parking brake is released and the emergency master has been activated. All LED lights shall be wired through the aerial device swivel.

AERIAL WIRING

The DC wiring shall be Thermoplastic Elastomer (TPE) control cables and shall be highly flexible with very fine copper stranding. The cables shall have a center core strain relief for high tensile strength. The conductors shall be braided in bundles around the high tensile strength core. The outer jacket shall be gusset-filled, pressure-extruded, oil-resistant, bio-oil-resistant, PVC-free, halogen-free, and UV-resistant with low-temperature flexibility. The cables shall have a minimum bending radius of not greater than 5x the outer total diameter of the cable while moving.

This will allow up to 30 amps of 12V lighting on the aerial.

WHELEN MICRO PIONEER TIP LIGHT

Two (2) Whelen MPPWS Micro Pioneer lighthead with low profile pedestal/swivel mount shall be installed at the tip of the aerial. Each light fixture shall have a white die cast aluminum housing, powder coated white.

Each MPPWCS shall have an ON/OFF switch covered by a rubber boot and a black fiberglass enforced polycarbonate handle. Stainless steel mounting hardware is included. The LED work light shall have 4,100 usable lumens with an amp draw of 4 amps. The light shall have a 90-degree x 20-degree wide flood pattern. The light shall also be controlled from the operator control station at the base of the ladder.

The lights shall be located on the front of the aerial platform, one (1) driver's side and one (1) officer's side of center.

The tip light(s) shall be controlled through the AL-11 system.

TOMAR LOCATOR LIGHTS

Two (2) Tomar MICRO IV self-controlled blue strobe locator lights shall be provided. The lights shall be activated by the aerial master switch.

The lights shall be located at the lower rear portions of the aerial platform, one (1) on each side of the platform structure.

WATERWAY SYSTEM

A waterway system shall be provided consisting of the following components and features:

A 5" outside diameter pipe shall be connected to the water supply on one end and to the water swivel at the rotation point of the turntable. The swivel shall allow the ladder to rotate 360 degrees continuously while flowing water.

A 5" inside diameter pipe waterway shall be routed through the rotation point swivel. The heel pin swivel shall allow the water to flow to the waterway while elevating the aerial ladder from -8 degrees below to +72 degrees above horizontal.

The heel pivot pin shall not be integral with the waterway swivel at any point. The design of the waterway shall allow complete servicing of the waterway swivel without disturbing the heel pivot pin.

WATERWAY PIPE DIAMETERS

The integral telescopic waterway system shall consist of a 5" outside diameter steel pipe in the base section, a 4-1/2" outside diameter pipe on the second section and a 4" outside diameter pipe on the fly section.

CP-84 CHROME PLATED WATERWAY

The CP-84 telescopic waterway shall be composed of high quality 84K PSI steel. The pipes shall be professionally prepared to accept a highly durable, hot dipped galvanizing coating. Preparation shall include de-greasing as needed, followed by shot blasting to remove any contaminates or scale.

Following preparation, each water pipe shall be hot-dipped galvanized. The pipes shall be completely submerged in the galvanizing bath to ensure 100% coverage and intimate bonding of the galvanic coating to the steel. Following the dipping process, all dross shall be ground and the perimeter of the pipe shall be ground to a smooth finish.

Each pipe shall then be prepared to be heavily chrome plated. Materials (nickel/copper/chrome) used in the chrome plating process shall be of the highest purity to complete the chrome plating process. The chrome shall be polished to an extremely high luster.

The result of the preceding processes shall provide an aerial waterway that is of unequaled quality and durability. The heavy galvanizing and chrome plating shall ensure that no corrosion occurs on the

waterway and that the outer surface remains smooth for long seal life. Additionally, the chrome plating shall aid in preventing nicks, scratches, and abrasions from occurring where they would otherwise easily occur with softer and more malleable aluminum tubes.

The waterway on the base section of the aerial device shall be galvanized with the process described above, followed by complete coverage utilizing AkzoNobel paint of job color.

WATERWAY RELIEF VALVE

A 3/4" safety relief valve shall be installed in the base section waterway. The relief valve shall be preset at 240 psi. The valve shall protect the waterway from overpressure, which is normally caused by the capping of the monitor outlet. This valve in no way is to act as a relief for the total flow of the system.

WATERWAY DRAIN VALVE

A 1-1/2" drain valve shall be installed in the lower section of the aerial plumbing under the apparatus. The valve, when opened, shall drain the aerial waterway and lower plumbing.

AERIAL WATERWAY INLET

A 5" aerial waterway inlet, with 5" plumbing, shall be installed on the rear of the apparatus. The inlet shall be as low as possible to reduce the amount of weight on the fire hose coupling.

