



AGENDA ITEM EXECUTIVE SUMMARY

Agenda Item:	Authorize the purchase of (1) Pierce Enforcer Fire Truck		
Presenter & Title:	Michael K. Antenore, Fire Chief		
Date:	February 16, 2021		
Please Check Appropriate Box:			
<input checked="" type="checkbox"/>	Committee of the Whole Meeting		Special Committee of the Whole Meeting
<input checked="" type="checkbox"/>	City Council Meeting		Special City Council Meeting
<input type="checkbox"/>	Public Hearing		Other -
Associated Strategic Plan Goal/Objective: EMS-II			
Estimated Cost: \$1,200,000		Budgeted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Other Funding? <input type="checkbox"/> Yes <input type="checkbox"/> No
If "Other Funding," please explain how the item will be funded: N/A			
Executive Summary:			
<p>As included in the FY 2022 budget, this request is to purchase a new fire department truck from the HGAC (Houston-Galveston Area Council) consortium. The new truck will replace Truck 201 (1994 Pierce Arrow) which is currently in service and will be 28 years old at the time of surplus. Trucks in the City of Geneva are planned for 20 – 25 years of front line service. NFPA 1901, "Standard for Automotive Fire Apparatus", recommends that fire apparatus over 25 years old should be replaced.</p> <p>Maintenance and repair expenses have been increasing on Truck 206 over the past several years. The most recent repair required custom fabrication of parts as spare parts are no longer available. The current Truck 206 will be surplus and sold at auction. The fire department does not maintain a reserve truck. The new "quint" will be placed into front line service at Station 1 and provide expanded emergency services as a first due truck/engine.</p>			
Attachments: <i>(please list)</i>			
<ul style="list-style-type: none"> • Resolution No. 2021-06 • MacQueen Emergency – Proposal for (1) Pierce 110' PUC Quint per bid 988, 12/31/2020. • Pierce Proposal Option List, Geneva Fire Department, Bid #988, 12/31/2020 • Proposal for the City of Geneva Fire Department, 12/31/2020 			
Voting Requirements:			
<p><i>This motion requires 6 affirmative votes for passage.</i></p> <p><i>The Mayor may vote on three occasions: (a) when the vote of the aldermen or trustees has resulted in a tie; (b) when one half of the aldermen or trustees elected have voted in favor of an ordinance, resolution, or motion even though there is no tie votes; or (c) when a vote greater than a majority of the corporate authorities is required by state statute or local ordinance to adopt an ordinance, resolution, or motion.</i></p>			
Recommendation / Suggested Action: <i>(how item should be listed on agenda)</i>			
<p>Consideration by the City Council to approve the purchase of one (1) Pierce Enforcer truck per bid #988 from MacQueen Emergency Group through the HGAC (Houston-Galveston Area Council) consortium.</p>			

RESOLUTION NO. 2021-06

RESOLUTION AUTHORIZING THE PURCHASE OF A PIERCE ENFORCER FIRE TRUCK

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GENEVA, KANE COUNTY, ILLINOIS, as follows:

SECTION 1: That the City Administrator is hereby authorized to execute, on behalf of the City of Geneva, the purchase of one (1) Pierce Enforcer 110’ PUC Quint Platform Fire Truck in an amount not to exceed \$1,200,000.00 to be used by the Fire Department.

SECTION 2: This Resolution shall become effective from and after its passage as in accordance with law.

PASSED by the City Council of the City of Geneva, Kane County, Illinois, this 1st day of March, 2021.

AYES: ____ **NAYS:** ____ **ABSENT:** ____ **ABSTAINING:** ____ **HOLDING OFFICE:** 10

APPROVED by me as Mayor of the City of Geneva, Kane County, Illinois this 1st day of March, 2021.

ATTEST:

Mayor

City Clerk

1-6-2021

EM-102

January 6, 2021

Chief Mike Antenore
Geneva Fire Department
200 East Side Dr.
Geneva, IL. 60134

Subject: **Proposal for one (1) Pierce Enforcer
110' PUC Quint platform per this bid proposal 988 dated 12-31-2020**

Dear Chief, Antenore,

With regard to the above subject, please find attached our completed proposal.
Pricing, is as follows.

Pricing Summary:

Sale Price – **\$1,167,401.00** Base Unit

Terms and Conditions:

Taxes – Not Applicable
Freight – F.O.B. – Appleton, WI.
Terms – Net due prior to vehicle(s) release at the Pierce Manufacturing Plant
Appleton, WI.
Delivery – 12-14 months from receipt and acceptance of P.O. and or contract.

Said apparatus and equipment are to be built and shipped in accordance with the specifications hereto attached, delays due to strikes, war, or international conflicts, or other causes beyond our control not preventing, could alter the delivery schedule.

The specifications herein contained, shall form a part of the final contract, and are subject to changes as desired by the purchaser, provided such changes are acknowledged and agreed to in writing by the purchaser.

This proposal for fire apparatus conforms with all Federal Department of Transportation (DOT) rules and regulations in effect at the time of bid, and with all National Fire Protection Association (NFPA) Guidelines for Automotive Fire Apparatus as published at the time of bid, except as modified by customer specifications.

The attached proposal is valid for January 31st, 2021.



MINNESOTA ILLINOIS INDIANA MISSOURI NEBRASKA NORTH DAKOTA SOUTH DAKOTA

We trust the above and the enclosed to be full and complete at this time; however, should you have any questions or require additional information, please do not hesitate to contact me at 815-245-0431.

We wish to thank the Geneva Fire Department for the opportunity to submit our aerial proposal.

Respectfully,

Rick Berndt

Rick Berndt
Apparatus Sales
MacQueen Equipment LLC
DBA MacQueen Emergency Group



Proposal Option List

12/31/2020

Customer:	City of Geneva Fire Dept	Bid Number:	988
Representative	Berndt, Rick	Job Number:	
Organization:	MacQueen Emergency Group	Number of Units:	1
Requirements Manager:		Bid Date:	01/31/2020
Description:	Enforcer 110 PUC Quint	Stock Number:	
Body:	Aerial, Platform, 110' Ascendant, Single Axle, PUC, Quint, Alum Body	Price Level:	39 (Current: 39)
Chassis:	Enforcer Chassis, Aerials, Single Axle, Ascendant PUC	Lane:	

Line	Option	Type	Option Description	Qty
1	0766630		Boiler Plates, Aerial, 110' Ascendant Platform Fire Department/Customer - City of Geneva Fire Department Operating/In conjunction W-Service Center - Operating Miles - 25 Miles Number of Fire Dept/Municipalities - 10 Bidder/Sales Organization - Global Emergency Products Delivery - Delivery representative Dealership/Sales Organization, Service - Global Emergency Products	1
2	0018180		Single Source Compliance, Aerials	1
3	0584456		Manufacture Location, Appleton, Wisconsin	1
4	0584452		RFP Location: Appleton, Wisconsin	1
5	0588609		Vehicle Destination, US	1
6	0670275		Unit to be Similar in some Aspects, Excluding Pump Panel Fill in Blank - 33595	1
7	0610784		Comply NFPA 1901 Changes Effective Jan 1, 2016, With Exceptions	1
8	0533351		Quint Fire Apparatus	1
9	0588612		Vehicle Certification, Aerial w/Pump	1
10	0681278		Agency, Apparatus Certification, Aerial w/Pump, U.L.	1
11	0000114		Inspection Trip(s) Qty, - 02 Fill in Blank - five (5)	2
12	0620362		Consortium, HGAC	1
13	0537375		Unit of Measure, US Gallons	1
14	0030006		Bid Bond Not Requested	1
15	0582697		Performance Bond, 100% with Warranty Bond, 1 Yr, and Payment Bond Percentage, Contract - 100%	1
16	0000007		Approval Drawing	1
17	0672031		Drawing, Cab, Top View, Seating and EMS Cabinets, Reference Only	1
18	0076695		Electrical Diagrams, (1) Paper Copy & (1) CD copy	1
19	0612098		Enforcer Chassis, Aerials, Single Axle, Ascendant PUC	1
20	0021008		Overall Height, Target Size - 12' 6" (150")	1
21	0000110		Wheelbase Wheelbase - 240.50"	1
22	0000070		GVW Rating GVW rating - 57,500	1
23	0649713		Frame Rails, 10.25" x 3.50" x .375", Saber FR/Enf	1
24	0620712		Frame Liner, Internal "C", 9.38" x 3.13" x .25", w/Reinforcement,67"Qval,SFR/Enf	1
25	0796912		Axle, Front, Oshkosh TAK-4, Non Drive, 24,000 lb, Enforcer	1
26	0090914		Suspension, Front TAK-4, 24,000 lb, DLX/Qtm/AXT/Vel/Enf	1
27	0087572		Shock Absorbers, KONI, TAK-4, Qtm/AXT/Imp/Vel/DCF/Enf	1
28	0000322		Oil Seals, Front Axle	1
29	0078245		Tires, Front, Michelin, XZY3 (wb), 445/65R22.50, 20 ply	1
30	0019618		Wheels, Front, Alcoa, 22.50" x 13.00", Aluminum, Hub Pilot	1
31	0603826		Axle, Rear, Meritor RS30-185, 33,500 lb, Saber FR/Enforcer	1
32	0544244		Top Speed of Vehicle, 60 MPH	1
33	0122073		Suspen, Rear, Standens, Spring, 33,500 lb, Imp/Vel/Dash CF/Enf	1
34	0000485		Oil Seals, Rear Axle	1
35	0788333		Tires, Rear, Michelin, XDN2 Grip, 315/80R22.50, LRL, Single, Fire Serv Load	1
36	0654730		Wheels, Rear, Alcoa-Accuride, 22.50" x 9.00",Alum-Stl,Dura-Bright,Hub Pt,Single	1

Line	Option	Type	Option Description	Qty
37	0568081		Tire Balancing, Counteract Beads	1
38	0620570		Tire Pressure Monitoring, RealWheels, AirSecure, Valve Cap, Single Axle	1
			Qty, Tire Pressure Ind - 6	
39	0003245		Axle Hub Covers w/center hole, S/S, Front Axle	1
40	0531133		Axle Hub Covers, Rear, S/S, High Hat, Real Wheel (Pair)	1
41	0057936		Covers, Lug Nut, Chrome	1
42	0002045		Mud Flap, Front and Rear, Pierce Logo	1
43	0617577		Chocks, Wheel, Worden HWG- SB, Super Gripper	1
			Qty, Pair - 01	
44	0646364		Mounting Brackets, Chocks, Worden Safety, Model U815T	1
			Location, Wheel chock - behind the DS rear wheels	
			Qty, Pair - 01	
45	0010670		ABS Wabco Brake System, Single rear axle	1
46	0030185		Brakes, Knorr/Bendix 17", Disc, Front, TAK-4	1
47	0000740		Brakes, Meritor, Cam, Rear, 16.50 x 8.63"	1
48	0020784		Air Compressor, Brake, Cummins/Wabco 18.7 CFM	1
49	0637584		Brake Reservoirs, 5,376 Cubic Inch Minimum Capacity, Saber FR/Enforcer	1
50	0617092		Air Dryer, Wabco System Saver 1200, With Wet Tank, Heated, Saber FR/Enforcer	1
51	0000790		Brake Lines, Nylon	1
52	0630575	SP	Inlet/Outlet, Air, w/Disconnect Fitting, 1/4" NPT, NAPA 90-602	1
			Location, Air Coupling(s) - f) DS Bumper extension	
			Qty, Air Coupling (s) - 1	
53	0736425	SP	Outlet, Air, .25", NFPT, with Shut Off Valve, Location	1
			Location - on the pump operator pump panel	
			Qty, Air Coupling (s) - 1	
54	0656908		All Wheel Lock-up, Single Prk Brk Control	1
55	0011835		Guard, U-Bolt over "Prk Brk" Knob	2
			Qty, - 02	
			Location, driver's/passenger's/center - Driver & Passenger	
56	0630456		Valve, 2nd Prk Brk Control, Officer side, Saber FR/Enforcer	1
57	0736438		Engine, Cummins L9, 450 hp, 1250 lb-ft, W/OBD, EPA 2021, REPTO, Saber FR/Enf	1
58	0001244		High Idle w/Electronic Engine, Custom	1
59	0687994		Engine Brake, Jacobs Compression Brake, Cummins Engine	1
			Switch, Engine Brake - e) ISC/ISM/ISL9/ISX Hi Med Lo	
60	0644227		Clutch, Fan, Air Actuated, Saber FR/Enforcer	1
61	0640477		Air Intake, Metal Screen, Saber FR/Enforcer	1
62	0794761		Exhaust System, 4", 2017 L9 Engine, Horizontal, Right Side	1
63	0788765		Radiator, Saber FR/Enforcer	1
64	0001090		Cooling Hoses, Rubber	1
65	0001125		Fuel Tank, 65 Gallon, Left Side Fill	1
66	0001129		Lines, Fuel	1
67	0750095	SP	DEF Tank, 4.5 Gallon, LS Fill, Rear of Rear Axle, Common Door, Ascend SA	1
			Door, Material & Finish, DEF Tank - Polished Stainless	
68	0552793		Not Required, Fuel Priming Pump	1
69	0552712		Not Required, Shutoff Valve, Fuel Line	1
70	0699437		Cooler, Chassis Fuel, Not Req'd.	1
71	0690880		No Selection Required From This Category	1
72	0642572		Trans, Allison 5th Gen, 3000 EVS P, w/Prognostics, Imp/Vel/DCF/SFR/Enf	1
73	0625329		Transmission, Shifter, 5-Spd, Push Button, 3000 EVS	1
74	0517604		Transmission Programming, Park to Neutral, PUC	1
75	0684459		Transmission Oil Cooler, Modine, External	1
76	0001370		Driveline, Spicer 1710	1
77	0669988		Steering, Sheppard M110 w/Tilt, TAK-4, Eaton Pump, w/Cooler	1
78	0605356		Steering Wheel, 4 Spoke without Controls, Saber FR/Enforcer	1
79	0690274		Logo/Emblem, on Dash	1
			Text, Row (1) One - Geneva	
			Text, Row (2) Two - Fire	
			Text, Row (3) Three - Department	
80	0614889		Lube System, Vogel, 22 Point, TAK-4 Suspension	1
			Location - inside the PUC pump compartment area	
81	0037606		Bumper, 22" Extended, Steel, Painted, Saber FR/Enforcer	1

Line	Option	Type	Option Description	Qty
82	0640194		Tray, Hose, Center, 22" Bumper, Inside Air Horns Grating, Bumper extension - Grating, Rubber Capacity, Bumper Tray - 28) 25' of 5.00"	1
83	0768564	SP	Cover, Aluminum Treadplate, (2) Southco C2 Chrome Latches, Hose Tray, Notched Stay arm, Tray Cover - c)Pneumatic Stay Arm, Dual	1
84	0637796		Tray, (1) Hose Left Side of Bumper, 15" Deep, 13" Below & 2" Above Grating, Bumper extension - Grating, Rubber Capacity, Bumper Tray - 21) 150' of 1.75"	1
85	0778658	SP	Cover, Raised, Aluminum Treadplate, Two (2) Southco C2, Hose Tray Stay arm, Tray Cover - c)Pneumatic Stay Arm, Dual	1
86	0614646		No Lift & Tow Package, Imp/Vel, AXT, SFR/Enf	1
87	0061058		Tow Eyes, Below Deck, S/S	1
88	0698960		Coating, Top Flange, Front Bumper, Outside Exterior, Line-X Coating, Black	1
89	0789614		Cab, Enforcer, 7010 w/Notch, PUC	1
90	0647919		Engine Tunnel, ISL, Saber FR/Enforcer	1
91	0610508		Rear Wall, Interior, Adjustable Seating, Not Available	1
92	0632103		Rear Wall, Exterior, Cab, Saber FR/Enforcer Material, Exterior Rear Wall - Aluminum Treadplate	1
93	0639727		Cab Lift, Elec/Hyd, Manual Override, Saber FR/Enforcer	1
94	0695930		Grille, Bright Finished, Front of Cab, Dash CF/Enforcer	1
95	0752555		Scuffplate, S/S, Striker Side, Cabinet Door(s), Each Location - on each EMS compartment door behind the driver and officer door to include the lower horizontal edge Qty, - 04 Material Trim/Scuffplate - c) S/S, Polished	4
96	0002224		Scuffplates, S/S At Cab Door Jambs, 4-Door Cab Material Trim/Scuffplate - c) S/S, Polished	1
97	0647932		Not Required, Trim, S/S Band, Across Cab Face, AXT/Dash CF/Saber/Enforcer	1
98	0015440		No Chrome Molding, On side of cab	1
99	0521669		Mirrors, Retractable, West Coast Style, Htd/Rmt, w/Htd/Rmt Convex	1
100	0648172		Door, Full Height, Saber FR/Enforcer 4-Door Cab, Raised Roof Key Model, Cab Doors - 751	1
101	0655543		Door Panel, Brushed Stainless Steel, Saber/Enforcer 4-Door Cab	1
102	0528958		Not Required, Controls, Electric Window, AXT, Quantum, Saber, Enforcer, Dash CF	1
103	0633615		Steps, 4-Door Cab, Reduced Bottom Step, Saber FR/Enforcer Step Well Material - Aluminum Treadplate	1
104	0770200		Handrail, Exterior, Hansen, Knurled, Alum, LED Backlit, 4-Door Cab Color, Handrail Light - White Control, Handrail Light - Parking Brake	1
105	0560452		Steps, Stirrup, Formed, Cab & Crew Cab Doors, AXT/SFR/Enf Light, Step, Additional - P25 LED	1
106	0634786		Lights, Cab & Crw Cab Acs Stps, P25, LED w/Bezel, 1Lt Per Step 6lts	1
107	0583698		Fenders, S/S on cab, Extra Wide, Saber/Enf	1
108	0557023		Handrail, 10", Below Cab Windshield, Pair	1
109	0042105		No Windows, Side of Crew Cab	1
110	0779033		Not Required, Windows Rear of Crew Cab, Saber FR/Enforcer	1
111	0634206		Mounting Provisions, 1/4" Alum, Full Engine Tunnel, Saber FR/Enforcer Mounting Provision Spacing - 1.00" Material Finish, Cab Interior - Painted	1
112	0753316		Lip, Additional, Location Location - the recess dash in front of the officer seat on the edge closest to the officer seat all the way across the opening Qty, - 01 Lip - 1.00"	1
113	0750824		Cab Interior, Vinyl Headliner, Saber FR/Enforcer, CARE Color, Cab Interior Vinyl/Fabric - Endure Vinyl - Light Gray Engine Tunnel Cover - Light Gray Endure Vinyl Cab Interior Rear Wall Material - Painted Aluminum	1
114	0753903		Cab Interior, Paint Color, Saber FR/Enforcer Color, Cab Interior Paint - a) gray	1
115	0012101		Floor, Aluminum Treadplate, Cab & Crew Cab, Saber/Enforcer, CARE	1
116	0741237		HVAC, Saber/Enforcer, CARE HVAC System, Filter Access - Removable Panel	1

Line	Option	Type	Option Description	Qty
116			Auxiliary Cab Heater - Both HVAC System, Control Loc. - Panel Position #12	
117	0032085		Fans, Window Defrost, Two (2), Location Feature Location - in the front of the cab matching job 33595 with exact location given at print review ALONG WITH PICTURES.	1
118	0587940		Fans, Window Defrost, Maradyne Crew Cab Location - in the front of the cab matching job 33595 with exact location given at print review ALONG WITH PICTURES. Qty, - 02	2
119	0624005		Sun Visor, Vinyl/Fabric, AXT, Dash CF, Qtm, Saber FR/Enforcer Sun Visor Retention - Thumb Latch Sun Visor, Vinyl/Fabric - Vinyl	1
120	0634328		Grab Handles, Driver and Officer Door Posts, Saber FR/Enforcer	1
121	0583938		Lights, Engine Compt, Custom, Auto Sw, WIn 3SC0CDCR, 3" LED, Trim Qty, - 01	1
122	0631830		Fluid Check Access, Saber FR/Enforcer, Arrow XT	1
123	0583039		Not Required, Side Roll and Frontal Impact Protection	1
124	0622618		Seating Capacity, 5 Seats	1
125	0632962		Seat, Driver, Bostrom, Sierra, Air Ride, High Back, Saber FR/Enforcer Bostrom, Zip Clean Cover - (0) None	1
126	0632918		Seat, Officer, Bostrom 450, Fixed, SCBA, Saber FR/Enforcer Bostrom, Zip Clean Cover - (0) None	1
127	0620356		Radio Compartment, Below Non-Air Ride Seat, Flush Latch, Locking, Saber FR/Enf	1
128	0748083	SP	Cabinet, Rear Fcng, LS, 23 W x 40.25 H x 26.75 D, Sp 2" Web, Strap, Ext Acc, SFR/Enf Light, Short Cabinet - Amdor, Exterior, White, Left Side and Amdor, Interior, Red, Right Side Scuffplate, Door Pan, Material/Finish - S/S, Polished Material Finish, Shelf - Painted - Cab Interior Shelf/Tray, Cabinet - (2) Shelves, Adjustable, 0.75" Up-Turned Lip Door, Cab Exterior Cabinet - Double Pan, Locking #751 Door, Exterior Stop - Web Strap Louvers, Cabinet - 0-No Louvers	1
129	0102783		Not Required, Seat, Rr Facing C/C, Center	1
130	0748084	SP	Cabinet, Rear Fcng, RS, 22 W x 40.25 H x 26.75 D, Sp 2" Web, Strap, Ext Acc, SFR/Enf Light, Short Cabinet - Amdor, Exterior, White, Right Side and Amdor, Interior, Red, Left Side Scuffplate, Door Pan, Material/Finish - S/S, Polished Material Finish, Shelf - Painted - Cab Interior Shelf/Tray, Cabinet - (2) Shelves, Adjustable, 0.75" Up-Turned Lip Door, Cab Exterior Cabinet - Double Pan, Locking #751 Door, Exterior Stop - Web Strap Louvers, Cabinet - 0-No Louvers	1
131	0632941		Seat, Forward Facing C/C, DS Outboard, Bostrom 400CT, SCBA, Foldup, Saber FR/Enf	1
132	0632607		Seat, Forward Facing C/C, Center, (1) Bostrom 400CT, SCBA, Saber FR/Enforcer Bostrom, Zip Clean Cover - (0) None	1
133	0632871		Seat, Forward Facing C/C, PS Outboard, Bostrom 400CT, SCBA, Foldup, SFR/Enf	1
134	0651182		Scuffplate, Cabinet, Interior Door Pan, Cab Location - the two (2) EMS compartment doors behind the driver and passenger door Qty, - 02	2
135	0042359		Material Trim/Scuffplate - c) S/S, Polished Upholstery, Seats In Cab, All Vinyl, Bostrom, CARE Color, Cab Interior Vinyl/Fabric - a) Silver/Gray Qty, - 05	5
136	0543991		Bracket, Air Bottle, Hands-Free II, Cab Seats Qty, - 04	4
137	0603866		Seat Belt, Dual Retractor, ReadyReach, Saber FR/Enforcer Seat Belt Color - Red	1
138	0602464		Helmet Storage, Provided by Fire Department, NFPA 2016	1
139	0647647		Lights, Dome, FRP Dual LED 4 Lts Color, Dome Lt - Red & White Color, Dome Lt Bzl - Black	1

Line	Option	Type	Option Description	Qty
139			Control, Dome Lt White - Door Switches and Lens Switch	
140	0760225	SP	Control, Dome Lt Color - Lens Switch Lights, Dome, WIn, 60C0EJCS White LED, Bat Dir and Bat Charger, Timer Location - centered side to side on the crew cab ceiling just ahead of the forward facing crew cab seats. Mount timer on driver side crew cab wall just down from the ceiling close to the rear door frame. All wiring should be behind the headliner and wall coverings. Qty, - 02	2
141	0602622		Control, Dome Lt White - Lens Switch Portable Hand Light, Provided by Fire Department, Quint NFPA 2016 Classification	1
142	0630605		Cab Instruments, Ivory Gauges, Chrome Bezels, Saber FR/Enforcer	1
143	0002544		Emergency Switching - Individual Switches Air Restriction Indicator - Pierce Chassis	1
144	0032602		Speedometer, Class 1 w/LED, Officer Overhead	1
145	0760272	SP	Light, Do Not Move Apparatus, WIn 50G03Z*R LED, Green, Non-NFPA Compliant Alarm, Do Not Move Truck - Pulsing Alarm Color, Lens, LED's - Colored	1
146	0637359		Not Required, Door Open Indicator w/Do Not Move Truck Light, Enf/Saber FR	1
147	0632738		Switching, Cab Instrument Lower Console & Overhead, Rocker, Enforcer	1
148	0644179		Wiper Control, 2-Speed with Intermittent, Saber FR/Enforcer	1
149	0731813		Hour Meter, Aerial, Included in Information Centers, ASL, AAT, ASP	1
150	0753304	SP	Switch, Aerial 12V Master, Red	1
151	0616515	SP	PTO switch, w/light - aerial, Red	1
152	0797189		Wiring, Spare, 4.8 A 12V DC, USB Termination Blue Sea 1045 1st Qty, - 02 12vdc power from - Battery direct Location - right of the defroster air intake, cust to pick location at the post paint insp. 2nd one goes in the DS rear facing EMS compt w/wiring running inside compartment with socket mtd to top rear inboard corner with box on back side to protect socket	2
153	0548006		Wiring, Spare, 15 A 12V DC 2nd Qty, - 01 12vdc power from - Battery direct Wire termination - 10-Place Bus Bar w/Cover Location - on the inside upper inboard ceiling corner of the DS fwd facing EMS compartment	1
154	0548004		Wiring, Spare, 15 A 12V DC 1st Qty, - 01 12vdc power from - Battery direct Wire termination - 15 amp power point plug Location, Spare Wiring - Officer Dash	1
155	0012668		Swivel Mount for Customer Installed Radio Location - in the center of the overhead switch panel area per the instrument switch panel drawing Qty, - 1	1
156	0763646		Vehicle Information Center, LCD On Gauge Cluster Only, Sab/Enf System Of Measurement - US Customary	1
157	0626864		Not Required, Vehicle Information Center, No Multiplex System	1
158	0734854		Collision Mitigation, Not Requested	1
159	0610240		Vehicle Data Recorder w/Seat Belt Monitor	1
160	0761103	SP	Intercom, Firecom 5200D Dual Radio, 1 Wireless Base Station, (D.O.) 3C,Wired Location - at print review time Location, Intercom, C Cab - 3) 3 forward facing seats Location 1 - in the overhead area ahead of the officer seat, LOC 4, per the I.P. drawing	1
161	0657152		Cable, Radio to Intercom Interface, Firecom, 2 Radios Radio, First Two-Way Model - Motorola APX 8500 Radio, Second Two-Way Model - Kenwood model ??? Radio, First Two-Way Make - Motorola High Power Radio, Second Two-Way Make - Kenwood	1
162	0681384		Headset, Firecom, UH-52 Under Helmet, Intercom Only Qty, - 03 Location, Headset - Driver Seat, DS Outbrd, Fwrd Fcng Seat and PS Outbrd, Fwrd Fcng Seat	3

Line	Option	Type	Option Description	Qty
163	0681389		Headset, Firecom, UH-51 Under Helmet, Radio Transmit Qty, - 01 Location, Headset - Officer Seat	1
164	0739625	SP	Headset, Firecom, Wireless, UHW-505 Under Helmet, Radio Transmit, Special Location Qty, - 01 Location - for the driver	1
165	0601984		Headset, Firecom, Wireless, FHW-505 Over The Head, Radio Transmit Qty, - 01 Location - for the driver	1
166	0681408		Hangers For Headsets, NFPA, Each Qty, - 05 Location, Headset Hangers - Driver Seat, Officer Seat, DS Outbrd, Fwrđ Fcng Seat, PS Outbrd, Fwrđ Fcng Seat and Rear, Center, Fwrđ Fcng Seat	5
167	0786202	SP	Install Customer Provided PAK Tracker Charger Only Location - front exterior face of DS rear facing EMS compartment behind the driver seat Qty, - 01	1
168	0562774		Install Customer Provided Thermal Camera(s), Charger Only Location - next to the officer seat with exact location given at post paint inspection Qty, - 01	1
169	0559503		Install Customer Provided Portable Radio Charger(s) Location - four (4) on engine tunnel top next to the officer and two (2) on the exterior wall of the EMS compartments (1 on each) powered off the battery saver circuit with the exact location given at the post paint inspection Qty, - 06	6
170	0559185		Install Customer Provided Handlight Charger(s) Location - in the cab area with the exact location given at print review and be powered off the battery saver circuit Qty, - 03	3
171	0696439		Antenna Mount, Custom Chassis, Cable Routed to Instrument Panel Area Qty, - 01 Location, Antenna Mount - route to back of second customer supplied radio	1
172	0696438		Antenna Mount, Custom Chassis, Cable Routed to Radio Box Location - behind the light bar on the passenger side Qty, - 01	1
173	0653531		Camera, Pierce, 7" LCD, R, RS Cameras Location, Camera Monitor - Driver Side In Custom Dash	1
174	0624241		Electrical Power/Signal Protection & Control, Enforcer	1
175	0624256		Electrical System, Enforcer Hard Wired	1
176	0079211		Batteries, (6) Exide Grp 31, 950 CCA each, Threaded Stud	1
177	0008621		Battery System, Single Start, All Custom Chassis	1
178	0002698		Battery Compartment, Saber/Enforcer	1
179	0756121		Charger, Sngl Sys, Ksml, Pump+ 1200, 091-187-12-REMOTE Ind Fet, 091-9B-1-AD Cmp Battery Chrg Display, Ksml - Weather Prf Status Cent Red, part number 091-194A	1
180	0012781		Location, Charger/Compr, Front left body compt	1
181	0530949		Location, Bat Chrg Ind, Driver's Seat Riser	1
182	0619940	SP	Shoreline, 15A 120V, Pigtail, Plate Connection, Shoreline - the battery charger, receptacles in the cab and the overhead white lights in the center of the crew cab. The pigtail is to hang out approx. 8" to 10" but not long enough to strike the flood light. Provide an additional 12" of cord in the false wall Length - 10.00" Material - Stainless Steel, Polished	1
183	0026800		Shoreline Location Location, Shoreline(s) - DS Rear bulkhead	1
184	0619456	SP	Scuffplate, S/S Around Shoreline Inlet, Spl Size Location - approx. 9" wide x 12" tall or whatever fits in the area available	1
185	0746861	SP	Switch, On/Off For Shoreline Powered Air Compressor Location - next to the air compressor	1
186	0647729		Alternator, 320 amp, Delco Remy 40SI	1

Line	Option	Type	Option Description	Qty
187	0644176		Load Manager, Integrated In Electrical System, Saber FR/Enforcer	1
188	0783157		Headlights, Rect LED, JW Spkr Evo 2, Heat, AXT/DCF/Enf/Imp/Sab/Vel Color, Headlight Bez - Chrome Bezel	1
189	0625953		Light, Directional, Wln 600 Cmb, Cab Crn, Wrp Bzl Out HD Lts, Enf, Sab FR Color, Lens, LED's - m)match LED's	1
190	0620054		Light, Directional/Marker, Intermediate, Weldon 9186-8580-29 LED 2lts	1
191	0647802		Lights, Clearance/Marker/ID, Front, P25 LED 5 Lts, Saber FR/Enforcer	1
192	0625210		Lights, Directional, Cab Front Side, Truck-Lite 19036Y LED, AXT/Enf	1
193	0534987		Lights, Clearance/Marker/ID, Rear, Truck-Lite 33050R LED 7Lts, Aerial	1
194	0602938		Light, Marker End Outline, Rubber Arm, LED Marker Lamp, Rear Body Qty, Lights, Pair - 1	1
195	0564683		Lights, Tail, Wln M6BTT* Red LED Stop/Tail & M6T* Amber LED Dir Arw For Hsg Color, Lens - Colored	1
196	0561471		Lights, Backup, Wln M6BUW, LED, For Tail Lt Housing	1
197	0663884		Bracket, License Plate & Light, P25 LED, Temp Under Tailbrd Location - on the driver side	1
198	0556842		Bezels, Wln, (2) M6 Chrome Pierce, For mtg (4) Wln M6 lights	1
199	0589905		Alarm, Back-up Warning, PRECO 1040	1
200	0568142		Switch, Spare In Cab Location - in panel #2 next to the siren/Mech siren switch. Battery switched power and labeled "SPARE". Rated for 15 amps Qty, - 1	1
201	0687604		Lights, Perimeter Cab, Truck-Lite 6060C LED 4Dr, Grommet Mt	1
202	0769572		Lights, Perimeter Pump House, Amdor AY-LB-12HW020 LED 2lts	1
203	0615866		Lights, Perimeter Body, Truck-Lite 6060C LED 1lt, Turntable Access Control, Perimeter Lts - Parking Brake Applied, Directional Light Activation and Reverse Signal Activation	1
204	0604548		Lights, Step, P25 LED, Aerial With PUC Pump 2Lts, Prk Brk	1
205	0773818	SP	Light, Wln, 12V P*H2P Pioneer LED Pole Mt, 2nd Location, Lights - on the driver side rear wall of cab Qty, - 01 Color, Wln Lt Housing - Black Paint Poles, Wln - Push Up Sd Mnt 12" Handle Holder & Sensor Control, Scene Lts - Pump Panel Sw DS Scene Light Optics - Flood	1
206	0773817	SP	Light, Wln, 12V P*H2P Pioneer LED Pole Mt, 1st Location, Lights - on the passenger side rear wall of the cab Qty, - 01 Color, Wln Lt Housing - Black Paint Poles, Wln - Push Up Sd Mnt 12" Handle Holder & Sensor Control, Scene Lts - Pump Panel Sw DS Scene Light Optics - Flood	1
207	0620745		Light, HiViz FT-B-46-*, 46", 1st Location, Lights - centered over the LS2 compartment, on the catwalk, centered Qty, - 01 Control, Scene Lts - Cab Sw Panel DS, Pump Panel Sw DS and Cab Sw Panel PS Color, Lt Housing HiViz - Black Scene Light Optics - Flood/Spot	1
208	0620741		Light, HiViz FT-B-46-*, 46", 2nd Location, Lights - centered over the RS2 compartment, on the catwalk, centered Qty, - 01 Control, Scene Lts - Cab Sw Panel DS, Pump Panel Sw DS and Cab Sw Panel PS Color, Lt Housing HiViz - Black Scene Light Optics - Flood/Spot	1
209	0776357		Light, Visor, Wln, 12V P*H2* Pioneer, Cnt Feature, 1st Qty, - 02 Location, driver's/passenger's/center - 1DS & 1PS 8 Deg Out Color, Wln Lt Housing - Black Paint Control, Scene Lts - Cab Sw Panel DS and Cab Sw Panel PS Scene Light Optics - Flood/Spot	2

