Rialto Fire Department

(1) KME Predator TDA

Sales Rep: Scott Beck

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Quotation

			Description	Qty.
VEHICLE				
S	0100-012	**MODEL**	Predator	1
O	8012-050	**CUSTOMERS / OEMS**	Kovatch Mobile Equipment (13050)[1004009]	1
S	8011-027	**MODEL YEAR**	Model Year - 2027	1
S	8001-001	**COUNTRY OF SERVICE**	Country of Service United States Of America	1
S	8017-009	**CAB AND CHASSIS LABELING LANGUAGE**	Cab and Chassis Labeling Language English w/Innovative Controls Labels	1
O	8006-013	**APPARATUS TYPE**	Apparatus Type Mid Mount Quint	1
O	8069-001	**AERIAL APPARATUS WITH HYDRAULIC GENERATOR**	Aerial Apparatus w/Hydraulic Generator Piggyback PTO Driven	1
O	8008-002	**VEHICLE TYPE**	Vehicle Type Tractor	1
S	8008A-000	**VEHICLE ANGLE OF APPROACH PACKAGE**	Vehicle Angle of Approach NFPA Minimum 8.00 Degrees	1
S	0104-001	**AXLE CONFIGURATION**	Axle Configuration 4x2 (Rear Axle Drive Only)	1
O	0101-013	**GROSS AXLE WEIGHT RATINGS FRONT**	GAWR Front 22800#	1
O	0102-005	**GROSS AXLE WEIGHT RATINGS REAR**	GAWR Rear 31000#	1
O	0106-011	**GROSS COMBINATION WEIGHT RATING**	Gross Combination Weight Rating 76600#	1
S	8010-201	**PUMP PROVISION**	Pump Provision Driveline Midship, Pump Mode Prog w/Auto Park Brake "N"	1
O	8009-004	**WATER & FOAM TANK CAPACITY**	Water & Foam Tank Capacity Up to 750 Gallons	1
S	8003-197	**WARRANTY**	Warranty Cab and Chassis (2) Year RFW0102	1
CAB				
O	1000-013	**CAB STYLE**	Cab Style EMFD 10" Raised Roof	1
S	8101-300	**OCCUPANT PROTECTION**	Occupant Protection IMMI 4Front & RollTek w/SRA	1
O	1501-018	**CAB FRONT FASCIA**	Cab Frt Fascia Classic w/Quad Headlight Bezels	1
O	1518-069	**FRONT GRILLE**	Cab Frt Grille KME Flat Square w/Waving American Flag Graphic	1
S	1551-002	**CAB UNDERCOAT**	Cab Undercoat	1
S	1552-002	**CAB SIDE DRIP RAIL**	Cab Side Drip Rail	1
O	1521-002	**CAB PAINT EXTERIOR**	Cab Paint Exterior Two Tone	1
S	1533-001	**CAB PAINT PROCESS/MANUFACTURER**	Cab Paint Process/Manufacturer PPG	1
S	1522-001	**CAB PAINT PRIMARY/LOWER COLOR**	Cab Paint Primary/Lower Color No Selection/TBD	1
O	1523-002	**CAB PAINT SECONDARY/UPPER COLOR**	Cab Paint Secondary/Upper Color No Selection/TBD	1
O	1524-002	**CAB PAINT EXTERIOR BREAKLINE**	Cab Paint Exterior Breakline Classic	1
O	1515-004	**CAB PAINT PINSTRIPE**	Cab Paint Pinstripe 1/2" Gold Leaf	1
S	8013-156	**CAB PAINT WARRANTY**	Cab Paint Warranty PPG (10) Year RFW0710	1

S	1334-036	**CAB PAINT INTERIOR**	Cab Paint Int Multi-tone Silver Gray	1
S	1005-001	**CAB ENTRY DOORS**	Cab Entry Doors (4)	1
S	1101-101	**CAB ENTRY DOOR TYPE**	Cab Entry Door Type Full Length w/Pollak Switches	1
S	1322-007	**CAB INSULATION**	Cab Insulation Nonwoven Polyester Fiber	1
O	1556-009	**LH MID EMS COMPARTMENT**	LH Mid EMS Compartment 26"H w/Offset to 24"W Chamfered Corner	1
O	1558-010	**LH MID EMS COMPARTMENT EXTERIOR ACCESS**	LH Mid EMS Cmpt Ext Access 26"H x 17"W Overlap Hng Dr w/DA Sand Dr Pnl/Gas Strut	1
O	1560-002	**LH MID EMS COMPARTMENT INTERIOR**	LH Mid EMS Cmpt Interior Solid Wall No Access	1
O	1564-002	**LH MID EMS COMPARTMENT SHELVING**	LH Mid EMS Cmpt Shelving Adj w/Unistrut	1
O	1566-002	**LH MID EMS COMPARTMENT DOOR HARDWARE**	LH Mid EMS Cmpt Door Hardware D-Ring Latch	1
O	1557-008	**RH MID EMS COMPARTMENT**	RH Mid EMS Compartment 26"H w/Offset to 24"W Chamfered Corner	1
O	1559-010	**RH MID EMS COMPARTMENT EXTERIOR ACCESS**	RH Mid EMS Cmpt Ext Access 26"H x 17"W Overlap Hng Dr w/DA Sand Dr Pnl/Gas Strut	1
O	1561-002	**RH MID EMS COMPARTMENT INTERIOR**	RH Mid EMS Cmpt Interior Solid Wall No Access	1
O	1565-002	**RH MID EMS COMPARTMENT SHELVING**	RH Mid EMS Cmpt Shelving Adj w/Unistrut	1
O	1567-002	**RH MID EMS COMPARTMENT DOOR HARDWARE**	RH Mid EMS Cmpt Door Hardware D-Ring Latch	1
O	5384-002	**MID EMS COMPARTMENT LIGHTING**	Mid EMS Compartment Lighting LED	2
O	1535-016	**MID EMS COMPARTMENT EXTERIOR FINISH**	Mid EMS Cmpt Ext Finish Multi-tone Silver Gray	1
O	1536-018	**MID EMS COMPARTMENT INTERIOR FINISH**	Mid EMS Cmpt Interior Finish Multi-tone Silver Gray	1
S	8004-033	**CAB STRUCTURAL WARRANTY**	Cab Structural Warranty (10) Year RFW0602	1
S	9001-006	**CAB TEST INFORMATION**	Cab Test Information Crash Test ECE-R29/SAE J2420/SAE J2422	1

ELECTRICAL POWER DISTRIBUTION

S	5000-018	**ELECTRICAL SYSTEM**	Elec System 12V DC Multiplex	1
O	5008-073	**OEM WIRING**	OEM Wir Tractor Drawn Aerial Interface & Shift Inhibit	1
O	5009-003	**TRAILER ELECTRICAL CONNECTION**	Trailer Elec Conn	1
O	5006-002	**APPARATUS WIRING PROVISION**	Apparatus Wiring Provision (8) Circuit Panel	1
S	5005-300	**VEHICLE DISPLAY**	Vehicle Display UltraView 780 Touchscreen w/Push Button Surround LH Sw Pnl	1
S	5004-002	**LOAD MANAGEMENT SYSTEM**	Load Management System Multiplex	1
S	5622-003	**DATA RECORDING SYSTEM**	Data Recording Sys Vehicle Data Weldon MUX	1
O	5031-102	**ACCESSORY POWER**	Accessory Pwr Batt & Ign Stud w/(2)Fuse Batt/(3)Fuse Mstr Bus Bar w/Aerial Mstr	1
S	5011-001	**EXTERIOR ELECTRICAL TERMINAL COATING**	Exterior Electrical Terminal Coating Spray On Plasti Dip	1
S	8014-002	**ELECTRICAL SYSTEM WARRANTY**	Electrical System Warranty (2) Year RFW0202	1

ENGINE

O	1701-185	**ENGINE**	Engine Diesel 605HP/1850Ft-Lbs Cummins X15 HHD - EPA 2027	1
S	1329-002	**CAB ENGINE TUNNEL**	Cab Engine Tunnel Large	1
S	1731-018	**DIESEL PARTICULATE FILTER CONTROLS**	DPF Ctrl Regeneration Sw & Inhibit Sw w/Digital Dash	1
S	1718-002	**ENGINE PROGRAMMING HIGH IDLE SPEED**	Engine Programming High Idle Speed 1250 RPM	1
S	1719-005	**ENGINE HIGH IDLE CONTROL**	Engine High Idle Ctrl Automatic and Manual w/Disp Actv	1
S	1710-001	**ENGINE PROGRAMMING ROAD SPEED GOVERNOR**	Engine Programming Road Speed Governor Enabled	1
S	1713-010	**AUXILIARY ENGINE BRAKE**	Aux Engine Brake Compression Brake w/VG Turbo	1
O	1708-007	**AUXILIARY ENGINE BRAKE CONTROL**	Aux Engine Brake Ctrl Off/Low/High Disp	1
O	1715-010	**FLUID FILLS**	Fluid Fills Under Cab w/Tnl Hatch Engine Oil Check	1
S	1735-001	**ENGINE DRAIN PLUG**	Engine Drain Plug	1
S	8002-001	**ENGINE WARRANTY**	Engine Warranty Cummins (5) Year/100,000 Miles	1
S	1707-116	**REMOTE THROTTLE HARNESS**	Rmt Throttle Harness Cab Harness Only Shift Interlock	1
S	1721-001	**ENGINE PROGRAMMING REMOTE THROTTLE**	Engine Program Rmt Throttle Off	1
S	1727-001	**ENGINE PROGRAMMING IDLE SPEED**	Engine Programming Idle Speed 700 RPM	1

AIR INTAKE

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

COOLING

S	2704-016	**ENGINE FAN DRIVE**	Engine Fan Drive Variable Speed	1
S	2701-021	**ENGINE COOLING SYSTEM**	Engine Cooling System Serial Flow w/Package Drop-Out Prov	1
S	2711-005	**ENGINE COOLING SYSTEM PROTECTION**	Engine Cooling System Protection Light Duty Skid Plate Paint Frame Color	1
S	2708-001	**ENGINE COOLANT**	Engine Coolant Extended Life	1
S	2706-003	**ELECTRONIC COOLANT LEVEL INDICATOR**	Elec Low Coolant Level Indicator	1
S	2709-001	**COOLANT HOSES**	Coolant Hoses Silicone	1

EXHAUST

O	2901-093	**ENGINE EXHAUST SYSTEM**	Eng Exhaust Sys Under Frm RH w/DPF Over SCR Switchback	1
S	2907-021	**DIESEL EXHAUST FLUID TANK**	Diesel Exhaust Fluid Tank LH 5 Gal Fill Thru Rr Step	1
O	2902-004	**ENGINE EXHAUST ACCESSORIES**	Engine Exhaust Acc Extraction Plymovent	1
S	2906-002	**ENGINE EXHAUST WRAP**	Engine Exhaust Wrap	1
O	8018-006	**EMISSIONS SYSTEM WARRANTY**	Emissions System Warranty (10) Years Heavy HDE/450K Miles/22K Hours RFW0144	1
S	8018A-002	**REGULATED EMISSIONS WARRANTY TIRES**	Regulated Emissions Warranty Tires (2) Years/24,000 Miles RFW0145	1
S	8018B-002	**REGULATED EMISSIONS WARRANTY AIR CONDITIONING**	Regulated Emissions Warranty Air Conditioning (5) Years/100,000 Miles RFW0146	1

TRANSMISSION

O	1801-019	**TRANSMISSION**	Transmission Allison 4500 EVS	1
S	1806-001	**TRANSMISSION MODE PROGRAMMING**	Transmission Mode Programming 4th Startup/5th Mode	1
S	1811-004	**TRANSMISSION FEATURE PROGRAMMING**	Transmission Feature Programming Allison Gen 5 & 6-E I/O Package 198/Pumper	1
S	1807-005	**TRANSMISSION SHIFT SELECTOR**	Transmission GEN 5 & 6-E Shift Sel Key Pad/Push Button	1
S	1815-002	**ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR**	Elec Transmission Oil Level Indicator	1
S	1814-002	**TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE**	2nd Gear Pre-Select	1
S	1808-007	**TRANSMISSION COOLING SYSTEM**	Transmission Cooling System	1
S	1817-001	**TRANSMISSION DRAIN PLUG**	Transmission Drain Plug	1
S	8005-001	**TRANSMISSION WARRANTY**	Transmission Warranty Allison (5) Year	1

POWER TAKE OFF

O	2004-003	**LH PTO**	LH PTO Chassis Sply	1
O	2001-154	**LH PTO MODEL**	LH PTO Model Chelsea 281-GGFJP-E5XD	1
O	2005-008	**PTO LOCATION**	PTO Location 8:00/1:00	1
O	2015-058	**LH PTO CONTROL**	LH PTO Ctrl Prog Disp Actv w/Aerial PTO Override Tgl	1
O	2007-011	**PTO PROGRAMMING**	PTO Programming Engine Engage 0900/Oper 4000 Transmission Engage 250/Oper 5000	1

DRIVELINE

O	3001-015	**DRIVELINE**	Driveline MSI 1810 w/Meritor U-Joints w/Thrust Washers	1
S	3005-002	**MIDSHIP PUMP / GEARBOX**	Midship Pump Jackshaft Only	1
O	3008-167	**MIDSHIP PUMP / GEARBOX MODEL**	Midship Pump/Gearbox Model Waterous CXSC22 Fwd	1
S	3048-007	**MIDSHIP PUMP GEARBOX DROP**	Midship Driveline Pump Gearbox Drop Waterous "C"	1
S	3009-007	**MIDSHIP PUMP RATIO**	Midship Pump Ratio 2.27:1	1
S	3010-0800	**MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE**	Midship Pump Location C/L Suction to C/L Rear Axle 80.0"	1
O	5013-032	**PUMP SHIFT CONTROLS**	Pump Shift Ctrl Air Ctrl Integrated Shifter Pod	1
O	3049-003	**PUMP SHIFT CONTROL PLUMBING**	Pump Shift Control Plumbing Pre-Plumb Elec/Air	1

FUEL SYSTEMS

O	3109-064	**FUEL FILTER/WATER SEPARATOR**	Fuel Filter/Wtr Separator Racor GreenMAX 6600R w/Lt & Alarm	1
O	3111-002	**FUEL LINES**	Fuel Lines Wire Braid	1
O	3104-012	**FUEL SHUTOFF VALVE**	Fuel Shutoff Valve at Tank and (2) at Primary Filter	1
S	3103-008	**ELECTRIC FUEL PRIMER**	Electric Fuel Primer Engine Sply Electric Lift Pump	1
O	3112-018	**FUEL COOLER**	Fuel Cooler w/Active Cooling Fan/Temp Ctrl Sw	1
O	3101-105	**FUEL TANK**	Fuel Tank 50 Gallon Short	1
S	3130-001	**FUEL TANK MATERIAL AND FINISH**	Fuel Tank Material Steel & Finish Painted Frame Components Color	1
O	3131-002	**FUEL TANK STRAP MATERIAL AND**	Fuel Tank Strap Material SS & Finish Painted Frame	1

		FINISH	Components Color	
O	3102-005	**FUEL TANK FILL PORT**	Fuel Tank Fill Port LH Fwd/RH Fwd	1
S	3115-002	**FUEL TANK DRAIN PLUG**	Fuel Tank Drain Plug Magnetic	1

FRONT AXLE

O	2401-041	**FRONT AXLE**	Frt Axle Reyco Granning ResponseMaster IFS Air 22001-24000#	1
O	8059-003	**FRONT AXLE WARRANTY**	Front Axle Warranty IFS	1
S	2405-001	**FRONT WHEEL BEARING LUBRICATION**	Frt Wheel Bearing Lube Oil	1

FRONT SUSPENSION

O	2502-005	**FRONT SHOCK ABSORBERS**	Frt Shock Absorbers Koni Non-Adjustable	1
O	2501-021	**FRONT SUSPENSION**	Frt Suspension IFS 22001-24000#	1

STEERING

S	2601-006	**STEERING COLUMN/WHEEL**	Steering Column/Wheel Tilt/Telescopic 18" 4 Spoke	1
S	2609-002	**ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR**	Elec Power Steering Fluid Level Indicator	1
S	2603-011	**POWER STEERING PUMP**	Power Steering Pump TRW w/Passive Cooler	1
O	2607-003	**TILLER STEERING PROVISIONS**	Tiller Steering Prov Pump Only 2000 psi	1
O	2606-013	**FRONT AXLE CRAMP ANGLE**	Front Axle Cramp Angle 48 Degrees	1
O	2610-006	**POWER STEERING GEAR**	Power Steering Gear TRW TAS 85/RCS 85	1
S	2608-001	**CHASSIS ALIGNMENT**	Chassis Alignment	1

REAR AXLE

O	3401-014	**REAR AXLE**	Rear Axle 33000# Meritor RS-30-185	1
S	3403-001	**REAR AXLE DIFFERENTIAL LUBRICATION**	Rear Axle Differential Lubrication Oil	1
S	8061-022	**REAR AXLE WARRANTY**	Rear Axle Warranty Meritor 2027	1
S	3411-001	**REAR WHEEL BEARING LUBRICATION**	Rear Wheel Bearing Lubrication Oil	1
O	3408-003	**VEHICLE TOP SPEED**	Vehicle Top Speed 60 MPH	1
S	3410-001	**REAR AXLE EXTERNAL VENT**	Rear Axle External Vent OEM Housing Breather	1

REAR SUSPENSION

O	3501-040	**REAR SUSPENSION**	Rear Susp Hendrickson FireMaax Air 31000#	1
O	3503-003	**REAR SHOCK ABSORBERS**	Rear Shock Absorbers Suspension Sply	1

TIRES

S	3625-002	**TIRE INTERMITTENT SERVICE RATING**	Tire Intermittent Service Ratings Acceptable	1
O	3601-082	**FRONT TIRE**	Frt Tire 425/65R 22.5 Goodyear Armor Max MSA	2
O	3602-062	**REAR TIRE**	Rear Tire 315/80R 22.5 Goodyear G751 MSA	4
O	3413-538	**REAR AXLE RATIO**	Rear Axle Ratio 5.38	1
S	3614-030	**TIRE PRESSURE INDICATOR**	Tire Pressure Ind Frt & Rr LED	1

WHEELS

O	3701-040	**FRONT WHEEL**	Frt Wheel Alcoa Dura-Black 22.5 x 12.25 Alum	2
O	3703-058	**REAR WHEEL**	Rr Whl Alcoa Dura-Black 22.5 x 9.00 Alum	4
O	3719-003	**BALANCE WHEELS AND TIRES**	Balance Wheels & Tires Counteract Beads	1
O	3702-026	**WHEEL TRIM**	Wheel Trim Hub Covers Alcoa Dura-Black Frt & Rr Axle Shiploose	1
O	3725-002	**WHEEL GUARDS**	Wheel Guards Between Dual Rear Wheels	1

BRAKES

O	3205-008	**BRAKE SYSTEM**	Brake System ABS/ATC Sgl Axle Disp Actv	1
O	3206-008	**FRONT BRAKES**	Frt Brakes Knorr/Bremse SN7 Disc 17"	1
O	3207-009	**REAR BRAKES**	Rr Brakes S-Cam Drum 16.5" x 8.6" Cast Iron Shoe	1
S	3208-001	**PARK BRAKE**	Prk Brake Rr Wheels Only	1
O	3219-002	**SUPPLEMENTAL BRAKE**	Supplemental Brake Frt Service Brakes Prk Brk Actv	1
S	3204-029	**PARK BRAKE CONTROL**	Prk Brake Ctrl LH Tunnel Mnt, Integrated w/Shift Pod, Adjacent To Trans Shifter	1
O	3214-002	**REAR BRAKE SLACK ADJUSTERS**	Rr Brake Slack Adjusters Haldex	1
S	3202-001	**AIR DRYER**	Air Dryer Wabco System Saver 1200 Bhd RH Step	1
O	3215-006	**FRONT BRAKE CHAMBERS**	Frt Brake Chambers IFS Type 24	1
S	3210-015	**REAR BRAKE CHAMBERS**	Rr Brake Chambers TSE 30/36 Long Stroke	1

AIR SUPPLY SYSTEMS

S	3320-001	**AIR COMPRESSOR**	Air Compressor Wabco SS318 18.7 CFM	1
S	3339-004	**AIR GOVERNOR**	Air Governor Mnt on Air Dryer Bracket	1
O	3305-001	**AUXILIARY AIR RESERVOIR**	Aux Air Reservoir 1200 Cu In	1
S	3303-001	**MOISTURE EJECTORS**	Moisture Ejectors Manual	1
O	3307-001	**AIR SUPPLY LINES**	Air Sply Lines Nylon w/Compression Fittings	1
O	3309-033	**AIR INLET CONNECTION**	Air Inlet Connection	1
O	3349-005	**AIR INLET LOCATION**	Air Inlet Location LH Mid Frt Step Fwd	1
O	3324-002	**AIR INLET SHUTOFF VALVE**	Air Inlet Shutoff Valve 1/4 Turn	1
O	3326-002	**AIR INLET/OUTLET FITTING TYPE**	Air Inlet/Outlet Manual Conn Tru-Flate Interchange 1/4"	1
O	3316-003	**TRACTOR DRAWN AIR BRAKE CONNECTION PACKAGE**	Tractor Drawn Air Brake Connection ABS Tiller Package	1
S	3338-002	**REAR AIR TANK MOUNTING**	Rear Air Tank Mnt Any Bhd Rear Axle Perpendicular w/Frame	1

HITCHES

O	3904-007	**FIFTH WHEEL**	Fifth Wheel Spartan LTC Mount Cust Sply	1

FRAME

O	2103-1800	**WHEELBASE**	Wheelbase 180.0"	1
O	2106-0450	**REAR OVERHANG**	Rear Overhang 45.0"	1
S	2101-002	**FRAME**	Frame Double Channel 35.00" Width	1
O	2110-215	**FRAME PAINT**	Frame Paint Hot Dipped Galvanized - Frame Only Ptd Primary/Lower Cab Color	1

S	8007-036	**FRAME ASSEMBLY STRUCTURAL WARRANTY**	Frame Assembly Structural Warranty (50) Year RFW0305	1
S	8019-003	**FRAME RAIL CORROSION WARRANTY**	Frame Rail Corrosion Warranty (25) Year RFW0316	1
S	8022-004	**FRAME COMPONENTS CORROSION WARRANTY**	Frame Components Corrosion Warranty (3) Year RFW0315	1
O	2161-001	**FRAME PARTS**	Misc Frame Parts Aerial Hydraulic Bracket 4205-MM5	1

BUMPER

O	2201-002	**FRONT BUMPER**	Frt Bumper Structural Steel Channel Severe Duty	1
O	2202-001	**FRONT BUMPER EXTENSION LENGTH**	Frt Bumper Extension Length 6"	1
O	2206-012	**FRONT BUMPER PAINT**	Frt Bumper Paint Primary/Lower Cab Color w/Bedliner Black Bumper Trim	1
O	2227-024	**FRONT BUMPER TRIM**	Frt Bumper Trim SS Ptd Wide Band Frt Top Edge/Corners Abv Apron w/Iso Washers	1
O	2208-002	**FRONT BUMPER APRON**	Frt Bumper Apron For 6" Extension	1
O	5503-021	**MECHANICAL SIREN**	Mechanical Siren Federal Signal Q2B Recess Mnt	1
O	2218-011	**MECHANICAL SIREN LOCATION**	Mech Siren Location Frt Bmpr Face Ctr	1
O	5511-003	**MECHANICAL SIREN ACCESSORIES**	Mechanical Siren Accessories Guards	1
S	5501-020	**AIR HORN**	Air Horn (2) 21" Round Hadley E-Tone	1
O	2216-004	**AIR HORN LOCATION**	Air Horn Location (2) Frt Bmpr Face LH	1
S	2232-002	**AIR HORN RESERVOIR**	Air Horn Reservoir (1) 1200 Cu In	1
O	5504-018	**ELECTRONIC SIREN SPEAKER**	Elect Siren Speaker 200W Federal Signal BP200-EF	1
O	2217-006	**ELECTRONIC SIREN SPEAKER LOCATION**	Elec Siren Speaker Location Frt Bmpr Face RH IB	1
O	2204-002	**FRONT BUMPER TOW EYES**	Frt Bumper Tow Eyes 2" Painted Below	1

CAB TILT

S	2301-036	**CAB TILT SYSTEM**	Cab Tilt System w/Pump Bhd RH Frt Step	1
O	2303-003	**CAB TILT LIMIT SWITCH**	Cab Tilt Limit Sw Preset Limit	1
S	2305-001	**CAB TILT CONTROL RECEPTACLE**	Cab Tilt Ctrl Receptacle Temp	1
S	2306-002	**CAB TILT LOCK DOWN INDICATOR**	Cab Tilt Lock Down Indicator	1

CAB GLASS

O	1401-110	**CAB WINDSHIELD**	Cab Windshield w/Shade Band	1
O	1402-002	**GLASS FRONT DOOR**	Glass Frt Dr Pwr	1
O	1407-002	**GLASS TINT FRONT DOOR**	Glass Tint Frt Dr Automotive Dark Gray	1
O	1419-008	**GLASS REAR DOOR RIGHT HAND**	Glass Rr Dr RH Pwr	1
O	1430-002	**GLASS TINT REAR DOOR RIGHT HAND**	Glass Tint Rr Door RH Automotive Dark Gray	1
O	1412-008	**GLASS REAR DOOR LEFT HAND**	Glass Rr Dr LH Pwr	1
O	1431-002	**GLASS TINT REAR DOOR LEFT HAND**	Glass Tint Rr Door LH Automotive Dark Gray	1

CLIMATE CONTROL

O	1614-202	**CLIMATE CONTROL**	Climate Ctrl Htr Defroster A/C SGM Ovrhd Alum	1

S	1632-002	**CLIMATE CONTROL DRAIN**	Climate Control Drain Gravity	1
S	1617-201	**CLIMATE CONTROL ACTIVATION**	Climate Ctrl Actv Rotary Dash Mnt Ctr	1
S	1620-015	**HVAC OVERHEAD COVER PAINT**	HVAC Overhead Cover Paint Multi-tone Silver Gray	1
O	1611-002	**AUXILIARY CLIMATE CONTROL REAR CREW**	Aux Climate Ctrl Rr Crew Htr Fwd Facing Underseat	1
O	1605-024	**AUXILIARY A/C CAB CEILING/ROOF**	Aux A/C Cab Ceiling/Rf 110V LH Ctr Dometic Wir to Inlet w/Cab Color Cvr	1
S	1603-003	**A/C CONDENSER LOCATION**	A/C Condenser Location Roof Mnt Fwd Ctr	1
S	1601-013	**A/C COMPRESSOR**	A/C Compressor TM-31/QP-31	1
S	1530-100	**UNDER CAB INSULATION**	Under Cab Insulation Engine Tunnel	1

CAB INTERIOR

S	1327-036	**INTERIOR TRIM FLOOR**	Interior Trim Floor w/Cast Alum Trim	1
S	1302-001	**INTERIOR TRIM**	Interior Trim Vinyl	1
S	1368-002	**REAR WALL INTERIOR TRIM**	Rear Wall Interior Trim Vinyl	1
S	1306-006	**HEADER TRIM**	Header Trim XDuty	1
S	1305-015	**TRIM CENTER DASH**	Trim Center Dash XDuty w/Gas Cylinder Stay	1
S	1339-102	**TRIM LEFT HAND DASH**	Trim LH Dash XDuty	1
S	1321-030	**TRIM RIGHT HAND DASH**	Trim RH Dash XDuty Glove Cmpt/MDT Prov/4.50"H Glovebox	1
O	1307-004	**ENGINE TUNNEL TRIM**	Eng Tnl Trim Flr Mat w/Access Hatch	1
S	1303-039	**STEP TRIM**	Step Trim Embossed & Diamond Cut SS Lwr, TPlt Mid	1
S	1379-003	**UNDER CAB ACCESS DOOR**	Under Cab Access Door Rear Step LH Painted	1
S	1102-013	**INTERIOR DOOR TRIM**	Interior Door Trim Painted	1
O	1328-016	**DOOR TRIM SCUFF PLATE**	Door Trim Scuff Plate Door Jamb Brushed SS	1
S	1323-050	**DOOR TRIM CUSTOMER NAMEPLATE**	Door Trim Customer Nameplate	1
O	1105-003	**CAB DOOR TRIM REFLECTIVE**	Cab Dr Trim Reflective Vert Stripe	1
S	1308-001	**INTERIOR GRAB HANDLE "A" PILLAR**	Interior Grab Handle 'A' Pillar 11" Molded	1
S	1332-008	**INTERIOR GRAB HANDLE FRONT DOOR**	Interior Grab Handle Frt Door Horiz 9"	1
S	1345-002	**INTERIOR GRAB HANDLE REAR DOOR**	Int Grab Handle Rr Dr Alum Window Span 30" Black Powder Coat	1
S	1301-003	**INTERIOR SOFT TRIM COLOR**	Interior Soft Trim Color Gray	1
S	1337-001	**INTERIOR TRIM SUNVISOR**	Interior Trim Sunvisor Vinyl	1
S	1304-001	**INTERIOR FLOOR MAT COLOR**	Interior Floor Mat Color Gray	1
S	1335-017	**CAB PAINT INTERIOR DOOR TRIM**	Cab Paint Int Dr Trim Multi-tone Silver Gray	1
S	1371-017	**HEADER TRIM INTERIOR PAINT**	Header Trim Interior Paint Multi-tone Silver Gray	1
S	1370-019	**TRIM CENTER DASH INTERIOR PAINT**	Trim Center Dash Interior Paint Multi-tone Silver Gray	1
S	1378-018	**TRIM LEFT HAND DASH INTERIOR PAINT**	Trim LH Dash Interior Paint Multi-tone Silver Gray	1
S	1373-018	**TRIM RIGHT HAND DASH INTERIOR PAINT**	Trim RH Dash Interior Paint Multi-tone Silver Gray	1
S	1344-002	**DASH PANEL GROUP**	Dash Pnl Group 3-Pnl	1
S	1312-002	**SWITCHES CENTER PANEL**	Switches Ctr Pnl 6 Upr LH	1
S	1313-002	**SWITCHES LEFT PANEL**	Switches Left Pnl 1 Wiper	1

S	1314-001	**SWITCHES RIGHT PANEL**	Switches Right Pnl 0	1

CAB SEATS

S	1225-007	**SEAT BELT WARNING**	Seat Belt Warn Disp w/VDR	1
S	1237-005	**SEAT MATERIAL**	Seat Material Bostrom Durawear Plus	1
S	1243-001	**SEAT COLOR**	Seat Color Gray/Red Seat Belts	1
O	1249-267	**SEAT BACK LOGO**	Seat Back Logo KME	4
S	1201-033	**SEAT DRIVER**	Seat Driver Bostrom Firefighter 8-Way Elect 500 Series ABTS	1
S	1213-025	**SEAT BACK DRIVER**	Seat Back Driver Non-SCBA ABTS	1
S	1219-001	**SEAT MOUNTING DRIVER**	Seat Mounting Driver	1
S	8102-200	**OCCUPANT PROTECTION DRIVER**	Occupant Protection Driver 4Front & Mechanical/Elect Seat RollTek w/SRA	1
S	1202-037	**SEAT OFFICER**	Seat Officer Bostrom Firefighter Fixed 500 Series ABTS	1
S	1214-028	**SEAT BACK OFFICER**	Seat Back Officer Non-SCBA ABTS	1
S	1220-002	**SEAT MOUNTING OFFICER**	Seat Mounting Officer	1
S	8103-200	**OCCUPANT PROTECTION OFFICER**	Occupant Protection Officer 4Front & Mechanical/Elect Seat RollTek w/SRA	1
S	1297-002	**POWER SEAT WIRING**	Power Seats Wiring Battery Direct	1
S	1273-001	**SEAT BELT ORIENTATION CREW**	Seat Belt Orientation Crew Outboard Shoulder To Inboard Hip	1
S	1266-001	**SEAT FORWARD FACING CENTER LOCATION**	Seat FFC Location Secondary Pos (2) Ctr	1
S	1206-031	**SEAT CREW FORWARD FACING CENTER**	Seat Crew FFC Bostrom Firefighter Fold & Hold Flip-Up 500 Series	2
S	1218-057	**SEAT BACK FORWARD FACING CENTER**	Seat Back FFC SCBA Bostrom SecureAll+	2
S	8107-101	**OCCUPANT PROTECTION FFC**	Occupant Protection FFC RollTek Belt Pretensioner	1
O	1269-131	**SEAT FRAME FORWARD FACING**	Seat Frm Fwd Fcg Dual Width 48"W	1
O	1281-158	**SEAT FRAME FORWARD FACING STORAGE ACCESS**	Seat Frm Fwd Fcg Strg Acc Heater Panel Vented	1
S	1224-002	**SEAT MOUNTING FORWARD FACING CENTER**	Seat Mounting Forward Facing Center	1
S	1311-101	**CAB FRONT UNDERSEAT STORAGE ACCESS DOOR**	Cab Frt Undrst Strg Acc Dr	1
S	1355-019	**SEAT COMPARTMENT DOOR FINISH**	Seat Compartment Door Finish Multi-tone Silver Gray	1

CAB EXTERIOR

S	1511-200	**WINDSHIELD WIPER SYSTEM**	Windshield Wiper System	1
S	1534-002	**ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR**	Electronic Windshield Fluid Level Indicator	1
S	1103-002	**CAB DOOR HARDWARE**	Cab Door Hardware Black Composite	1
O	1111-004	**DOOR LOCKS**	Door Locks Power (4) Entry Doors	1
O	1113-003	**DOOR LOCK LH EMS COMPARTMENT**	Door Lock LH EMS Compartment Hng Power	1
O	1114-003	**DOOR LOCK RH EMS COMPARTMENT**	Door Lock RH EMS Compartment Hng Power	1
O	1112-003	**POWER DOOR LOCK COMPARTMENT ACTIVATION**	Power Door Lock Cmpt Actv Disp	1

S	1503-200	**GRAB HANDLES**	Grab Handles SS 18"	1
S	1504-014	**REARVIEW MIRRORS**	Mirror Aerodynamic Retrac 613305 Rmt Htd	1
S	1529-003	**REARVIEW MIRROR HEAT SWITCH**	Rearview Mirror Heat Sw Disp	1
O	1507-005	**TRIM REAR WALL EXTERIOR**	Trim Rear Wall Exterior Brushed SS	1
S	1513-001	**CAB FENDER**	Cab Fender SS w/ABS Liner	1
S	1514-002	**MUD FLAPS FRONT**	Mud Flaps Frt	1
O	1526-038	**CAB EXTERIOR FRONT & SIDE EMBLEMS**	Cab Ext Frt & Side Emblems KME	1
O	1502-055	**CAB EXTERIOR MODEL NAMEPLATE**	Cab Exterior Model Nameplate Predator	1

START / CHARGING SYSTEMS

S	5109-015	**IGNITION**	Ign Mstr Rkr Sw w/Push-Button Start	1
S	5101-035	**BATTERY**	Batt (5) Group 31 Harris	1
S	5106-003	**BATTERY TRAY**	Batt Tray (2) R/L Steel	1
S	5107-028	**BATTERY BOX COVER**	Batt Box Cover (2)	1
S	5102-001	**BATTERY CABLE**	Batt Cables	1
S	5108-010	**BATTERY JUMPER STUD**	Batt Jumper Stud Frt LH Lwr Step 8" Apart	1
S	5104-002	**ALTERNATOR**	Alternator Leece-Neville 320A	1
S	5105-001	**STARTER MOTOR**	Starter Motor Delco	1

LINE VOLTAGE ELECTRICAL POWER DISTRIBUTION

O	5202-400	**BATTERY CONDITIONER**	Batt Cond Kussmaul Chief 4012 40A	1
O	5218-008	**BATTERY CONDITIONER LOCATION**	Batt Cond Loc Top of LH EMS Cmpt	1
O	5203-200	**BATTERY CONDITIONER DISPLAY**	Batt Cond Display Integrated In Elec Inlet w/Digital Status Center	1
O	5220-002	**BATTERY CONDITIONER DISPLAY LOCATION**	Batt Cond Display Location Integrated with Elec Inlet	1
O	5209-017	**ELECTRICAL INLET LOCATION**	Elec Inlet Location LH Cab Side Fwd Lwr Rear of Bumper	1
S	5204-055	**ELECTRICAL INLET**	Elec Inlet 120V 20A Auto Eject	1
O	5210-004	**ELECTRICAL INLET CONNECTION**	Elec Inlet Conn to Batt Conditioner	1
O	5206-003	**ELECTRICAL INLET COLOR**	Elec Inlet Color Red	1
O	5205-023	**AUXILIARY ELECTRICAL INLET**	Aux Elec Inlet 120V 20A Auto Eject	1
O	5211-023	**AUXILIARY ELECTRICAL INLET LOCATION**	Aux Elec Inlet Location LH Cab Side Fwd	1
O	5212-017	**AUXILIARY ELECTRICAL INLET CONNECTION**	Aux Elec Inlet Conn to 110V A/C	1
O	5207-003	**AUXILIARY ELECTRICAL INLET COLOR**	Aux Elec Inlet Color Red	1

LIGHTING

S	5301-102	**HEADLIGHTS**	Headlights 4 Headlamps LED	1
S	5337-001	**HEADLIGHT LOCATION**	Headlights Below Frt Warn Lts	1
O	5303-005	**FRONT TURN SIGNALS**	Frt Turn Signals Whelen 600 LED Above Frt Warn Rad Mnt	1
S	5336-015	**SIDE TURN/MARKER LIGHTS**	Side Turn/Marker Lts LED Tecniq S170	1
S	5302-022	**MARKER & ICC LIGHTS**	Marker & ICC Lts Face Mnt LED Tecniq S170	1

S	5350-060	**HEADLIGHT AND MARKER LIGHT ACTIVATION**	Hdlt & Mrkr Lt Actv MUX/DRL	1
A	5334QXX	**AUX SIDE MARKER/TURN LIGHTS**	Aux Sd Mrkr/Turn Lts Tecniq S1170 Above Cab Doors	1
S	5305-350	**INTERIOR OVERHEAD LIGHTS**	Interior Overhead Lts Red/Clear LED	1
S	5388-003	**INTERIOR OVERHEAD LIGHTING ACTIVATION**	Int Ovrhd Lt Actv Resp Dr & MUX	1
S	5403-062	**LIGHTBAR PROVISION**	Lightbar Prov Wire & Lwr Mnt Chassis Supply	1
O	5450N-004	**CAB FRONT LIGHTBAR MODEL**	Cab Front Lightbar Model Whelen F4N81	1
S	5450-999	**CAB FRONT LIGHTBAR**	Cab Front Lightbar - Configured in 5450M Subcategory	1
S	5450M-002	**FRONT LIGHTBAR LAYOUT**	Cab Front Lightbar Layout	1
S	5450X-002	**FRONT LIGHTBAR ORIENTATION**	Front Lightbar Orientation - Standard Fwd	1
O	5450L2-002	**FRONT LIGHTBAR LIGHT POSITION 2**	Cab Front Lightbar Position 2 - Red LH Side	1
O	5450L4-002	**FRONT LIGHTBAR LIGHT POSITION 4**	Cab Front Lightbar Position 4 - Red	1
O	5450L5-002	**FRONT LIGHTBAR LIGHT POSITION 5**	Cab Front Lightbar Position 5 - Red	1
O	5450L6-002	**FRONT LIGHTBAR LIGHT POSITION 6**	Cab Front Lightbar Position 6 - Red	1
O	5450L7-003	**FRONT LIGHTBAR LIGHT POSITION 7**	Cab Front Lightbar Position 7 - White	1
O	5450L8-102	**FRONT LIGHTBAR LIGHT POSITION 8**	Cab Front Lightbar Position 8 - Red Steady Burn	1
O	5450L9-002	**FRONT LIGHTBAR LIGHT POSITION 9**	Cab Front Lightbar Position 9 - Red	1
O	5450L10-010	**FRONT LIGHTBAR LIGHT POSITION 10**	Cab Front Lightbar Position 10 - Opticom	1
O	5450L12-002	**FRONT LIGHTBAR LIGHT POSITION 12**	Cab Front Lightbar Position 12 - Red	1
O	5450L13-007	**FRONT LIGHTBAR LIGHT POSITION 13**	Cab Front Lightbar Position 13 - Red Steady Burn	1
O	5450L14-003	**FRONT LIGHTBAR LIGHT POSITION 14**	Cab Front Lightbar Position 14 - White	1
O	5450L15-002	**FRONT LIGHTBAR LIGHT POSITION 15**	Cab Front Lightbar Position 15 - Red	1
O	5450L16-002	**FRONT LIGHTBAR LIGHT POSITION 16**	Cab Front Lightbar Position 16 - Red	1
O	5450L17-002	**FRONT LIGHTBAR LIGHT POSITION 17**	Cab Front Lightbar Position 17 - Red	1
O	5450L19-032	**FRONT LIGHTBAR LIGHT POSITION 19**	Cab Front Lightbar Position 19 - Red RH Side	1
O	5426-008	**LIGHTBAR SWITCH**	Lightbar Sw Disp w/Clear Lt Cutoff	1
O	5317-256	**FRONT SCENE LIGHTS**	Frt Scene Lts Whelen Pioneer 12V LED PCH1 Blk	1
O	5329-003	**FRONT SCENE LIGHT LOCATION**	Frt Scene Lt Loc Ctr Brow Pos	1
O	5335-045	**FRONT SCENE LIGHTS ACTIVATION**	Frt Scene Lts Actv Rkr Sw Pnl	1
O	5306-202	**SIDE SCENE LIGHTS**	Side Scene Lts Whelen Pioneer LED 12V PCH1 15 Deg Blk w/Blk Flange	1
O	5318-004	**SIDE SCENE LIGHT LOCATION**	Side Scene Lt Loc Upper Mid Rwd 10" Roof Position	1

O	5316-002	**SIDE SCENE ACTIVATION**	Side Scene Actv Single Sw	1
O	5308-301	**GROUND LIGHTS**	Ground Lts Amdor H20-HO LED	1
S	5386-004	**GROUND LIGHTING ACTIVATION**	Ground Lt Actv Prk Brk, Resp Sd Dr & Disp	1
S	5309-003	**LOWER CAB STEP LIGHTS**	Lwr Cab Step Lts Tecniq T44 LED	1
S	5382-008	**INTERMEDIATE STEP LIGHTS**	Intermediate Step Lts Tecniq D06 LED Frt Drs	1
O	5310-061	**MAP LIGHTS**	Map Lt Sunnex (2) Ovrhd On A/C Cvr R/L LED Mstr Sw	1
S	5312-003	**ENGINE COMPARTMENT LIGHT**	Engine Cmpt Work Lt LED (1)	1
O	5320-013	**TILLER GUIDE LIGHTS**	Tiller Guide Lts Prewire	1

OPTICAL WARNING DEVICES

S	5406-119	**DO NOT MOVE APPARATUS LIGHT**	Do Not Move App Lt Flashing Red Tecniq K50 LED w/Alarm	1
S	5422-002	**MASTER WARNING SWITCH**	Mstr Warn Sw Disp	1
S	5409-002	**HEADLIGHT FLASHER**	Headlight Flasher Alternating	1
O	5425-018	**HEADLIGHT FLASHER SWITCH**	Headlight Flasher Sw Pnl	1
O	5401-032	**INBOARD FRONT WARNING LIGHTS**	Inboard Frt Warn Lts Whelen M6 LED Chrm Bezel	1
O	5413-002	**INBOARD FRONT WARNING LIGHTS COLOR**	Inboard Frt Warn Lts Color Red	1
O	5414-022	**OUTBOARD FRONT WARNING LIGHTS**	Outboard Frt Warn Lts Whelen M6 LED Chrm Bezel	1
O	5415-002	**OUTBOARD FRONT WARNING LIGHTS COLOR**	Outboard Frt Warn Lts Color Red	1
O	5423-003	**FRONT WARNING SWITCH**	Frt Warn Sw Disp	1
O	5404-027	**INTERSECTION WARNING LIGHTS**	Intersection Warn Lts Whelen M6 LED	1
O	5419-002	**INTERSECTION WARNING LIGHTS COLOR**	Int Warn Lts Color Red	1
O	5420-006	**INTERSECTION WARNING LIGHTS LOCATION**	Intersection Warn Lts Location Behind Cab Radius	1
O	5402-029	**SIDE WARNING LIGHTS**	Side Warn Lts Whelen M6 LED	1
O	5418-002	**SIDE WARNING LIGHTS COLOR**	Side Warn Lts Color Red	1
O	5412-033	**SIDE WARNING LIGHTS LOCATION**	Side Warn Lts Location Mid Rear	1
O	5424-003	**SIDE AND INTERSECTION WARNING SWITCH**	Side & Intersection Warn Sw Disp	1
O	5405-076	**TRAFFIC CONTROL**	Traffic Ctrl Opticom 795H In Lt Bar Mstr Warn/Mom Rkr Sw	1
O	5449-032	**REAR WARNING LIGHTS**	Rr Warn Lts LH Overhead Whelen TACTL5 Cont & TAL65 Advsr Shplse	1
O	5407-004	**INTERIOR DOOR OPEN WARNING LIGHTS**	Int Dr Open Warn Lts Red Whelen TIR6 LED Flsh	1

AUDIBLE WARNING DEVICES

O	5510-166	**SIREN CONTROL HEAD**	Siren Ctrl Head Federal Signal PA4000-200	1
S	5514-101	**STEERING WHEEL HORN BUTTON SELECTOR SWITCH**	Horn Btn Sel Sw Elec Horn/Air Horn MUX	1
O	5526-004	**AUDIBLE WARNING LH FOOT SWITCH**	Audible Warning LH Foot Switch Siren	1
O	5526D-001	**MECHANICAL SIREN FOOT SWITCH LH**	Mechanical Siren Foot Switch LH Linemaster 491-S	1
O	5526E-00	**MECHANICAL SIREN FOOT SWITCH**	Mechanical Foot Switch LH Location A-Pillar	1

	1	**LH LOCATION**		
O	5526F-001	**MECHANICAL SIREN FOOT SWITCH LH POSITION**	Mechanical Siren Foot Switch Position Outboard of Other Foot Switches	1
O	5529-002	**AUDIBLE WARNING LH FOOT SWITCH BRACKET**	Audible Warn LH Ft Sw Double Brkt 30Deg TPlate	1
O	5527-004	**AUDIBLE WARNING RH FOOT SWITCH**	Audible Warning RH Foot Switch Siren	1
O	5527C-001	**MECHANICAL SIREN FOOT SWITCH RH**	Mechanical Siren Foot Switch RH Linemaster 491-S	1
O	5527D-002	**MECHANICAL SIREN FOOT SWITCH RH LOCATION**	Mechanical Siren Foot Switch RH Location Temporary Firewall Inboard Coiled	1
S	5512-600	**AIR HORN AUXILIARY ACTIVATION**	Air Horn Actv PB Sw Pnl	1
O	5513-602	**MECHANICAL SIREN BRAKE/AUXILIARY ACTIVATION**	Mech Siren Actv PB Sw Pnl/Brk Sw	1
O	5532-001	**MECHANICAL SIREN INTERLOCK**	Mechanical Siren Interlock Master Warn Only	1
O	5505-019	**BACK-UP ALARM**	Back-Up Alarm Preco-Matic 1040	1

INSTRUMENTATION

S	5601-063	**INSTRUMENTATION**	Instrumentation Digital Innovative Controls Touchscreen	1
S	5624-005	**BACKLIGHTING COLOR**	Backlighting Color Red Switch Backlighting w/White Digital Dash Display	1
O	5607-032	**HOUR METER**	Hour Meter Digital Dash Engine/LH PTO Aerial Hours	1

COMMUNICATIONS SYSTEMS

O	5701-300	**RADIO**	Radio Jensen WB/AM/FM/BT	1
O	5736-200	**RADIO LOCATION**	Radio Overhead RH	1
O	5707-003	**AM/FM ANTENNA**	AM/FM Antenna RH Fwd Cab Roof	1
O	5737-200	**RADIO SPEAKERS**	Radio Speakers (4) Front/Rear	1
O	5727-002	**CAMERA RIGHT HAND**	Camera RH Teardrop	1
S	5728-009	**CAMERA REAR**	Camera HD Rear Box	1
S	5731-023	**CAMERA DISPLAY**	Camera Display Digital Dash	1
S	5732-002	**CAMERA SPEAKER**	Camera Speaker	1
S	5020-002	**PANEL LAYOUT**	Panel Layout	1

ADDITIONAL EQUIPMENT

S	8806-001	**FIRE EXTINGUISHER**	Fire Extinguisher Shiploose	1
S	8810-001	**DOOR KEYS**	Door Keys for Manual Locks (4)	1

SALES ADMIN

S	8030-006	**CHASSIS OPERATION MANUAL**	Chassis Operation Manual Digital Copy (2)	1
S	8031-024	**ENGINE & TRANSMISSION OPERATION MANUAL**	Eng & Trans Operation Man Eng Hard Copy/Trans Digital/Eng Owner Digital	1
S	8805-007	**CAB/CHASSIS AS BUILT WIRING DIAGRAMS**	Cab/Chassis As Built Wiring Diagrams Digital Copy (2)	1
S	8039-001	**SALES TERMS**	Sales Terms	1

ENGINEERING

O	9006-002	**3D CHASSIS LAYOUT**	3D Chassis Layout Required	1

Specification

MODEL

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

MODEL YEAR

The chassis shall have a vehicle identification number that reflects a 2027 model year.