BUTTERFLY VALVE

An Akron Brass, model 7950, 5" butterfly valve shall be provided. The valve shall be constructed with aluminum body and Pyrolite valve adapters. The male adapter shall have a 3/4" NH bleeder port. It will have a two-piece stainless steel valve stem and self-centering valve disc with no pins, screws or bolts securing the disc to the valve stem. The valve shall be designed for 250 PSI operating pressure and shall carry a ten (10) year warranty by the valve manufacturer.

The valve shall be actuated by an Akron Brass electric actuator installed on the valve. The electric actuator shall be in accordance with NFPA, current edition., for opening and closing speed.

INTAKE RELIEF VALVE

An Elkhart Brass intake relief valve shall be installed on the suction side of the pump. The valve shall be the preset type, adjustable from 75 to 250 PSI, and shall be designed to prevent vibration from altering the setting. The relief outlet shall be directed below the pump with the discharge terminating in a 2-1/2" male NH threads connection. The discharge shall be away from the pump operator and labeled "Do Not Cap".

A 5" NPT X 5" NH thread chrome waterway adapter with screen shall be provided.

One (1) 4" swivel Storz x 5" female NH thread swivel rocker lug 30 degree elbow adapter shall be provided. The elbow shall have a powder coat finish.

One (1) 4" Storz blind cap, complete with lanyard, shall be provided.

Style 3486 Electric StreamMaster II with Manual AVM

The 2000 gpm (7600 lpm) rated monitor is to be an all-electric, single waterway monitor constructed of lightweight Pyrolite. The monitor shall have a 3-1/2" (89 mm) NH outlet. The monitor shall have cast-in turning vanes in each elbow. The monitor shall have fully enclosed motors and gears with manual handwheel overrides for both horizontal and vertical rotation and may be operated simultaneously. The monitor is not to exceed 15" (381 mm) high and 11-5/8" (295 mm) wide. The vertical travel shall be from 45° below to 120° above horizontal with adjustable stops at -15°, +45° and +90. The horizontal rotation shall be 355° with physical stops at Â±45°, Â±90°, Â±135° and at Â±157°.

The monitor shall have absolute position feedback to provide programmable soft stops anywhere within the physical travel range.

The control system shall also provide programmable oscillation and obstacle avoidance functions. The electronic control system shall be attached to the inlet base of the monitor and be totally encapsulated to prevent moisture intrusion and use locking IP 67 rated electrical connectors for all motor control outputs and control inputs. The control system shall have one environmentally sealed USB port to facilitate control system updates. The control system shall receive commands from J1939 CAN network control devices to control elevation, rotation, nozzle pattern, and electric valve open/close. The control system shall have a built in wireless transceiver to facilitate operation from wireless remote control devices.

The aerial valve manifold (AVM) shall be manually operated through a gearbox to open and close the main waterway valve. The base of the AVM shall have a 4" (100 mm), 150 lb. flanged inlet. The AVM shall not increase the height of the standard monitor by more than 4.5". It shall have at least one 90 degree ball valve with 2 Â½" NH threads on the outlet. There shall be less than Â½ PSI friction loss through the main valve when flowing 2000GPM and it shall be rated for a maximum operation pressure of 250 PSI.

There shall be a 2-1/2" discharge elbow located on the left side of the AVM. A cap will be provided for the discharge.

One (1) 2-1/2" female NST thread rocker lug x 2-1/2" male CSA thread rigid chrome plated adapter shall be provided.
One (1) 2-1/2" CSA thread rocker lug chrome plated vented cap, complete with a cable or chain, shall be provided.

MONITOR COLOR

The monitor shall be powder-coated Akron Red, AkzoNobel Interpon PG000QF, by the monitor manufacturer and shall not be repainted by the OEM.

AERIAL VALVE COLOR

The AVM will remain as received from the monitor manufacturer unpainted and shall not be repainted by the OEM.

NOZZLE

An Akron Brass, model 5178, Akromatic electric combination fog and straight stream master stream nozzle shall be provided. The nozzle shall be equipped with an automatic flow mechanism that provides a flow range of 500 to 2000 GPM at 80 PSI. The nozzle shall be constructed of durable, lightweight Pyrolite and shall have electric 12 volt motor for pattern selection from straight stream to wide fog, grease fitting for maintenance, and a 3-1/2" NH thread swivel base.

MONITOR SWEEP

The monitor shall be capable of vertical positioning from -45 degrees to 45 degrees and horizontal positioning of 90 degrees from side to side for a full 180-degree sweep.