Line	Option	Type	Option Description	Qty
210	0767701		Lights, Wln, P*H2* Pioneer, 12 VDC, 4th Location - on the passenger side of the cab above the EMS compartment door Qty, - 01 Color, Wln Lt Housing - Black Paint Control, Scene Lts - Cab Sw Panel DS and Cab and Crew Cab Dr Sw, PS Scene Light Optics - flood Mount, Wln II - Semi-recessed 0 deg P**2	1
211	0767702		Lights, Wln, P*H2* Pioneer, 12 VDC, 3rd Location - on the driver side of the cab above the EMS compartment door Qty, - 01 Color, Wln Lt Housing - Black Paint Control, Scene Lts - Cab Sw Panel DS and Cab and Crew Cab Dr Sw, DS Scene Light Optics - flood Mount, Wln II - Semi-recessed 0 deg P**2	1
212	0774336		Lights, Wln, P*H1* Pioneer, 12 VDC, 1st Location - under the DS upper zone warning light and above the shoreline pigtail on the driver side rear bulkhead per the sales drawing and under the upper zone PS warning light per the sales drawing Qty, - 02 Color, Wln Lt Housing - Black Paint Control, Scene Lts - Cab Sw Panel DS, Cab Sw Panel PS and Body Switch, DS Rear SS Scene Light Optics - Flood Mount, Wln II - Semi-recessed 0 deg P**1	2
213	0565198		Not Required, Deck Lights, Other Hose Bed & Rear Lighting, Aerial	1
214	0731380		Lights, Hose Bed, Sides, Dual Strips, ASL ASP Control, Hose Bed Lts - Park Brk	1
215	0645677		Lights, Not Required, Rear Work, Alt. 12 Volt Lights At Rear Body	1
216	0709438		Light, Walking Surf, FRP Flood, LED	1
217	0687150		Switch, Momentary, Silence Alarm Location - in the electrical compartment in front of the officer seat	1
218	0590751		Switch, Red, IPOS Location - in the emergency light switch panels Qty, - 09 Fill in Blank - nine emergency and warning light switches along with the Opticom, siren brake and PS 2nd siren brake	9
219	0785855		Aerial, Platform, 110' Ascendant, Single Axle, PUC, Quint, Alum Body	1
220	0554271		Body Skirt Height, 20"	1
221	0552511		Tank, Water, 500 Gallon, Poly, Ascendant Single Axle, PAL, PUC	1
222	0003405		Overflow, 4.00" Water Tank, Poly	1
223	0028107		Not Required, Foam Cell Modification	1
224	0003429		Not Required, Direct Tank Fill	1
225	0624711		Hose Bed, Alum, LS/RS, Ascendant Single Axle	1
226	0003492		Hose Bed Capacity, Special Amount, Ascendant, 100AAT, PAP, PAL Capacity, Hosebed - 800' of 4" and 500' of 2.5" with 100' of 1.75" hose in a horseshoe load on top of the 2.5" hose	1
227	0736788	SP	Hose Restraint, Hose Bed, Front Velcro, Rear Vinyl, Stayput Shock Cord w/Pull Tab Color, Vinyl Cover - c) black Qty, - 02	2
228	0520553		Divider, Adj., Hose Bed, Unpainted, 75' HAL/Ascendant Single Axle Qty, - 1	1
229	0670766		Running Boards, Flip Out, PUC, Aerial	1
230	0735739		Turntable Steps, Swing-Down, LS Only, Non-TCO, Ascendant Single Axle Step, Flip - No Flip Step Body Handrail Finish - knurled aluminum Step Retention - black rubber plungers Step Surface, Turntable - Punched Grip	1
231	0554001		Lights, Step (3), P25 LED, Swing Down Access Steps, One Side	1
232	0690023		Wall, Rear, Smooth Aluminum	1
233	0074515		Tow Eyes (2), 100AAT, Ascendant Single Axle, 75' HAL	1
234	0624701		Construction, Compt, Alum, 3rd Gen, Ascendant Single Axle	1

Line	Option	Type	Option Description	Qty
235	0610141		Compt, LS F/H, Lap Drs, Ascendant Single Axle	1
236	0614991		Compt, LS Turntable, F/H, Lap Dr, Ascendant Single Axle	1
237	0023672		Compt, IPO Stairs, Not Required, LS	1
238	0610140		Compt, RS F/H, Lap Drs, Ascendant Single Axle	1
239	0777399		Compt, RS Turntable, F/H, Lap Dr, One (1) Large Rear Compt,Ascendant Single Axle	1
240	0708767		Compt, IPO Stairs, Not Required, RS, Ascendant Single Axle	1
241	0615264		Compt, Rear, Gortite Rollup Door, Ascendant Single Axle	1
242	0666824		Doors, Lap w/"D" Handle, Aluminum, Side Compartments	1
243	0624690		Bumper, Rear, Aluminum Rub Rail, Ascendant Single Axle	1
244	0004012		Scuffplate, S/S, Inside Each Compt Door	12
			Qty, Door Accessory - 12	
			Location, Door Accessory - All body compartment doors	
245	0603086		Lights, Compt, Pierce LED, Dual Light Strips, Each Side of Door, Ascendant SA	7
			Qty, - 07	
			Location, Compartment Lights - All Body Compts	
246	0687145		Shelf Tracks, Recessed, PUC/3rd Generation	1
247	0600289		Shelves, Adj, 500 lb Capacity, Full Width/Depth, Predefined Locations, Aerial	16
			Qty, Shelf - 16	
			Material Finish, Shelf - Painted - Spatter Gray	
			Location, Shelves/Trays, Predefined - LS1-Transition Point, RS1-Transition Point, RS2-Centered, RS3-Centered, RS4-Centered, RS4-Lower Third, RS4-Upper Third, RS3-Upper Third (2nd), RS3-Upper Third, RS1-Lower Third Left of Partition, RS1-Upper Third Left of Partition, RS1-Upper Third Left of Partition (2nd), RS1-Upper Third Right of Partition, RS1-Upper Third Right of Partition (2nd), RS3-Lower Third Right of Partition, LS2-Centered, LS3-Upper Third, LS1-Upper Third, LS1-Upper Third (2nd), LS3-Transition Point and B2-Centered	
248	0736684	SP	Tray, 300 lb Slide-out, 2" Sides - Adj. Height,SlideMaster SM3-LP,Predefined Loc	1
			Qty, Tray (slide-out) - 01	
			Location, Shelves/Trays, Predefined - RS1-Lower Third Right of Partition	
			Material Finish, Tray - DA Finish	
249	0622828	SP	Tray, Floor Mounted, Slide-Out, Rated 500lb, 2.00" Sides, Slidemaster Slides	5
			Qty, - 05	
			location - LS1, LS3, RS1, RS3 and RS4 compartments	
			Material - Painted - Spatter Gray	
250	0662679		Partition, Horizontal, In Compt, Bolted	1
			Location - compartment RS3 24" forward of the rear wall	
			Qty, Partition - 01	
251	0013919		Partition, Adjustable, Vertical Compt	2
			Location - on the floor of compartment LS3 and be the full depth and height of the lower section	
			Qty, Partition - 02	
252	0047652		Partition, "L" Shaped in Compartment	1
			Location - compartment RS1 11" forward of the rear wall	
			Qty, Partition - 01	
253	0755527		Pegboard, Back Wall Mounted, 3/16" Alum, Standard Depth Upper	4
			Qty, Comp. Accessory - 04	
			Hole Diameter, Pegboard/Toolboard - .203" diameter	
			Finish, Pegboard/Toolboard - Painted - Spatter Gray	
			Location, Compartment, Predefined - LS1, LS3, RS1 and RS3	
254	0061917		Rub Rail, Aluminum Extruded, 3.12", Side of Body	1
255	0565606		Fender Crowns, Rear, S/S, w/Removable Fender Liner, Aerial, 3rd Gen	1
256	0519849		Not Required, Hose, Hard Suction	1
257	0527021		Handrails Located @ Front Body	1
258	0004154		Handrail, Extra - 10" Long	1
			Location, Handrails - on the top of compartment RS4 to assist with climbing up the steps on the front bulkhead wall	
			Qty, Handrails - 01	
259	0791380		Compt, Air Bottle, Triple, Fender Panel Corner, 6.5"Diameter Max,w/straps,Aerial	1
			Qty, Air Bottle Comp - 1	
			Location, Air Bottle - (1) RS Ahead Rr Wheel	
			Door Finish, Fender Compt - Polished	
			Latch, Air Bottle Compt - Southco C2 Chrome Raised	
			Insert, Air Bottle Compt - Dura-Surf Lining	

Line	Option	Type	Option Description	Qty
260	0780893		Compt, Extinguisher (2) in Fender Panel, Triangular Dr, Ascendant Single Axle Qty, - 01 Location, Air Bottle - (1) RS Behind Rr Wheel Door Finish, Fender Compt - Polished Latch, Air Bottle Compt - Southco C2 Chrome Raised Insert, Air Bottle Compt - Dura-Surf Lining and Strap	1
261	0758998		Compt,Air Bottle w/Fuel,Double,Fender Panel,Triangular Common Dr,Alum,AscendSA Qty, Air Bottle Comp - 1 Location, Air Bottle - (1) LS Behind Rr Wheel Door Finish, Fender Compt - Polished Latch, Air Bottle Compt - Flush Lift & Turn Insert, Air Bottle Compt - Dura-Surf Lining and Strap	1
262	0789952	SP	Compt, Air Pack in Fender Panel Corner, Ascendant SA Qty, - 01 Location, Air Bottle - (1) LS Ahead Rr Wheel Door Finish, Fender Compt - Polished Latch, Air Bottle Compt - Southco C2 Chrome Raised Door Type - vertically hinged	1
263	0521500		Strap, Air Bottle Compartment, Each Location, Bracket/comp. - air bottle and extinguisher compartments that don't have a strap in the option Qty, - 04	4
264	0004218		Ladder, 35' Duo-Safety 1200A 2-Sect Qty, - 1	1
265	0034226		Ladder, 28', Duo-Safety 1200A 2-Section Qty, - 1	1
266	0600821		Ladder, 24' Duo-Safety 900A 2-Section, Ascendant Single Axle, 75' HAL Qty, - 01 Location, Extension Ladder - ladder storage	1
267	0024232		Ladder, 16' Duo-Safety 875A Roof Qty, - 02	2
268	0648681		Ladder, 14' Duo-Safety 875-DR Roof Qty, - 01 Location - on the inside of the aerial fly section	1
269	0024233		Not Required, Attic Extension Ladder	1
270	0600819		Ladder, 10' Duo-Safety Folding, 585A, Ascendant Single Axle, 75' HAL Qty, - 01 Location, Folding Ladder Aerial - ladder storage	1
271	0798795		Ladders Stored at Rear, Ascendant SA, Ladders Thru RS Front Body,Smooth Alum Drs	1
272	0709970		Lights, Ladder Storage, Truck-Lt 44042C, LED Round, Ascendant Single, 75' HAL	1
273	0004249		Slides, Dura-Surf, Ground Ladder Storage, Ascendant, PAL, PAP	1
274	0610203		Narrowed Trough, for Two (2) Two-Section Extension Ladders, In Ladder Compt	1
275	0084317		Not Required, Pole, Pike, 12'	1
276	0602688		Pike Pole, Quint, Provided by Fire Department, NFPA 2016 Qty, - 02 Pike Pole Make/Model - Fire Hooks Unlimited 12' All Purpose Hook	2
277	0602866		Pike Pole, 6', Quint, Provided by Fire Department, NFPA 2016 Qty, - 02 Pike Pole Make/Model - Fire Hooks Unlimited 6'8' New York Roof Hook	2
278	0638907		Pike Pole, 3', Quint, Provided by Fire Department, NFPA Qty, - 02 Pike Pole Make/Model - Duo-Safety 3' Pike Pole	2
279	0770578		Pike Pole Tubes, in Torque Box/Ladder Storage, ABS Qty, - 06	6
280	0024388		No Steps Required, Front Of Body	1
281	0760981		Step, Camper Style, Pull-Out & Drop Down, Rear Wall, Ascendant SA Rear Wall Qty, - 02 Location, driver's/passenger's/center - Left & Right Light, Short Step - Amdor Lumabar Light, Step, Additional - P25 LED	2
282	0591914		Step, Folding - Extra, Body Only, Black, w/LED, Trident Qty, Folding Step - 04	4

Line	Option	Type	Option Description	Qty
282			Location, Steps Additional - RS Front Bulkhead - 1 and RS Front Bulkhead - 3	
283	0515695		Pump, Pierce, 1500 GPM, Single Stage, PUC	1
284	0515822		Seal, Mechanical, Silicon Carbide, PUC Pump	1
285	0515705		Gear Case, Pierce Pump, REPTO-Clutch Drive	1
286	0521309		Pumping Mode, Pump and Roll/Stationary, Basic, PUC	1
287	0515829		Pump Shift, Sure-Shift	1
288	0515833		Transmission Lock-up, Not Req'd, Park to Neutral, Pump, PUC	1
289	0515835		Auxiliary Cooling System, PUC	1
290	0014486		Not Required, Transfer Valve, Stage Pump	1
291	0777650		Valve, Relief Intake, Akron	1
			Pressure Setting - 125 psig	
			Intake Relief Valve Control - Behind Right Side Pump Panel	
292	0515838		Controller, Pressure, Pierce, PUC	1
293	0639979		Primer, Waterous, VPO Motor, (1) VAP Valve, (1) Push Button Control, Remote Mt.	1
294	0774996	SP	Thermal Relief Valve, w/Red Warning Light and Alarm, PUC Pump	1
			Location, Thermal Relief Discharge - Pump Operator's Panel	
295	0780359		Manuals, Pump, (2) Total, Electronic Copies, Pierce PUC Pump	1
296	0602496		Plumbing, Stainless Steel and Hose, Single Stage Pump, PUC	1
297	0089437		Plumbing Without Foam System	1
298	0517852		Inlets, 6.00" - 1500 GPM, Pierce PUC Pump	1
299	0602448		Cap, Main Pump Inlet, Provided by Fire Department, NFPA 2016	1
300	0084610		Valves, Akron 8000 series- All	1
301	0004660		Inlet, Left Side, 2.50"	1
302	0029147		Not Required, Inlet, Right Side	1
303	0520002		Valve, Inlet(s) Recessed, Side Cntrl, PUC	1
			Qty, Inlets - 1	
304	0521137		Anode, Zinc, Pair, Pump Inlets, PUC	1
305	0004700		Control, Inlet, at Valve	1
306	0544956		Inlet, 4" to 6" Front, 5" Plumbing, w/Bleeder Valve, Saber, Dash-S, Imp, Vel	1
			Inlet, Size - Six	
			Drain, Suction - Swing Handle	
307	0014823		Control, Front Inlet, Electric, w/Indicator Lights	1
308	0755138		Valve, Relief Intake, Front Inlet, Akron	1
			Pressure Setting - 125 psig	
309	0004788		Cap, Front Inlet, Long Handle, VLH	1
310	0732444		Swivel, Front Inlet, 4.00" to 6.00", w/Drain	1
			Inlet, Size - 6.00" inlet	
			Inlet Bleeder - Quarter-Turn Style Bleeder	
			Finish, Cap - Chrome	
			Finish, Front Inlet Elbow/Adapter - Chrome	
311	0092569		No Rear Inlet (Large Dia) Requested	1
312	0092696		Not Required, Cap, Rear Inlet	1
313	0064116		No Rear Inlet Actuation Required	1
314	0009648		No Rear Intake Relief Valve Required on Rear Inlet	1
315	0038167		Interlock, Cab Lift and Front Suction	1
316	0092568		No Rear Auxiliary Inlet Requested	1
317	0563738		Valve, .75" Bleeder, Aux. Side Inlet, Swing Handle	1
318	0520277		Tank to Pump, (1) 3.00" Valve, 4.00" Plumbing, PUC	1
319	0595508		Outlet, Tank Fill, 1.50", PUC	1
320	0516755		Outlet, Left Side, 2.50" (2), PUC	1
321	0092570		Not Required, Outlets, Left Side Additional	1
322	0766761		Outlet, Right Side, 2.50", (1), Electric Akron 9335 Controller, PUC	1
			Qty, Discharges - 01	
323	0092571		Not Required, Outlets, Right Side Additional	1
324	0766992		Outlet, Right Side, 4" w/4" Valve, Akron 9335 Elec Controller, PUC	1
325	0092572		Not Required, Outlet, Front	1
326	0798521		Outlet, Rear, 2.50", Through Tank, Ascendant Single Axle	2
			Qty, Discharges - 02	
			Location, Outlet - c) one (1) each side	
327	0092574		Not Required, Outlet, Rear, Additional	1
328	0092573		Not Required, Outlet, Hose Bed/Running Board Tray	1

Line	Option	Type	Option Description	Qty
329	0752081		Caps/Plugs for 1.00" to 3.00" Discharges/Inlets, Provided by Dealer/FD,NFPA 2016 Qty, Discharges - 05	5
330	0563739		Valve, 0.75" Bleeder, Discharges, Swing Handle	1
331	0055095		Not Required, Elbow, Left Side Outlets, 2.50"	1
332	0035094		Not Required, Elbow, Left Side Outlets, Additional	1
333	0021134		Not Required, Elbow, Right Side Outlets	1
334	0089584		Not Required, Elbow, Right Side Outlets, Additional	1
335	0045091		Elbow, Rear Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH	1
336	0085695		Not Required, Elbow, Rear Outlets, Large, Additional	1
337	0005094		Elbow, Large Dia Outlet, 30 Deg, 4.00" FNST x 4.00" Storz	1
338	0005080		Reducer, 2.50" FNST x 1.50" MNST, w/Cap Qty, Adapter for Outlets - 02 Location, Adapter(s) - a 2.5" outlet, one each side.	2
339	0766941		Control, Outlets, Swing Handle, Elec Right Outlets Akron 9335 w/Press Disp, PUC	1
340	0029106		Not Required, Deluge Outlet	1
341	0029302		No Monitor Requested	1
342	0029304		No Nozzle Req'd	1
343	0029107		No Deluge Mount	1
344	0527482		Waterway Outlet & Control, PUC	1
345	0739947		Crosslay Module, Full Width, Aerial, PUC	1
346	0745493		Hose Restraint, Crosslay, 2"Nylon Web, (2) Seat Belt Buckle, Tether Release, PUC Color, Strap - Orange Release, Seat Belt Buckle - Bar	1
347	0750916		Crosslays, (2) 1.50", W/Poly Trays, PUC	1
348	0750900		Crosslay/Deadlay/Speedlay Capacity 1 - 200' of 1.75" double jacket hose Crosslay, (1) 2.50", W/Poly Trays, PUC	1
349	0735953	SP	Crosslay/Deadlay/Speedlay Capacity 1 - 200' of 2.50" double jacket hose Mounting, Little Giant Ladder, Upper Crosslay Module, Strap, PUC Size - a "OVERHAUL" model 17, part number 15197 Qty - 1	1
350	0500535		Not Required, Hose Restraint, Crosslay	1
351	0029260		Not Required, Speedlays	1
352	0750536		Hose Restr, Spdly, Not Required, No Spdly	1
353	0044333		Not Required, Foam System	1
354	0012126		Not Required, CAF Compressor	1
355	0552517		Not Required, Refill, Foam Tank	1
356	0042573		Not Required, Foam System Demonstration	1
357	0045465		Not Required, Foam Tanks	1
358	0091110		Not Required, Foam Tank Drain	1
359	0091079		Not Required, Foam Tank #2	1
360	0091112		Not Required, Foam Tank #2 Drain	1
361	0601717	SP	Pump Operators Panel & Module, Aluminum, Control Zone, LS/RS Lap, PAL/PAP PUC	1
362	0746447		Approval Dwg, All Pump Panel(s), Includes Color And Label Tags Num Of Truck(s) or Sim Unit, ALL Pump Pnl, Dwg - 33595	1
363	0032479		Pump Panel Configuration, Control Zone	1
364	0598389		Step, Slide-Out Pump Op. Platform, Aerial PUC	1
365	0667186		Light, Slide-Out Pump Operator Step, On Scene Solutions Access LED, Short Step	1
366	0562413		Material, Pump Panels, Operators Brushed Stainless, Sides Black Line-X, PUC	1
367	0516978		Pump and Plumbing Access, Simple Tilt Service, PUC	1
368	0520016		Not Required, Pumphouse Structure, PUC	1
369	0618458		Light, Pump Compt, WIn 3SC0CDCR LED White, PUC Qty, - 02	2
370	0603645		Gauges, Engine - Pump Panel, IAT Pressure Controller, PUC	1
371	0005601		Throttle, Engine, Incl'd w/Press Controller	1
372	0739224		Indicator Light @ Pump Panel, Throttle Ready, Incl w/Pressure Gov/Throttle, Green	1
373	0549333		Indicators, Engine, Included with Pressure Controller	1
374	0553643		Control, Air Horn at Pump Panel w/Red Switch	1
375	0511078		Gauges, 4.00" Master, Class 1, 30"-0-600psi	1
376	0511102		Gauge, 2.00" Pressure, Class 1, Special Gauge Pressure Range - 30"-0-600 psi Color Dial Face - white	1

Line	Option	Type	Option Description	Qty
377	0750526		Gauge, Water Level, Pierce, In pressure Controller, Lt Driver	1
378	0006774		Not Required, Foam Level Gauge	1
379	0736043	SP	Light, Pump Operator & Panel, Side Ctrl, PUC, 60354C LED Cab & LED OH Chr Cvr	1
380	0606697		Air Horns, (2) Grover, In Bumper	1
381	0606833		Location, Air Horns, Bumper, Each Side, Inside Frame (Pos #3 & #5)	1
382	0006066		Control, Air Horn, DS & PS Lanyard	1
383	0006100		No Electronic Siren	1
384	0046133		No Siren Location	1
385	0076155		No Siren Switch	1
386	0006188		No Speaker	1
387	0550461		Location, Not Required, No Speaker (Q2B)	1
388	0016080		Siren, Federal Q2B	1
389	0006095		Siren, Mechanical, Mounted Above Deckplate	1
390	0026160		Location, Siren, Mech - a) Left Control, Mech Siren, Horn Ring, PS Foot Sw	1
391	0740834		Sw, Siren Brake, Momentary Red, LS Overhead Sw Pnl	1
392	0740392		Sw, Siren Brake, Momentary Red, RS Overhead Sw Pnl	1
393	0746353		Not Required, Warning Lights Intensity	1
394	0736434	SP	Lightbar, WIn, Freedom IV-Q, 2-21.5", RRRRR RRBRR, 45 Deg	1
395	0783193		Filter, Whl Freedom Ltbrs - No Filters Lights, Front Basket, WIn TLI**, 2lts	1
396	0783195		Color, Lt, Side, Left - Blue Color, Lt, Side, Right - Red Lights, Side Basket, WIn TLI**, 2lts	1
397	0749193	SP	Color, Lt, Side, Left - Red Color, Lt, Side, Right - Red Light, GTT, 792* Opticom Emitter, Mounted On Platform Bskt, 110' Ascendant	1
398	0016380		Location - were practical Opticom Priority - b) High Opticom Activation - Cab Switch & E-Master Momentary Opticom Activation - No Activation	1
399	0583017		No Additional Lights Req'd, Side Zone Upper Lights, Front Zone, WIn M6* LED, Colored Lens, 4lts Q Bezel	1
400	0771542	SP	Color, Lt, Front Inside - d) ds bl/ps rd Color, Lt, Front Outside - d)red Lights, Side Zone Lower, WIn M6** LED, Blk Trim, Clear, 3pr, Ovr 25	1
401	0564655		Location, Lights Front Side - b)each side bumper Color, Lt Side Front - Red Color, Lt Side Middle - Blue Color, Lt Side Rear - Red Location, Lights Mid Side - Rearward of Crew Cab Doors Location, Lights Rear Side - Rear Fender Panel	1
402	0088745		Lights, Rear Zone Lower, WIn M6*C LED, Clear Lens, For Tail Lt Housing	1
403	0006551		Color, Lt DS Rear - b) DS Rear Lt Blue Color, Lt PS Rear - r) PS Rear Lt Red	1
404	0791501		Light, Rear Zone Upper, WIn L31HRFN LED Beacon, Red LED	1
405	0530074		Color, Dome, Rear Warning - j) both domes clear	1
406	0530288		Not Required, Lights, Rear Upper Zone Blocking	1
407	0745228		Light, Traffic Directing, WIn TAL65, 36" Long LED, Aerials	1
408	0780336		Activation, Traffic Dir L - Not Connected	1
			Location, Traf Dir Lt, On Top of Body Below Turntable w/Trdplt Box	1
			Location, Traf Dir Lt Controller, Overhead Recessed Console, above Eng Tnl DS	1
			Pump, Thru-Pump, For Hydraulic Driven Devices	1
			Receptacle, 15/20A 120V 3-Pr 3-Wr SB Dup, 4 place	1
			Location, Receptacles - in compartment LS1, front wall, centered high	
			Qty, - 01	
			AC Power Source - Shoreline	
			Cover, Receptacle - Interior SS Wall plate	

Line	Option	Type	Option Description	Qty
409	0783675		Receptacle, 15/20A 120V 3-Pr 3-Wr, NEMA 5-20R SB Dup, 2nd Location, Receptacles - one in each EMS compartment back wall, centered, 22" up from the floor. One in LS3, back wall, centered. two in RS3, 1 front wall centered low and one high on rear wall centered Qty, - 05 AC Power Source - Shoreline Cover, Receptacle - Interior SS Wall Plate(s)	5
410	0519934		Not Required, Brand, Hydraulic Tool System	1
411	0649753		Not Required, PTO Driven Hydraulic Tool System	1
412	0755071		Aerial, 110' Ascendant Platform Single, 750/500 Tip, 35 MPH Wind	1
413	0000042		Boom Support, Rear of the Chassis Cab	1
414	0762413		Light, Boom Support, Amdor AY-LB-12HW012, 12" LED	1
415	0799584		Body Structure, No Boom Support Compartment, Rear of Cab, PUC	1
416	0680821		Boom Panel, Pair Paint Color, Predefined - black 101 matching aerial color	1
417	0526890		Not Required, Indicator, Extension	1
418	0768491		Steps, Folding, Not Required	1
419	0688232		Rung Covers, Aerial Device Rung Cover Color - Safety Yellow	1
420	0623645		Aerial Stability Test, Max Tip Options	1
421	0678641		Brackets Only, Pike Pole, Aerial Fly Section Qty, - 01 Pike Pole Make/Model - Nupla 6' Pike Pole	1
422	0755047	SP	Active Damping System, Removed	1
423	0784202		Brackets Only, Roof Ladder, Base Section, Inboard of Boom Panel, Ascendant Qty, - 01 Location, Aerial Device - right side	1
424	0678711		Roof Ladder, Make/Model, Multi-Select - 14' Duo-Safety 775-A-DR Brackets, Stokes Storage, Base Section, Inboard of Boom Panel Qty, - 01 Finish - DA Finish Location, Aerial Device - left side	1
425	0749910	SP	Basket, 110' Ascendant Platform, Extended Rear Bumpers, NFPA 2016	1
426	0662436		Scabbard, Temporary Vent Saw Storage, DA Finish, Platform Make/Model - will be given at print review Length - 20.00" Location, Aerial Basket - right Depth Gauge, Vent Saw - With Depth Gauge	1
427	0771581		Box, Hose Storage, 110' Ascendant Qty, - 01 Latch, Door, Storage - Rubber Draw Latch Location, Aerial Basket - left Cover - cover Hose Size, Hosebox - 20' of 1.75"	1
428	0678780		Brackets Only, Axe, PAP Basket Qty, - 01 Type of Axe - 8# fire maul	1
429	0736138	SP	Brackets Only, Temp Tool Mtg, Velcro Top Strap, Special Size Guard/Troughs-No Tabs Qty, - 02 Size - 12" W x 4"D x 2" on the DS and 10" W x 4"D x 2" on the PS. These sizes are I.D. Make/Model - misc. hand tools being used during a operation Location - at least 12" apart with at least 24" of Velcro strapping Type of Axe - flathead and pickhead	2
430	0777096		Battery System, Basket Leveling, 2-12 V DC Lithium-ion	1
431	0601972		Lights, Turntable Walkway, P25, LED	1
432	0601949		Light, Turntable Console, TecNiq T-10, LED Strip Light	1
433	0783103		Control Stations, Ascendant Platform Single Axle, MUX, Color Display	1
434	0624682		Stabilizers, One Set, Ascendant Single Axle Material, Stabilizer Pad - Composite	1
435	0728961		Stabilizer Pan Material Stabilizer Panels - polished stainless steel	1

Line	Option	Type	Option Description	Qty
436	0744632	SP	Door, Stabilizer Control Box,Smooth Aluminum,Hinged Inboard,Spring Loaded Hinges	1
437	0615054		Stabilizer Placement, Cameras w/Back-Up System, 1 Set	1
438	0540495		Pads, Stabilizer, Modified to Slide On	1
439	0624678		Stabilizer Pads, Modify - 2 stabilizers Hydraulic System, Ascendant Single Axle	1
440	0614275		Swivels, w/Encoder, ASL Single Axle, (32 Collector Rings)	1
441	0785918		Electrical System, Ascendant Single Axle Platform, MUX	1
442	0783181		Lights, Under Basket, WIn MPB* 110ASP 2Lt	1
443	0764284	SP	Color, WIn Lt Housing - White Paint Lights, Tip, WIn P*H1* LED, Front of Basket 110ASP 1lt Color, WIn Lt Housing - Black Paint Scene Light Optics - flood	1
444	0763723		Control, Tip Lts - Turntable and Tip, LS Cab and RS Cab Lights, Tracking, WIn MPB* LED, 110ASP 2lts Color, WIn Lt Housing Track - Black	1
445	0752330	SP	Control, Tip, Under Basket and Tracking Lts, On/Off, LS RS Cab Sw 4sw	1
446	0653677		Lighting, Rung, LED, TecNiq, 4 Section, Base, Lower/Upper Mid, Fly Control, Aerial Rung Lighting - Aerial Master and Turntable Sw w/Master Batt Sw Color, Lt Aerial Fly Sect - Red Color, Lt Aerial Base Sect - Blue Color, Lt Aerial Lower Mid Sect - White Color, Lt Aerial Upper Mid Sect - White	1
447	0540737		Lights, Stabilizer Warn (1) Set, WIn M6*C LED, Clear Lens	1
448	0617469		Color, Lt Rr Stabilzr Pan - r) Pan Light Red Lights, WIn T0R00FRR LED 2", Stabilizer Beam (1) Set, Ascendant	1
449	0768550		Lights, Stabilizer Scene, Amdor AY-LB-12HW012, 12", 3lts LED, Ascendant Single	1
450	0737181		Intercom, 2-Way Fire Research ICA910 Hands Free	1
451	0540918		Not Required, Breathing Air to Tip, Aerial Platform	1
452	0024742		Not Required, Mask, Breathing Air To Tip	1
453	0610887		Aerial Pedestal, Ascendant Single Axle	1
454	0754829	SP	Basket Leveling Updates, 110' Ascendant	1
455	0530826		Turntable Access, ManSaver Bars, Yellow	1
456	0785922		Waterway, High Flow, 1250 GPM, Ascendant Platform	1
457	0770527		Monitor, TFT Hurricane XFIH-E Elect,w/TFT VUM,Elect,RC,One Outlet,110' Ascendant Nozzle, Monitor 1, PAP - TFT M-ERPSNJ1250 Electric 1250 gpm	1
458	0010758		Flow Meter, Waterway, PAL, 110' Ascendant, MUX	1
459	0624671		Inlet, 5.00" w/5.00" Aluminum, Plumbing at Rear, w/Pump, Ascendant Single Axle	1
460	0047901		Not Required, Tools, Aerial, PAL/PAP	1
461	0559491		Manuals and Training, 3 Consecutive Days, Platform	1
462	0036993		Training Day, Additional, Aerial Ascendant, PAL/PAP Qty, - 1	1
463	0007150		Bag of Nuts and Bolts Qty, Bag Nuts and Bolts - 1	1
464	0602497		NFPA Required Loose Equipment, Quint, NFPA 2016, Provided by Fire Department	1
465	0519913		Not Required, Soft Suction Hose	1
466	0027023		No Strainer Required	1
467	0602534		Extinguisher, Dry Chemical, Quint NFPA 2016, Provided by Fire Department	1
468	0602352		Extinguisher, 2.5 Gal. Pressurized Water, Quint, NFPA 2016,Provided by Fire Dept	1
469	0007482		Not Required, Crowbars	1
470	0007484		Not Required, Claw Tools	1
471	0602883		Axe, Flathead, Quint NFPA 2016, Provided by Fire Department	1
472	0602670		Axe, Pickhead, Quint NFPA 2016, Provided by Fire Department	1
473	0007494		Not Required, Sledgehammers	1
474	0559690		Paint, Two Tone, Cab and Body, w/shield, Custom Cab Paint, Color - #70 red matching last unit 33595 Paint Color, Upper Area - #101 black matching the last unit 33595 with the paint break on the body to be at the base of the side sheets.	1
475	0646901		Paint Chassis Frame Assy, With Liner, E-Coat, Standard Paint Color, Frame Assembly, Predefined - Gloss Black	1
476	0693797		No Paint Required, Aluminum Front Wheels	1

