PROPOSAL

TO THE:
City of Columbus, Ohio
Purchasing Office
77 North Front Street 523
Columbus, OH 43215

DATE: February 17, 2026

We hereby propose and agree to furnish the following firefighting equipment upon your acceptance of this Proposal:

One (1) or Sutphen Monarch Customer Pumper Equipped Complete and Delivered for the Total Sum of $ 1,263,945.00 in accordance with the Ohio State Term Schedule, Contract #STS023111.

Note:*Included with Equipment Package and Communication

The apparatus and equipment being purchased hereunder shall be completed within approximately **15-18** months after the Sutphen's receipt and approval of Purchaser's acceptance of this Proposal.

This Proposal shall be valid for (90 Days). If a Purchase Agreement or Purchase Order is not received by Sutphen in (90 Days), the date of this Proposal, Sutphen reserves the right to extend, withdraw, or modify this Proposal, including pricing, delivery times, and prepayment discounts, as applicable.

Respectfully submitted

Harrison Sutphen

Harry B. Sutphen
Authorized Representative for
Sutphen Corporation
(740)-819-5440

TERMS & CONDITIONS

Changes to National Fire Protection Association ("NFPA") 1900, Environmental Protection Agency ("EPA") or changes legislated by Federal, State or Local Governments that impact the cost to manufacture the truck may incur additional charges which shall be borne by the Purchaser. These may include but are not limited to changes that affect the major vendors of the fire apparatus industry such as pump manufacturers, seat manufacturers, electrical power supplies (generators) and powertrain (engine & transmission). Any such changes shall be documented on a change order executed by both Sutphen and Purchaser.

Sutphen shall provide written notice to the Purchaser as soon as it reasonably believes any cost increase provision may be invoked. Sutphen shall provide, upon written request, documentation of such changes and increases.

Sutphen will use its reasonable best efforts to deliver the apparatus within the timeframe quoted herein, provided that such delivery date shall be automatically extended for delays beyond Sutphen's control, including, without limitation, strikes, labor disputes, riots, civil unrest, pandemics, war or other military actions, sabotage, government regulations or controls, fire or other casualty, or inability to obtain materials or services. If such delay occurs, Sutphen shall give notice of delay to Purchaser. Purchaser shall not be entitled to any discount or reduction in price for such delay and Sutphen shall not be liable for any damages (compensatory, incidental, consequential or otherwise) related to such delay.

Final payment shall be made at the time of final inspection at the factory. Should payment be delayed, Sutphen reserves the right to charge interest at the rate of one and one-half percent (1.5%) per month, beginning on the day after payment is due.

Delivery, payment, and transfer of the Manufacturer's Certificate of Origin (MCO) shall take place at Sutphen during final inspection, and upon payment in full in accordance with these terms. Sutphen reserves the right to withhold delivery of the MCO until payment in full is received. If Purchaser requires any third-party equipment mounting, the apparatus shall be moved to the third-party facility by the dealer or Purchaser for such mounting. Such third-party work shall not delay or offset payment to Sutphen. The apparatus shall be tested per NFPA #1900 at Sutphen's manufacturing facility. Purchaser agrees that the apparatus and equipment being purchased hereunder shall not be driven or used in any manner until it is paid for in full. In the event there are any shortages or omissions with the apparatus at time of completion, Purchaser may withhold a sum equivalent to the price of any such shortages as determined by Sutphen.

In the case of any default in payment hereunder or in the payment on any notes, negotiable paper, obligations or other instruments issued by Purchaser, Sutphen may take full possession of the apparatus and equipment or of the piece or pieces upon which default has been made, and any payments that have been made theretofore shall be applied as rent in full for the use of the apparatus and equipment up to the date of taking possession by Sutphen.

Sutphen warrants to Purchaser that all goods and services furnished hereunder will conform in all respects to the terms of this order, including any applicable change orders, drawings, specifications, or standards incorporated herein, and/or shall be free of defects in materials, workmanship, and free from such defects in design. In addition, Sutphen warrants that the goods and services are suitable for and will perform in accordance with the purposes for which they were intended, for a period of one year from the Warranty Registration Date, unless an extended warranty is purchased.

The purchase price provided for herein does not include any federal, state or local sales tax, duties, imposts, revenues, excise or other taxes which may hereafter be imposed by governmental authority or otherwise and which are made applicable to the apparatus or equipment covered by this Proposal. In the event that any such taxes are subsequently imposed and become applicable, the purchase price herein shall be increased by the amount of such taxes and such sum shall be immediately paid by Purchaser to Sutphen. To the extent applicable, the prices and deliveries set forth herein are subject to the Defense Production Act.

Sutphen shall provide insurance insuring the apparatus and equipment against loss by fire, theft, or collision and insuring against property damage and personal injury through the completion of the apparatus and transfer of the Manufacturer's Certificate of Origin.

After the execution of this Agreement, Purchaser shall have no right to terminate the Agreement. Sutphen may, in its absolute and sole discretion, accept Purchaser's request to terminate the Agreement. In the event Sutphen accepts Purchaser's request to terminate the Agreement, Sutphen may charge a cancellation fee. The following charge schedule based on costs incurred may be applied, at Sutphen's sole discretion:(a) 10% after order is accepted by Sutphen; (b) 30% of the Purchase Price after production has commenced. The cancellation fee may increase accordingly as costs are incurred as the order progresses through engineering and into manufacturing.

These Terms and Conditions ("T&C") contained in the Proposal provided herein take precedence over all previous negotiations, oral or written, and no representations or warranties are applicable except as specifically contained in these or in any subsequently signed agreement between the Parties. No waiver of any of the provisions of these T&C shall be deemed a waiver of any other provision, whether similar, nor shall any waiver constitute a continuing waiver. If a Purchase Order is issued, this Proposal, including the Terms and Conditions contained herein, shall supersede the terms in the Purchase Order where terms may be inconsistent.

This Proposal shall be governed and controlled as to interpretation, enforcement, validity, construction, effect and in all other respects by the laws, statutes, and decisions of the State of Ohio. Exclusive jurisdiction and venue for any litigation at all related to this in the Franklin County Court of Common Pleas, Columbus, Ohio, and the parties hereto consent and submit to the general jurisdiction of this court. All of these T&C shall be binding upon and inure to the benefit of and be enforceable by Sutphen, Purchaser, their successors and assigns.

Sutphen Component Report Dealership: Heritage Fire Equipment	HS- Columbus Division of Fire, Ohio Customized Pumper
	Order#: DQ018392-1 Contact: Position: Phone: Mobile: Email:

Bill To	Ship To
Customer: Columbus Division of Fire Contact: Address: Columbus, Ohio 43762	Customer: Columbus Division of Fire Contact: Address: Columbus, Ohio 43762

Comments
Project Manager: Sales Person: Harry Sutphen Revision Level: Truck Type: Body Facility:

Quote Line Number 1

Line	Item #	Qty	Item Description/Comments
1	10000225	1	STD WIRING SCHEMATIC (USB)
2	10310100	1	CHASSIS
			CHASSIS
3	10010006	1	CHASSIS, CUSTOM
4	51010105	1	Wheelbase = 187.5
5	25010255	1	FRAME, 10" DOUBLE RAILS, DOMEX, SINGLE AXLE (110K PSI)
6	45040100	1	FRONT BUMPER CLIP
7	45010001	1	FRONT TOW EYES, BELOW BUMPER, PAINTED
8	46010000	1	REAR TOW EYES, PAINTED
9	40010250	1	STEERING - ROSS TAS-85
10	40010500	1	STEERING GEAR WARRANTY, ROSS, 1-YEAR
11	22010050	1	DRIVE LINE, SPICER, 1810 SERIES
12	23015100	1	ENGINE, CUMMINS X10 HHD 450HP DOC-DPF-DEF-SCR OBD

Line	Item #	Qty	Item Description/Comments
13	23029200	1	ENGINE WARRANTY, 5 YEAR, 100,000 MILES FOR CUMMINS (X SERIES)
14	23029400	1	AFTERTREATMENT WARRANTY, 5 YEAR, 100,000 MILES FOR CUMMINS (X SERIES)
15	23030006	1	AIR INTAKE/EMBER SEPARATOR
16	23031176	1	FUEL FILTER/WATER SEPARATOR, PRIMARY, FLEETGUARD FUEL PRO FH230
17	23031180	1	12VDC HEATER FOR FLEETGUARD FUEL/WATER SEPARATOR
18	23031220	1	FUEL FILTER, SECONDARY, FLEETGUARD, FF5825NN
19	47012520	1	TRANSMISSION, ALLISON GEN 6, EVS4000 (X10HHD, X12, X15)
20	47020100	1	TRANSMISSION WARRANTY, ALLISON, 5 YEARS
21	23110000	1	JACOBS ENGINE BRAKE
22	47024050	1	TRANSMISSION COOLER
23	47030000	1	ALLISON TOUCH PAD SHIFTER
24	47030110	1	SHIFTER PAD GEARING, 6 GEARS OPEN
25	21021200	1	COOLING SYSTEM
26	21030195	1	COOLANT FILTER
27	21030000	1	FAN CLUTCH
28	21030200	1	RADIATOR COOLANT RECOVERY, PRESSURIZED SYST
29	26010010	1	FUEL TANK, STAINLESS STEEL, 65 GAL
30	26030000	1	FUEL FILL
31	26030100	1	FUEL COOLER
32	24040000	1	DIESEL EXHAUST FLUID TANK
33	13010205	1	ALTERNATOR, LEECE NEVILLE 320 AMP 4915PA
34	13030100	1	LOW VOLTAGE ALARM, FLOYD BELL TXB-V86-515-QF
35	15010500	1	BATTERIES, INTERSTATE TYPE 31 MHD (4)
36	15031700	1	BATTERY JUMPER TERMINALS
37	15031577	1	BATTERY CHARGER, IOTA DLS-45
38	15088888	1	KUSSMAUL PUMP PLUS STATUS CENTER DISPLAY, 091-198-12-PP

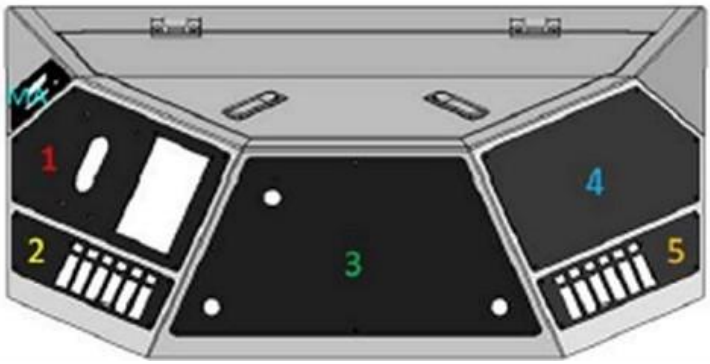
Line	Item #	Qty	Item Description/Comments
39	15088888	1	STAINLESS PLATE BEHIND KUSSMAUL EJECT INLETS
40	14022120	1	FRONT AXLE, HENDRICKSON STEERTEK NXT 20,000 LB.
41	14030120	1	FRONT AXLE WARRANTY, HENDRICKSON, 5 YEARS
42	41022120	1	FRONT SUSPENSION, HENDRICKSON 20,000 LBS. (4) 56" LEAFS
43	41030035	1	FRONT SUSPENSON WARRANTY, HENDRICKSON, 3 YEARS (PAIRED W/HENDRICKSON REAR SUSPENSION)
44	41040510	1	STEER ASSIST
45	43010306	1	FRONT TIRES, GOODYEAR 385/65R22.5 LRJ ARMOR MAX PRO 22.5 x 12.25 WHEELS
46	14510520	1	REAR AXLE, MERITOR RS-24-160 24,000 LB.
47	14530010	1	REAR AXLE WARRANTY, MERITOR, 3 YEARS
48	14530100	1	TOP SPEED, 68 MPH
49	42010010	1	REAR SUSPENSION, HENDRICKSON FIREMAAX 24,000 LBS. AIR RIDE
50	42030035	1	REAR SUSPENSON WARRANTY, HENDRICKSON, 3 YEARS (PAIRED W/HENDRICKSON FRONT SUSPENSION)
51	44010320	1	REAR TIRES, GOODYEAR 12R22.5 LRH G622 MUD & SNOW 24,000 - 27,000 GVWR
52	42910300	1	TIRE PRESSURE MONITOR, QUICK PRESSURE
53	44210110	1	WHEELS, ALUM, ACCURIDE, ACCUSHIELD (max 27K rear)
54	44270100	1	HUB COVERS, FRONT & REAR, POLISHED STS (Single Axle)
55	44270300	1	CHROME LUG NUT CAPS, FRONT & REAR (Single Axle)
56	44271100	1	MUD FLAPS, FRONT (PAIR)
57	44271200	1	MUD FLAPS, REAR (PAIR)
58	54010010	1	DATA, SAFETY & WARNING TAGS APPLICATION, ADHESIVE
59	16010285	1	BRAKES STEERTEK DISC PLUS EX225 FRONT, SCAM 8.625" REAR (SINGLE AXLE)
60	18030000	1	GUARD OVER PARKING BRAKE KNOB
61	18010041	1	AIR BRAKE SYSTEM 4 TANKS WABCO 1200 DRYER (24K, 27K)
62	18015000	1	WABCO ABS BRAKING SYSTEM WARRANTY, 3 YEARS /300,000 MILES
63	18030015	1	AIR BRAKE RELEASE VALVE, HALDEX
64	18010048	1	AUTOMATIC HEATED MOISTURE EJECTORS W/MANUAL PULL CABLE

Line	Item #	Qty	Item Description/Comments
65	18030140	1	AIR INLET CONNECTION W/CHECK VALVE
66	18210000	1	ELEC STABILITY CONTROL SYST
67	18110050	1	WABCO 4 CHANNEL ANTI-LOCK BRAKES W/ASR (24K, 27K)
68	18142000	1	ASR DISCONNECT SWITCH ON DASH
69	53510000	1	COMPRESSION FITTINGS ON AIR SYSTEM (CHASSIS)
70	54010000	1	MISCELLANEOUS ITEMS ON CHASSIS
71	54088888	1	LARGER VENT LINE IN FUEL FILL AREA
72	10310110	1	CAB
			CAB
73	11023250	1	CAB TSAL4E 73" 10" RR 1/2
74	11030025	1	CAB CERTIFICATION - STRUCTURAL INTEGRITY
75	11030960	1	CAB LOCKDOWN LATCHES W/INTERLOCK & INDICATOR LIGHT
76	11031025	1	CAB TILT SYSTEM, AIR CONTROL VALVE
77	11031030	1	CAB TILT CONTROL LOCATION, OFFICER'S SIDE PUMP PANEL
78	11031100	1	MANUAL BACK-UP TILT SYSTEM
79	11031355	1	CAB DOORS, BARRIER STYLE (4)
80	11031375	1	CAB DOOR LOCKS, ELECTRIC (KEYLESS ENTRY)
81	11031380	1	KEYLESS ENTRY OVERRIDE
82	11031365	1	LOWER CAB STEP WELLS, RAPTOR (BLACK) & TREADPLATE BACK & SIDE WALLS (EA) (4)
83	11031385	1	CAB STEPS, LOWER GRIP STRUT, INTERMEDIATE DIAMONDPLATE
84	11031399	1	CAB STEP LIGHTING, TECNIQ E45 LED STRIP LIGHTS
85	11031421	1	CAB DOOR WINDOWS, POWER (4)
86	11031401	1	CAB SIDE WINDOWS, FIXED, BOTH SIDES
87	11031460	1	NO WINDOWS, BACK WALL OF CAB
88	52010010	1	ELECTRIC INTERMITTENT WIPERS
89	52030200	1	WINDSHIELD WASHER RESERVOIR
90	38010020	1	MIRRORS LANG MEKRA 300 SERIES HEATED & REMOTE

Line	Item #	Qty	Item Description/Comments
91	38030205	1	BLIND SPOT MIRROR, VELVAC, ON CAB ROOF
92	11024405	1	UPPER GRILLE, LEVEL STYLE FACADE (X SERIES)
93	11024510	1	FLAMING “S” LOGO, UPPER GRILLE, ILLUMINATED
94	11024605	1	LOWER GRILLE, POLISHED STAINLESS (X SERIES)
95	32588888	1	RUBBER WHEEL WELL TRIM FENDERETTES FRONT AND REAR FENDERS
96	20012210	1	BUMPER, 18" FORMED STEEL CHANNEL, PAINTED
97	20029830	1	BUMPER SIDES, PAINTED STEEL, W/POCKET (12-24" EXTENSION)
98	20029910	1	BUMPER ANGLES, PAINTED STEEL, FLAT (12-30" EXTENSION)
99	20040110	1	STORAGE WELL, CENTER ONLY (18" BUMPER)
100	20030200	1	STORAGE WELL COVER, VELCRO STRAPS (2)
101	20042140	1	PROTECTIVE BUMPER COATING, RAPTOR, TOP EDGE OF FRONT BUMPER
102	12010520	1	AIR HORNS, DUAL, GROVER #1512 ROUND, 21", THRU BUMPER
103	12030205	1	AIR HORNS WIRED TO STEERING WHEEL BUTTON
104	12030350	1	LANYARD CONTROL FOR AIR HORNS
105	12510109	1	ELEC SIREN, WHELEN 295HFSA7, REMOTE FLUSH MOUNT WITH REMOVABLE MIC
106	12620202	1	SIREN SPEAKER, 100W, WHELEN, SA314B, BLACK FINISH (PAIR)
107	12670120	1	SIREN SPEAKER(S) INSTALLED IN BUMPER BEHIND PERFORATIONS
108	12710300	1	SIREN, FEDERAL Q2B, FRONT BUMPER MOUNT
109	12730305	1	FOOT SWITCH, DRIVER'S SIDE, FOR MECH SIREN
110	12730350	1	MOMENTARY SWITCH ON DASH, OFFICER'S SIDE, FOR MECH SIREN
111	12730363	1	SIREN BRAKE SWITCH FOR MECH SIREN, DRIVER'S & OFFICER'S SIDE
112	32520520	1	HEADLIGHTS, LED, FIRETECH FT-4X6, DUAL STS HOUSINGS (MIXED UPPER WARNING & TURN SIGNAL)
113	48010300	1	FRONT TURN SIGNALS, WHELEN 400 SERIES LED (4) (MIXED HOUSING)
114	32530630	1	CORNERING LIGHTS, WHELEN M6 LED
115	32530700	1	DAYTIME RUNNING LIGHTS
116	32530750	1	ICC LIGHTS, LED, ROOF MOUNTED MARKERS, GROTE

Line	Item #	Qty	Item Description/Comments
117	27022120	1	HANDRAILS, CAB EXTERIOR, KNURLED STAINLESS STEEL (4) SIDE
118	27030500	1	SCUFF PLATES, SIDE OF CAB, BEHIND HANDRAILS, MIRRORED STS (4)
119	27030625	1	COAT HOOKS ON LOWER GRAB HANDRAILS, DRIVER'S SIDE (2)
120	27030665	1	COAT HOOKS ON LOWER GRAB HANDRAILS, OFFICER'S SIDE (2)
121	27030710	1	HANDRAILS, FRONT OF CAB, KNURLED STAINLESS STEEL (PAIR)
122	27025000	1	HANDRAILS, CAB INTERIOR, BLACK RUBBER COATED (2) FRONT ENTRY
123	27030120	1	HANDRAILS, REAR CAB INTERIOR DOOR, BLACK RUBBERIZED (2) AND KNURLED STS AT WINDOW (2)
124	27040100	1	INTERIOR DOOR, NYLON STRAP (FRONT & REAR CAB DOORS)
125	11031930	1	EXTERIOR DOOR, HINGED, PAINTED
126	11032610	1	DRIVER SIDE, LEFT DOOR HINGE (OPEN TOWARDS FRONT OF CAB)
127	11033202	1	3/16" SMOOTH ALUM BACK WALL & SIDE WALLS, INSIDE CAB
128	11033250	1	UNDERCOATING, INTERIOR CAB DOORS
129	11032010	1	EXTERIOR COMPT, SIDE OF EXT CAB, 38" H, DS
130	11032450	1	COMPT DOOR LOCK - NOT PROVIDED
131	11032100	1	NO OPENING TO CREW SEAT COMPT
132	11032060	1	EXTERIOR COMPT, SIDE OF EXT CAB, 38" H, OS
133	11032450	1	COMPT DOOR LOCK - NOT PROVIDED
134	11032100	1	NO OPENING TO CREW SEAT COMPT
135	11031930	1	EXTERIOR DOOR, HINGED, PAINTED
136	11032620	1	OFFICER'S SIDE, RIGHT DOOR HINGE (OPEN TOWARDS FRONT OF CAB)
137	11032300	1	PIKE POLE STORAGE, EXTERIOR CAB COMPT (BACK WALL)
138	11032388	1	PROTEC, CAB EXTERIOR COMPARTMENT VERTICAL COMPT EDGES
139	11032388	1	BRUSH STS SILL PROTECTOR FOR EXTERIOR CAB COMPT (2)
140	11035420	1	DIAMONDPLATE CAB ROOF 30" x FULL WIDTH
141	11088888	1	REAR EXTERIOR WALL EDGES BRUSH STAINLESS 12" WIDE x 1" WRAP
142	31010250	1	INTERIOR, MULTISPEC BLACK SPECKLE PAINT W/BLACK EMBOSSED FRP BOARD