COUNTRY OF SERVICE

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

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

CAB AND CHASSIS LABELING LANGUAGE

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

APPARATUS TYPE

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

AERIAL HYDRAULIC GENERATOR

Chassis shall include aerial provisions for a chassis PTO driven hydraulic pump piggy-backed for aerial device hydraulics and 120VAC hydraulic generator.

VEHICLE TYPE

The chassis shall be manufactured for use as a tractor type vehicle, designed to accept a trailer though the use of a fifth wheel hitch. The trailer shall be supplied and installed by the apparatus manufacturer.

VEHICLE ANGLE OF APPROACH PACKAGE

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

NFPA1901 Angle of Approach definition:
"To determine the angle of approach, place a thin steel strip against the front of the tires where they touch the ground or stretch a tight string from one front tire to the other at the front where they touch the ground. Determine the lowest point (component or equipment) on the vehicle forward of the front tire that would make the smallest angle of approach. Hang a plumb bob from the lowest point and mark the point on the ground where the point of the plumb bob touches. Measure the vertical distance from the ground to the point where the plumb bob was hung (distance *V*). Measure the horizontal distance from the plumb bob point to the steel strip or string running from front tire to front tire (distance *H*). Divide the vertical distance by the horizontal distance. The ratio of *V/H* is the tangent of the angle of approach. If the ratio is known, the angle of approach can be determined from a table of trigonometric functions of angles or from a math calculator. The standard requires a minimum angle of approach of 8.00 degrees: since the tangent of 8.00 degrees is 0.1405, if *V* divided by *H* is 0.1405 or larger, the angle of approach is 8.00 degrees or greater."

AXLE CONFIGURATION

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

GROSS AXLE WEIGHT RATINGS FRONT

The front gross axle weight rating (GAWR) of the chassis shall be 22,800 pounds.

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

GROSS AXLE WEIGHT RATINGS REAR

The rear gross axle weight rating (GAWR) of the chassis shall be 31,000 pounds.

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

GROSS COMBINATION WEIGHT RATING

The gross combination weight rating (GCWR) shall be 76,600 lbs. The sum of the gross weight of the vehicle and the gross weight of the trailer intended to be towed shall not exceed this rating.

PUMP PROVISION

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

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

WATER & FOAM TANK CAPACITY

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

WARRANTY

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

CAB STYLE

The cab shall be a custom, fully enclosed, EMFD model with a 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to eight (8) seating positions.

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

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

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

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

The exterior width of the cab shall be 99.40 inches wide with a minimum interior width of 91.00 inches. The overall cab length shall be 137.10 inches with 60.00 inches from the centerline of the front of the axle to the back of the cab.

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

The cab shall offer an interior height of 57.50 inches from the front floor to the headliner and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 55.88 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

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

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

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

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

OCCUPANT PROTECTION

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

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

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

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

A RollTek™ rollover occupant protection system shall be installed in the apparatus cab. The system shall include an integrated roll sensor (IRS).

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

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

CAB FRONT FASCIA

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

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

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

FRONT GRILLE

The front cab fascia shall include a Kovatch Mobile Equipment (KME) specific style, 304 stainless steel front grille. The grille shall be adorned with a waving American flag graphic.

CAB UNDERCOAT

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

CAB SIDE DRIP RAIL

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

CAB PAINT EXTERIOR

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

CAB PAINT PROCESS/MANUFACTURER

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

All metal surfaces on the cab shall be mechanically etched by sanding disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once all imperfections on the exterior

surfaces are removed and sanded smooth, body fillers shall be applied to the cab on all surfaces that require a critically aesthetic finish and sanded smooth.

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

The cab shall then be painted the specific color(s) designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on an emergency scene. The paint shall have a minimum thickness of 1.00 mils with a maximum of 4 mills, followed by a clear top coat with a minimum of 2.5 mils and a maximum of 3.5 mils. The entire cab shall then be baked to speed the curing process of the coatings.

CAB PAINT PRIMARY/LOWER COLOR

The primary/lower paint color shall be:

CAB PAINT SECONDARY/UPPER COLOR

The secondary/upper paint color shall be:

CAB PAINT EXTERIOR BREAKLINE

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

CAB PAINT PINSTRIPE

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

CAB PAINT WARRANTY

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

CAB PAINT INTERIOR

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

CAB ENTRY DOORS

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

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

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

CAB ENTRY DOOR TYPE

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

CAB INSULATION

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

LH MID EMS COMPARTMENT

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

LH MID EMS EXTERIOR ACCESS

The cab shall include a hinged box pan door featuring a full length stainless steel piano style hinge and a DA sanded aluminum inner panel located in the middle of the wall above the left side wheel well. The compartment shall have a clear door opening of 17.00 inches wide X 24.00 inches. The exterior 19.36 inches wide X 26.19 inches high door shall include an overlapping door seal to allow the 17.00 inch wide clear opening. A gas strut shall be located in the upper portion of the door to hold open in service.

LH MID EMS COMPARTMENT INTERIOR

The cab compartment located in the middle of the wall above the left side wheel well shall include solid aluminum walls with no interior access. This compartment shall be finished to customer specification.

LH MID EMS COMPARTMENT INTERIOR SHELVING

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

LH MID EMS COMPARTMENT DOOR HARDWARE

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

RH MID EMS COMPARTMENT

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

RH MID EMS EXTERIOR ACCESS

The cab shall include a hinged box pan door featuring a full length stainless steel piano style hinge and a DA sanded aluminum inner panel located in the middle of the wall above the right side wheel well. The compartment shall have a clear door opening of 17.00 inches wide X 24.00 inches high. The exterior 19.36 inches wide X 26.19 inches high door shall include an overlapping door seal to allow the 17.00 inch wide clear opening. A gas strut shall be located in the upper portion of the door to hold open in service.

RH MID EMS COMPARTMENT INTERIOR

The cab compartment located in the middle of the wall above the right side wheel well shall include solid aluminum walls with no interior access. This compartment shall be finished to customer specification.

RH MID EMS COMPARTMENT INTERIOR SHELVING

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

RH MID EMS COMPARTMENT DOOR HARDWARE

The right side EMS compartment door shall include a bent D-ring slam latch. There shall be a switch to activate the open compartment warning light in the cab in the event the door is left ajar.

MID EMS COMPARTMENT LIGHTING

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

MID EMS COMPARTMENT EXTERIOR FINISH

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

MID EMS COMPARTMENT INTERIOR FINISH

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

CAB STRUCTURAL WARRANTY

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

CAB TEST INFORMATION

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

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

ELECTRICAL SYSTEM

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

OEM WIRING

A custom wiring interface and harness shall be provided and designed to meet the requirements provided by the OEM for a tractor drawn aerial (TDA). This shall include the following circuits/features:

1. A Jackknife Alarm shall be provided and located behind the left-hand rocker switch panel. The input for jackknife alarm activation shall be provided and programmed by the OEM through the body control system.
2. A Jackknife LED indicator lamp shall be provided and installed in the driver's left-hand rocker switch panel and labeled "Jackknife Approaching". The jackknife indicator lamp shall activate with jackknife alarm activation.
3. A "1, 2, 3" Alarm for "Stop, Go, Backup" shall be provided and located on the driver's side behind the left-hand rocker switch panel. The input for the "1, 2, 3" alarm activation shall be provided and programmed by the OEM through the body control system.
4. A "No Tiller Operator" Alarm shall be provided and located behind the left-hand rocker switch panel. The input for "No Tiller Operator" Alarm activation shall be provided and programmed by the OEM through the body control system.
5. A "No Tiller Operator" LED indicator lamp shall be provided and installed in the driver's left-hand rocker switch panel and labeled "No Tiller Operator". The "No Tiller Operator" indicator lamp shall activate with "No Tiller Operator" Alarm activation.
6. A TDA Transmission Shift Inhibit circuit shall be provided to prevent the transmission from shifting from neutral into gear if certain requirements are not met by the TDA apparatus. The input for activation of the TDA transmission shift inhibit interlock shall be provided and programmed by the OEM through the body control system.

A TDA Transmission Shift Inhibit Override guarded momentary toggle switch shall be provided and installed behind the left-hand rocker switch panel. The switch shall override the TDA transmission shift inhibit interlock and allow transmission to shift from neutral into gear. The switch shall be mounted on a bracket and labeled "TDA Shift Inhibit Override".

TRAILER ELECTRICAL CONNECTION

A seven (7) pin round electrical trailer electrical connection shall be provided with the chassis. The wiring shall include a ground wire which shall be in the white cavity; wiring for marker lights which shall be black; left turn signal wiring which

shall be yellow, wiring for stop lights which shall be red; right turn signal wiring which shall be green, additional marker lights which shall be brown and ABS brake power which shall be in the blue cavity.

APPARATUS WIRING PROVISION

An apparatus wiring panel shall be installed in the center dash area behind the rocker switch panel which shall include eight (8) open circuits consisting of three (3) 20 amp, one (1) 25 amp, three (3) 10 amp, and one (1) 15 amp circuit, with relays and breakers with trigger wires which shall be routed to the rocker switch panel.

MULTIPLEX DISPLAY

The multiplex electrical system shall include an UltraView 780 display with an interactive touchscreen display and fourteen (14) tactile push buttons. The display shall be located on the left side of the dash in the switch panel. The display shall feature a full color 7.00 inch LCD display screen which shall include a message bar displaying the time of day and important messages requiring acknowledgement by the user. The display screen shall be video ready for back-up cameras, thermal cameras, and 360 camera systems.

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

LOAD MANAGEMENT SYSTEM

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

DATA RECORDING SYSTEM

The chassis shall have a Weldon Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1900 and shall be integrated with the Weldon Multiplex electrical system. The following information shall be recorded:

7. Vehicle Speed
8. Acceleration
9. Deceleration
10. Engine Speed
11. Engine Throttle Position
12. ABS Event
13. Seat Occupied Status
14. Seat Belt Status
15. Master Optical Warning Device Switch Position
16. Time
17. Date

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1900 guidelines and shall be retrievable by connecting a laptop computer to the VDR system. The laptop connection shall be a panel mounted female type B USB connection point, remotely mounted in the left side foot well.

ACCESSORY POWER

The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40-

amp battery direct load. One (1) power stud shall be capable of carrying up to a 15-amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud.

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

EXTERIOR ELECTRICAL TERMINAL COATING

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

ELECTRICAL SYSTEM WARRANTY

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

ENGINE

The chassis engine shall be a Cummins heavy heavy duty (HHD) certified X15 engine. The X15 engine shall be an in-line six (6) cylinder, four-cycle diesel-powered engine. The engine shall offer a rating of 605 horsepower at 1800 RPM and shall be governed at 2100 RPM. The torque rating shall feature 1850-foot pounds of torque at 1000 RPM with 912 cubic inches (14.9 liter) of displacement.

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

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

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

CAB ENGINE TUNNEL

The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade 0.19 of an inch thick aluminum alloy plate. The tunnel shall be a maximum of 46.50 inches wide X 29.00 inches high.

DIESEL PARTICULATE FILTER CONTROLS

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

ENGINE PROGRAMMING HIGH IDLE SPEED

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

ENGINE HIGH IDLE CONTROL

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

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

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

AUXILIARY ENGINE BRAKE

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

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

AUXILIARY ENGINE BRAKE CONTROL

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

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

The compression brake shall be controlled via an off/low/high virtual button through the vehicle display and control screen. The system shall remember and default to the last engine brake control setting when the vehicle is shut off and re-started.

FLUID FILLS

The engine oil, coolant, transmission, and power steering fluid fills shall be located under the cab. The engine tunnel shall include an access door to allow for engine oil and power steering fluid visual checks. The windshield washer fill shall be accessible through the front left side mid step.

ENGINE DRAIN PLUG

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

ENGINE WARRANTY

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

REMOTE THROTTLE HARNESS

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

ENGINE PROGRAMMING REMOTE THROTTLE

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

ENGINE PROGRAMMING IDLE SPEED

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

ENGINE AIR INTAKE

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

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

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

ENGINE FAN DRIVE

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

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

ENGINE COOLING SYSTEM

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

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

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

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

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

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

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

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

ENGINE COOLING SYSTEM PROTECTION

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

ENGINE COOLANT

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

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

ELECTRONIC COOLANT LEVEL INDICATOR

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

COOLANT HOSES

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

ENGINE EXHAUST SYSTEM

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

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

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

The exhaust system shall be mounted under the frame with the DPF and the SCR canisters mounted horizontally and stacked with the SCR below the DPF in a switchback configuration.

Disclaimer - Until the 2027 EPA engine integration is finalized, available options and body design specifications related to the engine and aftertreatment system are subject to change. This may include, but is not limited to, wheelbase dimensions, centerline of suction for pumps, and pump

configurations. Any additional costs resulting from the 2027 EPA engine requirements will be passed on to the end user - No exceptions.

DIESEL EXHAUST FLUID TANK

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

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

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

ENGINE EXHAUST ACCESSORIES

The exhaust system shall be modified to accept a Plymovent exhaust extraction system collar.

ENGINE EXHAUST WRAP

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

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

EMISSIONS SYSTEMS WARRANTY

Purchaser shall receive a Regulated Emissions Systems ten (10) years, or 450,000 miles, or 22,000 engine hours limited warranty for heavy heavy-duty engines in accordance with, and subject to, warranty certificate RFW0144. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

REGULATED EMISSIONS WARRANTY TIRES

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

REGULATED EMISSIONS WARRANTY AIR CONDITIONING

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

TRANSMISSION

The drive train shall include an Allison model EVS 4500 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

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

The transmission gear ratios shall be:

1st	4.70:1
2nd	2.21:1
3rd	1.53:1
4th	1.00:1
5th	0.76:1
6th	0.67:1 (if applicable)
Rev	5.55:1

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will automatically select a four (4) speed operation. The fifth speed over drive shall be available with the activation of the mode button on the shifting pad.

TRANSMISSION FEATURE PROGRAMMING

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

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

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

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

TRANSMISSION SHIFT SELECTOR

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

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically.

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

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

TRANSMISSION COOLING SYSTEM

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

TRANSMISSION DRAIN PLUG

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

TRANSMISSION WARRANTY

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

LH PTO

A ten (10) bolt standard duty clutched drive PTO shall be provided by the chassis manufacturer and installed on the transmission. Installation shall include mounting of the PTO and wiring the unit with a control switch.

LH PTO MODEL

A ten (10) bolt Chelsea model 281-GGFJP-E5XD heavy duty transmission driven PTO shall be installed. The clutched shifted PTO is designed specifically for the Allison world transmission and provides an intermittent and continuous torque rating of 360 lb. ft.

PTO LOCATION

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

LH PTO CONTROL

The left hand power take off shall be controlled by the transmission. It will use a virtual button on the vehicle display and control screen with text messages. Disable is displayed when switch is off. Enable is displayed when the switch is turned on. Active is displayed when the switch is on with positive engagement of the power take off.

Required operating conditions for enabling this function are:

22. Throttle position is low
23. Engine speed is within customer specified constant limits
24. Transmission output speed is within customer specified constant limits
25. Park brake set

Additionally, an Aerial PTO Override guarded toggle switch shall be provided in the driver's diagnostic panel and labeled "Aerial PTO Override". When activated, the switch will override standard PTO interlocks and supply direct power to the aerial PTO solenoid for emergency activation.

PTO PROGRAMMING

The power take off shall be programmed for operator control such that it shall only engage at or below 900 engine RPM and a transmission output speed of 250 RPM. The PTO shall operate in a range up to 4000 engine RPM or a transmission output speed of 5000 RPM. The PTO programming shall provide for automatic disengagement set at a specified engine speed of 4000 RPM, or transmission output speed of 5000 RPM. The range shall be programmed to protect equipment driven from the power take off.

DRIVELINE

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

MIDSHIP PUMP / GEARBOX

A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer.

MIDSHIP PUMP / GEARBOX MODEL

The midship pump/gearbox provisions shall be for a Waterous CXSC22 pump.

MIDSHIP PUMP GEARBOX DROP

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

MIDSHIP PUMP RATIO

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

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

The midship pump shall be located so the dimension from the centerline of the suction to the centerline of the rear axle is 80.00 inches.

PUMP SHIFT CONTROLS

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

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

PUMP SHIFT CONTROL PLUMBING

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

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Racor GreenMAX 6600R fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve and a see-through cover to allow visual inspection of fuel and filter condition. The Racor 6600R shall meet engine requirements for particulate size, collection capacity, removal efficiency, and water removal efficiency. The filter shall be capable of handling a maximum flow rate of 150 gallons per hour.

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

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

FUEL LINES

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

FUEL SHUTOFF VALVE

There shall be two (2) fuel shutoff valves which shall be installed, one (1) in the fuel draw line at the primary fuel filter and one (1) in the fuel outlet line at the primary fuel filter to allow the fuel filters to be changed without loss of fuel to the fuel pump.

A third fuel shutoff valve shall be installed in the fuel draw line, near the fuel tank to allow maintenance to be performed with minimal loss of fuel.

ELECTRIC FUEL PRIMER

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

FUEL COOLER

A fuel cooler shall be provided to lower fuel temperature allowing the vehicle to operate at higher ambient temperatures. The fuel cooler shall include an electrical fan and temperature-controlled relay switch.

FUEL TANK

The fuel tank shall have a capacity of fifty (50) gallons and shall measure 35.00 inches in width X 19.00 inches in height X 18.50 inches in length. The increased height and reduced length allows for the use of a shorter rear frame overhang on the chassis.

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

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

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

FUEL TANK MATERIAL AND FINISH

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

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

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

FUEL TANK STRAP MATERIAL

The fuel tank straps shall be constructed of #304 stainless steel. The fuel tank straps shall be powder coated black and then painted to match the frame components if possible.

FUEL TANK FILL PORT

The fuel tank fill ports shall be in-line with the left and right side fill ports located in the forward position of the fuel tank.

FUEL TANK DRAIN PLUG

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

FRONT AXLE

The front axle shall include a Reyco Granning ResponseMaster®, fire apparatus specific independent front suspension (IFS) offering superior ride and improved handling.

The suspension shall utilize fully independent double wishbone arms with carrier and kingpin for optimized scrub radius. Air springs are tuned for ride and help reduce suspension weight. The IFS reduces turn radius with improved wheel cut over beam axles. The hydraulic damper shall feature rebound control to ensure the maximum load stability and superior driver comfort. The IFS system shall improve handling and offer better braking because of improved ground to tire ratio. This design shall allow for independent adjustment of the vehicle's alignment settings. The IFS shall include an auxiliary transverse leaf spring.

Proposals offering independent front axles comprised of torsion bar style suspensions shall not be considered.

FRONT AXLE WARRANTY

The front axle shall be warranted by Tuthill for three (3) years or 150,000 miles, which ever comes first. Details of the Tuthill warranty are provided on the PDF document attached to this option.

FRONT WHEEL BEARING LUBRICATION

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

FRONT SHOCK ABSORBERS

Two (2) Koni shock absorbers shall be provided and installed as part of the front suspension system. Each shock shall deliver improved road handling and durability.

FRONT SUSPENSION

The chassis shall include an independent front suspension (IFS) system. The known advantages of IFS systems can be improved handling and better braking due to the increase in tire surface to ground contact area. The suspension travel of the IFS shall be approximately 6.50 inches, providing 3.00 inches bounce and 3.50 inches rebound of the suspension. The IFS front axle shall be rated between 22,001 and 24,000 pounds.

STEERING COLUMN/ WHEEL

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

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

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

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

POWER STEERING PUMP

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

TILLER STEERING PROVISIONS

The chassis shall include an additional power steering pump which is necessary on a vehicle designed for a tiller application. The pump shall be a three (3) line type with a seven (7) GPM flow control and a 2000 PSI pressure relief valve. The power steering pump shall be a type which is designed to be driven by a PTO. The power steering pump shall be shipped loose with the chassis.

The body manufacturer shall be responsible for the design, installation, plumbing, and validation of the tiller cab steering system.

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 48-degrees to the left and right.

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

POWER STEERING GEAR

The power steering gear shall be a TRW model TAS 85/RCS 85.

CHASSIS ALIGNMENT

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

REAR AXLE

The rear axle shall be a Meritor model RS-30-185 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 33,000 pounds.

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

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

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

REAR AXLE WARRANTY

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

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

VEHICLE TOP SPEED

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

REAR SUSPENSION

The single rear axle shall feature a Hendrickson Firemaax™ air suspension. The suspension shall include two optimized air springs mounted to cast structural trailing arms, a transverse cross beam for increased roll stability and two heavy duty shock absorbers. Dual air height control valves shall be installed to ensure equal frame height on both sides of the vehicle regardless of the load. Axle alignment is maintained using two eccentric bushings at each frame bracket.

The rear suspension capacity shall be rated at 31,000 pounds.

REAR SHOCK ABSORBERS

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

TIRE INTERMITTENT SERVICE RATING

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

FRONT TIRE

The front tires shall be Goodyear 425/65R-22.5 load range L tubeless radial Armor Max MSA mixed service tread.

The front tire stamped load capacity shall be 22,800 pounds per axle with a nominal speed rating of 68 miles per hour when properly inflated to 120 pounds per square inch.

The Goodyear Intermittent Service Rating maximum load capacity shall be 24,400 pounds per axle with a speed rating of 68 miles per hour when properly inflated to 120 pounds per square inch.

The Goodyear Intermittent Service Rating maximum speed capacity shall be 22,800 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.

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

REAR TIRE

The rear tires shall be Goodyear 315/80R-22.5 20PR "L" tubeless radial G751 MSA mixed service tread.

The rear tire stamped load capacity shall be 33,080 pounds per axle with a nominal speed rating of 68 miles per hour when properly inflated to 130 pounds per square inch.

The Goodyear Intermittent Service Rating maximum load capacity shall match the stamped load rating.

The Goodyear Intermittent Service Rating maximum speed capacity shall be 33,080 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 130 pounds per square inch.

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

REAR AXLE RATIO

The rear axle ratio shall be 5.38:1.

TIRE PRESSURE INDICATOR

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

FRONT WHEEL

The front wheels shall be Alcoa hub piloted, 22.50 inch X 12.25 inch aluminum wheels. The wheels shall feature Alcoa's Dura-Black® finish technology as an integral part of the wheel surface. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

REAR WHEEL

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

BALANCE WHEELS AND TIRES

All of the wheels and tires, including any spare wheels and tire assemblies, shall include Counteract brand balancing beads.

WHEEL TRIM

The front and rear wheels shall include Alcoa Dura-Black hub and nut covers shipped loose with the chassis for installation by the apparatus builder. The hub and nut covers shall be multi-piece clamp on style that mounts directly to the lug nuts.

Each wheel trim component shall meet D.O.T. certification.

WHEEL GUARDS

The rear dual wheels shall include a plastic isolator approximately 0.04" thick installed between the inner and outer wheel to help prevent corrosion caused by metal to metal contact.

BRAKE SYSTEM

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

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

A four (4) sensor, four (4) modulator Anti-lock Braking System (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on

icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

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

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

FRONT BRAKES

The front brakes shall be Knorr/Bremse SN7 disc brakes with 17.00 inch vented rotors.

REAR BRAKES

The rear brakes shall be Meritor 16.50 inch X 8.63 inch S-cam drum type. The brakes shall feature a cast iron shoe.

PARK BRAKE

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

SUPPLEMENTAL BRAKE

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

PARK BRAKE CONTROL

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

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

REAR BRAKE SLACK ADJUSTERS

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

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer with an integral 100 watt heater with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be located on the right hand frame rail forward of the front wheel behind the right hand cab step.

FRONT BRAKE CHAMBERS

The front brakes shall be provided with type 24 brake chambers as supplied with the independent front suspension axle.

REAR BRAKE CHAMBERS

The rear axle shall include TSE 30/36 brake chambers which shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake shoes against the brake drum. The TSE Type 36 brake chamber has a 36.00 square inch effective area.

AIR COMPRESSOR

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

AIR GOVERNOR

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

AUXILIARY AIR RESERVOIR

One (1) auxiliary air reservoir with a 1200 cubic inch capacity shall be installed on the chassis to act as an additional reserve supply to the air system for air horn, air tool, or other non-service brake use. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

MOISTURE EJECTORS

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

AIR SUPPLY LINES

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

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

Note: The IR-2 valve shall include push to connect fittings.

AIR INLET CONNECTION

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

AIR INLET LOCATION

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

AIR INLET SHUTOFF VALVE

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

AIR INLET/ OUTLET FITTING TYPE

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

TRACTOR DRAWN AIR BRAKE CONNECTION PACKAGE

Tractor shall include air brake connection package for a tiller. The tiller air brake connection shall be accomplished via tractor connection points provided at the rear of the chassis. The connections shall terminate at the rear cross member and shall be temporarily plugged for final installation by the OEM. Chassis connection shall include trailer Anti-lock Braking System (ABS) light within the driver instrumentation.

REAR AIR TANK MOUNTING

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

FIFTH WHEEL

The tractor frame shall include frame drillings for a customer installed fifth wheel mounting plate.

WHEELBASE

The chassis wheelbase shall be 180.00 inches.

REAR OVERHANG

The chassis rear overhang shall be 45.00 inches.

FRAME

The frame shall consist of double rails running parallel to each other with cross members forming a ladder style frame. The frame rails shall be formed in the shape of a "C" channel, with the outer rail measuring 10.25 inches high X 3.50 inches deep upper and lower flanges X 0.38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and 0.38 inches thick. Each rail shall be constructed of 110,000 psi minimum yield high strength low alloy steel. Each double rail section shall be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100 inch pounds and have a minimum section modulus of 29.21 cubic inches. The frame shall measure 35.00 inches in width.

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

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

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

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

FRAME PAINT

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

- Main frame “C” channel or channels

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

- Steering gear bracket
- Front splayed rails and fish plates
- Bumper extensions
- Cross members
- Cross member gussets

- Fuel tank mounting brackets
- Fuel tank straps (unless material/finish is specified in 3130 subcat)
- Air tanks (unless color coded tanks are specified in 3205 subcat)
- Air tank mounting brackets
- Exhaust mounting brackets
- Air cleaner skid plate
- Radiator skid plate
- Battery supports, battery trays and battery covers

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

- Suspension components
- Front and rear axles

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

The chassis under carriage consisting of frame, axles, driveline running gear, air tanks and other assorted chassis mounted components shall then be painted the primary lower cab color. Paint shall be applied prior to airline and electrical wiring installation.

FRAME ASSEMBLY STRUCTURAL

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

FRAME RAIL CORROSION

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

FRAME COMPONENTS CORROSION

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

FRAME PARTS

An aerial hydraulic PTO support bracket shall be mounted to the frame behind the battery box on the left hand side

FRONT BUMPER

The chassis shall be equipped with a severe duty front bumper constructed from structural steel channel. The bumper material shall be 0.38 thick ASTM A36 steel which shall measure 12.00 inches high with a 3.05 inch flange and shall be 104.50 inches wide with angled front corners.

The bumper shall be primed and painted as specified.

FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended approximately 6.00 inches ahead of the cab.

FRONT BUMPER PAINT

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

FRONT BUMPER TRIM

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

FRONT BUMPER APRON

The 6.00 inch extended front bumper shall include an apron constructed of 0.19 inch thick embossed aluminum tread plate.

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

MECHANICAL SIREN

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

MECHANICAL SIREN LOCATION

The siren shall be recess mounted in the center on the front fascia of the bumper between the frame rails.

MECHANICAL SIREN ACCESSORIES

The front of the siren shall include (2) stainless steel flat bars approximately 1.00 inch wide by 19.00 inches long. Each bar shall be placed vertically on the right and left side of the siren face wrapping around towards the back of the siren into the bumper extension offering protection to the Q2B siren.

AIR HORN

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

AIR HORN LOCATION

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

AIR HORN RESERVOIR

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

ELECTRONIC SIREN SPEAKER

There shall be one (1) Federal Signal model BP200-EF, 200 watt speaker provided. The speaker shall measure 5.50 inches tall X 7.70 inches wide X 7.80 inches deep. The speaker shall include a Federal Signal "Electric F" style grille which shall measure 6.61 inches tall X 6.78 inches wide.

ELECTRONIC SIREN SPEAKER LOCATION

The electronic siren speaker shall be located on the front bumper face on the right side outboard of the frame rail in the inboard position.

FRONT BUMPER TOW EYES

The bumper shall include two (2) painted tow eyes which shall be installed below the front bumper. The tow eyes shall be fabricated from 0.75 inch thick #1020 ASTM-36 hot rolled steel. The inside diameter of the eye shall be 2.00 inches and include inside/outside chamfered edges. The tow eyes shall be painted to match the frame components.

CAB TILT SYSTEM

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

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

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

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

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

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

CAB TILT LIMIT SWITCH

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

CAB TILT CONTROL RECEPTACLE

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

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

CAB TILT LOCK DOWN INDICATOR

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

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

CAB WINDSHIELD

The cab windshield shall have a surface area of 2969.88 square inches and be of a two (2) piece wraparound design for maximum visibility.

The glass utilized for the windshield shall include standard automotive tint as well as a shade band along the top of the glass.

Each windshield shall be bonded to the cab using a high strength commercial grade automotive adhesive.

GLASS FRONT DOOR

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

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

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

GLASS TINT FRONT DOOR

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

GLASS REAR DOOR RH

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

GLASS TINT REAR DOOR RIGHT HAND

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

GLASS REAR DOOR LH

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

GLASS TINT REAR DOOR LEFT HAND

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

CLIMATE CONTROL

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

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

The system shall be capable of producing up to 12 FPM of air velocity at all occupant seating positions. Separate front and rear blower motors shall be of brushless design and shall be controlled independently. It shall be capable of reducing the interior cabin air temperature from 122˚ F (+/- 3˚ F) to 80˚ F in thirty minutes with 50% relative humidity and full solar load as described in SAE J2646.

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

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

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

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

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

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

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

26. Air conditioning evaporator total BTU/HR: 82,000
27. Air conditioning condenser total BTU/HR: 59,000
28. Heater coil total BTU/HR: 98,000

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

CLIMATE CONTROL DRAIN

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

CLIMATE CONTROL ACTIVATION

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

HVAC OVERHEAD COVER PAINT

The overhead HVAC cover shall be painted with a multi-tone silver gray texture finish.

AUXILIARY CLIMATE CONTROL REAR CREW

One (1) 53,500 BTU heater shall be provided and installed in the rear section of the crew cab under the center forward facing seat riser. The fan controls shall be located on the heater unit.

The auxiliary heater system hoses shall be silicone with stainless steel constant torque clamps approved for use with silicone hose. The auxiliary heater system shall include one (1) seasonal shut-off valve. The valve shall be supplied at the front of the right hand corner of the cab. The cab must be tilted to access the shut-off valve.

AUXILIARY A/C CAB CEILING/ROOF

A 110 volt Dometic Penguin II low profile high capacity air conditioning system shall be provided to cool the crew area of the cab. The system shall consist of one (1) 110 volt air conditioning roof mounted unit which shall be located above the crew area and offset left of center on the cab roof above the crew area. The cover of the air conditioning unit shall be painted the upper cab color.

A/C CONDENSER LOCATION

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

A/C COMPRESSOR

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

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

Individual component level ratings are not an accurate indicator of the performance capability of the completed system.
Refrigerant Compressor displacement: 19.1 cubic inches per revolution.

UNDER CAB INSULATION

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

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

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

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

INTERIOR TRIM FLOOR

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

INTERIOR TRIM

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

REAR WALL INTERIOR TRIM

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

HEADER TRIM

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

TRIM CENTER DASH

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

TRIM LH DASH

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

TRIM RH DASH

The right hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate and shall include a glove compartment with a hinged door and a Mobile Data Terminal (MDT) provision. The glove compartment size will measure 14.00 inches wide X 4.50 inches high X 5.88 inches deep. The MDT provision shall be provided above the glove compartment.

ENGINE TUNNEL TRIM

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

The cab engine tunnel shall include a hinged aluminum access hatch with flush latches. The access hatch shall allow access to the engine compartment to check fluids.

STEP TRIM

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

UNDER CAB ACCESS DOOR

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

INTERIOR DOOR TRIM

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

DOOR TRIM SCUFF PLATE

The trim along the door shall include a brushed stainless steel scuff plate along the door jamb to prevent the chipping of paint should the seat belt buckle come in contact with the door jamb.

DOOR TRIM CUSTOMER NAMEPLATE

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

CAB DOOR TRIM REFLECTIVE

The interior of each door shall include high visibility reflective tape. A white reflective tape shall be provided vertically along the outer rear edge of the door.

INTERIOR GRAB HANDLE "A" PILLAR

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

INTERIOR GRAB HANDLE FRONT DOOR

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

INTERIOR GRAB HANDLE REAR DOOR

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

INTERIOR SOFT TRIM COLOR

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

INTERIOR TRIM SUNVISOR

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

INTERIOR FLOOR MAT COLOR

The cab interior floor mat shall be gray in color.

CAB PAINT INTERIOR DOOR TRIM

The inner door panel surfaces shall be painted with multi-tone silver gray texture finish.

HEADER TRIM INTERIOR PAINT

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

TRIM CENTER DASH INTERIOR PAINT

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

TRIM LH DASH INTERIOR PAINT

The left hand dash shall be painted with a multi-tone silver gray texture finish.

TRIM RIGHT HAND DASH INTERIOR PAINT

The right hand dash shall be painted with multi-tone silver gray texture finish.

DASH PANEL GROUP

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

SWITCHES CENTER PANEL

The center dash panel shall include six (6) switch positions in the upper left portion of the panel.

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

SWITCHES LEFT PANEL

The left dash panel shall include one (1) windshield wiper/washer control switch located in the left hand side of the panel. The switch shall have backlighting provided.

SWITCHES RIGHT PANEL

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

SEAT BELT WARNING

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

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

SEAT MATERIAL

The Bostrom Firefighter seats shall include a covering of extra high strength, wear resistant fabric made of durable low seam Durawear Plus™ ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Durawear Plus™ meets or exceeds specification of the common trade name Imperial 1800. The material meets FMVSS 302 flammability requirements.
If applicable, Theatre style seats located in the cab shall be high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear.

SEAT COLOR

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

SEAT BACK LOGO

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

SEAT DRIVER

The driver's seat shall be an H.O. Bostrom 500 Series Firefighter Sierra model seat. The seat shall feature eight-way electric positioning. The eight positions shall include up and down, fore and aft with 8.00 inches of travel, back angle adjustment and seat rake adjustment. The seat shall feature integral springs to isolate shock.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches measured with the seat height adjusted to the lowest position of travel.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207, 209, and 210 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity.

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

SEAT BACK DRIVER

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

SEAT MOUNTING DRIVER

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

OCCUPANT PROTECTION DRIVER

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

The Driver's seating area protection shall include:

29. Drivers airbag **DAB** - inflates a steering wheel airbag to protect the head and neck of the driver.

30. Driver's knee airbag **DKAB** - inflating knee bolster airbags to protect the knees.

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

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

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

SEAT OFFICER

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

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

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

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

SEAT BACK OFFICER

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

SEAT MOUNTING OFFICER

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

OCCUPANT PROTECTION OFFICER

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

The Officer’s seating area protection shall include:

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

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

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

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

POWER SEAT WIRING

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

SEAT BELT ORIENTATION CREW

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

SEAT FORWARD FACING CENTER LOCATION

The crew area shall include two (2) forward facing center crew seats with both located at the center of the rear wall.

SEAT CREW FORWARD FACING CENTER

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

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

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

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

motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK FORWARD FACING CENTER

Each forward-facing center seat position shall feature the SecureAll+™ self-contained breathing apparatus (SCBA) locking system, designed as a single-bracket model compatible with most U.S. and international SCBA brands and sizes. The bracket shall allow tool-free adjustments to accommodate various cylinder diameters and lengths.

To modify the fit for different cylinder sizes, a simple lever mechanism shall enable vertical movement of the top clamp, eliminating the need for tools. The system shall be free of straps and clamps that might interfere with auxiliary SCBA equipment. Instead, the top clamp shall securely guide the SCBA tank into position within the seat back cavity.

The SCBA unit shall lock into place by pressing it against the pivot arm, activating the auto-locking mechanism. Once engaged, the top clamp shall provide a secure fit in all directions.

The SecureAll+™ system shall include a quick-release handle integrated into the seat cushion for easy access, along with a manual release located on the left side of the SCBA bracket. The locking mechanism shall eliminate the need for straps or pull cords, preventing interference with SCBA equipment.

Additionally, the seat back shall feature a removable padded cover over the SCBA cavity for enhanced comfort and protection.

OCCUPANT PROTECTION FFC

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

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

1. The seat belt shall tighten around the occupant.

System Components Shall Include:

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

Integrated Belt Pretension **IBP** with flip-up (non theatre) and fixed mechanical seats - tightens the seat belt around occupant, securing occupant in seat.

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

SEAT FRAME FORWARD FACING

The forward facing center seating positions shall include an enclosed seat frame located and installed on the rear wall. The seat frame shall measure 48.00 inches wide X 12.38 inches high X 22.00 inches deep. The seat frame shall be constructed of Marine Grade 5052-H32 0.19 inch thick aluminum plate. The seat box shall be painted the same color as the remaining interior.

SEAT FRAME FORWARD FACING STORAGE ACCESS

The seat frame shall include a forward facing access point for the underseat climate control unit. The access point shall be covered with a removable vented access panel.

SEAT MOUNTING FORWARD FACING CENTER

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

CAB FRONT UNDERSEAT STORAGE ACCESS

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

SEAT COMPARTMENT DOOR FINISH

All underseat storage compartment access doors shall have a multi-tone silver gray texture finish.

WINDSHIELD WIPER SYSTEM

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

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

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

CAB DOOR HARDWARE

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

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

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

DOOR LOCKS

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

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

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

DOOR LOCK LH EMS COMPARTMENT

The left hand side EMS compartment shall feature a power door lock actuator.

DOOR LOCK RH EMS COMPARTMENT

The right hand side EMS compartment shall feature a power door lock actuator.

POWER DOOR LOCK COMPARTMENT ACTIVATION

The power door lock feature shall include activation for exterior compartment door locks through the key fob, keypads and through a virtual switch on the vehicle display and control screen.

GRAB HANDLES

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

REARVIEW MIRRORS

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

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

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

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

REARVIEW MIRROR HEAT SWITCH

The heat for the rearview mirrors shall be controlled through a virtual button on the vehicle display and control screen.

TRIM REAR WALL EXTERIOR

The exterior rear wall of the cab shall include an overlay of brushed stainless steel plate which shall be 0.06 inches thick. This overlay shall cover the entire rear wall of the cab.

CAB FENDER

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Fender shall consist of an inner liner 16.00 inches wide made of ABS composite and an outer fenderette 3.50 inches wide made of SAE 304 polished stainless steel.

MUD FLAPS FRONT

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

CAB EXTERIOR FRONT & SIDE EMBLEMS

The cab shall include three (3) Kovatch Mobile equipment (KME) emblems. There shall be one (1) installed on the front grille and one (1) emblem on each of the cab sides. The emblems on the cab sides shall be centered horizontally on the B pillars of the cab and located vertically approximately halfway up the cab side front door windows.

CAB EXTERIOR MODEL NAMEPLATE

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

IGNITION

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

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

BATTERY

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

BATTERY TRAY

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

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

BATTERY BOX COVER

Each battery box shall include a cover which protects the top of the batteries.

BATTERY CABLE

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

BATTERY JUMPER STUD

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

ALTERNATOR

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

STARTER MOTOR

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

BATTERY CONDITIONER

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

BATTERY CONDITIONER LOCATION

The battery conditioner shall be mounted in the cab on top of the left-hand mid EMS compartment.

BATTERY CONDITIONER DISPLAY

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

BATTERY CONDITIONER DISPLAY LOCATION

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

ELECTRICAL INLET LOCATION

An electrical inlet shall be installed on the left hand side of the cab ahead of the front door rear of the bumper.

ELECTRICAL INLET

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

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

Amp Draw Reference List:
Kussmaul 40 LPC Charger - 5 Amps
Kussmaul Chief 4012 Charger – 5.7 Amps
Kussmaul 80 LPC Charger - 13 Amps
Kussmaul Chief 6012 Charger - 9 Amps
Blue Sea P12 7532 - 7.5 Amps
Iota DLS-45/IQ4 - 11 Amps
1000W Engine Heater - 8.33 Amps
1500W Engine Heater - 12.5 Amps
120V Air Compressor - 4.2 Amps
120V Dometic HVAC - 15 Amps

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery conditioner.

ELECTRICAL INLET COLOR

The electrical inlet connection shall include a red cover.

AUXILIARY ELECTRICAL INLET

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

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

Amp Draw Reference List:
Kussmaul 40 LPC Charger - 5 Amps
Kussmaul 40/20 Charger - 8.5 Amps
Kussmaul 80 LPC Charger - 13 Amps
Kussmaul EV-40 - 6.2 Amps
Blue Sea P12 7532 - 7.5 Amps
Iota DLS-45/IQ4 - 11 Amps
1500W Engine Heater - 12.5 Amps
120V Air Compressor - 4.2 Amps
120V Dometic HVAC - 15 Amps

AUXILIARY ELECTRICAL INLET LOCATION

An auxiliary electrical inlet shall be installed on the left hand side of the cab ahead of the front door.

AUXILIARY ELECTRICAL INLET CONNECTION

The auxiliary electrical inlet shall be connected to the 110V A/C unit.

AUXILIARY ELECTRICAL INLET COLOR

The auxiliary electrical inlet connection shall include a red cover.

HEADLIGHTS

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

HEADLIGHT LOCATION

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

FRONT TURN SIGNALS

The front fascia shall include two (2) Whelen model 600 4.00 inch X 6.00 inch programmable amber LED turn signals which shall be installed in a polished aluminum radius mount housing above and outboard of the front warning and head lamps.

SIDE TURN/MARKER LIGHTS

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

MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) Tecniq S170 LED cab marker lamps designating identification, center and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level. The lights shall be amber with chrome bezels.

HEADLIGHT AND MARKER LIGHT ACTIVATION

The headlights and marker lights shall be controlled via a virtual button on the Vista display. There shall be a virtual dimmer control on the Vista display to adjust the brightness of the dash lights. The headlamps shall be equipped with the "Daytime Running" light feature, which shall illuminate the headlights when the ignition switch is in the "On" position and the parking brake is released.

AUX SIDE MARKER/TURN LIGHTS

The cab shall include two (2) Tecniq S170 LED marker lamps with a chrome bezel. The lights shall operate as a side clearance marker. The lights shall be mounted above the cab doors.

INTERIOR OVERHEAD LIGHTS

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

INTERIOR OVERHEAD LIGHTS ACTIVATION

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

LIGHTBAR PROVISION

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

CAB FRONT LIGHTBAR MODEL

The cab shall be provided with one (1) Whelen model F4N81 light bar. The light bar shall be 81.00 inches in length and feature twenty (20) customizable pods.

See the light bar layout for specific details.

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

LIGHTBAR SWITCH

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

FRONT SCENE LIGHTS

The front of the cab shall include one (1) Whelen Pioneer model PCH1 contour roof mount scene light installed on the brow of the cab.

Each 75 watt lamp head shall incorporate a 12 volt DC Super-LED combination flood/spot light installed in a die-cast aluminum housing. Each lamp head shall use a collimator/metalized redux flood reflector assembly with Proclera™ silicone optics and a clear non-optic polycarbonate lens. The lens/reflector assembly shall utilize a liquid injected molded silicone gasket to be resistant to water, moisture, dust, and other environmental conditions. The PCH1 shall be vibration resistant. The Pioneer PC boards shall be conformal coated for additional protection. Each combination flood light lamp head shall draw 13.0 amps in spotlight mode and generate 8,875 lumens total. Each lamp head shall measure 4.25 inches in height X 8.35 inches in width. The lamp head and brackets shall be powder coated black.

FRONT SCENE LIGHT LOCATION

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

FRONT SCENE LIGHTS ACTIVATION

The front scene lighting shall be activated by a rocker switch.

SIDE SCENE LIGHTS

The cab shall include two (2) Whelen model Pioneer PCH1 semi-recess mount lights installed one (1) on each side of the cab.

Each 75 watt lamp head shall incorporate a 12 volt DC Super-LED combination flood/spot light installed in a die-cast white powder coated aluminum housing. The PCH1 configuration shall consist of 18 white Super-LEDs which shall draw 6.5 amps and produce 8,875 usable lumens. The PCH1 assembly shall use a collimator/metalized redux spot/flood reflector assembly with Proclera™ silicone optics and a clear non-optic polycarbonate lens. The lens/reflector assembly shall utilize a liquid injected molded silicone gasket to be resistant to water, moisture, dust, and other environmental conditions. The PCH1 shall be vibration resistant. The Pioneer PC boards shall be conformal coated for additional protection. Each lamp head shall measure 4.25 inches in height X 8.35 inches in width. Each lamp head shall be mounted in a 15.00 degrees downward angle within a semi-recess housing which shall measure 7.64 inches in height X 11.88 inches in width. The semi-recess housing shall feature a gloss black finish, additionally the lamp heads and brackets shall be powder coated black.

SIDE SCENE LIGHT LOCATION

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

SIDE SCENE ACTIVATION

The scene lights shall be activated by a single rocker switch located on the switch panel.

GROUND LIGHTS

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

GROUND LIGHTS

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

LOWER CAB STEP LIGHTS

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

INTERMEDIATE STEP LIGHTS

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

MAP LIGHTS

Two (2) Sunnex swivel map light shall be provided. Each light shall have a clear lens and a control switch on the base. The lights shall be mounted on the overhead HVAC cover, one (1) on each side. The lights shall be wired to be live with the battery master switch.

ENGINE COMPARTMENT LIGHT

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

TILLER GUIDE LIGHTS

There shall be a prewire ran to the cab rear wall overhead area for OEM installed tiller light(s).

DO NOT MOVE APPARATUS LIGHT

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

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

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

MASTER WARNING SWITCH

A master switch shall be included, as a virtual button on the display and control screen which shall be labeled “E Master” for identification. The button shall feature control over all devices wired through it. Any warning device switches left in the “ON” position when the master switch is activated shall automatically power up.

HEADLIGHT FLASHER

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

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

HEADLIGHT FLASHER SWITCH

The flashing headlights shall be activated through a rocker switch on the switch panel. The rocker switch shall be clearly labeled for identification.

INBOARD FRONT WARNING LIGHTS

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

INBOARD FRONT WARNING LIGHTS COLOR

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

OUTBOARD FRONT WARNING LIGHTS

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

OUTBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the outboard position shall be red.

FRONT WARNING SWITCH

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

INTERSECTION WARNING LIGHTS

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

INTERSECTION WARNING LIGHTS COLOR

The intersection lights shall be red.

INTERSECTION WARNING LIGHTS LOCATION

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

SIDE WARNING LIGHTS

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

SIDE WARNING LIGHTS COLOR

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

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the cab shall be mounted behind the rear crew door in a mid position, 31.00 inches up from the bottom of the cab.

SIDE AND INTERSECTION WARNING SWITCH

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

TRAFFIC CONTROL

There shall be one (1) GTT (Global Traffic Technologies) Opticom model 795H traffic control optical emitter mounted in the lightbar on the front of the cab roof. The emitter shall be activated by the master warn switch or a lighted momentary rocker switch in the switch panel. The rocker switch shall activate the emitter independently of the master warning switch state. The emitter shall be deactivated when the parking brake is applied.

REAR WARNING LIGHTS

The cab shall include a Whelen TAL65 Traffic Advisor Kit provided by Spartan. The kit shall include the Traffic Advisor with the standard fifteen (15) feet of cable and a Whelen TACTL5 Traffic Advisor control head.

The Whelen TACTL5 Traffic Advisor control head shall be installed and wired in the header above the driver.

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

Wiring provisions shall be provided and routed to the rear of the frame for the Whelen traffic advisor which shall be shipped loose for OEM installation.

INTERIOR DOOR OPEN WARNING LIGHTS

The interior of each door shall include one (1) red Whelen 500 Series TIR6™ Super-LED® warning light located on the door panel. Each light shall activate with a flashing pattern when the door is in the open position to serve as a warning to oncoming traffic.

SIREN CONTROL HEAD

A Federal PA4000-200 electronic siren control head shall be provided and flush mounted in the switch panel with a location specific to the customer's needs. The siren shall feature 200-watt output, wail, radio broadcast, public address, yelp, priority tones and a noise cancelling microphone.

STEERING WHEEL HORN BUTTON SELECTOR SWITCH

A virtual button on the Vista display and control screen shall be provided to allow control of either the electric horn or the air horn from the steering wheel horn button.

AUDIBLE WARNING LH FOOT SWITCH

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

MECHANICAL SIREN FOOT SWITCH LH

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

MECHANICAL SIREN FOOT SWITCH LH LOCATION

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

MECHANICAL SIREN FOOT SWITCH LH POSITION

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

AUDIBLE WARNING LH FOOT SWITCH BRACKET

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

AUDIBLE WARNING RH FOOT SWITCH

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

MECHANICAL SIREN FOOT SWITCH RH

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

MECHANICAL SIREN FOOT SWITCH RH LOCATION

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

AIR HORN AUXILIARY ACTIVATION

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

MECHANICAL SIREN BRAKE/AUXILIARY ACTIVATION

The mechanical siren shall be actuated by a black back lit push button in the switch panel on the dash. A red momentary siren brake rocker switch shall be provided in the switch panel on the dash.