Line	Option	Type	Option Description	Qty
477	0736698	SP	Paint, Rear Wheels, Single Axle, Base Coat, Inside Only	1
			Paint, Color - 101 Black	
478	0733739		Paint, Axle Hubs	1
			Paint, Axle Hub - Lower Job Color	
479	0007234		Compartment, Unpainted, D/A Finished	1
480	0782207		Aerial Basket Paint, Ascendant Single Axle, E-Coat	1
			Paint Color, Aerial Device - Black 101	
			Paint Color, Turntable - Black 101	
			Paint Color, Boom Support - black 101	
			Paint Color, Cylinders - black 101	
			Paint Color, Aerial Basket - black 101	
			Paint Color, Aerial Control Console - black 101	
481	0544111		Reflective Band, 10"	1
			Color, Reflect Band - A - a) white	
482	0547618		Stripe, Diamond Grade, Chevron, Front Bumper	1
			Size, Chevron Striping - 06	
			Color, Chevron DG - Yellow Green, Fluorescent	
483	0624670		Stripe, Chevron, Rear, Diamond Grade, Aerial, Ascendant Single Axle	1
			Color, Rear Chevron DG - fluorescent yellow green	
484	0598754		Stripe, Reflective/Diamond Grade, 4.00" on Stabilizers	1
			Color, Reflect Band - A - p) fluorescent yellow green diamond grade	
485	0077830		Stop Sign, Reflective, Cab Doors Interior	1
486	0679780		Stripe, Vinyl, Two-Tone Paint Break with Shield, IPO Chrome Molding	1
487	0528504		Stripe, Black Vinyl on Paint Break (Cab)	1
488	0027286		Not Required, Lettering Specs	1
489	0007472		[Lettering not Requested]	1
490	0685993		Lettering, Reflective, 10.00", Each	18
			Qty, Lettering - 18	
			Outline, Lettering - Outline	
491	0686081		Lettering, Reflective, 3.00", (21-40)	1
			Outline, Lettering - No Outline or Shade	
492	0686007		Lettering, Reflective, 7.00", Each	6
			Qty, Lettering - 06	
			Outline, Lettering - Outline and Shade	
493	0655896		Sign Kit, Painted, Holder and Insert, Each	2
			Location - behind the crew cab doors, one each side per the graphics print with the unit number "202"	
			Qty, - 02	
			Size - 8" high x 14" wide matching 33595	
494	0539616		Emblem, Maltese Cross, 12" Vinyl, Each	2
			Qty, - 02	
			Location, Emblem - on each side of the aerial basket	
495	0619736	SP	Emblem, Monogram w/Ribbon, Printed Effect Gold Leaf, Geneva, IL, Pair	2
			Qty, - 02	
			Location, Emblem - behind the crew cab doors, one each side per the graphics print	
496	0666386		Emblem, Flag, Generic, Each	2
			Qty, - 02	
			Location, Emblem - LS1 and RS1 matching the last job 33595	
			Size, Flag - 21" - 23"	
497	0695507		Rust Proof, Torque Box	1
			Color, Undercoating - Black	
498	0652945		E-Coat, Under Body/Chassis Component Package	1
			Paint Color, E-Coat - Black	
499	0631674		E-Coat, TAK-4 Components, Front Axle, Black	1
500	0653808		Rustproof/Undercoat, Cab & Body w/Lap Doors, Ziebart	1
501	0772003		Manual, Fire Apparatus Parts, USB Flash Drive, Custom	1
			Qty, - 01	
502	0772037		Manual, Chassis Service, USB Flash Drive, Custom	1
			Qty, - 01	
503	0773381		Manual, Chassis Operation, (1) USB Flash Drive, Custom	1
504	0030008		Warranty, Basic, 1 Year, Apparatus, WA0008	1
505	0696698		Warranty, Engine, Cummins, 5 Year, WA0181	1

Line	Option	Type	Option Description	Qty
506	0684953		Warranty, Steering Gear, Sheppard M110, 3 Year WA0201	1
507	0596017		Warranty, Frame, 50 Year, Custom Chassis, WA0013	1
508	0595698		Warranty, Axle, 3 Year, TAK-4, WA0050	1
509	0733306		Warranty, Single Axle, 5 Year, Meritor, General Service, WA0384	1
510	0652758		Warranty, ABS Brake System, 3 Year, Meritor Wabco, WA0232	1
511	0019914		Warranty, Structure, 10 Year, Custom Cab, WA0012	1
512	0595813		Warranty, Paint, 10 Year, Cab, Pro-Rate, WA0055	1
513	0695416		Warranty, Pierce Camera System, WA0188	1
514	0647720		Warranty, Pierce LED Strip Lights, WA0203	1
515	0046369		Warranty, 5-year EVS Transmission, Standard Custom, WA0187	1
516	0685945		Warranty, Transmission Cooler, WA0216	1
517	0688798		Warranty, Water Tank, Lifetime, UPF, Poly Tank, WA0195	1
518	0596025		Warranty, Structure, 10 Year, Body, WA0009	1
519	0693127		Warranty, Gortite, Roll-up Door, 6 Year, WA0190	1
520	0516693		Warranty, Pump, Pierce, PUC, 6 Year Parts, 1 Year Labor, WA0039	1
521	0648675		Warranty, 10 Year S/S Pumbing, WA0035	1
522	0641372		Warranty, Foam System, Not Available	1
523	0006999		Warranty, Structure, 20 Year, Aerial Device, WA0052	1
524	0687388		Warranty, Swivels, 5 Year, Aerial Device, WA0197	1
525	0685727		Warranty, Hydraulic System and Components, 3 Year/5 Year, WA0200	1
526	0687327		Warranty, Waterway, 10 Year, Aerial Device, WA0198	1
527	0595860		Warranty, Paint, 4 Year, Aerial Device, Pro-Rated, WA0047	1
528	0595820		Warranty, Paint, 10 Year, Body, Pro-Rate, WA0057	1
529	0593921		Not Required, Warranty, No Lettering	1
530	0683627		Certification, Vehicle Stability, CD0156	1
531	0736238		Certification, Engine Installation, Saber FR/Enf, Cummins L9, 2021	1
532	0686786		Certification, Power Steering, CD0098	1
533	0631980		Certification, Cab Integrity, Saber FR/Enforcer, CD0130	1
534	0631973		Certification, Cab Door Durability, Saber FR/Enforcer, CD0137	1
535	0631978		Certification, Windshield Wiper Durability, Saber FR/Enforcer, CD0132	1
536	0556828		Certification, Electric Window, Not Available	1
537	0631977		Certification, Seat Belt Anchors and Mounting, Saber FR/Enforcer, CD0134	1
538	0735949		Certification, Cab HVAC System Performance, SFR/Enf, CD0165/CD0167/CD0174/CD0175	1
539	0545073		Amp Draw Report, NFPA Current Edition	1
540	0002758		Amp Draw, NFPA/ULC Radio Allowance	1
541	0799248		Appleton/Florida BTO	1
542	0000049		Ascendant BODY	1
543	0000012		PIERCE CHASSIS	1
544	0004713		ENGINE, OTHER	1
545	0046395		EVS 3000 Series TRANSMISSION	1
546	0520324		PIERCE PUMP, PUC	1
547	0020009		POLY TANK	1
548	0028047		NO FOAM SYSTEM	1
549	0020006		SIDE CONTROL	1
550	0020007		AKRON VALVES	1
551	0020014		FRONT SUCTION	1
552	0020015		ABS SYSTEM	1
553	0755453		AERIAL BASE	1

Proposal for **City of Geneva Fire Dept**

Prepared by **MacQueen Emergency Group**

12/31/2020



PERFORM. LIKE NO OTHER.™

MacQueen Emergency Group is pleased to submit a proposal to City of Geneva Fire Department for a **Pierce® Enforcer 110' Heavy Duty Aerial Platform per this proposal, bid 988, dated 12-30-2020** per your request for quotation. The following paragraphs will describe in detail the apparatus, construction methods, and equipment proposed. This proposal will indicate size, type, model and make of components parts and equipment, providing proof of compliance with each and every item (except where noted) in the departments advertised specifications.

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

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

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

In accordance with the current edition of NFPA 1901 standards, this proposal will specify whether the fire department, manufacturer, or apparatus dealership will provide required loose equipment.

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

GENERAL DESIGN AND CONSTRUCTION

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

QUALITY AND WORKMANSHIP

Pierce has set the pace for quality and workmanship in the fire apparatus field. Our tradition of building the highest quality units with craftsmen second to none has been the rule right from the beginning and we demonstrate that ongoing commitment by: Ensuring all steel welding follows American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding follows American Welding society and ANSI D1.2-2003 requirements for structural welding of aluminum.

All sheet metal welding follows American welding Society B2.1-2000 requirements for structural welding of sheet metal. Our flux core arc welding uses alloy rods, type 7000 and is performed to American Welding Society standards A5.20-E70T1. Furthermore, all employees classified as welders are tested and certified to meet the American welding Society codes upon hire and every three (3) years thereafter. Pierce also employs an American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

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

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

To demonstrate the quality of our products and services, a list of at least ten (10) fire departments/municipalities that have purchased vehicles for a second time is provided.

DELIVERY

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

MANUAL AND SERVICE INFORMATION

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

SAFETY VIDEO

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

PERFORMANCE TESTS

A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus when fully loaded will not have less than 25 percent nor more than 50 percent on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle. The apparatus will meet NFPA 1901 acceleration and braking requirements.

SERVICE AND WARRANTY SUPPORT

Pierce dealership support will be provided by Global Emergency Products by operating a Pierce authorized service center. The service center will have factory-trained mechanics on staff versed in Pierce fire apparatus. The service facility will be located within twenty five (25) miles of the fire department.

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

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

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

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

LIABILITY

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

INSURANCE PROVIDED BY BIDDER

COMMERCIAL GENERAL LIABILITY INSURANCE

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

Each Occurrence\$1,000,000

Products/Completed Operations Aggregate\$1,000,000

Personal and Advertising Injury\$1,000,000

General Aggregate\$2,000,000

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

COMMERCIAL AUTOMOBILE LIABILITY INSURANCE

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

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

UMBRELLA/EXCESS LIABILITY INSURANCE

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

Aggregate:\$3,000,000

Each Occurrence:\$3,000,000

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

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

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

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

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

INSURANCE PROVIDED BY MANUFACTURER

PRODUCT LIABILITY INSURANCE

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

Each Occurrence\$1,000,000

Products/Completed Operations Aggregate\$1,000,000

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

UMBRELLA/EXCESS LIABILITY INSURANCE

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

Each Occurrence:\$25,000,000

Aggregate:\$25,000,000

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

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

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

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

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

SINGLE SOURCE MANUFACTURER

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

Your apparatus will be manufactured in Appleton, Wisconsin.

SPECIAL INSTRUCTIONS

The apparatus being proposed will be designed and built to match the 33595. However, some variation may be necessary due to changes in our manufacturing processes or our product offering. Revisions in NFPA guidelines and/or other regulations may also affect our ability to match the previous unit.

NFPA 2016 STANDARDS

This unit will comply with the NFPA standards effective January 1, 2016, except for fire department directed exceptions. These exceptions will be set forth in the Statement of Exceptions.

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

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

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

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

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

NFPA COMPLIANCY

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

VEHICLE INSPECTION PROGRAM CERTIFICATION

To assure the vehicle is built to current NFPA standards, the apparatus, in its entirety, will be third-party, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition of NFPA 1901. The certification will include: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus.

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

INSPECTION CERTIFICATE

A third party inspection certificate for the aerial device will be furnished upon delivery of the aerial device. The certificate will be Underwriters Laboratories Inc. Type 1 and will indicate that the aerial device has been inspected on the production line and after final assembly.

Visual structural inspections will be performed on all welds on both aluminum and steel ladders.

On critical weld areas, or on any suspected defective area, the following tests will be conducted:

- Magnetic particle inspection will be conducted on steel aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. Magnets will be placed on each side of the weld while iron powder is placed on the weld itself. The powder will detect any crack that may exist. This test will conform to ASTM E709 and be performed prior to assembly of the aerial device.
- A liquid penetrant test will be conducted on aluminum aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. This test will conform to ASTM E165 and be performed prior to assembly of the aerial device.
- Ultrasonic inspection will be conducted on all aerials to detect any flaws in pins, bolts and other critical mounting components.

In addition to the tests above, functional tests, load tests, and stability tests will be performed on all aerials. These tests will determine any unusual deflection, noise, vibration, or instability characteristics of the unit.

PUMP TEST

The pump will be tested, approved and certified by Underwriter's Laboratory at the manufacturer's expense. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the manufacturer's record of pump construction details will be forwarded to the Fire Department.

GENERATOR TEST

If the unit has a generator, the generator will be tested, approved, and certified by Underwriters Laboratories at the manufacturer's expense. The test results will be provided to the Fire Department at the time of delivery.

BREATHING AIR TEST

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

INSPECTION TRIP(S)

The bidder will provide two (2) factory inspection trip(s) for five (5) customer representative(s). The inspection trip(s) will be scheduled at times mutually agreed upon between the manufacturer's representative and the customer. All costs such as travel, lodging and meals will be the responsibility of the bidder.

PERFORMANCE BOND, 1 YEAR

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

Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Basic One (1) Year Limited Warranty period included within this proposal. Owner agrees that the penal amount of this bond will be simultaneously amended to 100% percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type will not exceed one (1) year from the date of such satisfactory acceptance and delivery, or the actual Basic One (1) Year Limited Warranty period, whichever is shorter.

APPROVAL DRAWING

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

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

DRAWING, CAB TOP VIEW

On the sales drawing a top view of the cab seating and EMS cabinets will be provided. The top view will be a reference only of the seating and EMS cabinets in the order.

ELECTRICAL WIRING DIAGRAMS

One (1) CD copy and one (1) paper copy of the electrical wiring diagrams, prepared for the model of chassis and body, will be provided.

ENFORCER CHASSIS

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

TARGET OVERALL HEIGHT

The target overall height of the apparatus will be 12' 6" (150").

WHEELBASE

The wheelbase of the vehicle will be 240.50".

GVW RATING

The gross vehicle weight rating will be 57,500.

FRAME

The chassis frame will be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails will be heat-treated steel measuring 10.25" x 3.50" x 0.375".

Each rail will have a section modulus of 16.00 cubic inches, yield strength of 120,000 psi, and a resisting bending moment (rbm) of 1,921,069 inch-pounds.

FRAME REINFORCEMENT

A full-length mainframe "C" liner will be provided.

The liner will be an internal "C" design, heat-treated steel measuring 9.38" x 3.13" x .25". Each reinforcement member will have a section modulus of 3.90 cubic inches, yield strength of 120,000 psi and resisting bending moment (rbm) of 938,762 in-lb.

In addition, a L-shaped steel channel reinforcement will be located under each mainframe rail.

FRONT NON DRIVE AXLE

The Oshkosh TAK-4® front axle will be of the independent suspension design with a ground rating of 24,000 lb.

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

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

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

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

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

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

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

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

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

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

The axle will have a third party certified turning angle of 45 degrees. Front discharge, front suction, or aluminum wheels will not infringe on this cramp angle.

FRONT SUSPENSION

Front Oshkosh TAK-4™ independent suspension will be provided with a minimum ground rating of 24,000 lb.

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

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

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

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

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

FRONT SHOCK ABSORBERS

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

FRONT OIL SEALS

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

FRONT TIRES

Front tires will be Michelin 445/65R22.50 radials, 20 ply all-position XZY3 wide base tread, rated for 25,600 lb maximum axle load and 65 mph maximum speed.

The tires will be mounted on Alcoa 22.50" x 13.00" polished aluminum disc type wheels with a ten (10)stud, 11.25" bolt circle.

REAR AXLE

The rear axle will be a Meritor™, Model RS-30-185, with a capacity of 33,500 lb.

TOP SPEED OF VEHICLE

A rear axle ratio will be furnished to allow the vehicle to reach a top speed of 60 mph.

REAR SUSPENSION

The rear suspension will be Standens, semi-elliptical, 3.00" wide x 53.00" long, with a ground rating of 33,500 lb. The spring hangers will be castings.

The two (2) top leaves will wrap the forward spring hanger pin, and the rear of the spring will be a slipper style end that will ride in a rear slipper hanger. To reduce bending stress due to acceleration and braking, the front eye will be a berlin eye that will place the front spring pin in the horizontal plane within the main leaf.

A steel encased rubber bushing will be used in the spring eye. The steel encased rubber bushing will be maintenance free and require no lubrication.

REAR OIL SEALS

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

REAR TIRES

Rear tires will be four (4) Michelin 315/80R22.50 radials, load range L, XDN2 Grip traction tread, rated for 35,396 lb maximum axle load and 75 mph maximum speed.

The outside tires will be mounted on Alcoa© 22.50" x 9.00" polished aluminum, with Dura-Bright® finish, disc wheels with a ten (10) stud, 11.25" bolt circle.

The inside tires will be mounted on Accuride® 22.50" x 9.00" steel disc wheels with a ten (10) stud, 11.25" bolt circle.

An isolator will be provided between the steel and aluminum rims.

TIRE BALANCE

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

TIRE PRESSURE MANAGEMENT

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

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

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

FRONT HUB COVERS

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

HUB COVERS (REAR)

A pair of stainless steel high hat hub covers will be provided on rear axle hubs. The covers will be manufactured by Real Wheels, Inc, and will come with the standard warranty.

CHROME LUG NUT COVERS

Chrome lug nut covers will be supplied on front and rear wheels.

MUD FLAPS

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

WHEEL CHOCKS

There will be one (1) pair of Worden Safety Products, Model HWG-SB, wheel chocks provided.

Heavy Duty, large molded aluminum wheel chock with solid bottom, natural cast aluminum finish.

WHEEL CHOCK BRACKETS

There shall be one (1) pair of Worden Safety model U815T mounting wheel chock brackets provided . The brackets shall be mounted behind the DS rear wheels.

ANTI-LOCK BRAKE SYSTEM

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

BRAKES

The service brake system will be full air type.

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

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

The rear brakes will be Meritor™ 16.50" x 8.63" cam operated with automatic slack adjusters. Dust shields cannot be provided.

BRAKE SYSTEM AIR COMPRESSOR

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

BRAKE SYSTEM

The brake system will include:

- Brake treadle valve
- Heated automatic moisture ejector on air dryer
- Total air system minimum capacity of 5,376 cubic inches
- Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi
- Spring set parking brake system
- Parking brake operated by a push-pull style control valve
- A parking "brake on" indicator light on instrument panel
- Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, with an automatic spring brake application at 40 psi
- A pressure protection valve to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa)
- 1/4 turn drain valves on each air tank

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

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

BRAKE SYSTEM AIR DRYER

The air dryer will be a WABCO System Saver 1200 with spin-on coalescing filter cartridge and 100 watt heater.

BRAKE LINES

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

AIR INLET/OUTLET

One (1) air inlet/outlet NAPA 90-602 model, will be installed with the female coupling located on the driver side of bumper extension. This system will tie into the "wet" tank of the brake system and include a check valve in the inlet line and an 85 psi pressure protection valve in the outlet line. The air outlet will be controlled by a needle valve.

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

The air inlet will allow a shoreline air hose to be connected to the vehicle. This will allow station air to be supplied to the brake system of the vehicle to insure constant air pressure.

The male and female couplings will have .250" NPT thread.

AIR OUTLET

One (1) air outlet will be installed with a female coupling located on the pump operator pump panel. They will be .25" NFPT fittings. It will be supplied with a snubber and a round handle valve control.

ALL WHEEL LOCK-UP

An all wheel lock-up system will be installed which applies air to the front brakes and uses the spring brake at the rear.

Front brakes will apply with the standard parking brake control.

The all wheel lock-up system will be operational only when the parking brake is applied, the truck transmission is in neutral and engine is running.

U-BOLT GUARD OVER PARKING BRAKE KNOB

There will be two (2) U-bolt type protective guard(s) installed over the "Parking Brake" knob to prevent accidental activation of the brake. The guard will be located on the driver's and passenger's side.

PARK BRAKE CONTROL (ADDITIONAL)

A second park brake control valve will be installed on the officer side of the instrument panel. This valve will only activate the brakes if manually pulled out; low air pressure will not activate this valve.

ENGINE

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

Make:	Cummins
Model:	L9
Power:	450 hp at 2100 rpm
Torque:	1250 lb-ft at 1400 rpm
Governed Speed:	2200 rpm
Emissions Level:	EPA 2021
Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	543 cubic inches (8.9L)
Starter:	Delco 39MT™
Fuel Filters:	Spin-on style primary filter with water separator and water-in-fuel sensor. Secondary spin-on style filter.

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

REPTO DRIVE

A rear engine power take off will be provided to drive the water pump. A vibration dampener will be provided between the REPTO and water pump. Transmission PTO's used to drive the water pump will not be allowed due to their lower torque ratings. The rear engine power take off will be the same as used extensively throughout the construction industry. Rear engine PTO's allow for continuous 240 hp and 480 lb-ft torque ratings needed for large pump applications. The rear engine power take off will have the same warranty as the engine provided by the engine manufacturer.

HIGH IDLE

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

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

ENGINE BRAKE

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

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

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

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

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

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

CLUTCH FAN

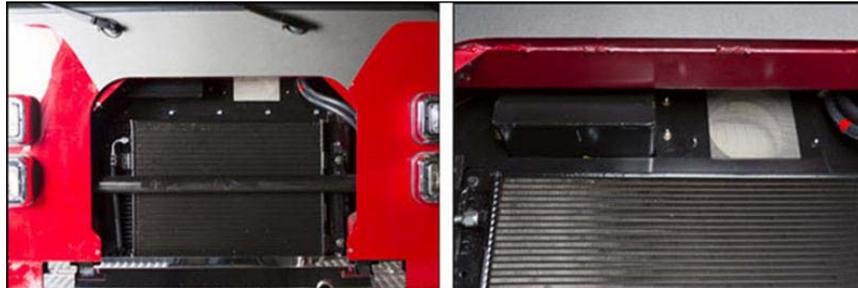
A fan clutch will be provided. The fan clutch will be automatic when the pump transmission is in "Road" position, and constantly engaged when in "Pump" position.

ENGINE AIR INTAKE

The engine air intake will be located above the engine cooling package. It will draw fresh air from the front of the apparatus through the radiator grille.

A stainless steel metal screen will be installed at the inlet of the air intake system that will meet NFPA 1901 requirements.

The air cleaner and stainless steel screen will be easily accessible by tilting the cab.



EXHAUST SYSTEM

The exhaust system will be stainless steel from the turbo to the engine's aftertreatment device, and will be 4.00" in diameter. The exhaust system will include a single module aftertreatment device to meet current EPA standards. An insulation wrap will be provided on all exhaust pipes between the turbo and aftertreatment device to minimize the heat loss to the aftertreatment device. The exhaust will terminate horizontally ahead of the right side rear wheels. A tailpipe diffuser will be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.

RADIATOR

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

For maximum corrosion resistance and cooling performance, the entire radiator core will be constructed using long life aluminum alloy. The radiator core will consist of aluminum fins, having a serpentine design, brazed to aluminum tubes.

The radiator core will have a minimum front area of 1060 square inches.

Supply tank will be made of heavy duty glass-reinforced nylon and the return tank will be made of aluminum. Both tanks will be crimped onto the core assembly using header tabs and a compression gasket to complete the radiator core assembly. There will be a full steel frame around the inserts to enhance cooling system durability and reliability.

The radiator will be compatible with commercial antifreeze solutions.

The radiator assembly will be isolated from the chassis frame rails with rubber isolators to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven terrain.

The radiator will include a de-aeration/expansion tank. For visual coolant level inspection, the radiator will have a built-in sight glass. The radiator will be equipped with a 15 psi pressure relief cap.

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

Shields or baffles will be provided to prevent recirculation of hot air to the inlet side of the radiator.

COOLANT LINES

Gates, or Goodyear, rubber hose will be used for all engine coolant lines installed by Pierce Manufacturing.

Hose clamps will be stainless steel constant torque type to prevent coolant leakage. They will expand and contract according to coolant system temperature thereby keeping a constant clamping pressure on the hose.

FUEL TANK

A 65 gallon fuel tank will be provided and mounted at the rear of the chassis. The tank will be constructed of 12-gauge, hot rolled steel. It will be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank will be mounted with stainless steel straps.

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

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

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

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

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

DIESEL EXHAUST FLUID TANK

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

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

A fill inlet will be provided and marked "Diesel Exhaust Fluid Only". The fill inlet will be located adjacent to the engine fuel inlet behind a common hinged, spring loaded, polished stainless steel door on the left side of the vehicle.

The DEF fill cap will be vented and be able to be locked. A stainless steel retaining chain will be installed to secure the cap to the DEF tank fill spout.

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

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

TRANSMISSION

An Allison 5th generation, Model EVS 3000P, electronic torque converting automatic transmission will be provided.

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

Two (2) PTO openings will be located on both sides of converter housing (positions 4 o'clock and 8 o'clock) as viewed from the rear.

A transmission temperature gauge with red light and audible alarm will be installed on the cab dash.

TRANSMISSION SHIFTER

A five (5)-speed push button shift module will be mounted to right of driver on console. Shift position indicator will be indirectly lit for after dark operation.

The transmission ratio will be:

1st	3.49 to 1.00
2nd	1.86 to 1.00
3rd	1.41 to 1.00
4th	1.00 to 1.00
5th	0.75 to 1.00
R	5.03 to 1.00

TRANSMISSION PROGRAMMING

The transmission will be programmed to automatically shift the transmission to neutral when the parking brake is set to simplify operation and increase operational safety.

TRANSMISSION COOLER

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

DRIVELINE

Drivelines will be a heavy-duty metal tube and be equipped with Spicer® 1710 universal joints.

The shafts will be dynamically balanced before installation.

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

STEERING

Dual Sheppard, Model M110, steering gears, with integral heavy-duty power steering, will be provided. For reduced system temperatures, the power steering will incorporate an air to oil cooler and an Eaton, Model VN20, hydraulic pump with integral pressure and flow control. All power steering lines will have wire braded lines with crimped fittings.

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

STEERING WHEEL

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

LOGO AND CUSTOMER DESIGNATION ON DASH

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

The first row of text will be: Geneva

The second row of text will be: Fire

The third row of text will be: Department

AUTOMATIC CHASSIS LUBRICATION

A Vogel Automatic Lubrication System will be provided. The lubrication will be supplied while the vehicle ignition switch is active to allow a uniform application of grease to the locations listed. The electronic control unit that forms part of the system will activate the pump after an adjustable interval time. The unit will control and monitor pump operation and report any faults via an indicator light on the driver's dashboard of the cab.

The lubrication system reservoir, which requires a 15.00" wide x 14.50" high x 6.25" deep mounting area, will be located inside the PUC pump compartment area on the apparatus.

- Independent Suspension Control Arm Pivot Points
- Rear Axle Slack Adjusters

- Rear Axle Brake Cam Screws
- Rear Suspension Spring Pins
- Rear Suspension Shackle Pins
- Walking Beam Pins Tandem axle, if applicable

BUMPER

A one (1) piece bumper manufactured from 0.25" formed steel with a 0.38" bend radius will be provided. The bumper will be a minimum of 10.00" high with a 1.50" top and bottom flange, and will extend 22.00" from the face of the cab. The bumper will be 95.28" wide with 45 degree corners and side plates. The bumper will be metal finished and painted job color.

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

Gravel Pan

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

CENTER HOSE TRAY

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

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

Black rubber grating will be provided at the bottom of the tray. Drain holes will also be provided.

CENTER HOSE TRAY COVER

A bright aluminum treadplate cover will be provided over the center hose tray.

The cover will be "notched" allowing the hose to be pre connected to hose connection. The notch will be as reward toward the grill as possible.

The cover will be attached with a stainless steel hinge.

Two (2) Southco C2 chrome latches will secure the cover in the closed position and a pneumatic stay arm on each side will hold the cover in the open position.

LEFT SIDE HOSE TRAY

A hose tray will be placed in the left side of the extended bumper.

The tray will have a capacity of 150' of 1.75" double jacket cotton-polyester hose.

Black rubber grating will be provided at the bottom of the tray. Drain holes will be provided.

LEFT SIDE HOSE TRAY COVER

A bright aluminum treadplate cover will be provided over the left side mounted tray.

The cover will be attached with a stainless steel hinge and raised above the gravel pan to cover the raised tray.

There will be two (2) Southco C2 latches provided to secure the cover in the closed position and a pneumatic stay arm on each side will hold the cover in the open position.

TOW EYES

Two (2) .75" thick stainless steel tow eyes will be installed under the bumper and attached to the front frame members. The tow eyes will be designed and positioned to allow up to a 6,000 lb straight horizontal pull in line with the centerline of the vehicle. The tow eyes will not be used for lifting of the apparatus.

The tow eyes will not be painted.

FRONT BUMPER LINE-X COATING

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

The lining will be properly installed by an authorized Line-X dealer.

CAB

The Enforcer cab will be designed specifically for the fire service and manufactured by the chassis builder.

The cab will be built by the apparatus manufacturer in a facility located on the manufacturer's premises.

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

The cab will have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts), and rear wall areas. The A-pillar will be constructed of solid A356-T5 aluminum castings. The B-pillar and C-pillar will be constructed from 0.13" wall extrusions. The rear wall will be constructed of two (2) 2.00" x 2.00" outer aluminum extrusions and two (2) 2.00" x 1.00" inner aluminum extrusions. All main vertical structural members will run from the floor to 4.625" x 3.864" x 0.090" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.25" thick corner casting at each of the front corners of the roof assembly.

The front of the cab will be constructed of a 0.13" firewall plate, covered with a 0.090" front skin (for a total thickness of 0.22"), and reinforced with a full width x 0.50" thick cross-cab support located just below the windshield and fully welded to the engine tunnel. The cross-cab support will run the full width of the cab and weld to each A-pillar, the 0.13" firewall plate, and the front skin.

The cab floors will be constructed of 0.125" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.375" of structural material at the front floor area. The front floor area will also be supported with two (2) triangular 0.30" wall extrusions that also provides the mounting point for the cab lift.

This tubing will run from the floor wireway of the cab to the engine tunnel side plates, creating the structure to support the forces created when lifting the cab.

The cab will be 96.00" wide (outside door skin to outside door skin) to maintain maximum maneuverability.

The forward cab section will have an overall height (from the cab roof to the ground) of approximately 99.00". The crew cab section will have a 10.00" raised roof, with an overall cab height of approximately 109.00". The overall height listed will be calculated based on a truck configuration with the lowest suspension weight rating, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension will increase the overall height listed.

The raised roof section of the crew cab will have a 58.00" wide x 10.00" high square notch in the center section of the roof. This will allow the aerial device to be bedded in the same location as a non-raised roof.

The floor to ceiling height inside the crew cab will be 44.50" in the center position and 63.50" in the outboard positions.

The crew cab floor will measure 46.00" from the rear wall to the back side of the rear facing seat risers.

The medium block engine tunnel, at the rearward highest point (knee level), will measure 61.50" to the rear wall. The big block engine tunnel will measure 51.50" to the rear wall.

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

The cab will be a full tilt cab style.

A 3-point cab mount system with rubber isolators will improve ride quality by isolating chassis vibrations from the cab.

CAB ROOF DRIP RAIL

For enhanced protection from inclement weather, a drip rail will be furnished on the sides of the cab. The drip rail will be painted to match the cab roof, and bonded to the sides of the cab. The drip rail will extend the full length of the cab roof.

CAB PUMP ENCLOSURE

The rear of the cab will be made to house the fire pump below the forward facing crew cab seats. The cab side panels will be notched to accommodate the pump panel.

INTERIOR CAB INSULATION

The cab will include 1.00" insulation in the ceiling, 1.50" insulation in the side walls, and 2.00" insulation in the rear wall to maximize acoustic absorption and thermal insulation.

FENDER LINERS

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

PANORAMIC WINDSHIELD

A one (1)-piece safety glass windshield will be provided with over 2,775 square inches of clear viewing area. The windshield will be full width and will provide the occupants with a panoramic view. The windshield will consist of three (3) layers: outer light, middle safety laminate, and inner light. The outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage. The inner light will provide yet another chip resistant layer. The cab windshield will be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern will be applied on the outside perimeter of the windshield for a finished automotive appearance.



WINDSHIELD WIPERS

Three (3) electric windshield wipers with washer will be provided that meet FMVSS and SAE requirements.



The washer reservoir will be able to be filled without raising the cab.



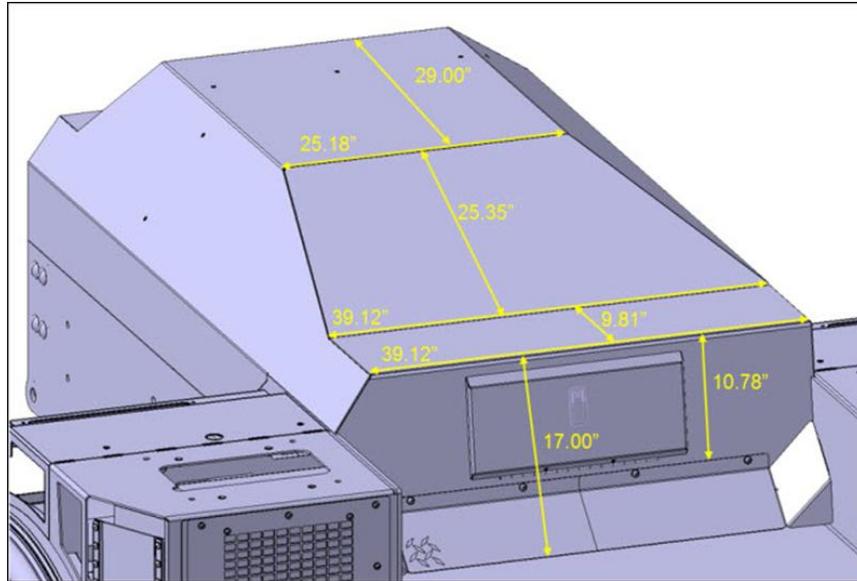
[Washer Reservoir Location]

ENGINE TUNNEL

Engine hood side walls will be constructed of 0.375" aluminum. The top will be constructed of 0.125" aluminum and will be tapered at the top to allow for more driver and passenger elbow room.