Line	Item #	Qty	Item Description/Comments
143	11032929	1	DOOR PANEL, FULL STS
144	90600220	1	REFLECTIVE MATERIAL, INTERIOR CAB DOORS, CHEVRONS, REFLEXITE
145	31010291	1	CAB INTERIOR FLOOR COVERING, BLACK RUBBERIZED
146	22510100	1	ENGINE ENCLOSURE, FULL LENGTH
147	22510530	1	ENGINE ENCLOSURE COVERING, SCORPION BLACK URETHANE BLEND
148	11031681	1	TOOL MOUNTING PLATE, TOP OF ENGINE ENCLOSURE
149	11031679	1	CENTER CONSOLE, TOP OF ENGINE ENCLOSURE
150	22610050	1	ENGINE HOOD LIGHT, LED (1)
151	11031515	1	COMPUTER TRAY W/STATIONARY STORAGE
152	11031702	1	UPPER CREW DOOR AREA, GLOVE BOX HOLDERS (FLAT BACK)
153	31088888	1	MASTER EMERGENCY SIGNAL WIRE RAND TO OBDDI PORT AREA
154	31088888	1	CENTER CONSOLE, FOR DRIVER AND OFFICER CHF-8558
155	31088888	1	MAP BOX-ON TOP OF AC UNIT, CHF-4887
156	31088888	1	MICROPHONE BRACKET, MAGNETIC MIC, MM-SU-2012
157	31088888	1	BRUSHED STAINLESS SCUFF PLATE, INTERIOR B PILLAR
158	29810100	1	CHASSIS ELECTRICAL DESCRIPTION
159	30010130	1	INSTRUMENTATION, AMETEK W/ CENTER & OVERHEAD CONSOLES
			Upper Command Console: 
160	30010508	1	LOWER COMMAND CONSOLE, X10

Line	Item #	Qty	Item Description/Comments
			
161	30010710	1	CAB PUMP SHIFTER, AIR (FOR HALE G-SERIES PUMP TRANSMISSION)
162	30011010	1	PUMP INTERLOCK, CONNECTED WITH ODOMETER
163	30030200	1	CAB LOCKDOWN INDICATOR LIGHT, IN CAB
164	30031612	1	DO NOT MOVE LIGHT, WHELEN LINZ6 LED
165	29930210	1	DELETE MAPBOOK SLOT ON FRONT BREAKER PANEL
166	29910100	1	PROGRAMMABLE LOAD MANAGER, CLASS-1 SUPERNODE II
167	30031100	1	HIGH IDLE SWITCH
168	11040000	1	CAB ACCESSORY FUSE PANEL
169	84541540	1	POWER & GROUND STUDS, UPPER COMMAND CONSOLE
170	30110000	1	VEHICLE DATA RECORDER, AKRON/WELDON
171	30031830	1	12V DUAL POWER POINT, USB/USBC, POWERWERX (1)
172	30031840	2	12V DUAL POWER POINT, USB/USBC, KUSSMAUL (2)
173	30088888	1	ADDITIONAL SWITCH ACTIVATION FOR REAR FENDER SCENE LIGHTS
174	30088888	1	MOMENTARY SWITCH FOR BACK-UP ALARM DISABLE
175	30088888	1	ADDITIONAL SWITCH ACTIVATION FOR HOSEBED LIGHTS
176	30088888	1	DOOR AJAR DISABLE SWITCH
177	30088888	1	STORAGE SLOT W/0.5" LIP IN OVERHEAD CONSOLE 7
178	33510030	1	INTERIOR CAB LIGHTS, WHELEN 6" ROUND RED/CLEAR LED (2)
179	34010035	1	INTERIOR CREW LIGHTS, WHELEN 6" ROUND RED/CLEAR LED (3)
180	34088888	1	TECHNIQ D07 ACCENT LIGHTING LED (4)

Line	Item #	Qty	Item Description/Comments
181	28010750	1	DEFROSTER, HEATER & A/C, SEVERE CLIMATE (TM-31)
182	28020500	1	AIR CONDITIONING WARRANTY, 1 YEAR
183	28090003	1	HEAT TO FEET
184	28030500	1	DEFROSTER DUCTWORK, ENTIRE WINDSHIELD
185	11031687	1	TOP HEAT/AC STORAGE, TOOL MOUNTING PLATE, 25” x 19.5”
186	11031696	1	REAR HEAT/AC STORAGE, 5 SLOTS (3 SMALL, 2 MEDIUM), SLANTED CORNERS
187	28030000	1	METAL VENT COVERS FOR DEFROSTER/AC
188	28031001	1	FAN, 12 VOLT, DRIVER'S SIDE, MOUNTED OUTBOARD OF WINDSHIELD
189	28031101	1	FAN, 12 VOLT, OFFICER'S SIDE, MOUNTED OUTBOARD OF WINDSHIELD
190	28088888	1	DIFFUSER FOR FRONT OF DEFROSTER/AC CHF-7344
191	38510104	1	DRIVER'S SEAT, BOSTROM SIERRA HIGH BACK AIR RIDE ABTS (DURAWEAR PLUS, LOW SEAM)
192	38340110	1	PRIMARY SEAT POSITION
193	38350100	1	SEAT BELT CONFIGURATION, PULL FROM LEFT SHOULDER TO BUCKLE AT RIGHT HIP
194	38320000	1	HELMET STORED IN COMPARTMENT
195	39010210	1	OFFICER'S SEAT, BOSTROM TANKER 550, ABTS SCBA (DURAWEAR PLUS, LOW SEAM)
196	38340110	1	PRIMARY SEAT POSITION
197	38350200	1	SEAT BELT CONFIGURATION, PULL FROM RIGHT SHOULDER TO BUCKLE AT LEFT HIP
198	39030010	1	OFFICER’S SEAT COMPT, OPEN FRONT
199	38320000	1	HELMET STORED IN COMPARTMENT
200	39521307	1	CREW SEAT 1, BOSTROM TANKER 550, ABTS SCBA (DURAWEAR PLUS, LOW SEAM)
201	38340110	1	PRIMARY SEAT POSITION
202	38350200	1	SEAT BELT CONFIGURATION, PULL FROM RIGHT SHOULDER TO BUCKLE AT LEFT HIP
203	38320000	1	HELMET STORED IN COMPARTMENT
204	39521308	1	CREW SEAT 2, BOSTROM TANKER 550, ABTS SCBA (DURAWEAR PLUS, LOW SEAM)
205	38340110	1	PRIMARY SEAT POSITION
206	38350100	1	SEAT BELT CONFIGURATION, PULL FROM LEFT SHOULDER TO BUCKLE AT RIGHT HIP

Line	Item #	Qty	Item Description/Comments
207	38320000	1	HELMET STORED IN COMPARTMENT
208	39521623	1	CREW SEAT 3, BOSTROM TANKER 550, ABTS, SCBA (DURAWEAR PLUS, LOW SEAM)
209	38340120	1	SECONDARY SEAT POSITION
210	38350100	1	SEAT BELT CONFIGURATION, PULL FROM LEFT SHOULDER TO BUCKLE AT RIGHT HIP
211	38320000	1	HELMET STORED IN COMPARTMENT
212	39521624	1	CREW SEAT 4, BOSTROM TANKER 550, ABTS, SCBA (DURAWEAR PLUS, LOW SEAM)
213	38340120	1	SECONDARY SEAT POSITION
214	38350200	1	SEAT BELT CONFIGURATION, PULL FROM RIGHT SHOULDER TO BUCKLE AT LEFT HIP
215	38320000	1	HELMET STORED IN COMPARTMENT
216	39550200	1	SEAT COLOR, BLACK
217	39560115	1	ARTWORK PROOF, BOSTROM (EXISTING PROOF ON FILE)
218	39560510	6	CUSTOM SEAT LOGOS, BOSTROM (PER SEAT) (6)
219	39610115	5	SCBA BRACKETS, IMMI SMART DOCK (5)
220	38410000	1	SEAT BELT WARNING SYSTEM, AKRON / WELDON
221	39710015	1	FULL WIDTH CREW SEAT COMPT, FRONT DROP-DOWN DOORS (73" CAB)
222	11031740	1	OVERHEAD STORAGE, FRONT OF 10" RR W/NET
223	30080150	1	HD STEREO, JENSEN, AM/FM/WB/BT
224	84561315	1	CAMERA SYSTEM, BRIGADE, SINGLE HD CAMERA (WIRED)
225	10310200	1	PUMP & PLUMBING
PUMP & PLUMBING			
226	60014300	1	QTWO-1500 GPM 6" SUCTION TWO STAGE PUMP
227	60025000	1	GEARBOX, HALE, G-SERIES, REAR MOUNTED
228	60026020	1	MECHANICAL PUMP SEAL, HALE
229	60031008	1	ALLOY ANODES PRO, HALE (3)
230	60035123	1	PUMP TEST, THIRD PARTY TESTING
231	61510010	1	DELETE AUXILIARY COOLER (HEAT EXCHANGER)
232	62010002	1	STAINLESS STEEL PIPING

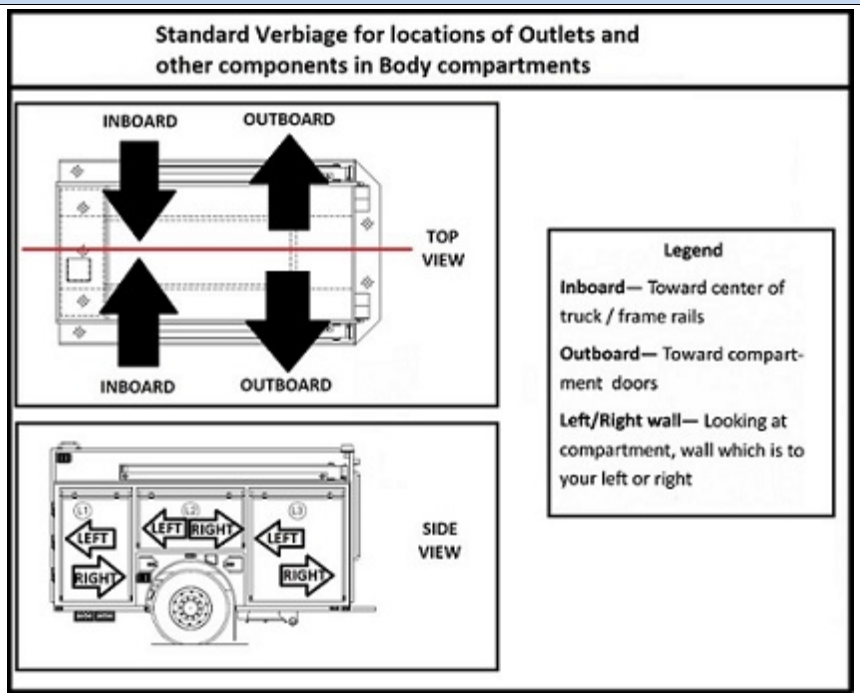
Line	Item #	Qty	Item Description/Comments
233	66020100	1	3" TANK TO PUMP W/CHECK VALVE
234	61720100	1	VALVE, AKRON HEAVY DUTY
235	61770120	1	ACTUATOR, VALVE, PUSH/PULL HANDLE, INNOVATIVE CONTROLS
236	73010202	1	TANK FILL 1.5"
237	61720100	1	VALVE, AKRON HEAVY DUTY
238	61770120	1	ACTUATOR, VALVE, PUSH/PULL HANDLE, INNOVATIVE CONTROLS
239	61020007	1	PRESSURE GOVERNOR, FIRE RESEARCH, PUMP BOSS MAX
240	61228888	1	INTAKE PRESSURE CONTROL RELIEF, ELKHART, 40-20 (3)
241	63021100	1	6" MAIN SUCTION, LEFT SIDE
242	63030400	1	HALE MASTER INTAKE VALVE, ELEC
243	63060100	1	RELIEF VALVE FOR MIV
244	65030000	1	2.5" LEFT SIDE INLET
245	61720100	1	VALVE, AKRON HEAVY DUTY
246	61770100	1	ACTUATOR, VALVE, SWING HANDLE
247	60036010	1	THREADS, NST
248	63025100	1	6" MAIN SUCTION, RIGHT SIDE
249	63030400	1	HALE MASTER INTAKE VALVE, ELEC
250	63060100	1	RELIEF VALVE FOR MIV
251	64030000	1	2.5" RIGHT SIDE INLET
252	61720100	1	VALVE, AKRON HEAVY DUTY
253	61770100	1	ACTUATOR, VALVE, SWING HANDLE
254	60036010	1	THREADS, NST
255	70525125	1	2.5" DISCHARGE, LEFT - POSITION 1
256	61720100	1	VALVE, AKRON HEAVY DUTY
257	61770200	1	ACTUATOR, VALVE, HANDWHEEL
258	77028888	1	#1 GAUGE, DISCH, INNOVATIVE CONTROLS TC SERIES, 2.5", BACKLIT BLUE

Line	Item #	Qty	Item Description/Comments
259	61810150	1	DISCHARGE TERMINATION, 30 DEGREE ELBOW
260	60036010	1	THREADS, NST
261	70525125	1	2.5" DISCHARGE, LEFT - POSITION 2
262	61720100	1	VALVE, AKRON HEAVY DUTY
263	61770200	1	ACTUATOR, VALVE, HANDWHEEL
264	77028888	1	#2 GAUGE, DISCH, INNOVATIVE CONTROLS TC SERIES, 2.5", BACKLIT BLUE
265	61810150	1	DISCHARGE TERMINATION, 30 DEGREE ELBOW
266	60036010	1	THREADS, NST
267	71025140	1	4" DISCHARGE, RIGHT - POSITION 3
268	61720100	1	VALVE, AKRON HEAVY DUTY
269	61770200	1	ACTUATOR, VALVE, HANDWHEEL
270	77028888	1	#3 GAUGE, DISCH, INNOVATIVE CONTROLS TC SERIES, 2.5", BACKLIT BLUE
271	61810150	1	DISCHARGE TERMINATION, 30 DEGREE ELBOW
272	60036010	1	THREADS, NST
273	71025125	1	2.5" DISCHARGE, RIGHT - POSITION 4
274	61720100	1	VALVE, AKRON HEAVY DUTY
275	61770200	1	ACTUATOR, VALVE, HANDWHEEL
276	77028888	1	#4 GAUGE, DISCH, INNOVATIVE CONTROLS TC SERIES, 2.5", BACKLIT BLUE
277	61810150	1	DISCHARGE TERMINATION, 30 DEGREE ELBOW
278	60036010	1	THREADS, NST
279	71930020	1	DISCHARGE 2" FRONT/LEFT OF MAIN HOSEBED
280	61720100	1	VALVE, AKRON HEAVY DUTY
281	78540325	1	GAUGE, PRESSURE/FLOW FRC FPA400
282	61770200	1	ACTUATOR, VALVE, HANDWHEEL
283	61810160	1	DISCHARGE TERMINATION, STRAIGHT
284	60036010	1	THREADS, NST

Line	Item #	Qty	Item Description/Comments
285	71930020	1	DISCHARGE 2" FRONT/LEFT OF MAIN HOSEBED
286	61720100	1	VALVE, AKRON HEAVY DUTY
287	78540325	1	GAUGE, PRESSURE/FLOW FRC FPA400
288	61770200	1	ACTUATOR, VALVE, HANDWHEEL
289	61810160	1	DISCHARGE TERMINATION, STRAIGHT
290	60036010	1	THREADS, NST
291	71988888	1	DISCHARGE 3" VALVE PIPE TO RIGHT REAR
292	71988888	1	ACTUATOR, VALVE, TRIDENT HANDWHEEL
293	71988888	1	ELKHART, 3" NPT FE x 3” NST M STRAIGHT, 3”NST FE X 2.5” M 30-DEG
294	71988888	1	GAUGE, PRESSURE/FLOW FRC FPA400
295	71988888	1	FOUR (4) BACKLIT PRESSURE FLOW FRC FPA 400
296	72030800	1	DISCHARGE 2.5" FRONT/RIGHT OF MAIN HOSEBED
297	61720100	1	VALVE, AKRON HEAVY DUTY
298	78540325	1	GAUGE, PRESSURE/FLOW FRC FPA400
299	61770200	1	ACTUATOR, VALVE, HANDWHEEL
300	61810160	1	DISCHARGE TERMINATION, STRAIGHT
301	60036010	1	THREADS, NST
302	72230200	1	DISCHARGE 2.5" TO FRONT BUMPER
303	61720100	1	VALVE, AKRON HEAVY DUTY
304	61770200	1	ACTUATOR, VALVE, HANDWHEEL
305	77028888	1	Front Bumper Discharge GAUGE, DISCH, INNOVATIVE CONTROLS TC SERIES, 2.5", BACKLIT BLUE
306	60036010	1	THREADS, NST
307	72240100	1	VERTICAL STOP PINS FOR FRONT BUMPER SWIVEL
308	72288888	1	DIVIDER IN FRONT HOSE TROUGH
309	72530100	1	DECK GUN DISCHARGE 3"
310	61720100	1	VALVE, AKRON HEAVY DUTY

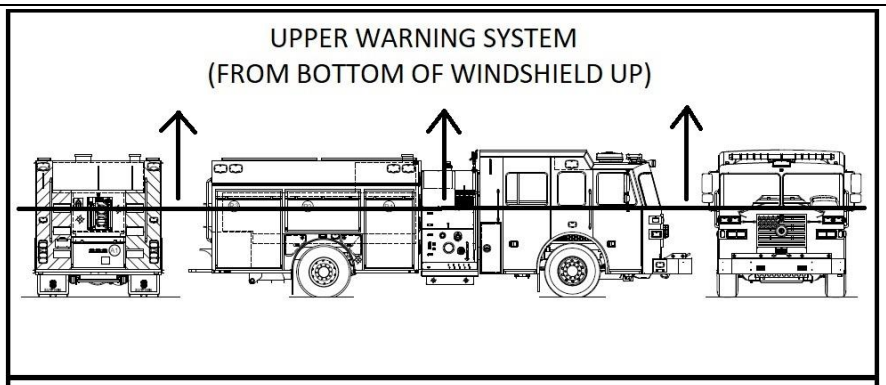
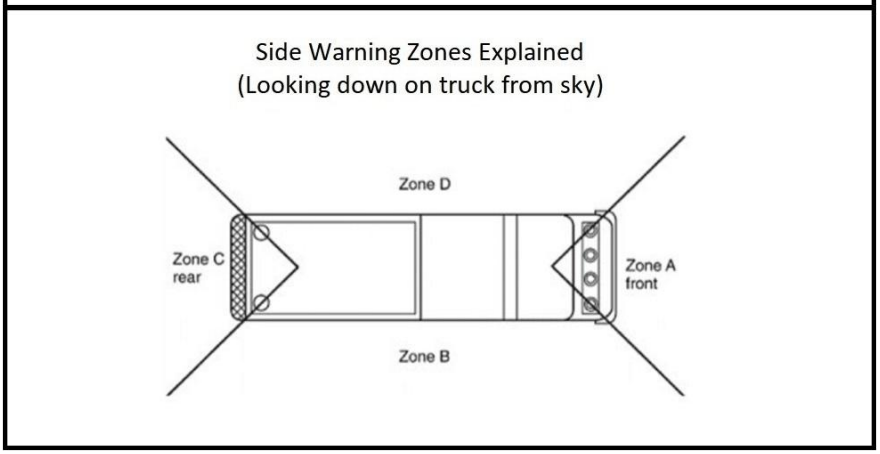
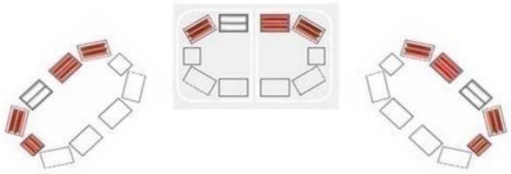
Line	Item #	Qty	Item Description/Comments
311	61770200	1	ACTUATOR, VALVE, HANDWHEEL
312	77028888	1	SPECIAL Gauge for Deck Gun GAUGE, DISCH, INNOVATIVE CONTROLS TC SERIES, 2.5", BACKLIT BLUE
313	72570110	1	DECK GUN TERMINATION, FLANGED
314	72588888	1	ELKHART VULCAN 8500 DECK GUN MONITOR
315	72570220	1	EXTENDER, ELKHART 8599, MANUAL
316	72588888	1	DECK GUN BRACKET SUPPORT
317	72810450	1	ONE 2.5" CROSSLAY W/2.5" SWIVEL
318	61720100	1	VALVE, AKRON HEAVY DUTY (1)
319	61770200	1	ACTUATOR, VALVE, AKRON HANDWHEEL (1)
320	77028888	1	GAUGE, DISCH, INNOVATIVE CONTROLS TC SERIES, 2.5", BACKLIT BLUE
321	60036010	1	THREADS, NST (1)
322	72910502	1	COVER, ALUM W/WEBBING SIDES FOR CROSSLAYS
323	72932230	1	COVER FASTENERS, METAL AIRPLANE LATCHES
324	84010005	1	BOOSTER REEL W/150' OF 1" HOSE,NOZZLE & MOUNT
325	84030000	1	AIR BLOW OUT VALVE FOR BOOSTER REEL
326	61720100	1	VALVE, AKRON HEAVY DUTY
327	61770120	1	ACTUATOR, VALVE, PUSH/PULL HANDLE, INNOVATIVE CONTROLS
328	60036010	1	THREADS, NST
329	80488888	1	ADDITIONAL ROLLERS FOR BOOSTER ON DRIVER SIDE
330	80488888	1	LOCATION FOR DISCHARGE GAUGE PICK UP POINTS
331	61742000	1	MASTER PUMP DRAIN, MULTIPORT
332	61730005	11	DRAIN VALVES, INNOVATIVE CONTROLS, LIFT-UP (11)
333	10310220	1	PUMP PANEL
			PUMP PANEL
334	74910110	1	PA SM1 - SIDE MOUNT PUMP PANEL
335	74930510	1	PANEL FINISH, BRUSHED STS
336	74931000	1	ESCUTCHEON PLATES