MECHANICAL SIREN INTERLOCK

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

BACK-UP ALARM

A Preco-Matic model 1040 backup alarm shall be installed at the rear of the chassis with an output level of 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.

INSTRUMENTATION

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

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

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

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

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

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

RED TELLTALES

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

AMBER TELLTALES

- Supplemental Restraint System (SRS) – ISO Icon indicates an SRS fault
- Anti-Lock Brake System (ABS) - indicates anti-lock brake system fault
- Check Engine - indicates engine fault
- Check Transmission - indicates transmission fault
- Diesel Exhaust Fluid (DEF) level – indicates low DEF level
- Diesel Particulate Filter (DPF) - indicates restriction of the diesel particulate filter

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

GREEN TELLTALES

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

BLUE TELLTALES

- High Beam indicator

AUDIBLE ALARMS

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

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

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

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

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

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

BACKLIGHTING COLOR

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

HOUR METER

An hour meter for the engine and the aerial hours shall be included within the digital dash display which shall measure the number of hours the engine and the PTO controlling the aerial has been operated. The hour meter shall be wired to the left-hand PTO.

RADIO

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

RADIO LOCATION

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

AM/FM ANTENNA

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

RADIO SPEAKERS

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

CAMERA RIGHT HAND

One (1) Audiovox Voyager heavy duty rearview teardrop shaped chrome plated housing camera shall be mounted on the officer side of the cab below the windshield ahead of the front door at approximately the same level as the cab door handles. The camera display shall activate when the right side turn signal is activated.

CAMERA REAR

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

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

CAMERA DISPLAY

The camera system shall display on the digital dash. The digital dash control shall include a manual activation of the camera system display.

CAMERA SPEAKER

The rear camera shall be wired to speaker(s) in the cab and shall audible to the driver and officer. There shall be a virtual button provided on the Vista display and control panel to deactivate the speaker(s).

FIRE EXTINGUISHER

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

DOOR KEYS

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

CHASSIS OPERATION MANUAL

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

ENGINE AND TRANSMISSION OPERATION MANUALS

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

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

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

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

CAB/CHASSIS AS BUILT WIRING DIAGRAMS

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

SALES TERMS

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

3D CHASSIS LAYOUT

A three dimensional (3D) layout of the chassis shall be provided to the OEM engineering group for use in designing the OEM body.

The layout shall include the following:

- Cab
- Frame
- Bumper
- Front Towing Device
- Front Axle
- Front Suspension
- Cab Tilt
- Exhaust
- Air Drier
- Battery Boxes & Covers
- Rear Axle
- Rear Suspension

Fuel Tank

Quote # QUO0000009722 (Rev 4)

ERP Number:

Date: January 14, 2026

Prepared For:
Rialto Fire Department

Rialto, California
Phone:

Presented By:
Fire Apparatus Solutions

,
Phone:

Option	QTY	Description
BOILERPLATE		
PO00025823	1	DESIGN CLAUSE - PRICE SLOT TIER 9
GENERAL INFORMATION		
PO00010976	1	MATERIAL & WORKMANSHIP
PO00010978	1	CONTRACT ADMINISTRATOR
PO00010979	1	APPROVAL DRAWING
PO00010981	1	DELIVERY
PO00010982	1	VEHICLE FLUID PLATE
PO00010988	1	EXACT BLUEPRINT WITH BID
PO00010990	1	FAMA MEMBERSHIP
PO00010992	1	MANUFACTURED IN UNITED STATES
PO00010997	1	AMP DRAW REPORT
PO00010998	1	TURNING RADIUS REPORT REQUIRED
PO00011001	1	COOPERATIVE PURCHASING
PO00011002	1	PRODUCTION LEVEL ELECTRICAL DRAWINGS
PO00011122	1	INSPECTION TRIPS (3)
PO00011134	1	TRIP ONE (1) AT PRE CONSTRUCTION
PO00011144	1	TRIP TWO (2) AT MID-POINT COMPLETION
PO00011150	1	TRIP THREE (3) AT FINAL COMPLETION
PO00011181	1	COMPLETION INFORMATION
PO00011182	1	FMVSS REQUIREMENT
PO00011183	1	RECORDS
PO00011186	1	GENERAL CONSTRUCTION
PO00011188	1	PRODUCT LIABILITY
PO00011190	1	CODE & CONFORMANCE - AERIAL
PO00011192	1	PAINT CERTIFICATION
PO00023879	1	PRICES & PAYMENTS

PO00025825	1	INSTRUCTION MANUALS - TWO (2) SETS - USB
PO00027004	1	VEHICLE TRANSPORTATION - KME PROVIDED (ZONE 5 AERIAL)
DIMENSIONS		
PO00009791	1	!!! CRITICAL OVERALL HEIGHT REQUIREMENT !!! - "YES" - 136"
PO00009794	1	!!! CRITICAL OVERALL LENGTH REQUIREMENT !!! - "NO"
NFPA REQUIREMENTS		
PO00010995	1	NFPA CERTIFICATION
PO00011070	1	GENERAL INFORMATION - NFPA 1900
PO00026614	1	NFPA TREAD PLATE STEPPING/STANDING/WALKING SURFACE CERTIFICATION
PO00026616	1	VERTICAL TREAD PLATE - NON-EMBOSSED
PO00011005	1	"AERIAL FIRE APPARATUS" NFPA 2016 CHAPTERS OF COMPLIANCE
PO00011169	1	NFPA "CHAPTER 16" FIRE PUMP REQUIREMENTS
PO00011171	1	NFPA "CHAPTER 18" {WATER TANKS} REQUIREMENTS - 2016
PO00011174	1	NFPA "CHAPTER 22" {110 VOLT SYSTEM} REQUIREMENTS - 2016
UL TESTING		
PO00024157	1	120/240 VOLT ELECTRICAL SYSTEM TESTING
PO00025850	1	THIRD PARTY LINE VOLTAGE TESTING
UL TESTING - AERIAL		
PO00025815	1	THIRD PARTY TESTING-AERIAL
COMMERCIAL CHASSIS AND OPTIONS		
***SPECIAL: SP00060282	1	PREDATOR SINGLE AXLE CHASSIS
CAB INTERIOR		
***SPECIAL: SP00055875	1	MOUNTING PLATE ON ENGINE ENCLOSURE
EMS COMPARTMENTS		
***SPECIAL: SP00055872	1	PAINTED REAR WALL CAB EMS COMPARTMENT
FUEL SYSTEM		
PO00026203	1	FUEL POCKET, DRIVER SIDE REAR WHEEL WELL PANEL - SIGNATURE 4
CHASSIS ELECTRICAL HARNESSES AND TESTING		
PO00022590	1	12 VOLT ELECTRICAL SYSTEM TESTING - ALL UNITS
PO00011799	1	DIRECT BATTERY GROUNDING STRAP
CONTROLS SWITCHING		
PO00010736	1	HOSEBED WORKLIGHT SWITCH - RECESSED
PO00010735	1	HOSE BED WORK LIGHT - SWITCH
PO00012427	1	HULL LIGHTS TO ACTIVATE WITH TURN SIGNAL
CAMERAS SYSTEM		
***SPECIAL: SP00055897	1	ASA VOYAGER CAMERA SYS,7"COLR LCD-DUAL(TILLER CAB)
CAB DOT MARKER AND STEP LIGHTING		
***SPECIAL: SP00055880	1	TRACTOR ALIGNMENT LIGHT ON TRACTOR
WARNING LIGHT SYSTEMS		
PO00010755	1	NFPA COMPLIANT WARNING LIGHT PACKAGE
PO00010757	1	WARNING LIGHT FLASH PATTERN - NFPA FLASH PATTERN

PO00010756	1	LIGHT PACKAGE ACTUATION/CONTROLS
PO00010759	1	LIGHT PACKAGE NFPA CERTIFICATION
UPPER WARNING LIGHT PACKAGE		
PO00003635	1	C-UPPER, WHELEN LED MCFLED2R, MICRO FREEDOM LIGHT BARS
PO00024573	1	UPPER ZONE C WARNING LIGHT LENS - RED
PO00003662	1	B/D-UPPER FRONT, COVERED BY LIGHTS IN ZONE A-UPPER
PO00003649	1	B/D-UPPER REAR, COVERED BY LIGHTS IN ZONE C-UPPER
LOWER WARNING LIGHT PACKAGE		
PO00003883	1	C-LOWER REAR, WHELEN M6 SUPER LEDS
PO00024581	1	LOWER ZONE C WARNING LIGHT LENS - RED
PO00003907	1	B/D-LOWER MID, WHELEN M6 SUPER LEDS
PO00024585	1	LOWER ZONE B/D MID WARNING LIGHT LENS - RED
PO00024605	1	LOWER ZONE B/D MID WARNING LIGHT BEZEL - CHROME
PO00003929	1	B/D-LOWER REAR, WHELEN M6 SUPER LEDS
PO00024587	1	LOWER ZONE B/D REAR WARNING LIGHT LENS - RED
PO00024607	1	LOWER ZONE B/D REAR WARNING LIGHT BEZEL - CHROME
ADDITIONAL WARNING LIGHTS		
***SPECIAL: SP00055877	1	WHELEN T-ION SURFACE MOUNT ON RUB RAIL
OUTRIGGER WARNING LIGHTS		
PO00013252	1	WHELEN M6, SUPER LED LIGHTS ON (2) OUTRIGGER PANELS
PO00013270	1	OUTRIGGER WARNING LIGHT ACTIVATION, PRIMARY WARNING
VEHICLE GROUND LIGHTING		
PO00003274	1	GROUND LIGHTS, 2 LED BELOW PUMP PANEL RUNNING BOARD - H2O
PO00003275	1	GROUND LIGHTS, 2 LED BELOW MID-SHIP COMPARTMENT - H2O
PO00003276	1	GROUND LIGHTS, 2 LED BELOW FRONT BODY CORNERS - H2O
PO00003277	1	GROUND LIGHTS, 2 LED AT REAR BODY CORNERS - H2O
PO00026832	1	CAB AND BODY GROUND LIGHTS ACTIVATE AS PROVIDED BY CHASSIS MANUFACTURER
BODY ELECTRICAL HARNESS AND TESTING		
PO00022750	1	AERIAL LADDER, LADDER POWER SWITCH IN CAB
PO00012671	1	AERIAL BODY ELECTRICAL SYSTEM
PO00010752	1	BODY ELECTRICAL HARNESS - V-MUX 2.0
COMPARTMENT LIGHTS		
PO00009693	1	DUNNAGE AREA LIGHTING, TECNIQ EON 3 LED
PO00011816	1	COMPARTMENT LIGHT ACTIVATION
***SPECIAL: SP00055904	1	ADDITIONAL COMPARTMENT LIGHTS, AMDOR LUMA BAR LED LIGHTING
PO00003422	20	COMPARTMENT LIGHTS, AMDOR LUMA BAR LED LIGHTING - DUAL
BODY DOT MARKER AND STEP LIGHTING		
PO00002999	1	MARKER/TURN LIGHTS @ EA SIDE OF BODY
PO00003003	1	DOT MARKER LIGHTS @ REAR OF BODY
PO00003007	1	DOT AMBER REFLECTORS @ SIDE OF BODY
PO00003008	1	DOT RED REFLECTORS @ REAR OF BODY
PO00026701	1	TECNIQ #L10 LED LICENSE PLATE LIGHT

PO00012422	1	BRITAX, 6" ANGLED RUBBER LED LIGHT @ REAR BODY CORNERS
PO00003028	1	WHELEN #M6 LED BRAKE, REVERSE, & TURN W/ QUAD HOUSING
PO00003072	2	BODY STEP LIGHTS, WHELEN SINGLE LED, ALL DEVICES
PO00003402	1	PUMP ENCLOSURE WORK LIGHTS - TECNIQ LED
BODY SCENE LIGHTING 12-VOLT		
***SPECIAL: SP00055884	1	TRAILER DECK LIGHTS
PO00003098	1	WHELEN PIONEER MICRO LED WORK/SCENE LIGHT @ TOP OF BODY
***SPECIAL: SP00055883	1	WHELEN M9 SERIES LED SCENE LIGHTS REAR OF PUMP MODULE
***SPECIAL: SP00055882	1	WHELEN PIONEER LIGHT, 150W12V LED, DS OF BODY
***SPECIAL: SP00055881	1	WHELEN PIONEER LIGHT, 150W12V LED, OS OF BODY
***SPECIAL: SP00055879	1	WHELEN PIONEER SURFACE MTD LIGHT, 150W12V LED, REAR OF BODY
***SPECIAL: SP00055878	1	ZICO #ZQL-SS-LED QUIC-LIGHTS IN REAR WHEELWELL PANELS
TRAFFIC ADVISOR		
PO00004183	1	WHELEN LED 36" - #TAL65 "TRAFFIC ADVISOR" ON REAR OF BODY
PO00004193	1	TRAFFIC ADVISOR - MOUNTING ON THE REAR SHEET
GENERATOR		
PO00004280	1	HARRISON PTO/HYD GEN, 10.0-MDS SERIES, 10000 WATT
PO00024160	1	120 & 240 VOLT WIRING METHODS
PO00004497	1	GEN LOCATION TOP OF BODY
***SHOP NOTE: SR00223536	1	GENERATOR SHALL BE LOCATED IN FRONT OF THE GOOSENECK AREA OF THE TRAILER IN BETWEEN THE CORD REELS ABOVE THE OUTRIGGER PANELS.
***SPECIAL: SP00055862	1	GENERATOR RUNNING LIGHT (120 VOLT) ON BREAKER PANEL
PO00012325	1	HARRISON HOT SHIFT PTO
PO00012396	1	PTO GENERATOR CONTROLS @ BREAKER PANEL
PO00012327	1	DIGITAL QUAD METER FOR HARRISON GENERATORS
CIRCUIT BREAKER PANEL		
PO00004325	1	TWELVE (12) SPACE, 125 AMP MAIN LUG LOAD CENTER
PO00004405	1	LOCATE BREAKER PANEL DRIVER SIDE FRONT COMPARTMENT
PO00026694	1	LINE VOLTAGE BREAKER TYPE - NON-GFCI/AFCI
120/240-VOLT LIGHTING		
***SPECIAL: SP00055860	1	FRC, #SPAKR700, PORTABLE LIGHTS
***SPECIAL: SP00055861	1	SPECTRA MAX PORTABLE LIGHTS, LIGHTHEADS
CORD REEL #1		
PO00008829	1	HANNAY ECR-1618-17-18, 120 VOLT ELECTRIC CORD REEL
***SPECIAL: SP00055905	1	CORD REEL LOCATION DRIVER SIDE ABOVE OUTRIGGER WITH TREAD PLATE ENCLOSURE
PO00021070	1	STAINLESS STEEL, 4 WAY ROLLER ASSEMBLY
PO00021067	1	REWIND SWITCH - ADJACENT TO CORD REEL #1
PO00009441	1	200 FEET OF 10/3 BLACK CABLE FOR 120 VOLT REEL
PO00021137	1	NEMA L5-20, 120 VOLT 20 AMP TWIST LOCK RECEPTACLE ON CABLE

***SPECIAL: SP00055899	1	CIRCLE-D (20 TWIST) PF51G-5P J-BOX WITH PIGTAIL
PO00021197	1	TREAD PLATE JUNCTION BOX HOLDER
PO00021066	1	CORD REEL CIRCUIT BREAKER REQUIREMENTS
PO00021074	1	BALL STOP ON END OF CABLE
CORD REEL #2		
PO00025700	1	HANNAY ECR-1618-17-18, 120 VOLT ELECTRIC CORD REEL
PO00025753	1	STAINLESS STEEL, 4 WAY ROLLER ASSEMBLY
PO00025706	1	REWIND SWITCH - ADJACENT TO CORD REEL
PO00025725	1	200 FEET OF 10/3 BLACK CABLE FOR 120 VOLT REEL
PO00008059	1	NEMA L5-20, 120 VOLT 20 AMP TWIST LOCK RECEPTACLE ON CABLE REEL
***SPECIAL: SP00055900	1	CIRCLE-D (20 TWIST) PF51G-5P JUNCTION BOX WITH PIGTAIL REEL
PO00025758	1	TREAD PLATE JUNCTION BOX HOLDER
PO00025704	1	CIRCUIT BREAKER REQUIREMENTS FOR CORD REEL
PO00025705	1	BALL STOP ON END OF CABLE
***SPECIAL: SP00055906	1	CORD REEL FLOOR MOUNT ABOVE OS FRONT STABILIZER
PUMP		
PO00015985	1	WATEROUS CX 1500 GPM SINGLE STAGE PUMP - MID MOUNT
PO00010792	1	PUMP RATIO
PO00009802	1	PUMP MOUNTS - MID-SHIP PUMPS
PUMP OPTIONS		
PO00009140	1	WATEROUS MECHANICAL PUMP SEAL
PO00024030	1	WATEROUS PUMP IMPELLER
PO00027036	1	WATEROUS "C22" PUMP DRIVE UNIT, ALL WATEROUS MID-SHIP PUMPS
PO00026827	1	PUMP SHIFT MANUAL OVERRIDE
PO00012080	1	WATEROUS PUMP SHIFT INDICATOR LIGHTS
PO00022396	1	MANIFOLD - DISCHARGE & SUCTION
PO00011542	1	WATEROUS ANODE BLOCKS - 4 TOTAL
PO00011552	1	WATEROUS PUMP OVERHEAT FOR THERMAL RELIEF SYSTEM
PO00010750	1	AUXILIARY ENGINE COOLER
PRESSURE CONTROL		
PO00004812	1	FIRE RESEARCH "IN CONTROL" TGA-400 PRESSURE GOVERNOR
PO00011415	1	TASK FORCE TIPS #A18 SERIES INTAKE RELIEF VALVE
PRIMER SYSTEM AND OPTIONS		
PO00009890	1	TRIDENT "MANUAL" AIR PRIMING SYSTEM
DRAINS AND OPTIONS		
PO00004825	1	ROTARY MASTER DRAIN VALVE
PO00004830	1	DRAINS/BLEEDER "INNOVATIVE CONTROLS" LIFT UP @ ALL 1-1/2" OR LARGER
PO00004840	1	SYNFLEX SUCTION, DISCHARGE, PRESSURE AND CONTROL LINES
INTAKES		
PO00010965	1	SUCTION INLETS - 6” INLETS
PO00024018	1	SHORT NECK MAIN PUMP SUCTION INLETS
PO00012076	1	BEHIND PANEL MOUNT

DS MAIN INTAKE		
PO00011278	1	DELETE SUCTION INLET CAP DRIVER SIDE
***SPECIAL: SP00055901	1	6" NH - 4" TFT INTAKE RELIEF VALVE - DRIVER SIDE INLET
OS MAIN INTAKE		
PO00011279	1	DELETE SUCTION INLET CAP OFFICER SIDE
***SPECIAL: SP00055902	1	TFT RC INTAKE VALVE OFFICER SIDE INLET
DS AUX INTAKE		
PO00011333	1	2-1/2" DRIVER SIDE AUX PRIMARY SUCTION INLET FORWARD OF MAIN
PO00004969	1	2-1/2" AKRON #8800 S.S. BALL VALVE, DRIVER SIDE FRONT AUX SUCTION
PO00004984	1	SWING CONTROL @ VALVE, DRIVER SIDE FRONT AUX SUCTION
TANK TO PUMP		
PO00023881	1	TANK TO PUMP 3” VALVE
PO00004999	1	3" AKRON #8800 SERIES - S.S. BALL, VALVE , TANK TO PUMP
PO00010956	1	3" PUSH/PULL CONTROL FOR TANK TO PUMP
PO00011326	1	PUSH-PULL CONTROL NORMALLY OPEN - IN / OPEN, OUT / CLOSE
TANK FILL		
PO00010962	1	TANK FILL LINE 2" FROM PUMP - SIDE MOUNT
PO00005031	1	2" AKRON #8800 SERIES - S.S. BALL TANK FILL, SIDE MOUN
PO00009815	1	PUSH/PULL CONTROL FOR TANK FILL
DS MAIN DISCHARGE #1		
PO00012083	1	DRIVER SIDE MAIN DISCHARGE #1
PO00009226	1	2-1/2" AKRON #8800 SERIES - S.S. BALL, DRIVER SIDE #1
PO00005039	1	DS #1 DISCHARGE - 2-1/2" STRAIGHT NST & 30-DEGREE NST ELBOW
PO00005050	1	2-1/2" NST PRESSURE VENTED CAP - DRIVER SIDE DISCHARGE #1
PO00005084	1	PUSH/PULL CONTROL FOR DRIVER SIDE DISCHARGE #1 -SIDE MOUNT
PO00005128	1	CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - DRIVER SIDE DISCHARGE #1
DS MAIN DISCHARGE #2		
PO00012084	1	DRIVER SIDE MAIN DISCHARGE #2
PO00009304	1	2-1/2" AKRON #8800 SERIES - S.S. BALL, DRIVER SIDE #2
PO00005145	1	DS #2 DISCHARGE - 2-1/2" STRAIGHT NST & 30-DEGREE NST ELBOW
PO00005156	1	2-1/2" NST PRESSURE VENTED CAP - DRIVER SIDE DISCHARGE #2
PO00009303	1	PUSH/PULL CONTROL FOR DRIVER SIDE DISCHARGE #2 -SIDE MOUNT
PO00005230	1	CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - DRIVER SIDE DISCHARGE #2
OS MAIN DISCHARGE #1		
PO00012086	1	OFFICER SIDE MAIN DISCHARGE #1
PO00005279	1	2-1/2" AKRON #8800 SERIES - S.S. BALL, OFFICER SIDE #1, SIDE MOUNT
PO00005289	1	OS #1 DISCHARGE - 2-1/2" STRAIGHT NST & 30-DEGREE NST ELBOW
PO00005300	1	2-1/2" NST PRESSURE VENTED CAP - OFFICER SIDE DISCHARGE #1
PO00005334	1	PUSH/PULL CONTROL FOR OFFICER SIDE DISCHARGE #1 -SIDE MOUNT
PO00005377	1	CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - OFFICER SIDE DISCHARGE #1
OS MAIN DISCHARGE #2		
PO00012087	1	OFFICER SIDE MAIN DISCHARGE #2
PO00005393	1	2-1/2" AKRON #8800 SERIES - S.S. BALL, OFFICER SIDE #2, SIDE MOUNT

PO00005403	1	OS #2 DISCHARGE - 2-1/2" STRAIGHT NST & 30-DEGREE NST ELBOW
PO00005414	1	2-1/2" NST PRESSURE VENTED CAP - OFFICER SIDE DISCHARGE #2
PO00005446	1	PUSH/PULL CONTROL FOR OFFICER SIDE DISCHARGE #2 -SIDE MOUNT
PO00005489	1	CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - OFFICER SIDE DISCHARGE #2
OS MAIN DISCHARGE #3		
PO00012088	1	OFFICER SIDE MAIN DISCHARGE #3
PO00005507	1	4" AKRON #8840 VALVE, OFFICER SIDE #3, SIDE MOUNT
PO00005524	1	OS #3 DISCHARGE - 4" STRAIGHT NST & 30-DEGREE NST ELBOW
PO00005529	1	4" NST PRESSURE VENTED CAP - OFFICER SIDE DISCHARGE #3
PO00005569	1	4" AKRON #9333 ELECTRIC VALVE CONTROL FOR OFFICER SIDE DISCHARGE #3
PO00005600	1	CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - OFFICER SIDE DISCHARGE #3
CROSSLAY #1		
PO00000011	1	CROSSLAY #1, 1-1/2" - PUMPER
PO00000014	1	CROSSLAY #1 CAPACITY - 200 FEET OF 1-3/4" HOSE
PO00000022	1	CROSSLAY #1 - DOUBLE STACK HOSE DESIGN
PO00006565	1	1-1/2" NST CHICKSAN SWIVEL - CROSSLAY #1
PO00006572	1	CROSSLAY #1, PLUMBING, 2" STAINLESS STEEL PIPING
PO00006578	1	2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY #1, DISCHARGE
PO00006592	1	PUSH/PULL CONTROL CROSSLAY #1
PO00006632	1	CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - CROSSLAY #1
CROSSLAY #2		
PO00007712	1	CROSSLAY #2 1-1/2"
PO00000024	1	CROSSLAY #2 CAPACITY - 200 FEET OF 1-3/4" HOSE
PO00000032	1	CROSSLAY #2 - DOUBLE STACK HOSE DESIGN
PO00024219	1	1-1/2" NST CHICKSAN SWIVEL - CROSSLAY #2
PO00006661	1	CROSSLAY #2, PLUMBING, 2" STAINLESS STEEL PIPING
PO00006667	1	2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY #2,
PO00006681	1	PUSH/PULL CONTROL CROSSLAY #2
PO00006719	1	CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - CROSSLAY #2
CROSSLAY/SPEEDLAY OPTIONS		
PO00011395	1	STAINLESS STEEL ROLLERS - TWO CROSSLAYS
PO00011398	1	LOWERED CROSSLAYS
PO00011375	1	VINYL END FLAPS FOR TREAD PLATE CROSSLAY COVER
PO00011385	1	END FLAP COVER BLACK IN COLOR
***SPECIAL: SP00055857	1	FRONT HINGED CROSSLAY HOSE BED COVER, TREAD PLATE
PUMP MODULE AND OPTIONS		
PO00010791	1	PUMP INSTALLATION - CUSTOM
PO00016067	1	SIDE MOUNT PUMP MODULE, TILLER AERIAL
PO00000007	1	PUMP MODULE - ALUMINUM CONSTRUCTION
RUNNINGBOARD STEPS AND WALKWAY		
PO00012589	1	SLIDE-OUT STEP @ DRIVER'S PUMP OPERATOR'S PANEL
PO00015375	1	RUNNING BOARD STEPS (AERIALS ONLY)
PO00011575	1	STORAGE WELL IN OFFICERS SIDE RUNNING BOARD (FLOATING)

PO00011578	1	TWO (2) VELCRO STRAPS ON OFFICER'S SIDE STORAGE WELL
PO00011599	1	OFFICER'S SIDE WELL - 100 FEET OF 2-1/2" HOSE
PUMP PANEL AND OPTIONS		
***SPECIAL: SP00055858	1	SIDE MOUNT PUMP PANEL - TDA
PO00000093	1	SIDE MOUNT PANELS - 12 GAUGE BRUSHED STAINLESS STEEL
PO00000128	1	VERTICALLY HINGED GAUGE PANEL - SIDE MOUNT
PO00000132	1	OFFICER SIDE VERTICALLY HINGED PUMP ACCESS DOOR - SIDE MOUNT
PO00010829	1	PANEL FASTENERS
PO00010831	1	CAPS AND ADAPTERS SAFETY TETHER - CABLES
PO00010832	1	PUMP PANEL DISCHARGE/SUCTION TRIM PLATES, HIGH POLISHED
PO00010833	1	DISCHARGE GAUGE TRIM BEZELS
PO00010834	1	IDENTIFICATION PLATES
PO00012156	1	PUMP OPERATOR'S PANEL LIGHT SHIELD
PO00012161	1	TECNIQ 6" LED LIGHTS - LIGHT SHIELD
PO00012175	1	TECNIQ EON 3 LED LIGHTS - OFFICER SIDE PUMP PANEL
PO00012571	1	FUEL GAUGE ON PUMP PANEL (DO NOT USE ON COMMERCIAL CHASSIS)
PO00012577	1	5/8" PUMP BY-PASS COOLER ON PUMP PANEL
PO00011409	1	PUMP PRESSURE & VACUUM TEST PORTS @ PANEL
PO00011421	1	4-1/2" CLASS ONE MASTER PRESSURE AND COMPOUND GAUGES
PO00011442	1	PRESSURE & COMPOUND GAUGE RANGES - SINGLE STAGE
PUMP CERTIFICATION		
PO00025813	1	PUMP THIRD PARTY CERTIFICATION - 750 GPM & UP
PUMPER WATER TANK AND OPTIONS		
PO00023886	1	TANK DESCRIPTION AND MOUNT
AERIAL WATER TANK AND OPTIONS		
PO00016206	1	POLY TANK, 300 GAL. - AERIAL
WATER TANK CONSTRUCTION		
PO00027025	1	WATER TANK CAPACITY
WATER TANK LEVEL GAUGE/S		
PO00007590	1	FIRE RESEARCH - TANK VISION #WLA300-A00 LED WATER TANK GAUGE - PRIMARY
PO00007597	1	FIRE RESEARCH WATER LEVEL - 1/4" NPT PRESS TRANS @ BOTTOM TANK
BODY MODEL AND DESIGN		
PO00023832	1	BODY AND COMPARTMENT HEADER
PO00016871	1	GENERAL ALUMINUM BODY DESCRIPTION FOR 100' TILLER AERIALS
PO00023833	1	GENERAL COMPARTMENT
BODY FENDER AND OPTIONS		
PO00009647	1	STANDARD FENDER - NO STORAGE (COMMERCIAL)
PO00023831	1	STAINLESS WHEEL LINERS TILLER TRAILER
PO00015431	1	TILLER TRACTOR, REAR WHEEL WELLS & FENDERS - PAINT FLAT / TREAD PLATE
***SPECIAL: SP00055911	1	SCBA CYLINDER RACK
AERIAL 101' TDA COMPARTMENTATION		

***SPECIAL: SP00055891	1	101' TDA DROP FRAME BODY - 100" WIDE
LOCKER COMPARTMENT AND OPTIONS		
***SPECIAL: SP00041178	1	LOCKER COMPARTMENT 21"W X 46"H X 14"D
DS AND OS SIDE COMPARTMENT DOORS		
PO00000261	1	2" THICK COMPARTMENT DOORS - FLAT RECESSED DOORS
***SPECIAL: SP00055903	1	ELECTRIC DOOR LOCK
PO00008981	1	#8 POLISHED (MIRROR) FINISHED STAINLESS STEEL DOOR PANS
PO00015344	1	DOOR HINGE FOR OVERLAPPING HINGED DOORS
PO00015345	1	DOOR SEAL FOR OVERLAPPING HINGED DOORS
PO00008978	1	ROTARY LATCHES WITH D-RING HANDLES
PO00012213	20	KEYED DOOR LOCKS, HINGED OR ROLL-UP DOORS
PO00008983	1	CLEVELAND SPRING DOOR SPRINGS
PO00015348	1	COMPARTMENT FLOORS
BODY EXTERIOR		
PO00009805	20	STAINLESS STEEL SILL PROTECTORS
PO00012482	1	TREAD PLATE OVERLAY, FRONT OF SIDE COMPARTMENTS (NON-WRAP AROUND)
PO00015353	1	PAINTED REAR BODY PANEL, TILLERS
***SPECIAL: SP00055885	1	STAINLESS STEEL OUTRIGGER COVER PANEL, TILLER DEVICES
PO00027030	1	BODY RUB RAILS, C-CHANNEL - ALUMINUM EXTRUSION
PO00015387	1	TILLER, TILLER CAB ACCESS LADDERS
PO00009707	1	POLISHED STAINLESS STEEL FENDERETTES, TILLER TRAILER AXLE
PO00015433	1	TILLER TRACTOR, POLISHED STAINLESS STEEL FENDERETTES
PO00015451	1	REAR MUD FLAPS, TILLER ONLY
BODY HANDRAILS AND STEPS		
PO00015413	1	TILLER, BODY HANDRAILS- LIGHTED - NO INSERT
REAR TOW EYES AND HITCH OPTIONS		
PO00000316	1	PAINTED REAR TOW EYES, THROUGH REAR SHEET
HOSEBED AND OPTIONS		
PO00003108	1	AMDOR LED STRIP HOSE BED LIGHTS-SIDES OF HOSEBED ON WALLS
***SPECIAL: SP00055892	1	HOSE BED TDA DRIVERS SIDE
***SPECIAL: SP00055893	1	HOSE CHUTE
GROUND LADDER AND STORAGE		
PO00014892	1	CENTER LADDER STORAGE, 101' LADDER, TILLER
PO00014895	1	HINGED PAINTED ALUM DOOR, LADDER STORAGE, RM ONLY
GROUND LADDERS		
PO00021981	2	DUO-SAFETY 1200-A 35' 2-SECTION EXTENSION LADDER (ALUMINUM)
PO00021984	1	DUO-SAFETY 900-A 24' 2-SECTION EXTENSION LADDER (ALUMINUM)
PO00021994	2	DUO-SAFETY 875-A 16' ROOF LADDER W/ FOLDING HOOKS (ALUMINUM)
PO00021997	1	DUO-SAFETY 775-A 10' ROOF LADDER W/ FOLDING HOOKS (ALUMINUM)
PO00022071	1	DUO-SAFETY 585-A 10' FOLDING ATTIC LADDER (ALUMINUM)

PO00022079	1	LITTLE GIANT LADDER MODEL 17 (9'-15')
PIKE POLES AND PIKE POLE STORAGE		
***SPECIAL: SP00055890	1	PIKE POLE TUBE(S) AERIALS
***SPECIAL: SP00055889	1	6' NUPLA RUBBISH HOOKS
***SPECIAL: SP00055887	1	8' DUO SAFETY FIBERGLASS PIKE POLE
***SPECIAL: SP00055888	1	10' NUPLA FIBERGLASS PIKE POLE
***SPECIAL: SP00055886	1	12' DUO SAFETY FIBERGLASS PIKE POLE
ADJUSTABLE SHELVES		
***SPECIAL: SP00055912	1	COMPARTMENT ACCESSORIES
FLOOR MOUNTED ROLL-OUT TRAY/S		
***SPECIAL: SP00055895	1	AIRBAG MODULE
COMPARTMENT FLOORING		
***SPECIAL: SP00055894	1	C-TECH TOOL CABINET
AERIAL TILLER TRAILER		
PO00012753	1	TILLER TRAILER FRAME ASSEMBLY, 101 LADDER
***SPECIAL: SP00055199	1	TILLER DROP FRAME TRAILER WHEELBASE - 360"
PO00026243	1	TRAILER, STEERING AXLE, STEERTEK 23,000 LB.
PO00015065	1	TILLER TRACTOR, STEP COMPARTMENT FORWARD OF FENDER, EACH SIDE
PO00012763	1	TILLER TRAILER, STEERING AXLE PAINTED ALUMINUM WHEELS
PO00012764	1	TILLER TRAILER, OIL SEAL FOR TRAILER STEERING AXLE
PO00012765	1	TILLER TRAILER, GOODYEAR G296 MSA TIRES 425/65R X 22.5, 24,400#
***SPECIAL: SP00055896	1	TRAILER AXLE - COUNTERACT BALANCING BEADS
PO00012769	1	TIRE PRESSURE MONITORING - VALVE STEM CAPS - TDA TIRES
PO00012772	1	TILLER TRAILER, STEERING SYSTEM, TRW TAS-85
PO00012773	1	TILLER TRAILER, STEERING PUMP - PIGGYBACK ON MAIN AERIAL PUMP
PO00012775	1	TILLER TRAILER, 100 AND 101' LADDER, FIFTH WHEEL PIVOT
***SPECIAL: SP00055907	1	ROPE RIGGING ANCHOR POINTS
AERIAL TILLER CAB		
PO00012777	1	TILLER CAB, GENERAL DESCRIPTION
PO00012778	1	TILLER CAB, INTERIOR
***SPECIAL: SP00055898	1	TILLERMAN SEAT, BOSTROM PACIFICA EX6 AIR SUSPENSION
PO00012789	1	BOSTROM SEATING MATERIAL, GRAY DURACOAT VINYL
PO00012800	1	TILLER CAB WIND/GLASS, "NO POST VISION", SLIDING DOORS
PO00012803	1	TILLER CAB, WINDSHIELD WIPERS, SINGLE PANOGRAPHIC
PO00012804	1	TILLER CAB, STEERING WHEEL/COLUMN
PO00012805	1	TILLER CAB, STEERING WHEEL POSITION INDICATOR
PO00012806	1	TILLER CAB, LEXAN SUNVISOR

PO00012812	1	TILLER CAB, ALUMINUM KNURLED GRAB RAILS, EACH SIDE, LIGHTED, YELLOW INSERT
***SPECIAL: SP00055876	1	TILLER CAB, VELVAC 6-1/2" X 6" CONVEX
PO00012817	1	TILLER CAB, SLIDING DOORS
PO00012820	1	TILLER CAB, INSTRUMENT & SWITCH PANEL
PO00012822	1	TILLER CAB, TURNSIGNAL INDICATORS, WELDON #9186-15
PO00012826	1	TILLER CAB, WHELEN 6" ROUND WHITE/RED LED INTERIOR LIGHT
PO00012835	1	TILLER CAB, PARK BRAKE INTERLOCK WARNING - CENTER WHEEL BUTTON
PO00012836	1	TILLER CAB, SAFETY START SYSTEM - TILLER CAB STEERING COLUMN
***SPECIAL: SP00055910	1	JACK KNIFE ALARM
PO00012838	1	TILLER CAB, BUZZER - LINEMASTER #491-S FOOT SWITCHES
PO00012847	1	TILLER CAB, HEATER - BUS AIR 120VAC - 7000 BTU
PO00012849	1	TILLER CAB, TWO (2) ACC CLIMATE CONTROL 12-VOLT DEFOGGER FANS
***SPECIAL: SP00055909	1	TILLER CAB, DANHARD 110-VOLT A/C SYSTEM
AERIAL DEVICE MODEL		
PO00012884	1	101' TILLER LADDER
AERIAL LADDER - DESIGN AND FEATURES		
PO00012921	1	101' LADDER, TILLER GEN, INTENT & DESIGN STANDARDS
PO00012930	1	MOUNTING OF AERIAL, TILLERS
PO00012950	1	HEIGHT AND REACH, 101' TILLER
PO00012952	1	MATERIAL STANDARDS, ALL DEVICES
AERIAL HYDRAULIC SYSTEM		
PO00012975	1	100' & 101' LADDER, TILLER. HYDRAULIC SYSTEM
PO00012983	1	HOSE KIT - 2 JACK UNIT TDA
PO00012986	1	HYDRAULIC PUMP - PRESSURE COMPENSATED (TDA)
PO00027024	1	HYDRAULIC RESERVOIR - TDA
PO00012996	1	HYDRAULIC OIL - REGULAR - A/W 46
PO00013002	1	MAGNETIC DISC IN BOTTOM OF HYDRAULIC RESERVOIR
PO00013006	1	DIVERTER VALVE, TDA
PO00013015	1	ELECTRIC OUTRIGGER HYDRAULIC CONTROL VALVE - TDA, BANG BAANG
PO00013027	1	ELECTRIC TURNTABLE HYDRAULIC CONTROL VALVE, TDA LADDER
PO00013033	1	HYDRAULIC SYSTEM FILTRATION, TDA
PO00013081	1	100' & 101' LADDER, TILLER. EMERG HYD. PUMP, EPU
PO00013088	1	PTO CONTROLS IN CAB FOR ALL TILLER AERIAL DEVICES
PO00013091	1	FAST IDLE CONTROL FOR ALL AERIAL DEVICES
AERIAL MOTION CONTROL SYSTEM		
PO00013048	1	TRACTOR DRAWN LADDER, "IQAN" MOTION CONTROL SYSTEM - ELECTRIC CONTROLS @ TURNTABLE
PO00013051	1	HYDRAULIC PUMP PRESSURE - DISPLAY
PO00013052	1	ELEVATION ANGLE OF LADDER - DISPLAY
PO00013053	1	VERTICAL HEIGHT OF LADDER - DISPLAY
PO00013054	1	DEGREE OF ROTATION FROM VEHICLE CENTERLINE - DISPLAY
PO00013056	1	E-ZONE SHORT JACK WARNING - DISPLAY

PO00013057	1	CRADLE ALIGNMENT MESSAGE - DISPLAY
PO00013060	1	E-SPEED LADDER TIP SPEED CONTROL - DISPLAY
PO00013061	1	E-CUSH RAMP CONTROL FOR ELEVATION - DISPLAY
PO00013062	1	E-CUSH RAMP CONTROL FOR EXTENSION & RETRACTION - DISPLAY
PO00013063	1	WARNING MESSAGES - TURNTABLE ONLY
PO00013294	1	100' & 101' LADDER, TILLER ELECTRIC OUTRIGGER CONTROLS
PO00013300	1	HYDRAULIC PRESSURE GAUGE NEAR OUTRIGGER VALVE
PO00013584	1	IQAN - INCLINOMETER
PO00013585	1	IQAN - MOMENT LOAD INDICATOR
PO00013586	1	IQAN - E-CUSH CONTROL, ELEVATION SYSTEM - LADDER
PO00013640	1	IQAN - "E-SPEED" SAFETY SYSTEM, LADDERS
PO00013643	1	IQAN - "E-ZONE" ROTATION SAFETY SYSTEM, 2-OUTRIGGERS
PO00013646	1	IQAN - "E-ZONE" CAB & BODY PROXIMITY SYSTEM - LADDERS
PO00013674	1	IQAN - EXTENSION SYSTEM STRING POTENTIOMETER
PO00013675	1	IQAN - "E-CUSH" EXTENSION/RETRACTION SYSTEM - LADDER
AERIAL TORQUEBOX		
PO00013114	1	101' LADDER, TILLER TORQUE BOX
PO00013192	1	IQAN - OUTRIGGER STRING POTENTIOMETER - TWO (2) OUTRIGGERS
PO00013554	1	AERIAL TRAVEL SUPPORT, ALL DEVICES
AERIAL OUTRIGGERS		
PO00024052	1	OUTRIGGERS NOT STOWED INDICATOR ON DASH
PO00013139	1	101' LADDER, TILLER OUTRIGGERS, 14' STANCE
PO00013163	1	101' LADDER, TILLER OUTRIGGERS - HORIZONTAL CYLINDERS
PO00013187	1	101' LADDER, TILLER OUTRIGGERS - VERTICAL CYLINDER
PO00013196	1	OUTRIGGER/JACK FOOT PADS, TILLER DEVICES
PO00013206	1	AUXILARY JACK PADS, TWO (2) 24" X 24" X 1" POLY (MAGNETIC)
PO00013207	1	OUTRIGGER INTERLOCK SYSTEM & ALARM, ALL DEVICES
***SPECIAL: SP00055870	1	OUTRIGGER SCOTCHLITE - DIAMOND GRADE CHEVRON
PO00013309	1	OUTRIGGER LEVEL SIDE TO SIDE, ALL TILLER DEVICES
AERIAL OUTRIGGER WARNING LIGHTS		
PO00013219	1	AKRON LED OUTRIGGER LAMPS, 2-OUTRIGGERS
PO00013225	1	LED OUTRIGGER GROUND LIGHTS - GROTE WHITELIGHT, 2- OUTRIGGERS
AERIAL TURNTABLE		
PO00013329	1	101' LADDER, TILLER TURNTABLE
PO00013334	1	TURNTABLE DECK - TREAD PLATE
PO00013340	1	TDA NOTICE!!! TURNTABLE DECK
PO00013342	1	HEEL PIN STEP ON TURNTABLE, 79', 103', 109' & 123'
PO00026389	1	TURNTABLE HANDRAILS
PO00013360	1	HEEL PINS - 100' & 101' TDA
PO00013363	1	STAINLESS STEEL CRADLE ALIGNMENT ARROWS ON TURNTABLE
***SPECIAL: SP00055866	1	FIRE RESEARCH "MAN SAVER" BARS @ TURNTABLE OPENINGS
PO00013391	1	101' LADDER, TILLER TURNTABLE SWIVEL
PO00013403	1	IQAN - SWIVEL ROTATION ENCODER

AERIAL LADDER CONSTRUCTION		
PO00013422	1	101' LADDER, TILLER, LADDER CONSTRUCTION
PO00013447	1	101' H.D. 4-SECTION TILLER, LADDER DIMENSIONS
PO00013468	1	RUNG COVERS - PHOTOLUMINESCENT, ALL DEVICES
PO00013696	1	LADDER, CABLE/HOSE/WIRE ROUTING, 101' LADDER
AERIAL DEVICE OPTIONS		
***SPECIAL: SP00055864	1	TWO (2) CHAINSAW SCABBARDS
PO00013429	1	STAINLESS STEEL EGRESS W/TIP SKID GUARDS
PO00013470	1	SINGLE PAIR FOLDING STEPS @ LADDER TIP
PO00013475	1	FLOURECENT RED PAINT ON LAST 6 FEET OF LADDER TIP
***SPECIAL: SP00055863	1	TWO (2) NUPLA RUBBISH HOOKS MOUNTED IN FLY SECTION
PO00013523	1	ROOF LADDER MOUNT ON BASE SECTION; 4S-109
***SPECIAL: SP00055867	1	RESCUE ROPE PULLEY SYSTEM
***SPECIAL: SP00055865	1	10' DUO-SAFETY 775DR-10 ROOF LADDER PROVIDED - BASE
PO00013545	1	SPECIFIED ROOF LADDER MOUNTED ON RIGHT SIDE OF BASE
PO00013688	1	LADDER LEVEL INDICATOR (BASE SECTION) - LIGHTED
AERIAL ELEVATION SYSTEM		
PO00013579	1	101' LADDER, TILLER, ELEVATION SYSTEM
AERIAL ROTATION SYSTEM		
PO00013626	1	101' LADDER, TILLER, ROTATION SYSTEM
PO00013632	1	ROTATION MOTOR AND BRAKE - 41" EXTERNAL BEARINGS
PO00013638	1	SWING DRIVE ADJUSTMENT
AERIAL EXTENSION SYSTEM		
PO00013666	1	101' LADDER, TILLER, EXTENSION/RETRACTION SYSTEM
PO00013669	1	EXTENSION CYLINDERS PAINTED LADDER PAINT COLOR
PO00013684	1	LADDER SLIDE PADS, 100' & 101' LADDER
AERIAL LADDER 120-VOLT LIGHTING		
PO00013736	1	LADDER, 120 VOLT ELECTRICAL SYSTEM
PO00013740	1	LADDER, 120 VOLT NEMA L5-20 AMP RECEPTACLE @ LADDER
***SPECIAL: SP00055868	1	TWO (2) WHELEN, 150 WATT, 120V LED LIGHTS @ TIP
AERIAL LADDER 12-VOLT LIGHTING		
PO00013560	1	CRADLE ILLUMINATION LIGHTS - FIRETECH P500 LED
PO00013783	1	HEEL PIN STEP LIGHTS - TECNIQ EON 3 LED LIGHTS
PO00013789	1	TURNTABLE CONTROL CONSOLE LIGHTING - LED
PO00013791	1	TURNTABLE CONSOLE STEP LIGHT
PO00013801	1	TWO (2) WHELEN PIONEER MICRO LED WORK LIGHTS @ LADDER BASE SECTION
PO00013834	1	ONE (1) WHELEN PIONEER MICRO LED WORK LIGHT @ LADDER TIP RIGHT SIDE
PO00013835	1	ONE (1) WHELEN PIONEER MICRO LED WORK LIGHT @ LADDER TIP LEFT SIDE
PO00013878	1	WHELEN L31, BLUE LED BEACON ON LEFT SIDE OF LADDER TIP
PO00013879	1	WHELEN L31, BLUE LED BEACON ON RIGHT SIDE OF LADDER TIP
PO00013920	1	LADDER WALKWAY ILLUMINATION LIGHTS, 3-SECT LADDER

***SPECIAL: SP00055869	1	PATRIOTIC - LADDER ILLUMINATION LIGHTS
AERIAL LADDER TURNTABLE CONTROL CONSOLE		
PO00014152	1	LADDER, CONTROL STATION
PO00014158	1	TDA LADDERS, CONSOLE LOCATED @ RH SIDE OF TURNTABLE
PO00014159	1	PAINTED ALUMINUM TURNTABLE CONSOLE - MATCH LADDER
PO00026139	1	TDA AERIAL LADDER, TURNTABLE CONTROL STATION, IQAN - ELECTRIC VALVE
PO00026156	1	AERIAL FLOWMETER @ TURNTABLE CONSOLE
PO00014218	1	TURNTABLE CONSOLE COVER - PAINTED
AERIAL COMMUNICATIONS		
PO00014268	1	LADDER, FRC ACT -2 WAY COMMUNICATION SYSTEM - LOWER CONTROL
PO00014269	1	LADDER, FRC ACT 2-WAY COMMUNICATION SYSTEM - UPPER SPEAKER/MIC
AERIAL LADDER WATERWAY AND OPTIONS		
PO00014364	1	101' LADDER, TILLER LADDER LOWER WATERWAY SYSTEM
PO00014388	1	101' LADDER, TILLER LADDER WATERWAY
PO00014393	1	4" HEEL PIN SWIVEL - 100'
PO00014404	1	AUTOMATIC WATER DRAIN/VENT
PO00014405	1	ALL DEVICES, WATERWAY RELIEF VALVE
PO00014408	1	TILLER AERIAL WATERWAY DRAIN, 1-1/2" VALVE
PO00014411	1	AERIAL WATERWAY DRAIN CONTROL
PO00014437	1	TILLERS, SIDE INLETS 4" NST ADAPTERS W/CAPS
PO00014446	1	TECHNOCHECK ON EACH AERIAL INLET
PO00014468	1	CLASS ONE 2-1/2" GAUGE FOR AERIAL INLET(S), MID-MOUNTS
AERIAL LADDER MONITOR AND OPTIONS		
PO00014503	1	LADDER, AKRON #3480 "STREAMMASTER II" MONITOR
PO00014507	1	LADDER, AKRON #5177 NOZZLE
PO00014517	1	LADDER, AKRON MONITOR CONTROLS W/ AUTO STOW
PO00014521	1	LADDER, SELECTABLE WATERWAY TROLLEY, ALL LADDER DEVICES
PO00014552	1	"STORE FRONT BLITZ" DESCRIPTION
AERIAL CAPACITIES		
PO00014788	1	101' LADDER, TILLER LADDER CAPACITIES
AERIAL SPECIAL EQUIPMENT		
PO00014821	1	AERIAL LADDER, MANUALS, TWO (2) SETS
PO00014841	1	100' & 101' LADDER, TILLER SPECIAL AERIAL TOOLS
AERIAL TESTING - FINAL		
PO00014804	1	FIRE DEPT AERIAL FAMILIARIZATION - PROVIDED BY FACTORY
PO00014807	1	FACTORY FAMILIARIZATION - THREE (3) DAYS
PO00014819	1	AERIAL SERVICE, ALL DEVICES
PO00014820	1	WARNING DECALS, ALL DEVICES
PO00014869	1	101' LADDER, TILLER CERT. & TESTING
PAINT		
PO00024164	1	INSIDE/UNDERSIDE BODY -UNPAINTED
PAINT PROCESS		
PO00010847	1	GENERAL PAINT DESCRIPTION