The engine hood will be insulated for protection from heat and sound. The noise insulation keeps the dBA level within the limits stated in the current NFPA 1901 standards.

The engine tunnel will be no higher than 17.00" off the crew cab floor.



CAB REAR WALL EXTERIOR COVERING

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

CAB LIFT

A hydraulic cab lift system will be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves.

Hydraulic pump will have a manual override for backup in the event of electrical failure.

Lift controls will be located on the right side pump panel or front area of the body in a convenient location.

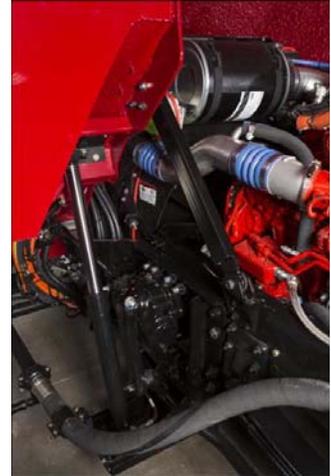
The cab will be capable of tilting 43 degrees to accommodate engine maintenance and removal.



The cab will be locked down by a 2-point normally closed spring loaded hook type latch that fully engages after the cab has been lowered. The system will be hydraulically actuated to release the normally closed locks when the cab lift control is in the raised position and cab lift system is under pressure. When the cab is completely lowered and system pressure has been relieved, the spring loaded latch mechanisms will return to the normally closed and locked position.

The hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the control is located in the tilt position.

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



Cab Lift Interlock

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

GRILLE

A bright finished aluminum mesh grille screen, inserted behind a bright finished grille surround, will be provided on the front center of the cab.

DOOR FRAME SCUFFPLATE

There will be four (4) polished stainless steel scuffplate(s) provided for the latch side of the door frame located on each EMS compartment door behind the driver and officer door to include the lower horizontal edge. Each scuffplate will be stainless steel with a .38" lip down.

DOOR JAMB SCUFFPLATES

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

MIRRORS

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

DOORS

To enhance entry and egress to the cab, the forward cab doors will be a minimum of 37.50" wide x 75.50" high. The crew cab doors will be located on the sides of the cab and will be constructed in the same manner as the forward cab doors. The crew cab door openings will be a minimum of 34.30" wide x 85.50" high.

The forward cab and crew cab doors will be constructed of extruded aluminum with a nominal material thickness of 0.093". The exterior door skins will be constructed from 0.090" aluminum.

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



[Exterior Door Handle]

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

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



[Interior Door Handle]

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

A chrome grab handle will be provided on the inside of each cab door for ease of entry.

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

The cab steps at each cab door location will be located inside the cab doors to protect the steps from weather elements.

Door Panels

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

MANUAL CAB DOOR WINDOWS

All cab entry doors will contain a conventional roll down window.

CAB STEPS

The forward cab and crew cab access steps will be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps will be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps will be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps will be a minimum 25.00" wide, and the crew cab steps will be 21.65" wide with an 8.00" minimum depth. The inside cab steps will not exceed 16.50" in height.

The vertical surfaces of the step well will be aluminum treadplate.

CAB EXTERIOR HANDRAILS

A Hansen knurled aluminum handrail will be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress. Each handrail will be provided with white LED lights. The lights will be activated when the parking brake is applied. The LED lights may be load managed.

STIRRUP STEPS

A stirrup step will be provided below each cab and crew cab door. The steps will be designed with a grip pattern punched into bright aluminum treadplate material providing support, slip resistance, and drainage. The steps will be a bolt-on design and provide a 5.00" deep stepping surface. Each step will provide a step height of 8.25" from the top of the stirrup step to the first step of the cab.

The stirrup step will be lit by a white 12 volt DC LED light provided on the step.

The step light will be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body step lights.

STEP LIGHTS

There will be six (6) white LED step lights installed for cab and crew cab access steps.

- One (1) light for the driver's access steps.
- Two (2) lights for the driver's side crew cab access steps.
- Two (2) lights for the passenger's side crew cab access steps.
- One (1) light for the passenger's side access step.

In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.

The lights will be activated when the battery switch is on and the adjacent door is opened.

FENDER CROWNS

Stainless steel fender crowns will be installed at the cab wheel openings.

HANDRAILS BELOW CAB WINDSHIELD

A 10.00" long x 1.25" diameter handrail will be mounted below the front cab windshield, one (1) on each side. The handrails will be extruded aluminum with a ribbed design to provide a positive gripping surface.

MOUNTING PLATE ON ENGINE TUNNEL

Equipment installation provisions will be installed on the engine tunnel.

A .25" smooth aluminum plate will be bolted to the top surface of the engine tunnel. The plate will follow the contour of the engine tunnel and will run the entire length of the engine tunnel. The plate will be spaced off the engine tunnel 1.00" to allow for wire routing below the plate.

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

LIP, ADDITIONAL

There will be one (1) 1.00" lip attached to the recess dash in front of the officer seat on the edge closest to the officer seat all the way across the opening. These will NOT be used to store anything without restraints.

The lip(s) will be mechanically fastened with screws and nutserts.

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

CAB INTERIOR

The cab interior will be constructed of primarily metal (painted aluminum) to withstand the severe duty cycles of the fire service.

The officer side dash will be a flat faced design to provide easy maintenance and will be constructed out of painted aluminum.

The instrument cluster will be surrounded with a high impact ABS plastic contoured to the same shape of the instrument cluster.

The engine tunnel will be padded and covered, on the top and sides, with light gray 36 ounce leather grain vinyl resistant to oil, grease, and mildew.

For durability and ease of maintenance, the cab interior side walls will be painted aluminum. The rear wall will be painted aluminum.

The headliner will be installed in both forward and rear cab sections. Headliner material will be vinyl. A sound barrier will be part of its composition. Material will be installed on an aluminum sheet and securely fastened to interior cab ceiling.

The forward portion of the cab headliner will permit easy access for service of electrical wiring or other maintenance needs.

All wiring will be placed in metal raceways.

CAB INTERIOR UPHOLSTERY

The cab interior upholstery will be 36 oz light gray vinyl.

CAB INTERIOR PAINT

The cab interior metal surfaces, excluding the rear heater panels, will be painted gray, vinyl texture paint.

The rear heater panels will be painted black, vinyl textured paint.

CAB FLOOR

The cab and crew cab flooring will be constructed with bright aluminum treadplate.

DEFROST/AIR CONDITIONING SYSTEM

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

Cab Defroster

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

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

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

Cab/Crew Auxiliary Heater

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

Air Conditioning

A condenser will be a 59,644 BTU output that meets and exceeds the performance specification will be mounted on the radiator.

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

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

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

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

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

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

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

A high efficiency particulate air (HEPA) filter will be included for the system. Access to the filter cover will be secured with four (4) screws.

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

Climate Control

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



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

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

The system controller will be located within panel position #12.

Gravity Drain Tubes

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

WINDOW DEFROST FANS

Two (2) window defrost fans will be mounted on the ceiling of the cab, located in the front of the cab matching job 33595 with exact location given at print review ALONG WITH PICTURES. .

WINDOW DEFROST FANS

There will be two (2) 12 volt DC fans mounted on the ceiling of the crew cab, located in the front of the cab matching job 33595 with exact location given at print review ALONG WITH PICTURES..

SUN VISORS

There will be two (2) vinyl covered sun visors provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab.

There will be a black plastic thumb latch provided to help secure each sun visor in the stowed position.

GRAB HANDLES

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



ENGINE COMPARTMENT LIGHTS

There will be one (1) Whelen, Model 3SC0CDCR, 12 volt DC, 3.00" white LED light(s) with Whelen, Model 3FLANGEC, chrome flange kit(s) installed under the cab to be used as engine compartment illumination.

These light(s) will be activated automatically when the cab is raised.

ACCESS TO ENGINE DIPSTICKS

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

The engine oil dipstick will allow for checking only. The transmission dipstick will allow for both checking and filling.

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



SEATING CAPACITY

The seating capacity in the cab will be five (5).

DRIVER SEAT

A H.O. Bostrom, Sierra, air suspension high back seat will be provided in the cab for the driver. For increased convenience, the seat will include a manual control to adjust the horizontal position (5.50" travel). To provide flexibility for multiple driver configurations, the seat will have a reclining back, adjustable from 15 degrees back to 45 degrees forward.

The seat will include no additional zip clean covers.

The seat will be furnished with a 3-point, shoulder type seat belt.

OFFICER SEAT

A H.O. Bostrom, Tanker 450, SCBA fixed seat will be provided in the cab for the officer. For optimal comfort, the seat will be provided with 17.00" deep cushion.

The seat back will be an SCBA back style with a 5 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include no additional zip clean covers.

The seat will be furnished with a 3-point, shoulder type seat belt.

RADIO COMPARTMENT

A radio compartment will be provided under the officer's seat.

The inside compartment dimensions will be 16.00" wide x 7.50" high x 15.00" deep, with the back of the compartment angled up to match the cab structure.

A drop down door with a flush, locking latch will be provided for access.

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

REAR FACING LEFT SIDE CABINET

A rear facing cabinet will be provided in the crew cab at the left side outboard position.

The cabinet will be 23.00" wide x 40.25" high x 26.75" deep. The interior door will be web netting. The netting is to be made with 2.00" wide nylon material with 2.00" openings. The nylon webbing will be fastened at the top and bottom side of the cabinet with seat belt buckles to secure it. A bar will connect the top seat belt buckles and an orange pull strap will be provided in the center. The pull strap will be long enough to reach while standing on the ground. The clear door opening will be 16.00" wide x 37.25" high.

The cabinet will also provide access from outside the cab with one (1) double pan door painted to match the cab exterior with a locking D-ring latch with #751 key. A web strap will be provided as a door stop. The door will be located on the side of the cab over the wheelwell. The clear door opening will be 17.00" wide x 34.00" high.

The cabinet will include two (2) infinitely adjustable shelves with a 0.75" up-turned lip painted to match the cab interior.

The cabinet will include no louvers.

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

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

Cabinet Light

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

REAR FACING RIGHT SIDE CABINET

A rear facing cabinet will be provided in the crew cab at the right side outboard position.

The cabinet will be 22.00" wide x 40.25" high x 26.75" deep. The interior door will be web netting. The netting is to be made with 2.00" wide nylon material with 2.00" openings. The nylon webbing will be fastened at the top and bottom side of the cabinet with seat belt buckles to secure it. A bar will connect the top seat belt buckles and an orange pull strap will be provided in the center. The pull strap will be long enough to reach while standing on the ground. The interior clear door opening will be 15.00" wide x 37.25" high.

The cabinet will include two (2) infinitely adjustable shelves with a 0.75" up-turned lip painted to match the cab interior.

The cabinet will include no louvers.

The cabinet will also provide access from outside the cab with one (1) double pan door painted to match the cab exterior with a locking D-ring latch with #751 key. The door will be located on the side of the cab over the wheelwell. A web strap will be provided as a door stop. The exterior clear door opening will be 17.00" wide x 34.00" high.

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

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

Cabinet Light

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

FORWARD FACING DRIVER SIDE OUTBOARD SEAT

There will be one (1) forward facing, HO Bostrom Tanker 400CT foldup SCBA seat provided at the driver side outboard position in the crew cab. For optimal comfort, and to maximize accessibility to the crew cab, the seat will be provided with 15.00" deep cushion.

The seat back will be an SCBA back style with a 0 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will be furnished with a 3-point, shoulder type seat belt.

FORWARD FACING CENTER SEAT

There will be one (1) forward facing, HO Bostrom Tanker 400CT SCBA seat provided at the center position in the crew cab. For optimal comfort, the seat will be provided with 15.00" deep cushion.

The seat back will be an SCBA back style with a 0 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include no additional zip clean covers.

The seat will be furnished with a 3-point, shoulder type seat belt.

FORWARD FACING PASSENGER SIDE OUTBOARD SEAT

There will be one (1) forward facing, HO Bostrom Tanker 400CT foldup SCBA seat provided at the passenger side outboard position in the crew cab. For optimal comfort, and to maximize accessibility to the crew cab, the seat will be provided with 15.00" deep cushion.

The seat back will be an SCBA back style with a 0 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will be furnished with a 3-point, shoulder type seat belt.

DOOR PAN SCUFFPLATE

There will be a polished stainless steel scuffplate on the interior door pan of two (2) cabinet door(s) located the two (2) EMS compartment doors behind the driver and passenger door.

SEAT UPHOLSTERY

All seat upholstery will be leather grain dark silver gray vinyl resistant to oil, grease and mildew. The cab will have five (5) seating positions.

AIR BOTTLE HOLDERS

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

There will be a quantity of four (4) SCBA brackets.

SEAT BELTS

All cab and tiller cab (if applicable) seating positions will have red seat belts. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.

The 3-point shoulder type seat belts will include height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter. The 3-point shoulder type seat belts will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

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

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

To ensure safe operation, the seats will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled.

HELMET STORAGE PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 14.1.7.4.1 requires a location for helmet storage be provided.

There is no helmet storage on the apparatus as manufactured. The fire department will provide a location for storage of helmets.

CAB DOME LIGHTS

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

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

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

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

In order to ensure exceptional illumination, each white LED dome light will provide a minimum of 10.1 foot-candles (fc) covering an entire 20.00" x 20.00" square seating position when mounted 40.00" above the seat.

ADDITIONAL DOME LIGHTS

There will be two (2) Whelen®, Model 60C0EJCS, 6.00" round white LED dome light(s) with lens switch located centered side to side on the crew cab ceiling just ahead of the forward facing crew cab seats. Mount timer on driver side crew cab wall just down from the ceiling close to the rear door frame. All wiring should be behind the headliner and wall coverings..

The light(s) will have 12 volt DC power when the shoreline inlet is connected to the apparatus. An adjustable timer will be included to deactivate the lights after the adjusted time has passed.

PORTABLE HAND LIGHTS, PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 9.9.4 requires two portable hand lights mounted in brackets fastened to the apparatus.

The hand lights are not on the apparatus as manufactured. The fire department will provide and mount these hand lights.

CAB INSTRUMENTATION

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

GAUGES

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

- Voltmeter gauge (volts):
 - Low volts (11.8 VDC)
 - Amber telltale light on indicator light display with steady tone alarm
 - High volts (15.5 VDC)
 - Amber telltale light on indicator light display with steady tone alarm
- Engine Tachometer (RPM)
- Speedometer MPH (Major Scale), KM/H (Minor Scale)
- Fuel level gauge (Empty - Full in fractions):
 - Low fuel (1/8 full)
 - Amber indicator light in gauge dial with steady tone alarm
- Engine Oil pressure Gauge (PSI):
 - Low oil pressure to activate engine warning lights and alarms
 - Red indicator light in gauge dial with steady tone alarm
- Front Air Pressure Gauges (PSI):
 - Low air pressure to activate warning lights and alarm
 - Red indicator light in gauge dial with steady tone alarm
- Rear Air Pressure Gauges (PSI):

- Low air pressure to activate warning lights and alarm
 - Red indicator light in gauge dial with steady tone alarm
- Transmission Oil Temperature Gauge (Fahrenheit):
 - High transmission oil temperature activates warning lights and alarm
 - Amber indicator light in gauge dial with steady tone alarm
- Engine Coolant Temperature Gauge (Fahrenheit):
 - High engine temperature activates an engine warning light and alarms
 - Red indicator light in gauge dial with steady tone alarm
- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions):
 - Low fluid (1/8 full)
 - Amber indicator light in gauge dial

INDICATOR LAMPS

To promote safety, the following telltale indicator lamps will be located on the instrument panel in clear view of the driver. The indicator lamps will be "dead-front" design that is only visible when active. The colored indicator lights will have descriptive text or symbols.

The following amber telltale lamps will be present:

- Low coolant
- Trac cntl (traction control) (where applicable)
- Check engine
- Check trans (check transmission)
- Air rest (air restriction)
- DPF (engine diesel particulate filter regeneration)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- Regen inhibit (engine emissions regeneration inhibit) (where applicable)
- Side roll fault (where applicable)
- Front air bag fault (where applicable)
- Aux brake overheat (auxiliary brake overheat) (where applicable)
- The following red telltale lamps will be present:
- Ladder rack down
- Parking brake
- Stop engine
- The following green telltale lamps will be present:
- Left turn
- Right turn
- Battery on
- Ignition
- Aux brake (auxiliary brake engaged) (where applicable)
- The following blue telltale lamps will be present:
- High beam

ALARMS

Audible steady tone warning alarm: A steady audible tone alarm will be provided whenever a warning condition is active.

INDICATOR LAMP AND ALARM PROVE-OUT

A system will be provided which automatically tests telltale indicator lights and alarms located on the cab instrument panel. Telltale indicators and alarms will perform prove-out for 3 to 5 seconds when the ignition switch is moved to the on position with the battery switch on.

CONTROL SWITCHES

For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver. All switches will have backlit labels for low light applications.

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

Panel back lighting intensity control switch: A three (3)-position momentary rocker switch will be provided. Pressing the top half of the switch, "Panel Up" increases the panel back lighting intensity and pressing the bottom half of the switch, "Panel Down" decreases the panel back lighting intensity. Pressing the half or bottom half of the switch several times will allow back lighting intensity to be gradually varied from minimum to maximum intensity level for ease of use.

Ignition switch: A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will turn off and deactivate vehicle ignition. The second switch position will activate vehicle ignition and will perform prove-out on the telltale indicators and alarms for 3 to 5 seconds after the switch is turned on. A green indicator lamp is activated with vehicle ignition. The third momentary position will temporarily silence all active cab alarms. An alarm "chirp" may continue as long as alarm condition exists. Switching ignition to off position will terminate the alarm silence feature and reset function of cab alarm system.

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

Hazard switch will be provided on the instrument panel or on the steering column.

Heater and defroster controls.

Turn signal arm: A self-canceling turn signal with high beam headlight controls.

Windshield wiper control will have high, low, and intermittent modes.

Parking brake control: An air actuated push/pull park brake control.

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

High idle engagement switch: A maintained rocker switch with integral indicator lamp will be provided. The switch will activate and deactivate the high idle function. The "OK To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch will indicate when the high idle function is engaged.

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

Emergency switching will be controlled by multiple individual warning light switches for various groups or areas of emergency warning lights. An Emergency Master switch provided on the instrument panel that enables or disables all individual warning light switches is included.

An additional "Emergency Master" button will be provided on the lower left hand corner of the gauge panel to allow convenient control of the "Emergency Master" system from inside the driver's door when standing on the ground.

CUSTOM SWITCH PANELS

The design of cab instrumentation will allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There will be positions for up to four (4) switch panels in the lower instrument console and up to six (6) switch panels in the overhead visor console. All switches have backlit labels for low light conditions.



[Gauge Cluster and Lower Switch Panels]



[Overhead Switch Panels]

DIAGNOSTIC PANEL

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

The diagnostic panel will include the following:

- ENGINE/TRANSMISSION/ABS J1939 Diagnostic Port
- ABS Diagnostic Switch and Indicator - The switch and amber indicator will allow access to diagnostic mode and display of standard ABS system fault blink codes that may be generated by the ABS system
- DPF REGEN (Diesel Particulate Filter Regeneration Switch) (where applicable) will be provided to request regeneration of the engine emission system. An amber indicator will be provided on top of the switch that will illuminate in a "CHECK ENGINE" condition
- REGEN INHIBIT (Diesel Particulate Filter Regeneration Inhibit Switch) (where applicable) will be provided that will request that regeneration be temporarily prevented. A green indicator will be provided on top of the Regen Inhibit switch that will illuminate when the Regen Inhibit feature is active. Regen Inhibit will be disabled upon cycling of the ignition switch to the off state.

AIR RESTRICTION INDICATOR

A high air restriction warning indicator light (electronic) will be provided.

OVERHEAD SPEEDOMETER

A Class I digital display speedometer will be provided on the officer side overhead position.

"DO NOT MOVE APPARATUS" INDICATOR

There will be a Whelen® Model 50G03Z*R, 1.62" high x 5.00" wide x 1.37" deep flashing LED warning light with green LEDs and chrome trim, located in the driving compartment. The warning light lens colors to be the same as the LEDs. The light will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On".

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

The current edition of NFPA 1901, section 13.11.1 requires that a red flashing or rotating light be located in the driving compartment to be illuminated whenever certain conditions exist.

Per the fire department specification, the light will include green LEDs in place of red LED to meet this requirement. The apparatus will be non compliant to NFPA 1901 standards at time of contract execution.

SWITCH PANELS

The built-in switch panels will be located in the lower console or overhead console of the cab. Switches will be rocker type with an indicator light, of which is an integral part of the switch.

WIPER CONTROL

Wiper control will consist of a two (2)-speed windshield wiper control with intermittent feature and windshield washer controls.

HOURLY METER - AERIAL DEVICE

The following aerial hour meter messages will be included in the information centers:

- Aerial Hours, that keeps track of the time the aerial device is in motion.
- Aerial PTO Hours, that keeps track of the time the aerial master switch is on and the aerial PTO is engaged.

AERIAL MASTER

There will be a red master switch for the aerial operating electrical system provided.

AERIAL PTO SWITCH

A red PTO switch for the aerial with indicator light will be provided.

SPARE CIRCUIT

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

The above wires will have the following features:

- The positive wire will be connected directly to the battery power.

- The negative wire will be connected to ground.
- Wires will be protected to 15 amps at 12 volts DC.
- Power and ground will terminate on the inside upper inboard ceiling corner of the DS fwd facing EMS compartment.
- Termination will be with a 10-place bus bar with screws and removable cover.
- Wires will be sized to 125 percent of the protection.

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

SPARE CIRCUIT

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

The above wires will have the following features:

- The positive wire will be connected directly to the battery power
- The negative wire will be connected to ground
- Wires will be protected to 15 amps at 12 volts DC
- Power and ground will terminate officer side dash area
- Termination will be with 15 amp, power point plug with rubber cover
- Wires will be sized to 125 percent of the protection

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

SPARE CIRCUIT

There will be two (2) dual USB fast charge socket mounts installed on the apparatus.

The above wires will have the following features:

- The positive wire will be connected directly to the battery power.
- The negative wire will be connected to ground.
- Wires will be protected to 4.8 amps at 12 volts DC.
- The USB socket mount will be right of the defroster air intake, cust to pick location at the post paint insp. 2nd one goes in the DS rear facing EMS compt w/wiring running inside compartment with socket mtd to top rear inboard corner with box on back side to protect socket.
- Termination will be a Blue Sea Systems part number 1045 dual USB charger socket.
- Wires will be sized to 125% of the protection.

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

SWIVEL MOUNT

There will be one (1) Johnny Ray, Model 203 swivel mount bracket(s) provided for the fire department's radio equipment. The swivel mount bracket(s) will be located in the center of the overhead switch panel area per the instrument switch panel drawing.

INFORMATION CENTER

There will be a LCD display integral to the cab gauge panel provided that will display the following information:

- Total distance
- Trip distance
- Total hours
- Trip hours
- PTO "A" hours
- PTO "B" hours

VEHICLE DATA RECORDER

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

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

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

- Vehicle Speed - MPH
- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle
- ABS Event - On/Off
- Seat Occupied Status - Yes/No by Position
- Seat Belt Buckled Status - Yes/No by Position
- Master Optical Warning Device Switch - On/Off
- Time - 24 Hour Time
- Date - Year/Month/Day

Seat Belt Monitoring System

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

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

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

INTERCOM SYSTEM

There will be digital, dual radio interface, intercom located in the overhead area ahead of the officer seat, LOC 4, per the I.P. drawing in the cab. The front panel will have master volume, and squelch controls with illuminated indicators, allowing for independent level setting of radio and auxiliary audio devices.

There will be two (2) radio listen only / transmit controls, allowing for simulcast interoperability with select, monitor, receive, and transmit indicators. There will be two (2) auxiliary audio inputs with select, and receive indicators.

There will be one (1) wireless base station for up to five (1-5) headset users provided in the cab. Wired headset jacks will be provided for the driver, officer and three (3) crew positions, located at three (3) forward facing seats. The driver and officer will have remote transmit buttons located at print review time.

The wireless base station will have a 100' to 1100' range, line of sight. Objects between the transmitter and receiver affect range.

The following Firecom components will be provided:

- One (1) 5200D Intercom
- One (1) WB505R wireless base station (1-5 wireless positions)
- Two (2) DM-1 Remote transmit buttons
- Five (5) HM-10 Interior headset jacks
- All necessary power and station cabling

RADIO / INTERCOM INTERFACE CABLE

The apparatus manufacturer will supply and install two (2) radio interface cables before delivery of the vehicle.

The radio equipment to be used by the customer will be:

- Make of First Radio: Motorola High Power, Model Number: Motorola APX 8500.
- Make of Second Radio: Kenwood, Model Number: Kenwood model ????

WIRELESS UNDER HELMET, RADIO TRANSMIT ONLY HEADSET

There will be one (1) Firecom™, Model UHW-505, wireless under the helmet, radio transmit headset(s) provided. A heavy duty, coiled 12 volt charging pigtail with plug will be provided for the driver .

Each headset will feature:

- Noise cancelling electric microphone
- Flexible microphone boom
- Ear seals with 20 dB noise reduction
- Stereo Listen-Through Ear dome microphones
- Radio Push To Transmit button (Left or Right Side)
- Rechargeable battery operates for 24 hours on a full charge

- IP-66 when worn

WIRELESS, OVER THE HEAD, RADIO TRANSMIT HEADSET ONLY

There will be one (1) Firecom™, Model FHW-505, wireless over the head style, radio transmit headset(s) provided. A heavy duty, coiled 12 volt charging pigtail with plug will be provided for the driver.

Each headset will feature:

- Noise cancelling electric microphone
- Flexible microphone boom
- Ear seals with 20 dB noise reduction
- Radio Push To Transmit button (Left or Right Side)
- Rechargeable battery operates for 24 hours on a full charge
- IP-65 when worn



UNDER THE HELMET HEADSET, RADIO TRANSMIT

There will be one (1) Firecom™, Model UH-51, under helmet, radio transmit headset(s) provided officer seat.

Each headset will feature:

- Coiled cord with rugged angled plug
- Noise cancelling electric microphone
- Flex boom rotates for left or right dress
- Adjustable volume control
- ComLeather ear seals with 24 dB noise reduction
- Radio Push To Transmit button. Mic is always live for intercom communication



UNDER THE HELMET HEADSET, INTERCOM ONLY

There will be three (3) Firecom™, Model UH-52, under helmet, intercom only headset(s) provided driver's seat, driver's side outboard forward facing seat and passenger's side outboard forward facing seat.

Each headset will feature:

- Coiled cord with rugged angled plug
- Noise cancelling electric microphone
- Flex boom for left or right dress
- Adjustable volume control
- ComLeather ear seals with 24 dB noise reduction
- Intercom Push To Talk button



HEADSET HANGERS

There will be five (5) headset hanger(s) installed driver's seat, officer's seat, driver's side outboard forward facing seat, passenger's side outboard forward facing seat and rear, center, forward facing seat. The hanger(s) will meet NFPA 1901, Section 14.1.11, requirement for equipment mounting.

PORTABLE RADIO CHARGER INSTALLATION

There will be six (6) customer supplied portable two-way radio chargers(s) sent to the apparatus manufacturers preferred radio installer to be installed four (4) on engine tunnel top next to the officer and two (2) on the exterior wall of the EMS compartments (1 on each) powered off the battery saver circuit with the exact location given at the post paint inspection. Specific shipping requirements will be followed.

CHARGER BASE ONLY INSTALLATION

one (1) customer supplied PAX Tracker charging base(s) will sent to the apparatus manufacturers preferred installer to be installed front exterior face of DS rear facing EMS compartment behind the driver seat. Specific shipping requirements will be followed.

BRACKET ONLY INSTALLATION

There shall be one (1) customer supplied Thermal Imaging camera charging bracket(s) sent to the apparatus manufacturers preferred installer to be installed next to the officer seat with exact location given at post paint inspection.

Specific shipping requirements will be followed.

HANDLIGHT CHARGER INSTALLATION

There will be three (3) customer supplied handlight chargers(s) sent to the apparatus manufacturers preferred installer to be installed in the cab area with the exact location given at print review and be powered off the battery saver circuit. Specific shipping requirements will be followed.

RADIO ANTENNA MOUNT

There will be one (1) standard 1.125", 18 thread antenna-mounting base(s) installed behind the light bar on the passenger side on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the radio box. A weatherproof cap will be installed on the mount.

RADIO ANTENNA MOUNT

There will be one (1) standard 1.125", 18 thread antenna-mounting base(s) installed route to back of second customer supplied radio on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the instrument panel area. A weatherproof cap will be installed on the mount.



VEHICLE CAMERA SYSTEM

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

- One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse.

- One (1) camera located on the right side of the apparatus, pointing rearward, displayed automatically with the right side turn signal.

The camera images will be displayed on a 7.00" LCD display with sun shield located in view of the driver in the custom dash, per instrument panel layout. The display will include manual camera activation capability and audio from the rear camera only.

The following components will be included:

- One (1) MO700136DC Display
- One (1) SV-CW134639CAI Rear camera
- One (1) CS134404CI Side camera
- All necessary cables

ELECTRICAL POWER CONTROL SYSTEM

A compartment will be provided in or under the cab to house the vehicle's electrical power and signal circuit protection and control components. The power and signal protection and control compartment will contain circuit protection devices and power control devices. Power and signal protection and control components will be protected against corrosion, excessive heat, excessive vibration, physical damage and water spray.

Serviceable components will be readily accessible.

Circuit protection devices, which conform to SAE standard, will be utilized to protect each circuit. All circuit protection devices will be sized to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting) and conform to SAE J553 or J258. When required, automotive type fuses conforming to SAE J554, J1284, J1888 or J2077 will be utilized to protect electronic equipment.

Power control relays and solenoids will have a direct current (dc) rating of 125 percent of the maximum current for which the circuit is protected.

Visual status indicators will be supplied to identify control safety interlocks and vehicle status. In addition to visual status indicators, audible alarms designed to provide early warning of problems before they become critical will be used.

Voltage Monitor System

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

Power and Ground Studs

Spare circuits will be provided in the primary distribution center for two-way radio equipment.

The spare circuits will consist of the following:

- One (1) 12-volt DC, 30 amp battery direct spare

- One (1) 12-volt DC ground and un-fused switched battery stud located in or adjacent to the power distribution center

EMI/RFI Protection

The electrical system proposed will include means to control undesired electromagnetic and radio frequency emissions. State of the art electrical system design and components will be used to ensure radiated and conducted EMI (electromagnetic interference) and RFI (radio frequency interference) emissions are suppressed at their source.

The apparatus proposed will have the ability to operate in the electromagnetic environment typically found in fire ground operations. The contractor will be able to demonstrate the EMI and RFI testing has been done on similar apparatus and certifies that the vehicle proposed meets SAE J551 requirements.

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

ELECTRICAL

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

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

1. All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.
2. Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.
3. Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also, a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.
4. Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will have this compound in the plug to prevent corrosion and for easy separation (of the plug).
5. All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.
6. All electrical terminals in exposed areas will have silicon (1890) applied completely over the metal portion of the terminal.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection.

Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments.

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

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

BATTERY SYSTEM

There will be six (6) 12 volt Exide®, Model 31S950X3W, batteries that include the following features will be provided:

- 950 CCA, cold cranking amps
- 190 amp reserve capacity
- High cycle
- Group 31
- Rating of 5700 CCA at 0 degrees Fahrenheit
- 1140 minutes of reserve capacity
- Threaded stainless steel studs

Each battery case will be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover will be manifold vented with a central venting location to allow a 45 degree tilt capacity.

The inside of each battery will consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.

BATTERY SYSTEM

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

MASTER BATTERY SWITCH

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

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

BATTERY COMPARTMENTS

Batteries will be placed on non-corrosive mats and stored in well ventilated compartments located under the cab.

Heavy-duty, 2/0 gauge, color coded battery cables will be provided. Battery terminal connections will be coated with anti-corrosion compound.

Battery solenoid terminal connections will be encapsulated with semi-permanent rubberized compound.

JUMPER STUDS

One (1) set of battery jumper studs with plastic color-coded covers will be included on the battery compartments.

BATTERY CHARGER/ AIR COMPRESSOR

There will be a Kussmaul Pump Plus 1200, part number 091-187-12-Remote Kit, 40 amp battery charger with air compressor system part number 091-9B-1-AD provided. A digital readout with watertight red housing display will be included with the installation.

The air compressor will be 120-volt AC 100 psi with auto drain installed to maintain the air system pressure when the 120 volt AC shoreline is energized.

The battery charger and air compressor will be wired to the AC shoreline inlet through a junction box located near the components.

Option part numbers is a Kit with the following parts:

- Charger 1200, 091-187-12
- Remote Indicator Fet
- Air Compressor, 091-9B-1-AD

Battery charger/compressor will be located in the front left body compartment.

The battery charger indicator will be located on the driver's seat riser.

SHORELINE

There will be a 15 amp 120 volt AC straight blade plug NEMA 5-15P provided to operate the specified 120 volt AC circuits on the apparatus.

The plug will be installed at the end of a 10.00" long 12/3 pigtail. The pigtail will extend through a strain relief with wire mesh and removable polished stainless steel cover plate. A box will be installed behind the cover plate for wire connections.