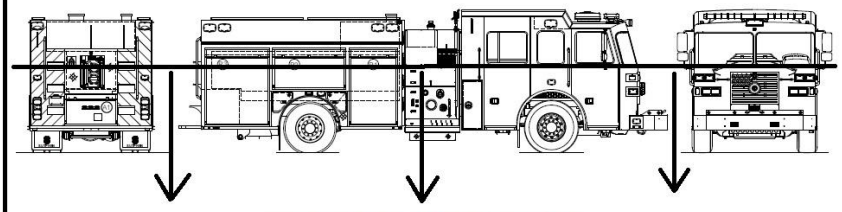
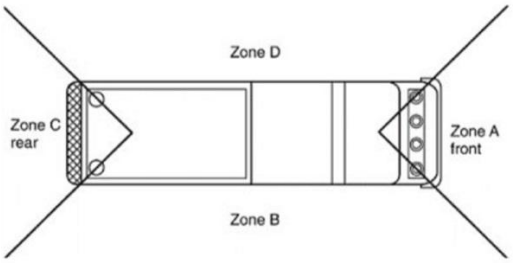
Line	Item #	Qty	Item Description/Comments
337	74931050	1	COLOR CODING
338	74931200	1	PUMP MODULE FRAMEWORK, PAINTED BY SUTPHEN
339	74931320	1	PUMP FINISH, PAINTED BY SUTPHEN
340	74931610	1	EXTERIOR DUNNAGE AREA PANEL, DIAMONDPLATE
341	75088888	1	PUMP MODULE COMPARTMENT
342	75088888	1	PUMP FINISH AND VALVES NATURAL FINISH
343	75040215	1	TROUGH IN RUNNING BOARD, BOTH SIDES
344	75510225	1	PUMP OPERATOR LIGHTS, TECNIQ E45 LED STRIP
345	75530115	1	PUMP PANEL LIGHTS OFFICER'S SIDE, TECNIQ E45 LED STRIP
346	75588888	1	PUMP PANEL LIGHT HOODS
347	75588888	1	PUMP LIGHT IN DUNNAGE COMPARTMENT
348	76010105	1	PUMP PANEL GAUGES & CONTROLS
349	60028050	1	PUMP PRIMER, TRIDENT, AIR
350	60028310	1	(1) PRIMER BUTTON - MAIN SUCTION
351	76025100	1	COMPRESSION FITTINGS ON AIR SYSTEM (CTZ PUMP MODULE)
352	76088888	1	GAUGES MASTER, INNOVATIVE CONTROLS TC SERIES, 4" BACKLIT BLUE
353	76031950	1	AIR OUTLET, DRIVER'S SIDE PUMP PANEL, WITH 25' OF HOSE
354	76030805	1	HALE TRV-L THERMAL RELIEF VALVE WITH LIGHT AT PUMP PANEL
355	76030375	1	PUMP HOUSE ACCESS DOOR
356	76030410	1	INNOVATIVE CONTROLS GAUGE HEATER BOX WITH FOUR TAPES
357	76030411	9	ADDITIONAL IC HEAT TAPES (9)
358	76031900	1	AIR HORN PUSH BUTTON SWITCH ON PUMP PANEL
359	75588888	1	RUBBER BUMPER ON OFFICER SIDE INSPECTION DOOR
360	76510065	1	GAUGES, MASTER, INNOVATIVE CONTROLS TC SERIES, 4"
361	77510060	1	GAUGE, WATER LEVEL, FIRE RESEARCH, TANKVISION PRO400
362	77532230	1	GAUGE, WATER LEVEL, FRC MAXVISION REMOTE (3)

Line	Item #	Qty	Item Description/Comments
363	10310230	1	WATER TANK
			WATER TANK
364	83525200	1	WATER TANK BRAND, UPF
365	83510105	1	WATER TANK, 750 GAL, POLY
366	83530130	1	WATER TANK WARRANTY, UPF, LIFETIME
367	10310300	1	BODY
			BODY
368	80110310	1	BODY PA-08 RES 36/48 MID RIGHT (ELEC RACK/BRACKETS)
369	80029900	1	BODY SUBFRAME, PUMPER/TANKER
370	10310302	1	BODY COMPARTMENTS
			BODY COMPARTMENTS
			
371	81130200	1	ADJUSTABLE SHELF [L1] (1)
372	81150100	1	250# ROLL OUT DRAWER ADJUSTABLE TRACK [L1] (1)
373	81150305	1	600# SLIDE-MASTER TRAY, 100% SLIDEOUT [L1] (1)
374	80588888	1	SPECIAL ITEM, MOUNTING BOARD, BLACK POLY, 1/2"
375	81130200	1	ADJUSTABLE SHELF [L2] (1)

Line	Item #	Qty	Item Description/Comments
376	81130200	1	ADJUSTABLE SHELF [L3] (1)
377	81140100	1	FIXED VERTICAL DIVIDER [L3] (1)
378	81130200	1	ADJUSTABLE SHELF [R1] (1)
379	81130200	1	ADJUSTABLE SHELF [R3] (1)
380	81165705	1	UNISTRUT TRACK IN COMPTS
381	81170110	1	12 VOLT COMPARTMENT HEATER
382	80230610	1	DOOR SILL PROTECTION, BODY COMPTS, AMDOR SILL PLATE (SINGLE AXLE BODY)
383	80230920	1	ROLL UP DOORS WARRANTY, AMDOR, 3 YEARS
384	80230650	1	DOOR SILL PROTECTION, REAR COMPT, NOT FACTORY PROVIDED
385	80220130	1	COMPT DOORS, AMDOR ROLL-UP, SATIN FINISH
386	80225100	1	REAR COMPT DOOR (A1) AMDOR ROLL-UP, SATIN FINISH
387	80230300	1	COMPT INTERIOR FINISH, SMOOTH
388	80230200	6	COMPT DOOR LOCKS, KEYED ALIKE (6)
389	84531110	1	COMPT LIGHTING, AMDOR LED LIGHT STRIPS, 2 PER COMPT
390	84535130	1	COMPT LIGHTING, ADDT'L AMDOR LED LIGHT STRIP (1)
391	80288888	1	HOOK COMPARTMENT UNDER HOSEBED OF OFFICER SIDE
392	80288888	1	OFFICER SIDE COMPARMENTS RAISED 3"
393	10310305	1	BODY EXTERIOR
			BODY EXTERIOR
394	81310000	1	HOSEBED, ALUM FLOORING
395	81330100	1	STANDARD HOSEBED HEIGHT
396	81410200	1	COVER, ALUMINUM 2 PC, MAIN HOSE BED
397	81331160	1	ALUM HOSEBED COVER SUPPORT, FIXED REAR
398	81431200	1	REAR HOSEBED COVER, VINYL
399	81440201	1	COVER FASTENERS, BUNGIE CORDS WITH RED TAB
400	81330304	1	HOSE BED DIVIDERS, ADJ (4)
401	81332015	1	HOSEBED LIGHTING, FRONT, TECNIQ E44 LED LIGHT STRIP

Line	Item #	Qty	Item Description/Comments
402	81332115	1	HOSEBED LIGHTING, SIDES, TECNIQ E44 LED LIGHT STRIPS
403	81388888	1	ADJUSTABLE FIFTH DIVIDER
404	81388888	1	REAR HOSEBED COVER VINYL MAGNETS
405	81910100	1	HANDRAILS, KNURLED STS
406	82210000	1	STEPS, FRONT BODY, IC FOLD DOWN W/LIGHT (ALUM PUMPERS)
407	82310200	1	STEPS, REAR BODY (IC FOLD DOWN W/LIGHT)
408	82032200	1	REAR STEP, BELOW HOSE BED, FULL WIDTH
409	82510000	1	RUB RAILS, ANODIZED ALUM
410	83010050	1	ALUMINUM TREADPLATE (PUMPER/TANKER)
411	83030315	1	REAR STEP/TAILBOARD CORNERS, 45 DEGREE
412	80290051	1	8 SCBA CYLINDER COMPTS (2 TRIPLE-FMI, 2 SINGLES-SIG4)
413	80290220	1	DIVIDER FOR (2) TRIPLE SCBA COMPARTMENTS
414	80290310	2	DOOR FINISH, BRUSHED STAINLESS, SINGLE/DOUBLE SCBA COMPT (2)
415	80290420	2	DOOR FINISH, BRUSHED STAINLESS, TRIPLE SCBA COMPT (2)
416	83030710	1	REAR FENDERS, ALUMINUM SMOOTH PAINTED
417	89010000	1	LADDERS, DUO-SAFETY 900A 24'2-SEC & 775A 14' ROOF & 10' FOLDING
418	89510100	1	ZIAMATIC QUIC-LIFT ELECTRIC LADDER RACK
419	89530250	1	LADDER RACK ALARM, LEO LA20
420	10310310	1	ELECTRICAL
			ELECTRICAL
421	84550199	1	LICENSE PLATE BRACKET - NOT PROVIDED
422	84511100	1	BODY ELECTRICAL DESCRIPTION
423	84520000	1	BACK UP ALARM, ECCO SA917
424	85010420	1	TAILLIGHTS, WHELEN M6 SERIES, LED STOP/TAIL/TURN/REVERSE, QUAD HOUSING (PAIR)
425	85030200	1	TECNIQ E-96 LED PARKING LIGHTS, REAR FENDERS, PAIR
426	85110100	1	ICC LIGHTS, LED
427	85710036	1	UNDERCARRIAGE GROUND LIGHTS, TECNIQ T44 LED

Line	Item #	Qty	Item Description/Comments
428	86528888	1	(2) FIRETECH, FT-WL-X-9-F-B REAR WORK LIGHTS
429	86600000	1	OPTICAL WARNING SYSTEM, UPPER (PUMPER)
			 
430	86610400	1	UPPER WARNING LIGHTS, ZONE A (FRONT), WHELEN FREEDOM IV 23.25" LED LIGHT BARS, CUSTOM (QTY 3)
			
431	86699999	1	UPPER WARNING LIGHTS, ZONE B (OFFICER'S SIDE), COVERED BY ZONES A & C
432	86710120	1	UPPER WARNING LIGHTS, ZONE C (REAR), WHELEN LED BEACONS, MCFLED2* (PAIR)
433	86899999	1	UPPER WARNING LIGHTS, ZONE D (DRIVER'S SIDE), COVERED BY ZONES A & C
434	87100000	1	OPTICAL WARNING SYSTEM, LOWER (PUMPER)

Line	Item #	Qty	Item Description/Comments
			 LOWER WARNING SYSTEM (FROM BOTTOM OF WINDSHIELD DOWN) Side Warning Zones Explained (Looking down on truck from sky) 
435	87110210	1	LOWER WARNING LIGHTS, ZONE A (FRONT), WHELEN M6 LED, M6* (QTY 4)
436	87811130	1	LOWER, ZONE A - MOUNTING LOCATION (DUAL HOUSINGS)
437	87210202	1	LOWER WARNING LIGHTS, ZONE B (OFFICER'S SIDE), WHELEN M6 LED, M6* (QTY 2), T-SERIES LED, TSS0* (QTY 1)
438	87812110	1	LOWER, ZONE B - MOUNTING LOCATION (PUMPERS, TANKERS, RESCUES)
439	87310200	1	LOWER WARNING LIGHTS, ZONE C (REAR), WHELEN M6 LED, M6* (QTY 2)
440	87410202	1	LOWER WARNING LIGHTS, ZONE D (DRIVER'S SIDE), WHELEN M6 LED, M6* (QTY 2), T-SERIES LED TSS0* (QTY 1)
441	87814110	1	LOWER, ZONE D - MOUNTING LOCATION (PUMPERS, TANKERS, RESCUES)
442	87537734	2	ADDITIONAL WARNING LIGHTS, WHELEN M6 LED, M6* (PAIR) (2)
443	87588888	1	SYNC WIRES FOR ION T LIGHTS
444	88390970	2	SCENE LIGHT, FRC RADIANT LUX, LED, SURFACE MNT, 22K LUMENS, 12V (2)
445	88399940	4	ADDITIONAL SWITCH, 3-WAY FOR 12V LIGHTS (EA) (4)
446	86588888	3	SCENE LIGHT, FIRETECH MB SINGLE STACK 15.99", 12V LED, FIXED, 12 LED, FT-MB-12-FT (3)
447	86588888	1	DOOR AJAR DISABLE SWITCH FOR FRC SPECTRA CAB SCENE LIGHTS
448	10310410	1	PAINT & FINISH

Line	Item #	Qty	Item Description/Comments
			PAINT & FINISH
449	89910010	1	CORROSION REDUCTION PROGRAM (PROPOSALS)
450	90010020	1	PAINT SCHEME
451	90030004	1	PAINT, SINGLE TONE
452	90030154	1	PAINT FRAME RAILS & BODY REAR DROP - BLACK
453	90030190	1	TEXTURED FRAME RAIL COATING, PLUMBING AREA
454	90030015	1	A/C CONDENSER PAINTED ROOF COLOR
455	90520150	1	GRAPHICS PACKAGE, CFD
456	90530224	6	ADDITIONAL 7" SCOTCHLITE LETTERS (EACH) (6)
457	90574100	1	INSTALL FIRE DEPT EMBLEMS (Pair)
458	90680120	1	CHEVRON STRIPING, REAR BODY OUTBOARD, REFLEXITE
459	90789100	1	GRAPHICS WARRANTY, AGI, 5 YEARS, MATERIAL ONLY
460	10310420	1	EQUIPMENT
			EQUIPMENT
461	91010000	1	MISC EQUIP - (1) PINT TOUCH-UP PAINT, STAINLESS STEEL NUTS & BOLTS
462	91030700	1	ZIAMATIC SAC-44 FOLDING WHEEL CHOCKS (PAIR) MTD W/ SQCH-44H HOLDERS
463	92067758	2	STREAMLIGHT SL-44451 FIRE VULCAN LED HANDLIGHT W/12 VOLT CHARGER (2)
464	92088888	1	STREAMLIGHT 44315 FIRE VULCAN 180 LED HANDLIGHT W/12 VOLT CHARGER (2)
465	10310600	1	COMPLETION & WARRANTY
			COMPLETION & WARRANTY
466	99010100	1	MANUALS, ELECTRONIC VERSION (2-USB)
467	99030100	1	ADDITIONAL MANUFACTURER'S MANUAL (1)
468	99031195	1	DEALER DELIVERY
469	99520110	1	WARRANTY, ONE YEAR
470	99521100	1	WARRANTY, FRAME, LIFETIME
471	99521200	1	WARRANTY, CAB STRUCTURAL, 10 YR.
472	99521300	1	WARRANTY, BODY STRUCTURAL, 10 YR.

Line	Item #	Qty	Item Description/Comments
473	99521400	1	WARRANTY, PAINT, 10 YR.
474	99521900	1	WARRANTIES, MAJOR VENDOR COMPONENTS
			SUPPLIED
475	PDB000573	1	SUPPLIED - Black Turtle Tile Matting
476	PDB000626	1	SUPPLIED - EQUIPMENT PACKAGE $100,000.00
477	PDB001267	1	SUPPLIED - FIRE COM SYSTEM
478	PDB001736	1	SUPPLIED - KNOX BOX INSTALLED & SUPPLIED
479	PDB001314	1	SUPPLIED - COLUMBUS FIRECOM HOOKS INSTALLED IN CAB QUAN (16)
480	PDB001019	1	SUPPLIED - COMMUNICATION PKG COLUMBUS FIRE
481	1-999	1	SUPPLIED - COLUMBUS SCOTT PAC TRACKER
482	1-9119	1	SUPPLIED - MOTOROLA RADIO APX-6500 w/enhanced 7/800 MHz
483	15030488	1	Shoreline Inlet SUTPHEN ITEM 15030440 120V SHORELINE INLET, KUSSMAUL SUPER 30 AUTO EJECT
484	39530705	6	BOSTROM ZIP CLEAN REMOVABLE COVERS, INCLUDES ADDITIONAL COVERS FOR BOTTOM SEAT CUSHION AND BACK REST (PER SEAT) (6)
485	87537739	3	ADDITIONAL WARNING LIGHTS, WHELEN T-SERIES LED, TSS0*(PAIR) (3)

Table of Contents

INTENT OF SPECIFICATIONS

It is the intent of these specifications to cover the furnishing and delivery to the purchaser a complete apparatus equipped as hereinafter specified. With a view of obtaining the best results and the most acceptable apparatus for service in the fire department, these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder must conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and construction of all features. The apparatus shall conform to the requirements of the current (at the time of bid) National Fire Protection Association Pamphlet #1901 for Motor Fire Apparatus unless otherwise specified in these specifications.

Bids shall only be considered from companies which have an established reputation in the field of fire apparatus construction and have been in business for a minimum of ten (10) years.

Each bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished under contract must conform. Computer run-off sheets are not acceptable as descriptive literature.

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

STATEMENT OF EXCEPTIONS TO NFPA 1901

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

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

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

QUALITY AND WORKMANSHIP

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

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

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

PERFORMANCE TESTS AND REQUIREMENTS

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

a. The apparatus must be capable of accelerating to 30 MPH from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed engine RPM.

b. The service brakes shall be capable of stopping the fully loaded vehicle within 35 feet from a speed of 25 MPH on a level concrete highway.

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

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

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

FAILURE TO MEET TESTS

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

EXCEPTIONS TO SPECIFICATIONS

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

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

GENERAL CONSTRUCTION

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

DELIVERY REQUIREMENTS

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

PURCHASER RIGHTS

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

U.S.A. MANUFACTURER

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

MANUFACTURER'S EXPERIENCE

Each manufacturer shall have been in business making similar apparatus for a minimum of seventy-five (75) years and must have had single ownership for more than fifty (50) years.

ELIMINATION OF DIVIDED RESPONSIBILITY

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

FAMA COMPLIANCE

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

PROPOSAL DRAWING

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

APPROVAL DRAWING

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

WIRING SCHEMATIC

Wiring diagrams of the apparatus shall be provided on a USB flash drive at the time of delivery.

SEVERE DUTY CUSTOM CHASSIS

A Severe Duty Cab and Chassis system shall be provided. The chassis shall be manufactured in the factory of the bidder. The chassis shall be designed and manufactured for heavy duty service with adequate strength and capacity of all components for the intended load to be sustained and the type of service required. The cab and chassis system, shall be considered the bidders “Top of the Line”.
There shall be no divided responsibility in the production of the apparatus.

DOUBLE FRAME RAILS/SINGLE AXLE

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

Each frame rail shall be constructed of two .375" thick-formed channels. The outer channel shall be 10.188" x 3.50” x .375” and the inner channel (liner) shall be 9.31” x 3.13” x .375”.

Over the entire length of the frame rail, the section modulus shall be 31.8 $in.^3$. The resistance to bending moment (RBM) shall be 3,498,000 in./lbs.

Each rail is media blasted to remove scale, oil, and contaminants. This blasting also ensures paint adhesion. Each rail will be primed with Cathacoat 302HB, a high performance, two component, reinforced inorganic zinc-rich primer with proven cathodic protection of steel structures, prior to assembly.

The cross-members shall be constructed of minimum .375" formed channels and have formed gusseted ends at the frame rail attachment. Single axle rear suspensions will utilize 3 piece bolt assembled cross-members at each suspension hanger

.625 inch, grade 8 flange, Huck bolt fasteners shall be used on all permanently attached brackets to the frame to eliminate the need for bolt re-tightening. Additional hardware will be Grade 8 Zinc coated flange head locking fasteners.

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

FRONT BUMPER CLIP

The front clip of the subframe shall be designed with a built-in skid plate to protect the engine and chassis components. The front clip shall be painted the same color as the frame.

FRONT TOW EYES, BELOW BUMPER

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

REAR TOW EYES

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

STEERING

The steering system shall be a TRW wheel to wheel steering system that is tested and certified by TRW, consisting of a heavy duty TRW/Ross Model TAS-85 power steering gear, TRW PS36 steering pump, miter box, drag links, and a thermostatic controlled fan cooled system (set point 185 deg. F to 170 deg. F). The steering gear shall be bolted to the frame at the cross-member for steering linkage rigidity. Four (4) turns from lock to lock with an 18" diameter slip resistant rubber covered steering wheel. Steering column shall have six-position tilt and 2" telescopic adjustment. The cramp angle shall be 45 degrees with 315mm tires or 43 degrees with 425mm tires providing very tight turning ability.

STEERING GEAR WARRANTY

The Ross steering gear shall have a one-year manufacturer's warranty.

DRIVE LINE

A Spicer 1810 series driveline shall be provided with Meritor dual grease l grease fitting universal joints with "half-round" end yokes. The drive shaft shall be built with a heavy-duty steel tube 4.095" outside diameter x .180 wall thickness. The shafts shall be dynamically balanced prior to installation into the chassis. A splined slip joint shall be provided in each shaft assembly. Universal joints shall be extended life. There shall be two (2) Zerk fittings in each universal joint assembly so the joint can be greased without turning the shaft.

ENGINE

The apparatus shall be powered by a Cummins Diesel X10 HHD 10 450 HP and up to 1,650 ft. lb. torque @ 1800 R.P.M.

AIR COMPRESSOR

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

STARTER

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

EXHAUST SYSTEM

The engine exhaust system shall be horizontal design constructed from heavy-duty truck components.

The engine exhaust system shall include the following components:

STAINLESS STEEL TUBING

Stainless Steel Flexible Bellows mounted at the turbo outlet. Stainless steel piping to the Aftertreatment Unit. Stainless steel piping from the Aftertreatment Unit to the stainless steel heat diffuser outlet.

AFTERTREATMENT UNIT

The dual canister TM13 Aftertreatment Unit is a self-contained exhaust treatment system which includes:
DPF (diesel particulate filter)
DEF Injector/Reactor
SCR (selective catalytic reducer)

The DEF injector/reactor utilizes the DEF fluid, which consists of urea and purified water, to convert NOx into nitrogen and water. This will meet or exceed 2027 EPA emissions requirements. A heated aftertreatment system shall be provided that is powered from a belt-driven 48V alternator on the engine.

The Stainless Steel Flexible Bellows shall be used to isolate the exhaust system from engine vibrations. The single canister Aftertreatment Unit shall be mounted under the right side frame rail, meeting the specific engine manufacturer's specifications and current emission level requirements. The heat diffuser outlet shall be directed to the forward side of the rear wheels, exiting the right side with a heavy duty heat diffuser. The heat diffuser shall prevent the exhaust temperature from exceeding 851 deg. F during a regeneration cycle.

INSULATED JACKETS

Heat-absorbing, removable, insulated jackets shall be provided on the exhaust system from the turbo outlet in the engine compartment to the Aftertreatment Unit. The jackets will cover all piping, including the

bellows, between the engine and the Aftertreatment Unit per engine manufacturers requirements insuring that the exhaust stream temperature remains elevated to ensure functionality with the Aftertreatment Unit. Additionally, the insulated jackets will protect the engine componentry from excessive heat generated by the exhaust.