PO00014914	1	GENERAL PRIMER & PREP DESCRIPTION - LADDER/PLATFOR
PO00014917	1	GENERAL FINISH PAINT DESCRIPTION - LADDER/PLATFORM
COMMERCIAL CHASSIS PAINT		
PO00023017	1	COMMERCIAL CAB PAINT FINISH - OTHER
BODY PAINT		
PO00014920	1	BODY BUFFING & FINISH - LADDER/PLATFORM
PO00026354	1	COMPARTMENT INT W/ MULTISPEC, GRAY STONE - LADDER
PO00004559	1	FENDER COMPARTMENT INTERIOR - JOB COLOR
PUMP MODULE AND PLUMBING PAINT		
PO00022252	1	PUMPHOUSE & PLUMBING PAINTED BLACK - TDA
PAINT CODES AND COLORS		
PO00014946	1	SINGLE COLOR BODY PAINT SCHEME - TDA - TBD
FINALIZATION		
PO00014988	1	FINALIZATION & DETAILING - LADDER/PLATFORM
AERIAL DEVICE PAINT		
PO00024543	1	LADDER, PAINTING, ALL DEVICES, BLACK #FLNA41532
PO00014958	1	EXTENSION CYLINDERS PAINTED TO MATCH LADDER COLOR
PO00024544	1	URETHABOND RUNG RAIL COATING
PO00014964	1	TORQUEBOX PAINT - BLACK
PO00014967	1	OUTRIGER PAINT - BLACK
PO00014968	1	TURNTABLE PAINT - LADDER COLOR
PO00014970	1	TURNTABLE CONSOLE PAINT - LADDER COLOR
PO00014972	1	LIFT CYLINDERS PAINT - LADDER COLOR
TILLER CAB PAINT		
PO00012780	1	TILLER CAB, INTERIOR PAINT - TEXTURED GRAY
LETTERING CAB AND BODY		
PO00004583	1	GOLDLEAF W/ DROP SHADOW LETTERING ON FRONT CAB DOORS
PO00004586	1	3" LETTERING ON FRONT CAB DOORS
PO00023730	1	FRONT CAB DOOR TEXT LINE 1 - TBD
PO00023731	1	FRONT CAB DOOR TEXT LINE 2 - DATA ERROR
***SPECIAL: SP00055873	1	INSTALL FIRE DEPARTMENT SUPPLIED DOOR DECAL
PO00009617	1	GOLDLEAF W/ DROP SHADOW LETTERING ON REAR CAB DOORS
PO00023732	1	REAR CAB DOOR TEXT LINE 1 - TBD
PO00023733	1	REAR CAB DOOR TEXT LINE 2 - DATA ERROR
PO00004605	1	GOLDLEAF W/ DROP SHADOW LETTERING ON FRONT OF CAB
PO00023734	1	FRONT OF CAB TEXT - TBD
PO00004608	1	3" LETTERING ON REAR CAB DOOR
PO00009622	1	3" LETTERING ON FRONT OF CAB
PO00004616	1	GOLDLEAF W/ DROP SHADOW LETTERING ON CAB SIDE PANEL
PO00004619	1	3" LETTERING ON CAB SIDE PANEL
PO00023735	1	CAB SIDE PANEL TEXT LINE 1 - TBD
PO00023736	1	CAB SIDE PANEL TEXT LINE 2 - DATA ERROR
PO00004627	1	GOLDLEAF W/ DROP SHADOW LETTERING ON REAR BODY PANEL

PO00004630	1	3" LETTERING ON REAR BODY
PO00023737	1	REAR BODY TEXT LINE 1 - TBD
PO00023738	1	REAR BODY TEXT LINE 2 - DATA ERROR
PO00023739	1	REAR BODY TEXT LINE 3 - DATA ERROR
PO00004635	1	SCOTCH-LITE W/O DROP SHADOW LETTERING ON CAB ROOF
PO00004640	1	18" LETTERING ON CAB ROOF
PO00023740	1	CAB ROOF TEXT LINE 1 - TBD
PO00023741	1	CAB ROOF TEXT LINE 2 - DATA ERROR
PO00004665	1	GOLDLEAF W/ DROP SHADOW LETTERING ON BODY SIDE SHEET
PO00004668	1	6" LETTERING ON BODY SIDE SHEET
PO00023745	1	SIDE OF BODY TEXT LINE 1 - TBD
PO00023746	1	SIDE OF BODY TEXT LINE 2 - DATA ERROR
PO00023747	1	SIDE OF BODY TEXT LINE 3 - DATA ERROR
LOGO AND MURAL		
***SPECIAL: SP00055874	1	"NEVER FORGET" MURAL
NFPA REQUIRED SCOTCHLITE STRIPING		
PO00015022	1	6" SCOTCH-LITE STRIPE ON CAB AND BODY - TDA AERIAL
PO00009526	1	BLACK SCOTCH-LITE
***SPECIAL: SP00055871	1	DUAL 6" SCOTCH-LITE "Z" IN STRIPE
PO00009517	1	DUAL 1" SCOTCH-LITE ACCENT ON MAIN STRIPE
CHEVRON STRIPING		
PO00009536	1	REAR CHEVRON STRIPING
PO00012449	1	50% VERTICAL SURFACE
PO00009539	1	6" 50% REAR SCOTCH-LITE DIAMOND GRADE CHEVRON STRIPING
PO00009544	1	RED & FLUORESCENT YELLOW GREEN DIAMOND GRADE SCOTCH-LITE
PO00009549	1	FRONT BUMPER 4"SCOTCH-LITE DIAMOND GRADE CHEVRON STRIPING
PO00009555	1	FRONT BUMPER RED & FLUORESCENT YELLOW GREEN DIAMOND GRADE SCOTCH-LITE
AERIAL DEVICE LETTERING AND OPTIONS		
PO00014991	1	19" X 144" LETTERING PANELS ON BASE SECTION
PO00014997	1	SIGN PANELS PAINTED TO MATCH BODY COLOR
PO00015005	1	GOLDLEAF W/ DROP SHADOW LETTERING FOR AERIAL
MISC EQUIPMENT		
PO00009970	4	ZICO SCBA CYLINDER BRACKET, MOUNTED AS DIRECTED
PO00000521	1	TWO (2) ZICO #SAC-44 FOLDING WHEEL CHOCKS, (2) MTD DRIVER SIDE
WARRANTY		
PO00023664	1	KME WARRANTY, STARTING ON IN-SERVICE DATE
WARRANTY - STANDARD AND EXTENDED		
PO00026895	1	GENERAL ONE (1) YEAR OR 24,000 MILES LIMITED WARRANTY
PO00026922	1	REGULATED EMISSIONS SYSTEMS FIVE (5) YEARS OR CARB MILEAGE LIMITED WARRANTY
PO00026923	1	ELECTRICAL ONE (1) YEAR OR 18,000 MILES LIMITED WARRANTY
PO00026951	1	AERIAL LADDER STRUCTURE TWENTY (20) YEARS OR 100,000 MILES LIMITED WARRANTY

PO00026953	1	AERIAL TORQUE BOX STRUCTURE FIFTEEN (15) YEARS OR 100,000 MILES LIMITED WARRANTY
PO00026954	1	AERIAL LEAK-FREE HYDRAULICS THREE (3) YEARS OR 48,000 MILES LIMITED WARRANTY
PO00026957	1	BODY STRUCTURE (ALUMINUM) FIFTEEN(15) YEARS OR 100,000 MILES LIMITED WARRANTY
PO00026976	1	PAINT AND FINISH (EXTERIOR CLEAR COATED) SEVEN (7) YEARS LIMITED WARRANTY
PO00026981	1	PLUMBING AND PIPING (STAINLESS STEEL) TEN (10) YEARS OR 100,000 MILES LIMITED WARRANTY
PO00026983	1	AERIAL WATERWAY TEN (10) YEARS OR 100,000 MILES LIMITED WARRANTY
PO00022703	1	1 YEAR BRIGHTWORK WARRANTY
PO00022973	1	LIFETIME POLY TANK WARRANTY - ALL TANKS
PO00026084	1	WATEROUS 7 YEAR PUMP WARRANTY PARTS ONLY
PO00022761	1	AKRON HEAVY DUTY VALVE - 10 YEAR WARRANTY
PO00010937	1	CORROSION TREATMENT
SUPPORT, DELIVERY, INSPECTIONS - MANUALS		
PO00024053	1	ADDITIONAL ITEMS SHIPPED WITH VEHICLE
VEHICLE CLASS TIER 0-3		
PO00024715	1	VEHICLE CLASS TIER 0

KME FIRE APPARATUS

Rialto Fire Department

Quote # QUO0000009722 (Rev 4)

January 14, 2026

ERP Number:

Prepared For:	**Presented By:**
Rialto Fire Department	Fire Apparatus Solutions
Rialto, California	,
Phone:	Phone:

DESIGN CLAUSE - PRICE SLOT TIER 9

QTY: 1

These specifications outline the components, installation methods, and operational characteristics KME is agreeing to provide in order to meet the purchaser's requirements. Subject to the terms of the purchase agreement, other construction details not explicitly listed in these specifications will be determined at the discretion of the builder. In the event the purchaser desires a different construction or installation not already described in these specifications, additional charges may apply, and quoted lead time commitments will be adjusted.

ENGINE CLAUSE

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

Until the 2027 EPA engine integration is finalized, option availability and body design relative to engine and after treatment are subject to change.

Additional costs associated with the 2027 EPA engine will be passed on to the end user. No exceptions.

MATERIAL & WORKMANSHIP

QTY: 1

All equipment furnished shall be guaranteed to be new and of current manufacture, to meet all requirements of these specifications.

All workmanship shall be of high quality and accomplished in a professional manner so as to insure a functional apparatus with a pleasing, aesthetic appearance.

CONTRACT ADMINISTRATOR

QTY: 1

The successful bidder shall designate a contract administrator to provide a single point interface between the purchaser and the contractor on all matters concerning the contract.

APPROVAL DRAWING

QTY: 1

A detailed drawing of the apparatus shall be provided to the purchaser for approval before construction begins. A copy of this drawing shall also be provided to the manufacturer's representative. Upon purchaser's approval, the finalized drawing shall become a part of the total contract.

The drawing shall show, but is not limited to, such items as the chassis make and model, major components, location of lights, sirens, all compartment locations and dimensions, special suctions, discharges, etc. The drawing shall be a visual interpretation of the apparatus as it is to be supplied.

DELIVERY

QTY: 1

Delivery of the apparatus to the customer shall remain the bidder's responsibility.

On initial delivery of the fire apparatus, a qualified and responsible representative of the contractor shall demonstrate the apparatus and provide initial instruction to representatives of the customer regarding the operation, care, and maintenance of the apparatus and equipment supplied.

VEHICLE FLUID PLATE

QTY: 1

As required by NFPA-1900, the contractor shall affix a permanent plate in the driver's compartment specifying the quantity and type of the following fluids used in the vehicle:

A permanent plate in the driving compartment shall specify the quantity and type of the following fluids used in the vehicle:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Pump transmission lubrication fluid
- Pump primer fluid
- Drive axle(s) lubrication fluid
- Air-conditioning refrigerant
- Air-conditioning lubrication oil
- Power steering fluid
- Cab tilt mechanism
- Transfer case fluid
- Equipment rack fluid
- Air compressor system lubricant
- Generator system lubricant
- Aerial systems

EXACT BLUEPRINT WITH BID

QTY: 1

A scale drawing of the specific apparatus being proposed shall be submitted WITH THE BID.

Drawings of similar units or demo units shall not be permitted.

Bidders should be clear that this provision is requiring a SCALE drawing of the truck which is actually being bid.

The drawing shall be done at the manufacturer's facility by the manufacturer's engineering department in order to guarantee the accuracy of the drawing.

Failure to comply with this requirement shall be grounds for rejection of the bid!

FAMA MEMBERSHIP

QTY: 1

The apparatus manufacturer must be a current member of the Fire Apparatus Manufacturer's Association (FAMA).

MANUFACTURED IN UNITED STATES

QTY: 1

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.

AMP DRAW REPORT

QTY: 1

The bidder shall provide with their bid proposal and at the time of delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

A written load analysis, which shall include the following:

- The rating of the alternator.
- The minimum continuous load of each component that is specified per: Applicable NFPA-1900.

- Additional loads that, when added to the minimum continuous load, determine the total connected load.
- Each individual intermittent load.

All of the above listed items shall be provided by the bidder per the applicable NFPA-1900.

TURNING RADIUS REPORT REQUIRED

QTY: 1

The Bid Proposal shall include a drawing of 11" x 17" showing the apparatus turning radius, wheel/tires and front bumper sweep radius with the specified front extension. No Exception.

COOPERATIVE PURCHASING

QTY: 1

The Manufacturer shall be pleased to allow other public agencies to use the purchase agreement resulting from this invitation to bid unless the bidder expressly notes on the proposal form that prices are not available for tag-on.

The condition of such use by other agencies shall be that any such agency must make and pursue contact, purchase order/contract, and all contractual remedies with the successful bidder.

Such tag-ons shall be done so that the original purchasing agency has no responsibility for performance by either the manufacturer or the agency using the contract.

PRODUCTION LEVEL ELECTRICAL DRAWINGS

QTY: 1

KME shall provide production level harness drawings for the specific unit to be built.

INSPECTION TRIPS (3)

QTY: 1

The successful bidder shall provide three (3) factory inspection trips to the apparatus manufacturer's facility.

Transportation, meals, lodging, and other requisite expenses shall be the bidder's responsibility.

TRIP ONE (1) AT PRE CONSTRUCTION

QTY: 1

Pre-construction / blueprint review.

TRIP TWO (2) AT MID-POINT COMPLETION

QTY: 1

Midpoint completion of entire apparatus.

TRIP THREE (3) AT FINAL COMPLETION

QTY: 1

Final inspection upon completion.

COMPLETION INFORMATION

QTY: 1

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

- Owners name and address Apparatus manufacturer, model and serial number
- Chassis make, model and serial number
- Front tire size and total rated capacity in pounds

- Rear tire size and total rated capacity in pounds
- Chassis weight distribution in pounds with water and manufacturer mounted equipment, front and rear
- Engine make, model, serial number, rated horsepower, rated speed and governed speed
- Type of fuels and fuel tank capacity
- Electrical system voltage and alternator output in amps.
- Battery make, model and total capacity in cold crank amps (CCA)
- Transmission make, model, and serial number. If so equipped chassis transmission PTO(s) make, model and gear ratio
- Pump make, model, rated capacity in gallons per minute (liters per minute where applicable) and serial number
- Pump transmission make, model, serial number and gear ratio
- Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable) and serial number
- Water tank certified capacity in gallons or liters
- Paint manufacturer and paint number(s)
- Company name and signature of responsible company representative
- Certification of slip resistance of all stepping, standing and walking surfaces.

If the apparatus has a fire pump or an industrial supply pump, the pump manufacturer's certification of suction capability.

If the apparatus has a fire pump or an industrial supply pump, a copy of the apparatus manufacturer's approval for stationary pumping applications.

If the apparatus has a fire pump or an industrial supply pump, the engine manufacturers certified brake horsepower curve for the engine furnished, showing the maximum governed speed.

If the apparatus has a fire pump or an industrial supply pump, the pump manufacturers certification of hydrostatic test.

If the apparatus has a fire pump or an industrial supply pump, the third party certification of inspection and test for the fire pump (if applicable).

If the apparatus has an aerial device the third party certification of inspection and test for the aerial device.

If the apparatus has an aerial device, all the technical information required for inspections to comply with NFPA 1911, Standards for Testing Fire Department Aerial Devices.

If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source (if applicable).

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

Weight documents from certified scale - showing actual loading on the front axle, rear axle(s) and overall

vehicle (with the water tank full but without personnel, equipment and hose) shall be supplied with the complete vehicle to determine compliance with NFPA-1900.

Written load analysis and results of electrical performance tests.

If the apparatus is equipped with a water tank, the certification of water tank capacity by the tank manufacturer.

FMVSS REQUIREMENT

QTY: 1

The chassis shall be certified by the apparatus manufacturer as conforming to all applicable Federal Motor Vehicle Safety Standards in effect at the date of contract.

This shall be attested to by the attachment of a FMVSS certification label on the vehicle by the contractor who shall be recognized as the responsible final manufacturer.

RECORDS

QTY: 1

The successful bidder shall be responsible for preparing and maintaining a record file of parts and assemblies used to manufacture the apparatus.

These records shall be maintained in the factory of the bidder for a minimum of twenty (20) years.

File shall contain copies of any and all reported deficiencies, all replacement parts required to maintain the apparatus, and original purchase documents including specifications, contract, invoices, incomplete chassis certificates, quality control reports and final delivery acceptance documents.

The {Company} shall have access to any and all documents contained in this file upon official written request.

GENERAL CONSTRUCTION

QTY: 1

The complete apparatus, assemblies, subassemblies, component parts, etc., shall be designed and constructed with the due consideration to the nature and distribution of the load to be sustained and to the general character of the service to which the apparatus is to be subject.

All parts of the apparatus shall be designed with a factor of safety, which is equal to or greater than that which is considered standard and acceptable for this class of equipment in fire fighting service.

All parts of the apparatus shall be strong enough to withstand general service under full load.

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

Bidder's specifications must meet minimum requirements of N.F.P.A. Pamphlet #1901 and all State and Federal Department of Transportation vehicle regulations at time of sale of unit.

The apparatus shall be designed and constructed, and the equipment so mounted, with due consideration to distribution of the load between front and rear axles that all specified equipment, including a full complement of specified ground ladders, full water tank, loose equipment, and firefighters shall be carried without overloading or injuring the apparatus.

PRODUCT LIABILITY

QTY: 1

Each bidder shall supply proof of product liability and facility insurance equal to or exceeding $30,000,000.00.

This shall be provided as part of the proposal. There will be no exceptions.

CODE & CONFORMANCE - AERIAL

QTY: 1

The aerial ladder shall be designed to conform to the intent of NFPA 1901 Standard for Automotive Fire Apparatus.

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

- American Society for Testing and Materials (ASTM) A-36 Specification for Structural Steel
- Society of Automotive Engineers, Inc. (SAE) SAE Hand-book American Welding Society (AWS)
- AWS014.4-77 Classification and Application of Welded Joints for Machinery and Equipment
- American Society of Non-Destructive Testing (ASNT) ASNT Guidelines; Procedure SNT-TC-1 A.

The aerial device shall be designed, fabricated, and tested in accordance with these codes and specifications.

PAINT CERTIFICATION

QTY: 1

The finish paint shall be certified by the apparatus manufacturer as conforming to all applicable Commercial Vehicle Paint Standards in effect at the date of contract.

This shall be attested to by the attachment of a PPG certification.

PRICES & PAYMENTS

QTY: 1

The bid price will be F.O.B. Destination, on a delivered and accepted basis at the Fire Department.
Total price on KME's proposal sheet will include all items listed in these specifications.
KME has computed pricing less federal and state taxes. It is understood that any applicable taxes will be added to the proposed prices, unless the purchaser furnishes appropriate tax-exempt forms.

INSTRUCTION MANUALS - TWO (2) SETS - USB

QTY: 1

In accordance with standard commercial practices, applicable to each vehicle (including body and special equipment) furnished under the contract, the following listed manuals and schematics, in the quantity specified, shall be provided at time of delivery of each vehicle.

The contractor shall supply at time of delivery, two (2) USB copies of a complete operation and service manual covering the complete apparatus as delivered and accepted.

The manual shall contain the following:

- Descriptions, specifications, and ratings of chassis, pump (if applicable), and aerial device
- Wiring diagrams
- Lubrication charts
- Operating instructions for the chassis, any major components such as a pump and any auxiliary systems
- Instructions regarding the frequency and procedures recommended for maintenance

- Parts replacement information

VEHICLE TRANSPORTATION - KME PROVIDED

QTY: 1

Transportation of the completed vehicle from the final manufacturing facility to the end user shall be provided by the manufacturer.

!!! CRITICAL OVERALL HEIGHT REQUIREMENT !!! - "YES - 136"

QTY: 1

This vehicle has a critical overall height restriction requirement due to fire station door height or obstruction within the fire department/district.

Maximum overall height of vehicle in the unloaded configuration cannot exceed: _____" (inches).

!!! CRITICAL OVERALL LENGTH REQUIREMENT !!! - "NO

QTY: 1

NFPA CERTIFICATION

QTY: 1

The proposed apparatus will be constructed to withstand the severe and continuous use encountered during emergency fire fighting services.

The apparatus will be of the latest type, carefully designed and constructed with due consideration to the nature and distribution of the load to be sustained.

This proposal details the general design criteria of cab and chassis components, aerial device (if applicable), fire pump and related components (if applicable), water tank (if applicable), fire body, electrical components, painting, and equipment.

All items of these proposal specifications will conform to the fullest extent possible with the National Fire Protection Association Pamphlet No. 1900, latest edition, except as noted in the Statement-of-Exceptions.

KME will furnish satisfactory evidence of our ability to construct, supply service parts and technical assistance for the apparatus specified.

GENERAL INFORMATION - NFPA 1900

QTY: 1

The proposed apparatus will be constructed to withstand the severe and continuous use encountered during emergency fire fighting services. The apparatus will be of the latest type, carefully designed and constructed with due consideration to the nature and distribution of the load to be sustained.

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KME will furnish satisfactory evidence of our ability to construct, supply service parts and technical assistance for the apparatus specified.

NFPA TREADPLATE CERTIFICATION

QTY: 1

All stepping, standing, and walking surfaces on the body shall meet NFPA 1900 anti-slip standards.

Aluminum tread plate utilized for stepping, standing, and walking surfaces shall be NFPA embossed compliant.

Upon request by the purchaser, the manufacturer shall supply proof of compliance with this requirement.

VERTICAL TREAD PLATE - NON-EMBOSSED

QTY: 1

The following vertical surfaces on the vehicle (if applicable) shall have non-embossed tread plate:

To include but not limited to:
- Rear of cab overlay
- Rear body overlay
- Front of body overlay
- Front pump house panel
- Custom cab step well
- Fender overlay
- Fender compartment doors
- Interior cab trim
- Upper body walkway walls
- Rescue body interior (walk-In/walk through)

NFPA-AERIAL APPARATUS

QTY: 1

The unit shall be designed to conform fully to the "Aerial Fire Apparatus" requirements as stated in the NFPA 1900 Standard (2024 Revision), which shall include the following required chapters as stated in this revision:

- Chapter 1 Administration
- Chapter 2 Referenced Publications
- Chapter 3 Definitions
- Chapter 4 General Requirements
- Chapter 8 Aerial Fire Apparatus
- Chapter 12 Chassis and Vehicle Components
- Chapter 13 Low Voltage Electrical Systems and Warning Devices
- Chapter 14 Driving and Crew Areas
- Chapter 15 Body, Compartments and Equipment Mounting
- Chapter 19 Aerial Devices

NFPA "CHAPTER 16" FIRE PUMP REQUIREMENTS

QTY: 1

Chapter 16 Fire Pump and Associated Equipment

NFPA "CHAPTER 18" WATER TANKS REQUIREMENTS

QTY: 1

Chapter 18 Water Tanks

NFPA "CHAPTER 22" 110 VOLT SYSTEM REQUIREMENTS

QTY: 1

Chapter 22 Line Voltage Electrical Systems

120/240 VOLT ELECTRICAL SYSTEM TESTING

QTY: 1

All line voltage wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900 volts for one minute. The test shall be conducted between live parts and the neutral conductor and between live parts and the vehicle frame with any switches in the circuits closed. The test shall be conducted after all bodywork has been completed. The dielectric tester shall have a minimum 500 VA transformer with a sinusoidal output voltage that can be verified.

Electrical polarity verification shall be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

The apparatus manufacturer shall perform the following operation test and shall certify that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order.

The generator shall be started from a cold start condition and the line voltage electrical system shall be loaded to 100 percent of the nameplate voltage rating.

The following items shall be monitored and documented every 15 minutes:

- The cranking time until the generator starts and runs.
- The voltage, frequency, and amperes at continuous full rated load.
- The generator oil pressure, water temperature, transmission temperature, hydraulic temperature, and the battery rate charge, as applicable.
- The ambient temperature and altitude.

The generator shall operate at 100 percent of its nameplate wattage for a minimum of two (2) hours.

UL LINE VOLTAGE TESTING

QTY: 1

When the unit successfully meets all the requirements outlined in NFPA 1901, 2016 Edition, third party inspectors shall issue a Certificate of Automotive Fire Apparatus Examination and Test stating the unit's compliance with the required line voltage section of NFPA.

THIRD PARTY TESTING-AERIAL

QTY: 1

The proposed unit will be tested and certified for KME Fire Apparatus by third party inspectors.

All test work for fire pumps outlined in NFPA 1900, current edition will be conducted.

All work outlined in NFPA 1910, current Edition, including nondestructive testing, will be conducted at the manufacturer's facility. In addition, the following test work outlined in Section 19, Certification Tests, of NFPA 1900 will be conducted:

1-1/2 Times Rated Capacity on Level Ground Stability Test: A load of 1-1/2 times rated capacity (as specified by the manufacturer) will be suspended from the tip of the aerial ladder, or the platform of the elevating platform, when it is in the position of least stability. If the manufacturer specifies a rated capacity while flowing water, then one times the water load and the worst case nozzle reaction will be added to the stability test weights. The apparatus will show no signs of instability. For a water tower, the stability test includes 1-1/2 times the weight of the water in the system and 1-1/2 times the maximum nozzle reaction force when it is in the position of least stability.

1-1/3 Times Rated Capacity on a 5 degree Slope Stability Test: A load of 1-1/3 times rated capacity will be suspended from the tip of the aerial ladder, the platform of the elevating platform, or the tip of the water tower when it is in the position of least stability. The apparatus will show no signs of instability.

Aerial Device Water System Tests: A friction loss test will be conducted for an aerial device equipped with a permanent water system and has a rated vertical height of 110 ft. or less. The standard model flow test results will be provided to the manufacturer. If the water system has been modified from the standard model configuration, a new flow test will be conducted to determine that the friction loss in the water system between the base of the swivel and the monitor outlet does not exceed 100 psi with 1000 gpm flowing and the water system at full extension.

A maximum vertical height flow test will be conducted to determine that the water system is capable of flowing 1000 gpm at 100 psi nozzle pressure with the aerial device at full elevation and extension.

If the apparatus is equipped with a fire pump designed to supply the water system, the test will be conducted using the onboard fire pump.

The intake pressure to the fire pump will not exceed 20 psi.

The third party inspector provides the manufacturer a complete written Examination and Test Report for each aerial device inspection performed at the manufacturer's facility.

This report specifies the points of inspection and results of such examinations and tests.

The test report, as required by NFPA 1911, will include the following test results:

Torque verification of all mounting bolts including bolt size, grade, and torque specification.

The following NDT methods and results will be recorded:

All ferrous welds will be magnetic particle inspected for defects.

All nonferrous welds will be visually inspected, and if questionable defects are identified, a penetrating dye will be used to further evaluate the quality of the weld.

All bolts and pins will be ultrasonically inspected for internal flaws.

The following measurements will be taken and recorded in the examination and test record:

Bearing clearance and backlash, elevation cylinder drift, engine speed operating rpm, relief pressure, stabilizer extension cylinder drift, ladder section twist, hardness readings, base rail thickness, winch drift, extension brake drift, and extension cylinder drift.

The inspectors performing the test work on the units are certified to Level II in the required NDT methods, under the requirements outlined in ASNT document CP-189.

The actual person(s) performing the inspection will present for review proof of Level II Certification in the required NDT methods.

KME will designate, in writing, who is qualified to witness and certify these test results.

Prior to submittal to the automotive fire apparatus manufacturer, the final Report will be reviewed by the Supervisor of Fire Equipment Services and a Registered Professional Engineer, both of whom are directly involved with the aerial device certification program.

When the unit successfully meets all the requirements outlined in NFPA 1900, 2016 Edition, the third party inspector will issue a Certificate of Automotive Fire Apparatus Examination and Test stating the units compliance with NFPA-1900.

PREDATOR SINGLE AXLE CHASSIS

QTY: 1

Specification

MODEL

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

MODEL YEAR

The chassis shall have a vehicle identification number that reflects a 2027 model year. **COUNTRY OF SERVICE**

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

CAB AND CHASSIS LABELING LANGUAGE

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

APPARATUS TYPE

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

AERIAL HYDRAULIC GENERATOR

Chassis shall include aerial provisions for a chassis PTO driven hydraulic pump piggy-backed for aerial device hydraulics and 120VAC hydraulic generator.

VEHICLE TYPE

The chassis shall be manufactured for use as a tractor type vehicle, designed to accept a trailer though the use of a fifth wheel hitch. The trailer shall be supplied and installed by the apparatus manufacturer.

VEHICLE ANGLE OF APPROACH PACKAGE

The angle of approach of the apparatus shall be a minimum of 8.00 degrees.
NFPA1901 Angle of Approach definition:

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

AXLE CONFIGURATION

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

GROSS AXLE WEIGHT RATINGS FRONT

The front gross axle weight rating (GAWR) of the chassis shall be 22,800 pounds.
This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

GROSS AXLE WEIGHT RATINGS REAR

The rear gross axle weight rating (GAWR) of the chassis shall be 31,000 pounds.
This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

GROSS COMBINATION WEIGHT RATING

The gross combination weight rating (GCWR) shall be 76,600 lbs. The sum of the gross weight of the vehicle and the gross weight of the trailer intended to be towed shall not exceed this rating.

PUMP PROVISION

The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location. Chassis driveline pump provisions shall include an interlock feature for automatic setting of the park brake when the vehicle is shifted into pump mode while the transmission is in neutral and the transmission output speed translates to less than 1 mph. When the conditions are met the driver side parking brake valve shall activate. Once shifted to road mode the condition for electric automatic brake engagement is no longer present and the driver's parking brake control valve shall function normally.

WATER FOAM TANK CAPACITY

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

WARRANTY

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

CAB STYLE

The cab shall be a custom, fully enclosed, EMFD model with a 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to eight (8) seating positions.
The cab shall incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side wall panels shall be assembled using a combination of welds and proven industrial adhesives designed specifically for aluminum fabrication for construction.
The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.
All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention.
The cab shall be constructed of 5052-H32 corrosion resistant aluminum plate. The cab shall incorporate tongue and groove fitted 6061-T6 0.13 & 0.19 inch thick aluminum extrusions for extreme duty situations. A single formed, one (1) piece extrusion shall be used for the "A" pillar, adding strength and rigidity to the cab as well as additional roll-over protection. The cab side walls and lower roof skin shall be 0.13 inch thick; the rear wall and raised roof skins shall be 0.09 inch thick; the front cab structure shall be 0.19 inch thick.
The exterior width of the cab shall be 99.40 inches wide with a minimum interior width of 91.00 inches. The overall cab length shall be 137.10 inches with 60.00 inches from the centerline of the front of the axle to the back of the cab.

The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for ease of movement inside the cab.
The cab shall offer an interior height of 57.50 inches from the front floor to the headliner and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 55.88 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.
The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The front doors shall offer a clear opening of 40.25 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The cab shall also include a crew area with up

to two (2) cab doors, also large enough for personnel in full firefighting gear. The rear doors shall offer a clear opening of 32.25 inches wide X 61.00 inches high, from the cab floor to the top of the door opening.
The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.
The first step for the driver and officer area shall measure approximately 11.50 inches deep X 31.13 inches wide. The intermediate step shall measure approximately 8.50 inches deep X 32.50 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.
The first step for the crew area shall measure approximately 11.50 inches deep X 20.44 inches wide. The intermediate step shall measure approximately 10.25 inches deep X 22.75 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.80 inches.

OCCUPANT PROTECTION

An IMMI 4Front® occupant protection system shall be installed in the vehicle's cab. The system shall inflate up to three (3) air bags in the following locations as applicable by customer specification:
- Steering wheel air bag to protect the head and neck of the driver
- Knee bolster air bag to protect the driver's legs
- Knee bolster air bag to protect the officer's legs

The air bags shall use a combination of high-pressure stored argon and oxygen with a pyrotechnic charge for initiation to inflate the bags remain inflated for several seconds.
The system shall be connected to the crash detection sensor that will also activate the driver and first officer integrated belt pretensioners if it detects a frontal crash.
A RollTekTM rollover occupant protection system shall be installed in the apparatus cab. The system shall include an integrated roll sensor (IRS).
The IRS shall be a microprocessor-controlled solid-state sensing device that utilizes vehicle-specific calibrations to detect rollovers. The IRS shall be equipped with pyrotechnic loops for connection to the protective countermeasures which shall include seat integrated side roll airbags (SRA), integrated seat belt pretensioners, and air seat pull-downs (S4S), in applicable occupant seat positions.
The IRS shall continuously monitor the truck`s acceleration and angle, and upon detection of an imminent roll-over, shall activate protective countermeasures in a pre-programmed sequence. In addition, the IRS shall also act as a data recorder to record crash events for post-crash evaluation.

CAB FRONT FASCIA

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

The cab fascia will encompass the entire front of the aluminum cab structure from the bottom of the windshield to the bottom of the cab and shall be the "Classic" design.
The front cab fascia shall include two (2) modules on each side accommodating a total of up to four (4) Hi/Low beam headlights and two (2) turn signal lights or up to four (4) warning lights. Two (2) chrome plated bezels shall be provided on each side around each set of two lamps.

FRONT GRILLE

The front cab fascia shall include a Kovatch Mobile Equipment (KME) specific style, 304 stainless steel front grille. The grille shall be adorned with a waving American flag graphic.

CAB UNDERCOAT

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

CAB SIDE DRIP RAIL

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

CAB PAINT EXTERIOR

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

CAB PAINT PROCESS/MANUFACTURER

The cab shall be painted with PPG Industries paint prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum in corrosion protection of all metal surfaces.
All metal surfaces on the cab shall be mechanically etched by sanding disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once all imperfections on the exterior surfaces are removed and sanded smooth, body fillers shall be applied to the cab on all surfaces that require a critically aesthetic finish and sanded smooth.
The entire cab shall then be coated with a high quality base primer that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be sanding the cab to a smooth finish followed by sealing the seams with an automotive seam sealer. The minimum thickness of the primer coat after sanding shall be 2.50 mils with a maximum thickness of 5.00 mils.
The cab shall then be painted the specific color(s) designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on an emergency scene. The paint shall have a minimum thickness of 1.00 mils with a maximum of 4 mills, followed by a clear top coat with a minimum of 2.5 mils and a maximum of 3.5 mils. The entire cab shall then be baked to speed the curing process of the coatings.

CAB PAINT PRIMARY/LOWER COLOR

The primary/lower paint color shall be:

CAB PAINT SECONDARY/UPPER COLOR

The secondary/upper paint color shall be:

CAB PAINT EXTERIOR BREAKLINE

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

CAB PAINT PINSTRIPE

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

CAB PAINT WARRANTY

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

CAB PAINT INTERIOR

The visible interior cab structure surfaces shall be painted with a multi-tone silver gray texture finish. **CAB ENTRY DOORS**

The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors shall be constructed of extruded aluminum with a nominal thickness of 0.13 inch. The exterior skins shall be constructed of 0.13 inch aluminum plate. The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit.
All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge shall be piano style with a 0.38 inch pin and shall be constructed of stainless steel. **CAB ENTRY DOOR TYPE**

All cab entry doors shall be full length in design to fully enclose the lower cab steps. Entry doors shall

include Pollak mechanical plunger style switches for electrical component activation.

CAB INSULATION

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

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

LH MID EMS EXTERIOR ACCESS

The cab shall include a hinged box pan door featuring a full length stainless steel piano style hinge and a DA sanded aluminum inner panel located in the middle of the wall above the left side wheel well. The compartment shall have a clear door opening of 17.00 inches wide X 24.00 inches. The exterior 19.36 inches wide X 26.19 inches high door shall include an overlapping door seal to allow the 17.00 inch wide clear opening. A gas strut shall be located in the upper portion of the door to hold open in service.

LH MID EMS COMPARTMENT INTERIOR

The cab compartment located in the middle of the wall above the left side wheel well shall include solid aluminum walls with no interior access. This compartment shall be finished to customer specification.

LH MID EMS COMPARTMENT INTERIOR SHELVING

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

LH MID EMS COMPARTMENT DOOR HARDWARE

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

RH MID EMS COMPARTMENT

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

RH MID EMS EXTERIOR ACCESS

The cab shall include a hinged box pan door featuring a full length stainless steel piano style hinge and a DA sanded aluminum inner panel located in the middle of the wall above the right side wheel well. The compartment shall have a clear door opening of 17.00 inches wide X 24.00 inches high. The exterior 19.36 inches wide X 26.19 inches high door shall include an overlapping door seal to allow the 17.00 inch wide clear opening. A gas strut shall be located in the upper portion of the door to hold open in service.

RH MID EMS COMPARTMENT INTERIOR

The cab compartment located in the middle of the wall above the right side wheel well shall include solid aluminum walls with no interior access. This compartment shall be finished to customer specification.

RH MID EMS COMPARTMENT INTERIOR SHELVING

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

RH MID EMS COMPARTMENT DOOR HARDWARE

The right side EMS compartment door shall include a bent D-ring slam latch. There shall be a switch to activate the open compartment warning light in the cab in the event the door is left ajar.

MID EMS COMPARTMENT LIGHTING

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

MID EMS COMPARTMENT EXTERIOR FINISH

The mid EMS compartment surfaces that are exposed to the interior of the cab shall be painted with a

multi-tone silver gray texture finish.

MID EMS COMPARTMENT INTERIOR FINISH

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

CAB STRUCTURAL WARRANTY

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

CAB TEST INFORMATION

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

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

ELECTRICAL SYSTEM

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

OEM WIRING

A custom wiring interface and harness shall be provided and designed to meet the requirements provided by the OEM for a tractor drawn aerial (TDA). This shall include the following circuits/features:

1. A Jackknife Alarm shall be provided and located behind the left-hand rocker switch panel. The input for jackknife alarm activation shall be provided and programmed by the OEM through the body control system.
2. A Jackknife LED indicator lamp shall be provided and installed in the driver’s left-hand rocker switch panel and labeled “Jackknife Approaching”. The jackknife indicator lamp shall activate with jackknife alarm activation.
3. A “1, 2, 3” Alarm for “Stop, Go, Backup” shall be provided and located on the driver’s side behind the left-hand rocker switch panel. The input for the “1, 2, 3” alarm activation shall be provided and programmed by the OEM through the body control system.
4. A “No Tiller Operator" Alarm shall be provided and located behind the left-hand rocker switch panel. The input for “No Tiller Operator" Alarm activation shall be provided and programmed by the OEM through the body control system.
5. A “No Tiller Operator" LED indicator lamp shall be provided and installed in the driver’s left-hand rocker switch panel and labeled “No Tiller Operator". The “No Tiller Operator" indicator lamp shall activate with “No Tiller Operator" Alarm activation.
6. A TDA Transmission Shift Inhibit circuit shall be provided to prevent the transmission from shifting from neutral

into gear if certain requirements are not met by the TDA apparatus. The input for activation of the TDA transmission shift inhibit interlock shall be provided and programmed by the OEM through the body control system. A TDA Transmission Shift Inhibit Override guarded momentary toggle switch shall be provided and installed behind the left-hand rocker switch panel. The switch shall override the TDA transmission shift inhibit interlock and allow transmission to shift from neutral into gear. The switch shall be mounted on a bracket and labeled “TDA Shift Inhibit Override”.

TRAILER ELECTRICAL CONNECTION

A seven (7) pin round electrical trailer electrical connection shall be provided with the chassis. The wiring shall include a ground wire which shall be in the white cavity; wiring for marker lights which shall be black; left turn signal wiring which

shall be yellow, wiring for stop lights which shall be red; right turn signal wiring which shall be green, additional marker
lights which shall be brown and ABS brake power which shall be in the blue cavity.

APPARATUS WIRING PROVISION

An apparatus wiring panel shall be installed in the center dash area behind the rocker switch panel which shall include eight (8) open circuits consisting of three (3) 20 amp, one (1) 25 amp, three (3) 10 amp, and one (1) 15 amp circuit, with relays and breakers with trigger wires which shall be routed to the rocker switch panel.

MULTIPLEX DISPLAY

The multiplex electrical system shall include an UltraView 780 display with an interactive touchscreen display and fourteen (14) tactile push buttons. The display shall be located on the left side of the dash in the switch panel. The display shall feature a full color 7.00 inch LCD display screen which shall include a message bar displaying the time of day and important messages requiring acknowledgement by the user. The display screen shall be video ready for back-up cameras, thermal cameras, and 360 camera systems.

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

LOAD MANAGEMENT SYSTEM

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

DATA RECORDING SYSTEM

The chassis shall have a Weldon Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1900 and shall be integrated with the Weldon Multiplex electrical system. The following information shall be recorded:

1. Vehicle Speed
2. Acceleration
3. Deceleration
4. Engine Speed
5. Engine Throttle Position
6. ABS Event
7. Seat Occupied Status
8. Seat Belt Status
9. Master Optical Warning Device Switch Position
10. Time
11. Date

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1900 guidelines and shall be retrievable by connecting a laptop computer to the VDR system. The laptop connection shall be a panel mounted female type B USB connection point, remotely mounted in the left side foot well.

ACCESSORY POWER

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

The Master power distribution box (MPD) shall include five (5) fuses. The battery direct bus bar shall include one (1) 300-amp fuse labeled E-PUMP and one (1) 300-amp fuse labeled PUMP PRIMER. The master power bus bar shall include one

(1) 200-amp fuse labeled PUMP MASTER, one (1) 300-amp fuse labeled BODY MASTER, and one (1) 300-amp fuse
labeled AERIAL MASTER. Each bus bar stud is size 5/16”.

EXTERIOR ELECTRICAL TERMINAL COATING

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

ELECTRICAL SYSTEM WARRANTY

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

ENGINE

The chassis engine shall be a Cummins heavy heavy duty (HHD) certified X15 engine. The X15 engine shall be an in-line six (6) cylinder, four-cycle diesel-powered engine. The engine shall offer a rating of 605 horsepower at 1800 RPM and shall be governed at 2100 RPM. The torque rating shall feature 1850-foot pounds of torque at 1000 RPM with 912 cubic inches (14.9 liter) of displacement.

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

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

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

CAB ENGINE TUNNEL

The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade 0.19 of an inch thick aluminum alloy plate. The tunnel shall be a maximum of 46.50 inches wide X 29.00 inches high.

DIESEL PARTICULATE FILTER CONTROLS

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

ENGINE PROGRAMMING HIGH IDLE SPEED

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

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with an automatic high-idle speed control which shall be pre-set to operate the engine at a specified RPM to increase alternator output if the system voltage drops to 12.5 volts. This device shall automatically operate only when the engine is running, the transmission is in neutral, and with the parking brake set. The automatic high idle will stay engaged for a minimum of ten (10) minutes and until the system, voltage has reached 13.0 volts. Application of the service brake will override the automatic high idle and reset timer. The vehicle shall be equipped with a high-idle speed virtual button on the vehicle display and control screen to activate/deactivate manual control only. It shall be pre-set so when activated, it will operate the engine at the specified RPM to increase alternator output. This device shall operate only when the engine is running, the transmission is in neutral, and with the parking brake set. When automatically engaged the high

idle shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake pedal is released, or when the transmission is placed in neutral. Virtual control screen shall not override automatic high idle between voltage parameters during timed cycle. Display shall indicate when high idle is disabled, enabled, or active.

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

The engine shall include programming which will govern the top speed of the vehicle. **AUXILIARY ENGINE BRAKE**

A compression brake, for the six (6) cylinder engine shall be provided. A cutout relay shall be installed to disable the compression brake when in pump mode or when an ABS event occurs. The engine

compression brake shall activate upon 0% accelerator when in operation mode and actuate the vehicle's brake lights.
The engine shall utilize a variable geometry turbo (VGT) as an integrated auxiliary engine brake to offer a variable rate of exhaust flow, which when activated in conjunction with the compression brake shall enhance the engine's compression braking capabilities.

AUXILIARY ENGINE BRAKE CONTROL

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

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

The compression brake shall be controlled via an off/low/high virtual button through the vehicle display and control screen. The system shall remember and default to the last engine brake control setting when the vehicle is shut off and re-started.

FLUID FILLS

The engine oil, coolant, transmission, and power steering fluid fills shall be located under the cab. The engine tunnel shall include an access door to allow for engine oil and power steering fluid visual checks. The windshield washer fill shall be accessible through the front left side mid step.

ENGINE DRAIN PLUG

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

ENGINE WARRANTY

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

REMOTE THROTTLE HARNESS

An apparatus interface wiring harness for the engine and transmission pump interlocks shall be supplied with the chassis. The harness shall include a connector for connection to a chassis pump panel harness supplied by the body builder and shall terminate in the left frame rail behind the cab for connection by the body builder. The harness shall include circuits deemed for a pump panel and shall contain circuits for a hand throttle, and a multiplexed gauge. Separate circuits shall also be included for a pump control

switch, "Pump Engaged" and "OK to Pump" indicator lights, open compartment ground, start signal, park brake ground, ignition signal, master power, clean power, customer ignition, air horn solenoid switch, high idle switch and high idle indicator light. The harness shall contain interlocks that will prevent shifting to road or pump mode unless the transmission output speed translates to less than 1 mph and the transmission is in neutral. The shift to pump mode shall also require the park brake be set. **ENGINE PROGRAMMING REMOTE THROTTLE**

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

ENGINE PROGRAMMING IDLE SPEED

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

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator. This ember separator shall be designed to protect the downstream air filter from embers using a combination of unique flat and crimped metal screens packaged in a heavy duty galvanized steel frame. This multilayered screen shall trap embers and allow them to burn out before passing through the pack.
The engine air intake system shall also include an air cleaner mounted above the radiator. This air cleaner shall utilize a replaceable dry type filter element designed to prevent dust and debris from being ingested into the engine. A service cover shall be provided on the housing, reducing the chance of contaminating the air intake system during air filter service.

The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement. **ENGINE FAN DRIVE**
The engine cooling system fan shall incorporate a thermostatically controlled, Horton fully variable type fan drive with SmartClutch J-1939 CAN controller.
The variable speed fan clutch only engages at the amount needed for proper cooling to facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail-safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure. The fan speed shall include a J-1939 CAN clutch controller to receive signal from the engine control module to activate at variable rates of speed. Variable speeds shall be set through thermostatic and engine speed signals to run as efficiently and quietly as required to maintain temperature.

ENGINE COOLING SYSTEM

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

The cooling system shall be comprised of a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components shall include a surge tank, a charge air cooler bolted to the front of the radiator, recirculation shields, a shroud, a fan, and required tubing.
The radiator shall be a down-flow design constructed with aluminum cores, plastic end tanks, and a steel frame. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.
The cooling system shall include a one piece injected molded polymer fan with a three (3) piece fiberglass fan shroud.
The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and rearward oriented sight glass to observe coolant in the system. A cold fill and observation line shall be included within the frame mounted translucent recovery bottle to monitor the level of the coolant. The surge tank shall have a dual seal cap that meets the engine manufacturer's pressure requirements and allows for expansion and recovery of coolant into a separate integral expansion chamber.
All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance.
The charge air cooler shall be a cross-flow design constructed completely of aluminum with cast tanks. All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel “constant torque” style clamps meeting the engine manufacturer's requirements.
The radiator and charge air cooler shall be removable through the bottom of the chassis. **ENGINE COOLING SYSTEM PROTECTION**
The engine cooling system shall include a recirculation shield designed to act as a light duty skid plate below the radiator to provide additional protection for the engine cooling system from light impacts, stones, and road debris. The skid plate shall be painted to match the frame components.

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees Fahrenheit.
Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.