The shoreline will be connected to the battery charger, receptacles in the cab and the overhead white lights in the center of the crew cab. The pigtail is to hang out approx. 8" to 10" but not long enough to strike the flood light. Provide an additional 12" of cord in the false wall.

The shoreline receptacle will be located on the driver side rear bulkhead of body.

SCUFFPLATE AROUND SHORELINE INLET

There will be a polished stainless steel plate provided around the shoreline inlet, the size of the plate will be approx. 9" wide x 12" tall or whatever fits in the area available.

The inlet and inlet label will be as close to the top of this plate as practice.

AIR COMPRESSOR ON/OFF SWITCH

A remote On/Off switch, with indicator light, will be provided to control power to the shoreline powered air compressor.

The switch will be located next to the air compressor.

ALTERNATOR

A Delco Remy®, Model 40SI, alternator will be provided. It will have a rated output current of 320 amps, as measured by SAE method J56. The alternator will feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

ELECTRONIC LOAD MANAGEMENT

An electronic load management (ELM) system that monitors the vehicles 12-volt electrical system, and automatically reduces the electrical load in the event of a low voltage condition and by doing so, ensures the integrity of the electrical system.

The ELM will monitor the vehicle's voltage while at the scene (parking brake applied). It will sequentially shut down individual electrical loads when the system voltage drops below a preset value. Two (2) separate electrical loads will be controlled by the load manager. The ELM will sequentially re-energize electrical loads as the system voltage recovers.

HEADLIGHTS

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

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

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

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

DIRECTIONAL LIGHTS

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

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

INTERMEDIATE LIGHT

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

CAB CLEARANCE/MARKER/ID LIGHTS

There will be five (5) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:

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

FRONT CAB SIDE CLEARANCE/MARKER LIGHTS

There will be two (2) Truck-Lite®, Model 19036Y, amber LED lights installed to the outside of the chrome wrap around bezel, one (1) on each side of the cab.

The lights will activate as additional directional lights with the corresponding directional circuit.

REAR CLEARANCE/MARKER/ID LIGHTING

There will be three (3) Truck-Lite®, Model 33050R, LED lights used as identification lights recessed and located at the rear of the apparatus per the following:

- As close as practical to the vertical centerline
- Centers spaced not less than 6.00" or more than 12.00" apart
- Red in color
- All at the same height

There will be two (2) Truck-Lite, Model 33050R, LED lights recessed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

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

There will be two (2) Truck-Lite, Model 33050R, LED lights recessed on the side of the apparatus as marker lights as close to the rear as practical per the following:

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

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

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

Per FMVSS 108 and CMVSS 108 requirements.

MARKER LIGHTS

There will be one (1) pair of amber and red LED marker lights with rubber arm, located at the rear most lower corner of the body. The amber lens will face the front and the red lens will face the rear of the truck.

These lights will be activated with the running lights of the vehicle.

REAR FMVSS LIGHTING

The rear stop/tail and directional LED lighting will consist of the following:

- Two (2) Whelen®, Model M6BTT, red LED stop/tail lights
- Two (2) Whelen, Model M6T, amber LED arrow turn lights

The lights will be provided with color lenses.

The lights will be mounted in a polished combination housing.

There will be two (2) Whelen Model M6BUW, LED backup lights provided in the tail light housing.

LICENSE PLATE BRACKET

There will be one (1) license plate bracket located below the tailboard on a removable bolt-on bracket located on the driver side.

A white LED light will illuminate the license plate. A stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.

LIGHTING BEZEL

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

BACK-UP ALARM

A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.

There will be one (1) spare switch(es) located in panel #2 next to the siren/Mech siren switch. Battery switched power and labeled "SPARE". Rated for 15 amps with an internal indicator light installed in the switch panel for future use.

CAB PERIMETER SCENE LIGHTS

There will be four (4) Truck-Lite, Model 6060C, white LED lights with grommets provided, one (1) for each cab and crew cab door.

These lights will be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.

PUMP HOUSE PERIMETER LIGHTS

There will be two (2) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" LED weatherproof strip lights with brackets provided under the pump panel running boards, one (1) each side.

If the combination of options in the vehicle does not permit clearance for a 20.00" light, a 12.00" version of the Amdor light will be installed.

The lights will be controlled by the same means as the body perimeter lights.

BODY PERIMETER SCENE LIGHTS

There will be one (1) Truck-Lite, Model 6060C, 6.00" x 2.00" oval LED 12 volt DC lights with Model 60700, grommets provided under the side turntable access steps.

The perimeter scene lights will be activated when the parking brake is applied, either directional light is activated, activating all side facing perimeter lights and the reverse signal activated, activating all the side facing perimeter lights.

STEP LIGHTS

Two (2) white LED step lights will be provided, one (1) on each side of the front body.

In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.

The lights will be actuated when the parking brake is set.

All other steps on the apparatus will be illuminated per the current edition of NFPA 1901.

12 VOLT LIGHTING

There will be one (1) Whelen® Model P*H2P, 16,200 lumens 12 volt DC LED light(s) with flood optics installed on the apparatus.

The painted parts of this light assembly to be black.

The lights will be installed on the passenger side rear wall of the cab.

The push up side mount, outside pole length to be 12.00" long with handle holder and sensor connecting the pole to the Do Not Move Truck Indicator circuit.

The inside pole length to be 57.00" long or as long as practical to fit in the location selected.

The lights will be controlled by a switch at the driver's side pump panel.

These light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be one (1) Whelen® Model P*H2P, 16,200 lumens 12 volt DC LED light(s) with flood optics installed on the apparatus.

The painted parts of this light assembly to be black.

The lights will be installed on the driver side rear wall of cab .

The push up side mount, outside pole length to be 12.00" long with handle holder and sensor connecting the pole to the Do Not Move Truck Indicator circuit.

The inside pole length to be 57.00" long or as long as practical to fit in the location selected.

The lights will be controlled by a switch at the driver's side pump panel.

These light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be one (1) HiViz FIRETECH, Model FT-B-46-*, 46.00" 12 volt DC LED light(s) with a combination of flood and spot optics and adjustable mounting brackets mounted centered over the LS2 compartment, on the catwalk, centered.

The color of the light housing(s) and brackets will be painted parts of the light housing and brackets to be black.

The light(s) selected above will be controlled by a switch at the driver's side switch panel, by a switch at the driver's side pump panel and by a switch at the passenger's side switch panel.

These light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be one (1) HiViz FIRETECH, Model FT-B-46-*, 46.00" 12 volt DC LED light(s) with a combination of flood and spot optics and adjustable mounting brackets mounted centered over the RS2 compartment, on the catwalk, centered.

The color of the light housing(s) and brackets will be painted parts of the light housing and brackets to be black.

The light(s) selected above will be controlled by a switch at the driver's side switch panel, by a switch at the driver's side pump panel and by a switch at the passenger's side switch panel.

These light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be two (2) Whelen® Model P*H2*, 17,750 lumens 12 volt DC light(s) with a combination of flood and spot optics provided on the front visor, one (1) on the driver's side and one (1) on the passenger's side with 8 degree outward bracket.

The housing(s) painted parts of this light assembly to be black.

The light(s) will be controlled by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel.

These light(s) may be load managed when the parking brake is applied.

12 VOLT DC SCENE LIGHTS

There will be one (1) Whelen® Model P*H2*, 17,750 lumens 12 volt DC powered lights with white LEDs and flood optics installed on the apparatus located, on the passenger side of the cab above the EMS compartment door.

The light(s) to be installed in a 0 degree vertical recessed bracket.

The painted parts of this light assembly to be black.

The lights will be activated by a switch at the driver's side switch panel and when the cab or crew cab doors on the passenger's side are open.

The light(s) may be load managed when the parking brake is applied.

12 VOLT DC SCENE LIGHTS

There will be one (1) Whelen® Model P*H2*, 17,750 lumens 12 volt DC powered lights with white LEDs and flood optics installed on the apparatus located, on the driver side of the cab above the EMS compartment door.

The light(s) to be installed in a 0 degree vertical recessed bracket.

The painted parts of this light assembly to be black.

The lights will be activated by a switch at the driver's side switch panel and when the cab or crew cab doors on the driver's side are open.

The light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be two (2) Whelen® Model P*H1*, 8,875 lumens 12 volt DC LED light(s) with flood optics installed on the apparatus located, under the DS upper zone warning light and above the shoreline pigtail on the driver side rear bulkhead per the sales drawing and under the upper zone PS warning light per the sales drawing.

The painted parts of this light assembly to be black.

The light(s) to be installed in a 0 degree vertical recessed bracket.

The lights will be controlled by a switch at the driver's side switch panel, by a switch at the passenger's side switch panel and by a switch in a stainless steel cup located on the driver's side at the rear of the apparatus no more than 72.00" from the ground.

The light(s) may be load managed when the parking brake is applied.

WALKING SURFACE LIGHT

There will be Model FRP, 4" round black 12 volt DC LED floodlight(s) with bolt mount provided to illuminate the entire designated walking surface on top of the body.

The light(s) will be activated when the body step lights are on.

SWITCH SILENCE ALARM

There will be a momentary switch provided in the electrical compartment in front of the officer seat that will deactivate the audible alarms.

Any active audible alarm will be able to be silenced by holding this switch down for three (3) to five (5) seconds. For improved safety, silenced audible alarms will intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp will act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition will enable the steady or pulsing tones respectively.

SWITCH, RED

There will be nine (9) red switch(s) that will replace the existing switch(s) for the nine emergency and warning light switches along with the Opticom, siren brake and PS 2nd siren brake located in the emergency light switch panels.

WATER TANK

It will have a capacity of 500 gallons and will be constructed of polypropylene plastic in a rectangular shape.

The joints and seams will be nitrogen welded inside and out.

The tank will be baffled in accordance with NFPA Bulletin 1901 requirements.

The baffles will have vent openings at both the top and bottom of each baffle to permit movement of air and water between compartments.

The longitudinal partitions will be constructed of .38" polypropylene plastic and extend from the bottom of the tank through the top cover to allow positive welding.

The transverse partitions extend from 4" off the bottom to the underside of the top cover.

All partitions interlock and will be welded to the tank bottom and sides.

The tank top will be constructed of .50" polypropylene.

It will be recessed .38" and will be welded to the tank sides and the longitudinal partitions.

It will be supported to keep it rigid during fast filling conditions.

Construction will include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions.

Two of the dowels will be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes.

A sump will be provided at the bottom of the water tank. The sump will include a drain plug and the tank outlet.

Tank will be installed in a fabricated "cradle" assembly constructed of structural steel.

Sufficient crossmembers are provided to properly support bottom of tank.

Crossmembers are constructed of steel bar channel or rectangular tubing.

Tank "floats" in cradle to avoid torsional stress caused by chassis frame flexing.

Rubber cushions, .50" thick x 3.00" wide, will be placed on all horizontal surfaces that the tank rests on.

Stops are provided to prevent an empty tank from bouncing excessively while moving vehicle.

Tank mounting system is approved by the manufacturer.

Fill tower will be constructed of .50" polypropylene and will be a minimum of 8.00" wide x 14.00" long.

Fill tower will be furnished with a .25" thick polypropylene screen and a hinged cover.

An overflow pipe, constructed of 4.00" schedule 40 polypropylene, will be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.

HOSE BED

The hose bed will be fabricated of 0.125" 5052-H32 aluminum with a tensile strength range of 31,000 to 38,000 psi.

The sides of the hose bed will not form any portion of the fender compartments.

The upper and rear edges of the hose bed side panels will have a double break for rigidity.

The hose bed will be located ahead of the ladder turntable.

There will be a hose chute to the side and rear of the hose bed on both the left and right side to allow for payout/removal of the hose.

The hose bed flooring will consist of removable aluminum grating with a top surface that is perforated to aid in hose aeration.

Hose capacity will be a minimum of 800' of 4" and 500' of 2.5" with 100' of 1.75" hose in a horseshoe load on top of the 2.5" hose.

AERIAL HOSE BED HOSE RESTRAINT

The hose in the hose bed will be restrained by one (1) black nylon Velcro® strap at the top of the hose bed. The strap will be installed to the top of the hose bed side sheets.

The hose at the rear of two (2) hose bed(s) will be restrained by a black vinyl hose bed flap. The top of the flap will be secured with STAYPUT™ shock cord loop pull tab fasteners with footman's loops at the bottom of the flap. The cover will be wider than the chute, at each side, by at least .50".

A hose bed divider will be furnished for separating hose.

Partition construction will consist of a .125" aluminum sheet fitted and welded into a slotted, radiused extrusion along the top, bottom, and rear edge. The divider will be unpainted.

The partition will be fully adjustable by sliding in tracks.

The divider will be held in place by tightening four (4) bolts, two (2) at each end.

Acorn nuts will be installed on all bolts in the hose bed which have exposed threads.

RUNNING BOARDS

A running board will be provided on each side of the front body to allow access to the backboard/crosslay storage area. The running boards will be designed with a grip pattern punched into .125" bright aluminum treadplate material providing support, slip resistance, and drainage.

The runningboard will have a flip out section design that allows easier access to the full width equipment area above. The flip out section will be tied to the "do not move truck indicator" with a sensor when it is flipped out. There will be a latch provided that secures the flip out section when not in use.

HANDRAILS

The handrails will be 1.25" diameter anodized aluminum extrusion, with a ribbed design, to provide a positive gripping surface.

Chrome plated end stanchions will support the handrail. Plastic gaskets will be used between end stanchions and any painted surfaces.

Drain holes will be provided in the bottom of all vertically mounted handrails.

- Two (2) handrails will be provided, one above each running board.

TURNTABLE STEPS

Access to the turntable will be provided by a set of swing-down steps on the left side of the truck. There shall be no bottom flip step provided. The bottom step will have a step height not exceeding 24.00" from the ground to the top surface of the step at any time. All steps will have a height no greater than 14.00" from top surface to top surface.

The access steps will be located rearward of the compartmentation.

The swing down step assembly will be constructed of D/A finished aluminum with bright aluminum treadplate steps. The steps shall have a punched grip pattern design.

The stepwell will be lined with bright aluminum treadplate to act as scuffplates.

The step assembly will be stowed with black rubber plungers.

A knurled aluminum handrail will be provided on each side of the access steps.

Holes will be provided in each side step plate for hand holds.

The steps will be connected to the "Do Not Move Truck" indicator in the cab.

STEP LIGHTS

There will be three (3) white LED step lights provided for the aerial turntable access steps.

In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.

The step lights will be actuated by the aerial master switch in the cab.

SMOOTH ALUMINUM REAR WALL

The rear wall will be smooth aluminum.

TOW EYES

Two (2) rear painted tow eyes will be located at the rear of the apparatus and will be mounted directly to the frame rails. The inner and outer edges of the tow eyes will be radiused.

COMPARTMENTATION

Compartmentation will be fabricated of 0.125" 5052 aluminum.

Side compartments will be an integral assembly with the rear fenders.

Circular fender liners will be provided. For prevention of rust pockets and ease of maintenance, the fender liners will be formed from aluminum and removable for maintenance.

Compartment flooring will be of the sweep out design with the floor higher than the compartment door lip.

Drip protection will be provided above the doors by means of bright aluminum extrusion, formed bright aluminum treadplate or polished stainless steel.

The top of the compartment will be covered with bright aluminum treadplate rolled over the edges on the front, rear and outward side. These covers will have the corners welded.

Side compartment covers will be separate from the compartment tops.

All screws and bolts, which are not Grade 8, will be stainless steel and where they protrude into a compartment will have acorn nuts on the ends to prevent injury.

UNDERBODY SUPPORT SYSTEM

The backbone of the body support system will begin with the aerial torque box which is the strongest component of the apparatus and is designed for sustaining maximum loads.

An aluminum body structure will be mounted to the aerial torque box at three (3) points to create a floating substructure which will result in an 800 lb equipment support rating per lower compartment and provide up to 0.31" accumulative floor thickness.

The three (3) point body mounting system will consist of two (2) points in the front and one (1) in the rear. The front mounts will attach to the top of the stabilizer H-box, and the rear mount will attach to the rear of the torque box at the chassis centerline.

The body structure will be mounted with neoprene elastomer isolators. These isolators will have a broad load range, proven viability in vehicular applications, be of a fail-safe design and allow for all necessary movement in three (3) transitional and rotational modes.

The combination of the three (3) point mounting system and elastomer isolators allow the chassis and torque box to flex without driving loads into the body.

AGGRESSIVE WALKING SURFACE

All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards.

LOUVERS

All body compartments will be vented to provide one (1) way airflow out of the compartment that prevents water and dirt from gaining access to the compartment.

TESTING OF BODY DESIGN

Body structural analysis will be fully tested. Proven engineering and test techniques such as finite element analysis, model analysis, and strain gauging have been performed with special attention given to fatigue, life and structural integrity of the body and substructure.

The body will be tested while loaded to its greatest in-service weight.

The criteria used during the testing procedure will include:

- Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb.
- Making a 90 degree turn, while driving at 20 mph to simulate aggressive driving conditions.
- Driving the vehicle on at 35 mph on a washboard road.
- Driving the vehicle at 55 mph on a smooth road.
- Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement.

Evidence of the actual testing techniques will be made available upon request.

LEFT SIDE COMPARTMENTATION

The full height double lap door compartment ahead of the rear wheels will be 39.19" wide x 63.00" high x 26.00" deep inside the lower 25.50" and 12.00" deep inside the upper portion with a clear door opening of 36.44" wide x 56.00" high.

There will be one (1) lift-up door compartment above the wheelwell and stabilizer. The compartment will be 83.88" wide x 25.25" high x 12.00" deep inside with a clear door opening of 81.12" wide x 22.25" high.

The full height double door compartment behind the rear wheel will be 45.12" wide x 57.00" high x 26.00" deep inside the lower 25.50" and 12.00" deep in the upper portion with a clear door opening of 43.38" wide x 50.00" high.

RIGHT SIDE COMPARTMENTATION

The full height double lap door compartment ahead of the rear wheels will be 39.19" wide x 63.00" high x 26.00" deep inside the lower 25.50" and 12.00" deep inside the upper portion with a clear door opening of 36.44" wide x 56.00" high.

There will be one (1) lift-up door compartment above the wheelwell and stabilizer. The compartment will be 83.88" wide x 25.25" high x 12.00" deep inside with a clear door opening of 81.12" wide x 22.25" high.

The full height double door compartment behind the rear wheel will be 69.00" wide x 57.00" high x 26.00" deep inside the lower 25.50" and 12.00" deep in the upper portion with a clear door opening of 67.25" wide x 50.00" high.

REAR COMPARTMENT

A compartment will be provided at the rear of the unit.

Compartment will be 27.75" wide x 35.00" high x 26.25" deep with a clear door opening of 25.00" wide x 29.50" high.

The compartment will be furnished with a satin finish roll-up door.

SIDE COMPARTMENT DOORS

All hinged compartment doors will be lap style with double panel construction and fabricated of .09" 5052H32 aluminum. Doors will be a minimum of 1.50" thick. To provide additional door strength, a "C" section reinforcement will be installed between the outer and interior panels.

Doors will be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core will be installed on the door framing that seals onto the interior panel, to ensure a weather resisting compartment.

All compartment doors will have polished stainless steel continuous hinge with a pin diameter of .25", that is bolted or screwed on with stainless steel fasteners. A dielectric substance will be applied to each hinge fastener.

All door lock mechanisms will be fully enclosed within the door panels to prevent fouling of the lock in the event equipment inside shifts into the lock area.

Doors will be latched with recessed, polished stainless steel "D" ring handles and Eberhard 106 locks.

To prevent corrosion caused by dissimilar metals, compartment door handles will not be attached to outer door panel with screws. A rubber gasket will be provided between the "D" ring handle and the door.

REAR BUMPER

An aluminum rub rail will be provided at the rear of the unit. It will extend the full width of the body.

SCUFFPLATE ON INTERIOR OF COMPARTMENT DOOR(S)

The 12 compartment doors will include a polished stainless steel scuffplate to cover the entire width and height on the inside panel of each door pan.

Scuffplate will be located All body compartment doors.

COMPARTMENT LIGHTING

There will be seven (7) compartment(s) with two (2) white 12 volt DC LED compartment light strips. The dual light strips will be centered vertically along each side of the door framing. There will be two (2) light strips per compartment. The dual light strips will be in all body compartment(s).

Any remaining compartments without light strips will have a 6.00" diameter Truck-Lite, Model: 79384 light. Each light will have a number 1076 one filament, two wire bulb.

Opening the compartment door will automatically turn the compartment lighting on.

MOUNTING TRACKS

There will be recessed tracks installed vertically to support the adjustable shelf(s).

Tracks will not protrude into any compartment in order to provide the greatest compartment space and widest shelves possible.

The tracks will be provided in each compartment except for the one that contains the pump operator's panel.

ADJUSTABLE SHELVES

There will be 16 shelves with a capacity of 500 lb provided.

The shelf construction will consist of .188" aluminum painted spatter gray with 2.00" sides.

Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves will be held in place by .12" thick stamped plated brackets and bolts.

The location(s) will be in LS1 at the depth transition point, in RS1 at the transition point, in RS2 centered between the floor and the ceiling, in RS3 centered between the floor and the ceiling, in RS4 centered between the floor and the ceiling, in RS4 in the lower third, in RS4 in the upper third, in RS3 in the upper third, in RS3 in the upper third, in RS1 in the lower third to the left of the partition, in RS1 in the upper third to the left of the partition, in RS1 in the upper third to the left of the partition, in RS1 in the upper third to the right of the partition, in RS1 in the upper third to the right of the partition, in RS3 in the lower third to the right of the partition, in LS2 centered between the floor and ceiling, in LS3 in the upper third, in LS1 in the upper third, in LS1 in the upper third, in LS3 at the depth transition point and in B2 centered between the floor and ceiling.

SLIDE-OUT ADJUSTABLE HEIGHT TRAY

There will be one (1) slide-out tray provided.

Each tray will have 2.00" high sides and a minimum capacity rating of 250 lb in the extended position.

Each tray will be constructed of aluminum with a dual action finish.

Each tray will be mounted on a pair of side mounted slides. The slide mechanisms will have ball bearings for ease of operation and years of dependable service. The slides will be mounted to shelf tracks to allow the tray to be adjustable up and down within the designated mounting location.

An automatic lock will be provided for both the in and out tray positions. The lock trip mechanism will be located at the front of the tray and will be easily operated with a gloved hand.

The location(s) will be in RS1 in the lower third to the right of the partition

SLIDE-OUT FLOOR MOUNTED TRAY

There will be five (5) floor mounted slide-out tray(s) with 2.00" sides provided LS1, LS3, RS1, RS3 and RS4 compartments. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of aluminum. The finish will be painted spatter gray.

Slide mechanisms will be furnished by Innovative Industries, and be the Slidemaster Model SM3-SP, 100% extension, 3-section, one-way slides.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

One (1) partition horizontally mounted and bolted in place, will be installed in compartment RS3 24" forward of the rear wall

Two (2) partitions, vertically mounted in adjustable tracks, will be installed in on the floor of compartment LS3 and be the full depth and height of the lower section.

"L" SHAPED PARTITION IN COMPARTMENT

One (1) partition will be bolted in compartment RS1 11" forward of the rear wall. Each partition will be the "L" shaped.

PEGBOARD

There will be 3/16" thick aluminum pegboard spatter gray painted will be installed on the back wall of four (4) compartments. It will be mounted using two (2) horizontal tracks. Retainers will be used to mount the pegboard to the tracks. The pegboard(s) installed will be the full height of the upper standard depth section of the compartment. The holes will be .203" diameter, punched 1.00" on center. Pegboard will be provided in the following compartments: LS1, LS3, RS1 and RS3.

RUB RAIL

Bottom edge of the side compartments will be trimmed with a bright aluminum extruded rub rail.

Trim will be 3.12" high with 1.50" flanges turned outward for rigidity.

The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.

BODY FENDER CROWNS

Polished stainless steel fender crowns will be provided around the rear wheel openings.

An unpainted fender liner will be provided to avoid paint chipping. The liners will be removable to aid in the maintenance of rear suspension components.

A dielectric barrier will be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.

The fender crowns will be held in place with stainless steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion.

HARD SUCTION HOSE

Hard suction hose will not be required.

HANDRAILS

The handrails will be 1.25" diameter anodized aluminum extrusion, with a ribbed design, to provide a positive gripping surface.

Chrome plated end stanchions will support the handrail. Plastic gaskets will be used between end stanchions and any painted surfaces.

Drain holes will be provided in the bottom of all vertically mounted handrails..

Handrails will be located on the front of the body in positions needed to meet NFPA requirements.

ADDITIONAL HANDRAIL

One (1) handrail, 10.00" long, will be mounted on the top of compartment RS4 to assist with climbing up the steps on the front bulkhead wall.

AIR BOTTLE STORAGE (TRIPLE)

A quantity of one (1) air bottle compartment designed to hold (3) air bottles up to 6.50" in diameter x 26.00" deep will be provided on the right side ahead of the rear wheel. A triangular shaped polished stainless steel door with a Southco raised trigger C2 chrome lever latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment, black Dura-Surf friction reducing material will be provided.

AIR BOTTLE COMPARTMENT STRAP

Straps will be provided in the air bottle compartment(s) to help contain the air bottles. The straps will wrap around the neck of each bottle and attach to the wall of the compartment.

TRIANGULAR EXTINGUISHER STORAGE

A total of one (1) extinguisher storage compartment(s) will be provided on the right side behind the rear wheel. The triangular shaped compartment will be sized to fit two (2) extinguishers, each with a maximum diameter of 7.50" and an overall width of 11.00". A partition will be provided to separate the bottles. Inside the compartment, black Dura-Surf friction reducing material and strap to contain the air bottles shall be provided. The compartment will be furnished with a drain hole. A polished stainless steel, triangular shaped door with a Southco raised trigger C2 chrome lever latch will be provided to contain the air bottles. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

AIR BOTTLE STORAGE

A total of one (1) air bottle compartment shall be provided and located on the left side behind the rear wheel. The air bottle compartment shall be 15.00" wide x 7.50" tall x 26.00" deep. A polished stainless steel door with a chrome plated flush lift & turn latch shall be provided to contain the air bottle. The triangular shaped door will cover the air bottle opening and the fuel fill below it. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment, black Dura-Surf friction reducing material and strap to contain the air bottles will be provided.

AIR PACK STORAGE IN FENDER PANEL CORNER

There will be one (1) air pack compartment(s) provided on the left side ahead of the rear wheel. Each compartment will be tapered to match the profile of the space available in the fender. The compartment will be approximately 15.50" wide at the top and 5.00" wide at the bottom for the wheel cutout. The compartment(s) will be 14.50" tall at the body side compartment and 5.00" tall at the wheel cutout. The compartment(s) will be 26.00" deep and have a drain hole.

A vertically hinged door with tapered corners and a Southco raised trigger C2 chrome lever latch. The door will be polished stainless steel. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

AIR BOTTLE COMPARTMENT STRAP

A strap will be provided in four (4) air bottle compartment/s to contain the air bottles when the vehicle is parked on an incline. The strap will wrap around the neck and attach to the wall of the compartment and located air bottle and extinguisher compartments that don't have a strap in the option.

EXTENSION LADDER

There will be one (1) 35' two (2) section aluminum Duo-Safety Series 1200-A extension ladder(s) provided.

ADDED EXTENSION LADDER

There will be one (1) 28', two (2) section, aluminum, Duo-Safety Series 1200A extension ladder provided.

AERIAL EXTENSION LADDER

There will be one (1) 24' two (2) section aluminum Series 900-A extension ladder(s) provided and located in the ladder storage compartment.

ROOF LADDER

There will be two (2) 16' aluminum Duo-Safety Series 875-A roof ladder(s) provided.

ADDED ROOF LADDER

There will be one (1) aluminum, 14' Duo Safety 875-DR roof ladder provided on the inside of the aerial fly section.

AERIAL FOLDING LADDER

There will be one (1) 10' aluminum Duo-Safety Series 585-A folding ladder(s) provided and located in the ladder storage compartment.

GROUND LADDER STORAGE

Ladder tunnels will be provided at the rear of the apparatus on either side of the turntable.

Tunnels will be capable of holding up to two (2) two-section pumper style ladders on each side not in excess of 22.00" wide or 5-13/16" in thickness.

The right side ladders will extend through the front bulkhead into the front body compartment or pump house module. A rubber seal will be provided to enclose the ladders in the gap between compartments.

The ladders will be held captive top and bottom by stainless steel tracks. A polyethylene wear plate will be provided to prevent ladders from being scuffed by contacting metal parts. The plate will be mounted to the bottom of the entrance area of the ladder tunnels.

All ladders will be removable individually without having to remove any other ladder.

A Velcro® strap will be provided to help contain the ladders.

A smooth aluminum door will be provided on each ladder tunnel.

LADDER STORAGE LIGHTING

There will be one (1) Truck Lite Model 44042C, 4.00" white LED lights with Model 40700, grommets used to illuminate the torque box ladder storage compartment. One (1) located to the side in each ladder storage compartment to illuminate the door opening area.

The lights will be activated when the ladder storage compartment door is opened.

DURA-SURF LADDER SLIDES

Black Dura-Surf friction reducing material will be added to the stainless steel slides, on the bottom horizontal surfaces, of the ladder storage rack.

NARROWED LADDER TROUGH STORAGE

A narrowed trough will be provided for storage of two (2) 2-section ladders in the ladder storage area.

PIKE POLE PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) 8' or longer pike pole mounted in a bracket fastened to the apparatus.

The pike pole is not on the apparatus as manufactured. The fire department will provide and mount the pike pole.

There will be two (2) pike pole(s) provided. The pike pole(s) will be a Fire Hooks Unlimited 12' all purpose hook model APH-12.

6' PIKE POLE PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, Section 9.9.4 requires one 6' pike pole or plaster hook mounted in a bracket fastened to the apparatus.

The pike pole is not on the apparatus as manufactured. The fire department will provide and mount the pike poles.

There will be two (2) 6' pike pole(s) provided. The pike pole(s) will be a Fire Hooks Unlimited 6 foot and 8 foot roof hook.

PIKE POLE PROVIDED BY FIRE DEPARTMENT

There will be two (2) 3' pike pole(s) provided by the fire department. The pike pole(s) will be a Duo-Safety 3' Pike Pole.

PIKE POLE STORAGE IN TORQUE BOX/LADDER STORAGE

There will be ABS tubing provided in the torque box/ladder storage area for a total of six (6) pike poles.

If the head of a pike pole can come into contact with a painted surface, a stainless steel scuffplate will be provided.

PULL-OUT/DROP DOWN STEP

A total of two (2) pull-out and drop down, camper style step(s) will be provided on the rear wall of the body, one (1) each side on the left and right side to provide easy access to the rear hose bed(s).

Each step will be 19.00" wide x 8.00" deep. The stepping surface will be bright aluminum treadplate.

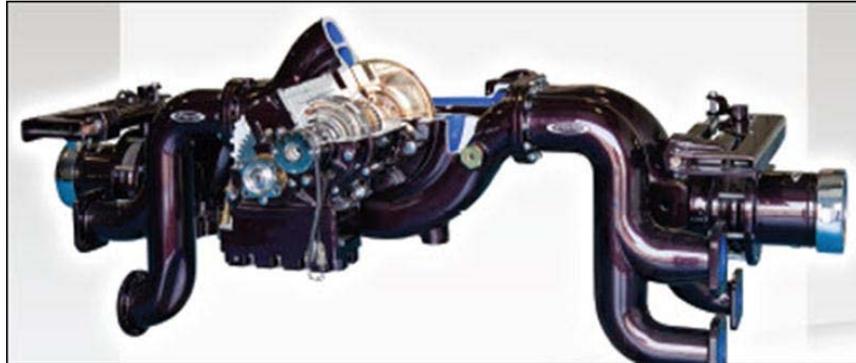
Each step will include an Amdor LumaBar, Model AY-LB-12HW0** to illuminate the ground area beneath the step.

Each step will include a white 12 volt DC LED light to illuminate the stepping surface.

Four (4) additional folding steps will be located one (1) on the right side front bulkhead and three (3) on the right side front bulkhead. The step(s) will be bright finished, non-skid with a black coating. Each step will incorporate an LED light to illuminate the stepping surface. The step(s) can be used as a hand hold with two openings wide enough for a gloved hand.

PUMP

Pump will be a Pierce, low profile, 1500 gpm single stage midship mounted centrifugal type, mounted below the cab. The pump will have a 15 percent reserve capacity to allow for extended time between pump rebuild. To ensure efficient pump/vehicle design the capacity to weight ratio will not be less than 1.5:1.



The pump casing will consist of three (3) discharge outlets, one (1) to each side in line with the impeller and one (1) to the rear. The pump casing will incorporate two (2) water strippers to maintain radial balance.

Pump will be the Class A type.

Pump will be certified to deliver the percentage of rated discharge from draft at pressure indicated below:

- 100 percent of rated capacity at 150 psi net pump pressure
- 70 percent of rated capacity at 200 psi net pump pressure
- 50 percent of rated capacity at 250 psi net pump pressure

The pump will have the capacity to deliver the percentage of rated discharge from a pressurized source as indicated below:

- 135 percent of rated capacity at 100 psi net pump pressure from a 5 psi source

Pump body will be fine-grained gray iron. Pump will incorporate a heater/cooling jacket integral to the pump housing.

The impeller will be high strength vacuum cast bronze alloy accurately machine balanced and splined to a 10 spline stainless steel pump shaft for precision fit, exceptional durability, and efficiency. Double replaceable reverse flow labyrinth type bronze wear ring design will help to minimize end thrust. The impeller will be a twisted vane design to create higher lift.

The pump will include o-ring gaskets throughout the pump.

Deep groove radial type oversize ball bearings will be provided. The bearings will be protected at the openings from road dirt and water with an oil seal and a water slinger.