ON-BOARD DIAGNOSTIC (OBD) SYSTEM

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

ENGINE WARRANTY

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

AFTERTREATMENT WARRANTY

The engine shall have a five (5) year or 100,000 mile aftertreatment coverage warranty, which covers failures of the Aftertreatment Assembly which result, under normal use and service, from a defect in Cummins material or factory workmanship.

AIR CLEANER/INTAKE

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

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

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

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

PRIMARY FUEL FILTER/WATER SEPARATOR

A Cummins approved Fleetguard Fuel Pro FH230 fuel filter/water separator shall be remote mounted to the chassis frame rail.

12VDC HEATER

A 12V DC heater shall be provided for the Fleetguard Fuel Pro FH230 fuel filter/water separator.

SECONDARY FUEL FILTER

A Cummins approved Fleetguard FF825NN fuel filter will be mounted on the driver's side of the engine.

TRANSMISSION

The chassis shall be equipped with a Generation 6 Allison EVS4000 six (6) speed automatic transmission. It shall be programmed five (5) speed, sixth gear locked out, for fire apparatus vocation, in concert with the specified engine.

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

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

Ratings: Max Input (HP) 600
Max Input (Torque) 1850 (lb ft)
Max Turbine (Torque) 2600 (lb ft)

Mechanical Ratios: 1st - 3.51:1
2nd - 1.91:1
3rd - 1.43:1

4th - 1.00:1
5th - 0.74:1
Reverse - -5.00:1

TRANSMISSION FLUID

The transmission shall come filled with an Allison approved Synthetic Transmission Fluid that meets the Allison TES-295 specification.

TRANSMISSION WARRANTY

The Allison transmission shall have a five (5) year manufacturer's warranty.

ENGINE BRAKE

The engine shall be equipped with a Jacobs compression engine brake. An “On/Off” switch and a control for “Low/High” shall be provided on the instrument panel within easy reach of the driver.

The engine brake shall interface with the Wabco ABS brake controller to prevent engine brake operations during adverse braking conditions.

A pump shift interlock circuit shall be provided to prevent the engine brake from activating during pumping operations.

The brake light shall activate when the engine brake is engaged.

TRANSMISSION COOLER

The apparatus transmission shall be equipped with a Liquid-To-Liquid remote mounted cooler with aluminum internal components. The cooler shall be encased in an aluminum housing and mounted to the outside of the officer’s side frame rail for accessibility and ease of service.

TRANSMISSION SHIFTER

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

COOLING SYSTEM

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

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

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

RADIATOR

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

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

CHARGE AIR COOLER

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

COOLANT

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

HOSES & CLAMPS

Silicone hoses shall be provided for all engine coolant lines.

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

FAN

The engine cooling system shall incorporate a heavy-duty composite 11- blade Z-series fan. It shall provide the highest cooling efficiently while producing the lowest amount of noise. This robust yet light-weight fan results in less wear and stress on motors and bearings.

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

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

FAN CLUTCH

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

SURGE TANK

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

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

FUEL TANK

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

The tank shall be removable by means of six (6) bolted connections and dropped. One (1) tank baffle shall be used.
Dual pick-up and return ports with a single 3/4" tank drawtube shall be provided for diesel generators if required.
The fuel lines shall be nylon braid reinforced fuel hose with brass fittings. The lines shall be carefully routed along the inside of the frame rails. All fuel lines are covered in high temperature rated split plastic loom. Single suction and return fuel lines shall be provided.
The fuel tank shall be mounted in a saddle with a barrier between the tank and the saddle. The bottom of the fuel tank shall contain a 1/2" drain plug.

FUEL FILL

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

FUEL COOLER

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

DIESEL EXHAUST FLUID TANK

The exhaust system shall include a molded cross linked polyethylene tank. The tank shall have a capacity of 5 usable gallons and shall be mounted on the left side of the chassis frame.
The DEF tank fill neck shall accept only a 19mm dispensing nozzle versus the standard 22mm diesel fuel dispensing nozzle to prevent cross contamination. The DEF tank cap shall be blue in color to further prevent cross contamination.

A placard shall accompany fill location noting DEF specifications.
Install a removable aluminum cover over the DEF access hole in the step well (in place of the standard door). Cover to be secured with screws. Install a label that denotes the location of the tank/fill. Label to also state that the cab must be raised completely to fill the tank.

ALTERNATOR

A 320 ampere Prestolite/Leece Neville alternator with serpentine belt shall be provided The alternator shall generate 260 amperes at idle.

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

LOW VOLTAGE ALARM

A Floyd Bell TXB-V86-515-QF low voltage alarm, audible and visual, shall be provided.

BATTERIES

The battery system shall be a single system consisting of four (4) negative ground, 12 volt Interstate Group 31 MHD batteries, cranking performance of 950 CCA each with total of 3800 amps, 185 minute reserve capacity with 25 ampere draw at 80 degrees Fahrenheit. Each battery shall have 114 plates. The batteries shall include a one-year warranty which shall be accepted nationwide.

The batteries shall be installed in a vented 304 stainless steel battery box with a removable aluminum cover to protect the batteries from road dirt and moisture. The battery cover shall be secured with four "T" handle rubber hold downs to provide easy access for maintenance and inspection. Stainless steel hardware will be used for installation. The batteries are to be placed on dri-deck and secured with a fiberglass hold down. The batteries shall be wired directly to starter motor and alternator.

The battery cables shall be 3/0 gauge. Battery cable terminals shall be soldering dipped, color-coded and labeled on heat shrink tubing with a color-coded rubber boot protecting the terminals from corrosion.

There shall be a 350-ampere fuse protecting the pump primer and a 250-ampere fuse protecting the electric cab tilt pump and other options as required.

BATTERY JUMPER TERMINAL

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

BATTERY CHARGER

An IOTA DLS-45 45 amp battery charger with IQ-3 controller shall be provided and installed in the cab. The charger shall be wired to the 120V shoreline inlet.

INDICATOR FOR CHARGER

KUSSMAUL PUMP PLUS STATUS CENTER DISPLAY, 091-198-12-PP

FRONT AXLE

A Hendrickson STEERTEK NXT non-driving, front steer axle with a capacity of 20,000 pound shall be provided. The axle shall have a 3.74" drop and will have a fabricated boxed shaped cross section, a one piece knuckle, and serviceable king pin. Adjustable Ackerman settings shall be available, and determine based on wheelbase. The axle shall have 10 bolt hub piloted, and furnished with oil seals.

FRONT AXLE WARRANTY

The Hendrickson front axle shall have a five (5) year manufacturer's warranty.

SUSPENSION (FRONT)

The front suspension shall be a parabolic taper-leaf spring design, 56" long and 4" wide. Long life, maintenance free, threaded pin bushings in spring shackles shall be utilized. All spring and suspension mounting shall be attached directly to frame with high strength Huck bolts and self-locking round collars. Progressive rate bump stop and custom tuned passive hydraulic damper shall be supplied. NO EXCEPTIONS.

FRONT SUSPENSION WARRANTY

The Hendrickson front suspension shall have a three (3) year manufacturer's warranty when paired with the Hendrickson rear suspension.

STEER ASSIST

The steer assist provides driver assistance when turning the vehicle left or right while traveling.

FRONT TIRES

Front tires shall be Goodyear 385/65R22.5, load range J, Armor Max Pro highway tread, single tubeless type with a GAWR of 20,000 pounds. Wheels shall be disc type, hub piloted, 22.5 x 12.25 10 stud 11.25 bolt circle.

REAR AXLE

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

REAR AXLE WARRANTY

The Meritor rear axle shall have a three (3) year manufacturer's warranty.

TOP SPEED

The top speed shall be approximately 68 MPH.

SUSPENSION (REAR)

24,000 LB AIR RIDE
A Hendrickson FIREMAAX model FMX242 air ride rear suspension shall be provided. The suspension shall be a dual air spring design equipped with dual height control valves to maintain proper ride height. To reduce axle stress and maintain axle position and pinion angle the suspension design shall incorporate three torque rods. The ground rating of the suspension shall be 24,000 pounds.

REAR SUSPENSION WARRANTY

The Hendrickson rear suspension shall have a three (3) year manufacturer's warranty when paired with the Hendrickson front suspension.

REAR TIRES

Rear tires shall be Goodyear 12R22.5, load range H, G622 Mud and Snow tread, dual tubeless type with a GAWR up to 27,000 pounds. Wheels shall be disc type, hub piloted, 22.5 x 8.25 10 stud with 11.25" bolt circle.

TIRE PRESSURE MONITOR

A Quick Pressure mechanical tire pressure sensor/indicator shall be provided for each wheel. The pressure sensor shall indicate if the tire is properly inflated. Each indicator shall have a green & red display visible inside a sight glass on the sensor. Full green indicates that the pressure is correct. Partial green/red indicates

that the tire is under inflated by as little as 10%. Full red indicates that the tire is under inflated by 25% or more. The indicators shall replace the standard valve stem caps. A total of six (6) indicators shall be provided.

WHEELS

The front and rear wheels shall be ACCURIDE® brand aluminum. ACCU-SHIELD™ finish shall be provided on the front and outside-rear wheels.

HUB COVERS

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

LUG NUT CAPS

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

FRONT MUD FLAPS

Hard rubber mud flaps shall be provided for front tires.

REAR MUD FLAPS

Hard rubber mud flaps shall be provided for the rear tires.

BRAKES, Front

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

BRAKES, Rear

The rear brakes shall be Meritor S-cam style. They shall be 16.5" x 8.625" with heavy duty return springs, and a double anchor pin design. They shall also have quick change shoes for fast easy brake relining.

A guard shall be provided over the parking brake knob.

AIR BRAKE SYSTEM

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

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

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

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

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

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

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

AIR BRAKE SYSTEM WARRANTY

The Wabco air brake system shall have a three (3) year, 300,000 mile manufacturer's warranty.

AIR BRAKE SYSTEM RELEASE VALVE

The vehicle shall be equipped with air-operated Haldex air brake release valve located in the cab within an accessible reach to the driver.

AUTOMATIC HEATED MOISTURE EJECTORS

Each air tank in the chassis braking system shall consist of a heated automatic moisture ejector to assist in keeping the air tanks and air lines free of debris and moisture. A manual pull cable shall be incorporated.

AIR INLET

An air system inlet/fill connection shall be provided. The inlet shall be connected to the air brake to allow constant air feed. The location of the inlet shall be on the left hand side of the driver's step well.

ELECTRONIC STABILITY CONTROL SYSTEM

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

AIR BRAKING ABS SYSTEM

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

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

The system shall consist of a sensor clip, sensor, electronic control unit and solenoid control valve. The sensor clip shall hold the sensor in close proximity to the tooth wheel. An inductive sensor consisting of a permanent magnet with a round pole pin and coil shall produce an alternating current with a frequency

proportional to wheel speed. The unit shall be sealed, corrosion-resistant and protected from electro-magnetic interference. The electronic control unit shall monitor the speed of each wheel sensor and a microcomputer shall evaluate wheel slip in milliseconds.

AUTOMATIC SLIP RESPONSE

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

ASR SWITCH

An on/off switch for the Acceleration Slip Resistance shall be provided on the dash. This will allow the driver to override the computer and turn the ASR on when at a higher speed for better traction in deep snow or mud.

COMPRESSION FITTINGS ON AIR SYSTEM

All air line fittings installed on the chassis shall be compression style fittings.
The following locations shall utilize push-on fittings:

- Pressure protection valve (accessory block)
- Double check valve (braking system, park brake)
- One way check valve (brake valve tank)
- Elbow Male Modified 1/4" tube x 1/4" MP (low air switch)
- Elbow Male 1/4" tube x 3/8"MP (brake pedal solenoid)
- Connector 1/4" x 3/8"MPT (brake pedal solenoid)
- Switch stoplight (Wabco sealed switch/brake light and service brake switch)
- Low pressure switch (PTC) (Wabco sealed switch/low air switch)

MISCELLANEOUS CHASSIS EQUIPMENT

Fluid capacity plate affixed below driver's seat.
Chassis filter part number plate affixed below driver's seat.
Maximum rated tire speed plaque near driver.
Tire pressure label near each wheel location.
Cab occupancy capacity label affixed next to transmission shifter.
Do not wear helmet while riding plaque for each seating position.
NFPA compliant seat belt and standing warning plates provided.

-

AIR LINE FITTINGS-COMPRESSION

All air line connections on the apparatus shall be via brass compression style.

ALUMINUM CAB

The cab shall be a full tilt 8-person 10" rearraised roof cab designed specifically for the fire service and manufactured by the chassis builder. Apparatus cabs that are not manufactured by the apparatus manufacturer shall not be acceptable.

CAB DESIGN

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

The cab shall be of a fully open design with no divider wall or window separating the front and rear cab sections. The cab shall be designed in a manner that allows for the optimum forward facing vision for crew. Cab designs that utilize roof mounted air conditioning units, are not desired.

The cab shall be constructed of high strength 5052H32 aluminum plate welded to 6061-T6 extruded aluminum framing.

The cab roof shall utilize 5” x 5” honeycomb re-enforced 6061 T6 aluminum extrusion, with fully radiused outer corner rails with integral drip channel and 6061 T6 ¾” x 2” x 3/16” aluminum box tubing type cross brace supports. Structures that do not include an integral drip channel will not be accepted. The box tubing type cross brace supports shall be installed in a curved fashion beginning from the midline of the apparatus cab and curving toward the exterior corner rails. This curvature will allow for increased strength in the event of a roll over while not allowing for rainwater buildup on the apparatus cab roof.

The cab sides shall be constructed from 1 ½” x 3” x 3/16” 6061 T6 extruded door pillars and posts that provide a finished door opening, extruded and formed wheel well openings supports, formed aluminum wheel well liners and box tubing type support braces.

The cab floor and rear cab wall shall utilize 1 ¾” x 4” x 3/16” 6061 T6 extruded box tubing type framing and support bracing.

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

The structural extrusion framework shall be overlaid with interlocked aluminum alloy sheet metal panels to form the exterior skin of the cab. The cab sides shall be constructed of 3/16” thick 5052H32 aluminum plate that slides into an integral channel of the extrusion framework. The plate is then skip welded into that channel to allow for tolerable flex while the apparatus travels down the roadway. Cab designs that utilize 1/8” thick aluminum for the cab sides shall not be acceptable.

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

The cab face extrusion framework shall be overlaid with 1/8” thick 5052H32 aluminum plate to allow for an aesthetically pleasing radiused cab face.

CAB SUB-FRAME

The cab shall be mounted to a 4” x 4” x 3/8” steel box tube sub-frame, and shall be isolated from the chassis, through the use of no less than six (6) elastomeric bushings. This substructure shall be completely independent of the apparatus cab. The sub frame shall be painted to match the primary chassis color.

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

Cab mounting that does not include a sub-frame shall not be considered. NO EXCEPTIONS.

CAB DIMENSIONS

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

Cab Width (excluding mirrors) 98"
Cab Length (from C/L of front axle)
To front of cab (excluding bumper) 68"
To rear of cab 73"
Total Cab Length (excluding bumper) 141"

ROOF DESIGN

The cab shall be of a one-half 10" raised roof design with side drip rails and shall satisfy the following minimum height dimensions:

Cab Dimensions Interior
Front 59"
Rear 65"

Cab Dimensions Exterior
Front 65"
Rear 75"

FENDER CROWNS

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

CAB INSULATION

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

EXTERIOR GLASS

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

SUN VISORS

The sun visors shall be made of dark smoke colored transparent polycarbonate. There shall be a visor located at both the driver and officer positions, recessed in a molded form for a flush finish.

CAB STEPS

The lower cab steps shall be no more than 22" from the ground. An intermediate step shall be provided, mid way between the lower cab step, and the cab floor.

The intermediate step shall be slightly inset to provide for safer ingress and egress. All steps shall be covered with material that meets or exceeds the NFPA requirements for stepping surfaces.

STEP LIGHTS

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

CAB STRUCTURAL INTEGRITY

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

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

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

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

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

SEAT BELT TESTING

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

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

CAB LOCKDOWN LATCHES

Cab lockdown latches shall be provided with an interlock switch tied to a component as specified. A LED indicator light shall be located in the cab. Once the component's path is clear and the cab tilt switch is engaged, the cab latches will released to allow the cab to be tilted.

CAB TILT SYSTEM

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

The lift system shall be comprised of two (2) hydraulic lift cylinders, an electrically driven hydraulic pump, and a control switch. The hydraulic pump shall be located on the exterior of the frame rail on the driver's side of the chassis that can be easily accessible when the cab is tilted. A mechanical locking system consisting of an air operated actuator and a heavy radiused wall 3" x 3" aluminum extrusion will be provided to ensure the cab remains in the raised position in the event of a hydraulic failure. Additionally, each of the hydraulic lift cylinders shall incorporate a check valve, and velocity fuses that will activate should a sudden drop in pressure be detected. The cab tilt controls shall be interlocked to the parking brake to ensure the cab will not move, unless the parking brake is set. The cab tilt controls will consist of a momentary raise/lower switch and a two position cab safety lock switch.

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

MANUAL CAB LIFT

There shall be a manually operated hydraulic pump for tilting the cab in case the main pump should fail. Access to the pump shall be located under the left corner of the front bumper.

BARRIER STYLE CAB DOORS

Barrier style cab doors shall be provided. The lower part of the door shall be removed to expose the cab entry step well. The step well shall be lined with aluminum treadplate.

The cab doorframes shall be constructed from 6061 T6 aluminum extrusions fitted with a 5052 H32 aluminum sheet metal skin and shall be equipped with dual weather seals. The outside cab door window opening shall be framed by a black anodized aluminum trim, to provide a clean appearance. The cab doors shall be equipped with heavy-duty door latching hardware, which complies with FMVSS 206. The door latch mechanism shall utilize control cable linkage for positive operation. A rubber coated nylon web doorstop shall be provided.

The doors shall be lap type with a 10 gauge full-length stainless steel flange and 3/8" diameter hinge pin and shall be fully adjustable.

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

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

Front	36.5" x 73"
Rear	36.5" x 73"

ELECTRIC CAB DOOR LOCKS

The cab shall have electric door locks activated by the keypad at the drivers and officers door.

KEYLESS ENTRY OVERRIDE

There shall be an override switch provided for the keyless entry under the front bumper area.

STEP WELLS

The lower cab step wells shall be sprayed with a black Raptor urethane blend. The back and side walls of the step well shall also be lined with 1/8” aluminum treadplate.

CAB STEPS

The lower cab steps shall be no more than 22" from the ground. Grip strut material shall be installed on the stepping surface.

An intermediate step shall be provided, mid way between the lower cab step, and the cab floor. The intermediate step shall be slightly inset to provide for safer ingress and egress. Diamondplate material shall be installed on the stepping surface.

All steps shall be covered with material that meets or exceeds the NFPA requirements for stepping surfaces.

STEP LIGHTS

A white TecNiq E45 LED strip light shall illuminate each interior cab step. These lights shall illuminate whenever the battery switch is on and the cab door is opened.

POWER WINDOWS

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

SIDE WINDOWS

Fixed position side window shall be provided on each side of the cab between the forward cab area and the crew cab area. The widows shall be approximately 20.5" high x 16.50" wide to provide maximum visibility. The side windows shall be held in place by an extruded rubber molding with a chrome plated decorative locking bead.

WINDSHIELD WIPERS

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

WINDSHIELD WASHER RESERVOIR

A four quart capacity windshield washer reservoir shall be provided. The fill access shall be located in the forward officer's step well area.

MIRRORS

Two (2) Lang Mekra 300 Series smooth chrome plated Aero style main and convex mirrors shall be installed on each side of the vehicle. The main mirror shall be 4-way remote adjustable with heat, 7" x 16" 2nd surface chromed flat glass. The convex shall be 6" x 8" 2nd surface chromed 400 mm radius glass. Each mirror housing assembly shall be constructed of lightweight textured chrome ABS with on truck glass and housing back cover replacement. In the event the mirror breaks the glass shall be replaceable in (3) minutes or less. The glass shall include a safety adhesive backing to keep broken glass in place. The mirror assembly shall be supported by a "C" loop bracket constructed of polished stainless steel tube utilizing two point mounting reducing vibration of mirror glass during normal vehicle operation. The lower section of the holder shall include a spring loaded single detent position 20 degrees forward with easy return to operating position without refocusing.

MIRROR, BLIND SPOT

One (1) Velvac 8" diameter exterior blind spot mirror assembly shall be provided and mounted on the brow of the cab, officer's side.

UPPER GRILLE

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

UPPER GRILLE LOGO

The upper grille shall have a laser cut flaming "S" logo in the upper portion of the grille. The cut out shall be illuminated by LED lights.

LOWER GRILLE

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

RUBBER WHEEL WELL TRIM FENDERETTES FRONT AND REAR FENDERS

PAINTED STEEL BUMPER

There shall be a 10" high painted formed steel wrap-around (45 degree) bumper provided at the front of the apparatus. The bumper shall be mounted to a reinforcement plate constructed of 1/4" x 10" x 70" carbon steel. The frame rail extension shall be a reinforced four-sided boxed frame rail for superior safety protection. A gravel shield shall be provided, constructed of formed steel and have a recess to protect warning light and ICC. The bumper extension shall be approximately 18". The tope edge of bumper will have a Scorpion Black texture to proect the bumper from scratching.

BUMPER SIDES

The sides of the bumper shall also be painted steel in lieu of diamond plate. Each side shall feature a recessed painted steel pocket for the marker light and any auxiliary lighting option selected. The pocket shall be a welded integral part of the bumper skin.

STORAGE WELL COMPARTMENT

There shall be a hose well compartment located in the center of the front bumper. The compartment shall be approximately 32" wide x 10" long x 12" deep. The compartment shall be constructed of .125" smooth aluminum plate.

STORAGE WELL STRAPS

There shall be two (2) Velcro straps installed across the top of the front bumper storage well.

PROTECTIVE BUMPER COATING

A Raptor texture coating shall be provided along the top edge of the front steel bumper. The color of the coating shall be determined at precon.

AIR HORNS

Two (2) Grover 1512 round, 21" long chrome plated air horns shall provided.

AIR HORNS WIRED TO STEERING WHEEL

The air horns shall be wired through the steering wheel button. A selector switch shall be provided on the instrument panel to switch between functions.