ELECTRONIC COOLANT LEVEL INDICATOR

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

COOLANT HOSES

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

ENGINE EXHAUST SYSTEM

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

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

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

The exhaust system shall be mounted under the frame with the DPF and the SCR canisters mounted horizontally and stacked with the SCR below the DPF in a switchback configuration.

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

DIESEL EXHAUST FLUID TANK

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

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

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

ENGINE EXHAUST ACCESSORIES

The exhaust system shall be modified to accept a Plymovent exhaust extraction system collar. **ENGINE EXHAUST WRAP**

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

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

EMISSIONS SYSTEMS WARRANTY

Purchaser shall receive a Regulated Emissions Systems ten (10) years, or 450,000 miles, or 22,000 engine hours limited warranty for heavy heavy-duty engines in accordance with, and subject to,

warranty certificate RFW0144. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

REGULATED EMISSIONS WARRANTY TIRES

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

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

TRANSMISSION

The drive train shall include an Allison model EVS 4500 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

The transmission shall include two (2) internal oil filters which shall offer Allison formulated Castrol TranSyndTM synthetic transmission fluid which shall be utilized in the lubrication of the EVS

transmission. An electronic oil level sensor shall be included with the readout located in the shift selector. The transmission gear ratios shall be:	
1st	4.70:1
2nd	2.21:1
3rd	1.53:1
4th	1.00:1
5th	0.76:1
6th	0.67:1 (if applicable)
Rev	5.55:1

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will automatically select a four (4) speed operation. The fifth speed over drive shall be available with the activation of the mode button on the shifting pad. **TRANSMISSION FEATURE PROGRAMMING**

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

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

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

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

TRANSMISSION SHIFT SELECTOR

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

The transmission fluid shall be monitored electronically.

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

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

TRANSMISSION COOLING SYSTEM

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

TRANSMISSION DRAIN PLUG

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

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

LH PTO
A ten (10) bolt standard duty clutched drive PTO shall be provided by the chassis manufacturer and installed on the transmission. Installation shall include mounting of the PTO and wiring the unit with a control switch.

LH PTO MODEL
A ten (10) bolt Chelsea model 281-GGFJP-E5XD heavy duty transmission driven PTO shall be installed. The clutched shifted PTO is designed specifically for the Allison world transmission and provides an intermittent and continuous torque rating of 360 lb. ft.

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

LH PTO CONTROL
The left hand power take off shall be controlled by the transmission. It will use a virtual button on the vehicle display and control screen with text messages. Disable is displayed when switch is off. Enable is displayed when the switch is turned on. Active is displayed when the switch is on with positive engagement of the power take off.
Required operating conditions for enabling this function are:

1. Throttle position is low
2. Engine speed is within customer specified constant limits
3. Transmission output speed is within customer specified constant limits
4. Park brake set

Additionally, an Aerial PTO Override guarded toggle switch shall be provided in the driver's diagnostic panel and labeled "Aerial PTO Override". When activated, the switch will override standard PTO interlocks and supply direct power to the aerial PTO solenoid for emergency activation.

PTO PROGRAMMING
The power take off shall be programmed for operator control such that it shall only engage at or below 900 engine RPM and a transmission output speed of 250 RPM. The PTO shall operate in a range up to 4000 engine RPM or a transmission output speed of 5000 RPM. The PTO programming shall provide for automatic disengagement set at a specified engine speed of 4000 RPM, or transmission output speed of 5000 RPM. The range shall be programmed to protect equipment driven from the power take off.

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

MIDSHIP PUMP / GEARBOX
A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer.

MIDSHIP PUMP / GEARBOX MODEL
The midship pump/gearbox provisions shall be for a Waterous CXSC22 pump.

MIDSHIP PUMP GEARBOX DROP
The Waterous pump gearbox shall have a "C" (medium length) drop length.

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

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

The midship pump shall be located so the dimension from the centerline of the suction to the centerline of the rear axle is 80.00 inches.

PUMP SHIFT CONTROLS

One (1) air pump shift control panel shall be located on the left hand side of the engine tunnel, integrated with the shifter pod. The following shall be provided on the panel: a three (3) position control lever; an engraved PUMP ENGAGED identification light; and an engraved OK TO PUMP identification light. The pump shift control panel shall be black with a yellow border outline and shall include pump instructions. An instruction plate describing the transmission shift selector position used for pumping shall be provided and located so it can be read from the driver's position per NFPA **16.10.1.3**. The road mode shall be selected when the control lever is in the forward position and pump mode shall be selected when the control lever is in the rearward position.
The control lever center position shall exhaust air from both pump and road sides of the pump gear box shift cylinder. **PUMP SHIFT CONTROL PLUMBING**
Air connections shall be provided from the air supply tank to the pump shift control valve and from the pump shift control valve to the frame mounted bracket. The frame mounted bracket shall include labeling identifying the pump and road connection points with threaded 0.25 inch NPT fittings on the solenoid for attaching the customer installed pump. The air supply shall be pressure protected from service brake system.

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Racor GreenMAX 6600R fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve and a see-through cover to allow visual inspection of fuel and filter condition. The Racor 6600R shall meet engine requirements for particulate size, collection capacity, removal efficiency, and water removal efficiency. The filter shall be capable of handling a maximum flow rate of 150 gallons per hour.
A secondary fuel filter shall be included as approved by the engine manufacturer.
An instrument panel lamp and audible alarm which indicates when water is present in the fuel-water separator shall also be included.

FUEL LINES

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

FUEL SHUTOFF VALVE

There shall be two (2) fuel shutoff valves which shall be installed, one (1) in the fuel draw line at the primary fuel filter and one (1) in the fuel outlet line at the primary fuel filter to allow the fuel filters to be changed without loss of fuel to the fuel pump.
A third fuel shutoff valve shall be installed in the fuel draw line, near the fuel tank to allow maintenance to be performed with minimal loss of fuel.

ELECTRIC FUEL PRIMER

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

FUEL COOLER

A fuel cooler shall be provided to lower fuel temperature allowing the vehicle to operate at higher ambient temperatures. The fuel cooler shall include an electrical fan and temperature-controlled relay switch.

FUEL TANK

The fuel tank shall have a capacity of fifty (50) gallons and shall measure 35.00 inches in width X 19.00 inches in height X 18.50 inches in length. The increased height and reduced length allows for the use of a shorter rear frame overhang on the chassis.
The baffled tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.
The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00 inch NPT fill ports for right or left hand fill. A 0.50 inch NPT drain plug shall be centered in the bottom of the tank.
The fuel tank shall be mounted below the frame, behind the rear axle. Two (2) three-piece strap hanger assemblies with "U" straps bolted midway on the fuel tank front and rear shall be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads shall be provided between the tank and the upper tank mounting brackets. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

FUEL TANK MATERIAL AND FINISH

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

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 Method B, results to be 5B minimum. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794, results to be 5B minimum.
Any proposals offering painted fuel tanks with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

FUEL TANK STRAP MATERIAL

The fuel tank straps shall be constructed of #304 stainless steel. The fuel tank straps shall be powder coated black and then painted to match the frame components if possible.

FUEL TANK FILL PORT

The fuel tank fill ports shall be in-line with the left and right side fill ports located in the forward position of the fuel tank.

FUEL TANK DRAIN PLUG

A 0.5 inch NPT magnetic drain plug shall be centered in the bottom of the fuel tank. **FRONT AXLE**
The front axle shall include a Reyco Granning ResponseMaster®, fire apparatus specific independent front suspension (IFS) offering superior ride and improved handling.
The suspension shall utilize fully independent double wishbone arms with carrier and kingpin for optimized scrub radius. Air springs are tuned for ride and help reduce suspension weight. The IFS reduces turn radius with improved wheel cut over beam axles. The hydraulic damper shall feature

rebound control to ensure the maximum load stability and superior driver comfort. The IFS system shall improve handling and offer better braking because of improved ground to tire ratio. This design shall allow for independent adjustment of the vehicle's alignment settings. The IFS shall include an auxiliary transverse leaf spring.
Proposals offering independent front axles comprised of torsion bar style suspensions shall not be considered.

FRONT AXLE WARRANTY

The front axle shall be warranted by Tuthill for three (3) years or 150,000 miles, which ever comes first. Details of the Tuthill warranty are provided on the PDF document attached to this option.

FRONT WHEEL BEARING LUBRICATION

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

FRONT SHOCK ABSORBERS

Two (2) Koni shock absorbers shall be provided and installed as part of the front suspension system. Each shock shall deliver improved road handling and durability.

FRONT SUSPENSION

The chassis shall include an independent front suspension (IFS) system. The known advantages of IFS systems can be improved handling and better braking due to the increase in tire surface to ground contact area. The suspension travel of the IFS shall be approximately 6.50 inches, providing 3.00 inches bounce and 3.50 inches rebound of the suspension. The IFS front axle shall be rated between 22,001 and 24,000 pounds.

STEERING COLUMN/ WHEEL

The cab shall include a Douglas Autotech steering column which shall include a seven (7) position tilt, a 2.25 inch telescopic adjustment, and an 18.00 inch, four (4) spoke steering wheel located at the driver's position. The steering wheel shall be covered with black polyurethane foam padding.
The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

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

POWER STEERING PUMP

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

TILLER STEERING PROVISIONS

The chassis shall include an additional power steering pump which is necessary on a vehicle designed for a tiller application. The pump shall be a three (3) line type with a seven (7) GPM flow control and a 2000 PSI pressure relief valve. The power steering pump shall be a type which is designed to be driven by a PTO. The power steering pump shall be shipped loose with the chassis.

The body manufacturer shall be responsible for the design, installation, plumbing, and validation of the tiller cab steering system.

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 48-degrees to the left and right.
Note: Addition of optional equipment may require cramp angle to be reduced.

POWER STEERING GEAR

The power steering gear shall be a TRW model TAS 85/RCS 85.

CHASSIS ALIGNMENT

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

REAR AXLE

The rear axle shall be a Meritor model RS-30-185 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 33,000 pounds. The axle shall be built of superior construction and quality components to provide the rugged dependability needed to stand up to the fire industry's demands. The axle shall include rectangular shaped, hot-formed housing with a standard wall thickness of 0.56 of an inch for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance.
The axle shall have heavy-duty Hypoid gearing for longer life, greater strength and quieter operation. Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage will be used.

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

REAR AXLE WARRANTY

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

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

VEHICLE TOP SPEED

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

The single rear axle shall feature a Hendrickson FiremaaxTM air suspension. The suspension shall include two optimized air springs mounted to cast structural trailing arms, a transverse cross beam for increased roll stability and two heavy duty shock absorbers. Dual air height control valves shall be

installed to ensure equal frame height on both sides of the vehicle regardless of the load. Axle alignment is maintained using two eccentric bushings at each frame bracket.
The rear suspension capacity shall be rated at 31,000 pounds.

REAR SHOCK ABSORBERS

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

TIRE INTERMITTENT SERVICE RATING

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

FRONT TIRE

The front tires shall be Goodyear 425/65R-22.5 load range L tubeless radial Armor Max MSA mixed service tread.
The front tire stamped load capacity shall be 22,800 pounds per axle with a nominal speed rating of 68 miles per hour when properly inflated to 120 pounds per square inch.

The Goodyear Intermittent Service Rating maximum load capacity shall be 24,400 pounds per axle with a speed rating of 68 miles per hour when properly inflated to 120 pounds per square inch.
The Goodyear Intermittent Service Rating maximum speed capacity shall be 22,800 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.
The Goodyear Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR TIRE

The rear tires shall be Goodyear 315/80R-22.5 20PR "L" tubeless radial G751 MSA mixed service tread.
The rear tire stamped load capacity shall be 33,080 pounds per axle with a nominal speed rating of 68 miles per hour when properly inflated to 130 pounds per square inch.
The Goodyear Intermittent Service Rating maximum load capacity shall match the stamped load rating.
The Goodyear Intermittent Service Rating maximum speed capacity shall be 33,080 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 130 pounds per square inch.
The Goodyear Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR AXLE RATIO

The rear axle ratio shall be 5.38:1.

TIRE PRESSURE INDICATOR

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

FRONT WHEEL

The front wheels shall be Alcoa hub piloted, 22.50 inch X 12.25 inch aluminum wheels. The wheels shall feature Alcoa's Dura-Black® finish technology as an integral part of the wheel surface. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

REAR WHEEL

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

BALANCE WHEELS AND TIRES

All of the wheels and tires, including any spare wheels and tire assemblies, shall include Counteract brand balancing beads.

WHEEL TRIM

The front and rear wheels shall include Alcoa Dura-Black hub and nut covers shipped loose with the chassis for installation by the apparatus builder. The hub and nut covers shall be multi-piece clamp on style that mounts directly to the lug nuts.
Each wheel trim component shall meet D.O.T. certification.

WHEEL GUARDS

The rear dual wheels shall include a plastic isolator approximately 0.04" thick installed between the inner and outer wheel to help prevent corrosion caused by metal to metal contact.

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include, at a minimum, a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a controlled service brake application during the unlikely event of primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification.
The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI.

A four (4) sensor, four (4) modulator Anti-lock Braking System (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on

icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards. Additional safety shall be accommodated through Automatic Traction Control (ATC) which shall be installed on the single rear axle. The ATC system shall apply the ABS when the drive wheels lose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces. The ATC light shall illuminate during excessive wheel slip and ATC is operational.
A virtual button on the vehicle display and control screen shall be provided and properly labeled “mud/snow”. When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature.

FRONT BRAKES

The front brakes shall be Knorr/Bremse SN7 disc brakes with 17.00 inch vented rotors. **REAR BRAKES**
The rear brakes shall be Meritor 16.50 inch X 8.63 inch S-cam drum type. The brakes shall feature a cast iron shoe.

PARK BRAKE

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

SUPPLEMENTAL BRAKE

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

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake.
The parking brake actuation valve shall be mounted to the left side of the engine tunnel integrated into the transmission shift pod console within easy access of the driver.

REAR BRAKE SLACK ADJUSTERS

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

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer with an integral 100 watt heater with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes

the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be located on the right hand frame rail forward of the front wheel behind the right hand cab step.

FRONT BRAKE CHAMBERS

The front brakes shall be provided with type 24 brake chambers as supplied with the independent front suspension axle.

REAR BRAKE CHAMBERS

The rear axle shall include TSE 30/36 brake chambers which shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake shoes against the brake drum. The TSE Type 36 brake chamber has a 36.00 square inch effective area.

AIR COMPRESSOR

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

AIR GOVERNOR

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

AUXILIARY AIR RESERVOIR

One (1) auxiliary air reservoir with a 1200 cubic inch capacity shall be installed on the chassis to act as an additional reserve supply to the air system for air horn, air tool, or other non-service brake use. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

MOISTURE EJECTORS

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

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

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

Note: The IR-2 valve shall include push to connect fittings.

AIR INLET CONNECTION

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

AIR INLET LOCATION

The air inlet shall be installed in the left hand side middle front step in the forward position. **AIR INLET SHUTOFF VALVE**

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

AIR INLET/ OUTLET FITTING TYPE

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

TRACTOR DRAWN AIR BRAKE CONNECTION PACKAGE

Tractor shall include air brake connection package for a tiller. The tiller air brake connection shall be accomplished via tractor connection points provided at the rear of the chassis. The connections shall terminate at the rear cross member and shall be temporarily plugged for final installation by the OEM. Chassis connection shall include trailer Anti-lock Braking System (ABS) light within the driver instrumentation.

REAR AIR TANK MOUNTING

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

FIFTH WHEEL

The tractor frame shall include frame drillings for a customer installed fifth wheel mounting plate.

WHEELBASE

The chassis wheelbase shall be 180.00 inches.

REAR OVERHANG

The chassis rear overhang shall be 45.00 inches.

FRAME

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

psi minimum yield high strength low alloy steel. Each double rail section shall be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100 inch pounds and have a minimum section modulus of 29.21 cubic inches. The frame shall measure 35.00 inches in width.
Proposals calculating the frame strength using the “box method” shall not be considered.
Proposals including heat treated rails shall not be considered. Heat treating frame rails produces rails that are not uniform in their mechanical properties throughout the length of the rail. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail.
A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The cross members shall be attached using zinc coated grade 8 fasteners. The bolt heads shall be flanged type, held

in place by distorted thread flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.
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Any proposals not including additional reinforcement for each cross member shall not be considered.
All relief areas shall be cut in with a minimum 2.00 inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.

FRAME PAINT

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

- Main frame “C” channel or channels

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

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

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

- Suspension components
- Front and rear axles

All powder coatings, primers and paint used on the non-galvanized components shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils.
The chassis under carriage consisting of frame, axles, driveline running gear, air tanks and other assorted chassis mounted components shall then be painted the primary lower cab color. Paint shall be applied prior to airline and electrical wiring installation.

FRAME ASSEMBLY STRUCTURAL

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

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

FRAME COMPONENTS CORROSION

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

FRAME PARTS

An aerial hydraulic PTO support bracket shall be mounted to the frame behind the battery box on the left hand side

FRONT BUMPER

The chassis shall be equipped with a severe duty front bumper constructed from structural steel channel. The bumper material shall be 0.38 thick ASTM A36 steel which shall measure 12.00 inches high with a 3.05 inch flange and shall be 104.50 inches wide with angled front corners.
The bumper shall be primed and painted as specified.

FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended approximately 6.00 inches ahead of the cab. **FRONT BUMPER PAINT**

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

FRONT BUMPER TRIM

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

FRONT BUMPER APRON

The 6.00 inch extended front bumper shall include an apron constructed of 0.19 inch thick embossed aluminum tread plate.
The apron shall be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the top bumper flange.

MECHANICAL SIREN

The front bumper shall include an electro mechanical Federal Q2BTM siren, which shall be streamlined, chrome-plated and shall produce 123 decibels of sound at 10.00 feet. The Q2BTM siren produces a distinctive warning sound that is recognizable at long distances. A unique clutch design provides a longer coast down sound while reducing the amp draw to 100 amps. The siren shall measure 10.50 inches wide X 10.00 inches high X 14.00 inches deep. The siren shall include mounting hardware designed to recess or flush mount.

MECHANICAL SIREN LOCATION

The siren shall be recess mounted in the center on the front fascia of the bumper between the frame rails.

MECHANICAL SIREN ACCESSORIES

The front of the siren shall include (2) stainless steel flat bars approximately 1.00 inch wide by 19.00 inches long. Each bar shall be placed vertically on the right and left side of the siren face wrapping around towards the back of the siren into the bumper extension offering protection to the Q2B siren. **AIR HORN**

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

AIR HORN LOCATION

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

AIR HORN RESERVOIR

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

ELECTRONIC SIREN SPEAKER

There shall be one (1) Federal Signal model BP200-EF, 200 watt speaker provided. The speaker shall measure 5.50 inches tall X 7.70 inches wide X 7.80 inches deep. The speaker shall include a Federal Signal “Electric F” style grille which shall measure 6.61 inches tall X 6.78 inches wide.

ELECTRONIC SIREN SPEAKER LOCATION

The electronic siren speaker shall be located on the front bumper face on the right side outboard of the frame rail in the inboard position.

FRONT BUMPER TOW EYES

The bumper shall include two (2) painted tow eyes which shall be installed below the front bumper. The tow eyes shall be fabricated from 0.75 inch thick #1020 ASTM-36 hot rolled steel. The inside diameter of the eye shall be 2.00 inches and include inside/outside chamfered edges. The tow eyes shall be painted to match the frame components.

CAB TILT SYSTEM

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

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

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

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

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

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

CAB TILT LIMIT SWITCH

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

CAB TILT CONTROL RECEPTACLE

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

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

CAB TILT LOCK DOWN INDICATOR

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

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

CAB WINDSHIELD

The cab windshield shall have a surface area of 2969.88 square inches and be of a two (2) piece wraparound design for maximum visibility.
The glass utilized for the windshield shall include standard automotive tint as well as a shade band along the top of the glass.

Each windshield shall be bonded to the cab using a high strength commercial grade automotive adhesive.

GLASS FRONT DOOR

The front cab doors shall include a window which is 27.00 inches in width X 26.00 inches in height. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished using electric actuation. The left and right front door windows shall be controlled using a switch on each respective side inner door panel. The driver's door shall include a switch for each powered door window in the cab.
There shall be an irregular shaped fixed window which shall measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches in height, more commonly known as "cozy glass" ahead of the front door roll down windows.
The windows shall be mounted within the frame of the front doors trimmed with a black ring on the exterior.

GLASS TINT FRONT DOOR

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

GLASS REAR DOOR RH

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

GLASS TINT REAR DOOR RIGHT HAND

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

GLASS REAR DOOR LH

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

GLASS TINT REAR DOOR LEFT HAND

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

CLIMATE CONTROL

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

The air delivery plenums provide targeted airflow directly to the vehicle occupants. Six (6) adjustable louvers will provide comfort for the front seat occupants and ten (10) adjustable louvers will provide comfort for the rear crew occupants.
The system shall be capable of producing up to 12 FPM of air velocity at all occupant seating positions. Separate front and rear blower motors shall be of brushless design and shall be controlled independently. It shall be capable of reducing the interior cabin air temperature from 122° F (+/- 3° F) to 80° F in thirty minutes with 50% relative humidity and full solar load as described in SAE J2646.
The system shall also provide heater pull up performance which meets or exceeds the performance requirements of SAE J1612 as well as defrost performance that meets or exceeds the performance requirements of SAE J381.

A gravity drain system shall be provided that is capable of evacuating condensate from the vehicle while on a slope of up to a 13% grade in any direction.
The air conditioning system plumbing shall be a mixture of custom bent zinc coated steel fittings and Aeroquip flexible hose with Aeroquip EZ-Clip fittings.
The overhead heater/defroster plumbing shall include an electronic flow control valve that re-directs hot coolant away from the evaporator, via a bypass loop, as the temperature control is moved toward the cold position.
Any component which needs to be accessed to perform system troubleshooting shall be accessible by one person using basic hand tools. Regularly serviced items shall be replaceable by one person using basic hand tools.
The chassis manufacturer recommends that the overall climate system performance be based off third-party testing in accordance with the Society of Automotive Engineering standards as a complete system.
Individual component level BTU ratings is not an accurate indicator of the performance capability of the completed system. System individual component BTU ratings:

1. Air conditioning evaporator total BTU/HR: 82,000
2. Air conditioning condenser total BTU/HR: 59,000
3. Heater coil total BTU/HR: 98,000

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

CLIMATE CONTROL DRAIN

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

CLIMATE CONTROL ACTIVATION

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

HVAC OVERHEAD COVER PAINT

The overhead HVAC cover shall be painted with a multi-tone silver gray texture finish. **AUXILIARY CLIMATE CONTROL REAR CREW**

One (1) 53,500 BTU heater shall be provided and installed in the rear section of the crew cab under the center forward facing seat riser. The fan controls shall be located on the heater unit.
The auxiliary heater system hoses shall be silicone with stainless steel constant torque clamps approved for use with silicone hose. The auxiliary heater system shall include one (1) seasonal shut-off valve. The valve shall be supplied at the front of the right hand corner of the cab. The cab must be tilted to access the shut-off valve.

AUXILIARY A/C CAB CEILING/ROOF

A 110 volt Dometic Penguin II low profile high capacity air conditioning system shall be provided to cool the crew area of the cab. The system shall consist of one (1) 110 volt air conditioning roof mounted unit which shall be located above the crew area and offset left of center on the cab roof above the crew area. The cover of the air conditioning unit shall be painted the upper cab color.

A/C CONDENSER LOCATION

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

A/C COMPRESSOR

The air-conditioning compressor shall be a belt driven, engine mounted compressor. The compressor shall be compatible with R134-a refrigerant.
The chassis manufacturer recommends that the overall climate system performance be based off third-party testing in accordance with the Society of Automotive Engineering standards as a complete system.
Individual component level ratings are not an accurate indicator of the performance capability of the
completed system.
Refrigerant Compressor displacement: 19.1 cubic inches per revolution.

UNDER CAB INSULATION

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

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

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

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

INTERIOR TRIM FLOOR

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

INTERIOR TRIM

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

REAR WALL INTERIOR TRIM

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

HEADER TRIM

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

TRIM CENTER DASH

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

TRIM LH DASH

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

TRIM RH DASH

The right hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate and shall include a glove compartment with a hinged door and a Mobile Data Terminal (MDT) provision. The glove compartment size will measure 14.00 inches wide X 4.50 inches high X 5.88 inches deep. The MDT provision shall be provided above the glove compartment.

ENGINE TUNNEL TRIM

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

The cab engine tunnel shall include a hinged aluminum access hatch with flush latches. The access hatch shall allow access to
the engine compartment to check fluids.

STEP TRIM

Each cab entry door shall include a three step entry. The first step closest to the ground shall be constructed of SAE 304 stainless steel with embossed perforations and diamond shaped cutout. The perforations and cutouts shall allow water and other debris to flow through rather than becoming trapped

within the stepping surface. The stainless steel material shall have a number 8 mirror finish. The lower step shall be mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed in 0.08 inch thick 3003-H22 embossed aluminum tread plate.

UNDER CAB ACCESS DOOR

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

INTERIOR DOOR TRIM

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

DOOR TRIM SCUFF PLATE

The trim along the door shall include a brushed stainless steel scuff plate along the door jamb to prevent the chipping of paint
should the seat belt buckle come in contact with the door jamb.

DOOR TRIM CUSTOMER NAMEPLATE

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

CAB DOOR TRIM REFLECTIVE

The interior of each door shall include high visibility reflective tape. A white reflective tape shall be provided vertically along the outer rear edge of the door.

INTERIOR GRAB HANDLE "A" PILLAR

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

INTERIOR GRAB HANDLE FRONT DOOR

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

INTERIOR GRAB HANDLE REAR DOOR

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

INTERIOR SOFT TRIM COLOR

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

INTERIOR TRIM SUNVISOR

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

INTERIOR FLOOR MAT COLOR

The cab interior floor mat shall be gray in color.

CAB PAINT INTERIOR DOOR TRIM

The inner door panel surfaces shall be painted with multi-tone silver gray texture finish.

HEADER TRIM INTERIOR PAINT

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

TRIM CENTER DASH INTERIOR PAINT

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

TRIM LH DASH INTERIOR PAINT

The left hand dash shall be painted with a multi-tone silver gray texture finish. **TRIM RIGHT HAND DASH INTERIOR PAINT**

The right hand dash shall be painted with multi-tone silver gray texture finish.

DASH PANEL GROUP

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

SWITCHES CENTER PANEL

The center dash panel shall include six (6) switch positions in the upper left portion of the panel.
A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

SWITCHES LEFT PANEL

The left dash panel shall include one (1) windshield wiper/washer control switch located in the left hand side of the panel. The switch shall have backlighting provided.

SWITCHES RIGHT PANEL

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

SEAT BELT WARNING

A seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall provide a visual warning indicator in the vehicle display and control screen(s).
The warning system shall activate when any seat is occupied with a minimum of 60 pounds, the corresponding seat belt remains unfastened, and the park brake is released. The warning system shall also activate when any seat is occupied, the corresponding seat belt was fastened in an incorrect sequence, and the park brake is released. Once activated, the visual indicators and applicable audible alarm shall remain active until all occupied seats have the seat belts fastened.

SEAT MATERIAL

The Bostrom Firefighter seats shall include a covering of extra high strength, wear resistant fabric made of durable low seam Durawear PlusTM ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Durawear PlusTM meets or exceeds specification of the common trade name Imperial 1800. The material meets FMVSS 302 flammability requirements.
If applicable, Theatre style seats located in the cab shall be high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear.

SEAT COLOR

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

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

SEAT DRIVER

The driver's seat shall be an H.O. Bostrom 500 Series Firefighter Sierra model seat. The seat shall feature eight-way electric positioning. The eight positions shall include up and down, fore and aft with 8.00 inches of travel, back angle adjustment and seat rake adjustment. The seat shall feature integral springs to isolate shock.
The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly. The ABTS feature shall also include the RiteHiteTM shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.
The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches measured with the seat height adjusted to the lowest position of travel.
This model of seat shall have successfully completed the static load tests set forth by FMVSS 207, 209, and 210 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity.

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

SEAT BACK DRIVER

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

SEAT MOUNTING DRIVER

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

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

The Driver's seating area protection shall include:

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

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

SEAT OFFICER

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

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

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

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

SEAT BACK OFFICER

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

SEAT MOUNTING OFFICER

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

The officer's position shall be equipped with the IMMI 4Front and RollTekTM Systems which shall secure belted occupants and increase the survivable space within the cab. The 4Front and RollTekTM Systems

shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, and rollover events.
The Officer's seating area protection shall include:

1. Officer's knee airbag **OKAB** - inflating knee bolster airbags to protect the knees.
2. Integrated roll sensor **IRS** - detects an imminent rollover, activates protective devices and records crash events.

1. Integrated belt pretension **IBP -** device for mechanical and/or electrical seats tightens the seat belt, securing officer in seat and positioning officer for contact with seat integrated head cushion side roll airbag.
2. Inflatable head cushion seat integrated side roll airbag **SRA** - protects officer's head/neck and shields officer from dangerous surfaces.

POWER SEAT WIRING
The power seat or seats installed in the cab shall be wired directly to battery power. **SEAT BELT ORIENTATION CREW**
The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip.
SEAT FORWARD FACING CENTER LOCATION
The crew area shall include two (2) forward facing center crew seats with both located at the center of the rear wall.
SEAT CREW FORWARD FACING CENTER
The forward facing center seat shall be a H.O. Bostrom 500 Series Firefighter model seat. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position. The seat and cushion shall be hinged and compact in design for additional room. The seat shall include a "Fold and Hold" feature so that the cushion shall remain in the seated position and simply touched to flip up. The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The ABTS feature shall also include the RiteHiteTM shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.
The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.
This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.
SEAT BACK FORWARD FACING CENTER
Each forward-facing center seat position shall feature the SecureAll+TM self-contained breathing apparatus (SCBA) locking system, designed as a single-bracket model compatible with most U.S. and

international SCBA brands and sizes. The bracket shall allow tool-free adjustments to accommodate various cylinder diameters and lengths.
To modify the fit for different cylinder sizes, a simple lever mechanism shall enable vertical movement of the top clamp, eliminating the need for tools. The system shall be free of straps and clamps that might interfere with auxiliary SCBA equipment. Instead, the top clamp shall securely guide the SCBA tank into position within the seat back cavity.

The SCBA unit shall lock into place by pressing it against the pivot arm, activating the auto-locking mechanism. Once engaged, the top clamp shall provide a secure fit in all directions.
The SecureAll+TM system shall include a quick-release handle integrated into the seat cushion for easy access, along with a manual release located on the left side of the SCBA bracket. The locking mechanism shall eliminate the need for straps or pull cords, preventing interference with SCBA equipment.
Additionally, the seat back shall feature a removable padded cover over the SCBA cavity for enhanced comfort and protection.

OCCUPANT PROTECTION FFC

The forward facing center seat positions shall be equipped with the RollTekTM rollover occupant protection system which shall secure occupants, increase the survivable space within the cab and protect against head/neck injuries in the event of a rollover accident.
The system shall function using a microprocessor-controlled, solid-state sensing device which, when the system detects a side roll shall provide instantaneous occupant protection (less than 0.3 seconds from trigger to total deployment) by automatically initiating the following sequence:

1. The seat belt shall tighten around the occupant.

System Components Shall Include:

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

SEAT FRAME FORWARD FACING

The forward facing center seating positions shall include an enclosed seat frame located and installed on the rear wall. The seat frame shall measure 48.00 inches wide X 12.38 inches high X 22.00 inches deep. The seat frame shall be constructed of Marine Grade 5052-H32 0.19 inch thick aluminum plate. The seat box shall be painted the same color as the remaining interior.

SEAT FRAME FORWARD FACING STORAGE ACCESS

The seat frame shall include a forward facing access point for the underseat climate control unit. The access point shall be covered with a removable vented access panel.

SEAT MOUNTING FORWARD FACING CENTER

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

CAB FRONT UNDERSEAT STORAGE ACCESS

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

SEAT COMPARTMENT DOOR FINISH

All underseat storage compartment access doors shall have a multi-tone silver gray texture finish.

WINDSHIELD WIPER SYSTEM

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

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

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

CAB DOOR HARDWARE

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of a fiber reinforced plastic composite with a black matt finish.
The interior exit door handles shall be flush paddle type with a black finish, which are incorporated into the upper door panel.
All cab entry doors shall include locks which are keyed alike. The door locks shall be designed to prevent accidental lockout.

DOOR LOCKS

The cab entry doors shall include a Controller Area Network (CAN) based electronic door lock system which shall include two (2) external keypads, one (1) located on the left side next to the front grab handle and one (1) on the right side next to the front grab handle. There shall be one (1) red rocker switch provided on the inside of each front cab entry door to actuate the cab door locks. Each door lock may also be manually actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door. The electronic door lock system shall include four (4) key fobs for actuation with buttons for cab entry door locks and for compartment door locks.
When the doors are unlocked using the external keypad or the key fobs the interior dome lights shall illuminate and remain on for a period of twenty (20) seconds. The interior dome safety feature shall require the interior lighting power to be battery direct.
Wiring shall also be provided for up to four (4) exterior cab compartments and up to four (4) body compartments. **DOOR LOCK LH EMS COMPARTMENT**
The left hand side EMS compartment shall feature a power door lock actuator.

DOOR LOCK RH EMS COMPARTMENT
The right hand side EMS compartment shall feature a power door lock actuator.
POWER DOOR LOCK COMPARTMENT ACTIVATION
The power door lock feature shall include activation for exterior compartment door locks through the key fob, keypads and through a virtual switch on the vehicle display and control screen.
GRAB HANDLES
The cab shall include one (1) 18.00 inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The grab handle shall be made of SAE 304 stainless steel and be 1.25 inch diameter to enable non-slip assistance with a gloved hand.
REARVIEW MIRRORS
Retrac Aerodynamic West Coast style dual vision mirror heads model 613305 shall be provided and installed on each of the front cab doors.
The mirrors shall be mounted via 1.00 inch diameter tubular stainless steel arms to provide a rigid mounting to reduce mirror vibration.
The mirrors shall measure 8.00 inches wide X 19.00 inches high and shall include an integral convex mirrors installed in the mirror head below the flat glass to provide a wider field of vision. The flat and convex mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver. The flat and convex mirrors shall be heated for defrosting in severe cold weather conditions.
The mirrors shall be constructed of a vacuum formed chrome plated ABS plastic housing that is corrosion resistant and shall include the finest quality non-glare glass.
REARVIEW MIRROR HEAT SWITCH
The heat for the rearview mirrors shall be controlled through a virtual button on the vehicle display and control screen.
TRIM REAR WALL EXTERIOR
The exterior rear wall of the cab shall include an overlay of brushed stainless steel plate which shall be 0.06 inches thick. This overlay shall cover the entire rear wall of the cab.
CAB FENDER
Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Fender shall consist of an inner liner 16.00 inches wide made of ABS composite and an outer fenderette 3.50 inches wide made of SAE 304 polished stainless steel.
MUD FLAPS FRONT
The front wheel wells shall have mud flaps installed on them.
CAB EXTERIOR FRONT SIDE EMBLEMS
The cab shall include three (3) Kovatch Mobile equipment (KME) emblems. There shall be one (1) installed on the front grille and one (1) emblem on each of the cab sides. The emblems on the cab sides shall be centered horizontally on the B pillars of the cab and located vertically approximately halfway up the cab side front door windows.
CAB EXTERIOR MODEL NAMEPLATE
The cab shall include “Predator” nameplates on the front driver and officer side doors.

IGNITION

A master battery system with a keyless start ignition system shall be provided. There shall be a three-position rocker switch with off, battery, and ignition positions as well as a stainless-steel etched engine start push-button. The engine start button shall include an illuminated LED halo ring. Both switches shall be mounted to the left of the steering wheel on the dash.
The engine start switch shall only operate when the master battery and ignition switch is in the “ignition” position. **BATTERY**
The single start electrical system shall include five (5) Harris BCI 31 925 CCA batteries with a 210 minute reserve capacity
and 4/0 welding type dual path starter cables per SAE J541.

BATTERY TRAY
The batteries shall be installed within two (2) steel battery trays located on the left side and right side of the chassis, securely bolted to the frame rails. The battery trays shall be coated with the same material as the frame.
The battery trays shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting,
interlocking mat made by Dri-Dek shall be installed in the bottom of the trays to allow for air flow and help prevent moisture build up.

BATTERY BOX COVER
Each battery box shall include a cover which protects the top of the batteries.

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

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

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

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

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

BATTERY CONDITIONER LOCATION
The battery conditioner shall be mounted in the cab on top of the left-hand mid EMS compartment.

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

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

ELECTRICAL INLET LOCATION
An electrical inlet shall be installed on the left hand side of the cab ahead of the front door rear of the bumper.

ELECTRICAL INLET
A Kussmaul 20 amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed.
A single item or an addition of multiple items must not exceed the rating of the electric inlet that it’s connected to.

Amp Draw Reference List:
Kussmaul 40 LPC Charger - 5 Amps

Kussmaul Chief 4012 Charger – 5.7 Amps
Kussmaul 80 LPC Charger - 13 Amps
Kussmaul Chief 6012 Charger - 9 Amps
Blue Sea P12 7532 - 7.5 Amps
Iota DLS-45/IQ4 - 11 Amps
1000W Engine Heater - 8.33 Amps
1500W Engine Heater - 12.5 Amps
120V Air Compressor - 4.2 Amps
120V Dometic HVAC - 15 Amps

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery conditioner.

ELECTRICAL INLET COLOR

The electrical inlet connection shall include a red cover.

AUXILIARY ELECTRICAL INLET

An auxiliary Kussmaul 20 amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed.
A single item or an addition of multiple items must not exceed the rating of the electric inlet that it's connected to.

Amp Draw Reference List:

Kussmaul 40 LPC Charger - 5 Amps
Kussmaul 40/20 Charger - 8.5 Amps
Kussmaul 80 LPC Charger - 13 Amps
Kussmaul EV-40 - 6.2 Amps
Blue Sea P12 7532 - 7.5 Amps
Iota DLS-45/IQ4 - 11 Amps
1500W Engine Heater - 12.5 Amps
120V Air Compressor - 4.2 Amps
120V Dometic HVAC - 15 Amps

AUXILIARY ELECTRICAL INLET LOCATION

An auxiliary electrical inlet shall be installed on the left hand side of the cab ahead of the front door.

AUXILIARY ELECTRICAL INLET CONNECTION

The auxiliary electrical inlet shall be connected to the 110V A/C unit.

AUXILIARY ELECTRICAL INLET COLOR

The auxiliary electrical inlet connection shall include a red cover.

HEADLIGHTS

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

HEADLIGHT LOCATION

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

FRONT TURN SIGNALS

The front fascia shall include two (2) Whelen model 600 4.00 inch X 6.00 inch programmable amber LED turn signals which shall be installed in a polished aluminum radius mount housing above and outboard of the front warning and head lamps. **SIDE TURN/MARKER LIGHTS**
The sides of the cab shall include two (2) Tecniq S170 LED side marker lights which shall be provided just behind the front
cab radius corners. The lights shall be amber with chrome bezels.

MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) Tecniq S170 LED cab marker lamps designating identification, center and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level. The lights shall be amber with chrome bezels.

HEADLIGHT AND MARKER LIGHT ACTIVATION

The headlights and marker lights shall be controlled via a virtual button on the Vista display. There shall be a virtual dimmer control on the Vista display to adjust the brightness of the dash lights. The headlamps

shall be equipped with the "Daytime Running" light feature, which shall illuminate the headlights when the ignition switch is in the "On" position and the parking brake is released.

AUX SIDE MARKER/TURN LIGHTS

The cab shall include two (2) Tecniq S170 LED marker lamps with a chrome bezel. The lights shall operate as a side clearance marker. The lights shall be mounted above the cab doors.

INTERIOR OVERHEAD LIGHTS

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

INTERIOR OVERHEAD LIGHTS ACTIVATION

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

LIGHTBAR PROVISION

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

CAB FRONT LIGHTBAR MODEL

The cab shall be provided with one (1) Whelen model F4N81 light bar. The light bar shall be 81.00 inches in length and feature twenty (20) customizable pods.
See the light bar layout for specific details.

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

LIGHTBAR SWITCH

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

FRONT SCENE LIGHTS

The front of the cab shall include one (1) Whelen Pioneer model PCH1 contour roof mount scene light installed on the brow of the cab.
Each 75 watt lamp head shall incorporate a 12 volt DC Super-LED combination flood/spot light installed in a die-cast aluminum housing. Each lamp head shall use a collimator/metalized redux flood reflector assembly with ProcleraTM silicone optics and a clear non-optic polycarbonate lens. The lens/reflector assembly shall utilize a liquid injected molded silicone gasket to be resistant to water, moisture, dust, and other environmental conditions. The PCH1 shall be vibration resistant. The Pioneer PC boards shall be conformal coated for additional protection. Each combination flood light lamp head shall draw 13.0 amps in spotlight mode and generate 8,875 lumens total. Each lamp head shall measure 4.25 inches in height X 8.35 inches in width. The lamp head and brackets shall be powder coated black.

FRONT SCENE LIGHT LOCATION

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

FRONT SCENE LIGHTS ACTIVATION

The front scene lighting shall be activated by a rocker switch.

SIDE SCENE LIGHTS

The cab shall include two (2) Whelen model Pioneer PCH1 semi-recess mount lights installed one (1) on each side of the cab.
Each 75 watt lamp head shall incorporate a 12 volt DC Super-LED combination flood/spot light installed in a die-cast white powder coated aluminum housing. The PCH1 configuration shall consist of 18 white Super-LEDs which shall draw 6.5 amps and produce 8,875 usable lumens. The PCH1 assembly shall use a collimator/metalized redux spot/flood reflector assembly with ProcleraTM silicone optics and a clear non-optic polycarbonate lens. The lens/reflector assembly shall utilize a liquid injected molded silicone gasket to be resistant to water, moisture, dust, and other environmental conditions. The PCH1 shall be vibration resistant. The Pioneer PC boards shall be conformal coated for additional protection. Each lamp head shall measure 4.25 inches in height X 8.35 inches in width. Each lamp head shall be mounted in a 15.00 degrees downward angle within a semi-recess housing which shall measure 7.64 inches in height X 11.88 inches in width. The semi-recess housing shall feature a gloss black finish, additionally the lamp heads and brackets shall be powder coated black.

SIDE SCENE LIGHT LOCATION

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

SIDE SCENE ACTIVATION

The scene lights shall be activated by a single rocker switch located on the switch panel.

GROUND LIGHTS

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

GROUND LIGHTS

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

LOWER CAB STEP LIGHTS

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

INTERMEDIATE STEP LIGHTS

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

MAP LIGHTS

Two (2) Sunnex swivel map light shall be provided. Each light shall have a clear lens and a control switch on the base. The lights shall be mounted on the overhead HVAC cover, one (1) on each side. The lights shall be wired to be live with the battery master switch.

ENGINE COMPARTMENT LIGHT

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

TILLER GUIDE LIGHTS

There shall be a prewire ran to the cab rear wall overhead area for OEM installed tiller light(s).

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a flashing red TecNiq K50 LED light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated.
The flashing red light shall be located centered left to right for greatest visibility.
The light and alarm shall be interlocked for activation when either a cab door is not firmly closed, or an apparatus compartment door is not closed, and the parking brake is released.

MASTER WARNING SWITCH

A master switch shall be included, as a virtual button on the display and control screen which shall be labeled “E Master” for identification. The button shall feature control over all devices wired through it. Any warning device switches left in the “ON” position when the master switch is activated shall automatically power up.

HEADLIGHT FLASHER

An alternating high beam headlight flashing system shall be installed into the high beam headlight circuit which shall allow the high beams to flash alternately from left to right.
Deliberate operator selection of high beams will override the flashing function until low beams are again selected. Per NFPA, these clear flashing lights will also be disabled “On Scene” when the park brake is applied.

HEADLIGHT FLASHER SWITCH

The flashing headlights shall be activated through a rocker switch on the switch panel. The rocker switch shall be clearly labeled for identification.

INBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right inboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and

multiple flash patterns for split colors. The lights shall be mounted to the front fascia of the cab within a chrome bezel

INBOARD FRONT WARNING LIGHTS COLOR
The warning lights mounted on the cab front fascia in the inboard positions shall be red. **OUTBOARD FRONT WARNING LIGHTS**
The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right outboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the front fascia of the cab within a chrome bezel.
OUTBOARD FRONT WARNING LIGHTS COLOR
The warning lights mounted on the cab front fascia in the outboard position shall be red.
FRONT WARNING SWITCH
The front warning lights shall be controlled through a virtual control on the vehicle display and control screen. This switch shall be clearly labeled for identification.
INTERSECTION WARNING LIGHTS
The chassis shall include two (2) Whelen M6 series Super LED intersection warning lights, one (1) each side. The lights shall feature multiple flash patterns including steady burn.
INTERSECTION WARNING LIGHTS COLOR
The intersection lights shall be red.
INTERSECTION WARNING LIGHTS LOCATION
The intersection lights shall be mounted on the side of the cab rearward from the front cab corner radius ahead of the cab doors.
SIDE WARNING LIGHTS
The cab sides shall include two (2) Whelen M6 Super LED warning lights, one (1) on each side. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the sides of the cab within a chrome bezel. **SIDE WARNING LIGHTS COLOR**
The warning lights located on the side of the cab shall be red.
SIDE WARNING LIGHTS LOCATION
The warning lights on the side of the cab shall be mounted behind the rear crew door in a mid position, 31.00 inches up from the bottom of the cab.
SIDE AND INTERSECTION WARNING SWITCH
The side warning lights shall be controlled through a virtual button on the vehicle display and control screen. This button shall be clearly labeled for identification.
TRAFFIC CONTROL
There shall be one (1) GTT (Global Traffic Technologies) Opticom model 795H traffic control optical emitter mounted in the lightbar on the front of the cab roof. The emitter shall be activated by the master warn switch or a lighted momentary rocker switch in the switch panel. The rocker switch shall activate the emitter independently of the master warning switch state. The emitter shall be deactivated when the parking brake is applied.
REAR WARNING LIGHTS

The cab shall include a Whelen TAL65 Traffic Advisor Kit provided by Spartan. The kit shall include the Traffic Advisor with the standard fifteen (15) feet of cable and a Whelen TACTL5 Traffic Advisor control head.
The Whelen TACTL5 Traffic Advisor control head shall be installed and wired in the header above the driver.
The power to the control head shall be ignition switched and activation dependent upon the state of the controllers switched position upon ignition.
Wiring provisions shall be provided and routed to the rear of the frame for the Whelen traffic advisor which shall be shipped loose for OEM installation.
INTERIOR DOOR OPEN WARNING LIGHTS
The interior of each door shall include one (1) red Whelen 500 Series TIR6TM Super-LED® warning light located on the door panel. Each light shall activate with a flashing pattern when the door is in the open position to serve as a warning to oncoming traffic.

SIREN CONTROL HEAD
A Federal PA4000-200 electronic siren control head shall be provided and flush mounted in the switch panel with a location specific to the customer's needs. The siren shall feature 200-watt output, wail, radio broadcast, public address, yelp, priority tones and a noise cancelling microphone.
STEERING WHEEL HORN BUTTON SELECTOR SWITCH
A virtual button on the Vista display and control screen shall be provided to allow control of either the electric horn or the air horn from the steering wheel horn button.
AUDIBLE WARNING LH FOOT SWITCH
A foot switch wired to actuate the mechanical siren(s) shall be supplied for installation in the front section of the cab for driver actuation.
MECHANICAL SIREN FOOT SWITCH LH
The mechanical siren foot switch shall be a Linemaster model 491-S.
MECHANICAL SIREN FOOT SWITCH LH LOCATION
The mechanical siren foot switch shall be located on the left hand side accessible to the driver between the steering column and the door.
MECHANICAL SIREN FOOT SWITCH LH POSITION
The mechanical siren foot switch shall be positioned outboard of any other foot switch, if applicable.
AUDIBLE WARNING LH FOOT SWITCH BRACKET
A 30.00 degree angled foot switch bracket, wide enough to accommodate (2) foot switches, shall be installed outboard of the steering column for specified driver accessible foot switch activations. **AUDIBLE WARNING RH FOOT SWITCH**
A foot switch wired to actuate the mechanical siren(s) shall be supplied for installation in the front section of the cab for officer actuation.
MECHANICAL SIREN FOOT SWITCH RH
The mechanical siren foot switch shall be a Linemaster model 491-S.
MECHANICAL SIREN FOOT SWITCH RH LOCATION

The mechanical siren foot switch shall be temporarily tied up with a coiled wire drop at the firewall inboard for installation by the customer on the right hand side accessible to the officer.
AIR HORN AUXILIARY ACTIVATION
The air horn activation shall be accomplished by a black momentary back lit push button on the switch panel. An air horn activation circuit shall be provided to the chassis harness pump panel harness connector.
MECHANICAL SIREN BRAKE/AUXILIARY ACTIVATION
The mechanical siren shall be actuated by a black back lit push button in the switch panel on the dash. A red momentary siren brake rocker switch shall be provided in the switch panel on the dash.
MECHANICAL SIREN INTERLOCK
The siren shall only be active when master warning switch is on to prevent accidental engagement.
BACK-UP ALARM
A Preco-Matic model 1040 backup alarm shall be installed at the rear of the chassis with an output level of 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.
INSTRUMENTATION
An Innovative Controls Digital Instrument Cluster (DIC) shall be provided that combines gauges, telltales, warning messages, and advanced diagnostic capabilities into a single 12.8-inch digital display. The display screen shall have an anti-reflective coating and include touch screen and mechanical button user interaction with the display as well as video and audio interfaces.
The DIC shall include a vehicle odometer which displays the total vehicle distance traveled. The DIC shall also include two vehicle trip odometers (TRIP A and TRIP B) which indicate the distance traveled and average fuel economy for each respective trip. The operator may select which odometer is displayed and may reset either trip odometer through the on-screen display. The DIC shall include an engine hour meter which displays the total engine hours of operation.
The gauges shall have high-contrast white scales with orange pointers. The following gauges shall be included on the display:
 Speedometer that indicates vehicle speed. The scale on the speedometer shall read from 0 to 100 MPH. A numerical display of vehicle speed shall also be shown on the gauge.
 Tachometer that indicates engine speed. The scale of the tachometer shall read from 0 to 3000 RPM.