The pump will have a flat, patterned area on the top of the pump intake wye to allow standing for plumbing maintenance. The main inlet manifold will be 6.00" in diameter and will have a low profile design to facilitate low crosslays and high flows.

For ease of service, the pump housing, intake wye, impeller, mechanical seal, and gear case will be accessible from above the chassis frame by tilting the cab. The intake wyes will be removable without having to remove the main intake casting. Removal of the main inlet wyes will provide access to the impeller, mechanical seal, and wear ring.

The tank to pump line and the primary discharge line will be the only piping required to be removed for overhaul.

For ease of service and overhaul there will be no piping or manifolding located directly over the pump.

PUMP MOUNTING

Pump will be mounted to the chassis frame rails directly below the crew cab, to minimize wheelbase and facilitate service, using rubber isolators in a modified V pattern that include two (2) central mounted isolators located between the frame rails, and one (1) on each side outside the frame rails. The mounting will allow chassis frame rails to flex independently without damage to the fire pump. Each isolator will be 2.55" in total outside diameter and will be rated at 490 lb. The pump will be completely accessible by tilting the cab with no piping located directly above the pump.

MECHANICAL SEALS

Silicon carbide mechanical seals will be provided. The seals will be spring loaded and self-adjusting. The seals will have a minimum thermal conductivity of 126 W/m*K to run cooler. Seals will have a minimum hardness of 2800 kg/mm² to be more resistant to wear, and have thermal expansion characteristics of no more than 4.0 X10⁻⁶mm/mm*K to be more resistant to thermal shock.

PUMP GEAR CASE

The pump gear case will be a pressure-lubricated to cool, lubricate, and filter the oil. The gear case will include an auxiliary PTO opening. The gear case will be constructed of lightweight aluminum, and impregnated with resin in accordance to MIL Spec MIL-I-17563. A dipstick, accessible by tilting the cab, will be provided for easy fluid level checks. A filter screen will be provided for long life.

The gear case will consist of two (2) gears to drive the pump impeller and one (1) for the auxiliary PTO.

The auxiliary PTO opening will provide for the addition of PTO driven accessories.

The pump will be driven through the rear engine power take-off and clutch. The rear engine power take-off drive will be live at all times to allow for pump and roll applications. Rear engine power take-off's allow for high horsepower and torque ratings needed for large pump applications, and is a proven drive system throughout the rugged construction industry.

CLUTCH

There will be a heavy-duty electric clutch mounted directly to the front of the pump to engage and disengage the pump without gear clash. The clutch will be a multiple disc design for maximum torque.

The clutch will be fully self-adjusting to provide automatic wear compensation, and consistent torque throughout the life of the clutch. Positive engagement and disengagement will be provided through a high efficient and dependable magnetic system to assure superior performance. The clutch will have a 500 lb-ft rating. Clutch will be of a time-tested design used in critical military applications.

PUMPING MODE

Pump will provide for both pump and roll mode and stationary pumping mode.

Stationary pumping mode will be accomplished by stopping the vehicle, setting the parking brake and engaging the water pump switch on the cab switch panel. The transmission will shift to "Neutral" range automatically when the parking brake is set. The "OK to Stationary Pump" indicator will also illuminate when the parking brake is set. If the vehicle is equipped with a foam system or CAFS system, these systems will be engaged from the cab switch panel as well.

Pump and roll mode will be accomplished by the use of the main pump and will not require the use of a secondary pump. Pump and roll mode will use the same operation sequence as stationary pumping mode with a few additional steps. After the vehicle is setup for stationary pumping, the operator will leave the cab and set-up the pump panel to discharge at the desired outlet(s). Upon returning to the cab, the operator will disengage the parking brake. An "OK to Pump & Roll" indicator will illuminate on the cab switch panel. First gear on the transmission gear selector will be selected by the operator for pump and roll operations. The operator as needed will apply the foot throttle. Pump and roll mode will be maintained unless the transmission shifts out of first gear.

Stopping either stationary pumping mode or pump and roll mode will be accomplished by pressing the "Water Pump" switch down to disengage the pump.

PUMP SHIFT

Pump will be engaged in not more than two steps, by simply setting the parking brake, which will automatically put the transmission into neutral, and activating a rocker switch in the cab. Switches in the cab will also allow for water, foam, or CAFS if equipped, and activate the appropriate system to preset parameters. The engagement will provide simple two-step operation, enhance reliability, and completely eliminate gear clash. The shift will include the indicator lights as mandated by NFPA. A direct override switch will be located behind a door in the lower pump operator's panel. The switch will automatically disengage when the door is closed.

As the parking brake is applied, the pump panel throttle will be activated and deactivate the chassis foot throttle for stationary operation.

Pump and roll operation will be available by releasing the parking brake with the pump in the pumping mode. Releasing the parking brake will activate the chassis foot throttle, and deactivate the pump panel throttle. To protect from accidental pump overheating, the pump will automatically disengage when the truck transmission shifts into second gear.

TRANSMISSION LOCK UP

Transmission lock up is not required as transmission will automatically shift to neutral as soon as the parking brake is set.

AUXILIARY COOLING SYSTEM

A supplementary heat exchange cooling system will be provided to allow the use of water from the discharge side of the pump for cooling the engine water. A water-to-coolant heat exchanger will be used.

INTAKE RELIEF VALVE - PUMP

An Akron Style 53 relief valve will be installed on the suction side of the pump preset at 125 psig.

The relief valve will have a working range of 50 psi to 250 psi.

The outlet will terminate below the frame rails with a 2.50" National Standard hose thread adapter and will have a "do not cap" warning tag.

The relief valve pressure control will be located behind behind the right side pump panel with a stainless steel access door .

PRESSURE CONTROLLER

A Pierce Pressure Governor will be provided. An electric pressure governor will be provided which is capable of automatically maintaining a desired preset discharge pressure in the water pump. When operating in the pressure control mode, the system will automatically maintain the discharge pressure set by the operator (within the discharge capabilities of the pump and water supply) regardless of flow, within the discharge capacities of the water pump and water supply.

A pressure transducer will be installed in the water discharge of the pump. The transducer continuously monitors pump pressure sending a signal to the Electronic Control Module (ECM).

The governor can be used in two (2) modes of operation, RPM mode and pressure modes.

In the RPM mode, the governor can be activated after vehicle parking brake has been set. When in this mode, the governor will maintain the set engine speed, regardless of engine load (within engine operation capabilities).

In the pressure mode, the governor system can only operate after the fire pump has been engaged and the vehicle parking brake has been set. When in the pressure mode, the pressure controller monitors the pump pressure and varies engine speed to maintain a precise pump pressure. The pressure controller will use a quicker reacting J1939 database for engine control.

A preset feature allows a predetermined pressure or rpm to be set.

A pump cavitation protection feature is also provided which will return the engine to idle should the pump cavitate. Cavitation is sensed by the combination of pump pressure below 30 psi and engine speed above 2000 rpm for more than five (5) seconds.

The throttle will be a vernier style control, with a large control knob for use with a gloved hand. A throttle ready light will be provided adjacent to the throttle control. A large 0.75" RPM display will be provided to be visible at a glance.

Check engine, and stop engine indicator lights will be provided for easy viewing.

Large 0.75" push buttons will be provided for menu, mode, preset, and silence selections.

The water tank level indicator will be incorporated in the pressure governor.

A fuel level indicator will be incorporated in the pressure controller.

A pump hour meter will be incorporated in the pressure controller.

The pressure controller will incorporate monitoring for engine temperature, oil pressure, fuel level alarm, and voltage. Pump monitoring will include, pump gearcase temperature, error codes, diagnostic data, pump service reminders, and time stamped data logging, to allow for fast accurate trouble shooting. It will also notify the driver/engineer of any problems with the engine and the apparatus. Complete understandable messages will be provided in a 20-character display, providing for fewer abbreviations in the messages. An automatic dim feature will be included for night operations.

The pressure controller will include a USB port for easy software upgrades, which can be downloaded through a USB memory stick, eliminating the need for a laptop for software installations.

A complete interactive manual will be provided with the pressure controller.

PRIMER SYSTEM

A Waterous electric pump priming system conforming to standards outlined in the current edition of NFPA 1901 will be furnished with the apparatus.

One (1) VPO electric motor driven rotary vane primer will be provided.

One (1) VAP vacuum activated priming valve will be plumbed main pump.

One (1) momentary push-button control will be located at the pump operator's panel.

The push button control system control will operate an electric priming motor and the priming valve will automatically open during priming and close when the primer is deactivated. The valve will be remote mounted behind the right side pump panel as far forward as practical for ease of maintenance

THERMAL RELIEF VALVE

A Pierce thermal relief valve will be included on the pump that monitors pump water temperature and opens to relieve water to cool the pump when the temperature of the pump water exceeds 120 Degrees F (49 C).

The thermal protection system will include a red warning light and audible alarm mounted on the pump operator panel.

The discharge line will be 3/8 inch diameter tubing plumbed to ground near pump operator's panel.

PUMP MANUALS

There will be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals will be provided by the pump manufacturer in the form of two (2) electronic copies. Each manual will cover pump operation, maintenance, and parts.

PLUMBING, STAINLESS STEEL AND HOSE

All inlet and outlet lines will be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's will be equipped with brass or stainless steel couplings. All stainless steel hard plumbing will be a minimum of a schedule 10 wall thickness.

Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping will be equipped with victaulic or rubber couplings.

Plumbing manifold bodies will be ductile cast iron or stainless steel.

All piping lines are to be drained through a master drain valve or will be equipped with individual drain valves. All drain lines will be extended with a hose to drain below the chassis frame.

All water carrying gauge lines will be of flexible polypropylene tubing.

All piping, hose and fittings will have a minimum of a 500 PSI hydrodynamic pressure rating.

MAIN PUMP INLETS

A 6.00" pump manifold inlet will be provided on each side of the vehicle. The suction inlets will include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.

Main pump inlets will not be located on the main operator's panel and will maintain a low connection height by terminating below the top of the chassis frame rail.

MAIN PUMP INLET CAP PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 16.6.8 requires all intakes to be provided with caps or closures capable of withstanding a hydrostatic gauge pressure of 500 psi.

The caps are not on the apparatus as manufactured. The fire department will provide both caps for the main pump inlets.

VALVES

All ball valves will be Akron® Brass. The Akron valves will be the 8000 series heavy-duty style with a stainless steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.

Valves will have a **ten (10) year** warranty.

LEFT SIDE INLET

There will be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.

The auxiliary inlet will be provided with a strainer, chrome swivel and plug.

The location of the valve for the one (1) inlet will be recessed behind the pump panel.

ANODE, INLET

A pair of sacrificial zinc anodes will be provided in the water pump inlets to protect the pump from corrosion.

INLET CONTROL

The side auxiliary inlet(s) will incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism will indicate the position of the valve.

FRONT INLET

A 6.00" inlet front inlet with die cast zinc screens will be provided using 5.00" welded black iron pipe and a 5.00" butterfly valve. Only radiused elbows will be used in the piping, no mitered joints.

Drains are furnished in all the low points of piping and have .75" valves with swing handle.

A bleeder valve will be located at the threaded connection.

The front suction will be located on the right side of the bumper extension.

FRONT INLET CONTROL

The front inlet will be gated with the control located at the pump operator's panel. The valve operating mechanism will indicate the position of the valve or an indicator will be provided to show when the valve is closed.

There will be an electric valve controller provided. The control will be momentary to allow the valve to be gated for ease of operation. Indicator lights will be provided to show if the valve is open or closed.

FRONT INLET INTAKE RELIEF VALVE

An Akron Brass Style 53 intake pressure relief valve will be provided on the inlet side of the valve preset at 125 psig .

The pressure relief valve will be adjustable from 50 to 250 psi.

The outlet will be 2.50" National Standard hose thread and terminate below the frame rails and will have a "do not cap" warning tag near the discharge outlet.

FRONT INLET CAP

The front inlet will have National Standard hose threads with a long handle cap.

The cap will incorporate a thread design to automatically relieve stored pressure in the line when disconnected.

The cap will be fabricated from brass material.

FRONT INLET ELBOW

The front inlet will have a 6.00" inlet elbow with swivel, terminating with Male National Standard Hose Thread and a long handle cap.

The swivel will be Chrome

The long handle cap will be Chrome .

A quarter-turn style of bleeder bleeder will be provided on the front inlet elbow.

INTERLOCK

An interlock system will be provided that will not allow the cab to be lifted unless the front suction is in the correct location as to not damage the cab.

INLET BLEEDER VALVE

A 0.75" bleeder valve will be provided for each side gated inlet. The valves will be located behind the panel with a swing style handle control extended to the outside of the panel. The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders will be routed below the chassis frame rails.

TANK TO PUMP

The booster tank will be connected to the intake side of the pump with heavy duty 4.00" piping and a quarter turn 3.00" full flow line valve with the control located at the operator's panel. A rubber coupling will be included in this line to prevent damage from vibration or chassis flexing.

A check valve will be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.

TANK REFILL

A 1.50" combination tank refill and pump re-circulation line will be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.

LEFT SIDE DISCHARGE OUTLETS

There will be two (2) discharges with a 2.50" valves on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter. Discharges will be located below the cab, and will be no higher than the top of the chassis frame rail. Discharges will not be located on the pump operator's panel. Lever controls will be provided at the valve.

RIGHT SIDE DISCHARGE OUTLETS

There will be One (1) discharge outlet with a 2.50" valve on the right side of the apparatus, terminating with a 2.50" MNST adapter. The discharge(s) will be located below the crew cab and will be no higher than the top of the chassis frame rail.

There will be Akron 9335 electric valve controller(s) provided on the pump operators panel. The electric control(s) must be of a true position feedback design, requiring no clutches in the motor or current limiting. The unit(s) must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate the valve actuator. The controller(s) will provide position indication on a full color, backlit LCD display. They will have manual adjustment of the brightness as well as an auto dimming option.

In addition to valve position, each controller will include a pressure display.

LARGE DIAMETER DISCHARGE OUTLET

There will be a 4.00" discharge outlet with a 4.00" valve installed on the right side of the apparatus, terminating with 4.00" MNST threads. The discharge will be located below the crew cab and will be no higher than the top of the chassis frame rail.

There will be an Akron 9335 electric valve controller provided on the pump operators panel. The electric control must be of a true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate the valve actuator. The controller will provide position indication on a full color, backlit LCD display. It will have manual adjustment of the brightness as well as an auto dimming option.

In addition to valve position, the controller will include a pressure display.

REAR DISCHARGE OUTLET

There will be Two (2) discharge outlets piped to the rear of the aerial body, on one (1) each side installed so proper clearance is provided for spanner wrenches or adapters. Plumbing will consist of 2.50" piping along with a 2.50" full flow ball valve with the control from the pump operator's panel. The discharge piping will be routed through the water tank.

DISCHARGE CAPS/PLUGS PROVIDED BY DEALER

NFPA 1901, 2016 edition, section 16.7.4 states - "All discharge outlet connections, except connections to which a hose will be pre-connected, will be equipped with caps or closures capable of withstanding a hydrostatic gauge pressure of 100 psi over the maximum pump close-off pressure or 500 psi, whichever is greater.

Caps/plugs will not provided for any discharge or inlet from 1.00" thru 3.00" in size. The dealer and/or fire department will provide these caps/plugs to meet NFPA section 16.7.4. The number of outlets/inlets the dealer will supply caps/plugs for is Five (5) discharge outlets.

OUTLET BLEEDER VALVE

A 0.75" bleeder valve will be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.

The valves will be located behind the panel with a swing style handle control extended to the outside of the side pump panel. The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders will be located at the bottom of the pump panel. They will be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders will be routed below the chassis frame rails.

REAR OUTLET ELBOWS

The 2.50" discharge outlets located at the rear of the apparatus will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.

The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

LARGE DIAMETER OUTLET ELBOWS

The 4.00" outlet will be furnished with a 4.00" (F) National Standard hose thread x 4.00" Storz elbow adapter with Storz cap.

REDUCER

There will be two (2) adapters with 2.50" FNST x 1.50" MNST threads and a 1.50" chrome plated cap installed on a 2.5" outlet, one each side..

DISCHARGE OUTLET CONTROLS

The right side discharges will incorporate a quarter-turn ball valve and be controlled by Akron 9335 electric valve controllers provided on the pump operators panel. The electric controls must be of a true position feedback design, requiring no clutches in the motor or current limiting. The units must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate their corresponding valve actuator. The controllers will provide position indication on a full color, backlit LCD display. They will have manual adjustment of the brightness as well as an auto dimming option. In addition to the valve controls, the electric valve controllers will include a pressure display

All other outlets will have manual swing handles that operate in a vertical up and down motion. These handles will be able to lock in place to prevent valve creep under pressure.

AERIAL OUTLET

The aerial waterway will be plumbed from the pump to the water tower line with 4.00" pipe and a 4.00" valve. The control for the waterway valve will be located at the pump operator's panel.

An indicator will be provided to show when the valve is in the open or closed position.

CROSSLAY MODULE

The crosslay module will be full width of the rear body.

The forward, upper corners of the module will have full body corners.

CROSSLAY HOSE RESTRAINT

A 2.00" black nylon webbing design restraint will be provided across the ends of crosslay(s) to secure the hose during travel. The webbing assembly is to be attached at the bottom of the crosslay(s) with footman loops as a permanent attachment and is attached at the top outside corners with two (2) seat belt buckles. The female end is permanently attached above the crosslay(s) and the male end attached to the webbing.

There will be a metal bar, to connect the buckles, and an attached web strap, to allow a single pull release.

The color of the release strap will be orange.

CROSSLAY(S), LOWER

There will be two (2) lower crosslays provided.

1.50" Crosslays

There will be two (2) 1.50" crosslays plumbed with 2.00" welded or formed schedule 10 304L stainless steel pipe.

The crosslays will be low mounted with the bottom of both crosslay trays no more than 11.00" above the frame rails for simple, safe reloading and deployment.

There will be a 1.50" National Standard hose thread 90-degree swivel provided in each hose bed, so that the hose may be removed from either side of apparatus. The swivel will be as far outbound as possible for ease of changing hose.

Each crosslay will be gated with a 2.00" quarter turn ball valve with the controls located at the pump operator's panel.

Each hose bed will be capable of carrying 200' of 1.75" double jacket hose .

Crosslay Hose Trays

A removable tray will be provided for each crosslay hose bed. The crosslay tray will be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes will be in the floor and additional hand holes will be provided in the sides for easy removal and installation from the compartment. The floor of the trays will be perforated to allow for drainage and hose drying.

Trays will be held in place by a mechanical spring-loaded stainless-steel latch that automatically deploys upon loading the trays to hold the trays in place during transit.

CROSSLAY(S), UPPER

There will be one (1) upper crosslay provided.

2.50" Crosslay

There will be one (1) 2.50" crosslay plumbed with 2.50" welded or formed schedule 10 304L stainless steel pipe.

There will be a 2.50" National Standard hose thread 90-degree swivel provided in each hose bed, so that hose may be removed from either side of apparatus. The swivel will be as far outbound as possible for ease of changing hose.

Each crosslay will be gated with a 2.50" quarter turn ball valve with the controls located at the pump operator's panel.

Each hose bed will be capable of carrying 200' of 2.50" double jacket hose .

Crosslay Hose Trays

A removable tray will be provided for each crosslay hose bed. The crosslay tray will be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes will be in the floor and additional hand holes will be provided in the sides for easy removal and installation from the compartment. The floor of the trays will be perforated to allow for drainage and hose drying.

Trays will be held in place by a mechanical spring-loaded stainless-steel latch that automatically deploys upon loading the trays to hold the trays in place during transit.

LADDER STORAGE

Mounting will be provide for one (1) Little Giant Ladder located in the upper crosslay module. The storage will be enclosed and removable from either side of the truck. A Velcro® strap will be provided on each end of the enclosure. The Little Giant Ladder to be stored will be a "OVERHAUL" model 17, part number 15197 .

FOAM SYSTEM

A foam system will not be required on this apparatus.

PUC MODULE

The pump module will be separate from the hose body and compartments so that each may flex independently of the other. It will be a fabricated assembly of aluminum tubing, angles and channels which supports both the plumbing and the side running boards.

The pump module will be mounted on the chassis frame rails with standard body angles in four places to allow for chassis frame twist.

Pump module, plumbing and gauge panels will be removable from the chassis in a single assembly.

PUMP CONTROL PANELS (Left Side Control)

Pump controls and gauges will be located midship at the left (driver's) side of the apparatus and properly identified.

The main pump operator's control panel shall be completely enclosed and located in the forward section of the body compartment. There will be a single lap door, hinged on the rear side to protect against road debris and weather elements. The pump operator's panels will be no more than 31.00" wide, and made in four (4) sections with the center section easily removable with simple hand tools. For the safety of the pump operator, there will be no discharge outlets or pump inlets located on the main pump operators panel.

Layout of the pump control panel will be ergonomically efficient and systematically organized. The upper section will contain the master gauges. This section will be angled down for easy visibility. The center section will contain the pump controls aligned in two horizontal rows. The pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable) will be located on or adjacent to the center panel, on the side walls for easy operation and visibility. The lower section will contain the outlet drains.

Manual controls will be easy moving 8" long lever style controls that operate in a vertical, up and down swing motion. These handles will have a 2.25" diameter knob and be able to lock in place to prevent valve creep under any pressure. Bright finish bezels will encompass the opening, be securely mounted to the pump operator's panel, and will incorporate the discharge gauge bezel. Bezels will be bolted to the panel for easy removal and gauge service. The driver's side discharges will be controlled directly at the valve. There will be no push-pull style control handles.

Identification tags for the discharge controls will be recessed within the same bezel. The discharge identification tags will be color coded, with each discharge having its own unique color.

All remaining identification tags will be mounted on the pump panel in chrome-plated bezels.

All discharge outlets will be color coded and labeled to correspond with the discharge identification tag.

The pump panels for the discharge and intake ports will be located ahead of the pump module with no side discharge or intake higher than the frame rail. The pump panels will be easily removable with simple hand tools.

A recessed cargo area will be provided at the front of the body, ahead of the water tank above the plumbing.

RIGHT SIDE PUC MODULE COMPARTMENT

A full height compartment with a single lap door, hinged to the rear and ahead of the front stabilizer will be provided, as convenient large storage compartment for often used items for the crew. The interior dimensions of this compartment will be approximately 30.25" wide x 52.00" high x 25.13" deep. The depth of the compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment will be approximately 28.00" wide x 52.00 high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

The following drawing(s) will be provided for approval by the customer. The drawing(s) will be made for up 33595 apparatus and/or similar Pierce job number.

PUMP OPERATOR'S PANEL DRAWING

A detailed drawing to scale of the pump operator's panel will be provided for the customer to review. The drawing will include all of the gauges, controls, switching, etc., located on the pump operator's panel. The customer will be allowed to make changes and/or mark-ups to this approval drawing. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved pump operator's panel drawing will become part of the contract documents.

Due to the way drain(s), bleeder(s), operational/maintenance tag(s) and NFPA required warning tag(s) are placed on pump panel(s), these items will NOT be shown on any pump panel approval drawing(s). These item(s) will be placed on pump panel(s) at the fire apparatus manufacturer discretion.

REMAINING PUMP PANEL(S)

Detailed drawing(s) to scale of the remaining pump panel(s) will be provided for the customer to review. The drawing(s) will include all of the gauges, controls, switching, etc., located on the pump panel(s). The customer will be allowed to make changes and/or mark-ups to these approval drawing(s). The fire apparatus manufacturer will make revisions (If needed) to the drawing(s) per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved pump panel drawing(s) will become part of the contract documents.

Due to the way drain(s), bleeder(s), operational/maintenance tag(s) and NFPA required warning tag(s) are placed on pump panel(s), these items will NOT be shown on any pump panel approval drawing(s). These item(s) will be placed on pump panel(s) at the fire apparatus manufacturer discretion.

COLOR CODED TAGS

A detailed drawing/chart of the colors used on all of the inlet(s) and outlet(s) will be provided for the customer to review. The customer will be allowed to make changes and/or mark-ups to this approval drawing/chart. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved drawing/chart of the colors will become part of the contract documents.

SPECIAL TEXT/VERBIAGE TAGS

A detailed drawing/chart of the text/verbiage used on all of the inlet(s) and outlet(s) will be provided for the customer to review. The customer will be allowed to make changes and/or mark-ups to this approval drawing/chart. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved drawing/chart of the text/verbiage will become part of the contract documents.

PUMP PANEL CONFIGURATION

The pump panel configuration will be arranged and installed in an organized manner that will provide user-friendly operation.

PUMP OPERATOR'S PLATFORM

A pull out platform will be provided at the pump operator's control panel.

The front edge and the top surface of the platform will be made of bright aluminum treadplate with a Morton Cass insert.

The platform will be 22.00" deep and as wide as possible. The platform will lock in the retracted and the extended position.

The platform will be wired to the "step not stowed" indicator in the cab.

PUMP OPERATOR'S PLATFORM PERIMETER LIGHT

There will be an On Scene Solutions, Model Night Stick Access, 20.00" white 12 volt DC LED strip light provided to illuminate the ground area.

PUMP AND GAUGE PANEL

The pump operator's panel and gauge panels shall be constructed of stainless steel with a brushed finish.

The side control panels shall be constructed of stainless steel with a black Line-X® spray-on polyurethane/polyurea material finish.

PUMP AND PLUMBING ACCESS

Simple access to the plumbing will be provided through the front of the body area by raising the cab for complete plumbing service and valve maintenance. Access to valves will not require removal of operator panels or pump panels. Access for rebuilding of the pump will not require removal of more than the tank to pump line and a single discharge line. This access will allow for fast, easy valve or pump rebuilding, making for reduced out of service times. Steps will be provided for access to the top of the pump.



Access to the pump will be provided by raising the cab. The pump will be positioned such that all maintenance and overhaul work can be performed above the frame and under the tilted cab. The service and overhaul work on the pump will not require the removal of operator panels or pump panels. Complete pump casing and gear case removal will require no more than removal of the intake and discharge manifolds, driveline, coolers and a single discharge line. The pump case and gear case will be able to be removed by lifting upward without interference from piping and be removable in less than 3 hours.

PUMP COMPARTMENT LIGHT

There will be two (2) Whelen®, Model 3SC0CDCR, 3.00" white 12 volt DC LED light(s) with Whelen, Model 3FLANGEC, flange(s) installed in the plumbing area.

The light(s) will be activated by a toggle switch located in the pump compartment area.

PUMP PANEL GAUGES AND CONTROLS

The following will be provided on the pump and gauge panels in a neat and orderly fashion. These gauges will be in addition to what is provided with the pressure controller.

- Engine Oil Pressure Gauge: With visual and audible warning
- Engine Water Temperature Gauge: With visual and audible warning

- Tachometer: Electric
- Master Pump Drain Control
- Voltmeter

THROTTLE READY GREEN INDICATOR LIGHT

There will be a green indicator light integrated with the pressure governor and/or engine throttle installed on the pump operators panel that is activated when the pump is in throttle ready mode.

AIR HORN SWITCH

An air horn control switch will be provided at the pump operator's control panel. This switch will be red and properly labeled. The switch will be located within easy reach of the operator in the electrical switch panel.

VACUUM AND PRESSURE GAUGES

The pump vacuum and pressure gauges will be liquid filled and manufactured by Class 1 Incorporated ©.

The gauges will be a minimum of 4.00" in diameter and will have white faces with black lettering, with a pressure range of 30.00"-0-600#.

Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.

The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel.

Test port connections will be provided at the pump operator's panel. One will be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They will have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They will be marked with a label.

This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.

PRESSURE GAUGES

The individual "line" pressure gauges for the discharges will be interlube filled and manufactured by Class 1©.

They will be a minimum of 2.00" in diameter and the dial will have white faces with black markings.

Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.

Gauges will have a pressure rating of 30.00" 0-600 psi.

The individual pressure gauge will be installed as close to the outlet control as practical.

This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.

WATER LEVEL GAUGE

An electric water level gauge will be incorporated in the pressure controller that registers water level by means of 9 LEDs. They will be at 1/8 level increments with a tank empty LED. The LEDs will be a bright type that is readable in sunlight, and have a full 180-degree of clear viewing.

To further alert the pump operator, the gauge will have a warning flash when the tank volume is less than 25%, and will have "Down Chasing LEDs when the tank is almost empty.

The level measurement will be ascertained by sensing the head pressure of the fluid in the tank or cell.

There will be a light driver module with this installation to power additional water level gauge(s) included on the apparatus.

SIDE CONTROL PUMP OPERATOR'S/PUMP PANEL LIGHTING

Illumination will be provided for controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus and the equipment provided on it. External illumination will be a minimum of five (5) foot-candles on the face of the device. Internal illumination will be a minimum of four (4) footlamberts.

The pump panels will be illuminated by two (2) Truck-Lite, Model 60354C, 6.00" x 2.00" oval LED lights with white LEDs grommets and chrome covers installed under the cross lays, one (1) on the left side and one (1) on the right side.

The pump operator's panel will utilize the same LED strip lighting at the forward doorframe as all other compartment lighting.

There will be a small white LED pump engaged indicator light installed overhead.

AIR HORN SYSTEM

There will be two (2) Grover air horns recessed in the front bumper. The horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed in-line to prevent loss of air in the air brake system.

Air Horn Location

The air horns will be located on each side of the bumper, inside of the frame rails.

AIR HORN CONTROL

Two (2) lanyard rope pull controls will be provided, one (1) within reach of the driver and one (1) within reach of the officer.

AUXILIARY MECHANICAL SIREN

A Federal Q2B® siren will be furnished.

The control solenoid will be powered up after the emergency master switch is activated.

The mechanical siren will be mounted on the bumper deck plate. It will be mounted on the left side. A reinforcement plate will be furnished to support the siren.

The mechanical siren will be actuated by a foot switch on the officer's side and by the horn button in the steering wheel. The driver will have the option to control the siren or the chassis horns from the horn button by means of a selector switch located on the instrument panel.

A momentary red switch will be included in the right side overhead switch panel to activate the siren brake.

A momentary red switch will be included in the left side overhead switch panel to activate the siren brake.

FRONT ZONE UPPER WARNING LIGHTS

There will be two (2) 21.50" Whelen® Freedom IV LED lightbars mounted on the cab roof, one (1) on each side, above the driver's and passenger's door, at a 45 degree angle.

The driver's side lightbar will include the following:

- One (1) red flashing LED module in the outside end position.
- One (1) red flashing LED module in the outside front corner position.
- One (1) red flashing LED module in the outside front position.
- One (1) red flashing LED module in the inside front position.
- One (1) red flashing LED module in the inside front corner position.

The passenger's side lightbar will include the following:

- One (1) red flashing LED module in the inside front corner position.
- One (1) red flashing LED module in the inside front position.
- One (1) blue flashing LED module in the outside front position.
- One (1) blue flashing LED module in the outside front corner position.
- One (1) red flashing LED module in the outside end position.

There will be clear lenses included on the lightbar.

There will be a switch in the cab on the switch panel to control the lightbars.

FRONT BASKET WARNING LIGHTS

There will be two (2) Whelen® Model TLI**, 1.50" high x 5.00" long x 0.50" deep warning lights installed on the front of the basket per the following:

- the left side light to include blue flashing LEDs
- the right side light to include red flashing LEDs

There will be a switch in the cab on the switch panel to control the lights. The lights will be deactivated when the boom is lifted out of the cradle.

SIDE BASKET WARNING LIGHTS

There will be two (2) Whelen® Model TLI**, 1.50" high x 5.00" long x 0.50" deep warning lights installed on the sides of the basket per the following:

- the left side light to include red flashing LEDs
- the right side light to include red flashing LEDs

There will be a switch in the cab on the switch panel to control the lights. The lights will be deactivated when the boom is lifted out of the cradle.

TRAFFIC LIGHT CONTROLLER

There will be a GTT, Model 792* strobe traffic light controller with national standard high priority remote mounted on the front of the platform basket, where practical.

The traffic light controller will be activated by a cab switch with emergency master control and include no momentary switch to activate the traffic light controller.

The traffic light controller will be deactivated when the parking brake is applied.

FRONT ZONE LOWER LIGHTS

There will be two (2) pair of Whelen®, Model M6*, LED lights installed on the cab face above the headlights, in a common bezel matching the one for the headlamps.

- The both outside lights red.
- The driver side inside light blue, officer side inside light red.

Both lights will include a lens that is the same color as the LED's.

There will be a switch located in the cab on the switch panel to control both sets of lights.

SIDE ZONE LOWER LIGHTING

There will be six (6) Whelen®, Model M6**, flashing LED warning lights with black trim installed per the following:

- Two (2) lights, one (1) each side on the bumper extension. The side front lights to be red.
- Two (2) lights, one (1) each side of cab rearward of crew cab doors. The side middle lights to be blue.
- Two (2) lights, one (1) each side on the rear fender panel. The side rear lights to be red.
- The lights will include clear lenses.

There will be a switch in the cab on the switch panel to control the lights.

REAR ZONE LOWER LIGHTING

There will be two (2) Whelen®, Model M6*C, LED flashing warning lights located at the rear of the apparatus.

- The driver's side rear light to be blue
- The passenger's side rear light to be red

Both lights will include a lens that is clear.

There will be a switch located in the cab on the switch panel to control the lights.

REAR/SIDE ZONE UPPER WARNING LIGHTS

There will be two (2) Whelen®, Model L31H*FN, LED warning beacons provided at the rear of the truck, located one (1) each side. There will be a switch located in the cab on the switch panel to control the beacons.

The color of the lights will be red LEDs with both domes clear.

TRAFFIC DIRECTING LIGHT

There will be one (1) Whelen®, Model TAL65, 36.00" long x 2.87" high x 2.25" deep, amber LED traffic directing light installed at the rear of the apparatus.

The Whelen, Model TACTL5, control head will be included with this installation.

The controller shall be energized when the battery switch is on.

The auxiliary flash not activated.