LANYARD CONTROL FOR AIR HORNS

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

ELECTRONIC SIREN

One (1) Whelen 295HFSA7 electronic siren shall be installed at the cab instrument panel complete with noise canceling removable microphone. The remote control head shall be flush mounted in a location specified by the fire department.

SIREN SPEAKERS

Two (2) Whelen SA314B 100 watt weatherproof aluminum siren speakers with black epoxy-coated finish shall be provided and wired to the electronic siren.

SPEAKER MOUNTING

The electronic siren speaker(s) shall be installed behind perforations in the front bumper.

FEDERAL Q2B SIREN

There shall be a Federal Q2B-NN siren installed on the face of the front bumper. The siren shall be securely mounted and activated by means of a solenoid and shall include a brake. There shall be rubber dock bumpers on each side of the Q2B siren to prevent damage to the siren grille.

FOOT SWITCH, DRIVER'S SIDE

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

MOMENTARY SWITCH ON DASH

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

SIREN BRAKE SWITCH

A brake switch for the mechanical siren shall be provided in the lower command console for both the driver's and officer's position.

CAB EXTERIOR LIGHTING

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

HEADLIGHTS

The front low and high beam headlights shall be FIRETECH model FT-4X6 LED, rectangular shaped, quad style installed in custom rectangular shaped stainless steel housings on the front of the cab. Each housing shall accommodate a forward-facing turn signal in the outboard location and a side-facing warning light.

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

HEADLIGHT FINISH

The interior components of the headlights shall have a chrome finish.

FRONT TURN SIGNALS

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

CORNERING LIGHTS

Two (2) Whelen Model M6 LED cornering lights shall be mounted on the sides of the bumper, one each side. The lights shall come on steady with their coordinating turn signal.

DAYTIME RUNNING LIGHTS

The headlamps shall be provided with a "Daytime Running" feature. The lights shall automatically be switched on when the vehicle ignition is switched on.

ICC/MARKER LIGHTS

Five (5) Grote 47183 ICC/ LED marker lights shall be provided on top of the roof of the cab to meet D.O.T. requirements.

EXTERIOR CAB HANDRAILS

There shall be four (4) 24" long, handrails provided and installed, one at each cab entrance. The handrails shall be constructed of type 304 stainless steel 1.25 inch diameter tubing with bright finish and knurled gripping surface. Mounting flanges shall be constructed from 7 gauge, .180 thick, stainless sheet. Each grab rail shall have 90 degree returns to flanges. The ends of grab rail shall pass through the flanges and be welded to form one structural unit. The handrails shall be mounted using 1.25" SS Hex bolts, with a barrier rubber gasket at each flange.

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

HANDRAIL SCUFF PLATES

Four (4) 4" wide mirrored stainless steel scuff plate shall be provided, one behind each of the exterior grab handles.

COAT HOOKS FOR GRAB HANDLES

There shall be a coat hook installed on the lower portion of the two exterior cab handrails, on the driver's side, for hanging of coats, turnout gear, etc.

COAT HOOKS FOR GRAB HANDLES

There shall be a coat hook installed on the lower portion of the two exterior cab handrails, on the officer's side, for hanging of coats, turnout gear, etc.

HANDRAILS, FRONT OF CAB

There shall be a pair of knurled stainless steel handrails on the front face of the cab, below the windshields.

INTERIOR CAB HANDRAILS

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

CAB DOOR HANDRAILS

There shall be two (2) rubber coated grab handles provided and mounted, one on the inside of each rear crew door, just below the windowsill. The handrails shall be approximately 11" long.

There shall also be two (2) 1.25" diameter knurled stainless steel handrails shall be provided and mounted, one on the inside of each rear crew door, just above the windowsill. The handrails shall be approximately 22" long.

INTERIOR DOOR STRAP

A nylon strap shall be provided on the lower hinge of each interior cab door to assist with entry.

EXTERIOR DOOR

The exterior compartment shall have a hinged door. The door shall have an Austin Hardware slam catch single-point "D"-ring door closure and held open with gas struts.

DOOR HINGE

The door shall be hinged to open towards the front of the cab.

The interior back wall of the cab and the side walls near the forward-facing crew seats shall be covered with 3/16” smooth aluminum.

Undercoating shall be provided on the interior of the cab doors to aid in noise reduction and corrosion prevention.

DRIVER'S SIDE EXTERIOR CAB COMPARTMENT

There shall be a cabinet constructed of .125 aluminum plate recessed in the cab behind driver's side rear crew door. The compartment shall be approximately 38" high x 15" wide x 22.25" deep.

The compartment shall have a hinged door that is hinged at the front. The doors shall have an Austin Hardware slam catch single-point "D"-ring door closure and held open with gas struts.

The compartment shall be operated by an individual switch and illuminated with (1) LED light.

OFFICER'S SIDE CAB COMPARTMENT

There shall be a cabinet constructed of .125 aluminum plate recessed in the cab behind officer's side rear crew door. The compartment shall be approximately 38" high x 15" wide x 20.25" deep (12.75" deep if front suction)

The compartment shall have a hinged door that is hinged at the front. The doors shall have an Austin Hardware slam catch single-point "D"-ring door closure and held open with gas struts.

The compartment shall be operated by an individual switch and illuminated with (1) LED light.

EXTERIOR DOOR

The exterior compartment shall have a hinged door. The door shall have an Austin Hardware slam catch single-point "D"-ring door closure and held open with gas struts.

DOOR HINGE

The door shall be hinged to open towards the front of the cab.

NY HOOK CAB STORAGE

Two (2) NY Hooks stored in the transverse storage area of the cab with a pocket that is accessible from the driver or officer side. Reference Layout designed for HS 6056-59 City of Columbus Fire.

EXTERIOR CAB COMPARTMENT GUARD

There will be a clear pro tec on the vertical exterior face of the cab compartment door edge that runs vertical.

BRUSH STS SILL PROTECTOR FOR EXTERIOR CAB COMPT (2)

-Customer would like a sill protector added to the bottom edge of the exterior cab compartments.

-They would like to use the same style we use for their body compartments, it would just be cut to the correct length.

DIAMOND PLATE, CAB ROOF

The rear exterior section roof of the cab shall have a diamond plate overlay. The overlay shall be constructed of .125” aluminum embossed diamond plate and measure 30” x 91”.

SCUFF CAB GUARD

There will be treadplate located on the driver and officer lower corners of the cab that extends from the exterior edge 12" inboard from the bottom of the cab 21" tall as a scuff protect-ant.

CAB INTERIOR

The metal surfaces of the cab interior shall be coated and sealed with MultiSpec black speckle, urethane modified, mar resistant paint. The textured coating shall provide paramount durability and wear resistance against foreign objects and normal wear and tear.

The front and rear headliners, as well as the rear cab wall, shall be finished in black Embossed FRP board.

INTERIOR DOOR PANELS

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

REFLECTIVE MATERIAL, CHEVRON STRIPING, INTERIOR CAB DOORS, ORAFOL REFLEXITE

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

CAB FLOOR COVERING

The cab interior floor shall be covered with a 5/16” thick, black rubberized material to provide a rugged but cosmetically pleasing stepping surface throughout the cab. The floor covering shall provide superior durability and resistance against foreign objects as well as normal wear and tear.

ENGINE ENCLOSURE

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

The enclosure shall be constructed from 5052 H2 aluminum plate and GRP composite materials, providing high strength, low weight, and superior heat and sound deadening qualities.

Additionally, the underside of the engine enclosure shall be coated in with a ceramic spray on insulation and sound control. This coating is an environmentally-friendly coating that is applied seamlessly and rapidly while providing superior thermal insulation and protection against vibration and noise, and will prevent future corrosion from forming by sealing the substrate. NO EXCEPTIONS

ENGINE ENCLOSURE COVERING

The top of the engine enclosure shall be covered with Scorpion heavy duty, black polyurethane blended coating. The textured coating shall provide paramount durability and wear resistance against foreign objects and normal wear and tear as well as sound deadening and insulation. The rubberized cab floor covering shall extend up the lower exterior sides of the engine enclosure to aid in sound deadening and heat resistance.

TOOL MOUNTING PLATE

There shall be a 3/16” smooth aluminum plate installed on the engine enclosure between the driver and the officer for use in mounting of equipment. The mounting plate shall feature beveled edges on the front and sides for a finished appearance. The plate shall be coated with the same finish as the engine enclosure and shall be secured to the engine cover with screws for easy replacement.

CENTER CONSOLE

There shall be a storage console installed on the engine enclosure between the driver and officer. The console shall be constructed from smooth aluminum and shall be coated with the same finish as the engine enclosure. The console shall measure approximately 23” long X 11.375” wide X 3.75” high. The console shall have a 13” long general storage area in the center that shall be divided into three (3) separate areas with two (2) fixed vertical dividers. A Velcro strap shall be installed front to rear over this area. Each outboard area of the console shall have one (1) stainless steel cup holder and one (1) approximately 5.5” long X 4.75” wide X 3.5” high open storage area.

ENGINE HOOD LIGHTS

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

COMPUTER TRAY

There shall be a slide-out tray in front of the officer's seat for a laptop computer or other use. Under the slide out will be a stationary compartment approximately 13.5" wide x 3.75" high x 12" deep. The compartment shall have a hinged drop down door.

UPPER CREW DOOR AREA

A glove box holder shall be provided in each upper cab crew door area. The holder shall be constructed of 3/16" smooth aluminum, capable of holding three (3) EMS glove boxes.

HAAS MASTER EMERGENCY SIGNAL WIRE RAND TO OBDDI PORT AREA

-Run an automotive grade 18 gauge wire yellow in color from the master emergency switch to J1939/OBDII diagnostic connector port area for HAAS system installed by customer post delivery.
-The wire should be capped off with heat shrink or tape so it doesn't short out ans should be clearly labeled with a trag (Master Emergency Signal).

CENTER CONSOLE-CUSTOM DESIGN

A center console shall be installed on top of the engine cover between the driver and the officer. The console shall have storage areas for EMS gloves, portable radios,misc. open areas, and TIC charging base. The console shall be covered in black scorpion coating.

MAP BOX-CUSTOM DESIGN

There shall be a map box to hold (2) binders stacked vertically. Compartment to have a 1.5" lip on top and shall be black multispec. The box ishall be installed on upper A/C mounting plate in front corner near driver (openings to face front of cab).

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MICROPHONE BRACKET, MAGNETIC MIC, MM-SU-2012

Three (3) to be installed on lower command console (one on officer's side angled panel like previous two units and one add'l on center panel under parking brake knob).

BRUSHED STAINLESS STEEL SCUFF PLATES

There shall be a brushed stainless steel scuff plate on both interior B-pillars. Plates to run from upper wedge-shaped wire chase to the floor level that is behind the front seats. Plates to protect paint from seat belts.

CHASSIS WIRING

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

MASTER ELECTRICAL PANEL

The main chassis breaker panel shall be wired through the master disconnect solenoid and controlled by the three-position ignition rocker switch. The breaker panel shall be located in front of the officer on the interior firewall and shall be protected by a removable aluminum cover. The cover shall have an aluminum notebook holder on the exterior face accessible to the officer. The cover shall be painted with a durable finish to match the interior of the cab and shall be secured with two (2) thumb screws.

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

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

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

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

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

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

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

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

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

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

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

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

INSTRUMENT PANEL

The main dash shroud, which covers the area directly in front of the driver from the doorpost to the engine hood, shall be constructed of vacuum formed ABS material with scorpion texture. The dash shall be a one-piece hinged panel that tilts outward for easy access to service the internal components. The gauge panel shall be constructed with a .125" aluminum panel , covered with a scratch resistant reverse printed and laminated poly carbonite.
The gauges shall be AMETEK Vehicular Instrumentation Systems (VIS), Next Generation Instrumentation System (NGI) with built-in self-diagnostics and red warning lights to alert the driver of any problems. All gauges and controls shall be backlit for night vision and identified for function. All main gauges and warning lights shall be visible to the driver through the steering wheel.

MASTER BATTERY & IGNITION SWITCH

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

DIESEL PARTICULATE FILTER CONTROLS

There shall be two (2) controls for the diesel particulate filter. One control shall be for regeneration and one control shall be to inhibit engine regeneration. These shall be located below the steering wheel in the kick panel.

INSTRUMENTATION & CONTROLS

Instrumentation on dash panel in front of the driver:

Tachometer/hourmeter with high exhaust system regeneration temperature, and instrument malfunction indicators

Speedometer/odometer with built in turn signal, high beam, and re-settable trip odometer

Voltmeter

Diesel fuel gauge

DEF (Diesel Exhaust Fluid) gauge

Engine oil pressure

Transmission temperature

Engine temperature

Primary air pressure

Secondary air pressure

Indicators and warning lights in front of the driver:

Parking brake engaged

Low air with buzzer

Antilock brake warning

Check transmission

Transmission temperature

Upper power indicator

Seat belt

Engine temperature

Low oil indicator

Low voltage indicator

Air filter restriction light

Low coolant indicator

High idle indicator

Power on indicator

Check engine

Stop engine

Check engine MIL lamp

DPF indicator

High exhaust temperature

Wait to start

Other indicator and warning lights (if applicable):
- Differential locked
- PTO (s) engaged
- Auto-slip response
- Retarder engaged
- Retarder temperature
- ESC indicator

Controls located on main dash panel in front of the driver:
- Master power disconnect with ignition switch
- Engine start switch
- Headlight switch
- Windshield wiper/washer switch
- Differential lock switch (if applicable)
- Dimmer switch for backlighting

Controls included in steering column:
- Horn button
- Turn signal switch
- Hi-beam low-beam switch
- 4-way flasher switch
- Tilt-telescopic steering wheel controls

CENTER CONTROL CONSOLE

There shall be an ergonomically designed center control console. The console shall be constructed of 1/8" smooth aluminum and shall be mounted on the engine hood between the driver and officer. The console shall have a durable coating to match the color of the engine hood covering and shall feature surfaces on each side that are contoured to face the driver and the officer for easy viewing and accessibility. The switches and other customer specified electrical items shall be mounted in removable 1/8" smooth aluminum panels with a black wrinkle finish. The console shall have an aluminum lift-up lid with quick release latch. The lid shall be held in the open position with a gas strut to allow for easy access and serviceability.

Controls located in the console conveniently accessible to the driver:
- Transmission shifter
- Pump shift control with OK TO PUMP and PUMP ENGAGED lights
- Remote mirror control
- Illuminated rocker switches to control high idle, Jacob's brake, siren/horn, siren brake, master emergency, and other customer specified components
- 12V power point (if applicable)

Controls located in the console conveniently accessible to the driver and the officer (center):
Parking brake control with a guard to prevent accidental engagement

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

Driving compartment warning labels shall include:
HEIGHT OF VEHICLE
OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION
DO NOT USE AUXILIARY BRAKING SYSTEMS ON WET OR SLIPPERY ROADS
EXIT WARNINGS

Additional labels included:
COMPUTER CODE SWITCH
ABS CODE SWITCH
FLUID DATA TAG
CHASSIS DATA TAG

OVERHEAD CONTROL CONSOLE

An ergonomically designed overhead console shall be provided above the driver and officer, running the full width of the cab. The overhead console shall be constructed from 1/8" aluminum plate and shall be painted with a durable finish to match the inside of the cab. There shall be seven (7) removable 1/8" smooth aluminum plates with a black wrinkle finish to house switches and other electrical items.
Directly above the driver there shall be two (2) panels with no cutouts, unless otherwise specified by the customer.
There shall be a panel located to the right of the driver that shall be designated for defroster, heat, and air conditioning controls (if specified).
The center overhead panel shall be designated for up to seven (7) door ajar indicators. Upon releasing the apparatus parking brake, one or more of these lights shall automatically illuminate (flash) when any of the following conditions occur that may cause damage if the apparatus is moved: cab or compartment door is open; ladder or equipment rack is not stowed; stabilizer system deployed; any other device has not been properly stowed.
There shall be a panel to the left of the officer as well as two (2) directly above the officer. These panels shall have no cutouts, unless otherwise specified by the customer.

ENGINE WARNING SYSTEM

An engine warning system shall be provided to monitor engine conditions such as low oil pressure, high engine temperature and low coolant level. Warning indication shall include a STOP ENGINE (red) light with audible buzzer activation and a CHECK ENGINE (amber) light
Note: (Some engine configurations may also include a fluid warning light.)
There shall be a master information light bar with 24 lights located across the center of the dash panel that covers up to 24 functions. These are defined under Indicators and Warning Lights above.

PUMP SHIFT MODULE

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

PUMP INTERLOCK

While the apparatus is in pump gear the odometer shall be connected so that engine miles are tracked during pumping operations. The user can use this to track total engine hours on the unit as well as another step to verify the unit is in pump gear.

CAB LOCKDOWN INDICATOR LIGHT

There shall be sensors in the cab lockdown latches. The sensors will send a signal to a marked light in the overhead light bar, inside the cab, to indicate when the cab in securely latched to the chassis, when the parking brake is released.

DOOR AJAR LIGHT

A Whelen LINZ6 LED light shall be installed in the cab near the driver. The light shall illuminate when the parking brake is released and any cab or body door is open or any other item on the apparatus is not properly stowed that may cause damage.

PROGRAMMABLE LOAD MANAGER

Load manager shall have the ability to sequence loads on and off. The Super Node II has twenty-four (24) inputs and twenty-four (24) outputs. Eighteen (18) are positive polarity outputs and six (6) are ground polarity outputs. It shall also be able to establish a 8 priority levels to sheding loads when the vehicle is stationary, starting at 12.8 volts lowest priority load to be shed, then respectively at 12.7, 12.5, 12.3, 12.1, 11.9, 11.5 and never shed volts DC. An output is shed (turned OFF) when the system voltage drops below the designated priority level's shed voltage for thirty (30) seconds. If the voltage has dropped below multiple priority level shed voltages then each higher priority level will shed before the lower priority levels. An output is unshed (turned back ON) when the system voltage rises above the designated priority level's unshed voltage for ten (10) seconds. If the voltage has risen above multiple priority level unshed voltages then each lower priority level will unshed before the upper priority levels.

MASTER SWITCH

All outputs can be tied or not tied to the stage switch. In fire apparatus this switch is typically referred to as the master switch. The state of the stage switch is controlled by Utility Module output memory space 3. When this output is active the stage switch is active. Any output tied to the stage switch will be OFF if the stage switch is not active regardless of the output's multiplex equation. Set an output's to be tied to the stage switch by checking the stage switch box in its "Output Port Load Settings" under the "Settings" tab. The name of the stage switch can be changed from the standard "stage" to anything desired by modifying the text in the "Output Port Load Settings" area.

AUTOMATIC HIGH IDLE ACTIVATION

The Utility Module's high idle request (input memory space 2) is activated when the system voltage drops below the high idle threshold (12.8 volts standard or 25.6 volts if 24 volt load management is enabled) for 8 seconds or longer AND load management has been enabled (Utility Module output memory space 1 is active). The high idle request will remain active as long as the voltage remains below the voltage threshold and for 3 minutes after the system voltage rises above the voltage threshold. High idle can be canceled by activating the Utility Module's high idle cancel (output memory space 0).

HIGH IDLE

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

CAB ACCESSORY FUSE PANEL

A fuse panel shall be located underneath the rear facing seat on the officer's side. The fuse panel shall consist of six (6) battery hot and six (6) ignition switch circuits. Each circuit shall be capable of 10-ampere 12-volt power and total output of 50-amps. The fuse panel shall be capable of powering accessories such as hand held spotlights, radio chargers, hand lantern chargers and other miscellaneous 12-volt electrical components.

POWER & GROUND STUDS, OVERHEAD COMMAND CONSOLE

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

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

VEHICLE DATA RECORDER

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

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

DUAL POWER POINT, USB-USBC

A Powerwerx 12-volt dual port USB-USBC power point shall be provided in the cab.
Rear lip of engine enclosure, centered.

DUAL POWER POINT, USB-USBC

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

Located near the driver and officer.

SPRING LOADED PAPER CLIP, OFFICER'S SIDE DASH

Install a spring loaded paper clip on the officer's side lower dash panel above the switches.

ADDITONAL SWITCH

There will be a switch to activate rear fender lights that shall also activate in reverse as well.
Switched in Cab, Overhead Console Position 1, "Fender Lights".

BACK UP ALARM MOMENTARY DISABLE

There shall be a momentary switch to disable back up alarm if desired in lower position by driver.

ADDITIONAL SWITCH ACTIVATION FOR HOSEBED LIGHTS

There shall be a switch in Overhead #1 to activate the hosebed lights.
Switched in Cab, Overhead Console Position 1, “Hosebed Lights”.

DOOR AJAR DISABLE SWITCH

- The purpose of this switch will be to shut off the lights wired to Door Ajar when the doors are open.
- Once the door has been closed and reopened the system will reset and the Door Ajar Lights will work again.
- This is for the M9 Scene Lights.
- Customer would like a Momentary Switch for this.

STORAGE SLOT W/0.5" LIP IN OVERHEAD

LIGHTING CAB INTERIOR

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

LIGHTING CREW CAB INTERIOR

Interior lighting shall be provided inside the crew cab for passenger safety. Three (3) ceiling mounted combination red/clear LED dome lights with a push button on/off switch in the light lens shall be provided. The lights shall also activate from the open door switch located in each cab doorjamb.

ACCENT LIGHTING

There is interior lighting TECHNIQ D07 ACCENT LIGHTING LED (4).

HEAVY DUTY HEATER/DEFROSTER/AIR CONDITIONER

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

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

defroster/heater shall be a minimum 350 CFM. The unit shall be painted Zolatone greystone to match the cab ceiling.

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

HEATER/DEFROSTER/AIR CONDITIONING CONTROLS

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

A/C WARRANTY

The air conditioning unit shall have a two (2) year manufacturer's warranty.

FLOORBOARD HEATING DUCT

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

DEFROSTER DIFFUSER

A molded diffuser made of durable ABS plastic ductwork system shall be provided. It shall be form fitted and shall attach to the cab's overhead defroster unit to provide temperature controlled air to the windshields. Air flow of up to 280 cfm is balanced and directed across the entire windshield for optimum defrosting capability in all types of weather.