 Primary and secondary air pressure gauges shall indicate the pressure in the primary and secondary air systems. The scale of the air pressure gauges shall read from 0 to 160 pounds per square inch (PSI). The gauge icon and scale shall turn amber when the system pressure drops below 70 PSI. The icon and scale shall turn red when the system pressure drops below 62 PSI. An audible alarm shall also sound when air pressure is low.
 Fuel gauge. The fuel gauge shall read from empty to full as a fraction of full tank capacity. The gauge icon and scale shall turn amber when the fuel level is below 1/8th tank capacity (1/4th tank in pump mode). An audible alarm shall also sound with low fuel level.

 Diesel exhaust fluid (DEF) gauge. The DEF gauge shall read from empty to full as a fraction of full tank capacity. The gauge icon and scale shall turn amber, and an audible alarm shall sound to indicate low DEF level.
 Engine oil pressure gauge. The scale of the engine oil pressure gauge shall read from 0 to 100 PSI. The gauge icon and scale shall turn red, and an audible alarm shall sound to indicate low oil pressure.
 Engine coolant temperature gauge. The scale of the coolant temperature shall read from 100 to 250 degrees Fahrenheit (°F). The gauge icon and scale shall turn red, and an audible alarm shall sound to indicate high coolant temperature.
  Voltmeter indicating chassis system voltage. The scale of the voltmeter shall be from 10 to 18 volts. The gauge icon and scale shall turn red, and an audible alarm shall sound when the system voltage drops below 11.8 volts for more than 120 seconds in accordance with the requirements of NFPA 1901. The gauge icon and scale shall turn red, and an audible alarm shall sound when the system voltage rises above 15.5 volts for more than 5 seconds.
 Transmission temperature gauge. The scale of the transmission temperature shall read from 100 to 300 degrees Fahrenheit (°F). The gauge icon and scale shall turn amber, and an audible alarm shall sound to indicate high transmission temperature.
The DIC shall include thirty-six (36) colored telltales to indicate vehicle operating conditions. The DIC shall provide text-based warning messages to accompany all telltales. The DIC shall contain an audible alarm capable of providing different alert sounds based on the type of warning. The audible alarm shall be capable of being heard from all seating positions in the cab. The operator shall be able to silence active alarms that are permitted to be silenced by applicable regulations. The DIC shall contain the following indicators and produce the following audible alarms when supplied in conjunction with applicable configurations:

RED TELLTALES

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

AMBER TELLTALES

 Supplemental Restraint System (SRS) – ISO Icon indicates an SRS fault
 Anti-Lock Brake System (ABS) - indicates anti-lock brake system fault
 Check Engine - indicates engine fault
 Check Transmission - indicates transmission fault
 Diesel Exhaust Fluid (DEF) level – indicates low DEF level
  Diesel Particulate Filter (DPF) - indicates restriction of the diesel particulate filter
 Electronic Stability Control (ESC) – indicates active electronic stability control system
 Fuel Level – indicates low fuel
 High Exhaust System Temperature (HEST) – indicates elevated exhaust temperature

 Malfunction Indicator Lamp (MIL) - indicates an engine emissions system fault

 Regen Inhibit - indicates regeneration of the DPF has been inhibited by the operator
 Transmission Temperature – indicates high transmission or transmission retarder temperature
 Transmission Range Inhibit - indicates a transmission operation is prevented and requested shift into gear may not occur
 Wait to Start - indicates active engine air preheat cycle
 Water in Fuel - indicates presence of water in fuel filter
 Windshield Washer Fluid – indicates low washer fluid

GREEN TELLTALES

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

BLUE TELLTALES

 High Beam indicator

AUDIBLE ALARMS

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

The DIC shall allow the user to configure settings through an on-screen menu. The following settings shall be adjustable by the user:
 Distance/Speed Units – English (miles/MPH) or metric (kilometers/KPH)
 Temperature Units – degrees Fahrenheit (°F) or degrees Celsius (°C)

 Pressure Units – pounds per square inch (PSI) or kilopascals (kPA)
 Odometer/Trip odometer–chose which odometer is displayed and reset trip odometers
 Display Brightness – adjust brightness levels for both day and night settings
 Volume – adjust volume of display speaker
 Auxiliary Gauges – configure location of auxiliary gauges

The DIC shall include on-screen control of the diesel particulate filter (DPF). The DIC shall be capable of initiating and halting a manual DPF regeneration cycle. Also, the DIC shall be capable of inhibiting DPF regeneration when not desired by the operator.
The DIC shall be capable of displaying detailed diagnostic information. Diagnostic information screens shall only be accessible when the park brake is set to prevent unsafe operation of the vehicle. The following information shall be available through the on-screen menu:

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

BACKLIGHTING COLOR

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

HOUR METER

An hour meter for the engine and the aerial hours shall be included within the digital dash display which shall measure the number of hours the engine and the PTO controlling the aerial has been operated. The hour meter shall be wired to the left-hand PTO.

RADIO

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

RADIO LOCATION

The radio shall be installed in the right hand overhead position above the officer. **AM/FM ANTENNA**

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

RADIO SPEAKERS

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

CAMERA RIGHT HAND

One (1) Audiovox Voyager heavy duty rearview teardrop shaped chrome plated housing camera shall be mounted on the officer side of the cab below the windshield ahead of the front door at approximately the same level as the cab door handles. The camera display shall activate when the right side turn signal is activated.

CAMERA REAR

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

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

CAMERA DISPLAY

The camera system shall display on the digital dash. The digital dash control shall include a manual activation of the camera system display.

CAMERA SPEAKER

The rear camera shall be wired to speaker(s) in the cab and shall audible to the driver and officer. There shall be a virtual button provided on the Vista display and control panel to deactivate the speaker(s). **FIRE EXTINGUISHER**

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

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

CHASSIS OPERATION MANUAL

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

ENGINE AND TRANSMISSION OPERATION MANUALS

The following manuals specific to the engine and transmission models ordered will be included with the chassis in the ship loose items:
(1) Hard copy of the Engine Operation and Maintenance manual with digital copy (1) Digital copy of the Transmission Operator's manual
(1) Digital copy of the Engine Owner's manual

CAB/CHASSIS AS BUILT WIRING DIAGRAMS

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

SALES TERMS

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

3D CHASSIS LAYOUT

A three dimensional (3D) layout of the chassis shall be provided to the OEM engineering group for use in designing the OEM body.
The layout shall include the following:
Cab
Frame
Bumper
Front Towing Device
Front Axle
Front Suspension
Cab Tilt
Exhaust
Air Drier
Battery Boxes Covers
Rear Axle
Rear Suspension
Fuel Tank

MOUNTING PLATE ON ENGINE ENCLOSURE

QTY: 1

A mounting plate shall be installed on top of the engine enclosure. It shall be as large as possible within the provided area. The plate shall be fabricated from aluminum and painted to match the cab interior and shall be mounted on one inch spacers up off the engine enclosure.

CAB EMS COMPARTMENT

QTY: 1

A storage compartment shall be mounted against the rear wall of the cab crew area in the center position.

The compartment shall be approximately 24" deep x 42" high (depending on roof height) x 45" wide (depending on dimension between seats).

The door opening shall be approximately 38" high x 26" wide.

The compartment shall be constructed of smooth aluminum and shall be equipped with a Amdor satin finished locking roll-up door.
The door shall be provided with a #751 key.
The door will be provided with dual Amdor LED strip lights one each side of the vertical opening and activated with the roll-up door operation.
There shall be two (2) fully adjustable shelves with a 1-1/4" lip.

The compartment and shelving shall be painted with textured paint, matching the interior color of the cab.

FUEL POCKET

QTY: 1

A fuel fill shall be provided in the driver side rear wheel well area.

A Signature 4 composite fuel pocket with a brushed stainless steel door shall be provided.

A tethered cap shall be provided as part of the assembly.

A label indicating "Ultra Low Sulfur Diesel Fuel Only" shall be provided adjacent to the fuel fill.

12 VOLT ELECTRICAL SYSTEM TESTING

QTY: 1

The apparatus low voltage electrical system shall be tested and certified by the manufacturer. The certification shall be provided with the apparatus. All tests shall be performed with the air temperature between 0°F and 100°F.

The following three (3) tests shall be performed in order. Before each test, the batteries shall be fully charged.

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for 10 minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test failure.

The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

The total continuous electrical load shall be activated with the engine running up to the engine manufacturers governed speed. The test duration shall be a minimum of 2 hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded due to excessive battery discharge, as detected by the system, or a system voltage of fewer than 11.7 volts DC for a 12-volt system, for more than 120 seconds, shall be considered a test failure.

Following completion of the preceding tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm is activated.

The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of fewer than 11.7 volts shall be considered a test failure. The battery system shall then be able to restart the engine.

At the time of delivery, documentation shall be provided with the following information:

- Documentation of the electrical system performance test
- A written load analysis of the following;
- Nameplate rating of the alternator
- Alternator rating at idle while meeting the minimum continuous electrical load
- Each component load comprising the minimum continuous electrical load.
- Additional loads that, when added to the minimum continuous load, determine the total connected load.
- Each individual intermittent load.

DIRECT BATTERY GROUNDING STRAP

QTY: 1

If the electrical system requires, direct grounding straps shall be mounted to the following areas; frame to cab, frame to body and frame to pump enclosure.

All exposed electrical connections shall be coated with "Z-Guard 8000" to prevent corrosion.

HOSEBED WORKLIGHT SWITCH - RECESSED

QTY: 1

The hose bed work light switch shall be installed in a recessed pocket.

HOSE BED WORK LIGHT - SWITCH

QTY: 1

The hose bed work light shall have a protected 12-volt switch at the rear body panel.

The switch will be labeled "HOSE BED WORK LIGHTS."

HULL LIGHTS TO ACTIVATE WITH TURN SIGNAL

QTY: 1

The hull auxiliary wheel well lights shall be activated with the turn signal circuit.

ASA VOYAGER CAMERA SYS,7"COLR LCD-DUAL(TILLER CAB)

QTY: 1

An ASA Voyager camera system will be provided to allow the tiller driver to visually see the sides of the apparatus while in the tiller cab. The system will include two (2) ASA model # VOM719WP 7" flat panel LCD color monitors mounted adjacent to the tiller driver, one (1) for each side camera. The system will also feature a microphone on the cameras and speaker built into the monitors.
One (1) side vision camera, ASA model# VCMS50LCM side mounted wide angle camera will be mounted on the driver's side of the body to allow the tiller driver to see the driver's side of the tiller body as well as the rear trailer steering tires.
One (1) side vision camera, ASA model# VCMS50RCM side mounted wide angle camera will be mounted on the officer's side of the body to allow for the tiller driver to see the officer's side of the tiller body as well as the rear trailer steering tires.
The tiller cab cameras will be positioned on the access ladders facing forward toward the steer axle.
The cameras will be wired as follows:
The driver side vision camera will automatically activate when the driver side turn signal is activated.
The officer side vision camera will automatically activate when the officer side turn signal is activated.
Note: There will be a disable switch located in the tiller cab to turn the camera monitors off.

TRACTOR ALIGNMENT LIGHT ON TRACTOR

QTY: 1

There will be a bracket painted job color mounted on the back of the tractor roof, as high as practical, facing the rear that will include four (4) Whelen®, Model 0S*00MCR 12 volt DC LED lights with chrome flanges installed for the following applications:

• One (1) Model 0SR00MCR, red LED light as an additional brake light
• Two (2) Model 0SA00MCR, amber LED lights as additional directional lights that activate with the corresponding directional circuit
• One (1) Model 0S*00MCR, green LED light to be used by the tiller man to center the tiller trailer with the tractor and will be activated when the battery switch is on and the parking brake is released.

NFPA COMPLIANT WARNING LIGHT PACKAGE

QTY: 1

The following warning light package shall include all of the minimum warning light and actuation requirements for the current revision of the NFPA 1900 Fire Apparatus Standard.

The lighting as specified shall meet the requirements for both "Clearing Right of Way" and "Blocking Right of Way" which includes disabling all white warning lights when the apparatus is in "Blocking Right of Way" mode.

WARNING LIGHT FLASH PATTERN - NFPA FLASH PATTERN

QTY: 1

All of the perimeter warning lights shall be set to a default NFPA compliant flash pattern as provided by the light manufacturer.

LIGHT PACKAGE ACTUATION/CONTROLS

QTY: 1

The entire warning light package shall be actuated with a single warning light switch located on the cab switch panel. The wiring for the warning light package shall engage all of the lights required for "Clearing Right of Way" mode when the vehicle parking brake is not engaged. An automatic control system shall be provided to switch the warning lights to the "Blocking Right of Way" mode when the vehicle parking brake is engaged.

LIGHT PACKAGE NFPA CERTIFICATION

QTY: 1

The warning light system(s) specified above shall not exceed a combined total amperage draw of 45 AMPS with all lights activated in either the "Clearing Right of Way" or the "Blocking Right of Way"

The warning light system(s) shall be certified by the light system manufacturer(s), to meet all of the requirements in the current revision of the NFPA 1900 Fire Apparatus Standard as noted in the General Requirements section of these specifications.

The NFPA required "Certificate of Compliance" shall be provided with the completed apparatus.

Any large truck as defined by NFPA shall have the lower zone warning lights mounted no higher than 62" to the optical center of the warning light from ground level. {No Exceptions}

C-UPPER, WHELEN LED MCFLED2R, MICRO FREEDOM LIGHT

QTY: 1

Two (2) Whelen, MCFLED2R, "Micro Freedom", mini warning, light bars shall be furnished and rigidly mounted so that each light faces the rear, one (1) on each side at the rear of the body.

UPPER ZONE C WARNING LIGHT LENS - RED

QTY: 1

The upper zone C warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

B/D-UPPER FRONT, COVERED BY LIGHTS IN ZONE A-UPPER

QTY: 1

The lighting requirement for this area is covered by the lights noted in Zone "A" - Upper.

B/D-UPPER REAR, COVERED BY LIGHTS IN ZONE C-UPPER

QTY: 1

The lighting requirement for this area is covered by the lights noted in Zone "C" - Upper.

C-LOWER REAR, WHELEN M6 SUPER LEDS

QTY: 1

Two (2) Whelen M6* super LED light heads shall be provided and installed with one (1) on each side directly below the DOT stop, tail, turn and backup lights.

LOWER ZONE C WARNING LIGHT LENS - RED

QTY: 1

The lower zone C warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

B/D-LOWER MID, WHELEN M6 SUPER LEDS

QTY: 1

Two (2) Whelen M6* super LED light heads shall be provided and installed with one (1) on each side.

LOWER ZONE B/D MID WARNING LIGHT LENS - RED

QTY: 1

The lower zone B/D mid warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

LOWER ZONE B/D MID WARNING LIGHT BEZEL - CHROME

QTY: 1

The lower zone B/D mid warning lights shall include a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

B/D-LOWER REAR, WHELEN M6 SUPER LEDS

QTY: 1

Two (2) Whelen M6* super LED light heads shall be provided and installed with one (1) on each side.

LOWER ZONE B/D REAR WARNING LIGHT LENS - RED

QTY: 1

The lower zone B/D rear warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

LOWER ZONE B/D REAR WARNING LIGHT BEZEL - CHROME

QTY: 1

The lower zone B/D rear warning lights shall include a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

WHELEN T-ION SURFACE MOUNT ON RUB RAIL

QTY: 1

Six (6) Whelen T-Ion Series LED lights shall be furnished and shall be mounted on the body rub rail three (3) each side.

OUTRIGGER WARNING LIGHTS

QTY: 1

One (1) Whelen M6* super LED light shall be mounted on each of the outrigger cover panels, for a total of two (2).

Each light head shall be equipped with red LEDs and a colored lens.

The lights shall be installed with a chrome plated mounting flange.

LIGHT ACTIVATION, PRIMARY WARNING

QTY: 1

The outrigger warning lights shall be energized by the ladder power circuit.

The outrigger warning lights shall also be energized by the Warning Light Master switch.

GROUND LIGHTS BELOW PUMP PANEL RUNNING BOARD

QTY: 1

One (1) Amdor Luma Bar, H2O, LED 20" ground light shall be provided under each side pump panel running board, two (2).

GROUND LIGHTS BELOW MID-SHIP COMPARTMENT

QTY: 1

One (1) Amdor Luma Bar, H2O, LED 20" ground light shall be provided under each mid ship compartment, total of two (2).

GROUND LIGHTS BELOW FRONT BODY CORNERS

QTY: 1

One (1) Amdor Luma Bar, H2O, LED 20" ground light shall be provided under each front body corner, two (2) total.

GROUND LIGHTS REAR BODY CORNERS

QTY: 1

One (1) Amdor Luma Bar, H2O, LED 20" ground light shall be provided under each rear body corner, two (2) total.

CAB AND BODY GROUND LIGHTS ACTIVATE AS PROVIDED

QTY: 1

Ground light activation shall be as provided by the chassis manufacturer and shall be wired through the load management system.

AERIAL LADDER, LADDER POWER SWITCH IN CAB

QTY: 1

There shall be an aerial device power engagement switch located in the cab switch console. An aerial device PTO/hour meter shall be furnished. See ladder description for details.

AERIAL BODY ELECTRICAL SYSTEM

QTY: 1

All electrical lines in the body shall be protected by automatic circuit breakers, conveniently located to permit ease of service.

Flashers, heavy-duty solenoids and other major electrical controls shall be located in a central area near the circuit breakers.

All lines shall be color and function coded every 3", easy to identify, oversized for the intended loads and installed in accordance with a detailed diagram.

A complete wiring diagram shall be supplied with the apparatus.

Wiring shall be carefully protected from weather elements and snagging.

Heavy duty loom shall be used for the entire length.

Grommets shall be utilized where wiring passes through panels.

In order to minimize the risk of heat damage, wires run in the engine compartment area shall be carefully installed and suitably protected by the installation of heat resistant shielded loom.

All electrical equipment shall be installed to conform to the latest federal standards as outlined in NFPA-1900.

BODY ELECTRICAL HARNESS - V-MUX 2.0

QTY: 1

DUNNAGE AREA LIGHTING

QTY: 1

Two (2) stainless steel, TecNiq Eon 3-LED horizontal surface mounted lights shall be provided in the dunnage area to provide adequate illumination of this area.

These lights shall be switched in the same manner as the step lights.

COMPARTMENT LIGHT ACTIVATION

QTY: 1

Compartment lighting shall be switched either from an integral switch as provided by the roll up door manufacturer or a magnetic proximity switch if it is a KME manufactured door.

ADDT'L COMPT. LIGHTS, AMDOR LUMA BAR LED LIGHTING

QTY: 1

Six (6) additional Amdor compartment lights shall be provided locations to be determined at pre-constuction meeting.

COMPARTMENT LIGHTS

QTY: 20

Each individual, equipment storage compartment shall be equipped with the AMDOR, Luma Bar, LED light fixture, mounted on each side of the forward (and rear) vertical door frame.

MARKER/TURN LIGHTS @ EA SIDE OF BODY

QTY: 1

Red, LED marker lights with integral reflectors shall be provided at the lower side rear, having one (1) on each side.

Yellow, LED side marker and turn lights shall be provided on the apparatus lower side, forward of rear axle that puts one (1) on each side, if the apparatus is 30' long or longer.

DOT MARKER LIGHTS @ REAR OF BODY

QTY: 1

Red, LED clearance lights shall be provided on the apparatus rear upper having one (1) on each side at the outermost practical location.

Red, LED, 3-lamp identification bar will be provided on the apparatus rear center.

DOT AMBER REFLECTORS @ SIDE OF BODY

QTY: 1

Yellow reflectors shall be provided on the apparatus body lower side, as far forward and low as practical with one (1) on each side if the apparatus is 30' long or longer.

DOT RED REFLECTORS @ REAR OF BODY

QTY: 1

Red reflectors shall be provided on the apparatus rear with one (1) on each side at the outermost practical location.

TECNIQ #L10 LED LICENSE PLATE LIGHT

QTY: 1

One (1) Tecniq model #L10 LED license plate light shall be provided above the mounting position of the license plate. The license plate shall be located on the driver's side rear of body.

The light shall be clear in color and shall have a chrome finish.

BRITAX, 6" ANGLED RUBBER LED LIGHT @ REAR BODY COR

QTY: 1

Two (2) rubber, angled LED marker lights shall be mounted on the rear most corner of the body, one (1) each side.

The lights shall be mounted in a molded flexible rubber shaft that extends away from the body approximately 6".

The lights shall be equipped with an amber lens facing forward and a red lens facing to the rear of the vehicle.

The lights shall be wired to the parking light circuit.

WHELEN #M6 LED BRAKE, REVERSE, & TURN W/ QUAD HOUS

QTY: 1

Two (2) Whelen M6 series, 4-5/16" x 6-3/4", LED red combination tail and stop lights, shall be mounted one each side at the rear of the body.

Two (2) Whelen M6 series, 4-5/16" x 6-3/4", LED amber arrow turn signal lights, shall be mounted one each side, on a vertical plane with the tail/stop lights.

Two (2) Whelen M6 series, 4-5/16" x 6-3/4", LED white back-up lights, shall be mounted, one each side on a vertical plane with the turn/tail/stop signals.

These lights shall activate when the transmission is placed in reverse gear.

Two (2) Whelen M6FCV4 mounting flanges, installed one (1) on each side, shall be provided to mount the lights described above in one common mounting flange.

The fourth opening shall be for the lower rear warning lights.

The lights shall be mounted in order, from top to bottom, as described above.

BODY STEP LIGHTS, WHELEN SINGLE LED, ALL DEVICES

QTY: 2

Chrome plated, Whelen model # 0AC0EDCR, shielded, LED body step lights shall be provided and controlled with marker light actuation and park brake application.

Step lights shall be located to properly illuminate all body access steps and walkway areas.

PUMP ENCLOSURE WORK LIGHTS - TECNIQ LED

QTY: 1

Two (2) Tecniq, model #E18 lights shall be provided inside the pump enclosure, providing 800 lumens each.

Each light shall have their own independent switch incorporated into the light head.

TRAILER DECK LIGHTS

QTY: 1

Two (2) Tecniq S38 lights, model S38-AA09-1 with gasket, shall be provided and installed on the top deck of the trailer inline with trailer axle as far outboard on the deck as possible. The light shall be mounted parallel to the trailer so that it is visible to the person in the tiller cab. The lights shall be wired to the trailer marker lights. A brushed stainless steel C channel guard slightly taller than the light shall be provided for the light to be mounted in to act as a guard for the light to reduce the chances of stepping on it.

WHELEN PIONEER MICRO LED WORK/SCENE LIGHT @ TOP OF

QTY: 1

Two (2) Whelen # MPP*CS, super LED work lights shall be mounted one (1) on each side on top of the body.

Each light shall have twelve (12) LEDs, pedestal mount, and a chrome rear cover.

The lights shall illuminate the top of the body or serve as side scene lights on the top of the body.

Control switches shall be provided on the light heads.

WHELEN M9 SERIES LED SCENE LIGHTS REAR OF PUMP MOD

QTY: 1

Two (2) Whelen, M9LZC, super LED scene lights shall be provided, (1) one on each side of the pump panel, on the rear body panel in a chrome plated flange.

The lights shall come one automatically with aerial master.

Each light shall draw 6 amps and generate 6,500 lumens.

The scene lights shall be wired through the load management system.

WHELEN PIONEER LIGHT, 150W12V LED

QTY: 1

One (1) Whelen® Model P*H2*, 17,750 lumens 12 volt DC LED light(s) with flood optics installed on the apparatus with a pedestal mounting bracket located, on the catwalk centered between the tripod lights.
The painted parts of this light assembly to be black.
The light(s) to be installed with an adjustable locking pedestal mount(s) with handle(s).
The lights will be controlled by the same control that has been selected for the driver's side scene light(s).
The light(s) may be load managed when the parking brake is applied.

WHELEN PIONEER LIGHT, 150W12V LED

QTY: 1

One (1) Whelen® Model P*H2*, 17,750 lumens 12 volt DC LED light(s) with flood optics installed on the apparatus with a pedestal mounting bracket located, on the catwalk centered between the tripod lights.
The painted parts of this light assembly to be black.
The light(s) to be installed with an adjustable locking pedestal mount(s) with handle(s).
The lights will be controlled by the same control that has been selected for the passenger's side scene light(s).
The light(s) may be load managed when the parking brake is applied.

WHELEN PIONEER SURFACE MTD LIGHT, 150W12V LED

QTY: 1

One (1) Whelen Pioneer model # PCPSM2B surface mounted flood/spot light shall be installed on the rear face of the tiller cab using a black flange.

The lamp head shall draw 12 amps and generate 16,000 lumens.

The light(s) selected above will be controlled by the following:
 a switch at the driver's side switch panel
 a switch at the pump operator's panel
 a switch in the tiller cab

DOCKING LIGHTS IN REAR WHEELWELL

QTY: 1

Four (4) Zico #ZQL-SS-LED "Quic-Light" hull lights shall be provided in the rear wheel well panels, two (2) each side.

The lights shall be recessed into the wheel well panel and shall be equipped with stainless steel housing.

The lights shall be activated by the reverse light circuit when the apparatus is operating as an emergency vehicle (Primary Warning Switch On) and also by the turn signal stalk in the tiller cab.

REAR TRAFFIC WARNING LIGHT

QTY: 1

One (1) Whelen LED "Traffic Advisor", model TAL65 36", rear directional light shall be installed on the rear of the body.

The light shall be equipped with six (6) lamps.

The directional light shall be activated by a control module.

The control module shall be conveniently located near the driver's position.

The rear directional light shall be wired through the load management system of the unit.

TRAFFIC ADVISOR - MOUNTING ON THE REAR SHEET

QTY: 1

The traffic advisor shall be mounted on the rear sheet.

GENERATOR

QTY: 1

One (1) Harrison MDS Hydraulic Driven Generator rated at 10,000 watts, 82/44 amps, 120/240 VAC, 60Hz, 1-phase shall be provided.

The system shall be designed and assembled by a company with no less than 20 years experience in the manufacture of hydraulic driven generators. The generator shall be tested at the full nameplate rated load prior to shipping and the test report shall be included. The test report shall document the generator's performance at various loads from no load to full load to ensure reliable power delivery at those loads.

The motor/generator shall be placed in a structural steel frame which affords protection to the components and provides a unitized
mounting module containing the motor/generator, reservoir, oil cooler, filtration, on/off manifold containing a cross port check valve allowing unit to be started and shut down remotely. The generator shall have a cover consisting of NFPA approved diamond tread plate. A dedicated air intake duct for the alternator and a dedicated air intake duct for the heat exchanger shall be provided on the generator. Both air intake ducts shall be located on the same side of the generator.

The generator shall be a commercial type with a heavy-duty bearing and of brush less design to ensure low maintenance. No brushes or slip rings shall be allowed. The reservoir shall include an oil level sight gauge, oil temperature gauge; fill cap, oil filter, and a venturi boost unit to provide positive pressure to the pump suction port.

The generator and motor shall be close coupled and aligned using a Morse taper with a through bolt to secure the motor to the generator. No two (2) bearing generators shall be used.

The generator system must be able to operate on a Hot Shift PTO and must be able to be used while vehicle is either stationary or in motion.

The hydraulic motor and pump shall be of axial piston design to provide low internal leakage and a high degree of frequency stability. No gear pumps or motors shall be used. The pump shall match the system with the proper orifice, pressure compensator, and load sense settings to provide stable output regardless of engine rpm or electrical load demands. The use of electronics to control the flow shall not be allowed.

The system shall be capable of normal operations using a commonly available ISO 46 hydraulic fluid. All fluid service points shall be in close proximity to the reservoir for ease of scheduled maintenance.

When properly installed, the system shall be warranted for a period of not less than two (2) years or 2000 hours, whichever should come first.

The generator shall be remotely turned on/off by using a 12 VDC switch mounted on the cab dash.

120 & 240 VOLT WIRING METHODS

QTY: 1

Wiring/conduit shall not be attached to any chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components or low voltage wiring.

All wiring shall be installed at a minimum of 12 inches away from any exhaust piping and a minimum of 6 inches from any fuel lines.

All wiring shall be securely clamped within 6 inches of any junction box and at a minimum of every 24 inches of run. All supports shall be of nonmetallic material or corrosion protected metal. All supports shall not cut or abrade conduit or cable and shall be mechanically fastened to the vehicle.

All power supply assembly conductors, including neutral and grounding conductors, shall have an equivalent amperage rating and shall be sized to carry not less than 115% of the main breaker rating.

All Type SO or Type SEO cable not installed in a compartment shall be installed in wire loom. Where Type SO or Type SEO cable penetrates a metal surface, a rubber or plastic grommet or bushing shall be provided.

The installation of all 120/240 wiring shall meet the current NFPA-1901 Standards {No Exceptions}.

120/240 VOLT WIRING IDENTIFICATION

All line voltage conductors located inside the main breaker panel box shall be individually and permanently identified. When pre-wiring for future power wiring installations, the non-terminated ends shall be labeled showing function and wire size.

120/240 VOLT GROUNDING

The neutral conductor of the power source shall be bonded to the vehicle fame only at the power source.

The grounded current carrying conductor (neutral) shall be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor shall be colored white or gray.

In addition to the bonding required for the lower voltage return current, each body and driving/crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. The conductor shall have a minimum amperage rating of 115 percent of the name plate current rating of the power source specification label.

120/240 VOLT CIRCUIT BREAKER / RECEPTACLE INSTALLATION

The system shall be installed by highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators. When multiple circuit are required, the circuits shall be wired to the breaker panel in a staggered configuration to minimize electrical loads on each breaker or generator (leg) circuit. The wiring, electrical fixtures and components shall be to the highest industry

quality standards available on the domestic market. The equipment shall be the type as designed for mobile type installations subject to vibration, moisture and severe continuous usage.

GENERATOR LOCATION

QTY: 1

The generator shall be permanently mounted on top of the body.

Locating the generator greater than 144" from the main breaker panel may require the installation of an additional power disconnecting means.

GENERATOR LOCATION

QTY: 1

Generator shall be located in front of the gooseneck area of the trailer in between the cord reels above the outrigger panels.

GENERATOR RUNNING LIGHT

QTY: 1

A 120 volt generator running light shall be installed on the breaker panel.

HARRISON HOT SHIFT PTO

QTY: 1

A hot shift PTO shall be provided on the transmission for the Harrison generator.

The PTO shall be controlled from the cab. The control shall include a PTO engagement switch and a PTO engaged indicator light.

PTO GENERATOR CONTROLS @ BREAKER PANEL

QTY: 1

In addition to cab controls, the generator shall have PTO control adjacent to the circuit breaker panel.

The controls shall also include a green light to indicate the generator is running.

DIGITAL QUAD METER FOR HARRISON GENERATORS

QTY: 1

A weatherproof digital Quadra meter containing the volt, amp, and frequency shall be installed near the breaker panel.

BREAKER PANEL

QTY: 1

The generator output line conductors shall be wired from the generator output connections to a Square D, model #QO112L125G breaker panel.

The breaker panel shall be equipped with a properly sized main breaker, using two (2) of the twelve (12) spaces which leaves a total of ten (10) available spaces.

The generator output conductors shall be sized to 115% of the main breaker rating and shall be installed as indicated in the wiring section.

BREAKER PANEL LOCATION

QTY: 1

The breaker panel shall be located on the rear wall of the driver side front compartment.

LINE VOLTAGE BREAKER TYPE

QTY: 1

All line voltage breakers for use with the AC load center shall be non-GFCI and non-AFCI breakers. The included breakers shall be standard thermal-magnetic overcurrent protection devices.

FRC, #SPAKR700, PORTABLE LIGHTS

QTY: 1

Four (4) Fire Research Spectra, model #SPAKR700, portable LED lights shall be provided and mounted two (2) on the driver side of the body and two (2) on the officer side. The lights shall be equipped with a quick release type mount and an appropriate L5-20 120 volt plug and a weatherproof "on-off" switch on the light head. The lights and mounting brackets will be Black in color.

SPECTRA MAX PORTABLE LIGHTS, LIGHTHEADS

QTY: 1

Each lamphead shall have sixty (60) ultra-bright white LEDs, 48 for flood lighting and 12 to provide a spot light beam pattern. It shall operate at 120 volts AC, draw 2 amps, and generate 20,000 lumens of light. The lamphead shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamphead angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamphead shall be no more than 5 7/8" high by 14" wide by 3 1/2" deep and have a heat resistant handle. The lamphead and mounting arm shall be Black powder coated. The LED scene light shall be for fire service use.

The portable lights shall be equipped with a pig tail cord with an L5-20 120V plug.

One (1) 120V, L5-20 amp receptacle shall be provided and installed near the mounting position of each portable light fixture for a total of two (2) receptacles. Both receptacles shall require one (1) 20 amp, 120V circuit breaker to be installed in the load center.

ELECTRIC CORD REEL #1

QTY: 1

One (1) Hannay Model #ECR-1618-17-18, 120 volt, electric rewind cord reel shall be provided and wired to the breaker panel.

The reel shall be securely mounted and equipped with a rewind control adjacent to the reel.

ELECTRIC CORD REEL #1 LOCATION

QTY: 1

The cord reel on the driver side shall be located above the outrigger panel.
An aluminum treadplate enclosure will be installed over the reel. The enclosure will be provided with a stainless steel hinge that will allow the cover to be opened.
A captive roller assembly will be provided to assist with the payout of the cord.
A ball stop will be provided on the cord to stop the cord at the roller assembly.

ELECTRIC CORD REEL #1 ROLLER

QTY: 1

A Hannay 4-way stainless steel roller assembly shall be provided. The roller assembly opening shall be the full width of the reel drum.

ELECTRIC CORD REEL #1 REWIND

QTY: 1

A reel rewind switch(s) shall be provided adjacent to the reel.

ELECTRIC CORD REEL #1 CABLE

QTY: 1

Two hundred (200) feet of Type SO black 10/3 heavy duty electric cable shall be provided on the reel.

ELECTRIC CORD REEL #1 TERMINATION

QTY: 1

One (1) NEMA L5-20R, 20 amp, three prong twist-lock receptacle shall be provided on the end of the cable.

ELECTRIC CORD REEL #1 JUNCTION BOX

QTY: 1

A Circle-D Model #PF51G-5P, four (4) outlet junction box(es) with two (2) NEMA L5-20R twist-lock receptacles and two (2) 5-20 duplex household receptales with a 12" pigtail with a NEMA L5-20P twist-lock plug shall be provided.

ELECTRIC CORD REEL #1 JUNCTION BOX HOLDER

QTY: 1

A holder(s) constructed from 1/8" tread plate shall be provided for each cord reel(s) junction box. The location of the holder shall be adjacent to the cord reel roller assembly or as directed by the fire department.

ELECTRIC CORD REEL #1 CIRCUIT BREAKER

QTY: 1

The circuit breaker used to protect any device attached to the cord reel shall be sized to the smallest electrical connection used.

ELECTRIC CORD REEL #1 BALL STOP

QTY: 1

A cable ball stop(s) shall be installed on the cable to keep the end from passing through the roller assembly.

ELECTRIC CORD REEL #2

QTY: 1

One (1) Hannay Model #ECR-1618-17-18, 120 volt, electric rewind cord reel shall be provided and wired to the breaker panel.

The reel shall be securely mounted and equipped with a rewind control adjacent to the reel.

ELECTRIC CORD REEL #2 ROLLER

QTY: 1

A Hannay 4-way stainless steel roller assembly shall be provided. The roller assembly opening shall be the full width of the reel drum.

ELECTRIC CORD REEL #2 REWIND

QTY: 1

A reel rewind switch(s) shall be provided adjacent to the reel.

ELECTRIC CORD REEL #2 CABLE

QTY: 1

Two hundred (200) feet of Type SO black 10/3 heavy duty electric cable shall be provided on the reel.

ELECTRIC CORD REEL #2 TERMINATION

QTY: 1

One (1) NEMA L5-20R, 20 amp, three prong twist-lock receptacle shall be provided on the end of the cable.

ELECTRIC CORD REEL #2 TERMINATION

QTY: 1

A Circle-D Model #PF51G-5P, four (4) outlet junction box(es) with two (2) NEMA L5-20R twist-lock receptacles and two (2) 5-20 duplex household receptales with a 12" pigtail with a NEMA L5-20P twist-lock plug shall be provided.

ELECTRIC CORD REEL #2 JUNCTION BOX HOLDER

QTY: 1

A holder(s) constructed from 1/8" tread plate shall be provided for each cord reel(s) junction box. The location of the holder shall be adjacent to the cord reel roller assembly or as directed by the fire department.

ELECTRIC CORD REEL #2 CIRCUIT BREAKER

QTY: 1

The circuit breaker used to protect any device attached to the cord reel shall be sized to the smallest electrical connection used.

ELECTRIC CORD REEL #2 BALL STOP

QTY: 1

A cable ball stop(s) shall be installed on the cable to keep the end from passing through the roller assembly.

CORD REEL FLOOR MOUNT ABOVE OS FRONT STABILIZER

QTY: 1

The cord reel on the officer side shall be located above the outrigger panel.
An aluminum treadplate enclosure will be installed over the reel.
The enclosure will be provided with a stainless steel hinge that will allow the cover to be opened.
A captive roller assembly will be provided to assist with the payout of the cord.
A ball stop will be provided on the cord to stop the cord at the roller assembly.

WATEROUS CX 1500 GPM SINGLE STAGE PUMP - MID MOUNT

QTY: 1

WATEROUS CX -150
1500 GPM
Single Stage

The pump must deliver the rated capacity at the pressure listed below:
100% of rated capacity at 150 PSI net pump pressure
100% of rated capacity at 165 PSI. net pump pressure
70% of rated capacity at 200 PSI. net pump pressure
50% of rated capacity at 250 PSI. net pump pressure

To achieve the 1500 GPM, both suction inlets must be utilized.
Four(4) lengths of hard suction may be required.

PUMP ASSEMBLY
The pump shall be of a size and design to mount on the chassis rails of commercial and custom truck chassis, and have the capacity of 1500 gallons per minute (U.S. GPM), NFPA-1901 rated performance.

IMPELLER SHAFT
The impeller shaft shall be stainless steel, accurately ground to size, and supported at the drive end by oil or grease lubricated, anti-friction bearings for rigid and precise support. Bearings shall be protected from water and sediment by suitable stuffing boxes, finger rings and oil seals. The impeller shaft shall be of two-piece construction separable between the pump and pump transmission to allow true separation of the transmission from the pump without disassembly of either component. No sleeve type bearings shall be used.

PUMP IMPELLER
The impeller shall be bronze, accurately balanced (mechanically and hydraulically), of mixed flow design with reverse flow labyrinth-type wear rings that resist water bypass and loss of efficiency due to wear.

Wear rings shall be bronze, and shall be easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.

PUMP RATIO

QTY: 1

The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.

The manufacturer shall supply at time of delivery copies of the pump manufacturer's certification of hydrostatic testing, the engine manufacturer's current certified brake horsepower curve.

PUMP MOUNTS - MID-SHIP PUMPS

QTY: 1

Extra heavy duty pump mounting brackets shall be furnished.

These shall be bolted to the frame rails in such a position to perfectly align the pump so that the angular velocity of the drive line joints shall be the same on each end of the drive shaft.

This shall assure full capacity performance with a minimum of vibration. Mounting hardware shall utilize Grade 8 bolts.

WATEROUS MECHANICAL PUMP SEAL

QTY: 1

Stuffing boxes shall be integral with the pump body and be equipped with self-adjusting, maintenance free mechanical shaft seals.

WATEROUS PUMP IMPELLER

QTY: 1

The impeller shall be bronze, accurately balanced (mechanically and hydraulically), of mixed flow design with reverse flow labyrinth-type wear rings that resist water bypass and loss of efficiency due to wear. Wear rings shall be bronze, and shall be easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.

WATEROUS "C22" PUMP DRIVE UNIT, ALL WATEROUS MID-S

QTY: 1

The pump transmission shall be all aluminum "C22" model, rigidly attached to the pump body assembly and be of latest design incorporating a high strength involute tooth-form Hy-Vo chain drive. The driven sprockets shall be capable of operating at high speeds to provide smooth, quiet transfer of power. The shift engagement shall be accomplished by a free-sliding collar and shall incorporate an internal locking mechanism to insure that the collar shall be maintained in ROAD or PUMP position.

PUMP SHIFT MANUAL OVERRIDE

QTY: 1

An emergency manual pump shift control shall be furnished on the left side pump panel which may be utilized if the air shift control does not operate.

WATEROUS PUMP SHIFT INDICATOR LIGHTS

QTY: 1

The pump shift assembly shall incorporate an indicating light system which shall warn the operator if the shift to PUMP has not been completed and indicate when it has been completed.

In accordance with NFPA 1901, a complete set of indicating lights is standard. These lights indicate when the shift has been complete to PUMP and OK TO PUMP.

MANIFOLD - DISCHARGE & SUCTION

QTY: 1

A custom made suction and discharge manifold shall be constructed from stainless steel and/or flexible tubing. The manifold shall be designed to provide maximum efficiency for the suction inlets and the discharges. {No Exceptions}.

WATEROUS ANODE BLOCKS - 4 TOTAL

QTY: 1

Four (4) Waterous zinc anode blocks shall be provided and located two (2) on the suction side and two (2) on the discharge side of the pump to protect the pump from corrosion.

The Anodes shall be painted Safety Yellow for identification purposes.

WATEROUS PUMP OVERHEAT/THERMAL RELIEF SYSTEM

QTY: 1

A Waterous Overheat Protection Manager (OPM) shall be provided to serve as a safety device by releasing hot water from the discharge area of the pump to the ground.

The OPM consists of a valve that opens when the water in the pump reaches 140 F (60 C) and a warning light that is triggered by a thermal switch when the water in the pump reaches 180 F (82 C).

The warning light acts as an additional protection device if the temperature inside the pump keeps rising although the valve is open.

The OPM valve and switch are both mounted on two 1/2” tapped holes located near the center discharge area of the pump.

AUXILIARY ENGINE COOLER

QTY: 1

An auxiliary cooler or heat exchanger shall be installed in the engine compartment between the engine and the chassis radiator.

The cooler shall permit the use of water from the pump for cooling the engine. The water supply line will be equipped with a strainer.

The cooling shall be done without mixing engine and pump water.

FIRE RESEARCH "IN CONTROL" TGA-400

QTY: 1

The apparatus shall be equipped with a Fire Research InControl series TGA400 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 5 1/2" high by 10 1/2" wide by 2" deep. 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 1 3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring.

The following continuous displays shall be provided:

- Pump discharge; shown with four daylight bright LED digits more than 1/2" high.
- Pump Intake; shown with four daylight bright LED digits more than 1/2" high.
- Pressure / RPM setting; shown on a dot matrix message display.
- Pressure and RPM operating mode LEDs.
- Throttle ready LED.
- Engine RPM; shown with four daylight bright LED digits more than 1/2" high.
- Check engine and stop engine warning LEDs.
- Oil pressure; shown on a dual color (green/red) LED bar graph display.
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display.
- Transmission Temperature: shown on a dual color (green/red) LED bar graph display.
- Battery voltage; shown on a dual color (green/red) LED bar graph display.
- The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and night time operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. 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 and a control knob located on the front of the control panel. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

Inputs to the control panel from the pump discharge and intake pressure sensors shall be electrical. The discharge pressure display shall show pressures from 0 to 600 psi. The intake pressure display shall show pressures from -30 in. Hg to 600 psi.

The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to

idle. The pressure governor, monitoring, and master pressure display shall be programmed to interface with a specific engine.

TASK FORCE TIPS #A18 SERIES INTAKE RELIEF VALVE

QTY: 1

A Task Force Tips relief valve shall be provided.

The valve shall be adjustable from 50 to 300 psi (3 to 14 bar) with easy to see 25 psi (2 bar) increments.

The aluminum casting shall be hardcoat anodized, and powder coat finished inside and out for maximum corrosion protection.

TRIDENT "MANUAL" AIR PRIMING SYSTEM

QTY: 1

The priming pump will be a Trident air primer system.

A push in primer handle will open the priming valve and prime the pump.

ROTARY MASTER DRAIN VALVE

QTY: 1

A rotary type, 12 port, master drain valve shall be provided and controlled at the lower portion of the side pump panel.

The valve shall be located in pump compartment lower than the main body and connected in such a manner as to allow complete water drainage of the pump body and all required accessories.

Water shall be drained below the apparatus body and away from the pump operator.

DRAINS/BLEEDER "INNOVATIVE CONTROLS" LIFT UP @ ALL

QTY: 1

All lines shall drain through the master drain valve or shall be equipped with individual drain valves, easily accessible, and labeled.

One (1) individual "Innovative Control" lift up drain valve shall be furnished for each 1-1/2" or larger discharge port and each 2-1/2" gated auxiliary suction.

Drain/bleeder valves shall be located at the bottom of the side pump module panels. All drains and bleeders shall discharge below the running boards.

SYNFLEX SUCTION, DISCHARGE, PRESSURE AND CONTROL L

QTY: 1

Small lines within the pump enclosure shall be constructed from Synflex hose.

Uses include but are not limited to such lines as priming control, gauge lines, drain lines, air control valves, pump shift, supplemental cooling, foam flush, and air bleeder valves.

SUCTION INLETS - 6” INLETS

QTY: 1

Two (2) 6" N.S.T. suction inlets shall be provided, one on the driver side and one on the officer side pump panel.

A removable strainer shall be installed on each inlet.

SHORT NECK MAIN PUMP SUCTION INLETS

QTY: 1

The main pump suction inlets shall be furnished with a short suction end, terminating with only the suction threads protruding through the side panel to minimize the distance an exterior appliance protrudes beyond the pump panel.

BEHIND PANEL MOUNT

QTY: 1

All side gated inlet valves shall be recess mounted behind the side pump panels or body panels. There will be no exceptions.

DELETE SUCTION INLET CAP DRIVER SIDE

QTY: 1

The suction cap provided as standard equipment shall be deleted.

6" NH - 4" TFT INTAKE RELIEF VALVE

QTY: 1

There shall be One (1) Task Force Tips (TFT) AB Series manually operated aluminum ball intake valve(s) provided at Left side pump panel inlet .
The inlet connection will be 7NP (4.0" Threaded Swivel) and the outlet connection will be NX (6.0" Threaded Swivel) .
There will be an eight-position adjustable 30 degree swiveling detent elbow on the inlet side of the ball intake valve.
The ball intake valve will be controlled with a NFPA compliant slow-close hand wheel. The hand wheel will have a Standard shaft.
A position indicator will be provided to allow for a quick visualization of the status of the valve in the open, closed or transition position.
The ball intake valve will be equipped with an adjustable pressure relief valve.
The relief valve will have a working range of 90 PSI to 300 PSI
A 3/4" TFT bleeder/drain valve will be provided on the ball intake valve to exhaust excess air or water from the valve.
For corrosion protection the aluminum casting will have a hard coat anodized finish, with a powder coated internal and external finish.
All the components facing the wet side of the valve will be constructed from stainless steel.

DELETE SUCTION INLET CAP OFFICER SIDE

QTY: 1

The suction cap provided as standard equipment shall be deleted.

TFT RC INTAKE VALVE OFFICER SIDE INLET

QTY: 1

There will be One (1) Task Force Tips (TFT) AB Series electric remote controlled aluminum ball intake(s) valve provided at right side pump inlet.
The inlet connection will be 7NP (4.0" Threaded Swivel) and the outlet connection will be NX (6.0" Threaded Swivel) .
There will be an eight-position adjustable 30 degree swiveling detent elbow on the inlet side of the ball intake valve.
The valve will be controlled by a remote panel-mounted push-button switch with LED lights for a quick visualization of the status of the valve in the open, closed or transition position.
The push button switch will be mounted on the pump operator's panel.
The ball intake valve will be equipped with an adjustable pressure relief valve.
The relief valve will have a working range of 90 PSI to 300 PSI.
A 3/4" TFT bleeder/drain valve will be provided on the ball intake valve to exhaust excess air or water from the valve.
For corrosion protection the aluminum casting will have a hard coat anodized finish, with a powder coated internal and external finish.
All the components facing the wet side of the valve will be constructed from stainless steel.