MONITOR SHUT OFF VALVE

A monitor shut off valve shall be located at the base of the monitor on the "Valve Under Monitor" or the "Aerial Valve Monitor". The valve shall be easily accessible to platform personal and shall provide a means of controlling water flow to the monitor from the platform.

MONITOR CONTROLS

The aerial master stream device shall have two (2) separate control stations. One station shall be at the main aerial turntable control console. The other station shall be located in the aerial platform. Each station shall have the capability of controlling the nozzle pattern as well as the horizontal and vertical position of the device.

WIRELESS REMOTE MONITOR CONTROLLER

An Akron Brass Style 6047 Wireless Remote Control system shall be provided. For all electric monitor

applications, capable of operating one or two monitors up to 300-feet away maneuvering all operational positions of the monitor and nozzle plus stow, deploy, oscillation, and valve discharge where applicable. The Style 6047 will have customizable features, through a web page that can be accessed with a blue tooth device, like LED brightness, monitor speed, and power usage.

The system shall consist of a handheld remote control and two 26650 lithium ion rechargeable batteries for up to 24 hours of continuous use run time.

1-1/2" PLATFORM PRE-CONNECT

One (1) 1-1/2" NH pre-connect shall be located in the rear floor of the platform. The pre-connect shall be gated at the outlet with a quarter turn valve. A tread plate box shall be provided to hold up to 10' of 1-3/4" hose with a nozzle attached.

A 2-1/2" discharge is required per NFPA, current edition. Selecting this option without a 2-1/2" discharge(s) at the tip will require a signed SOE.

RUNG ILLUMINATION LIGHTING

The aerial ladder sections shall be equipped with permanently installed blue LED rung illumination lights. The lights shall be mounted on the inside of the ladder sections, facing inward; on each aerial section in a "staggered" configuration. The blue colored lens shall serve to illuminate ladder rungs without inducing any glare, which would hinder safety. Each light shall be equipped with an integral guard to protect it from damage. The lights shall be positioned such that all light be directed inward toward the rungs of the aerial sections, maximizing safety for all personnel during night operations. The lights shall also aid the operator in locating aerial ladder section in conditions of reduced visibility.

Designs that use luminescent tape on the rungs shall not be permitted as they require previous exposure to sunlight and can wear off over time.

The rung lighting shall be controlled through the AL-11 system.

AERIAL LADDER SIGNS

Two (2) sign panels measuring 16" tall x 133" long shall be installed on the base section of the aerial ladder, one on each side. The sign panels shall be fabricated of 1/8" aluminum plate. The signs shall be large enough to accept a maximum lettering size of 12" high.

BASE SECTION MOUNTED ROOF LADDER

One (1) roof ladder mounting bracket set shall be provided on the outside of the base section, on the

officer's side, for a solid beam roof ladder. The brackets shall be formed using break and bend techniques for added strength and an outstanding appearance. To enhance durability, the brackets shall be coated with Bedliner Coating. Stainless steel fasteners shall be employed where the ladder bracket is bolted to the aerial section or ladder sign panel. The roof ladder shall be secured using a spring-loaded handle, which is easily lifted away from the roof ladder with a gloved hand for safe access.

One (1) Duo-Safety, model 875-A, 16' aluminum roof ladder with folding roof hooks shall be provided.

FLY SECTION MOUNTED PIKE POLE

One (1) pike pole mounting bracket shall be provided on the officer's side of the aerial fly section. A strap shall be provided to hold the pike pole in the bracket.

One (1) Duo Safety, model FP6D, 6' fiberglass pike pole with a standard hook and an aluminum "D" style handle shall be provided.

CHASSIS PAINT

The single tone chassis cab shall be painted by the chassis manufacturer.

BODY PAINT PREPARATION

The apparatus body and components shall be metal finished as follows to provide a superior substrate for painting:

- All aluminum sections of the body shall undergo a thorough cleaning process, starting with a phosphoric acid solution to begin the etching process, followed by a complete rinse. The next step shall consist of a chemical conversion coating applied to seal the metal substrate and become part of the aluminum surface for greater film adhesion.
- After the cleaning process, the body and its components shall be primed with a high solids primer and the seams shall be caulked.
- All bright metal fittings, if unavailable in stainless steel or polished aluminum, shall be heavily chrome plated. Iron fittings shall be copper underplated prior to chrome plating.

PAINT PROCESS

The paint process shall follow the strict standards as set forth by AkzoNobel Guidelines.

The body shall go through a three-stage paint process: primer coat, base coat (color), and clear coat. In the first stage of the paint process, the body shall be coated with primer to achieve a total thickness of 2-4 mills. In the second stage of the paint process, the body shall be painted with BTLV650 High Solids Polyurethane Base Coat. A minimum of two to three coats of paint shall be applied to achieve covering.