TOOL MOUNTING PLATE

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

STORAGE COMPARTMENT

A storage unit constructed of .125" aluminum material shall be installed on the back of the heat/air conditioning, and shall have 2 small slots towards the outter ends, 2 medium slots located next to those, and 1 small slot located in the center for miscellanous storage. The corners of the storage compartment shall be slanted towards the front of the A/C unit.

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

AUXILIARY DEFROSTER FAN

There shall be a Red Dot model RD-5-5786-OP 12-volt fan mounted under the upper command console, outboard of console position 1, directed at the driver's side windshield. The fan shall be activated by a 3-position toggle switch located at the base of the fan. The switch positions shall be High, Low and Off.

AUXILIARY DEFROSTER FAN

There shall be a Red Dot model RD-5-5786-OP 12-volt fan mounted under the upper command console, outboard of console position 7, directed at the officer’s side windshield. The fan shall be activated by a 3-position toggle switch located at the base of the fan. The switch positions shall be High, Low and Off.

DIFFUSER FOR FRONT OF DEFROSTER/AC CHF-7344

DRIVER’S SEAT

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

SEAT BELT CONFIGURATION

The seat belt shall be pulled from the left shoulder to the buckle on the right.

HELMET STORAGE

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

OFFICER'S SEAT

A H.O. Bostrom Tanker 550 ABTS SCBA fixed base seat shall be installed behind the Officer. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with a lap belt and dual retractors built into the seat assembly with RiteHite™ Seat belt customized fit Adjustment. The seat shall be upholstered with heavy duty Low Seam Durawear Plus material.

SEAT BELT CONFIGURATION

The seat belt shall be pulled from the right shoulder to the buckle on the left.

UNDER SEAT STORAGE COMPARTMENT

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

HELMET STORAGE

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

CREW SEAT – DRIVER'S SIDE, REAR FACING

A H.O. Bostrom Tanker 550 ABTS SCBA fixed base seat shall be installed behind the Driver. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with a lap belt and dual retractors built into the seat assembly with RiteHite™ Seat belt customized fit Adjustment. The seat shall be upholstered with heavy duty Low Seam Durawear Plus material.

SEAT BELT CONFIGURATION

The seat belt shall be pulled from the right shoulder to the buckle on the left.

HELMET STORAGE

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

CREW SEAT – OFFICER'S SIDE, REAR FACING

A H.O. Bostrom Tanker 550 ABTS SCBA fixed base seat shall be installed behind the Officer. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with a lap belt and dual retractors built into the seat assembly with RiteHite™ Seat belt customized fit Adjustment. The seat shall be upholstered with heavy duty Low Seam Durawear Plus material.

SEAT BELT CONFIGURATION

The seat belt shall be pulled from the left shoulder to the buckle on the right.

HELMET STORAGE

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

CREW SEAT - DRIVER'S SIDE, FORWARD FACING, INBOARD

A H.O. Bostrom Tanker 550 ABTS SCBA fixed base seat shall be installed in the Driver's side forward-facing inboard position. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with a lap belt and dual retractors built into the seat assembly with RiteHite™ Seat belt customized fit Adjustment. The seat shall be upholstered with heavy duty Durawear material, and stiched with a low seam all the way around the base cushion.

SEAT BELT CONFIGURATION

The seat belt shall be pulled from the left shoulder to the buckle on the right.

HELMET STORAGE

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

CREW SEAT - OFFICER'S SIDE, FORWARD FACING, INBOARD

A H.O. Bostrom Tanker 550 ABTS SCBA fixed base seat shall be installed in the Officer's side forward-facing inboard position. The seat back shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall be equipped with a red 3-point shoulder harness with a lap belt and dual retractors built into the seat assembly with RiteHite™ Seat belt customized fit Adjustment. The seat shall be upholstered with heavy duty Low Seam Durawear Plus material.

SEAT BELT CONFIGURATION

The seat belt shall be pulled from the right shoulder to the buckle on the left.

HELMET STORAGE

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

SEAT UPHOLSTERY COLOR

The cab seat upholstery shall be black in color.

CUSTOM SEAT LOGOS

The seats shall include a custom logo in the headrest. The existing artwork shall be utilizied.

SCBA BRACKETS

Each SCBA seat in the cab shall feature an IMMI SmartDock hands-free self contained breathing apparatus (SCBA) storage bracket within the seat back.
The bracket shall consist of a main vertical support bracket, lower guide plate with valve retaining tabs, top claw assembly with wings, and an integral height adjustment knob. The top claw shall be adjustable for different diameters of SCBA cylinders. The head height shall be adjustable with the integrated adjustment knob for different heights of SCBA cylinders.

The bracket shall feature single-motion SCBA insertion and hands-free release when the fire fighter stands up to exit the seat. In the event of a collision, the top claws lock from inertial forces for a secure hold.

SEAT BELT WARNING SYSTEM

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

CREW SEAT COMPARTMENT

A compartment shall be provided under the forward facing crew seats on the back wall of the cab. Two drop down doors shall be provided on the front face of the compartment.

IN-CAB OVERHEAD STORAGE AREA

An overhead storage area shall be provided at the front of the raised roof portion inside of the cab above the rear-facing crew seats. The full-width storage area shall be approximately 84" wide x 10.5" high x 17" deep and shall have a Zolatone gray/black rubberized, textured finish to match the cab interior. Removable nylon netting shall be provided to cover the storage area opening.

HD STEREO

A Jensen HD AM/FM/WB Bluetooth stereo shall be provided with four speakers.

REAR VISION CAMERA SYSTEM

Provided and mounted on the apparatus shall be a Brigade camera system. The system shall consist of one (1) cab mounted #5611A HD 7" LCD monitor, one (1) model #5467 (Color) high definition resolution camera and one (1) camera cable. The monitor shall be dash mounted in plain view of the driver. The kit is capable of having two (2) additional cameras installed for a total of three (3). Comes with a 2 year system warranty.

FIRE PUMP HALE QTWO-150

Fire pump shall be midship mounted. The fire pump shall have two impellers and be of the series-parallel, two-stage design. The pump shall be equipped with an all bronze waterway transfer valve, capable of switching from one pump mode to the other with two and one-half turns of the transfer valve control handwheel. The transfer valve shall be equipped with a positive mechanical indicator to register the position of the transfer valve at all times. The transfer valve shall not be electrically operated.

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

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

All moving parts in contact with water shall be of high quality bronze or stainless steel. Easily replaceable bronze labyrinth wear rings shall be provided. Discharge passage shall be designed to accomplish uniform pressure readings as the actual pump pressure. The rated capacity of the fire pump shall be of 1500 gallons per minute in accordance with NFPA #1901.

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

PUMP TRANSFER CASE – G SERIES

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

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

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

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

MECHANICAL PUMP SEAL

The pump seal shall be a maintenance free mechanical pump type seal.

PUMP ANODE

A Hale Anode Pro kit shall be provided and installed in the pump body. A minimum of three (3) anodes shall be installed, one each suction side and one in the discharge side.

PUMP TEST & CERTIFICATION

The pump shall be tested and certified by a third party independent testing agency, in accordance with NFPA 1901. A 3 hour pumping test from draft shall be conducted consisting of 2 hours of continuous pumping at 100% of rated capacity at 150PSI net pump pressure, followed by ½ hour of continuous pumping at 70% of rated capacity at 200PSI net pump pressure, and ½ hour of continuous pumping at 50% of rated capacity at 250PSI net pump pressure). The testing shall also include a pressure control system test, priming system test, vacuum test, a gauge/flowmeter test, and a pumping engine overload test. If the apparatus is equipped with a water tank, the water tank-to-pump test shall also be included.

PUMP CONNECTIONS

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

TANK TO PUMP

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

VALVE

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

VALVE ACTUATOR

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

TANK FILL

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

VALVE

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

VALVE ACTUATOR

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

PRESSURE GOVERNOR and ENGINE MONITORING DISPLAY

Fire Research PumpBoss Max series PBA500-A10 pressure governor and control module kit shall be installed. The kit shall include a control module, discharge pressure sensor, and cables. The control module housing shall be waterproof and have dimensions not to exceed 7 1/2" high by 3 5/8" wide. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 2" from the front of the control module. The control LCD shall be 3.5” in size with a minimum brightness of 1000 nits and optically bonded to 3mm Borofloat Glass. Inputs for monitored engine information shall be from a J1939 data bus or independent sensors. Outputs for engine control shall be on the J1939 data bus or engine specific signal wiring. Inputs from the pump discharge pressure sensor shall be electrical.

The following continuous displays shall be provided:
Engine RPM; shown on LCD screen
Check engine and stop engine warning; shown on LCD screen
Engine oil pressure; shown on LCD screen
Engine coolant temperature; shown on LCD screen
Transmission Temperature; shown on LCD screen
Battery voltage; shown on LCD screen
Pressure and RPM operating mode LEDs
Pressure / RPM setting; shown on LCD screen
Throttle ready / Ok to Pump LEDs.
On screen (LCD) message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. LCD Screen and LED’s intensity shall be automatically adjusted for day and nighttime operation.
The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:
High Battery Voltage
Low Battery Voltage (Engine Off)
Low Battery Voltage (Engine Running)
High Transmission Temperature
Low Engine Oil Pressure
High Engine Coolant Temperature
Out of Water (visual alarm only)
No Engine Response (visual alarm only).
The program features shall be accessed via push buttons located on the front of the control module. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

The pressure governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready and Ok to Pump LED shall light when the interlock signal is recognized. The pressure governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the pressure governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the

level set by the operator except in the event of a discharge pressure increase. The pressure governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of low water and no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor control module shall be programmed at installation for a specific engine.

INTAKE PRESSURE CONTROL

There shall be three (3) Elkhart 40-20 intake pressure controls. One (1) main for pump One (1) for each of the 6" Monarch intake relief valves. All three (3) shall be set to 180 psi.

INTAKE VALVE

A Hale Master Intake valve shall be installed on the above specified intake. It shall be electrically actuated from the pump panel and include a manual override hand wheel on the pump panel. The valve shall include a pressure relief valve to guard against incoming pressure surges.

INTAKE RELIEF

A relief valve shall be installed on the intake side of the pump. The surplus water shall be discharged away from the pump operator and terminate with Male NST hose thread.

2.5" LEFT SIDE INLET

A 2.5" gated inlet valve shall be provided on the left side pump panel. The valve shall be supplied with chrome plate female swivel, plug, chain, and removable strainer. The valve shall attach directly to the suction side of the pump with the valve body behind the pump panel.

VALVE

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

VALVE ACTUATOR

The valve shall be controlled by a swing type handle located at the operator's panel. The handle shall have a full 90 degree movement.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

6" PUMP INLET

A 6" diameter suction port with 6" NST male threads shall be provided, on the right side of vehicle. The inlet shall extend through the side pump panels and come complete with removable strainer and long handle chrome-plated cap.

INTAKE VALVE

A Hale Master Intake valve shall be installed on the above specified intake. It shall be electrically actuated from the pump panel and include a manual override hand wheel on the pump panel. The valve shall include a pressure relief valve to guard against incoming pressure surges.

INTAKE RELIEF

A relief valve shall be installed on the intake side of the pump. The surplus water shall be discharged away from the pump operator and terminate with Male NST hose thread.

2.5" RIGHT SIDE INLET

A 2.5" gated inlet valve shall be provided on the right side pump panel. The valve shall be supplied with chrome plate female swivel, plug, chain, and removable strainer. The valve shall attach directly to the suction side of the pump with the valve body behind the pump panel.

VALVE

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

VALVE ACTUATOR

The valve shall be controlled by a swing type handle located at the operator's panel. The handle shall have a full 90 degree movement.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

DISCHARGE #1 - LEFT

The discharge in position #1 on the left side of the apparatus shall include the following features.

A 2.5" discharge shall be provided on the left side of the apparatus.

VALVE

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

VALVE ACTUATOR

The valve shall be controlled by an Trident handwheel control with position indicator located at the operator's panel.

DISCHARGE TERMINATION

The discharge valve shall be equipped with a 30° elbow termination that is capped and chained.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

DISCHARGE #2 - LEFT

The discharge in position #2 on the left side of the apparatus shall include the following features.

A 2.5" discharge shall be provided on the left side of the apparatus.

VALVE

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

VALVE ACTUATOR

The valve shall be controlled by an Trident handwheel control with position indicator located at the operator's panel.

DISCHARGE TERMINATION

The discharge valve shall be equipped with a 30° elbow termination that is capped and chained.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

DISCHARGE #3 - RIGHT

The discharge in position #3 on the right side of the apparatus shall include the following features.

A 4" discharge shall be provided on the right side of the apparatus.

VALVE

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

VALVE ACTUATOR

The valve shall be controlled by an Trident handwheel control with position indicator located at the operator's panel.

DISCHARGE TERMINATION

The discharge valve shall be equipped with a 30° elbow termination that is capped and chained.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

DISCHARGE #4 - RIGHT

The discharge in position #4 on the right side of the apparatus shall include the following features.

A 2.5" discharge shall be provided on the right side of the apparatus.

VALVE

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

VALVE ACTUATOR

The valve shall be controlled by an Trident handwheel control with position indicator located at the operator's panel.

DISCHARGE TERMINATION

The discharge valve shall be equipped with a 30° elbow termination that is capped and chained.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

2" DISCHARGE LEFT HOSE BED

There shall be a 2" gated discharge piped to the left front of the hose bed. The discharge shall be installed with proper clearance for spanner wrenches or adapters. Plumbing shall be 2" piping and a full flow ball valve with the control at the pump operator's panel.

VALVE

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

PRESSURE GAUGE/FLOW METER

Fire Research Insight Ultimate model FPA400 combination digital flowmeter and pressure indicator kit shall be installed. The kit shall include a flowmeter/pressure display module, paddlewheel flow sensor, flow sensor housing with a mount, pressure sensor, and interconnecting cables. The display module case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions not to exceed 4 3/8" high by 4 3/8" wide by 3 1/2" deep. The module shall have a digital LED display for flow with super bright digits more than 3/8" high. Flow rate shall be displayed in GPM. The module shall have an analog display for pressure with an expanded scale in the normal operating range for more accurate readings. The pressure indicator input and movement shall be electronic. Pressure shall be displayed in PSI.

The flowmeter/pressure indicator program features shall be accessed from front of the module. The program shall support multiple calibration points for flow and pressure, set points for high and low flow warnings, and flow totalizing functions. The pressure indicating needle shall be microprocessor controlled. The module shall be able to communicate with other FRC Insight flowmeters over a datalink.

VALVE ACTUATOR

The valve shall be controlled by an Trident handwheel control with position indicator located at the operator's panel.

DISCHARGE TERMINATION

The discharge valve shall be equipped with a straight termination that is capped and chained.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

2" DISCHARGE LEFT HOSE BED

There shall be a 2" gated discharge piped to the left front of the hose bed. The discharge shall be installed with proper clearance for spanner wrenches or adapters. Plumbing shall be 2" piping and a full flow ball valve with the control at the pump operator's panel.

VALVE

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

PRESSURE GAUGE/FLOW METER

Fire Research Insight Ultimate model FPA400 combination digital flowmeter and pressure indicator kit shall be installed. The kit shall include a flowmeter/pressure display module, paddlewheel flow sensor, flow

sensor housing with a mount, pressure sensor, and interconnecting cables. The display module case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions not to exceed 4 3/8" high by 4 3/8" wide by 3 1/2" deep. The module shall have a digital LED display for flow with super bright digits more than 3/8" high. Flow rate shall be displayed in GPM. The module shall have an analog display for pressure with an expanded scale in the normal operating range for more accurate readings. The pressure indicator input and movement shall be electronic. Pressure shall be displayed in PSI.
The flowmeter/pressure indicator program features shall be accessed from front of the module. The program shall support multiple calibration points for flow and pressure, set points for high and low flow warnings, and flow totalizing functions. The pressure indicating needle shall be microprocessor controlled. The module shall be able to communicate with other FRC Insight flowmeters over a datalink.

VALVE ACTUATOR

The valve shall be controlled by an Trident handwheel control with position indicator located at the operator's panel.

DISCHARGE TERMINATION

The discharge valve shall be equipped with a straight termination that is capped and chained.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

DISCHARGE 3" PIPE TO RIGHT REAR
There shall be a 3" gated discharge piped to the right rear, adjacent to the hose bed. Thedischarge shall be installed with proper clearance for spanner wrenches or adapters. Plumbing shall be 3" piping and a full flow 3" ball valve with the control at the pump operator's panel.
Plumbing to terminate in 3"NPT. Installing the following adapters and a 2.5" cap:
(1) Elkhart #418 chrome adapter (3"NPT female x 3"NST male)
(1) Elkhart #105 chrome elbow (3"NST female x 2.5"NST male)

PRESSURE GAUGE/FLOW METER

Fire Research Insight Ultimate model FPA400 combination digital flowmeter and pressure indicator kit shall be installed. The kit shall include a flowmeter/pressure display module, paddlewheel flow sensor, flow sensor housing with a mount, pressure sensor, and interconnecting cables. The display module case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions not to exceed 4 3/8" high by 4 3/8" wide by 3 1/2" deep. The module shall have a digital LED display for flow with super bright digits more than 3/8" high. Flow rate shall be displayed in GPM. The module shall have an analog display for pressure with an expanded scale in the normal operating range for more accurate readings. The pressure indicator input and movement shall be electronic. Pressure shall be displayed in PSI.

The flowmeter/pressure indicator program features shall be accessed from front of the module. The program shall support multiple calibration points for flow and pressure, set points for high and low flow warnings, and flow totalizing functions. The pressure indicating needle shall be microprocessor controlled. The module shall be able to communicate with other FRC Insight flowmeters over a datalink.

2.5" DISCHARGE RIGHT HOSE BED

There shall be a 2.5" gated discharge piped to the right front of the hose bed. The discharge shall be installed with proper clearance for spanner wrenches or adapters. Plumbing shall be 2.5" piping and a full flow 2.5" ball valve with the control at the pump operator's panel.

VALVE

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

PRESSURE GAUGE/FLOW METER

Fire Research Insight Ultimate model FPA400 combination digital flowmeter and pressure indicator kit shall be installed. The kit shall include a flowmeter/pressure display module, paddlewheel flow sensor, flow sensor housing with a mount, pressure sensor, and interconnecting cables. The display module case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions not to exceed 4 3/8" high by 4 3/8" wide by 3 1/2" deep. The module shall have a digital LED display for flow with super bright digits more than 3/8" high. Flow rate shall be displayed in GPM. The module shall have an analog display for

pressure with an expanded scale in the normal operating range for more accurate readings. The pressure indicator input and movement shall be electronic. Pressure shall be displayed in PSI.

The flowmeter/pressure indicator program features shall be accessed from front of the module. The program shall support multiple calibration points for flow and pressure, set points for high and low flow warnings, and flow totalizing functions. The pressure indicating needle shall be microprocessor controlled. The module shall be able to communicate with other FRC Insight flowmeters over a datalink.

VALVE ACTUATOR

The valve shall be controlled by an Trident handwheel control with position indicator located at the operator's panel.

DISCHARGE TERMINATION

The discharge valve shall be equipped with a straight termination that is capped and chained.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

FRONT BUMPER DISCHARGE

A 2.5" discharge with 2.5" plumbing shall be provided at the front bumper. The valve shall be remote controlled at the pump panel.

VALVE

The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless

steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by an Trident handwheel control with position indicator located at the operator's panel.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

DISCHARGE STOP PINS

Two (2) vertical stop pins shall be installed, one on each side of the front bumper discharge, to prevent the swivel or hose from hitting the cab. The vertical pins shall be made of polished aluminum.

DELUGE RISER

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

VALVE

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

capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall a 10-year warranty covered by Akron Brass.

VALVE ACTUATOR

The valve shall be controlled by an Trident handwheel control with position indicator located at the operator's panel.

DECK GUN TERMINATION

A four-bolt compound flange shall be provided on top of the deck gun piping.

DECK GUN

A Elkhart Vulcan 8500 Stinger Montior will be provided and installed.

EXTENDER

An Elkhart Brass Model 8599 Manual Extender shall be provided and installed. The Extender shall provide capability of raising the water monitor 18". It comes with a 3" hard-anodized aluminum waterway and be furnished with a 3" NPT or 3" Victaulic inlet coupling, and a 3" NPT outlet.

DECK GUN BRACKET SUPPORT

Install a formed support bracket in the dunnage area to support the stream shaper/stacked tips of the monitor. Bracket to be bolted on.
Tiller bar style monitor.
Includes 282A stream shaper and ST-194 stacked tips.

CROSSLAY

One (1) crosslay hose bed shall be supplied. The piping and valve shall be 2.5", the swivel shall be 2.5". The valve shall be the "drop-out" style, push/pull controlled from the pump panel. Compartment shall have capacity for 200 ft. of 2.5" double jacket hose.

VALVE

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

VALVE ACTUATOR

The valve shall be controlled by an Trident handwheel control with position indicator located at the operator's panel.

THREAD TERMINATION

The above shall terminate with National Standard Threads.

CROSSLAY COVER

An aluminum diamond plate cover shall be installed over the crosslay hose beds. It shall include a chrome grab handle at each end for opening and closing the cover. The cover shall be equipped with webbing on the sides and shall be securely fastened.

COVER FASTENERS

The crosslay cover shall be secured with airplane seatbelt style latches.

BOOSTER REEL AND EQUIPMENT

One (1) bright aluminum electric rewind booster reel with sealed joints, leak proof ball bearings, and an adjustable friction brake. The reel shall have a heavy frame to keep the drum, bearings, and rewind mechanism in alignment at all times. The reel shall have roller guides to prevent hose damage while it is being taken on and off of the reel. The electric rewind shall be located for convenience and safety of operation. Positive rewind power shall be assured by the use of sprocket and chain in conjunction with a geared manual crank.

The reel shall be equipped with 150 ft. 1" best grade booster hose with Bar-Way couplings and a 30 GPM nozzle mounted in a tulip bracket.

An air blow out valve shall be provided.

VALVE

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

VALVE ACTUATOR

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

THREAD TERMINATION

The above shall terminate with National Standard Threads.