This traffic directing light will be mounted on top of the body below the turntable with a treadplate box at the rear of the apparatus.

The traffic directing light controller will be located within the overhead recessed console above the engine tunnel on the driver's side.

120 VOLT RECEPTACLE

There will be one (1), 4-place receptacle box(es) with four (4) 15/20 amp 120 volt AC three (3) wire straight blade receptacles with an interior stainless steel wall plate installed in compartment LS1, front wall, centered high. The NEMA configuration for the receptacles will be 5-20R.

The receptacle(s) will be powered from the shoreline inlet.

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

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

120 VOLT RECEPTACLE

There will be five (5), 15/20 amp 120 volt AC three (3) wire straight blade duplex receptacle(s) with interior stainless steel wall plate(s), installed one in each EMS compartment back wall, centered, 22" up from the floor. One in LS3, back wall, centered. two in RS3, 1 front wall centered low and one high on rear wall centered. The NEMA configuration for the receptacle(s) will be 5-20R.

The receptacle(s) will be powered from the shoreline inlet.

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

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

FOUR (4)-SECTION 110 FOOT AERIAL PLATFORM

CONSTRUCTION STANDARDS

The ladder will be constructed to meet all of the requirements as described in the current NFPA 1901 standards.

The aerial device will be a true ladder type device; therefore ladders attached to booms will not be considered.

These capabilities will be established in an unsupported configuration.

All structural load supporting elements of the aerial device that are made of a ductile material will have a design stress of not more than 50 percent of the minimum yield strength of the material based on the combination of the live load and the dead load. This 2:1 structural safety factor meets the current NFPA 1901 standard.

All structural load supporting elements of the aerial device that are made of non-ductile material will have a design stress of not more than 20 percent of the minimum ultimate strength of the material, based on the combination of the rated capacity and the dead load. This 5:1 safety factor meets the current NFPA 1901 standard.

Wire ropes and attaching systems used to extend and retract the fly sections will have a 5:1 safety factor based on the ultimate strength under all operating conditions. The factor of safety for the wire rope will remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used will be 1:12. Wire ropes will be constructed of seven (7) strands over an inner wire core for increased flexibility. The wire rope will be galvanized to reduce corrosion.

The aerial device will be capable of sustaining a static load one and one-half times its rated tip load capacity (live load) in every position in which the aerial device can be placed when the vehicle is on a firm level surface.

The aerial device will be capable of sustaining a static load one and one-third times its rated tip load capacity (live load) in every position the aerial device can be placed when the vehicle is on a slope of five degrees downward in the direction most likely to cause overturning.

With the aerial device out of the cradle and in the fully extended position at zero degrees elevation, a 350 lb test load will be applied in a horizontal direction normal to the centerline of the ladder. The turntable will not rotate and the ladder will not deflect beyond what the product specification allows.

All welding of aerial 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.

The aerial device will be capable of operating in conditions of wind up to 35 mph and icing conditions of up to a 0.25" coating over the aerial structure.

All of the design criteria must be supported by the following test data:

- Strain gage testing of the complete aerial device
- Analysis of deflection data taken while the aerial device was under test load

The following standards for materials are to be used in the design of the aerial device:

- Materials are to be certified by the mill that manufactured the material
- Material testing that is performed after the mill test will be for verification only and not with the intent of changing the classification
- All welded structural components for the ladder will be traceable to their mill lots.

LADDER CONSTRUCTION

The ladder is comprised of four (4) sections.

The ladder will have the capability to support a minimum of 750 lb in the basket in the unsupported configuration, based upon 360 degree rotation, up to 90' of reach, and from -10 degrees to +77 degrees.

The ladder (handrails, baserails, trusses, K-braces and rungs) will be constructed of high strength low alloy steel, minimum 100,000 pounds per square inch yield, with full traceability on all structural members.

Each section will be trussed vertically and horizontally using welded steel tubing.

All ladder rungs are welded to each section utilizing "K" bracing for lateral and torsional rigidity.

The inside width dimensions of the ladder will be:

- Base Section 41.87"
- Lower Mid Section 34.88"
- Upper Mid Section 27.87"
- Fly Section 21.63"

The height of the handrails above the centerline of the rungs will be:

- Base Section 26.28"
- Lower Mid Section 22.68"

- Upper Mid Section 20.06"

- Fly Section 17.32"

VERTICAL HEIGHT

The ladder will extend to a minimum height of 110' 1" above the ground at full extension and elevation. The measurement of height will be consistent with NFPA standards.

HORIZONTAL REACH

The rated horizontal reach will be 90'. The measurement of horizontal reach will be consistent with NFPA standards.

TURNTABLE

The upper turntable assembly will connect the aerial ladder to the turntable bearing. The steel structure will have a mounting position for the aerial elevation cylinders, ladder connecting pins, and upper turntable operator's position.

The turntable will be a 0.375" thick steel deck, coated with a non-skid, chemical resistant material in the walking areas. The stepping surfaces will meet the skid-resistance requirements of the current NFPA 1901 standard.

The turntable will be modified at the passenger side to allow for easier access to the hose bed for hose loading. The portion of the turntable outboard of the rotational motor will be omitted, and the handrails will be modified as required.

The turntable handrails will be a minimum 42.00" high and will not increase the overall travel height of the vehicle. The handrails will be constructed from aluminum and have a slip resistant knurled surface.

ELEVATION SYSTEM

Dual 5.50" diameter elevating cylinders will be mounted on the base section of the ladder, one (1) on each side. One (1) 2.25" diameter stainless steel pin will fasten each cylinder to the ladder and one (1) 2.50" diameter stainless steel pin will fasten each cylinder to the turntable. The pins will have 125,000 psi minimum yield strength and will be secured with 0.50" Grade 8 bolts with castle nut and cotter pin. The bolts are to ensure that the pins do not walk out of the mounting brackets on the turntable and base section.

The elevating cylinders will be mounted utilizing maintenance-free spherical bearings on both ends of the cylinders. The aerial base pivot bearings will be maintenance-free type bearings with no external lubrication required. The cylinders will function only to elevate the ladder and not as a structural member to stabilize the ladder side movement. The elevating cylinders will be provided with pilot-operated check valves on the barrel and rod side of the piston to prevent movement of the ladder in case of a loss of hydraulic pressure.

The operation envelope will be 10 degrees below horizontal to 77 degrees above horizontal.

The elevation system will be designed following NFPA standards.

The lift cylinders will be equipped with integral holding valves located in the cylinder to prevent the unit from descending should the charged lines be severed, at any point within the hydraulic system and to maintain the ladder in the bedded position during road travel. The integral holding valves will NOT be located in the transfer tubes.

The elevation system will be controlled by the microprocessor. Linear transducers will measure the extension of the elevation cylinder. The microprocessor will provide the following features:

- Collision avoidance of the elevation system to prevent accidental body damage
- Automatic deceleration when the aerial device is lowered into the cradle
- Automatic deceleration at the end of stroke, in maximum raise and lower positions
- Deceleration of the aerial device at the limits of travel.

EXTENSION/RETRACTION SYSTEM

A hydraulically powered, extension and retraction system will be provided through dual hydraulic cylinders and wire ropes. Each set will be capable of operating the ladder in the event of a failure, of the other. The extension cylinder rod will be chrome plated to provide smooth operation of the aerial device and reduce seal wear. The extension/retraction cylinders will be equipped, with integral holding valves, to prevent the unit from retracting should the charged line be severed, at any point within the hydraulic system. The integral holding valves will NOT be located in the transfer tubes.

Wire ropes and attaching systems used to extend and retract the fly sections will have a 5:1 safety factor based on the ultimate strength under all operating conditions. The factor of safety for the wire rope will remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used will be 1:12. Wire ropes will be constructed of seven (7) strands over an inner wire for increased flexibility. The wire rope will be galvanized to reduce corrosion.

The extension/retraction system will be controlled by the microprocessor. Linear transducers will measure the ladder extension. The microprocessor will provide the following features:

- Automatic deceleration at the end of stroke, in maximum extend and retract positions

All sheaves will require lubrication. They will have bronze bushings and grease zerks.

MANUAL OVERRIDE CONTROLS

Manual override controls will be provided for all aerial and stabilizer functions.

LADDER SLIDE MECHANISM

UHMW polyethylene wear pads will be used between the telescoping ladder sections, to provide greater bearing surface area for load transfer. Adjustable slide pads will be used to control side play between the ladder sections.

ROTATION SYSTEM

The aerial will be supplied with a powered rotation system as outlined in NFPA standards. The hydraulic rotation motor will provide continuous rotation under all rated conditions and be supplied with a brake to prevent unintentional rotation.

One (1) hydraulically driven, planetary gear box with drive speed reducers will be used to provide infinite and minute rotation control throughout the entire rotational travel. One (1) spring applied, hydraulically released disc type swing brake will be furnished to provide positive braking of the turntable assembly. Provisions will be made for emergency operation of the rotation system should complete loss of normal hydraulic power occur. The hydraulic system will be equipped with pressure relief valves which will limit the rotational torque to a nondestructive power. The gearbox will have a minimum continuous torque rating of 80,000 in-lb and a minimum intermittent rating of 160,000 in-lb. The turntable bearing, ring gear teeth, pinion gear, planetary gearbox, and output shaft will be certified by the manufacturer of the components for the application.

The rotation system will be controlled by the microprocessor. The microprocessor will provide the following features:

- Collision avoidance to prevent accidental body damage
- Prevent the aerial from being rotated into an unstable condition.

BASKET LEVELING SYSTEM

A basket leveling system will be provided and so designed, that the basket with it's rated load, can be supported and maintained level, relative to the turntable, regardless of the elevation or flexion of the ladder.

Basket leveling will be accomplished by electric actuation. The leveling of the basket features two (2) electric actuators. Each actuator will be capable of supporting the load, while maintaining the basket level.

The live data screen on the turntable display will indicate each actuator's voltage and extension position. Messages will display in the Command Zone™ turntable display if the actuator voltage approaches the lower operational limit or if the supporting battery system is not charging correctly

The basket leveling system will be manually adjustable from 10 degrees below horizontal to 10 degrees above horizontal.

Manual basket leveling switches will be provided at basket.

ROTATION INTERLOCK

The microprocessor will be used to prevent the rotation of the aerial device to the side in which the stabilizers have not been fully deployed (short-jacked). The microprocessor will allow operation of the aerial in the 180 degree area on the side(s) where the stabilizers have been fully deployed. The system will also have a manual override, to comply with NFPA 1901.

LADDER CRADLE INTERLOCK SYSTEM

A ladder cradle interlock system will be provided through the microprocessor to prevent the lifting of the aerial device from the nested position until the operator places all the stabilizers in a load supporting configuration. A switch will be installed at the boom support to prevent operation of the stabilizers once the aerial has been elevated from the nested position..

AERIAL TORQUE BOX/PEDESTAL

The pedestal assembly will be a welded assembly made of high strength 0.25" plate. The vertical member will be a 0.375" reinforced wall cylinder with a 28.00" outside diameter and will connect the rotation bearing mounting plate to the lower substructure.

The pedestal assembly will be bolted to the chassis frame with 0.88" diameter Grade 8 bolts, and will be utilized to mount the outrigger jacks and reservoir for the aerial hydraulic system.

LOAD CAPACITIES

The following load capacities will be established with the stabilizers at full horizontal extension and placed in the down position to level the truck and to relieve the weight from the tires and axles. Capacities will be based upon full extension and 360 degree rotation.

A load chart, visible at each operator's station will be provided. The load chart will show the recommended safe load at any condition of the aerial device's elevation and extension.

35 MPH WIND CONDITIONS/DRY

Degrees of Elevation	-10 to 39	40 to 49	50 to 59	60 to 77
Basket	750	750	750	750
Fly			250	250
Upper Mid			250	500
Lower Mid		250	250	500
Base		500	500	500

35 MPH WIND CONDITIONS/WATER CHARGED

Degrees of Elevation	-10 to 39	40 to 49	50 to 59	60 to 77
Basket	500	500	500	500
Fly			250	250
Upper Mid			250	500
Lower Mid		250	250	500
Base		250	250	500

Reduced loads at the tip can be redistributed in 250 lb increments to the fly, mid, or base sections as needed.

BOOM SUPPORT

A heavy-duty boom support will be provided for support of the ladder in the travel position. On the base section of the ladder, a stainless steel scuffplate will be provided where the ladder comes into contact with the boom support.

The boom support will be located just to the rear of the chassis cab.

AERIAL BOOM SUPPORT LIGHT

There will be one (1) Amdor®, Model AY-LB-12HW012, 190 lumen, 12" long, white LED strip light mounted on the boom support cradle. This light will be activated when the aerial master switch is activated.

BODY STRUCTURE DIRECTLY BEHIND THE CAB

Treadplate body structure will be provided on each side of the apparatus directly behind the cab.

AERIAL BOOM PANEL

There will be one boom panel provided on each side of the aerial ladder base section. The boom panel will be painted black 101 matching aerial color.

The boom panels will be designed so no mounting bolts are in the face of the panel. This will keep the lettering surface free of holes.

AERIAL DEVICE RUNG COVERS

Each rung will be covered with a secure, heavy-duty, fiberglass pultrusion that incorporates an aggressive, no-slip coating.

The rung covers will be glued to each rung, and will be easily replaceable should the rung cover become damaged.

The center portion of each rung cover will be black and the outside 2.00" edge at each side will be safety yellow.

Under no circumstances will the rung covers be fastened to the rungs using screws or rivets.

The rung covers will have a 10-year, limited warranty.

LADDER STORAGE MOUNTING BRACKETS

Mounting brackets for a single roof ladder will be provided on the right side of the aerial device while viewed from the turntable. A total of one (1) roof ladder(s) will be stored on the aerial base section. The bracket(s) will be located inboard of the boom panel at the base section and include straps to secure the ladder(s).

The mounting brackets will accommodate a 14' Duo-Safety 775-A-DR roof ladder(s) to be stored individually as determined by the type of aerial device and the available space.

STOKES STORAGE BRACKETS

There will be one (1) aluminum bracket(s) provided at the base section of the aerial ladder on the left side of the aerial device while viewed from the turntable. The brackets will be located inboard of the aerial boom panel. The brackets will be DA finished and include locking pins to secure the basket.

PIKE POLE MOUNTING BRACKETS

Mounting will be provided near the end of the fly section of the aerial ladder for one (1) pike pole(s).

The bracket will be sized to hold a Nupla 6' pike pole.

STABILITY TEST

An aerial stability test will be run on this apparatus using the maximum weight allowance for tip options.

BASKET STRUCTURE

The complete basket structure will be constructed of welded high strength steel certified by the manufacturer to have a minimum of 100,000 lb per square inch yield strength. The aerial basket will be fully tested and independent third party certified.

The flooring of the basket will be a combination of aluminum treadplate and punched aluminum grating, preventing the accumulation of water on the standing surface. The floor will measure approximately 44.50" long x 58.63" wide. The stepping surfaces will meet the skid-resistance requirements per the current edition of NFPA 1901.

The outside basket floor used for transferring in and out of the basket will be at the same level as the inside basket floor. The floor on the front is approximately 8.38" deep. The front corners of the basket step will be mitered at 45 degrees to allow the basket to be maneuvered closer to buildings when approaching at an angle.

Four (4) steel pompier belt safety loops will be attached to the inside of the basket. One (1) lifting eye will be provided at the rear of the basket.

Four (4) rubber bumpers are provided on the bottom side of the basket structure for damage protection when setting it down on a surface. The two (2) bumpers on the rear of the basket will be extended 3.00" to help provide added protection for the monitor nozzle.

The basket interior will be illuminated as required per the current edition of NFPA 1901.

BASKET SIDES

The sides of the basket will be of tubular steel construction with aluminum panels, and along with the basket doors, will form a continuous 42.00" high wall around the basket.

BASKET ENTRANCES/EXITS

Two (2) swing-in, spring-loaded, self-closing doors constructed of tubular high strength steel with aluminum panels will be provided at the front of the basket. The doors will be angled at 45 degrees. The rear of the basket will be equipped with a vertical self-closing gate for transfer to and from the platform's ladder device. Handrails will be provided to bridge the gap between the basket and the fly section at all elevations.

AXE MOUNTING BRACKETS

Brackets will be provided in the aerial platform basket for mounting one (1) fire axe(s). The type of axe mounted here will be a 8# fire maul. The mounting plates for this installation will be stainless steel.

TOOL MOUNTING BRACKETS

Brackets will be provided in the aerial platform basket for temporarily mounting two (2) tools. The type of tools mounted here will be misc. hand tools being used during a operation.

Each tool handle will be held in place by a Velcro® strap and footmans loops at the upper portion of the mounting plate. The footman loops will be spaced at lease 12" apart with at lease 24" of Velcro strapping inches apart.

The tool heads will be held in place with special size guards/troughs on the basket floor that are size 12" W x 4"D x 2" on the DS and 10" W x 4"D x 2" on the PS. These sizes are I.D.. There will be no tabs on the guards/troughs for handles. The mounting plates for these will be stainless steel.

HOSE BOX AT PLATFORM

There will be one (1) hose storage box(es) located with a cover and rubber draw latch provided at the platform. A brushed stainless steel scuffplate will be provided under each latch. The boxes will be located on the outside of the platform at the left side of the basket when viewed from the turntable and will match the finish of the aerial device. The box(es) will be sized to fit 20' of 1.75" diameter hose.

Drain holes will be provided in the bottom corners of each box and a louver will be provided on each side near the top of the box, below the latches.

TEMPORARY SCABBARD AT AERIAL BASKET

There will be a vent saw scabbard provided at the aerial basket. The scabbard will be mounted on the right side of the basket when viewed from the turntable. The scabbard will be DA finished. The make and model of the saw will be will be given at print review. The bar length of the vent saw will be 20.00" long long. The vent saw will have a depth gauge.

BASKET LEVELING BATTERIES

There will be two (2) 12 volt DC lithium-ion batteries provided for basket leveling.

LIGHTS FOR TURNTABLE WALKWAY

There will be white LED lights provided at the aerial turntable. The lights will be located to illuminate the entire walking surface of the turntable including the area around the turntable console. These lights will be activated by the aerial master switch.

TURNTABLE CONSOLE LIGHTING

There will be one (1), TecNiq Model T10, white LED light strip mounted in the turntable console cover to illuminate the controls located on both the upper and lower portion of the turntable control station. These lights will be activated by the aerial master switch.

INFORMATION CENTER

There will be an information center provided. The information center will operate in temperatures from -40 to 185 degrees Fahrenheit. The information center will employ a Linux operating system and a 7.00" (diagonal measurement) LCD display. The LCD will have a minimum 1000nits rated, color display. The LCD will be sunlight readable, true digital operation, and will have improved resolution. The LCD display will be encased in an ABS, grey plastic housing with a gray decal. There will be five (5), weather-resistant user interface switches provided. The LCD display can be changed to an available foreign language.

OPERATION

The information center will be designed for easy operation in everyday use. There will be a page button to cycle from one screen to the next screen in a rotating fashion. A video button will allow an NTSC signal into the information center to be displayed on the LCD. If any button is pressed while viewing a video feed, the information center will return to the vehicle information screens. There will be a menu button to provide access to maintenance, setup, and diagnostic screens. All other button labels will be specific to the information being viewed.

GENERAL SCREEN DESIGN

Where possible, background colors will be used to provide vehicle information *At A Glance*. If the information provided on a screen is within acceptable limits, a black background color will be used. If the information provided on a screen is not within acceptable limits, an amber background color will indicate a caution condition and a red background color will indicate a warning condition.

Every screen in the information center will include the time (12- or 24-hour mode) and a fault alert triangle symbol. The time will be synchronized between all Command Zone color displays located on the vehicle. Once the fault alert triangle is selected, a text message will identify any items causing the audible alarm to sound. If more than one (1) audible alarm is activated, the text message for each alarm will cycle every second until the problems have been resolved. The background for the Alert Center will change to indicate the severity of the warning message. Amber will indicate a caution condition and red will indicate a warning condition. If a warning and a caution condition occur simultaneously, the red background color will be shown for all Alert Center messages.

A label or symbol will be provided for each button. The label or symbol will indicate the function for each active button for each screen. If the button is not utilized on specific screens, it will remain black.

Symbols will accurately depict the aerial device type the information pertains to such as rear mount ladder, rear mount platform, mid-mount ladder or mid-mount platform.

PAGE SCREENS

The Information center will include the following pages:

The Aerial Main and Load Chart page will indicate the following information:

- Rungs Aligned and Rungs Not Aligned will be indicated with respective green or red colored ladder symbols.
- Ladder Elevation will be indicated via a fire apparatus vehicle with ladder symbol with the degree of elevation indicated between the vehicle and ladder.
- Water Flow (if applicable) will be indicated via a water nozzle symbol and text indicating flow / time.
- If applicable, breathing air levels will be indicated via an air bottle symbol and text indicating the percent (%) of air remaining. A green bar graph shown inside the bottle will indicate oxygen levels above 20%. A red bar graph will indicate oxygen levels at or below 20%. When oxygen levels are at or below 10%, the red bar graph will flash.

- *At A Glance* color features will be utilized on this screen. A fault alert triangle symbol in the lower right portion of the screen will indicate any caution faults with a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

The Aerial Reach and Hydraulic Systems page will indicate the following information:

- If applicable, aerial hydraulic oil temperature will be indicated with symbol and text.
- Aerial Hydraulic Oil Pressure will be indicated with a symbol and text.
- The following calculations will be indicated on a representative vehicle symbol:
 - Aerial Device Extension length
 - Aerial Device Height indicating the height of the aerial device tip from the ground
 - Aerial Device Angle indicating the angle from the vehicle which the device is at.

- *At A Glance* color features will be utilized on this screen. A fault alert triangle symbol in the lower right portion of the screen will indicate any caution faults with a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

The Level Vehicle page will indicate the following information:

- The grade of the vehicle will be indicated via a fire apparatus vehicle symbol with the degree of grade shown in text format. The symbol will tilt dependent on the vehicle grade.
- The slope of the vehicle will be indicated via a fire apparatus vehicle symbol with the degree of slope shown in text format. The symbol will tilt dependent on the vehicle slope.
- Outriggers status will be indicated via a colored symbol for each outrigger present. Each outrigger status will be defined as one of the following:
 - Outrigger stowed indicated with a silver pan located close to the vehicle
 - Outrigger fully extended indicated with a fully deployed green outrigger
 - Outrigger short-jacked indicated by a yellow outrigger partially deployed
 - Outrigger not set indicated by a red outrigger that is not set on the ground
- A bedding assist alert will indicate that the aerial device is being aligned by the Command Zone system as the operator lowers the aerial device into the cradle with the joystick.
- *At A Glance* color features will be utilized on this screen. A fault alert triangle symbol in the lower right portion of the screen will indicate any caution faults with a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

The aerial operation envelope page will indicate the following:

- A top view of the aerial operating envelope
- A side view of the aerial operating envelope

MENU SCREENS

The following screens will be available through the Menu button:

The View System Information screen will display aerial device hours, aerial PTO hours, ladder aligned for stowing, aerial rotation angle, total water flow (if applicable), and aerial waterway valve status (if applicable).

The Set Display Brightness screen will allow brightness increase and decrease and include a default setting button.

The Configure Video Mode screen will allow setting of video contrast, video color and video tint.

The Set Startup screen allows setting of the screen that will be active at vehicle power-up.

The Set Date and Time screen has a 12- or 24-hour format, and allows setting of the time and date.

The View Active Alarms screen shows a list of all active alarms including the date and time of each alarm occurrence, and shows all alarms that are silenced.

The System Diagnostics screen allows the user to view system status for each module and its respective inputs and outputs. Viewable data will include the module type and ID number; the module version; and module diagnostics information including input or output number, the circuit number connected to that input or output, the circuit name (item connected to the circuit), status of the input or output, and other module diagnostic information.

Aerial Calibrations screen indicates items that may be calibrated by the user and instructions to follow for proper calibration of the aerial device.

Button functions and button labels may change with each screen.

LOWER STABILIZER CONTROL STATIONS

A lower control station will be located on each side of the rear wall of the apparatus in an easily accessible area. The controls and indication labels will be illuminated for nighttime operation. The following items will be furnished at the lower control station and will be clearly identified and conveniently located for ease of operation and viewing:

- Level assist switch
- Override switch to override interlocks
- Emergency stop
- Emergency hydraulic power unit switch

The stabilizer controls will include the following:

- Leveling assist toggle switch
- Left and right side stabilizer beam in/out switches
- Left and right side stabilizer beam up/down switches
- Rear stabilizer up/down switch

AERIAL DEVICE CONTROL STATIONS

There will be two (2) aerial device control stations, one (1) will be referred to as the basket control station, and the other as the turntable control station. All elevation, extension, and rotation controls will operate from both of these locations. The controls will permit the operator to regulate the speed of the aerial functions, within the safe limits as determined by the manufacturer and NFPA standards. The controls will be clearly marked and illuminated for night time operation.

Each control will be equipped with an operator presence, preventing accidental activation.

TURNTABLE CONTROL STATION

The turntable control station will be located on the left side of the turntable so the operator may easily observe the basket while operating the controls. A console cover will be provided at the turntable control station. The controls will be so designed to allow the turntable control station to immediately override the basket controls even if the ladder is being operated by the basket controls.

The following items will also be provided at the turntable control station and be clearly identified and illuminated for nighttime operation and conveniently located for ease of operation and viewing:

- Electric controls for elevation, extension, and rotation
- Intercom controls
- Tip tracking light switch
- Emergency power unit switch
- Operator's load chart
- Two (2) position switch for selecting aerial operational speed
- Aerial monitor switches

BASKET CONTROL STATION

The basket control station will be located at the front, center of the platform basket. The following items will also be provided at the basket control station and be clearly identified and illuminated for nighttime operation and conveniently located for ease of operation and viewing:

- Multi-axis controller for aerial movements. Side to side movement controls device rotation, fore and aft controls device elevation, and left and right rotation controls device extension and retraction

- Intercom controls
- Tip tracking light switch
- Basket leveling switches
- Operator's load chart
- Aerial monitor switches

HIGH IDLE

The high idle will be controlled by the microprocessor. The microprocessor will automatically adjust the engine rpm, to compensate for the amount of load placed upon the system. The system will include a safety device that allows activation of the high idle, only when the parking brake is set and the transmission is placed in neutral.

STABILIZERS

The vehicle will come equipped with an out and down stabilization system. The system will consist of two (2) hydraulically operated out and down style stabilizers mounted above the frame and a rear stabilizer jack that is attached directly to the center rear of the torque box.



The stabilizers will have a maximum spread of 18' from the centerline of the footpads when fully extended. The internal tubes will be 8.00" x 10.00" with 1/2" thick top and bottom plates and 3/8" thick sides of 130,000 psi minimum yield strength steel and will be extended out by hydraulic cylinders. The cylinders will have pilot-operated check valves with thermal relief. This will insure that the beams will be in the stowed during travel. The external tubes will be 9-3/4" x 11-3/4" with 3/8" wall thickness. The internal jack tubes will slide on permanently attached wear pads.

The extension cylinders will be totally enclosed within the extension beams. The horizontal extension cylinders will be of the trombone type to eliminate wear and potential failure of hydraulic hoses.

The stabilizers will have a tip over safety margin of 1 1/2 times its rated load in any position the aerial device can be placed as outlined in the current edition of NFPA 1901. The aerial will be able to sustain a 1 1/3 to 1 rated load on a 5 degree slope downward in the position most likely to cause overturning. The maximum ground slope the apparatus can be set up on is 12 percent. On the 12 percent slope, the apparatus can be leveled within a 6 percent operating range with the apparatus cab facing uphill.

The cylinders will be supplied with dual pilot operated check valves on each stabilizer cylinder to hold the cylinder in the stowed or working position should a charged line be severed at any point in the hydraulic system. Stabilizers will contain safety lock valves and will require no mechanical pins to assure there will be no "leak down" of stabilizer legs.

Each stabilizer leg will have attached to the end of the leg a pan that will be a maximum 13.00" wide to allow the extension of the stabilizer between parked cars. This pan will serve as a protective guard and a mounting surface for warning lights. The top, forward, and rear edges will be flanged back for added strength.

The stabilizer cylinders will be sized to maximize ground penetration. The lift cylinders will be mounted on the end of the stabilizer tube and will have the following dimensions:

4.00" bore

3.50" rod

23.38" stroke

The stabilizer extension cylinders will have the following dimensions

1.75" bore

1.25" rod

64.00" stroke

The rear stabilizer will have the following dimensions:

4.50" bore

4.00" rod

29.00" stroke

Each stabilizer that can be extended from the body will be supplied with a red warning light as outlined in the current edition of NFPA. The stabilizers will be connected to a warning light in the cab to warn the operator if the stabilizers are deployed.

The ground contact area for each stabilizer will be a 12.00" diameter circular stainless steel disc without the auxiliary pads and 24.00" x 24.00" with lightweight composite material pads deployed. The ground pressure will not exceed 75 psi when the apparatus is fully loaded and the aerial device is carrying its rated capacity in every position.

This will be accomplished with the stabilizer pads deployed, as outlined in the current edition of NFPA 1901. There will be one (1) pad located on each side of the apparatus in front of the stabilizers.

The auxiliary jack pad for the rear stabilizer will be integral to the stabilizer foot pad.

STABILIZER CONTROLS

One (1) electric solenoid valve will control the stabilizers. The control switches will be located one (1) each side at the rear of the apparatus so the operator may observe the stabilizers during deployment.

The stabilizer controls will include the following:

- Leveling assist toggle switch: The outrigger control system will incorporate a computerized self leveling system in addition to the standard outrigger controls. The operator will have the option to manually or automatically level the truck. The computerized system will ensure full outrigger extension, proper jack penetration, and will level the vehicle within 1/2 a degree of level for safe operation of the aerial device.
- One (1) electric toggle switch for the engaging the emergency power unit.
- Two (2) fully extended beams green indicator lights: these lights will be illuminated when each of the respective stabilizer beams are fully extended.
- Three (3) firm on ground green indicator lights: each light will be illuminated when its respective stabilizer shoe is in the load supporting condition.

Each toggle switch will activate the engine fast idle automatically.

Manual override will be supplied for each stabilizer control valve.

A "Stabilizers Not Stowed" indicator will be provided in the driver's compartment. It will illuminate automatically whenever the stabilizers are not fully stowed to prevent damage to the apparatus if moved. The stabilizer system will also be wired to the "Do Not Move Indicator Light", which will flash whenever the apparatus parking brake is not fully engaged and the stabilizers are not fully stowed.

STABILIZER PAN MATERIAL

The aerial stabilizer pans will be polished stainless steel.

SMOOTH ALUMINUM DOORS ON STABILIZER CONTROL BOX

Vertically hinged smooth aluminum doors will be provided over each stabilizer control box. The doors will be hinged inboard and be provided with a spring loaded hinge.

STABILIZER PLACEMENT

There will be two (2) cameras provided and installed on the body, one (1) directly above each stabilizer. The cameras will be activated with a switch in the cab and will provide a picture to specify the fully extended stabilizer position allowing the driver the ability to position the vehicle with the proper clearance for stabilizer deployment.

All cameras will be displayed in the video monitor provided with the back-up camera system.

STABILIZER PADS, MODIFIED

The two (2) auxiliary stabilizer pads will be modified so they can be installed on the bottom of the stabilizer. The auxiliary stabilizer pad holders on the truck will also be modified.

HYDRAULIC SYSTEM

All hose assemblies will be assembled and crimped by the hose manufacturers certified technician.

All manufacturing employees responsible for the installation of hydraulic components will be properly trained. Training will include: proper handling, installation, torque requirements, cleanliness and quality control procedures for hydraulic components.

Hoses used in the aerial hydraulic system will be of a premium quality hose with a high abrasion resistant cover. All pressure hoses will have a working pressure of 4000 psi and a burst pressure rating of 16,000 psi.

All hydraulic fittings and tubing will be plated to minimize corrosion.

The fitting will use an O-ring seal where possible to minimize hydraulic leaks.

An interlock will be provided that prevents activation of the hydraulic pump until the transmission is placed in neutral and the parking brake is set as outlined in the current NFPA 1901 standard.

The system will meet the performance requirement of the current NFPA 1901 standard, which requires adequate cooling less than 2.5 hours of operations.

All hydraulic components that are non-sealing whose failure could result in the movement of the aerial will comply with current NFPA 1901 standards and have burst strength of 4:1.

Dynamic sealing components whose failure could cause aerial movement will have a margin of 2:1 on maximum operating pressure per the current NFPA 1901 standard.

All hydraulic hoses, tubes, and connections will have a minimum burst strength of 4:1 per the current NFPA 1901 standard.

A hydraulic oil sight gauge will be supplied at the rear of the unit for easy fluid level verification.

A chassis mounted positive displacement piston pump for consistent pressure and rapid responses will supply hydraulic power for all aerial operations. The positive displacement pump will provide 3,150psi. The hydraulic pump will be solely dedicated to aerial operations.

Each aerial will be evaluated as to the region and climate where it will be used to determine the optimum viscosity and proper oil grade. Oil viscosity will be based on an optimum range of 80 to 1000 SUS during normal aerial use. Before shipment of the unit, an oil sample will be taken and analyzed to confirm the oil is within the allowable ISO grade tolerance.

The aerial hydraulic system will have a minimum oil cleanliness level of ISO 18/15/13 based on the ISO 4406:1999 cleanliness standard. Each customer will receive a certificate of actual cleanliness test results and an explanation of the rating system.

Each aerial will include an oil sample port, identified with a yellow dust cap and a label, for subsequent customer testing.

Ball valves will be provided in the hydraulic suction lines to permit component servicing without draining the oil reservoir.

The aerial will incorporate the use of trombone steel tubes inside the stabilizer beams to eliminate hydraulic hose wear and leaks.

Hydraulic power to the ladder will be transferred from the pedestal by a hydraulic swivel.

The system hydraulic pressure will be displayed on the turntable display.