2-1/2" DS AUX PRIMARY SUCTION INLET FORWARD OF MA

QTY: 1

One (1) 2-1/2" auxiliary suction shall be provided at the driver side pump panel, to the front of the main inlet.

The 2-1/2" auxiliary suction shall terminate with a removable strainer, chrome plated 2-1/2" NST female swivel with a chrome plated plug and retaining chain.

2-1/2" AKRON #8800 S.S. BALL VALVE, DS FRONT AUX S

QTY: 1

An Akron Brass 2 1/2" Generation II Swing-Out Valve shall be provided for the driver's side front auxiliary suction.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

SWING CONTROL @ VALVE, DS FRONT AUX SUCTION

QTY: 1

A 1/4 turn swing control handle shall be provided on the driver side, front auxiliary suction valve.

TANK TO PUMP 3" VALVE

QTY: 1

One (1) 4" tank to pump line shall be piped into the tank sump. This line shall be plumbed directly into the rear of the pump suction manifold for maximum efficiency.

A check valve shall be provided to prevent accidental pressurization of the water tank through the pump connection. Connection from the valve to the tank shall be made by using a non-collapsible flexible rubber hose.

3" AKRON #8800 SERIES - S.S. BALL, VALVE , TANK TO

QTY: 1

An Akron Brass 3" Generation II Swing-Out Valve shall be provided between the pump suction manifold and the water tank.

The valve shall have an all brass body with flow optimizing, stainless steel ball and dual polymer seats.

3" PUSH/PULL CONTROL FOR TANK TO PUMP

QTY: 1

A push/pull control handle shall be located on the operator's panel with function plate.

PUSH-PULL CONTROL NORMALLY OPEN - IN / OPEN, O

QTY: 1

The tank-to-pump push pull handle shall be oriented so that it is "IN" to "OPEN" and "OUT" to "CLOSE".

This shall allow it to be normally open for pump-and-roll operations.

TANK FILL LINE 2" FROM PUMP - SIDE MOUNT

QTY: 1

One (1) 2" gated full flow pump to tank refill line controlled at the pump panel shall be provided. A deflector shield inside the tank shall be furnished. Tank fill plumbing shall utilize 2" high pressure hose for tank connection to accommodate flexing between components. There will be no exceptions.

2" AKRON #8800 SERIES - S.S. BALL TANK FILL, SIDE

QTY: 1

An Akron Brass 2" Generation II Swing-Out Valve shall be provided between the pump discharge manifold and the water tank.

The valve shall have an all brass body with flow optimizing, stainless steel ball, and dual polymer seats.

PUSH/PULL CONTROL FOR TANK FILL

QTY: 1

A push/pull control handle shall be located on the operator's panel with function plate.

DS MAIN DISCHARGE #1

QTY: 1

A discharge shall be provided and located at the driver's side pump panel.

The driver's side discharges # 1 shall terminate with NST threads, through the left panel above the main pump intake.

The main pump discharge shall be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

2-1/2" AKRON #8800 SERIES - S.S. BALL, DS #1

QTY: 1

An Akron Brass 2 1/2" Generation II Swing-Out Valve shall be provided for the driver's side #1 discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

DS #1 DISCH - 2-1/2" STRAIGHT NST & 30-DEGREE NST

QTY: 1

The discharge valve shall be equipped with a straight 2 1/2" NST adapter that shall be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

2-1/2" NST PRESSURE VENTED CAP - DS DISCHARGE #1

QTY: 1

A 2 1/2 " NST, chrome plated pressure vented cap shall be installed on driver's side #1 discharge.

PUSH/PULL CONTROL FOR DS DISCHARGE #1 -SIDE MOUNT

QTY: 1

The driver's side # 1 discharge valve shall be controlled by a push/pull handle located on the operator's panel.

CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - DS DI

QTY: 1

The driver's side # 1 discharge shall be equipped with a Class One Sub-Z II, 2.5", interlube filled pressure gauge with pulse and vibration dampening.

To prevent internal freezing, the stem, and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals.

DS MAIN DISCHARGE #2

QTY: 1

A discharge shall be provided and located at the driver's side pump panel.

The driver's side discharges # 2 shall terminate with NST threads, through the left panel above the main pump intake.

The main pump discharge shall be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

2-1/2" AKRON #8800 SERIES - S.S. BALL, DS #2

QTY: 1

An Akron Brass 2 1/2" Generation II Swing-Out Valve shall be provided for the driver's side #2 discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

DS #2 DISCH - 2-1/2" STRAIGHT NST & 30-DEGREE NST

QTY: 1

The discharge valve shall be equipped with a straight 2 1/2" NST adapter that shall be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

2-1/2" NST PRESSURE VENTED CAP - DS DISCHARGE #2

QTY: 1

A 2 1/2" NST, chrome plated, pressure vented cap shall be installed on driver's side # 2 discharge.

PUSH/PULL CONTROL FOR DS DISCHARGE #2 -SIDE MOUNT

QTY: 1

The driver's side # 2 discharge valve shall be controlled by a push/pull handle located on the operator's panel.

CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - DS DI

QTY: 1

The driver's side # 2 discharge shall be equipped with a Class One, Sub-Z II, 2.5", interlube filled pressure gauge with pulse and vibration dampening.

To prevent internal freezing, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals.

OS MAIN DISCHARGE #1

QTY: 1

A discharge shall be provided and located at the officer's side pump panel.

The officer's side discharges #1 shall terminate with NST threads, through the officer's side panel above the main pump intake.

The main pump discharge shall be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

2-1/2" AKRON #8800 SERIES - S.S. BALL, OS #1, SIDE

QTY: 1

An Akron Brass, 2 1/2" Generation II, Swing-Out Valve shall be provided for the officer's side #1 discharge.

The valve shall have an all brass body with flow optimizing, stainless steel ball, and dual polymer seats.

OS #1 DISCH - 2-1/2" STRAIGHT NST & 30-DEGREE NST

QTY: 1

The discharge valve shall be equipped with a straight, 2 1/2" NST adapter that shall be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

2-1/2" NST PRESSURE VENTED CAP - OS DISCHARGE #1

QTY: 1

A 2 1/2" NST, chrome plated, pressure vented cap shall be installed on officer's side # 1 discharge.

PUSH/PULL CONTROL FOR OS DISCHARGE #1 -SIDE MOUNT

QTY: 1

The officer's side, # 1 discharge valve shall be controlled by a push/pull handle located on the operator's panel.

CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - OS DI

QTY: 1

The officer's side, # 1 discharge shall be equipped with a Class One, Sub-Z II, 2.5", interlube filled, pressure gauge with pulse and vibration dampening.

To prevent internal freezing, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating, diaphragm located in the stem.

A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals
.

OS MAIN DISCHARGE #2

QTY: 1

A discharge shall be provided and located at the officer's side pump panel.

The officer's side discharges #2 shall terminate with NST threads, through the officer's side panel above the main pump intake.

The main pump discharge shall be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

2-1/2" AKRON #8800 SERIES - S.S. BALL, OS #2, SIDE

QTY: 1

An Akron Brass, 2 1/2" Generation II, Swing-Out Valve shall be provided for the officer's side #2 discharge.

The valve shall have an all brass body with flow optimizing, stainless steel ball, and dual polymer seats.

OS #2 DISCH - 2-1/2" STRAIGHT NST & 30-DEGREE NST

QTY: 1

The discharge valve shall be equipped with a straight, 2 1/2" NST, adapter that shall be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

2-1/2" NST PRESSURE VENTED CAP - OS DISCHARGE #2

QTY: 1

A 2 1/2" NST, chrome plated, pressure vented cap shall be installed on officer's side #2 discharge.

PUSH/PULL CONTROL FOR OS DISCHARGE #2 -SIDE MOUNT

QTY: 1

The officer's side, #2 discharge valve shall be controlled by a push/pull handle located on the operator's panel.

CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - OS DI

QTY: 1

The officer's side, #2 discharge shall be equipped with a Class One, Sub-Z II, 2.5", interlube filled pressure gauge with pulse and vibration dampening.

To prevent internal freezing, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

A bright, metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals.

OS MAIN DISCHARGE #3

QTY: 1

A discharge shall be provided and located at the officer's side pump panel.

The officer's side discharges #3 shall terminate with NST threads, through the officer's side panel above the main pump intake.

The main pump discharge shall be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

4" AKRON #8840 VALVE, OS #3, SIDE MOUNT

QTY: 1

An Akron Brass, 4" Heavy Duty, Swing-Out Valve shall be provided for the officer's side #3 discharge.

The valve shall have an all brass body with flow optimizing, flat ball, and dual polymer seats.

OS #3 DISCH - 4" STRAIGHT NST & 30-DEGREE NST ELBO

QTY: 1

The discharge valve shall be equipped with a straight, 4" NST adapter that shall be equipped with a 4" NST, 30-degree, chrome plated elbow.

4" NST PRESSURE VENTED CAP - OS DISCHARGE #3

QTY: 1

A 4" NST, chrome plated, pressure vented cap shall be installed on officer's side #3 discharge.

4" AKRON #9333 ELECTRIC VALVE CONTROL FOR OS DISCH

QTY: 1

The officer's side, #3 discharge Akron ball valve shall be equipped with an Akron Brass Style 9333 Valve Controller.

The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting.

The unit shall be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator.

Two additional buttons shall be available to be used for preset selection, preset activation, and menu navigation.

The controller shall have up to three preset locations that can be user set and easily recalled upon each use.

The unit shall be capable of being used in conjunction with at least two additional displays to control one valve.

The unit shall provide position indication through a full color, backlit, LCD display.

CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - OS DI

QTY: 1

The officer's side, #3 discharge shall be equipped with a Class One, Sub-Z II, 2.5", interlube filled pressure gauge with pulse and vibration dampening.

To prevent internal freezing, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

A bright, metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals.

CROSSLAY #1

QTY: 1

A crosslay hose bed shall be provided and plumbed from the pump in a transverse design, located above the pump enclosure for quick attack deployment. The crosslay hose bed flooring shall be designed to be removable and constructed from brushed finish, perforated aluminum material.

CROSSLAY #1 CAPACITY

QTY: 1

Crosslay #1 shall be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA - 1900 to accommodate a minimum of 200 feet of 1-3/4" fire hose.

CROSSLAY #1 DESIGN

QTY: 1

Crosslay #1 hose bed shall be designed to accommodate the fire hose in a double stack configuration.

1-1/2" NST CHICKSAN SWIVEL - CROSSLAY #1

QTY: 1

The crosslay discharge shall terminate below the hosebed floor with a 1 1/2" NSTM chicksan swivel adapter.

The crosslay hose bed floor shall be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

CROSSLAY #1, PLUMBING, 2" STAINLESS STEEL PIPING

QTY: 1

The crosslay #1 discharge shall be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to crosslay hose bed.

A minimum of one (1) grooved pipe coupling shall be furnished in this assembly, if necessary, to allow for flex and serviceability.

2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY

QTY: 1

An Akron Brass 2" Generation II Swing-Out Valve shall be provided for the crosslay #1 discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

PUSH/PULL CONTROL CROSSLAY #1

QTY: 1

The crosslay #1 discharge valve shall be controlled by a push/pull handle located on the operator's panel.

CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - CROSS

QTY: 1

The crosslay #1 discharge shall be equipped with a Class One Sub-Z II, 2.5" interlube filled pressure gauge with pulse and vibration dampening.

To prevent internal freezing, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals.

CROSSLAY #2 1-3/4"

QTY: 1

A crosslay hose bed shall be provided and plumbed from the pump in a transverse design, located above the pump enclosure for quick attack deployment.

The crosslay hose bed flooring shall be designed to be removable, constructed from brushed finish, perforated aluminum material.

CROSSLAY #2 CAPACITY - 200 FEET OF 1-3/4" HOSE

QTY: 1

Crosslay #2 shall be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA - 1900 to accommodate a minimum of 200 feet of 1-3/4" fire hose.

CROSSLAY #2 - DOUBLE STACK HOSE DESIGN

QTY: 1

Crosslay #2 hose bed shall be designed to accommodate the fire hose in a double stack configuration.

1-1/2" NST CHICKSAN SWIVEL - CROSSLAY #2

QTY: 1

The crosslay discharge shall terminate below the hose bed floor with a 1 1/2" NSTM chicksan swivel adapter. The crosslay hose bed floor shall be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

CROSSLAY #2, PLUMBING, 2" STAINLESS STEEL PIPING

QTY: 1

The crosslay #2 discharge shall be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to crosslay hose bed.

A minimum of one (1) grooved pipe coupling shall be furnished in this assembly, if necessary, to allow for flex and serviceability.

2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY

QTY: 1

An Akron Brass 2" Generation II Swing-Out Valve shall be provided for the crosslay #2 discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

PUSH/PULL CONTROL CROSSLAY #2

QTY: 1

The crosslay #2 discharge valve shall be controlled by a push/pull handle located on the operator's panel.

CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - CROSS

QTY: 1

The crosslay #2 discharge shall be equipped with a Class One Sub-Z II, 2.5" interlube filled pressure gauge with pulse and vibration dampening.

To prevent internal freezing, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals.

STAINLESS STEEL ROLLERS - TWO CROSSLAYS

QTY: 1

The outer edge of the crosslays hosebed shall be trimmed with stainless steel rollers on each side of the vehicle to assist in hose removal.

LOWERED CROSSLAYS

QTY: 1

The crosslay hose bed floor will be approximately 42" above the side running board and no more than 66" above ground level.

VINYL END FLAPS FOR ALUMINUM TRDPLT X-LAY CO

QTY: 1

Vinyl flaps shall be provided at each side of the transverse cross lay compartment secured to the tread plate cross lay cover by quarter turn fasteners, and equipped with a strap to each end.

END FLAP COVER BLACK IN COLOR

QTY: 1

The crosslay end flap shall be black in color.

FRONT HINGED CROSSLAY HOSE BED COVER,TRDPLT

QTY: 1

A 3/16" tread plate plate cross lay cover shall be provided with a full length stainless steel hinge at the front of the cover.

Two (2) hood hooks will be provided, one (1) each side, to hold the crosslay cover in the open position.

A clip will be mounted at each side on the crosslay cover to allow the hooks to hold the cover open.

PUMP INSTALLATION

QTY: 1

SIDE MOUNT PUMP MODULE, TILLER AERIAL

QTY: 1

The pump module shall be a self-supported structure mounted independently from the body and chassis cab.

The design must allow normal frame deflection without imposing stress on the pump module structure or side running boards.

The pump module shall be securely mounted to the chassis frame rails.

PUMP MODULE MATERIAL

QTY: 1

The pump module shall be a welded frame work utilizing structural aluminum components properly braced to withstand the rigors of chassis frame flex.

SLIDE-OUT STEP @ DRIVER'S PUMP OPERATOR'S PANEL

QTY: 1

A slide-out platform shall be located below the driver's side running board step.

The platform shall be constructed from 2" aluminum tubing with Grip-Strut material inserts the step shall have a minimum weight rating of 500 pounds.

Deployment of this platform shall be connected to the DO NOT MOVE TRUCK warning circuit.

The step shall slide on stainless steel pins fitted in a machined frame which shall mount to the pump house frame.

Drawer slides are not acceptable.

RUNNING BOARD STEPS (AERIALS ONLY)

QTY: 1

The driver and officer running board steps shall be fabricated of 3/16" tread plate plate. The outside edge on each step shall be fabricated with a double break, return flange. The steps shall be rigidly reinforced with a heavy duty support structure. The running boards shall not form any part of the compartment design, and shall be bolted into place with a minimum 1/2" clearance gap between any panel to facilitate water runoff.

STORAGE WELL IN OFFICERS SIDE RUNNING BOARD (FLOAT

QTY: 1

A floating storage well, constructed of 1/8" aluminum, shall be recessed into the officer’s side running board.

The storage well shall measure 9" deep x 9" wide x as long as possible between the running board support members.

Drain holes shall be located in the bottom corners to allow water to drain from the storage well.

The front and rear bottom corners of the well shall have an angled face to help the well slide up if it strikes an object.

The entire well shall be a "floating" style that can easily shift up if an object is struck.

TWO (2) VELCRO STRAPS ON OFFICER'S SIDE STORAGE WE

QTY: 1

The officer's side running board hose well shall be furnished with Velcro straps to secure the hose stored in the well.

The straps shall be attached to each side of the hose well with stainless steel footman loops.

OFFICER'S SIDE WELL - 100 FEET OF 2-1/2" HOSE

QTY: 1

100' of 2-1/2" hose

SIDE MOUNT PUMP PANEL - TDA

QTY: 1

The pump operator's control panel shall be located on the driver side of the apparatus. The pump enclosure side panels shall be completely removable and designed for easy access and servicing.
All the vertical surfaces of the pump house area will be brushed stainless steel in place of the standard.
The sides or the cargo compartment and water tank enclosure and rear wall above the crosslay's will be painted job color.
The front vertical surface in the pump area will be brushed stainless steel.
The stainless steel will replace the standard vertical pump area material.

SIDE MOUNT PANELS - 12 GAUGE BRUSHED STAINLESS STE

QTY: 1

The left side operator's panel, gauge panel, right side pump panel and right side access door shall be fabricated from 12-gauge 304L stainless steel with a #4 (150/180 grit) standard brushed finish.

VERTICALLY HINGED GAUGE PANEL - SIDE MOUNT

QTY: 1

A full width, vertically hinged gauge access panel shall be provided at the operator's position.

Chrome plated positive locks shall be provided along with chain holders to prevent the front of the gauge panel from coming in contact with other panels when open.

OFFICER SIDE VERTICALLY HINGED PUMP ACCESS DOOR -

QTY: 1

The officer's side pump panel shall be split and vertically hinged to provide complete access to the pump and plumbing on the officer's side of the pump enclosure.

The panels shall be equipped with stainless steel hinges and secured with push type locks to hold the panels closed.

The drains located on the officer's side panel shall be fastened to the lower panel, which shall be stationary.

PANEL FASTENERS

QTY: 1

Stainless steel machine screws and lock washers shall be used to hold these panels in position.

The panels shall be easily removable to provide complete access to the pump for major service.

CAPS AND ADAPTERS SAFETY TETHER - CABLES

QTY: 1

All applicable discharge and suction caps, plugs and adapters shall be equipped with tether cables and secured to the vehicle.

PUMP PANEL DISCH./SUCTION TRIM PLATES

QTY: 1

A high polished trim plate shall be provided around each discharge port and suction inlet opening to allow accessibility to the respective valve for service and repairs.

DISCHARGE GAUGE TRIM BEZELS

QTY: 1

Each individual discharge gauge shall be installed into a decorative chrome-plated mounting bezel that incorporates valve-identifying verbiage and color labels, unless manufacturer supplied otherwise.

IDENTIFICATION PLATES

QTY: 1

Color coded identification tags shall be provided for all gauges, controls, connections, switches, inlets and outlets.

PUMP OPERATOR'S PANEL LIGHT SHIELD

QTY: 1

The pump operator’s panel shall be equipped with a light shield that shall be the full available width of the control panel, and shall be positioned to cover the lights and prevent glare. (Note: On apparatus with lowered style crosslays, the light shield shall be from the back of the crosslays to the rear of the pump house).

The light shield shall be equipped with the following lights:

TECNIQ 6" LED LIGHTS - LIGHT SHIELD

QTY: 1

Four (4) TecNiq 6" long LED lights.

One (1) light under the operator's panel light shield shall be actuated when fire pump is engaged in addition to the pump engaged light.

TECNIQ EON 3 LED LIGHTS - OS PUMP PANEL

QTY: 1

Four (4) TecNiq Eon, 3-LED illumination lights mounted in horizontal stainless steel bezels and mounting gaskets.

The lights shall be switched with the main pump panel lights.

FUEL GAUGE ON PUMP PANEL (DO NOT USE ON COMMERCIAL

QTY: 1

Fuel Gauge with integral DEF level gauge (if applicable)

5/8" PUMP BY-PASS COOLER ON PUMP PANEL

QTY: 1

5/8" Pump cooler (Bypass Line).

PUMP PRESSURE & VACUUM TEST PORTS @ PANEL

QTY: 1

The pump panel shall be equipped with Vacuum Pressure test plugs to allow for test equipment to monitor pump pressure and vacuum levels.

Chrome plugs and labels shall be provided for the test ports.

4-1/2" CLASS ONE MASTER PRESSURE AND COMPOUND GAUG

QTY: 1

One (1) 4-1/2" diameter pressure gauge (labeled: "PRESSURE") and one (1) 4-1/2" diameter compound vacuum gauge (labeled: "INTAKE") shall be provided.

The master gauges shall be Class One Sub-Z II, interlube filled.

The gauge faces shall be white with black numerals.

PRESSURE & COMPOUND GAUGE RANGES - SINGLE STAGE

QTY: 1

All applicable pressure gauges shall have a range of 0 - 400 P.S.I., and the compound gauge shall have a range of -30" - 0 - 400 P.S.I.

PUMP CERTIFICATION - 750 GPM & UP

QTY: 1

The pump shall be third party performance tested to meet the requirements of NFPA-1900. There will be no exceptions.

TANK DESCRIPTION AND MOUNT

QTY: 1

The Poly water tank shall be constructed of polypropylene material. 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 1/2" to 1" as required. Internal baffles are generally 3/8" in thickness.

The tank shall be of a specific configuration and is so 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 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 is fitted with a removable lifting assembly designed to facilitate tank removal. The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" 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 interlock with one another and are 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.

Tolerances in design allow for a maximum variation of 1/8" on all dimensions.

The tank cover shall be constructed of 1/2" thick 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 dowers shall accommodate the necessary lifting hardware.

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" 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 be located in the left front corner of the tank unless otherwise specified by the tank manufacturer to the purchaser. The tower shall have a 1/4" thick removable polypropylene screen and a 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 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 fill tower shall be fitted with an integral 4" I.D. schedule 40 P.V.C. combination overflow/vent pipe running from the fill tower through the tank to the exterior to allow water to overflow below the aerial body.

There shall be one (1) sump standard per tank. The sump is a minimum of 8" wide and 8" long with a 3/4" bottom, unless specified otherwise in special provisions. The sump shall have a threaded plug located at the bottom for a tank drain. An anti-swirl plate shall be mounted inside the sump approximately 1" off the floor of the sump.

There shall be two (2) standard tank outlets; one for tank-to-pump suction line and one for a tank fill line. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank.

All tanks 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. Each tank is delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight.

WATER TANK

QTY: 1

The water tank shall have a capacity of 300 gallons, constructed from Poly material.

WATER TANK

QTY: 1

Water tank capacity may be reduced due to weight restrictions.

WATER TANK LEVEL GAUGE

QTY: 1

A Fire Research, model #WLA300-A00, "TANKVISION" gauge that shows the actual volume of water in the tank shall be provided on the pump operator's panel. The "TANKVISION" gauge is designed for both ease of operation and installation. The "TANKVISION" gauge utilizes ultra bright multi color LEDs for sunlight readability and also uses 2 specially designed wide-viewing lens for 180° of clear viewing. The "TANKVISION" gauge utilizes a pressure sender to measure the liquid volume. The gauge shall be equipped with a self-calibration feature that allows the LEDs TANKVISION gauge to be used on tanks of different shapes and sizes.

Features:

- Flashes warning when the volume is less than 25%. Rapid down scrolling LEDs alert the operator when the tank is almost empty. Remote audio warning available.
- One size fits all’. The self-calibration feature allows for easy calibration of any shape or size tank.
- Multiple displays are possible with a single sender through the FRC data bus.
- Rugged waterproof cast aluminum housing.
- No fitting needed for poly tank.
- Special fittings available for other tank materials.
- Connector disconnects at back of display.

WATER TANK LEVEL GAUGE

QTY: 1

The gauge shall use a pressure transducer installed near the bottom of the water tank to determine the correct volume in the tank.

BODY AND COMPARTMENT HEADER

QTY: 1

GENERAL ALUMINUM BODY DESCRIPTION FOR 100' TILLER

QTY: 1

The general body construction shall be a modular body consisting of independent body modules or subassemblies with an independent heavy duty support framework. These specifications outline the minimum standards of construction.

To ensure the customer of sole source manufacturing, the body must be built by the same manufacturer of the entire chassis and aerial device. {No Exceptions}

COMPARTMENT FABRICATION

Compartment panels and body side sheets shall be a minimum of 1/8" aluminum 5052 alloy. Each side compartment assembly shall be both plug welded and stitch welded to ensure proper weld penetration on all panels while avoiding the distortion caused by a full seam weld. The side compartments shall be welded on a fixture to ensure true door and body dimensions. All compartments shall have a sweep-out style floor.

The floors of each compartment shall be adequately braced to provide maximum loading without undue deflection. All seams shall be caulked prior to finish paint to ensure proper compartment seal.

Compartments that are transverse below the trailer frame rails shall be designed with a bolt-in center section. This design shall provide removable access to the center section of the trailer frame rails for maintenance and aerial testing.

The referenced compartment sizes approximate the extreme outside compartment dimensions without deductions for material thicknesses, flanges, door pans/hardware, or ladder storage compartment headers.

BODY SUBFRAME

The body sub-frame shall be an all-welded configuration utilizing aluminum tubing, channel, and angle. This structure shall be designed to totally support the full length and width of the body and shall be welded to the body side compartments by use of reinforcement plates to incorporate the compartments into an integral part of the body weldment.

FLEX JOINTS

Due to the trailer flexing associated with tractor drawn aerial bodies, the tiller body shall be segregated into separate modules. Each module shall be spaced apart by a flex joint to allow movement between each body module when the vehicle is in road travel or aerial operations.

COATED FASTENERS

All exterior fasteners shall be coated stainless steel screws. Screw threads shall be coated with reusable, self-locking, sealing material to provide vibration resistance. Screw heads shall be coated with a sealing element to prevent galvanic corrosion between dissimilar metals. Non-coated screws shall only be provided as part of vendor supplied component installations.

GENERAL COMPARTMENT

QTY: 1

Compartment tops shall be covered with tread plate plate on both sides of the body. The tread plate shall have a flange downward, over the top of compartments to serve as a drip rail above the compartment doors.

ACCESS PANELS

Removable access panels shall be provided in the lower running board compartments to access hydraulic components, electrical harnesses, and the rear body mounts. All access panels shall be equipped with the same finish as the compartment interiors.

COMPARTMENT VENTILATION

Ventilation between compartments to atmosphere shall be provided and located in a position that avoids water entry into compartments.

COMPARTMENT DRIP MOLDING

Compartment tops overall side compartments shall be equipped with a flanged edge to provide protection against water run-off. A secondary polished extruded aluminum drip molding shall be provided between lower compartments and auxiliary high side compartments.

BODY TRIM

The body shall be protected and covered with bright finished tread plate plate. The tread plate shall be fastened with stainless steel hardware and shall be coated with rubber type undercoating between the body panel and tread plate to protect from moisture. All edges shall be sealed with silver, rubber caulking.

Tread plate shall be provided in the following areas:

- All surfaces of the compartments or on top of the body where personnel may walk or mount equipment
- Front of body
- Below aerial turntable decking
- Top of the pump enclosure (if applicable)
- Cover over the water tank (if applicable)
- Cover over hydraulic tank
- Top of mid-ship compartment (if applicable)

STANDARD FENDER - NO STORAGE (COMMERCIAL)

QTY: 1

The standard body fender shall be provided, no special storage options have been specified for the fender area.

STAINLESS WHEEL LINERS TILLER TRAILER

QTY: 1

Fully removable, bolt-in, 12 gauge stainless steel fender liners shall be provided. The wheel well liners shall extend from the outer wheel well body panel, into the truck frame. The completely washable fender liners shall be designed to protect the front and rear compartments and the main body supports from road salts, dirt accumulation and corrosion.

TILLER TRACTOR, REAR WHEEL WELLS & FENDERS - PAINT

QTY: 1

The tractor shall be equipped with a flat tread plate wheel well and fender step assembly. The sides of the fenders shall painted to match the body color. The front and rear edge of the fender assembly shall be

equipped with a 6" radius. The fenders shall be two (2) separate sections that shall be attached to the tractor frame rails for adequate strength to support a fire fighter.

SCBA CYLINDER RACK

QTY: 1

An SCBA storage rack for ten (10) SCBA cylinders will be mounted in the upper section of L5.
The floor shall be lined so the bottles can slide out easily.
It shall be angled 1 1/2" toward the door.
No back to the storage rack; use the rear compartment wall.

101' TDA DROP FRAME BODY - 100" WIDE

QTY: 1

LEFT SIDE COMPARTMENTATION
One (1) full-height compartment to the rear of the outrigger, measuring approx 22" wide x 59" high x 24" deep.
One (1) full height compartment to the rear of the outrigger, measuring 65" wide x 59" high x 28" deep. The upper 39-7/8" above the frame rails shall be transverse.
One (1) full height compartment to the rear of the outrigger, measuring 42" wide x 59" high x 28" deep. The upper 39-7/8" above the frame rails shall be transverse.
One (1) full height compartment to the rear of the outrigger, measuring 46" wide x 59" high x 28" deep.
One (1) running board compartment forward of the trailer axle, measuring 68" Wide x 29-13/16" High x 28" deep. There will be a notch into the compartment for the cradle.
One (1) running board compartment to the rear of the trailer axle, measuring 48" Wide x 26-5/8" High x 16" deep.

RIGHT SIDE COMPARTMENTATION
One (1) full-height compartment to the rear of the outrigger, measuring approx 22" wide x 59" high x 24" deep.
One (1) full height compartment to the rear of the outrigger, measuring 65" wide x 59" high x 28" deep. The upper 39-7/8" above the frame rails shall be transverse.
One (1) full height compartment to the rear of the outrigger, measuring 42" wide x 59" high x 28" deep. The upper 39-7/8" above the frame rails shall be transverse.
One (1) full height compartment to the rear of the outrigger, measuring 46" wide x 59" high x 28" deep.
One (1) running board compartment forward of the trailer axle, measuring 68" Wide x 54-1/8" High x 28" deep.
One (1) equipment compartment above the trailer axle, measuring 64" Wide x 23" High x 16" deep.
One (1) running board compartment to the rear of the trailer axle, measuring 48" Wide x 51-1/8" High x 16" deep.

LOCKER COMPARTMENT 21"W X 46"H X 14"D

QTY: 1

A locker compartment shall be provided, one (1) each side to the rear of the cab, measuring 21" wide x 46" high x 14" deep.

The compartment shall be mounted to the chassis frame rails at the front and rear of the compartment. Each compartment shall be equipped with an access panel located on the rear wall to provided access to the area behind the locker compartment.

2" THICK COMPARTMENT DOORS - FLAT RECESSED DOORS

QTY: 1

The compartment doors shall be flush type having the outer skin fabricated from 3/16" (5052 H32) aluminum. The door skin shall have a formed a mounting flange on one (1) side as a hinge. The door skin shall have reinforcing channels welded internally to accommodate the inner door pan mounting. The 2" thick compartment doors shall reduce the overall specified compartment depth by 2-1/2". All horizontally hinged doors shall be 1" thick to provide additional compartment storage area. The 1" thick

horizontal hinged doors shall reduce the overall specified compartment depth by 1-1/4".

ELECTRIC DOOR LOCK

QTY: 1

The R5 shall be equipped with an electric lock. The lock shall be wired directly to the battery. An illuminated switch shall be provided on the tiller cab dash and behind officer's side rear crew cab door C post.

In the event of loss of power, a manual override is available. A hole shall be provided under the compartment door lock to manually unlock the door in the event of a electric lock failure.

#8 POLISHED (MIRROR) FINISHED STAINLESS STEEL DO

QTY: 1

Each inner door pan shall be constructed from 16 gauge stainless steel material which shall be provided with a #8 polished finish and be bolted to the internal side of the door. The inner door pan on 2” thick doors shall enclose the latch and reinforcements completely. The inner door pan shall be easily removable to access the enclosed latch mechanism.

DOOR HINGE FOR OVERLAPPING HINGED DOORS

QTY: 1

Hinges shall be full length polished stainless steel piano type. The hinges shall be mounted with stainless steel hardware.

DOOR SEAL FOR OVERLAPPING HINGED DOORS

QTY: 1

All enclosed storage compartments shall include a full gasket around the perimeter of the compartment edge with heat resistant, "closed cell neoprene sponge" weather stripping, to insure a water tight seal.

ROTARY LATCHES WITH D-RING HANDLES

QTY: 1

Externally latched body doors shall be equipped with stainless steel D-ring handles.

Rotary door latches shall be provided for all full height body doors, which shall incorporate rotary latches at the top and bottom of all externally latched single or double doors.

Linkages shall be provided between the actuation handle and the latch mechanisms.

The blank door of a double door configuration shall have rotary latches at the top and bottom of each door with the latch release lever accessible thru the door frame, which eliminates the need to reach inside the compartment to release the door.

Linkages shall be provided between the actuation handle and the latch mechanisms.

Horizontally hinged doors shall be equipped with a single rotary door latch.

KEYED DOOR LOCKS, HINGED OR ROLL-UP DOORS

QTY: 20

A compartment door(s) shall be equipped with keyed locking door latches.

Two keys shall be furnished for each lock and shall be labeled to indicate the correct match.

CLEVELAND SPRING DOOR SPRINGS

QTY: 1

Stay arms shall be "Cleveland" double acting style, to be used on all vertically hinged storage compartment doors.

All horizontally hinged compartment doors shall be furnished with two (2) Eberhard gas shock type door stay arms.

COMPARTMENT FLOORS

QTY: 1

Compartment floors shall be welded to the compartment walls and have a sweep out design for easy cleaning.

STAINLESS STEEL SILL PROTECTORS

QTY: 20

Stainless steel scuff plates shall be installed on the floor of each compartment near the edge of the door opening to protect the compartment floor when accessing equipment from the compartment.

TREAD PLATE OVERLAY, FRONT OF SIDE COMP'TS (NON-WR

QTY: 1

The front face of the side compartments, next to the driver and officer pump panels shall be overlaid with full height tread plate protection panels.

The overlays shall cover the front face of the compartments only, they shall not wrap around to the door opening.

PAINTED REAR BODY PANEL, TILLERS

QTY: 1

The entire rear of the body shall be equipped with a painted finish, which shall extend the full width between body side compartments. The paint color shall match the body job color. The rear of the body shall have an opening to access the ground ladder storage area. The opening shall be equipped with a door as specified in the ground ladder storage section.

STAINLESS STEEL OUTRIGGER COVER PANEL, TILLER DEVI

QTY: 1

Each outrigger opening shall be covered by a panel mounted to the outrigger beam. The panels shall be fabricated from 14 gauge polished finished stainless steel. Each panel shall be adjustable up and down to help match the panel to the body lines.

BODY RUB RAILS, C-CHANNEL - ALUMINUM EXTRUSION

QTY: 1

Sacrificial extruded aluminum C-Channel style, rub rails shall be mounted at the base of the body, extending outward from the body. The rub rails shall extend the full length of the main body.

TILLER, TILLER CAB ACCESS LADDERS

QTY: 1

Two (2) access areas, one on each side, shall be provided at the rear of the trailer in a step or ladder style configuration. The steps shall be configured to climb from the ground to the tiller cab with spacing not to exceed NFPA 1901 step distances. The steps shall be fabricated from "Grip-Strut" anti-slip material, providing a non-slip surface on each step. The steps shall provide access or egress to and from the top of the aerial body and tiller cab.

POLISHED STAINLESS STEEL FENDERETTES, TILLER TRAIL

QTY: 1

The tiller rear fenders shall be equipped with easily replaceable, polished stainless steel fenderettes.

The fenderettes shall be equipped with a rubber gasket molding between the body panel and the fender.

Integral welded crown type liners shall not be acceptable.

TILLER TRACTOR, POLISHED STAINLESS STEEL FENDERETT

QTY: 1

The tractor fenders shall be equipped with easily replaceable, polished stainless steel fenderettes. The fenderettes shall be equipped with a rubber gasket molding between the body panel and the fender. Integral welded crown type liners shall not be acceptable.

REAR MUD FLAPS, TILLER ONLY

QTY: 1

Heavy duty mud flaps shall be provided behind the rear wheels on the tractor and the rear steer axle on the trailer.

TILLER, BODY HANDRAILS- LIGHTED - NO INSERT

QTY: 1

All non-aerial device handrails are to be 1-1/4" diameter knurled bright anodized aluminum with chrome plated end brackets. Each grab rail shall have white LED lights that shall be wired to the DOT marker lights and interlocked to illuminate when the parking brake is applied.
Locations shall be as follows:
One pair of grab handles on each corner of the turntable walking deck to assist climbing to the turntable.
One full length rail attached to the rear edge of each tiller cab access ladder.

PAINTED REAR TOW EYES, THROUGH REAR SHEET

QTY: 1

Two (2) painted tow eyes shall be furnished on the rear of the vehicle, extending through the rear body panel. The tow eyes shall be made from plate steel and bolted directly to the chassis frame rails with grade 8 bolts. The tow eyes shall be smooth and free from sharp edges. They will have a minimum eyelet hole of 2-1/2". The tow eyes shall be painted.

AMDOR LED STRIP HOSE BED LIGHTS-SIDES OF HOSEBED O

QTY: 1

Two (2) Amdor, LED strip surface mounted lights shall be mounted in the hose bed on the side walls to illuminate the hose bed area.

HOSE BED

QTY: 1

The "Straight Shot" hose bed shall be provided in the upper left section of the body, above the drive side running board compartments. The hose bed shall be designed to allow the hose, without the need of hose chutes or slide out trays, to be deployed straight out of the rear of the vehicle. The hose bed shall also be designed so the ladder does not need to be raised to reload the hose bed.

All surfaces of the hose bed shall be free from all sharp objects such as bolts, nuts, etc., to avoid damage to fire hose.

Flooring is to be constructed from extruded aluminum and have proper spaces for ventilation purposes. The flooring shall be smooth and free from sharp edges to avoid any hose damage. The hose bed floor shall be removable, providing access to the inner body framework.

To assist on reloading hose in the hose bed, the body will be equipped with three (3) horizontally hinged doors, allowing access to the hose bed from the ground. The doors will be located above the running board compartments.

The hose bed shall be covered with aluminum treadplate. Coffin style access door(s) shall be provided to allow access into the hose bed from the top of the apparatus.

HOSE CHUTE

QTY: 1

A hose storage chute shall be added to the trailer next to the ladder storage tunnel on the D/S. The chute shall be able to accommodate the following hose compliment:

400' of 4" hose in 100' lengths in the lower section.

200' of 2.5" hose in 100' lengths in the upper section.

NOTE: The door for the hose chute shall swing upward.

CENTER LADDER STORAGE, 101' LADDER, TILLER

QTY: 1

All ground ladders (except as noted) shall be stored in the center rear of the aerial body. The ladders stored in the center of the body, the ladder tunnel shall extend from the rear of the body forward as a cage structure attached to the trailer frame rails. The tunnel will be semi-enclosed with the top and sides of the tunnel being provided by the inner walls of the body compartment modules as described elsewhere in these specifications. Guides will be provided for the specified ladder complement.

HINGED PAINTED ALUM DOOR, LADDER STORAGE, RM ONLY

QTY: 1

A horizontally hinged, painted flat aluminum door shall be provided for the ladders at the rear of the vehicle. The compartment door shall be flat overlapping type doors. The outer door the skin shall be fabricated from 3/16" (5052 -H32) aluminum. The door frame shall be constructed from 2" x 1" x 1/4" "C" channel or 1" x 5" x 1/8" channel.

The inner pan shall be constructed from 1/8" aluminum material, which shall be provided with a brushed finish. The inner door pan on running board compartments shall enclose the latch and reinforcements completely. The pan shall be easily removable to access the enclosed latch mechanism.

Two (2) gas shock door holders shall be provided on each door. The doors shall latch with a "D" ring handle.

DUO-SAFETY 1200-A 35' 2-SECTION EXTENSION LADDER (

QTY: 2

A Duo-Safety series 1200-A, 35', aluminum, two (2) section extension ladder shall be provided.

DUO-SAFETY 900-A 24' 2-SECTION EXTENSION LADDER (A

QTY: 1

A Duo-Safety series 900-A, 24', aluminum, two (2) section extension ladder shall be provided.

DUO-SAFETY 875-A 16' ROOF LADDER W/ FOLDING HOOKS

QTY: 2

A Duo-Safety series 875-A, 16', aluminum, straight roof ladder with folding hooks shall be provided.

DUO-SAFETY 775-A 10' ROOF LADDER W/ FOLDING HOOKS

QTY: 1

A Duo-Safety series 775-A, 10', aluminum, straight roof ladder with folding hooks shall be provided.

DUO-SAFETY 585-A 10' FOLDING ATTIC LADDER (ALUM)

QTY: 1

A Duo-Safety series 585-A, 10', folding, aluminum, attic ladder shall be provided.

LITTLE GIANT LADDER MODEL 17 (9'-15')

QTY: 1

A Little Giant model 17 ladder system with mounting hardware shall be provided. This ladder has an extension height ranging from 9'-0" to 15'-0"

PIKE POLE TUBE(S) AERIALS

QTY: 1

Seven (2) pike pole tubes and Two (2) troughs shall be provided. Each shall be an individual tube type holder, mounted in the ladder storage area (if space allows). Each pike pole holder shall be labeled to indicate the pike pole length.

6' NUPLA RUBBISH HOOKS

QTY: 1

Two (2) 6' Nupla model RH-6D ventilation hook(s)fiberglass handled pike pole(s) with a d-handle shall be provided.

8' DUO SAFETY FIBERGLASS PIKE POLE

QTY: 1

Two (2) 8' Duo Safety model 8-FP fiberglass handled pike pole(s) shall be provided.

10' NUPLA FIBERGLASS PIKE POLE

QTY: 1

A 10' Nupla fiberglass handled pike pole with a d-hande shall be provided.

12' DUO SAFETY FIBERGLASS PIKE POLE

QTY: 1

Two (2) 12' Duo Safety model 12-FP fiberglass handled pike pole(s) shall be provided.

COMPARTMENT ACCESSORIES

QTY: 1

The compartment accessories will be provided as follows:

L1

Two (2) adjustable shelves

L2

One (1) Air bag storage module bolted to the roof. Specifics listed elsewhere in specification.
One (1) Bolt in Floor Extension
One (1) Slidemaster 600lb floor mounted roll-out tray mounted below the floor extension.
One (1) Slidemaster 1,000lb transverse floor mounted roll out tray.
One (1) Slidemaster 500lb transverse adjustable slide out tray.

L3

One (1) Bolt in Floor Extension
One (1 C-Tech toolbox on floor of compartment below floor extension. Specifics listed elsewhere in specification
One (1) Slidemaster 600lb floor mounted roll-out tray with a fixed vertical aluminum pegboard tool board in the center of the tray above floor extension in transverse area.

L4

One (1) Bolt in Floor Extension
One (1) Slidemaster 600lb floor mounted roll-out tray mounted below the floor extension.
One (1) Slidemaster 1,000lb transverse floor mounted roll out tray.
One (1) adjustable transverse shelf.

L5

Two (2) adjustable shelves

L6

Two (2) adjustable shelves

R1

Two (2) adjustable shelves

R2

One (1) Bolt in Floor Extension
One (1) Slidemaster 600lb floor mounted roll-out tray mounted below the floor extension.
One (1) Slidemaster 1,000lb transverse floor mounted roll out tray.
One (1) Slidemaster 500lb transverse adjustable slide out tray

R3

One (1) Bolt in Floor Extension
One (1) Slidemaster 600lb floor mounted roll-out tray with a fixed vertical aluminum pegboard tool board in the center of the tray above floor extension in transverse area.
One (1) Slidemaster 600lb floor mounted roll-out tray mounted below the floor extension.

R4

One (1) Bolt in Floor Extension
One (1) Slidemaster 600lb floor mounted roll-out tray mounted below the floor extension.
One (1) adjustable shelf
One (1) SCBA storage rack module.

R5

One (1) fixed shelf
Two (2) adjustable shelves
Two (2) fixed vertical dividers.

R6

No Shelving

R7

One (1) adjustable shelf

AIRBAG MODULE

QTY: 1

There shall be a rack installed for storing six (6) air bags and a single air bottle in the Top of L3 compartment.
The rack will be fabricated from .125" aluminum, painted to match the compartment interior.
The size of the air bags and air bottle will be Six (6) air bags will be stored in this module (1) 24"x24" Model #KPI32, (2) 20" x 20" Model #KPI22, (2) 21" x 15" Model #KPI17, (1) 15" x 15" Model #KPI12 top area with (1) air bottle.

C-TECH TOOL CABINET

QTY: 1

A C-Tech compartment shall be provided on the floor of the L-2 compartment.

The clear dimensions starting at the top of the cabinet with the first drawer will be 2.25" with a face plate that is 3.00" high x 21.00" deep.
The clear dimensions of the second drawer will be 2.75" with a face plate that is 3.00" high x 21.00" deep.
The clear dimensions of the third drawer will be 2.75" with a face plate that is 3.00" high x 21.00" deep.
The clear dimensions of the fourth drawer will be 2.75" with a face plate that is 3.00" high x 21.00" deep.
Each drawer will be the same width and not exceed 48.00".
The drawers will have a capacity of 250 pounds.
The drawers will be mounted in a cabinet housing constructed of light gray powder coated aluminum with anodized aluminum frames.
The housing will be 24.00" deep, and completely enclose the drawer.
A full-length aluminum extruded rail will be provided at the top edge of each drawer.
This rail will act as the latching mechanism as well as the handle for each drawer.

TILLER TRAILER FRAME ASSEMBLY, 101 LADDER

QTY: 1

The trailer frame shall be of welded steel construction and gooseneck design.

The gooseneck area shall be constructed using tube and plate.

This area of the trailer frame shall have a section modulus of 1172.6 in3 and a resistance to bending moment of 8,375,714 in-lb.

The rearward portion of the trailer frame shall be constructed, using "C" channel and plate.

The section of frame from the gooseneck to the axle shall have a section modulus of 376.3 in3 and a resistance to bending moment of 4,038,366 in-lb.

The tube and plate gooseneck area shall be 48" wide and 14" deep.

The "C" channel and plate portion of the frame shall be 34" wide and 11-1/4" deep.

TILLER DROP FRAME TRAILER WHEELBASE - 360"

QTY: 1

The drop frame trailer shall be designed to provide maximum compartment space and shortest possible overall length utilizing a trailer wheelbase of 360".

TRAILER, STEERING AXLE, STEERTEK 23,000 LB.

QTY: 1

The Steertek NXT trailer axle beam shall be rated to carry 23,000 lbs. and consist of a fabricated box cross section construction with 100ksi plate and a continuous beam architecture to minimize stress points for added durability.

The axle shall incorporate a removable kingpin feature for ease of kingpin serviceability. The knuckles shall allow for compatibility with disc brakes mounted at the 12 o’clock position and with drum brakes, and allow for increased wheel cut. They shall also utilize premium kingpin bushings and seals to provide enhanced protection from the elements to improve bushing life. Oil seals with viewing window shall be provided.

The suspension shall consist of multi-leaf parabolic springs rated at 23,000 lbs with double wrapped front eye that are packaged within an integrated clamp group that allows for ease of OEM assembly on to the

axle beam and reduced part count. The clamp group bolts are tightened on the top of the clamp group opposed to the traditional U-bolt on the bottom making it easier to access with a torque wrench for servicing. The spring shall also include a lower shock attachment with an upturned eye. The springs will contain threaded pin bushings to allow simplification of spring alignment as well as long service life and improved ride quality. The suspension and spring geometry will be optimized to provide improved bump steer and Ackermann. Two ZF Sachs twin-tube shocks shall be provided with the front suspension assembly. The shocks shall be specially developed for parabolic leaf springs with a digressive characteristic curve using a patented piston system. The shocks shall feature multi-stage piston and base valves. The combination of valves shall achieve the desired damping characteristics that are ideal for the application.

Meritor EX-225 H, 17" disc brakes shall be provided for the trailer axle.

The brakes shall be full air actuated.

TILLER TRACTOR, STEP COMPARTMENT FORWARD OF FENDER

QTY: 1

The fenders shall incorporate an tread plate compartment, one (1) each side forward of the wheel well, which shall also serve as step. The compartment will measure approximately 18" high x 14" deep x 26" wide. Depending on the type of rear suspension, the rear way of this compartment may be notch to accommodate the suspension mounts. The compartment shall be equipped with an tread plate door that shall be equipped with a stainless steel hinge and "D" ring automotive latch.

TILLER TRAILER, STEERING AXLE PAINTED ALUMINUM WHE

QTY: 1

The trailer wheels shall be 22.50 x 13", hub painted aluminum disc.

The wheels shall have an 11-1/2" diameter bolt circle with ten (10) holes.

Chrome plated hub and nut covers shall be provided on each trailer wheel.

TILLER TRAILER, OIL SEAL FOR TRAILER STEERING AXLE

QTY: 1

Premium oil seals with viewer glass shall be provided on the trailer steering axle.

TILLER TRAILER, GOODYEAR G296 MSA TIRES 425/65R X

QTY: 1

The trailer tires shall be Goodyear 425/65R22.5 "L" tubeless radial G296 MSA mixed tread.

The tires shall be fire service rated up to 24,400 lbs and shall have a top speed of 68 mph when inflated to 120 psi.

TRAILER AXLE - COUNTERACT BALANCING BEADS

QTY: 1

Each trailer tire shall be equipped with Counteract Balancing Beads.