MASTER PUMP DRAIN

A multiport master drain valve shall be provided and plumbed to multiple locations on the main pump body. The valve assembly shall be clearly marked as the Master Drain.

DRAIN VALVES LIFT UP STYLE

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

PUMP AND GAUGE PANELS, SIDE MOUNT

The pump controls and gauges shall be located at the left side of the apparatus. The pump and gauge panels shall be flush mounted.
Pump panels on both sides shall be easily removable. The gauge and control panels shall be two separate panels for ease of maintenance. The upper gauge panel shall be hinged with a full-length stainless steel hinge held closed with a 1/4-turn latch. There shall be one (1) hinged access door as large as possible located over the right side pump panel. This door shall have a full-length stainless steel hinge and a 1/4 turn latching mechanism.
The control panel shall be laid out in a user-friendly manner. All valve controls shall have the corresponding discharge gauge located immediately adjacent to control handle to allow operator to view the discharge pressure without searching the panel.

PANEL FINISH

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

ESCUTCHEON PLATES

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

COLOR CODING

Each discharge valve control, outlet, and corresponding line gauge shall be color-coded. The color-coding shall be (as applicable):
#1 Discharge - Yellow
#2 Discharge – White
#3 Discharge – Navy Blue
#4 Discharge - Black
#5 Discharge - Green
#1 Pre-Connect - Orange
#2 Pre-Connect - Red
#3 Pre-Connect - Brown

#4 Pre-Connect - Magenta
Front Bumper Line - Turquoise
Large Diameter Discharge – Yellow with White Border
Left Hose Bed Pre-Connect - Tan
Right Hose Bed Pre-Connect - Lavender
Left Rear Discharge - Olive
Right Rear Discharge – Light Blue
Deck Gun – Silver
Inlets – Burgundy
Tank Fill - Lime Green
Tank to Pump – Burgundy

PUMP MODULE FRAMEWORK

The pump module framework shall be painted as specified by the customer at the pre-contruction meeting. The paint finish shall be applied before the installation of any wiring, gauge lines, valve linkages, or operator's panel. The paint shall be the same material used for the finished body and cab.

PLUMBING FINISH

The plumbing shall be painted as specified by the customer at the pre-construction meeting. All fittings, pipe ends and valve ends shall be properly taped off prior to applying paint. The paint finish shall be applied before the installation of any wiring, gauge lines, valve linkages, or operator's panel. The paint shall be the same material used for the finished body and cab.

EXTERIOR DUNNAGE AREA

The exterior dunnage panels shall be constructed of aluminum diamondplate.

PUMP MODULE COMPARTMENT

There shall be a compartment to be located above the driver's side pump panel. Interior dimensions to beapproximately 23" W x 16" H x 30" D. there shall be a lift up treadplate door with push-button quick realease latches (same as pump panel) with LED light inside. This door will be tied into the "compartment door open" indicator in the cab. Install a drip rail above the door hinge.

RUNNING BOARD TROUGHS

A trough shall be provided in the running boards on both the driver's side and officer's side, each capable of holding a 15-foot length of 5" hose.

PUMP PANEL LIGHTING, LED

The driver's side pump panel controls and gauges shall be illuminated by a full width white TecNiq E45 LED light strip, controlled at the pump panel.

PUMP PANEL LIGHTING, LED

The officer's side pump panel shall be illuminated by a full width white TecNiq E45 LED light strip, controlled at the pump panel.

PUMP PANEL LIGHT HOODS

Each pump panel to have a treadplate light hood. Light hoods to be 4" deep and need to support 250lbs.

Officer's side hood needs to be deeper than the MIV handwheel sticks out to keep from stepping on handwheel. Ensure location on officer's side allows for clearance around the intake valve handwheel.
PUMP PANEL LIGHT IN DUNNAGE

PUMP PANEL GAUGES AND CONTROLS

The following gauges and controls shall be provided at the pump panel:

- Two (2) certified laboratory test gauge outlets.
- Pump primer control.
- Master drain control and additional drains as needed.
- Tank-fill and pump cooler valve controls.
- Tank to pump valve control.
- Pump capacity rating plate.
- All discharge controls.
- Two (2) master pump gauges.
- Gauges on all 1-1/2" and larger discharge lines.

PRIMING SYSTEM

The priming pump shall be a Trident Emergency Products compressed air powered, high efficiency, multi-stage, venturi based AirPrime System. All wetted metallic parts of the priming system are to be of brass and stainless steel construction. A single panel mounted control will activate the priming pump and open the priming valve to the pump. The priming system shall have a five year warranty.

(1) PRIMER BUTTON - MAIN SUCTION

A single panel mounted control will activate the priming pump and open the priming valve to the pump.

COMPRESSION FITTINGS ON AIR SYSTEM

Compression style fittings shall be provided on air lines within the pump module.

AIR OUTLET

One (1) air chuck shall be provided adjacent to the pump operator's panel on the left side. The system shall tie into the accessory tank of the brake system and include an 85-psi pressure protection valve in the outlet line to prevent the brake system from losing all air. A 25 ft. air hose shall be provided.
Note: Purchaser to specify type of hose fitting.

THERMAL RELIEF VALVE

There shall be a Hale TRV-L Thermal Relief Valve supplied. The valve shall automatically dump a controlled amount of water to atmosphere when the pump water exceeds 120 degrees Fahrenheit. The valve shall re-set automatically. A light shall be provided at the pump panel, which will illuminate when the pump reaches 120 degrees Fahrenheit to warn the operator that the pump is automatically dumping.

PUMP HOUSE ACCESS

The pump house shall be accessible by three access points.

The entire panel covering the front of the pump house shall be removable when the cab is in the tilted position. The cover shall lock in place using D-handle twist lock closures.

GAUGE HEATER

An Innovative Controls gauge heater with four (4) heat tapes shall be provided.

An additional heat tape shall be provided.

AIR HORN BUTTON

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

RUBBER BUMPER ON OFFICER SIDE INSPECTION DOOR

Add Rubber bumper to the Officers side inspection door, so it does not get damaged by the ladders when it is openened like previous units HS 7757-58.

4" MASTER GAUGES

An Innovative Controls TC Series glass-filled nylon case, a clear scratch-resistant lens, and a highly-polished stainless steel bezel pump pressure and vacuum gauges shall be provided. The gauges shall be 4" in diameter with a white face, and black enhanced lettering. The gauges shall be fully-filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from –40°F to +160°F. The gauges shall also include a KEM-X Socket Saver diaphragm in the stem to eliminate freeze-up and contain a low temperature instrument oil that fills and protects the socket and bourdon tube. The gauges shall display a range from -30 to 400 psi with enhanced black markings on a white dial.

WATER TANK LEVEL GAUGE

Fire Research TankVision® model WL2000 water tank volume indicator kit shall be installed. The kit shall include an electronic indicator module, a pressure sensor, and sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof and manufactured of aluminum.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 25%, down chasing LEDs when the tank is almost empty.

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

The gauge shall be located on the pump operator's panel.

WATER TANK VOLUME REMOTE INDICATORS

Three (3) Fire Research MaxVision model WLA280-A00 tank remote indicators shall be installed. The indicators shall show the volume of water in the tank on ninety-six (96) easy to see super bright tri-color LEDs. The indicator case shall be waterproof, manufactured of Polycarbonate material with an integrated lens.

The remote indicators shall receive input information over a datalink from the Fire Research TankVision primary indicator. The remote indicators shall indicate the level as a single color in red for 25% or less, amber color for up to 50% volume, blue color for up to 75% volume and green color for up to 100% volume. When the level reaches 25%, the red LEDs will begin flashing. When the level is empty, the red LEDs will scroll in a down-chasing motion and then flash three times.

The locations of the remote indicators shall be determined by the fire department.

WATER TANK

The tank shall be constructed of PT3™ polypropylene material by United Plastic Fabricating (UPF). This material shall be a non-corrosive stress relieved thermoplastic and UV stabilized for maximum protection. Tank shell thickness may vary depending on the application and may range from ½ to 1" as required. Internal baffles are generally 3/8" in thickness.

The tank shall be of a specific configuration and shall be designed to be completely independent of the body and compartments. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include PolyProSeal™ technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The top of the booster tank shall be fitted with removable lifting assembly designed to facilitate tank removal. The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" PT3™ polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions shall interlock with one another and completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. The walls shall be welded to the floor of the tank providing maximum strength as part of the tank's unique Full Floor Design™.

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" PT3™ polypropylene and shall be a minimum dimension of 8" x 8" outer perimeter. The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall have a 1/4" thick removable polypropylene screen and a PT3™ polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid. Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with a minimum I.D. of 4" that is designed to run through the tank, and shall be piped to discharge water behind the rear wheels as required in NFPA 1901 so as to not interfere with rear tire traction.

The tank cover shall be constructed of 1/2" thick PT3™ polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 3/8" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40” apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions. A minimum of two lifting dowels shall accommodate the necessary lifting hardware.

There shall be one (1) sump constructed of a minimum of 1/2" PT3™ polypropylene and be located in the left front quarter of the tank, unless specified otherwise. On all tanks that require a front suction, a 3" schedule 40 polypropylene pipe shall be installed that will incorporate a dip tube from the front of the tank to the sump location. The sump shall have a minimum 3" N.P.T. threaded outlet on the bottom for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3” above the inside floor.

There shall be two (2) standard tank outlets: one for the tank-to-pump suction line, which shall be sized to provide adequate water flow to the pump; and, one for tank fill line, which shall be sized according to the NFPA minimum size chart for booster tanks. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates of up to 1000 G.P.M. All auxiliary outlets and inlets must meet all NFPA guidelines in effect at the time of manufacture.

The UPF Poly-Tank® III shall rest on the body cross members in conjunction with such additional cross members, spaced at a distance that would not allow for more than 530 square inches of unsupported area under the tank floor. In cases where overall height of the tank exceeds 40 inches, cross member spacing must be decreased to allow for not more than 400 square inches of unsupported area.

The tank shall be isolated from the cross members through the use of hard rubber strips with a minimum thickness and width dimension of 1/4” x 1”. The rubber must be installed so it will not become dislodged during normal operation of the vehicle. Additionally, the tank must be supported around the entire bottom outside perimeter and captured both in the front and rear as well as side to side to prevent tank from shifting during vehicle operation.

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

The tank shall be tested and certified as to capacity on a calibrated and certified tilting scale. Each tank shall be weighed empty and full to provide precise fluid capacity. The tank shall be delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification. A center of gravity and weight calculation for both empty and full conditions shall be required with each tank.

The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from UPF. In applications where the tank will be subject to severe conditions, the tank may have a warranty unique to the application that is clearly defined for each such application.

WATER TANK

The water tank shall have a capacity of 750 U.S. gallons.

WATER TANK WARRANTY

The UPF water tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from UPF. In applications where the tank will be subject to severe conditions, the tank may have a warranty unique to the application that is clearly defined for each such application.

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APPARATUS BODY

The body shall be constructed of 3/16" #5052 aluminum sheet, #3003 bright aluminum diamond plate and structural aluminum extrusions. The body shall be of the modular design to allow for proper flexing of the truck chassis. The body shall be custom built and engineered for proper load distribution on the chassis. An insulator material shall be used where aluminum and steel are in contact to prevent corrosion.

-

The ceilings, sidewalls and floors of the body compartments shall be constructed of 3/16” 5052-H32 smooth aluminum plate with a tensile strength range of 32,000 to 44,000 psi. Continuous 5356 fill welding shall seal compartment panels.

The body framework shall be constructed of custom-designed aluminum alloy 6063-T5 extrusions with a tensile strength of 35,000 psi.

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To eliminate "dead space" and to maximize compartment interior space, there shall be no more than 1/4" between outer and inner walls.

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

-

The aluminum extrusion profiles shall incorporate 1" x 1-3/4" recessed continuous door seal at the bottom of the compartment. The extrusions shall be designed to allow unobstructed, sweep-out floors in all compartments.
The front, top, and rear surfaces of body shall be covered with .125" bright aluminum diamond treadplate. The forward and rear recessed surfaces shall be flush with the corner extrusions.

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

-

The compartment assemblies are to be fastened to the sub-frame with mechanical Huck-type bolts.

-

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

REAR STEP COMPARTMENTATION

A1- There shall be a compartment provided at the rear step. The compartment shall be approximately 40" wide x 40" high x 27.5" deep inside. The compartment shall be provided with a roll-up door.

COMPARTMENTATION LEFT SIDE

L1- There shall be a compartment, ahead of the rear wheels approximately 36 1/2" wide x 66" high x 27.25" deep. (12” D upper)

L2- There shall be a compartment above rear wheel. The approximate size 62" wide x 35 7/8" high x 12" deep inside.

L3- There shall be a compartment, behind the rear wheels approximately 48" wide x 66" high x 27.25" deep. (12” D upper)

COMPARTMENTATION RIGHT SIDE

R1- There shall be a compartment, ahead of the rear wheels approximately 36 1/2" wide x 50 1/2" high x 27.25"

R2- There shall be a compartment, above rear the wheels approximately 62" wide x 20.1/4" high x 12" deep.

R3- There shall be a compartment, behind the rear wheels approximately 48" wide x 50 1/2" high x 27.25" deep in the lower portion and 12" deep in the upper portion.

BODY SUB-FRAME

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

COMPARTMENT INTERIOR - L1

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

ADJUSTABLE SHELF

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

ADJUSTABLE ROLLOUT DRAWER

There shall be a 250 lb. capacity rollout drawer supplied and installed in a compartment. The drawer shall be approximately 3" deep and shall be mounted on adjustable tracks.

600# SLIDE-MASTER TRAY

There shall be a Slide-Master pullout drawer provided and installed. The drawer shall have a distributed load capacity of 600 lbs. and be capable of extending 100% of its depth. The tray shall be fabricated of .188" aluminum plate and have a formed lip that measures 2".

MOUNTING BOARD, BLACK POLY, 1/2"

Install in following locations:
L1 (upper front wall, upper rear wall)
L2 (upper back wall (asmuch as possible), floor of shelf)
L3 (upper front wall, lower front wall, upper back wall (both sides of divider), lower back wall (both sides of divider)
A1 (top of hose box)

COMPARTMENT INTERIOR - L2

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

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

COMPARTMENT INTERIOR - L3

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

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

COMPARTMENT DIVIDER

There shall be a vertical divider/partition provided in a compartment as specified. The divider shall be constructed of .188" thick smooth aluminum plate. The top and bottom of the divider shall have a formed flange bolted to the interior of the compartment.

COMPARTMENT INTERIOR - R1

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

ADJUSTABLE SHELF

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

COMPARTMENT INTERIOR - R3

The R3 compartment on the right side of the apparatus shall include the following features:

ADJUSTABLE SHELF

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

COMPARTMENT INTERIOR - A1

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

No compartment options were selected for A1

UNISTRUT

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

COMPARTMENT HEATER

There shall be a thermostat controlled compartment heater wired through the vehicles battery switch to insure safe storage of emergency medical supplies/drugs in the upper shelf area of the compartment. The heater will only run when the battery switch is "ON".

SILL PROTECTION

An Amdor aluminum sill plate shall be provided along the front edge of each body compartment floor.

ROLL-UP DOOR WARRANTY

The Amdor roll-up doors shall have a three (3) year manufacturer's warranty. Exceptions may apply to wet paint adhesion. Consult the manufacturer's warranty for complete details.

ROLL-UP COMPARTMENT DOORS

Compartment doors shall be equipped with AMDOR™ brand roll-up doors in a satin finish, complete with the following features:

- 1” aluminum double wall slats with continuous ball & socket hinge joint designed to prevent water ingression and weather tight recessed dual durometer seals
- double wall reinforced bottom panel with stainless steel lift bar latching system
- bottom panel flange with cut-outs for ease of access with gloved hands
- reusable slat shoes with positive snap-lock securement
- smooth interior door curtain to prevent equipment hang-ups
- one-piece aluminum door track / side frame
- top gutter with non-marring seal
- non-marring recessed side seals with UV stabilizers to prevent warpage
- dual leg bottom seal, with all wear component material to be Type 6 Nylon

REAR COMPARTMENT DOOR

The rear compartment door shall be equipped with AMDOR brand roll-up door in a satin finish.

COMPARTMENT INTERIOR FINISH

The interior non-painted surface of the compartments shall have a smooth, natural finish.

DOOR LOCKS

The compartment doors shall be equipped with locks. The locks shall all be keyed alike.

COMPARTMENT LIGHTING

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

An additional white AMDOR LED light strip shall be provided in specified compartment(s).

6' NY HOOK STORAGE COMPT

- This will be the same compartment as on the previous batch.
- Make sure a 6’ NY Roof Hook with a D-handle will fit in this compartment.
-

HOSE BED

The hose bed shall be provided with aluminum slatted flooring radiused at the edges to prevent hose damage from sharp edges. Each hose bed floor section shall be removable for easy access to the water tank.
Required Capacity (left to right)
250' of 1 3/4 double stacked
250' of 1 3/4 double stacked
1000' of 5.0"
500' of 2 1/2"
500' of 3"
Max height from ground 66"
Unistrut on front header to be located based on special heights of dividers.

HOSE BED COVER

An aluminum two-piece, hinged hose bed cover constructed of .125” aluminum diamond plate and square aluminum extrusion shall be provided for the main hose bed.

REAR HOSE BED COVER

A vinyl flap shall be provided and installed on the rear of the hose bed to prevent the hose from unintentional deployment. The vinyl flap shall be secured, and fastened to the rear of the hose bed.

COVER FASTENERS

The hose bed cover shall be secured with black bungie cords with red pull tabs.

HOSE BED DIVIDERS

The hose bed shall be divided by five (5) 3/16" aluminum partitions that are fully adjustable by sliding in tracks located at the front and rear of the hose bed. The dividers shall be located as needed.

FRONT HOSEBED LIGHTING

A TecNiq E44 LED light strip shall be provided, located on the interior of the front hosebed wall.

SIDE HOSEBED LIGHTING

TecNiq E44 LED light strips shall be provided on the interior hosebed walls, one each side.

BODY HANDRAILS

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

(Note: These are in addition to those previously mentioned in the cab section):
Handrails on pump module

(1) horizontal across top of edge of driver's side pump panel like 2005 engines
(1) on top of pump module on drivers side.
(1) on top of L1 near front vertical face above folding steps
(1) on officers side above pump panel.
(1) on top of pump module on officer's side
Handrails at rear:
(2) 24" vertical outboard of hosebed on rear stanchion posts (keep 4" above the top surface of the hose bed extension)
(2) on each aluminum hosebed door (1 at front, 1 at rear)
Folding steps on front of body:
(3) on driver's side.

FRONT BODY STEPS

There shall be up to five (5) Innovative Control fold-down steps with integrated step lights mounted on each side of the front face of body to provide access to the top of the pump module and dunnage area.

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

REAR STEPS

The rear of the body shall be equipped with up to six (6) Innovative Control fold-down steps with integrated step lights mounted on each side of the front face of body to provide access to the rear hosebed area.

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

INTERMEDIATE REAR STEP

There shall be one (1) full width treadplate rear step, approximately 72" long and 8" deep, provided at the rear of the apparatus below the hose bed.

RUB RAILS

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

ALUMINUM TREADPLATE

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

5. The running boards.
6. The rear step.
7. The top of the compartments.
8. The rear of the apparatus.
9. The rear fenders.

REAR STEP CORNES

The rear step corners shall be fully mitered starting from the body on each side of the rear step, and taper inward at a 45 degree angle to the rear edge.

AIR BOTTLE COMPARTMENTS

There shall be four (4) spare breathing air cylinder compartments recessed in the rear fender wells, two (2) left and two (2) right. Two of the compartments shall be capable of holding one bottle and two compartments shall be capable of holding three bottles, for a combined total capacity of eight (8) SCBA bottles. The interior compartment shall be constructed of a high-density polyethylene plastic.

DIVIDERS

A divider shall be provided for two (2) triple SCBA compartments.

DOOR FINISH

The single or double SCBA compartments shall have a brushed stainless door equipped with a weather resistant flush fitting thumb latch. The interior of the door shall incorporate a rubber seal to keep the compartment free of road debris and moisture.

DOOR FINISH

The triple capacity SCBA compartments shall have a brushed stainless door equipped with a weather resistant flush fitting thumb latch. The interior of the door shall incorporate a rubber seal to keep the compartment free of road debris and moisture.

FENDER PANELS

The rear side fenders shall be removable smooth aluminum panels, painted truck color. The wheel liners shall be constructed of pre-formed material to provide a maintenance free, damage resistant surface.

LADDER EQUIPMENT

The apparatus shall be equipped with the following ladders:

One (1) Duo-Safety Series 900A 24 ft. two-section aluminum extension ladder.
One (1) Duo-Safety Series 775A 14 ft. aluminum roof ladder.
One (1) Duo-Safety Series 585A 10 ft. folding attic ladder with mounting.

ZIAMATIC QUIC-LIFT LADDER RACK

The ground ladders shall be mounted on a Ziamatic electric ladder rack system so that they may be automatically lowered to a convenient height for safe and easy removal. The rack shall be made of high strength lightweight cast aluminum and be powered by two high cycle electric actuators and shall be self-locking in any position. The rack shall be capable of lowering the ladders approximately 28.25" from their stored position.

LADDER RACK ALARM

A LEO LA20 ladder rack alarm shall be audible and visual when the ladder rack deployed from its stowed position.

BODY ELECTRIC SYSTEM

All body electrical wiring in the chassis will be XLP cross link-insulated type. Wiring is to be color-coded and include function codes every three (3) inches. Wiring harnesses will be routed in protective, heat resistant loom, securely and neatly installed. Two power distribution centers will be provided in central locations for greater accessibility. The power distribution centers contain automatic thermal self-resetting breakers, power control relays, flashers, diode modules, daytime driving light module, and engine and transmission data links. All breakers and relays are utilized in circuits which amp loads are substantially lower than the respective component rating thus ensuring long component life. Power distribution centers will be composed of a system of interlocking plastic modules for ease in custom construction. The power distribution centers are function oriented. The first is to control major truck function and the second controls overhead switching and interior operations. Each module is single function coded and labeled to aid in troubleshooting. The centers also have accessory breakers and relays for future installations. All harnesses and power distribution centers will be electrically tested prior to installation to ensure the highest system reliability.