The hydraulic system will be additionally protected from excessive pressure by a secondary pressure relief valve set at 3,150 psi. In the event the main hydraulic pump compensator malfunctions, the secondary relief will prevent system damage.

HYDRAULIC CYLINDERS

All cylinders used on the aerial device will be produced by a manufacturer that specializes in the manufacture of hydraulic cylinders.

Each cylinder will include integral safety holding cartridges.

Each cylinder will be designed to a minimum safety factor of 4:1 to failure.

All safety holding cartridges will be installed at the cylinder manufacturer, in a controlled clean environment to avoid possible contamination and or failure.

POWER TAKEOFF/HYDRAULIC PUMP

The apparatus will be equipped with a power takeoff driven by the chassis transmission and actuated by an electric shift, located inside the cab. The power takeoff which drives the hydraulic pump will meet all the requirements for the aerial unit operations.

A green indicator light will be installed on the cab instrument panel to notify the operator that the power takeoff is engaged.

An interlock will be provided that allows operation of the aerial power takeoff shift only after the chassis spring brake has been set and the chassis transmission has either been placed in the neutral position or drive position after the driveline has been disengaged from the rear axle.

The hydraulic system will be supplied by a variable displacement load and pressure compensating piston pump. The pump will meet the demands of all three simultaneous aerial functions. The pump will provide proper flow for single aerial function with the engine at idle speed. A switch will be provided on the control console to increase the engine speed for multiple function operation.

EMERGENCY PUMP

The hydraulic system will be designed with an auxiliary power unit meeting the guidelines of the current NFPA 1901 standard.

The aerial will be equipped with an emergency hydraulic pump, electrically driven from the truck batteries. The pump will be capable of running for 30 minutes for limited aerial functions to stow the unit in case of a main pump or truck system failure. A momentary switch will be located at the stabilizer and aerial control locations to activate the emergency pump.

AERIAL CONTROL VALVE

The aerial hydraulic control valve will be designed with special spool flows, limiting the oil flow for the designed function speed. The valve will be electrically controlled and be located in the control console with the handles oriented downward for manual operation. The activation handles will be spaced a minimum of 3.50" for ease of operation. The valve spools will be designed to bleed off downstream pressure, in the neutral position and allow proper sealing of any cylinder holding cartridge.

OIL RESERVOIR

The oil reservoir will have a minimum capacity of 20 gallons. The oil fill location will be easily accessible and be labeled "Hydraulic Oil Only" and also indicate the grade of oil that is installed in the reservoir. The fill will have a desiccant breather filter with a water capacity of 4 fluid ounces and a 5 micron rating.

Two suction ports will be provided, one for the main hydraulic pump and one for the emergency pump. The main suction will be slightly elevated off the bottom of the reservoir. The emergency suction port will be closer to the bottom of the reservoir to provide some reserve oil for emergency operation.

A temperature sending unit in the reservoir will provide indication of the oil temperature on an electronic display.

The hydraulic oil reservoir will be labeled per the current edition of NFPA 1901 standard.

RETURN FILTER

The low pressure oil filter will be integrated with the hydraulic manifold and designed to prevent oil loss during filter change. The system will incorporate the following filter to provide dependable service:

- return filter: beta 200 at 6 micron

HYDRAULIC SWIVEL

The aerial ladder will be equipped with a six (6) port, high pressure hydraulic swivel which will connect the hydraulic lines from the hydraulic pump and reservoir through the rotation point to the aerial control bank. The hydraulic swivel will allow for 360 degree continuous rotation of the aerial.

ELECTRIC SWIVEL

The ladder will be equipped with an electric swivel to allow 360 degrees rotation of the aerial while connecting all electrical circuits through the rotation point. A minimum of 32 collector rings will be provided that are capable of supplying 20 amp continuous service. All collector rings will be enclosed and protected with desiccant plugs against condensation and corrosion. No oil or silicone will be used.

WATER SWIVEL

Water will be transferred to the aerial waterway by means of a 5.00" internal diameter waterway through the swivel, permitting 360 degree continuous rotation.

13-BIT ABSOLUTE ENCODER

The aerial ladder will be equipped with a 13-Bit Absolute Encoder, CAN-based, which provides 8192 counts per shaft turn for position and direction reference.

The 13-Bit Absolute Encoder will provide a unique binary word to reference each position and direction for all 360 degrees of rotation.

If the power is interrupted for any reason, the 13-Bit Absolute Encoder will allow power to be returned to the system without having to re-zero the settings.

The 13-Bit Absolute Encoder will be an integral part of a micro-processor based control system.

ELECTRICAL SYSTEM

The aerial device will utilize a microprocessor-based control system. The system will consist of the following components:

Control System Modules

Each of the control system modules will be configured as follows:

Sealed to a NEMA 4X rating

Operating range from -40 degrees F to 156 degrees F (-40 degrees C to 70 degrees C)

Communicate using J1939 data link

Two (2) diagnostic LED lights

One (1) green light that illuminates when module has power (B+) and ground

One (1) red light that flashes to indicate the module is capable of communicating via the data link

Up to 16 diagnostic LEDs on each module

Ground matrix identification system

The following control system modules will be used:

Control Module

Main controller for the system

USB connection allows for computer diagnostics

Power Module

Built-in fault sensing

Eight (8) digital outputs

Pulse width modulating (PWM) capable

10A continuous per output

Circuit protection based on actual current draw (not affected by heat)

Current Control Module

Built-in fault sensing

Three (3) analog inputs

Eight (8) digital outputs

Pulse width modulating (PWM) capable

3A continuous per output

Closed Loop System

Circuit protection based on actual current draw (not affected by heat)

Input Module

16 software selectable (digital or analog) inputs

Output Module

16 digital outputs

Input/Output Module

Eight (8) software selectable (digital or analog) inputs

Eight (8) digital outputs

UNDER BASKET LIGHTS

There will be two (2) Whelen® Model MPB*, 4,100 lumens 12 volt DC LED lights with adjustable mounts installed under the basket of the aerial device. The painted parts of this light assembly to be white.

The lights will be controlled with the tracking and tip lights.

TIP LIGHTS

There will be one (1) Whelen® Model P*H1*, 9,260 lumens 12 volt DC light with white LEDs, flood optics and bail mount installed on the front of the basket. The painted parts of this light assembly to be black.

TRACKING LIGHTS

There will be two (2) Whelen® MPB*, 4,100 lumens 12 volt DC LED lights with adjustable mounts installed on the base section of the aerial device below the hand rails per the following:

- One (1) located on the left side

- One (1) located on the right side
- The tracking light(s) to include black painted parts.

TIP, UNDER BASKET AND TRACKING LIGHT CONTROL

There will be four (4) on/off switches installed to control the tip, under basket and tracking lights per the following:

- One (1) switch will be installed at the basket control panel.
- One (1) switch will be installed at the turntable control panel.
- One (1) switch will be installed at the LS cab switch panel.
- One (1) switch will be installed at the RS cab switch panel.

The LS and RS cab switches will only control the tip lights when the aerial device is in the stowed position. Once the aerial device is removed from the aerial boom support the switches will no longer control of any of the lights.

LIGHTING ON AERIAL LADDER

There will be TecNiq, Model D02 LED rung lighting provided on both sides of the aerial ladder base, lower and upper mid, and fly sections. The lighting will be located adjacent to the ladder rungs along the lower rail of the ladder sections and will run the length of the ladder section.

The color of the sections will be:

- The base section of the ladder to be blue.
- The lower mid section of the ladder to be white.
- The upper mid section of the ladder to be white.
- The fly section of the ladder to be red.

The LED rung lighting will be activated when the aerial master switch is activated and a switch at the turntable operator's panel is activated through the master battery switch.

The lights may be load managed when the parking brake is applied.

STABILIZER WARNING LIGHTS

There will be two (2) Whelen®, Model M6*, LED flashing warning lights with clear lenses and Whelen, Model M6FC, chrome flanges installed on the stabilizer cover panels, one (1) each side.

- The LED lights will be red.

These warning lights will be activated by the same switch as the side warning lights.

STABILIZER BEAM WARNING LIGHTS

There will be two (2) Whelen®, Model T0R00FRR, 2.00" round red LED flashing lights mounted on each out and down stabilizer, one (1) facing forward and one (1) facing rearward.

The lights will be recessed in the horizontal beam of the stabilizer.

These warning lights will be activated with the aerial master switch.

STABILIZER SCENE LIGHTS

There will be three (3) Amdor, Model AY-LB-12HW012, 190 lumens, 12.00" long, white LED strip lights installed to illuminate the area around the aerial stabilizers, one (1) light per stabilizer. The lights will be activated by the aerial master switch.

2-WAY AERIAL COMMUNICATION SYSTEM

There will be a Fire Research model ICA910 two-way intercom system provided. The control module with an LED volume display and push-button volume control will be located on the turntable operator console.

A hands free module will be located at the aerial tip or platform and constantly transmit to the other module unless the control module push-to-talk button is pressed.

Each intercom unit will be weatherproof.

AERIAL PEDESTAL

The aerial pedestal will accommodate the height of the cab.

AERIAL TURNTABLE MANSAYER™ BARS

ManSaver™ bars will be installed at the aerial turntable.

WATER SYSTEM

A waterway system will be provided consisting of the following components and features:

A 5.00" pipe will be connected to the water supply on one end and to a 5.00" internal diameter water swivel at the rotation point of the turntable. The water swivel will permit 360 degree continuous rotation of the aerial device.

The 5.00" waterway swivel is to be routed through the rotation point up to the heel pin swivel. The heel pin swivel will allow the water to flow to the ladder pipe while elevating the aerial ladder from -10 degrees to 77 degrees. The heel pivot pin is not integral with the waterway swivel at any point. The design of the waterway will allow complete servicing of the waterway swivel without disturbing the heel pivot pin.

The integral telescopic water system will consist of a 4.50" diameter tube in the base section, a 4.00" diameter tube in the mid-section and a 3.50" diameter tube in the fly section. The telescopic waterway will be constructed of anodized aluminum pipe.

The aerial will be capable of discharging up to 1000 gpm at 100 psi parallel to the ladder and 90 degrees to each side of center while maintaining the 500lb tip load.

The aerial will be capable of discharging between 1001 and up to 1250 gallons per minute at 100 psi parallel to the ladder and 50 degrees to each side of center while maintaining the 500lb tip load.

An adjustable pressure relief valve will be furnished to protect the aerial waterway from a pressure surge.

A 1.50" drain valve will be located at the lowest point of the waterway system.

WATERWAY SEALS

The waterway seals will be of type-B PolyPak design, composed of nitroxile seal and a nitrile wiper, which together offer maximum stability and extrusion resistance on the waterway. The seal will be capable of withstanding pressures up to 2000 psi, temperatures in excess of 250 degrees Fahrenheit and have resistance to all foam generating solutions. The seals will be internally lubricated.

The waterway seals will have automatic centering guides constructed of synthetic thermalpolymer. The guides will provide positive centering of the extendible sections within each other and the base section to insure longer service life and smoother operation.

AERIAL MONITOR

A Task Force Tips Hurricane Model XFIH-E monitor will be provided at the front of the platform with a TFT 1250 gpm Model M-ERP1250SNJ electric nozzle.

The controls for the electronic monitor will be located at the platform and the turntable control console.

VALVE UNDER MONITOR

A TFT Valve Under Monitor (VUM) valve Model AKE118763D-2 and manifold will be provided between the aerial waterway and aerial monitor.

An electric (VUM) will be provided for the electric monitor utilizing the four (4) ports as follows:

- Upward facing port: 2.50" NH gated elbow with 1.50" x 2.50" reducer and cap
- Right outboard port: 1.00" NPT female shower adapter
- Right outboard port: pressure relief valve
- Downward facing port: external automatic drain valve

The (VUM) will be controlled at the basket and turntable pedestal. Wireless remote control will be available thru the monitor wireless remote control, if selected. An automatic ball drain will be provided on the VUM.

Indicator lights will be provided on the electric (VUM) controller to show when the valve is open or closed.

AERIAL WATERWAY FLOW METER

Waterway flow, including total water flowed, will be monitored by the microprocessor. An LCD display will be located at the turntable control station.

REAR INLET

A 5.00" NST inlet to the aerial waterway will be provided at the rear of the apparatus. The inlet will have 5.00" aluminum plumbing. It will be furnished with a 5.00" chrome plated adapter and a 5.00" chrome plated, long handle cap.

MANUALS

The aerial manufacturer will provide two (2) operator maintenance manuals and two (2) wiring diagrams pertaining to the aerial device.

INITIAL INSTRUCTION

On initial delivery of the fire apparatus, the contractor will supply a qualified representative to demonstrate the apparatus and provide initial instruction to the fire department regarding the operation, care, and maintenance of the apparatus for a period of three (3) consecutive days.

ADDITIONAL AERIAL TRAINING

There will be one (1) additional aerial training day(s) provided by the manufacturer with a training engineer. This is in addition to the standard three (3) days.

LOOSE EQUIPMENT

The following equipment will be furnished with the completed unit:

- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.

NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT

The following loose equipment as outlined in NFPA 1901, 2016 edition, section 9.9.3 and 9.9.4 will be provided by the fire department.

- 800 ft (240 m) of 2.50" (65 mm) or larger fire hose, in any combination.
- 400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose, in any combination.
- One (1) handline nozzle, 200 gpm (750 L/min) minimum.
- Two (2) handline nozzles, 95 gpm (360 L/min) minimum.
- One (1) playpipe with shutoff and 1.00" (25 mm), 1.125" (29 mm), and 1.25" (32 mm) tips.
- One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than four (4), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer.
- One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s).
- One (1) first aid kit.
- Four (4) salvage covers, each a minimum size of 12 ft × 14 ft (3.6 m × 5.5 m).
- Four (4) combination spanner wrenches.
- Two (2) hydrant wrenches.
- One (1) double female 2.50" (65 mm) adapter with National Hose threads.
- One (1) double male 2.50" (65 mm) adapter with National Hose threads.
- One (1) rubber mallet, for use on suction hose connections.
- Four (4) ladder belts meeting the requirements of NFPA 1983.
- One (1) 150 ft (45 m) light-use life safety rope meeting the requirements of NFPA 1983.
- One (1) 150 ft (45 m) general-use life safety rope meeting the requirements of NFPA 1983.

- One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.
- Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band.
- Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.
- One (1) automatic external defibrillator (AED).
- If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, will be carried mounted in brackets fastened to the apparatus.
- If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side will be carried. Any intake connection larger than 3.00" (75 mm) will include a pressure relief device that meets the requirements of 16.6.6.
- If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH female to a pump intake will be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.
- If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters will be carried to allow feeding the supply hose from a 2.50" NH thread male discharge and to allow the hose to connect to a 2.50" NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.

SOFT SUCTION HOSE

There will be no soft suction hose provided.

DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 9.9.4 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 9.9.4 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) flathead axe mounted in a bracket fastened to the apparatus.

The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.

PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) pickhead axe mounted in a bracket fastened to the apparatus.

The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.

PAINT - BODY PAINTED TO MATCH CAB

The exterior custom cab and body painting procedure will consist of a seven (7) step finishing process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the custom cab and body will be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces will be removed and sanded to a smooth finish. Exterior seams will be sealed before painting. Exterior surfaces that will not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.
2. Chemical Cleaning and Pretreatment - All surfaces will be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces will be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces will be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion. A final pure water rinse will be applied to all metal surfaces.
3. Surfacer Primer - The Surfacer Primer will be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.
4. Finish Sanding - The Surfacer Primer will be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.
5. Sealer Primer - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.
6. Basecoat Paint - Two coats of a high performance, two component high solids polyurethane basecoat will be applied. The Basecoat will be applied to a thickness that will achieve the proper color match. The Basecoat will be used in conjunction with a urethane clear coat to provide protection from the environment.
7. Clear Coat - Two (2) coats of Clear Coat will be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the

exterior surfaces. Lap style and roll-up doors will be Clear Coated to match the body. Paint warranty for the roll-up doors will be provided by the roll-up door manufacture.

Each batch of basecoat color is checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color is verified again to make sure that it matches the color standard. Electronic color measuring equipment is used to compare the color sample to the color standard entered into the computer. Color specifications are used to determine the color match. A Delta E reading is used to determine a good color match within each family color.

All removable items such as brackets, compartment doors, door hinges, and trim will be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly.

Pierce Manufacturing paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) meet or exceed the Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels meet or exceed the #6 A.C.T. standard in critical areas. These requirements are met in order for the exterior paint finish to be considered acceptable. The Pierce Manufacturing written paint standards will be available upon request.

The cab and body will be two-tone, with the upper section painted #101 black matching the last unit 33595 with the paint break on the body to be at the base of the side sheets. along with a shield design on the cab face and lower section of the cab and body painted #70 red matching last unit 33595.

PAINT - ENVIRONMENTAL IMPACT

Contractor will meet or exceed all current State regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions:

- Topcoats and primers will be chrome and lead free.
- Metal treatment chemicals will be chrome free. The wastewater generated in the metal treatment process will be treated on-site to remove any other heavy metals.
- Particulate emission collection from sanding operations will have a 99.99% efficiency factor.
- Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter is used, it will have an efficiency rating of 98.00%. Water wash systems will be 99.97% efficient
- Water from water wash booths will be reused. Solids will be removed on a continual basis to keep the water clean.
- Paint wastes are disposed of in an environmentally safe manner.
- Empty metal paint containers will be to recover the metal.
- Solvents used in clean-up operations will be recycled on-site or sent off-site for distillation and returned for reuse.

Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Contractor will, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his State EPA rules and regulations.

PAINT CHASSIS FRAME ASSEMBLY

The chassis frame assembly will be finished with primer and gloss black paint before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.

Components that are included with the chassis frame assembly that will be painted are:

- Frame rails
- Frame liners
- Cross members
- Axles
- Suspensions
- Steering gear
- Battery boxes
- Bumper extension weldment
- Frame extensions
- Body mounting angles
- Rear Body support substructure (front and rear)
- Pump house substructure
- Air tanks
- Steel fuel tank
- Castings
- Individual piece parts used in chassis and body assembly

FILM TECHNICAL PROPERTIES		
PROPERTY	TEST METHOD	PERFORMANCE
Color	-	Black
Film Thickness	-	0.5 - 1.5 Mils
Gloss - 60 Degree	ASTM D523	65 - 85
Pencil Hardness	ASTM D3363	2H Minimum
Direct Impact	ASTM D2794	100 in. - lbs. Minimum
Reverse Impact	ASTM D2794	60 in. - lbs. Minimum
Crosshatch Adhesion	ASTM D3359	4B - 5B
Humidity	ASTM D1735	1000 Hours Minimum
Water Immersion	ASTM D870	250 Hours Minimum
Gravelometer	GM9508P	6 Minimum
Throwpower	GM9535P	12 - 15 in.

Cold rolled steel lab panels, Zinc Phosphate pretreatment, 0.6 mils average film thickness, cured 20 minutes @ 350°F.

PROPERTY	SUBSTRATE PRETREATMENT	SALT SPRAY* 1000 HOURS
Corrosion Resistance	CRS / Zinc Phos / Non-Chrome	1 - 2 mm

*Salt Spray - ASTM B117, cold rolled steel lab panels cured 20 minutes @ 350°F. (Average Total Scribe Creep)

Components treated with epoxy E-coat protection prior to paint:

- Two (2) C-channel frame rails
- Two (2) frame liners

The E-coat process will meet the technical properties shown.

PAINT, REAR WHEELS

All wheel surfaces, inside and outside of the rear inner wheels will be provided with a base coat process. The paint number will be 101 Black .

AXLE HUB PAINT

All axle hubs will be painted to match lower job color.

COMPARTMENT INTERIOR FINISH

The interior of the compartments will be dual action finished and not painted.

AERIAL DEVICE PAINT COLOR

The aerial device paint procedure will consist of a six (6) step finishing process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the aerial device structural components above the rotation point will be thoroughly cleaned and mechanically shot-blasted to remove metal impurities and prepare the aerial for painting.
2. Primer/Surfacer Coats - A two (2) component urethane primer/surfacer will be applied to the mechanically shot-blasted metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface. All seams will be caulked with a two (2) component epoxy caulk before painting.
3. Hand Sanding - The primer/surfacer coat of the outer surfaces of the hand rails and base rails will be lightly sanded to a smooth finish.
4. Sealer Primer Coat - A two (2) component sealer primer coat will be applied over the sanded primer.
5. Topcoat Paint - Urethane base coat will be applied to opacity for correct color matching.
6. Clear Coat - Two (2) coats of an automotive grade two (2) component urethane will be applied.

Surfaces that will not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate.

All buy out components, such as monitor, nozzle, gauges, etc. will be supplied as received from the vendor.

Removable items such as brackets will be removed and painted separately to ensure paint coverage behind all mounted items.

The stabilizer beams, pedestal and torque box (including water tank cradle) will be treated with epoxy E-coat prior to painting to help provide resistance to corrosion and chemicals. The stabilizers and torque box will be painted black.

The aerial device components will be painted as follows using the aforementioned six (6) step finishing process:

- Aerial basket: black 101
- Aerial device ladder sections and extension cylinders: black 101
- Aerial turntable: black 101
- Aerial control console: black 101
- Aerial lift cylinders: black 101
- Aerial boom support: black 101

REFLECTIVE BAND

A 10.00" white reflective band will be provided across the front of the vehicle and along the sides of the body.

CHEVRON STRIPING ON THE FRONT BUMPER

There will be alternating chevron striping located on the front bumper.

The colors will be red and fluorescent yellow green diamond grade.

The size of the striping will be 6.00".

REAR CHEVRON STRIPING

There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. Covered surfaces will include the rear wall and aluminum doors. Roll up doors and stainless steel access doors will not be covered in chevron.

The colors will be red and fluorescent yellow green diamond grade.

Each stripe will be 6.00" in width.

This will meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface will be covered with chevron striping.

REFLECTIVE STRIPE ON STABILIZERS

There will be a 4.00" wide fluorescent yellow green diamond grade reflective stripe provided on the forward and rear facing side of all aerial stabilizers.

STOP SIGN, REFLECTIVE, CAB DOORS

A 12.00" x 12.00" reflective stop sign will be provided on the interior of each cab door. The stop sign will be located on the stainless steel door panel.

This sign will meet the NFPA 1901 requirement.

CAB STRIPE

There will be a vinyl stripe provided on both sides of the cab in place of the chrome molding and on the cab face with shield.

STRIPE, CAB FACE

A black vinyl stripe will be provided on the paint break.

LETTERING

Twenty-one (21) to forty (40) reflective lettering, 3.00" high, with no outline or shade will be provided.

LETTERING

There will be reflective lettering, 7.00" high, with outline and shade provided. There will be six (6) letters provided.

LETTERING

There will be reflective lettering, 10.00" high, with outline provided. There will be 18 letters provided.

SIGN KIT FOR LETTERING/NUMERALS

two (2) painted stainless steel plate(s) and holder(s) will be provided for department lettering. They will be mounted behind the crew cab doors, one each side per the graphics print with the unit number "202" and 8" high x 14" wide matching 33595 in size.

DECAL INSTALLATION

There will be two (2) vinyl maltese crosses, approximately 12" x 12" in size located on each side of the aerial basket.

EMBLEM/S

There will be two (2) pair of printed effect gold leaf emblems, 8.00" high to 6.00" wide, supplied and installed behind the crew cab doors, one each side per the graphics print. The emblems will include the fire department's monogram or number with a ribbon below.

EMBLEM

There will be two (2) emblem(s), approximately 21.00" - 23.00" wide in size, installed LS1 and RS1 matching the last job 33595. The emblem will be modeled after the department submitted information (art, patch, etc).

RUST PROOF, TORQUE BOX

A coating will be applied to the bottom and the two (2) sides of the torque box. The coating texture will be waxy and pliable after drying so it will not chip, crack, or peel off during normal vehicle operations.

The rust proofing material will be black, and is a coating of a corrosion inhibitor for long-term protection against corrosion.

E-COATING OF STEEL COMPONENTS

The following components will be treated with an epoxy E-coat to provide resistance to corrosion and chemicals:

Cross members

TAK-4® weldments (side plates and side plate interconnecting structure members) (if applicable)

Torsion bar anchor weldments (if applicable)

Battery boxes

Bumper extension weldment

Frame extensions

Body mounting angles

Rear body support weldment

Under body support weldments (front and rear)

Pump house substructure (walkway if applicable)

The following components will not be e-coated:

Air tanks

Fuel tank

Castings

Individual piece parts used in chassis and body assembly

The e-coated parts will have a black top coat as well to provide an additional layer of protection and provide a consistent finish.

E-COAT - TAK-4® FRONT AXLE

The following front axle components will be treated with an epoxy E-coat to provide resistance to corrosion and chemicals:

TAK-4 weldments (side plates and side plate interconnecting structure members)

Torsion bar anchor weldments .

After being treated with E-coat, components will be finish painted black.

RUSTPROOFING/UNDERCOATING

The apparatus cab will be properly treated by an authorized Ziebart dealer.

The rust proofing material will be a transparent coating of an organic based corrosion inhibitor for long-term protection against corrosion.

The rust proofing material utilized will be formulated to resist corrosion.

Coating texture will be waxy and pliable after drying so it will not chip, crack, or peel off during normal vehicle operations. Minimum dry film thickness will be in the range of 3.00 to 4.00 mils.

The underside of the apparatus will be undercoated with an asphalt petroleum based material, dark in color.

The undercoating material utilized on the apparatus will be formulated to resist corrosion and deaden unwanted sound or road noise.

Coating texture will appear firm, flexible, and resistant to abrasion. Minimum dry film thickness will be in the range of 8.00 to 12.00 mils.

The material will be applied to the following areas:

Interior of all double panel style body doors.

Body and cab wheel well fender liners, on the back side only.

Underside of body and cab sheet metal, and structural components.

Underside and vertical sides of all sheet metal compartmentation, including support angles.

Structural support members under running boards, rear platforms, battery boxes, walkways, etc.

Inside surfaces of the pump heat enclosure, (when installed).

FIRE APPARATUS PARTS MANUAL

There will be one (1) custom parts manual(s) in USB flash drive format for the complete fire apparatus provided.

The manual(s) will contain the following:

- Job number
- Part numbers with full descriptions
- Table of contents
- Parts section sorted in functional groups reflecting a major system, component, or assembly
- Parts section sorted in alphabetical order
- Instructions on how to locate parts

Each manual will be specifically written for the chassis and body model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.

Service Parts Internet Site

The service parts information included in these manuals are also available on the Pierce website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.

CHASSIS SERVICE MANUALS

There will be one (1) chassis service manuals on USB flash drives containing parts and service information on major components provided with the completed unit.

The manual will contain the following sections:

- Job number
- Table of contents
- Troubleshooting
- Front Axle/Suspension
- Brakes
- Engine
- Tires
- Wheels
- Cab
- Electrical, DC
- Air Systems
- Plumbing
- Appendix

The manual will be specifically written for the chassis model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.

CHASSIS OPERATION MANUAL

The chassis operation manual will be provided on one (1) USB flash drive.

ONE (1) YEAR MATERIAL AND WORKMANSHIP

A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal.

ENGINE WARRANTY

A Cummins **five (5) year** limited engine warranty will be provided. A limited warranty certificate, WA0181, is included with this proposal.

STEERING GEAR WARRANTY

A Sheppard **three (3) year** limited steering gear warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.

FIFTY (50) YEAR STRUCTURAL INTEGRITY

The Pierce custom chassis frame limited warranty certificate, WA0013, is included with this proposal.

FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY

The Pierce TAK-4 suspension limited warranty certificate, WA0050, is included with this proposal.

SINGLE REAR AXLE FIVE (5) YEAR MATERIAL AND WORKMANSHIP WARRANTY

A Meritor™ Axle 5 year limited warranty will be provided.

ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY

A Meritor Wabco™ ABS brake system limited warranty certificate, WA0232, is included with this proposal.

TEN (10) YEAR STRUCTURAL INTEGRITY

The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal.

TEN (10) YEAR PRO-RATED PAINT AND CORROSION

A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.

CAMERA SYSTEM WARRANTY

A Pierce fifty four (54) month warranty will be provided for the camera system.

COMPARTMENT LIGHT WARRANTY

The Pierce 12 volt DC LED strip lights limited warranty certificate, WA0203, is included with this proposal.

TRANSMISSION WARRANTY

The transmission will have a **five (5) year/unlimited mileage** warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission.

Note: The transmission cooler is not covered under any extended warranty you may be getting on your Allison Transmission. Please review your Allison Transmission warranty for coverage limitations.

TRANSMISSION COOLER WARRANTY

The transmission cooler will carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty will also be in effect for the first three (3) years of the warranty coverage and will not exceed \$10,000 per occurrence. A copy of the warranty certificate will be submitted with the bid package.

WATER TANK WARRANTY

A UPF poly water tank limited warranty certificate, WA0195, is included with this proposal.

TEN (10) YEAR STRUCTURAL INTEGRITY

The Pierce apparatus body limited warranty certificate, WA0009, is included with this proposal.

ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY

A Gortite roll-up door limited warranty will be provided. The mechanical components of the roll-up door will be warranted against defects in material and workmanship for the lifetime of the vehicle. A **six (6) year** limited warranty will be provided on painted and satin roll up doors.

The limited warranty certificate, WA0190, is included with this proposal.

SIX (6) YEAR PARTS, ONE (1) YEAR LABOR

The pump and its components will be provided with a six (6) year parts and one (1) year labor limited warranty. The manufacturer's warranty will provide that the pump and its components will be free from failures caused by defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate will be submitted with the bid package.

TEN (10) YEAR PUMP PLUMBING WARRANTY

The Pierce apparatus plumbing limited warranty certificate, WA0035, is included with this proposal.

TWENTY (20) YEAR AERIAL DEVICE STRUCTURAL INTEGRITY WARRANTY

The Pierce device limited warranty certificate, WA0052, is included with this proposal.

AERIAL SWIVEL WARRANTY

An Amity five (5) year limited swivel warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.

HYDRAULIC SYSTEM COMPONENTS WARRANTY

Aerial hydraulic system components will be provided with a five (5) year material and workmanship limited warranty.

HYDRAULIC SEAL WARRANTY

Aerial hydraulic seals will be provided with a three (3) year material and workmanship limited warranty.

A copy of the warranty certificates will be submitted with the bid package.

AERIAL WATERWAY WARRANTY

An Amity ten (10) year limited waterway warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.

FOUR (4) YEAR PRO-RATED PAINT AND CORROSION

A Pierce aerial device limited pro-rated paint warranty certificate, WA0047, is included with this proposal.

TEN (10) YEAR PRO-RATED PAINT AND CORROSION

A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.

VEHICLE STABILITY CERTIFICATION

The fire apparatus manufacturer will provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification will be provided at the time of bid.

ENGINE INSTALLATION CERTIFICATION

The fire apparatus manufacturer will provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification will be provided at the time of delivery.

POWER STEERING CERTIFICATION

The fire apparatus manufacturer will provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification will be provided at the time of bid.

CAB INTEGRITY CERTIFICATION

The fire apparatus manufacturer will provide a cab crash test certification with this proposal. The certification will state that a specimen representing the substantial structural configuration of the cab has been tested and certified by an independent third party test facility. Testing events will be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap. The fire apparatus manufacturer will provide a state licensed professional engineer to witness and certify all testing events. Testing will meet or exceed the requirements below:

- European Occupant Protection Standard ECE Regulation No.29.
- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.
- SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.

Roof Crush

The cab will be subjected to a roof crush force of 22,500 lb. This value meets the ECE 29 criteria, and is equivalent to the front axle rating up to a maximum of ten (10) metric tons.

Side Impact

The same cab will be subjected to dynamic preload where a 13,275-lb moving barrier is slammed into the side of the cab at 5.50 mph, striking with an impact of 13,000 ft-lb of force. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a rollover incident.

Frontal Impact

The same cab will withstand a frontal impact of 32,600 ft-lb of force using a moving barrier in accordance with SAE J2420.

Additional Frontal Impact

The same cab will withstand a frontal impact of 65,200 ft-lb of force using a moving barrier. (Twice the force required by SAE J2420)

The same cab will withstand all tests without any measurable intrusion into the survival space of the occupant area.

CAB DOOR DURABILITY CERTIFICATION

Robust cab doors help protect occupants. Cab doors will survive a 200,000 cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder will certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.

WINDSHIELD WIPER DURABILITY CERTIFICATION

Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers will survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 *Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles*. The bidder will certify that the wiper system design has been tested and that the wiper system has met these criteria.

SEAT BELT ANCHOR STRENGTH

Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design will withstand 3000 lb of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder will certify that each anchor design was pull tested to the required force and met the appropriate criteria.

SEAT MOUNTING STRENGTH

Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design will be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder will certify, at time of delivery, that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.

PERFORMANCE CERTIFICATIONS**Cab Air Conditioning**

Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system will cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 78 degrees Fahrenheit in 30 minutes. The bidder will certify that a substantially similar cab has been tested and has met these criteria.

Cab Defroster

Visibility during inclement weather is essential to safe apparatus performance. The defroster system will clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure And Performance Requirements - Trucks, Buses, And Multipurpose Vehicles. The bidder will certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.

Cab Auxiliary Heater

Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. An auxiliary cab heater will warm the cab 77 degrees Fahrenheit from a cold-soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder will certify, at time of delivery, that a substantially similar cab has been tested and has met these criteria.

AMP DRAW REPORT

The bidder will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus will provide the following:

- Documentation of the electrical system performance tests.
- A written load analysis, which will include the following:
 - The nameplate rating of the alternator.
 - The alternator rating under the conditions specified per:
 - Applicable NFPA 1901 or 1906 (Current Edition).
 - The minimum continuous load of each component that is specified per:
 - Applicable NFPA 1901 or 1906 (Current Edition).
 - Additional loads that, when added to the minimum continuous load, determine the total connected load.
 - Each individual intermittent load.

All of the above listed items will be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).