In the final stage of the paint process, the body shall be painted with a Clear Top Coat. A minimum of two to three coats shall be applied to achieve a total dry film thickness of 2-3 mills.

As part of the curing process, the painted body shall go through a Force Dry / Bake Cycle process. The painted components shall be baked at 185 degrees for 3 hours to achieve a complete coating cure on the finished product.

HAND POLISHED

After the Force Dry / Bake Cycle and ample cooldown time, the coated surface shall be sanded using 3M 1000, 1200, and/or 1500 grit sandpaper to remove surface defects. In the final step, the surface shall be buffed with 3M super-duty compound to add extra shine to coated surface. No more than .5 mil of clear shall be removed in this process.

The paint shall be a standard non-metallic Akzo-Nobel color.

BODY PAINT COLOR

The paint chip is the sole defining paint color; it overrules what is described in this spec.

The body shall be painted with AkzoNobel High Solids Polyurethane Base Coat.

The single tone body shall be painted AkzoNobel red.

AERIAL COMPONENT PROTECTION / PAINT

The paint chip is the sole defining paint color; it overrules what is described in this spec.

All aerial device components above the rotation point that are not chrome plate, bright aluminum tread plate, or stainless steel shall be painted. All areas to be painted shall be sanded to remove any metal flakes and smooth any rough surfaces. All surfaces to be painted shall be phosphatized to remove metal impurities, aid paint adhesion and inhibit rust. The components shall be primed and finish painted with a high gloss polyurethane paint. The support structure and components below the rotation point shall be painted black.

The extending stabilizer beams, inner jack cylinder protective tubes, and stabilizer pads shall be hot dip galvanized. The extending stabilizer beams, inner jack tubes, and stabilizer pads shall be shot blasted to remove any mill scale, or contamination prior to galvanizing.

Following this preparation, the individual components shall be hot dip galvanized. The galvanizing process requires that the entire assembly be completely submerged. Following the galvanizing process, the surface shall be ground smooth to remove dross. This preparation shall provide maximum protection for these critical components. Following surface preparation, components shall be coated with black water-based self-etching coating. No exceptions shall be allowed to this requirement.

The high gloss polyurethane paint, which shall be applied to the aerial ladder sections and other components above the rotation point, shall be cured at an elevated temperature for a period not less than 2 hours to enhance durability and appearance. The temperature shall not be less than 180 degrees Fahrenheit. Curing of the paint shall promote a chemical reaction within the substrate that shall harden the paint. The curing shall be performed in a clean, sealed, controlled atmosphere. The atmosphere shall comply with all environmental standards and any air entering the chamber shall be filtered.

AERIAL DEVICE PAINT COLOR

The aerial device shall be painted with AkzoNobel High Solids polyurethane enamel paint. The color shall be AkzoNobel white.

The paint shall be a standard non-metallic Akzo-Nobel color.

AERIAL CORROSION PROTECTION

Internal structural members of the aerial structure shall be 100% concealed from oxygen or have corrosion protection applied. Totally sealed members are not subject to the possibility of corrosion attacking the metal from the interior.

The structural tubing of the aerial structure that contains drilled holes or is exposed to outside air and elements shall be protected to eliminate the possibility of corrosion occurring on the inside of the tube. No exceptions as this is imperative to the strength and integrity of the aerial structure.

The interior of exposed tubing shall be coated with a compound labeled NWAC 120-4. The application of the coating shall be applied after the welding process of the aerial structure is complete and shall cover 100% of the interior of the structural tube. NWAC 120-4 is an effective cavity corrosion inhibitor that provides long-term protection for both ferrous and non-ferrous metals. The resulting water-repellent, flexible, air-dried film has crevice penetrating, spreading and clinging characteristics. The product dries to a nearly transparent film and provides maximum corrosion protection for all void spaces subject to humidity and condensation.

AERIAL PLATFORM PAINT COLOR

The paint chip is the sole defining paint color; it overrules what is described in this spec.

The aerial platform shall be painted with AkzoNobel High Solids polyurethane enamel paint. The color shall be AkzoNobel white. The front platform doors shall be unpainted anodized aluminum with a silver, brushed finish.

The paint shall be a standard non-metallic Akzo-Nobel color.

AERIAL LADDER SIGN PAINT COLOR

The aerial ladder signs, mounted on the base section, shall be painted the same color as the aerial ladder.

UNDERCOATING

The apparatus shall undergo a two-step undercoating process. The first step shall be a rubberized polyurethane base compound applied after the body has been primed. The materials used incorporate unused paint products to reduce the amount of waste released into the environment. This coat shall be applied to all hidden pockets and surfaces that are not visible after completion.