All external harness interfaces will be of a triple seal type connection to ensure a proper connection. The cab/chassis and the chassis/body connection points will be mounted in accessible locations. Complete chassis wiring schematics will be supplied with the apparatus.

The wiring harness contained on the chassis shall be designed to utilize wires of stranded copper or copper alloy of a gauge rated to carry 125% of maximum current for which the circuit is protected without exceeding 10% voltage drop across the circuit. The wiring shall be uniquely identified by color code or circuit function code, labeled at a minimum of every three (3) inches. The identification of the wiring shall be referenced on a wiring diagram. All wires conform to SAEJ1127 (Battery Cable), SAEJ1128 (Low Tension Primary Cable), SAEJ1560 (Low Tension Thin Wall Primary Cable).

All harnesses shall be covered with moisture resistant loom with a minimum rating of 300 Degrees Fahrenheit and a flammability rating of VW-1 as defined in UL62. The covering of jacketed cable has a minimum rating of 289 degree Fahrenheit.

All harnesses are securely installed in areas protected against heat, liquid contaminants and damage. The harness connections and terminations use a method that provides a positive mechanical and electrical connection and are in accordance to the device manufacturer's instructions. No connections within the harness utilize wire nut, insulation displacement, or insulation piercing.

All circuits conform to SAE1292. All circuits are provided with low voltage over current protective devices. These devices are readily accessible and protected against heat in excess of component rating, mechanical damage, and water spray. Star washers are not used for ground connections.

BACK-UP ALARM

An Ecco model SA917 automatic self-adjusting electronic back-up alarm producing 87-112 db shall be installed at the rear between the frame rails. It shall operate whenever the transmission’s reverse gear is selected.

STOP/TAIL/TURN/REVERSE LIGHTS

The rear stop/tail/turn/reverse lights shall be Whelen M6 series lights installed in quad housings one (1) each side on the rear of the apparatus body. The stop/tail lights shall be LED model M6BTT located in the top position of the housing. The amber arrow turn signals shall be LED model M6T located below the stop/tail lights. The reverse lights shall be LED model M6BUW located below the turn signals. The bottom position of the housing shall accommodate a Whelen M6 series warning light.

PARKING LIGHTS

TecNiq LED surface mount lights shall be installed, one each side, in rear fenders, to illuminate the side and rear of the apparatus. The lights shall be wired to come on when the apparatus is placed in reverse.

LED ICC/MARKER LIGHTS

LED type ICC/marker lights shall be provided to meet D.O.T. requirements.

GROUND LIGHTING

The apparatus shall be equipped with lighting capable of illumination to meet NFPA requirements. Lighting shall be provided at areas under the driver and crew riding area exits and shall be automatically activated when the exit doors are opened. The ground lights shall be TecNiq T44 LED. Lighting required in other areas such as work areas, steps and walkways shall be activated when the parking brake is applied, provided the ICC lights are on.

OPTICAL WARNING SYSTEM

The optical warning system shall be capable of two separate signaling modes during emergency operations. One mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right-of-way and the other mode shall signal that the apparatus is stopped and is blocking the right-of-way.

A momentary rocker switch shall be provided near the driver and labeled Master Emergency to energize all of the optical warning devices provided. A secondary momentary rocker switch shall be provided near the officer. All lights shall operate at not less than the minimum flash rate per minute as specified by NFPA.

UPPER LEVEL WARNING DEVICES

The upper level shall be divided into zones A (front), B (officer's side), C (rear) and D (driver's side).

Zone A (front) shall have three (3) Whelen Freedom IV 23.25" LED light bars. The center light bar shall have two (2) red corner LED modules, one (1) forward-facing red LED module, and one (1) white forward-facing LED module. Each outer light bar shall have one (1) end red LED module, two (2) corner red LED modules, one (1) forward-facing red LED module and one (1) forward-facing white LED module. The light bars shall have all clear outer lenses. The light bars shall be installed on the cab roof as far forward as possible each with two (2) MK8H 5" cast aluminum risers. The two (2) outer light bars shall be installed at a 45-degree angle to the center light bar.

Zone B (officer's side) shall be covered by the module from the light bar and the rear beacon.

Zone C (rear) shall have two (2) Whelen Model MCFLED2* Micro Freedom LED beacons installed one (1) each side on the upper rear of the apparatus. Each beacon shall feature two (2) rear-facing corner LED modules.

Zone D (driver's side) shall be covered by the module from the light bar and the rear beacon.

LOWER LEVEL WARNING DEVICES

The lower level shall be divided into zones A (front), B (officer's side), C (rear) and D (driver's side).
Exact layout of all lights in lower section.
(12) Red 600 LEDs w/Red Lenses:
(1) on front face of each warning light housing (outboard).
(1) on each side of front bumper in recessed areas.
(1) each side of the Cab above the front axle.
(1) each side in the rear fenders (ahead of axle).
(1) each side on rear of Body in bottom of taillight housings.
(1) each side on rear of Body up high. –No treadplate protectors like previous units.
(2) White 600 LEDs w/Clear lenses:
(1) on front face of each warning light housing (inboard - shed with parking brake).
(2) Red 500 LEDs w/Red lenses:
(1) each side of body under L3/R3 rubrails.

Zone A (front) shall have four (4) Whelen M6 series model M6* Super LED warning lights.

Zone B (officer's side) shall have two (2) Whelen M6 series model M6* Super LED warning lights and one (1) Whelen T-Series TSS0* Super LED warning light.

Zone C (rear) shall have two (2) Whelen M6 Series model M6* Super LED warning lights installed one (1) each side on the lower rear of the apparatus.

Zone D (driver's side) shall have two (2) Whelen M6 series model M6* Super LED warning lights and one (1) Whelen T-Series TSS0* Super LED warning light.

ADDITIONAL WARNING LIGHTS

There shall be (2) additional Whelen M6 Series model M6* Super LED warning lights installed on the apparatus.

SURFACE MOUNTED LED SCENE LIGHT

Two (2) Fire Research Radiant LUX RDC260-Q22 surface mounted LED scene light shall be provided. The lamp head shall operate at 12 volts DC, draw 10.5 amps, and generate 22,000 lumens of light. The light shall be mounted at a fire department specified location and shall be controlled from a switch in the cab.
Chrome Housings.
-(1) Each side of cab, behind crew doors, high.
-Switched in Cab, Overhead Console 1, “Left Scene”, “Right Scene”.
-Switched in Cab, Upper Console 5, “Left Scene”, “Right Scene”.
-Wire to Door Ajar (each side respectively).
-There will an override switch for when the Door Ajar feature of the light is activated.
-Reference HS-8096-8100

ADDITIONAL 3-WAY SWITCH

An additional 3-way switch shall be provided for:
Position 5
Brow Light
Left Flood Switch #4
Right Flood Switch #5

SCENE LIGHT, FIRETECH MB SINGLE STACK 15.99", 12V LED, FIXED, 12 LED, FT-MB-12-FT (3)

-White Housing and White Bracket.
-(1) Mounted under each warning lightbar, mounted to lightbar risers. (Reference HS-8096-8100)
Center Lightbar Switching:
-Switched in Cab, Overhead Console 1, “Brow Light”.
-Switched in Cab, Lower Console Position 5, “Brow Light”.
Driver Side Lightbar Switching:
-Switched in Cab, Overhead Console 1, “Left Scene”.
-Switched in Cab, Lower Console Position 5, “Left Scene”.
Officer Side Lightbar Switching:
-Switched in Cab, Overhead Console 1, “Right Scene”.
-Switched in Cab, Lower Console Position 5, “Right Scene”.

CORROSION REDUCTION POLICY

It is understood that fire apparatus will operate in harsh environments. The Sutphen Corporation has in place a formal corrosion reduction program and detailed assembly procedures, designed for reducing and

eliminating the possibility of corrosion. A formal program following the processes as set forth in ASTMB117, and is described below.

Frame Rails

The chassis frame rails shall be coated with a high performance, two component, reinforced inorganic zinc rich primer with a proven cathodic protection makeup preferably Cathacoat 302HB. The surface shall be clean and free of all salts, chalk and oils prior to application. Were the primer has been broken during the frame assembly process the area shall be touch up to reestablish the seal. Prior to finish paint a second primer Devran 201 shall be applied. Once the assembly of the frame is complete and the second primer is applied the entire assembly shall be covered with high quality top coat paint preferably Imron 5000 or equal.

Electro Plating

Steel and Iron brackets such as the pump module bracket shall be Zinc or cadmium plated to protect against corrosion. Plating shall be in accordance with ASTM B663.

Fasteners

In any area that a stainless steel screw or bolt head is to come in contact with aluminum or steel, painted or non-painted, the fastener shall have the underside of the head pre-coated with nylon. The nylon coating shall act as a barrier between the fastener head and the metal or painted surface.

Screw or bolt taped into the metal shall be pre-coated with a Threadlocker type material pre-applied on the threads.

When bolting together stainless steel the pan-head bolts with nylon coating under the head, a stainless washer with a rubber backing, and a Stover flange nut to secure the bolt, shall be utilized.

When mounting aluminum components such as a step to the apparatus body, stainless steel washers with rubber backing shall be used. All mounted components shall utilize barrier material between the two surfaces.

All rivet or huck type fasteners shall be of the same material being secured.

Whenever possible, holes shall be pre-drilled and taped when mounting components such as lights, steps, and hand rails prior to the paint process to reduce the corrosion opportunity. If a hole must be drilled into a previously painted surface, the paint barrier around the hole shall be re-established and a flange-type nutsert with a gasket under the flange shall be used.

When possible, the use of stainless trim screws shall be minimized. Structural tape and or adhesive shall be used were possible for mounting trim to the body or cab.

If a pre-treated screw or bolt is not available, hand applied Dynatex Boltlocker or Theadlocker shall be placed on the threads of the screw, bolt or nutsert. This will help seal threads from moisture and help prevent the fasteners from loosening. If lubricant is used when tapping the hole, the hole will be cleaned of lubricant and the shavings before applying.

Barrier Tape

Barrier tape shall be used on the backsides of all lights, trim pieces, or other components when bolting them to the apparatus; also when attaching stainless steel over an aluminum surface or when attaching aluminum treadplate to the stainless steel. All instances of dis-similar metals contacting each other require the addition of barrier tape between the metals where contact is made.

Before applying the tape, all metal surfaces shall be clean from oil or dirt with a 50/50 mix of alcohol and water or a similar solvent.

Gaskets

Gaskets shall be used under all snaps, loops and fasteners for such items as for hose bed covers. The paint seal shall be re-established around the mounting hole edges after drilling.

Rollup Doors

1 3/4" X 1/16” barrier tape shall be used on the frame opening to act as barrier between the aluminum door rail and the painted door opening surface.

Hinged Doors

Barrier tape shall be applied to the painted surface of the body and on the painted hinge side of the door.

Painting Steel

Steel shall be wiped of any oil residue, rust, and weld slag or smoke shall be removed. All surfaces shall be cleaned with solvent, primed, and then sprayed with a topcoat. After bolts are tightened to the proper torque, bolts shall be touched up with primer or cold galvanizing coating.

Mounting Emergency Lights and Options

All emergency lights, accessory mountings, Kussmaul covers, and 110 outlet boxes mounted to the body should be mounted with pre-coated Threadlocker and nylon under the head screws or bolts to minimize corrosion between dissimilar metals.

Electrical Grounding

Grounding straps shall be installed consisting of a minimum 2-gauge strap bolted to the chassis frame.

A ground cable from the cab to the right side frame rail
From the alternator to the right side frame rail
From the pump module frame to the right side truck frame.
Aerials: from the hydraulic and pump module framework.

From the pump mount to the truck frame rail.
From the body module to the right side truck frame.

Proper grounding will help eliminate grounding problems, and will reduce the possibility for electrolysis and corrosion to occur, as a result of impressed current be presented to the chassis. All electrical connection points shall be sprayed with electrical sealer as necessary.

SALT SPRAY TESTING

All fasteners and coatings have been chosen after extensive salt spray testing. Salt spray tests are used to confirm the relative resistance to corrosion of coated and uncoated metallic specimens, when exposed to a salt spray climate at an elevated temperature. Test specimens are placed in an enclosed chamber and exposed to a continuous indirect spray of neutral (pH 6.5 to 7.2) salt water solution, which falls-out on to the specimens at a rate of 1.0 to 2.0 ml/80cm²/hour, in a chamber temperature of +35C., steady state condition.

Method
Salt fog testing is performed by placing samples in a test cabinet that has been designed in accordance with Paragraph 4 (Apparatus) of ASTM B117 and operated in accordance with Paragraph 10 (Conditions) of ASTM B117.

A 5% salt solution, prepared by dissolving sodium chloride into water that meets the requirements of ASTM D1193 Specification for Reagent Water, Type IV is supplied to the chamber. At the time the samples are placed into test, the cabinet is pre-conditioned to the operating temperature of 35ºC and fogging a 5% salt solution at the specified rate.

Orientation
The samples are placed at a 15-30 degree angle from vertical or tested in the “installed” position. This orientation allows the condensation to run down the specimens and minimizes condensation pooling. An important aspect of the test is the utilization of a free-falling mist, which uniformly settles on the test samples. This simulates a “real world” condition.

Test durations
Test durations are 500 hours, and the test cabinet will remain closed for the duration of the test.

PAINTING

All exposed metal surfaces not chrome plated, polished stainless steel or bright aluminum tread plate shall be thoroughly cleaned and prepared for painting. All irregularities in painted surfaces shall be rubbed down and all seams shall be caulked before the application of the finish coat.
All removable items such as brackets, compartment doors, door hinges, trim, etc. shall be removed and painted separately to insure finish paint behind all mounted items. Body assemblies that cannot be finish

painted after assembly shall be finish painted before assembly. Both aluminum and steel surfaces to be painted shall be primed with a two (2)-component primer which is compatible with the finish coat. The apparatus shall be finish painted with a polyurethane base/clear system. “No Exception”
A barrier gasket/washer of "High Density Closed Cell Urethane Foam" shall be used behind all lights, handrails, door hardware and any miscellaneous items such as stainless steel snaps, hooks, washers and acorn nuts. The gaskets/washers shall be coated with pressure sensitive acrylic adhesive. All screws used to penetrate painted surfaces shall be pre-treated/coated under the head with nylon and the threads shall have pre-coat #80. This procedure shall be strictly adhered to for corrosion prevention and damage to the finish painted surfaces.
The following paint process shall be utilized:
Surface Preparation:
1. Wash surface thoroughly with mild detergent.
2. Clean and de-grease with Prep-Sol 3812S.
3. Sand and feather edge using 400 grit or finer on a dual action sander.
4. Remove sanding dust with a cleaner compatible with polyurethane base coat/clear coat final finish.
Substrate treatment:
1. Use a Metal Conditioner followed with a Conversion Coating product.
Priming:
1. Use a priming 615S pretreatment.
2. Use a self etching primer applied to achieve a 1.5 mil dft minimum.
3. Use Prime N Seal sealer compatible with polyurethane base coat.
Color Coat:
1. Apply polyurethane base coat 1-2 mil dft minimum.
Clear coat:
1. Apply polyurethane clear coat 2 mil dft minimum.

SINGLE TONE PAINT

A single paint color shall be provided for the apparatus.

PAINTED FRAME

The frame rails and body subframe shall be painted glossy black.

TEXTURED FRAME RAIL COATING

The area of the frame rails where the pump module shall be located. Shall be applied with a textured coating that matches the frame rail color.

AIR CONDITIONING CONDENSER

The air conditioning condenser shall be painted to match the cab roof.

Additional 7" letters shall be provided.

Customer supplied fire department emblems shall be installed on the cab doors, one each side.

CHEVRON STRIPING, REAR BODY OUTBOARD, ORAFOL REFLEXITE

The apparatus shall have 6” red and yellow reflective Orafol Reflexite Chevron style striping affixed to the outboard rear body panels. The striping will be set in a manner to have the effect of an inverted “V” shape. The stripe will travel low to high from the outside to the inside.

GRAPHICS WARRANTY

Graphics supplied by Associated Graphics, Inc. shall have a five (5) year warranty against defects in material. Additional terms and conditions may apply.

MISCELLANEOUS EQUIPMENT FURNISHED

1 pt. touch-up paint

A bag of stainless steel nuts and bolts, as used in the construction of the apparatus.

WHEEL CHOCKS

Two (2) Ziamatic #SAC-44 folding wheel chocks with SQCH-44H holders shall be provided. The wheel chocks shall be located in an area close to the rear axles easily accessible from the side of the apparatus.

RECHARGEABLE HANDLIGHT

One (1) Streamlight® SL-44451 Fire Vulcan® rechargeable LED handlight with 12 volt charger shall be provided and mounted.

STREAMLIGHT 44315 FIRE VULCAN 180 LED HANDLIGHT W/12 VOLT CHARGER

-(1) Each side of interior of cab, crew area, outboard of forward-facing crew seats, on side walls.
-Lights to be installed in the vertical orientation, 16” H from top of crew seat riser to bottom of light.

OPERATION AND SERVICE MANUALS

Complete "Operation and Service" manuals shall be supplied on two (2) USB flash drives with the completed apparatus. Service manual instructions shall include service, maintenance and troubleshooting for major and minor components of the truck. The apparatus manufacturer shall supply part numbers for major components (i.e. Engine, Axles, Transmission, Pump, etc.). A table of contents, hydraulic, air brake and overall apparatus wiring schematics shall be included.

A video demonstration on the operation of the truck shall be supplied on the flash drive.

Additional operator and maintenance manual(s) shall be provided.

MANUFACTURING & LOCATIONS

The apparatus will be manufactured in facilities wholly owned and operated by the company. A complete stock of service parts, and service shall be provided on a 24 hours around the clock basis. The company shall maintain parts and service for a minimum period of twenty (20) years on each apparatus model manufactured.

TURTILE TILE MATTING

TURTLE TILE COMPARTMENT MATTING
Exterior cab compartment floors, P1 floor, L1 shelf, L2 Floor, L3 shelf, L3 floor, R1 shelf, R1 floor, R2 floor, R3 shelf, R3 floor, top of R3 hosebox.
Color: black

EQUIPMENT PACKAGE

Equipment shall be provided and installed as mutually agreed upon between the Purchaser and the Manufacturer. See Included List in proposal that will be furnished at time of delivery. There is $100,000.00 Allowance for mounting and equipment package.

COMMUNICATIONS PACKAGE

A communications package shall be provided and installed as mutually agreed upon between the Purchaser and the Manufacturer.
One (1) Firecom Intercom System will be provided (Two (2)Wireless Heads Position Driver,Officer * four (4) Hard wired for the crew seats.

KNOX BOX

A Knox Box Key Secure 6 will be supplied and installed with bracket.

FIRE COM HOOKS

There will be sixteen (16) Fire Comm Hooks supplied and in a location determined by the customer. Six (6) will be utlized for headset hangers.

LAPTOP PKG

One (1) CF-334Z-2AAM PANASONIC RUGGED CF33 TABLET 12" - WIN 11 PRO INTEL CORE I7-10810U 1.1GHZ 5.2GHZ), VPRO, 12.0" QHD GLOVED MULTI TOUCH+DIGITIZER, 16GB, 512GB OPAL SSD, INTEL WI-FI 6, BLUETOOTH, 4G , GPS, DUAL PASS (CH1:WWAN/CH2:GPS), INFRARED WEBCAM, 8MP REAR CAMERA, SERIAL (TRUE), STANDARD BATTERIES (2), TPM 2.0, FLAT, 3 Year Protection Plus no fault warranty. 3 year premier deployment and imaging. FZ-SVCLTNFY4 Protection Plus Warranty 4th year.
One (1) H-33-TVD2-L PANASONIC RUGGED G2 TABLET VEHICLE DOCK - HAVIS TABLET LITE VEHICLE DOCK (DUAL PASS) FOR THE PANASONIC CF-33 TABLET ONLY. USB 2.0 (4), USB 3.0 (2 SERIAL, ETHERNET (2), DOCKING CONNECTOR, DUAL RF, POWER, RELEASE LEVER, LOCK (KEYED ALIKE).
One (1) CF-LNDDC120 PANASONIC RUGGED TABLET & LAPTOP CAR CHARGER - Lind 120 Watt 12-32 Volt Input Car Charger for CF-30, CF-31,CF-33, 4K Mk1, Mk2 (UT-M/FZ-Y1), CF-53 Mk4, CF-54, FZ-55, CF-SX2, CF-F9, CF-19, CF-20, CF-C2, CF-H2, CF-U1, FZ-G1, G2
One (1) FZ-SVCLTNFY45 PANASONIC ADD 5th YEAR WARRANTY
One (1) Panasonic US Accessory, Power Supply Mounting Bracket CF-LN D

RADIO PKG

One (1) G174AD ANT 3DB LOW-PROFILE 762-870
One (1) G361AH ENH: P25 TRUNKING SOFTWARE APX
One (1) QA09113AB BASELINE RELEASE SW
One (1) G996AS ENH: OVER THE AIR PROVISIONING
One (1) G66BJ DASH MOUNT E5 APXM
One (1) QA03399AA ENHANCED DATA APX
One (1) RADIO AUTHENTICATION

PAC TRACKER

There will be a Scott Pac Tracker provided and installed.

RADIO

There will be a Motorola Radio APX-6500 w/enhanced 7/800 MHz supplied and installed.

AUTO EJECT

SUTPHEN ITEM 15030440 120V SHORELINE INLET, KUSSMAUL SUPER 30 AUTO EJECT

BOSTROM SEAT COVERS

A removable Bostrom Zip Clean washable cover shall be provided on the bottom seat cushion and on the back rest of each seat.

An additional set of covers shall be also provided for each seat for use when the initial seat covers are removed for cleaning.

ADDITIONAL WARNING LIGHTS

There shall be (3) additional pairs of Whelen T-Series TSS0* LED warning lights installed on the apparatus. One (1) Pair in forward rub rail under L1 & R1 / L1 & R1 Forward body coners below treadplate ledge / L3/R3 located below the treadplate ledge rearward corners.