As a final step, the entire underside of the body shall be coated with a bituminous based automotive type undercoating when the apparatus is completed. During this application, special care shall be taken to avoid spraying the product on air lines, cables, or other items that would hinder normal maintenance.

CORROSION PREVENTION

One (1) 3.75 ounce tube of Electrolysis Corrosion Kontrol (ECK) shall be provided to use when additional items are mounted to the apparatus. ECK protects aluminum and stainless steel against electrolytic reaction, isolates dissimilar metals and gives bedding protection for hardware and fasteners. ECK contains an anti-seizing lubricant for threads. ECK is dielectric and perfect for use with electrical connectors.

THERMOPLASTIC COATING

In designated areas, Bedliner Coating XS-350, a two-component spray-in-place thermoplastic polyurethane system shall be used for maximum protection of the body and equipment. Bedliner Coating XS-350 is a 100% high-performance aromatic solids pure Polyurea elastomeric membrane. The coating shall be a fast cure, textured surface, multi-purpose material designed for commercial and industrial applications. It shall adhere to the body and serve as a protective, abrasion resistant liner where applied.

The coating shall exhibit the following minimum typical physical properties:

- Tensile strength - 3,432 PSI (ASTM D-412)
- Elongation - 162% (ASTM D-412)
- Tear Strength - 783 PLI (ASTM D-624)
- Shore D Hardness - 60 +/-1 (ASTM D-2240)

SAMPLE PAINT CARD

One (1) sample paint card shall be provided with the apparatus. The card shall show an example of the apparatus body color on one side and have the specific AkzoNobel paint formula printed on the reverse side.

REFLECTIVE LETTERING - 6"

Up to forty (40) reflective letters shall be provided and installed on the apparatus. The letters shall be approximately 6" tall with black outline and shadow.

REFLECTIVE LETTERING - 12"

Up to sixty (60) reflective letters shall be provided and installed on the apparatus. The letters shall be approximately 12" tall with black outline and shadow.

REFLECTIVE STRIPING - FRONT CAB

The retroreflective stripe located on the sides of the apparatus shall wrap around the front of the chassis cab and terminate at chassis grill.

RUB RAIL REFLECTIVE STRIPING

There shall be 2" reflective striping installed in the rub rail channel. The reflective striping shall be diamond grade quality material for increased visibility. The reflective shall be silver in color.

REFLECTIVE STRIPING

3M Scotchlite Retroreflective striping shall be applied to the exterior of the apparatus and shall conform to the reflectivity requirements in accordance with NFPA, current edition.
The striping shall consist of:

- 1" retroreflective stripe
- 1" gap
- 6" retroreflective stripe
- 1" gap
- 1" retroreflective stripe

The striping shall be low across the front of the chassis and along the sides up to the first compartment on each side where it shall angle up to a point below the upper compartments, where it then shall run level to the back edge of the body.

The upper stripe shall be white.

The main stripe shall be white.

The lower stripe shall be white.

REFLECTIVE STRIPING - STABILIZER BEAMS

Retroreflective striping, utilizing a chevron pattern, shall be installed on the front and rear sides of the four (4) horizontally extending stabilizer beams for increased visibility when extended. The striping shall be applied at a 45 degree angle and shall be a minimum of 6" wide. The chevron color shall be the same color as the rear of the apparatus.

CHEVRON COLOR - RED/WHITE

The chevron striping shall consist of red, 3M part number 3392, and white, 3M part number 3990.

Only 3M Diamond Grade VIP Reflective Striping shall be used. 3M Diamond Grade VIP Reflective Striping is a wide-angle prismatic lens reflective sheeting designed for the production of durable traffic control signs and delineators that are exposed vertically in service. This sheeting is designed to provide higher sign brightness than sheeting's that use glass bead lenses. It is intended to also provide high sign brightness in the legibility distance where other sheeting's do not.

An SOE is required on all units sold before January 1, 2024.

CHEVRON STRIPING - REAR BODY

Retroreflective striping shall cover at least 50% of the rear-facing vertical surfaces in accordance with NFPA, current edition. The striping shall be in a chevron pattern sloping downward and away front the centerline of the apparatus at an angle of 45 degrees. Each stripe shall be a minimum of 6" in width. The striping shall consist of a solid base layer of reflective material and alternate between the exposed base layer material and durable, transparent, acrylic colored film.

The chevron pattern shall include rear face of the body, the torque box lap door, and the ladder storage compartment doors.

REFLECTIVE "KEEP BACK 150 METRES"

An aluminum plate shall be installed on the rear of the apparatus. The sign shall read "KEEP BACK 150 METRES", in reflective letters.

REFLECTIVE FLAG - WAVY / EAGLE

One (1) 9" reflective Canadian Flag shall be installed on the apparatus. The flag shall have a wavy design with a bald eagle head on it.

REFLECTIVE DECALS CUSTOM

Two (2) custom door reflective decals shall be provided. The decals shall be approximately 14" high and 14" wide. The decals shall be discussed at the pre-construction meeting.

Decal files to be supplied by the department at the pre-construction meeting.

GENERAL TWO (2) YEARS or 36,000 MILES LIMITED WARRANTY

Purchaser shall receive a General Two (2) Years or 36,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0002. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

BODY STRUCTURE (ALUMINUM) TEN (10) YEARS or 100,000 MILES LIMITED WARRANTY

Purchaser shall receive a Body Structure (Aluminum) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0502. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

AERIAL LADDER STRUCTURE TWENTY (20) YEARS or 100,000 MILES LIMITED WARRANTY

Purchaser shall receive a Aerial Ladder Structure Twenty (20) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0403. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

AERIAL LEAK-FREE HYDRAULICS THREE (3) YEARS or 48,000 MILES LIMITED WARRANTY

Purchaser shall receive a Aerial Leak-Free Hydraulics Three (3) Years or 48,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0421. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

AERIAL WATERWAY TEN (10) YEARS or 100,000 MILES LIMITED WARRANTY

Purchaser shall receive a Aerial Waterway Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0810. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

ELECTRICAL TWO (2) YEARS or 36,000 MILES LIMITED WARRANTY

Purchaser shall receive a Electrical 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.

PLUMBING AND PIPING (STAINLESS STEEL) TEN (10) YEARS or 100,000 YEARS LIMITED WARRANTY

Purchaser shall receive a Plumbing and Piping (Stainless Steel) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0800. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

WATER TANK WARRANTY

The tank shall be complete with a lifetime warranty. The tank manufacturer shall mark the tank and furnish notice that indicates proof of warranty. Full details shall be provided in the complete warranty document.

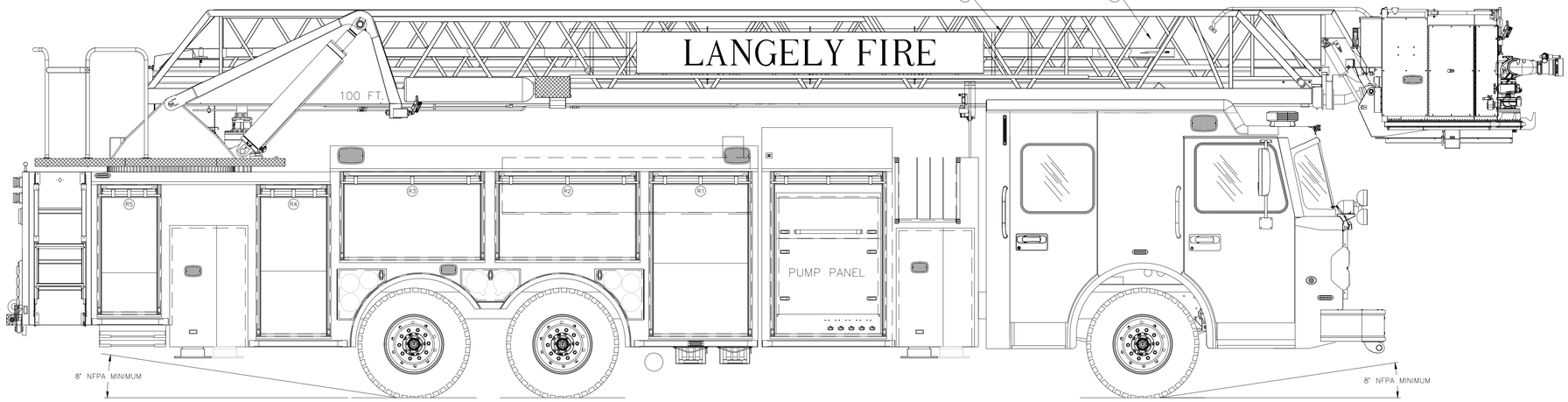
PAINT AND FINISH (EXTERIOR CLEAR COATED) TEN (10) YEARS LIMITED WARRANTY

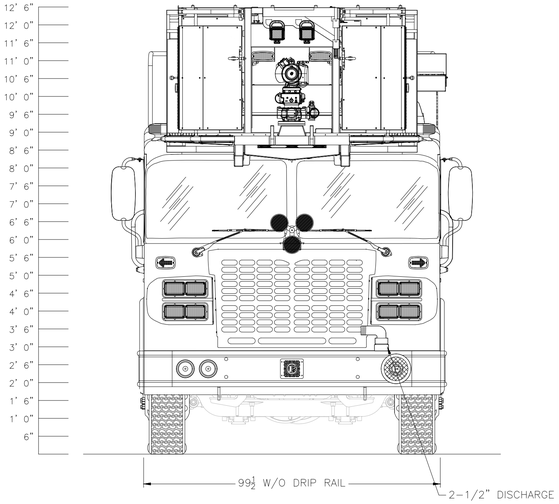
Purchaser shall receive a Paint and Finish (Exterior Clear coated) Ten (10) Years limited warranty in accordance with, and subject to, warranty certificate RFW0710. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

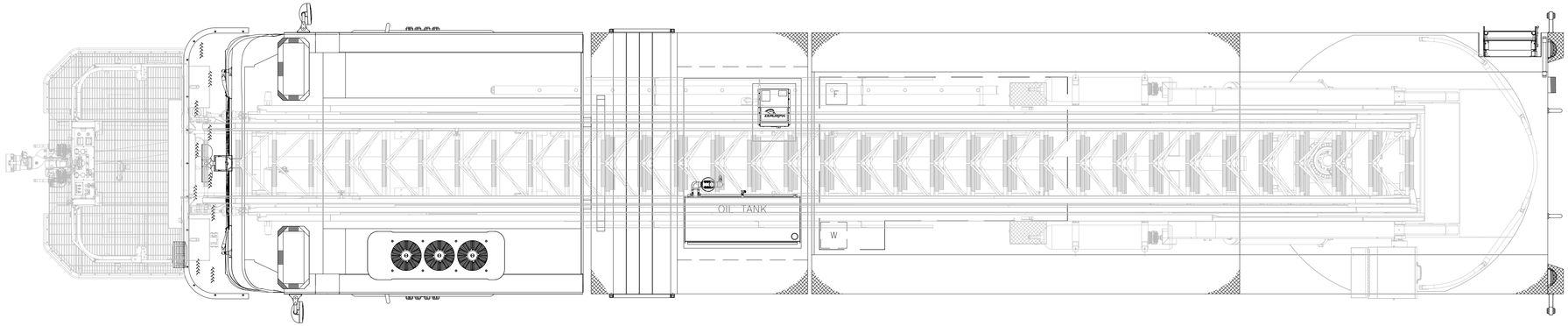
PUMP WARRANTY

The fire pump shall be warranted by Hale Products Inc. for a period of five (5) years from the date the product is first placed into service or five and one-half (5-1/2) years from the shipment date by Hale, whichever period expires first. The warranty shall cover parts and labor for the first two (2) years. The remaining three (3) years of the warranty shall cover parts only. Full details shall be provided in the complete warranty document.

REFERENCE ONLY. THE ATTACHED SPECIFICATIONS ARE TO GOVERN THIS PURCHASE.

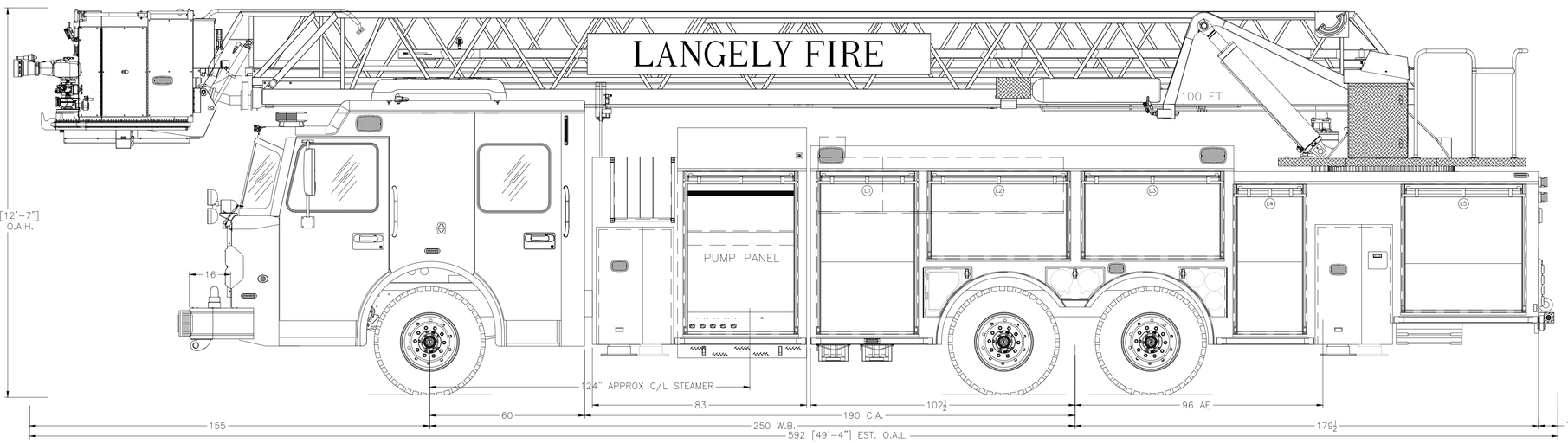


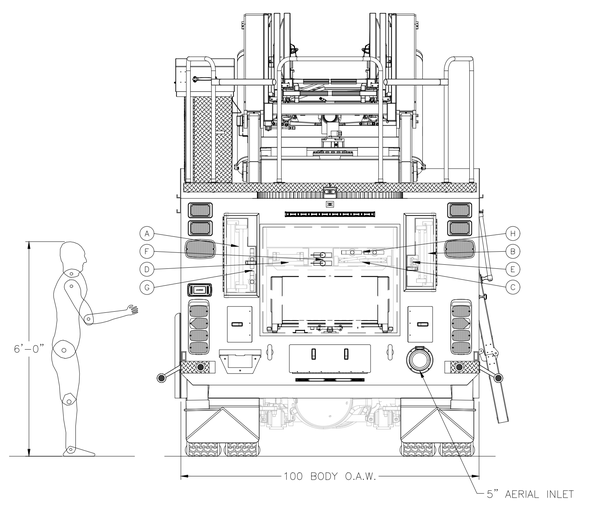




COMPARTMENT DIMENSIONS					
COMPT.	DOOR OPENING	INTERIOR	DIVIDE HEIGHT	DEPTH UPPER	DEPTH LOWER
L1	36"W x 57"H	41.5"W x 72"H	27"	14"	23"
L2	52"W x 27"H	59"W x 42.5"H	–	14"	14"
L3	52"W x 27"H	63.5"W x 42.5"H	–	14"	14"
L4	25"W x 52"H	32.5"W x 62"H	27"	14"	24"
L5	45"W x 43"H	52.5"W x 53.5"H	18"	14"	22"
R1	36"W x 57"H	41.5"W x 72"H	27"	14"	23"
R2	52"W x 27"H	59"W x 42.5"H	–	14"	14"
R3	52"W x 27"H	63.5"W x 42.5"H	–	14"	14"
R4	25"W x 52"H	32.5"W x 62"H	24"	14"	24"
R5	21"W x 43"H	31"W x 53.5"H	15"	14"	22"

GROUND LADDERS & PIKE POLES				
	ITEM	DESCRIPTION	MODEL #	QTY
	A	35' 2 SEC EXTENSION	1200-A	1
	B	24' 2 SEC EXTENSION	900-A	1
	C	16' ROOF	875-A	1
	D	14' FRESNO	701	1
	E	10' FOLDING ATTIC	585-A	1
	F	4' D-HANDLE PIKE POLE	FP4D	2
	G	6' NY ROOF HOOK	RH-6	2
	H	10' NY ROOF HOOK	RH-10	2
BASE	I	16' ROOF	875-A	1
FLY	J	6' D-HANDLE PIKE POLE	FP6D	1





REVISION HISTORY			
REV	INT.	DATE	DESCRIPTION
01	CL	12/5/23	ORIGINAL LAYOUT

PROPOSAL

CHASSIS:	SPARTAN GLADIATOR EMFD 10" RAISED ROOF WITH 5" TRENCH
ENGINE:	CUMMINS X15 565HP WITH ALLISON 4000 EVS
PUMP:	HALE QMAX 2250 RATED AT 1750 IGPM
WATER TANK:	400 U.S. GAL
FOAM CELL:	20 U.S GAL
BODY MATERIAL:	1/8" ALUMINUM
HOSE BED:	800' OF 5" & 200' OF 2-1/2" / 39 CUBIC FEET
GENERATOR:	N/A
COMPARTMENTS:	176 CUBIC FEET
ADDITIONAL PENETRATION STABILIZERS	

SPARTAN REV GROUP
EMERGENCY RESPONSE

CITY OF LANGLEY
LANGLEY, BC

MODEL:	100' REAR MOUNT PLATFORM (SS3RP-100)
DEALERSHIP:	SAFETEK EMERGENCY VEHICLES
SCALE: 1/2" = 1'	DRAWN BY: CL
DATE: 12/5/23	
SIZE: 24" X 36"	DRAWING NO: 23771
REV: 01	
SHEET: 1 OF 1	