TPMS - LED VALVE STEM CAPS - TDA TIRES

QTY: 1

Each tire shall be equipped with an air pressure indicator cap on the valve stem.

Each cap shall have a visual indicator to show if the tire is correctly inflated.

TILLER TRAILER, STEERING SYSTEM, TRW TAS-85

QTY: 1

The trailer steering gear shall be TRW TAS 85 integral power steering gear box.

Steering wheel shall be vinyl padded, minimum 18" diameter. Steering column shall have tilting and telescoping capabilities.

TILLER TRAILER, STEERING PUMP - PIGGYBACK ON MAIN

QTY: 1

The trailer hydraulic steering pump shall be a Parker gear pump that shall be piggybacked on the main aerial hydraulic pump.

The steering pump shall be plumbed to the aerial hydraulic reservoir.

TILLER TRAILER, 100 AND 101 LADDER, FIFTH WHEEL PI

QTY: 1

The fifth wheel shall be a monorace bearing, 3.38 x 40.8 diameter, with the mounting plate bolted to the chassis. The longitudinal pivot point mounting shall utilize two (2) 2-3/4" diameter steel pins. Grease fittings shall be provided in two (2) locations on the bearing.

Due to the high load and wear on the trailer pivot points, the pin journals in the trailer gooseneck shall be designed to provide bearing surfaces utilizing ToughMet® 3 AT110 Temper Plate high strength alloy bearing material. The journals shall have minimum yield strength of 110,000 psi.

Both upper and lower surfaces mated to the bearing shall be milled to provide a true bearing plate. There will be no exceptions.

To reduce flexing between the tractor and trailer during aerial operation, a trailer lock-out system shall be provided. The lock out system shall consist of four (4) stainless steel pins that are lowered into position by the operator during the aerial outrigger setup.

ROPE RIGGING ANCHOR POINTS

QTY: 1

Rope rigging anchor points rated at 9,000 pounds of straight line pull shall be provided in the following areas:

One (1) on each side of the trailer goose neck to the rear of the waterway inlet.

Engraved labels shall be provided at all tie off points indicating the weight rating associated with the anchor point.

TILLER CAB, GENERAL DESCRIPTION

QTY: 1

A permanently mounted tiller cab shall be provided on top of the trailer, to the rear of the aerial ladder.

The minimum width of the cab shall be 42" to provided adequate room and improve visibility for the tiller driver.

The tiller cab shall be constructed from a combination of 3/16" and 1/8" 5052 and 6063 aluminum.

The tiller cab shall be designed and tested to meet NFPA 1901 roof loading standards.

TILLER CAB, INTERIOR

QTY: 1

The floor of the tiller cab compartment shall be covered with tread plate.

The headliner shall be padded and upholstered to reduce noise level.

TILLERMAN SEAT,BOSTROM PACIFICA EX6 AIR SUSPENSION

QTY: 1

The tillerman's seat shall be a H. O. Bostrom Pacifica EX6 air suspension, high back bucket with low profile, seat cushion.

The seat shall have a tapered and padded back cushion with lumbar support.

The seat shall have arm rests and a custom fire department logo.

The seat shall have a five inch, before and after adjustment, a three inch height adjustment with a reclining seat back.

The seat air ride suspension shall be pneumatically controlled from a control switch on the forward, lower edge of the seat.

BOSTROM SEATING MATERIAL, GRAY DURACOAT VINYL

QTY: 1

The seats shall be upholstered with heavy duty gray Duracoat vinyl material.

TILLER CAB WIND/GLASS, "NO POST VISION", SLIDING D

QTY: 1

The front windshield of the tiller cab shall be a 740 in². flat, single piece of tinted automotive industry approved safety glass.

The front windshield shall be designed with a "No Post Vision" seamless joint between the front and side viewing windows, requiring no corner post which shall obstruct the visibility of the driver.

One (1) horizontally split sliding rear window assembly shall be provided on the back of the tiller cab.

TILLER CAB, WINDSHIELD WIPERS, SINGLE PANOGRAPHIC

QTY: 1

A single electrically operated, pantographic, wet arm, self-parking windshield wiper shall be installed on the front center of the tiller cab.

The Tillerman shall be able to control wiper state (ON/OFF), speed (LOW /HI), and intermittent delay time (DLY) as well as washer pump (ON) from clearly labeled switches on the control panel.

A 3/4 gallon washer fluid reservoir shall be readily accessible in the tiller cab.

There shall be a removable panel on the front face of the cab for access to the wiper motor assembly. There will be no exceptions.

TILLER CAB, STEERING WHEEL/COLUMN

QTY: 1

The tiller steering wheel shall be vinyl padded, minimum 18" diameter, with a center hub mounted horn button.

There shall be a self-canceling, directional signal lever and a traffic hazard switch on the steering column.

The steering column shall have tilting and telescoping capability to provide increase comfort and visibility for the Tillerman.

TILLER CAB, STEERING WHEEL POSITION INDICATOR

QTY: 1

The tiller steering wheel shall have a rudder position indicator to confirm orientation of the trailer steering position.

The gauge shall be located in the tiller cab dash panel.

TILLER CAB, LEXAN SUNVISOR

QTY: 1

A 25.5" x 8.0" Lexan sun visor shall be provided for the front windshield.

TILLER CAB, ALUMINUM KNURLED GRAB RAILS, EACH SIDE

QTY: 1

Two (2) 1-1/4" diameter x full height, knurled, bright anodized aluminum grab rails shall be provided, located one (1) at each tiller cab door entrance.

Grab rail stanchions shall be chrome plated and of an offset design, when necessary, to prevent "hand-pinching" when opening or closing the doors.

Each grab rail shall have white LED lights that shall be wired to the DOT marker lights and interlocked to illuminate when the parking brake is applied.

Each handrail shall have two (2) yellow diamond grade reflective strips.

Formed rubber gaskets shall be provided between each stanchion base and the cab surface.

TILLER CAB, VELVAC 6-1/2" X 6" CONVEX

QTY: 1

Two (2) Velvac 6 ½” x 6" convex mirrors black in color shall be provided and mounted on the exterior of the cab.

The mirrors shall be attached to adjustable arms mounted on the front corner of the tiller cab.

TILLER CAB, SLIDING DOORS

QTY: 1

The tiller cab shall be equipped with sliding doors for access to the cab. The tiller cab door opening shall be a minimum of 36-3/4" W x 47-5/8" H. The slides for the doors shall be a heavy duty ball bearing design.

The tiller cab doors shall have drop down (vertically) sliding type windows to provide greater ventilation of the tiller cab. Each window shall be 37-7/8" H x 28" W.

The doors shall be capable of being latched in the open and closed positions.

The tiller cab doors shall be wired to the "Door Open Indicator" of the tractor cab with an override switch for training.

TILLER CAB, INSTRUMENT & SWITCH PANEL

QTY: 1

A switch panel shall be installed in the Tillerman cab forward of the steering wheel.

The switch panel shall be provided with illuminated rocker switches to enable the Tillerman to turn on/off the under body lights, the step lights and any other specified lights.

TILLER CAB, TURNSIGNAL INDICATORS, WELDON #9186-15

QTY: 1

Two (2) Weldon, model #9186-1500-20, amber LED, left and right turn signal indicator lights shall be mounted on cab dash frame on each side of the steering column.

The lights shall alert the tillerman of the tractor driver's intent.

TILLER CAB, WHELEN 6" ROUND WHITE/RED LED INTERIOR

QTY: 1

A 6" round combination red/white LED dome light shall be furnished in the tiller cab.

The light shall be Whelen model # 60CREGCS.

The dome light shall have an integral selector switch.

The dome light shall also activate when the either tiller cab door is opened.

TILLER CAB, PARK BRAKE INTERLOCK WARNING - CENTER

QTY: 1

A safety system shall be provided between the tractor cab and the tiller cab.

A warning indicator in the driving compartment shall activate when the parking brake is released and the tiller operator is not signaling his presence.

A momentary contact button shall be located in the steering wheel hub.

TILLER CAB, SAFETY START SYSTEM - TILLER CAB STEER

QTY: 1

To not allow the engine to be started without a tillerman seated in the tiller cab, a safety start system shall be provided between the tractor cab and the tiller cab.

The "high beam" circuit in the tiller cab steering column shall serve as a momentary contact starter button, which must be activated in conjunction with the start button in the tractor cab.

JACK KNIFE ALARM

QTY: 1

An audible and visual warning system to alert both the driver and tiller operator when the tractor and trailer approaches the maximum allowable “jackknife” angle. Warning system, audible and visual warning devices to be as per previous units.
The “jack knife” alarm will be silenced whenever the park brake is set.

TILLER CAB, BUZZER - LINEMASTER #491-S FOOT SWITCH

QTY: 1

A buzzer warning system shall be provided between the tractor and tiller cabs.

Two (2) Linemaster #491-S foot switches shall be provided, one (1) push button in the tractor cab and one (1) foot switch in the tiller cab.

The buzzer controls shall be labeled: 1-Stop, 2-Go, 3-Backup.

TILLER CAB, HEATER - BUS AIR 120VAC - 7000 BTU

QTY: 1

A Bus Air 120 VAC, 7000 BTU, 1662 cfm, electric controlled combination heater/defroster shall be furnished for the tiller cab.

The heater shall be mounted under the dash with an outlet vent on each side of the dash.

Controls shall will be provided on the tiller cab dash panel.

Note: This is a 120 VAC system, apparatus must be equipped with a generator and the generator shall need to be running for this heating system to function.

TILLER CAB, TWO (2) ACC CLIMATE CONTROL 12-VOLT DE

QTY: 1

Two (2), six (6) inch climate control defogger fans shall be provided for the tiller cab windshield.

They shall be located with one (1) at each forward corner of the cab overhead.

TILLER CAB, DANHARD 110-VOLT A/C SYSTEM

QTY: 1

A Danhard air conditioning system will be provided for the tiller cab. It will be of sufficient cooling capacity for the interior space of the tiller cab. The system will be 120VAC/13,500BTU and run off the onboard generator. The system will not increase the overall height.

The Danhard air conditioning system for the tiller cab will utilize a digital control panel on the left side of the dash and will have a grip-strut cover to protect the unit.

Each time that the master battery switch in the tractor is turned off, the air conditioning system will default to the off position.

A Grip strut cover will be provided for the system to fully protect the unit from damage.

101' TILLER LADDER

QTY: 1

INTENT & DESIGN STANDARDS

QTY: 1

The aerial ladder assembly shall be a four (4) section telescoping ladder constructed from high strength steel alloy, pre-piped waterway (if applicable), steel turntable, and outriggers.

The intent of these specifications is to describe a telescoping elevating ladder.

It shall consist of the true steel truss ladder type.

The aerial ladder consists of four (4) steel ladder sections, a steel turntable, and two (2) outriggers.

The height of the unit is 101' and the horizontal reach is 94'.

The device shall meet all the requirements of the National Fire Protection Association's (NFPA) 1900 standard, in effect at time of purchase.

This is a fire service proven piece of apparatus that shall be manufactured in the U.S.A.

Ladders attached to booms, whether solid or lattice, or articulating arms shall not be considered as meeting these specifications or the intent of these specifications.

The design criteria of the unit shall be to create a structure and system that emphasizes safety, product reliability, and ease of operation.

These criteria are:

The hydraulic system shall be designed so that if a failure of any component or assembly within the system occurs, a single point failure of the entire system shall not occur.

The minimum ultimate design condition at the ladder base shall be 6.8 million inch pounds.

All structure load supporting elements of the aerial ladder that are made of a ductile material, shall have a design stress of not more than 50 % of the minimum yield strength of the material based on the combination of the live load and the dead load.

This 2.5:1 structural safety factor meets the current National Fire Protection Association (NFPA) 1900 standard.

Design verification shall be accomplished with comprehensive Finite Element Analysis (FEA) and verified with extensive strain gauge testing.

An independent engineering firm employing a Registered Professional Engineer shall verify the aerial safety factor.

The aerial device shall be capable of sustaining a static load one and one-half times it's rated tip load capacity (live load), in every position in which the aerial device can be placed when the vehicle is on a firm and level surface.

The aerial device shall be capable of sustaining a static load one and one-third times it's rated tip load capacity (live load) in every position in which the aerial devices can be placed when the vehicle is on a slope of five degrees downward in the direction most likely to cause overturning.

All welds in the aerial device shall be designed per the static and fatigue criteria of the American Welding Society No. D1.1.

All aluminum welds shall be designed per the static and fatigue criteria of the American Welding Society Standard No. D1.2.

To optimize strength versus weight, high strength steel shall be utilized for the construction of the aerial device

The aerial device shall be capable of operating with a rated tip load in the following conditions:

Conditions of high wind up to 50 mph.

Conditions of icing, up to a coating of 1/4" over the entire aerial structure.

All of the design criteria will be supported by the following information:

Strain gauge testing of the complete aerial device.

Analysis of deflection data taken while the aerial device was under test load.

Accelerometer test to determine dynamic response during ladder operation.

Accelerometer test to determine dynamic response during road travel.

Hydraulic component operating and burst strength testing.

MOUNTING OF AERIAL

QTY: 1

The elevating aerial ladder turntable shall be tiller mounted thus providing the following vehicle benefits:

- Improved mobility vs. rear and mid ship mounted units.
- Greater positioning cability of the turntable for optimum reach at fire ground operations.
- Increased compartmentation and ladder storage.

HEIGHT AND REACH

QTY: 1

The height of the unit shall be a minimum of 101' as measured by NFPA-1901 requirements, Section 19.2.2, which states, "The rated vertical height of an aerial ladder shall be at least 50 ft and shall be measured in a vertical plane with the ladder at maximum elevation and extension from the outermost rung of the outermost fly section to the ground."

The horizontal reach of the unit shall be a minimum of 94' as measured by NFPA-1901 requirements, Section 19.2.3, which states, "The rated horizontal reach of an aerial ladder shall be measured in a horizontal plane from the centerline of the turntable rotation to the outermost rung on the outermost fly section with the aerial ladder extended to its maximum horizontal reach."

MATERIAL STANDARDS, ALL DEVICES

QTY: 1

The following standards for materials are to be used in the design of the aerial device. Materials are to be certified by the mill that manufactured the material. Materials that are certified or recertified by vendors other than the mill shall not be accepted. Material testing that is performed after the mill test shall be only for verification and not with the intent of "paper changing" the material classification.

HYDRAULIC SYSTEM

QTY: 1

The hydraulic system shall provide power to the entire aerial device as efficiently as possible without the use of a hydraulic cooler. There will be no exceptions. A hydraulic system relief valve as well as individual circuit relief valves shall be provided to prevent damage to any function or circuit.

The relief valve shall have a stainless steel relief spring to ensure proper function and product reliability.

HOSE KIT

QTY: 1

All hydraulic steel tubing, hydraulic rubber covered wire braided hoses, and hydraulic fittings/adapters shall have a minimum burst pressure rating of four times the operating pressure.

Hoses and tubing shall be properly sized to minimize heat buildup during extended periods of operation.

Hoses and tubing shall be properly sized to minimize flow restrictions.

All hydraulic hose shall have a tube and cover constructed of synthetic rubber and shall have a braided/spiral wire reinforcement capable of maintaining a 4:1 safety factor in all areas of the hydraulic system.

The hose shall meet the appropriate SAE performance specifications: 100R2, 100R19, J517, J1942, ISO 3862-1, USCG HF, DNV,ABS or 100R12.

The connector system was jointly designed to incorporate the following design upgrades and advantages:

All hydraulic ports (manifolds, pumps, tank, etc) to elastomeric sealing technology

No pipe threads in the hydraulic system

Sealing to be done by O-rings with the mechanical holding power of straight threads

All tube and hose connections to O-ring face seal technology

Sealing to be done by o-ring with the mechanical holding power of straight thread

Fittings rated up to 6000 psi

Drop-in design of connectors to allow easier maintenance and assembly

Fitting resist 200% over torque, with optimum vibration resistance

Shaped fittings machined from forged bodies for compact design and strength

Fittings meet/exceed the performance and dimensional requirements of SAE J1453 and J1926

Minimized unnecessary fittings and adapters, streamlining the system

Increased connector accessibility, making assembly and maintenance easier

Standardized the connector system on the aerial unit

Incorporated pressure diagnostic system with diagnostic test points into the connector design

This training included: proper handling, installation, torque requirements, troubleshooting, and quality control procedures of the fluid connector products.

An exclusive three-year leak free guarantee shall warrant the O-ring face seal connections to be leak-free for a period of three (3) years.

HYDRAULIC PUMP

QTY: 1

A load sense pressure compensated hydraulic axial piston pump shall be provided which shall be capable of operating under any rated platform load condition and aerial device position at normal engine idle or governor controlled fast idle.

The hydraulic pump shall be capable of generating sufficient flows to allow multiple aerial functions without significant loss of speed.

HYDRAULIC RESERVOIR - TDA

QTY: 1

An aluminum hydraulic oil reservoir shall be provided to supply the needs of the hydraulic system.

A 2" gated suction line shall be provided between the oil reservoir and the hydraulic pump.

The tank fill shall be provided with a strainer screen and vent cap.

Located near the fill cap shall be a dip-stick for checking fluid levels.

The tank shall be mounted in behind the cab on the tractor.

Before adding fluid the tank must be cleaned and free from all contaminants.

Suction and return ports will be designed to SAE Straight Thread O-ring Specifications. These ports will incorporate an o-ring seal rather than pipe threads.

HYDRAULIC OIL

QTY: 1

The hydraulic oil reservoir shall be filled with A/W 46 grade Hydraulic Oil.

This oil provides superior anti wear properties, and is specially formulated with improved thermally stable additives.

These oils offer outstanding resistance to sludge formation, are chemically stable and exhibit excellent anti wear protection.

MAGNETIC DISC IN BOTTOM OF HYDRAULIC RESERVOIR

QTY: 1

A six (6) disc type magnetic drains shall also be provided to collect any ferrous contaminants.

DIVERTER VALVE

QTY: 1

There shall be an automatic electric over hydraulic three (3) position diverter valve located at the left side of the apparatus. This diverter valve shall divert hydraulic fluid to either the aerial ladder controls or the outrigger controls. To prevent accidental operation of the ladder prior to the outriggers being properly set, the diverter valve shall only allow hydraulic fluid to the outriggers until the outriggers are set properly.

To prevent accidental operation of the outrigger system during the aerial ladder operation the diverter valve shall only allow hydraulic fluid to the ladder controls, when the aerial device is raised from the aerial travel support. In the event of electrical failure the operator shall be able to manually move the diverter valve to the ladder or outrigger position for continuous uninterrupted operation.

NOTE: All safety controls are displaced when vehicle is in manual mode of operation.

OUTRIGGER HYDRAULIC CONTROL VALVE

QTY: 1

The outrigger cylinder system shall be controlled by a pressure compensated control valve that is designed for parallel hydraulic circuit operations.

This valve shall be modular in design so that individual sections can be replaced in the field, rather than complete valve assemblies, thus reducing maintenance costs.

The valve housings shall be made of high tensile cast iron for durability and the individual spools shall be hard, chrome plated for long life and resistance to corrosion.

Each valve shall be equipped with a heavy-duty electric solenoid for electric control of the outrigger from the remote operator's station.

TURNTABLE HYDRAULIC CONTROL VALVE

QTY: 1

Three (3) ladder directional controllers shall be mounted on the turntable control console.

They shall control extend/retract, rotation, and elevation.

These controllers are part of the computer operated IQAN motion control system allowing safe operation of the ladder.

The main control valve shall be positioned at the turntable control console for direct manual over ride control of each aerial function.

The controllers shall incorporate ICB; J-1939 can bus signaling, transmitted through two (2) J-1939 communication wires to reduce the chance of electrical failures since fewer wires and terminals shall be utilized.

Additionally, voltage sensitivity is eliminated thus providing superior motion control.

Adjustments and troubleshooting shall be accessible from the display at the turntable control station.

HYDRAULIC SYSTEM FILTRATION

QTY: 1

The pressure filter shall be made of a micro glass medium, which has the highest capture efficiency, dirt holding capacity and life expectancy over other media such as cellulose and synthetic. The pressure filter shall have a bypass circuit protected by a check valve, which shall be installed around the pressure filter.

The pressure line filter shall be required even if a suction line filter is provided in the reservoir due to the suction line filter's inability to trap contaminates entering the system. The pressure filter cartridge shall have a sensor, which shall indicate the condition of the filter and provide an output for a warning light or message if the pressure filter is blocked or in the bypass mode.

The pressure filter shall have an absolute rating of five (5) microns.

The return filter shall be made of a micro glass medium, which has the highest capture efficiency, dirt holding capacity and life expectancy over other media such as cellulose and synthetic. The return filter shall have a bypass circuit protected by a check valve, which shall be installed around the return filter. The return filter shall have a bypass circuit protected by a check valve, which shall be installed around the return filter. The return filter cartridge shall have a sensor, which shall indicate the condition of the filter and provide an output for a warning light or message if the return filter is blocked or in the bypass mode.

The return filter shall have an absolute rating of five (5) microns.

EMERGENCY HYDRAULIC PUMP

QTY: 1

In the event of failure of the main hydraulic pump or vehicle engine, the unit shall be equipped with an emergency hydraulic pump which shall be plumbed into the hydraulic system and be electrically driven from the chassis batteries. The emergency pump system shall be capable of limited functions of the ladder and outriggers to stow the unit. The pump shall be controlled from both the outrigger control box and turntable control stations with spring loaded momentary contact switches.

The pump shall have a separate hydraulic oil supply line, from the main supply line attached directly to the hydraulic oil reservoir. A shutoff valve for each line shall be provided and check valve shall be incorporated on the pressure side of the pump to ensure that one shall continue to operate the ladder in the event the other fails.

The pump shall have high tensile steel shafts and gears with the shafts supported by needle bearings. The cylinder plate and gears shall be ground as a set to ensure exacting tolerances. Clearance shall be maintained by a Mylar shim.

HOT SHIFT PTO W/CONTROLS IN CAB

QTY: 1

The apparatus shall be equipped with a PTO driven by the chassis transmission. The PTO shall be engaged at all times to allow for the trailer steering pump to be activated.

The PTO shall be a heavy duty pressure lubricated and cooled unit for extended operations.

A master 12 volt "Ladder Power" switch shall be provided for control of all ladder 12 volt power, with the exception of the emergency pump circuits.

FAST IDLE CONTROL

QTY: 1

The fast idle actuator shall be used to raise the engine RPM to a preset level for proper aerial operation.

The fast idle switches shall be located at the main outrigger control station and the aerial control station/s.

For the safety of personnel and equipment, the fast idle system shall not activate unless the transmission is in neutral. There will be no exceptions.

MOTION CONTROL SYSTEM

QTY: 1

The ladder, outrigger system and interlock systems shall be controlled with the computer operated and monitored hydraulic motion control system. The motion control system shall provide state of the art controls for the ladder, outriggers and interlock systems as required. The motion control system must be an electro-hydraulic management system that monitors operator inputs from the control station(s) and converts this data to a usable electronic signal that controls hydraulic valve functions.

The turntable control station shall be equipped with a Master Display Module. The Master Display shall be a completely weather proof and shock resistant microprocessor which includes an LCD screen. The display shall contain programmed parameters for each aerial device function, which provide for proper machine operation and reduce the possibility of abusive operation. The CAN-bus modules shall be attached to each other using just two communication wires.

Each component of the IQAN motion control system shall be proven, off the shelf modules and parts, which are available throughout the world. Proprietary hardware designs are not acceptable at KME due to the lack of parts availability and support.

The display will have built-in troubleshooting and shall allow troubleshooting and function history monitoring for the entire motion control system. The memory function will allow a service technician to identify if these warnings were ignored or overridden.

The IQAN motion control system shall receive rotation information from an absolute encoder located on the rotation swivel. The encoder shall provide absolute position of the turntable at any given position from 0 degrees to 360 degrees of rotation.

An information center shall be provided at the turntable. The display shall allow the system to be diagnosed and calibrated without the need for separate controllers or computers.

The turntable display shall indicate the following information from on-demand screen:

HYDRAULIC PUMP PRESSURE - DISPLAY

QTY: 1

Hydraulic pump pressure.

ELEVATION ANGLE OF LADDER - DISPLAY

QTY: 1

Elevation angle of the ladder.

VERTICAL HEIGHT OF LADDER - DISPLAY

QTY: 1

Continuous ladder extension in feet.

DEGREE OF ROTATION FROM VEHICLE CENTERLINE - DISPL

QTY: 1

Degree of rotation from centerline of vehicle.

E-ZONE SHORT JACK WARNING - DISPLAY

QTY: 1

E-Zone™ short jack warning.

CRADLE ALIGNMENT MESSAGE - DISPLAY

QTY: 1

Cradle alignment message.

E-SPEED LADDER TIP SPEED CONTROL - DISPLAY

QTY: 1

E-Speed™ ladder tip speed control.

E-CUSH RAMP CONTROL FOR ELEVATION - DISPLAY

QTY: 1

E-Cush™ function ramping control for elevation.

E-CUSH RAMP CONTROL FOR EXTENSION & RETRACTION - D

QTY: 1

E-Cush™ function ramping control for extension and retraction.

WARNING MESSAGES - TURNTABLE ONLY

QTY: 1

The screen will also display warning/message screens to alert the operator to a potentially unsafe condition of the aerial device.

OUTRIGGER CONTROLS

QTY: 1

Two (2) illuminated electronic outrigger control stations shall be provided on the forward section of the body to the rear of the gooseneck area, one on each side of the turntable. The control switches shall be enclosed in a housing with an aluminum door, to protect each control from damage or accidental movement. The controls shall be located such that the operator can see the outrigger he is operating.

Out and down outrigger control functions for the outriggers shall be operated independently, so that vehicle may be set up in restricted areas or on uneven terrain. The diverter valve override control shall be mounted behind the left side control panel.

A hinged outrigger control panel shall be provided at the left side of the trailer gooseneck area. The panel shall be equipped with a stainless steel hinged, which shall allow the operator to access the diverter valve manual override control, outrigger manual override controls and the electrical system backup switch.

The main outrigger control station shall incorporate the following:

- Four (4) outrigger set indicator lights

- One (1) ladder power indicator light
- Fast idle switch
- Emergency pump control button with red indicator light
- Override control with indicator light
- Warning decals
- "Hydraulic Filter By-Pass" indicator light
- Hydraulic test ports

HYDRAULIC PRESSURE GAUGE NEAR OUTRIGGER VALVE

QTY: 1

A Hydraulic pressure gauge shall be located near the outrigger hydraulic valve.

IQAN - INCLINOMETER

QTY: 1

An inclinometer shall be provided on the base section of the aerial device to measure the relative angle of the ladder.

IQAN - MOMENT LOAD INDICATOR

QTY: 1

A pressure switch shall be installed on the lift cylinder to indicate the amount of lifting force being imparted onto the aerial device.

IQAN - E-CUSH CONTROL, ELEVATION SYSTEM - LADDER

QTY: 1

Controlled by the IQAN motion control system, the elevation system shall be design utilizing computer control technology to provide ramped, feathering cushioning for the elevation system at the end of cylinder stroke.

The system shall automatically feather the movement of the ladder when the ladder approaches full elevation, regardless of the input speed from the controller.

IQAN - "E-SPEED" SAFETY SYSTEM, LADDERS

QTY: 1

The rotation system shall be controlled from the platform utilizing E-Speed™ technology, which shall automatically control ladder rotation speed, proportional to the extension and elevation of the ladder. The E-Speed™ safety system shall automatically maintain the rotation angular speed regardless of the degrees of elevation or extension of the ladder, providing safer low angle operation and precise positioning control. The E-Speed™ safety system shall be controlled by the IQAN control system.

IQAN - "E-ZONE" ROTATION SAFETY SYSTEM, 2-OUTRIGGE

QTY: 1

The E-Zone™ Rotation Safety System has been designed to aid the aerial device operator who has primary operational responsibility in preventing the rotation of the aerial device into an over turning mode.

Controlled by the IQAN system, the E-Zone™ Rotation Safety System senses outrigger extension and outrigger jack positioning in conjunction with the aerial device movement.

If the aerial device operator attempts to move the aerial device off vehicle center, and the outriggers are not fully extended on the direction of the rotation side, and all jacks in firm ground contact, the E-Zone™ Rotation Safety System shall sense this fault and shall audibly and visually warn the operator to return the aerial device to the center line position.

If the operator continues rotation into the short-jacked zone, the aerial device rotation shall stop.

When rotation is stopped, the E-Zone™ Rotation Safety System shall allow the operator to only rotate back to the fully jacked side of the vehicle.

IQAN - "E-ZONE" CAB & BODY PROXIMITY SYSTEM - LAD

QTY: 1

Controlled by the IQAN system, a cab proximity system shall be provided utilizing E-Zone™ technology on the rotation and elevation systems to alert the aerial device operator when rotating left or right at low angles and or lowering the ladder, toward the vehicle cab.

The E-Zone™ system shall also automatically stop rotation or lowering functions when the device is in the defined zone regardless of the ladder rotation degree or elevation degree. When the E-Zone™ system stops rotation towards the cab, the operator shall only be capable of rotating in the opposite direction or elevate the ladder above the defined zone.

If the E-Zone™ system stops the lowering function when the ladder is in the defined zone over the cab, the operator shall only be capable of raising or rotating the ladder away from the cab. The E-Zone™ system shall sound an audible alarm and display a warning message in the display located at the control stations. The audible and visual warning message shall stay activated until the operator moves the device from the defined zone.

Controlled by the IQAN system, a body proximity system shall be provided utilizing E-Zone™ technology on the rotation and elevation systems to alert the aerial device operator when rotating left or right at low angles and or lowering the ladder, toward the body.

The E-Zone™ system shall also automatically stop rotation or lowering functions when the device is in the defined zone regardless of the ladder rotation degree or elevation degree. When the E-Zone™ system stops rotation towards the body, the operator shall only be capable of rotating in the opposite direction or elevate the ladder above the defined zone.

If the E-Zone™ system stops the lowering function when the ladder is in the defined zone over the body, the operator shall only be capable of raising or rotating the ladder away from the body. The E-Zone™ system shall sound an audible alarm and display a warning message in the display located at the control stations. The audible and visual warning message shall stay activated until the operator moves the device from the defined zone.

IQAN - EXTENSION SYSTEM STRING POTENTIOMETER

QTY: 1

An extension string potentiometer shall be provided on the aerial device to measure the relative extension of the aerial device.

IQAN - "E-CUSH" EXTENSION/RETRACTION SYSTEM

QTY: 1

Controlled by the IQAN system, extension/retraction system shall be designed utilizing E-Cush™ technology to provide feathering cushion for the extension and retraction at the end of cylinder stroke. The E-Cush™ system shall automatically feather the movement of the ladder when the ladder approaches full extension or full retraction, regardless of the input speed from the operator.

TORQUE BOX

QTY: 1

The torque box shall be steel side tubes which shall be welded together within the gooseneck of the tiller trailer.

The gooseneck shall be an integral design housing the fifth wheel bearing plate, turntable lower bearing plate and the outrigger housings creating a torque box weldment that shall transfer all aerial loads to the outrigger.

The torque box assembly shall be equipped with two (2) integral "H" type, out and down outriggers.

There shall be a 44-1/4" x 44-1/4" welded structural steel pedestal plate to support the turntable, secure the outriggers trailer gooseneck and torque box as one integral unit.

The torque box structure shall transfer all aerial loads into the outriggers, thus preventing damage to the chassis frame, trailer frame and body.

IQAN - OUTRIGGER STRING POTENTIOMETER

QTY: 1

An extension string potentiometer shall be provided on each outrigger to measure the relative extension of the outrigger

The potentiometer shall sense and provide a signal for full outrigger extension.

AERIAL TRAVEL SUPPORT

QTY: 1

A heavy duty rest shall be provided to support the aerial in the travel position.

Stainless steel bedding plates shall be attached to the aerial base section to protect the aerial when the unit is in the travel position.

OUTRIGGERS NOT STOWED INDICATOR ON DASH

QTY: 1

"Outrigger(s) Extended" indicator light

OUTRIGGERS

QTY: 1

Two (2) box beam "H" type out and down outriggers shall be located below the turntable to provide vehicle stability during aerial tower operation.

The outriggers shall be equipped with a 14' jack spread. There will be no exceptions.

The horizontal outrigger beam shall be fabricated from steel tubing and steel top and bottom plates.

Each outrigger assembly shall have slide pads to provide smooth operation and to extend the life of the outrigger.

The vertical jack cylinder rods shall be fully enclosed by the vertical outrigger beam tube that shall protect the cylinder rod against damage which may occur while on the fire ground.

The jack cylinder shall be installed from the top of the vertical beam tube to allow for removal if service is required. This will eliminate the need to have a pit below the jack for cylinder removal.

OUTRIGGERS HORIZONTAL CYLINDERS

QTY: 1

The extension of the horizontal outrigger beam shall be accomplished by a hydraulic cylinder.

This cylinder shall have cushion porting to reduce shocks in stopping the cylinder at full extension and retraction.

For ease in maintenance, outrigger extension cylinder shall be equipped with end connections, which do not require removal of body panels to remove pins or the extension cylinders.

OUTRIGGERS VERTICAL CYLINDERS

QTY: 1

Each jack cylinder shall have a 33" stroke to maximize ground penetration for maximum leveling ability.

The jack cylinders shall be equipped with integral (on the cylinder) holding valves, which shall hold the jack cylinder in either the stowed position or the deployed position should a hydraulic line be severed at any point within the hydraulic system.

Each jack cylinder shall also have a thermal relief system that shall prevent the cylinder fluid pressure from rising due to fluid temperature increase.

OUTRIGGER/JACK FOOT PADS

QTY: 1

A permanently attached self-centering steel foot pad, 3/4" x 12" diameter shall be provided on each vertical jack beam.

Each foot pad shall swivel longitudinal and require no adjustment during outrigger set-

AUXILARY JACK PADS

QTY: 1

Two (2) auxiliary pads with handles shall be provided for additional load distribution on soft surfaces.

Their size shall be 24.00" x 24.00" and they will be constructed of a composite material.

Each pad shall have four (4) magnets embedded in the bottom surface of the pad, this shall provide the capability of attaching the pad to the base of the outrigger foot plate prior to extending the outrigger.

The ground contact area for each stabilizer shall be such that a unit pressure not greater than 75 psi (500 kPa) shall be exerted over the ground contact area when the apparatus is loaded to its maximum in-service weight and the aerial device is carrying its rated capacity in every position.

The auxiliary pads shall be secured in mounts located below the body compartments.

OUTRIGGER INTERLOCK SYSTEM & ALARM

QTY: 1

An interlock system shall be provided between the outriggers and ladder that prevents the operation of the ladder until the operator places all jacks in the load supporting configuration. Each outrigger shall be equipped with a pressure sensitive switch that closes only when the jack is firmly in contact with the ground. Until all jack switches close, electrical power shall not be transmitted to the turntable (hence preventing ladder operation).

A momentary override switch shall be provided at the central outrigger control station for emergency override of the interlock system. A green indicator light shall be provided on the outrigger control panel to indicate the position of the foot pad. Illumination of the indicator light indicates firm ground contact.

An outrigger deployment warning device shall be provided to warn personnel in the vicinity of the apparatus that the outriggers are in motion. Whenever an outrigger control is utilized, the device shall produce a pulsing tone, separate and distinctive from that of other audible warning systems provided on the apparatus. When the outrigger control is released to its neutral position, the signal shall cease.

OUTRIGGER SCOTCHLITE

QTY: 1

Red/Fluoresent Yellow Green "Diamond Grade" ScotchLite material in a Chevron pattern shall be furnished on both sides of the horizontal and vertical beams of the rear outriggers.

OUTRIGGER LEVEL

QTY: 1

One (1) bubble type side to side leveling device shall be provided at each outrigger control location to assist the operator aerial device setup.

These leveling devices shall be mounted on the front face of the body panel and shall be at eye level to the operator.

The leveling devices shall be color coded indicating the following conditions:

- Green Safe operating zone
- Yellow Caution operating zone.

Since use of this leveling device is of a critical nature, it shall have a serialized number from its manufacturer to indicate documented quality control.

AKRON LED OUTRIGGER LAMPS, 2-OUTRIGGERS

QTY: 1

One (1) Akron model #9186-2366-10 double faced, 4" diameter, red flashing LED light mounted on the inside surface of each outrigger.

LED OUTRIGGER GROUND LIGHTS - GROTE WHITELIGHT, 2-

QTY: 1

One (1) adjustable, Grote 63611 WhiteLight, LED ground flood light mounted under the body, to illuminate each outrigger foot pad area.

Both the flashing lights and the foot pad illumination lights shall be energized by the ladder power circuit.

TURNTABLE

QTY: 1

The turntable shall be a fabricated steel weldment designed for the rotation and elevation of the ladder sections.

It shall consist of the following:

- A 44.25" x 48.00" x 1" machined steel bearing plate and matching top plate that shall be machined to insure proper fit to the rotation bearing. There will be no exceptions.

TURNTABLE DECK

QTY: 1

The turntable deck shall cover the entire turntable frame, providing a safe walking surface around the ladder.

It shall have a 1.5" downward flange on all sides.

The deck shall be constructed from tread plate to provide an anti-slip walking surface.

TDA NOTICE!!! TURNTABLE DECK

QTY: 1

Special attention is required for the size and position of the turntable deck to provide adequate clearance for the trailer break over angles.

Proper clearance shall be designed into any components located forward of the trailer gooseneck and trailer fifth wheel.

HEEL PIN STEP

QTY: 1

A two (2) step tread plate access step shall be mounted near the heel of the ladder to provide easy access to the ladder from the turntable deck. The step shall cover the rotation motor and brake assembly and shall easily removable for access to the drive assembly.

TURNTABLE HANDRAILS

QTY: 1

Turntable safety handrails shall be mounted at the rear and sides of the turntable.

The handrails shall be formed or welded 1.25" steel pipe. The assembly shall be coated with black Line-X material.

All rails shall be a minimum of 42" high.

HEEL PINS

QTY: 1

The turntable and ladder shall be designed with dual heel pins at the turntable/ladder pivot point.

The pins shall be solid steel extending the full width of the turntable vertical supports.

The heel pins shall be a minimum of 3" in diameter and is to be equipped with large pin journals in the ladder and turntable supports, which will reduce wear and distribute loads.

Due to the high load and wear on the ladder pivot points, the pin journals in the ladder base rail shall be designed to provide bearing surfaces utilizing ToughMet® 3 AT110 Temper Plate high strength alloy bearing material.

The journals shall have minimum yield strength of 110,000 psi.

Grease fittings shall be provided in bearing at the rear of the ladder section.

CRADLE ALIGNMENT ARROWS

QTY: 1

An alignment arrows and wond shall be provided on the turntable surface in view of the operator when standing at the turntable control station.

The indicator shall assist the operator in indicating the alignment of the aerial ladder with the ladder travel cradle.

The indicators shall be overlaid with ScotchLite material.

FIRE RESEARCH "MAN SAVER" BARS @ TURNTABLE OPENING

QTY: 1

Two (2) Fire Research "ManSaver" safety bars shall be provided at the turntable handrail opening at the rear of the turntable.

The "ManSaver" bars shall be padded with Red vinyl covers that shall open in two (2) directions, in and up to provided additional safety at the turntable walking areas.

The safety bars shall be mounted to the turntable handrails with MS22 mounting brackets.

TURNTABLE SWIVEL

QTY: 1

Hydraulic power to the turntable hydraulic circuits shall be provided through a multi-port, high pressure, hydraulic swivel that permits 360 degrees of continuous turntable rotation.

Electrical power to the turntable electric circuits shall be provided by a collector ring assembly.

The collector rings shall be used for electrical ground, ladder control functions, and a 120 volt A.C. system during 360 degrees of continuous turntable rotation.
The collector ring assembly shall have a minimum of 32 circuits.

Water shall be transferred to the aerial waterway by means of a four (4) inch water swivel enabling 360 degree continuous rotation of the turntable (if applicable).

IQAN - SWIVEL ROTATION ENCODER

QTY: 1

The swivel shall be designed with an integral absolute encoder to provide a continuous output indicating the position of the turntable at any given time.

The encoder shall be designed to indicate position of the turntable even if power interruption occurs.

The number of degrees of rotation shall be shown in a digital readout on the MD4 display.

LADDER CONSTRUCTION

QTY: 1

The elevating ladder shall consist of four (4) steel ladder sections referred to as the base section, lower mid section, upper mid section and fly section.

Each section will be fabricated from 100,000 psi yield ultra high strength steel.

- The design and construction criteria for these ladder sections shall be:
- Each section shall be fabricated using high strength steel, welded together to form a structural unit.
- All welding shall be done by welders that have been certified in accordance with the American Welding Society Standard specifications #D1.1.
- Each ladder section shall be constructed in an assembly fixture to ensure uniformity and interchangeability.
- K-bracing at each rung shall be utilized to minimize side deflection of the ladder.
- All rungs shall be 1-1/8" in diameter, spaced at 14" centers. Rungs will be round. {No Exceptions}
- All rungs, K-braces, and diagonals shall be positioned so that they are continuously welded to the ladder section.
- All side rails shall be protected from interior corrosion by coating the interior of the rail with a corrosion preventative film.
- Ladder handrails and diagonal material are to be constructed from square or rectangular tubing, which provide a larger welding surface area where the materials are attached to each other.

LADDER DIMENSIONS

QTY: 1

The aerial device shall be constructed with the following section dimensions:

Handrail
Height

Handrail
Width

Base Section

28-3/8"
41"

Lower Mid Section

25-5/8"
34-1/2"

Upper Mid Section

23-7/16"
29"

Fly Section

21-5/16"
23-1/2"

Overlap surfaces between sections:

Base to Mid Section
78"
Lower Mid to Upper Mid Section
78"
Upper Mid to Fly Section
78"

RUNG COVERS - PHOTOLUMINESCENT

QTY: 1

Each rung shall be covered with a secure, heavy-duty, fiberglass pultrusion that incorporates an aggressive, non-slip coating. The rung covers shall be secured to each rung utilizing a Silyl Modified Polymer (SMP) based adhesive and shall be easily replaceable should the rung cover become damaged.

Each rung shall have a minimum of 4" of photo luminescent coating in the center of the rung, two (2) 5” black sections on each side of the center photo luminescent and additional photo luminescent sections on the outside edge of each cover. The covers shall provide an aggressive, non-slip coating and assist in providing a light source for each rung during low light conditions. The photo luminescent coating shall remain visible for up to 20 hours after exposure to light.

The rung covers shall be covered by a ten (10) year warranty. A copy of the written warranty shall be provided. There will be no exceptions.

LADDER, CABLE/HOSE/WIRE ROUTING

QTY: 1

All lines to the ladder tip shall be enclosed and protected from the turntable to the ladder tip.

All lines shall be routed through extrusions and high flex energy chain systems.

TWO (2) CHAINSAW SCABBARDS

QTY: 1

Two (2) scabbard style bracket will be provided for securing a chain saw on the fly section.

The inside of scabbard will be lined with nylatron material.

The chain saw shall be secured in place with adjustable straps.

The chain saw shall not be carried in the bracket when the apparatus is in transit.

This bracket shall provide storage for a chain saw to be used when the aerial is in use.

STAINLESS STEEL EGRESS W/TIP SKID GUARDS

QTY: 1

The tip of the fly section be equipped with a bolt-on egress section. The egress shall extend from the end of the fly and be constructed of 1.25" round knurled stainless steel. The knurled construction shall allow for easy grip during exit and entry off and on the ladder tip. The egress shall be designed to fully support the rated capacity of the ladder. Each end of the egress base rail shall be designed with rounded “Ladder Tip Skid Guard” to prevent ladder tip hang up if the ladder slides on a building surface.

SINGLE PAIR FOLDING STEPS @ LADDER TIP

QTY: 1

A set of cast folding steps shall be conveniently located at the end portion of the fly section.

These shall be used for one person to place his feet so that he is positioned parallel to the ladder.

The steps shall fold into proper position for usage and fold toward the sides of the ladder when not in use to provide adequate clearance when the ladder is being climbed.

The steps shall be placed approximately 56" from the center of the last rung toward the base of the aerial.

FLOURECENT RED PAINT ON LAST 6 FEET OF LADDER TIP

QTY: 1

To assist in positioning of the ladder tip, the last six (6) feet of the fly section shall be painted fluorescent red.

TWO (2) NUPLA RUBBISH HOOKS MOUNTED IN FLY SECTION

QTY: 1

Two (2) Nupla Rubbish hooks shall be furnished and mounted on top of the handrail of the fly section, one (1) each side.

One will be a six foot and the other a ten foot.
Pac-trac mounting brackets will be utilized.

The bracket will be sized to hold a 6' trash hook on the left side of the device and a 10' trash hook on the right side of the device.

ROOF LADDER MOUNT ON BASE SECTION

QTY: 1

There shall be a mount furnished on the base section of the aerial ladder for a roof ladder. The mounts shall be designed to cradle the ladder with a pin to keep the ladder from sliding when the aerial device is elevated. Velcro strap shall secure the ladder in the brackets.

RESCUE ROPE PULLEY SYSTEM

QTY: 1

A removable bracket shall be supplied at the rear of the base section, attached between the left hand and right hand rear hand rails. The bracket shall provide rope tie off and/or guide points spaced 5.75” apart, centered between the rear handrails. The bracket shall be designed to be easily removable and not

interfere with a fully retracted ladder assembly when attached to the base section. The removable bracket shall be stored in a tread plate enclosure on the outside of the aerial base section. The rope rescue pulley system is rated at 500 pounds.

A rescue lifting attachment shall be provided. The lifting attachment will mount to the aerial egress and will consist of a pair of nylatron pulleys mounted to a stainless steel shaft. The pulleys will be adjustable from side to side and will have a total lifting capacity of 500 pounds, regardless of whether one (1) or both pulleys are being utilized.

ROOF LADDER PROVIDED - BASE

QTY: 1

One (1) Duo-Safety model 775DR-10; 10', aluminum, straight roof ladder shall be provided to be mounted in the roof ladder mount on the base section.

SPECIFIED ROOF LADDER MOUNTED ON RIGHT SIDE OF BAS

QTY: 1

The specified roof ladder shall be mounted on the right side of the base section.

LADDER LEVEL INDICATOR (BASE SECTION) - LIGHTED

QTY: 1

One (1) Rieker 12 volt lighted, ladder angle indicator shall be provided on the base section of the ladder, near the turntable control console. The integrated light shall be activated with ladder power.

ELEVATION SYSTEM

QTY: 1

Two (2) double acting lift cylinders shall be attached between the turntable and the base section near the midpoint of the base section thus creating a better lifting geometry resulting in lower hydraulic operating pressures and improved load distribution on the base ladder section.

The cylinders shall function only to elevate the aerial device and not as a structural member to stabilize the ladder sideways.

The lift cylinder rods shall be attached to the base section with self aligning swivel bearings which prevent side loading on the lift cylinders resulting in longer cylinder seal life. They shall provide smooth precise elevation from -7 degrees below horizontal to +80 degrees above horizontal.

The lift cylinders shall have a 5-1/2" internal bore, a 3" diameter rod and 29-13/16" stroke.

The lift cylinders shall be equipped with integral (on the cylinder) holding valves which prevents the ladder from lowering should a hydraulic line be ruptured at any point within the hydraulic system.

They shall also have a manifold line with velocity fuses between the cylinders to prevent uneven cylinder lift.

They shall have both rod and piston hydraulic cushions. These cushions shall decelerate the cylinder near the end of its stroke creating a smooth stop at full stroke.

A limit switch at the aerial travel support shall be provided to prevent operation of the outriggers once the aerial has been elevated from the nested position. This system will prevent operation of the outriggers once the ladder has been elevated from the nested position.

ROTATION SYSTEM

QTY: 1

A 41" diameter external tooth monorace bearing shall be provided for 360 degree continuous rotation of the aerial device.

The bearing shall be bolted to the turntable and bolted to the pedestal bearing plate using forty (40) 3/4" diameter SAE Grade 8 bolts to secure the bearing to the turntable and thirty three (33) 3/4" diameter SAE Grade 8 bolts to secure the bearing to the pedestal bearing plate.

Both upper and lower bearing surfaces shall be milled to ensure a true mounting surface for the rotation bearing.

ROTATION MOTOR AND BRAKE

QTY: 1

A hydraulic driven planetary swing drive system shall provide smooth and precise rotation. A spring applied, hydraulically released, disc type brake shall be furnished on each gear box to provide positive braking of the turntable assembly against reactionary forces such as water and gravity.

SWING DRIVE ADJUSTMENT

QTY: 1

The swing drive shall be designed with an adjustable mount. This shall allow the back lash to be set at assembly and provide the ability to re-adjust as components wear. This shall prevent the need to replace rotation components that may exceed manufacturer’s allowable back lash in later aerial inspections. Units that do not allow adjustment shall not be acceptable.

EXTENSION/RETRACTION SYSTEM

QTY: 1

A full hydraulic powered extension and retraction system of the ladder shall be provided through dual hydraulic cylinders and cables, each capable of operating the ladder in the event of failure of one of the systems.

The extension cylinders shall have a 3.00" internal bore with a 2.00" rod. Both cylinders shall be equipped with two integral holding valves to protect both extension and retraction movement during water tower operations or to prevent the ladder from falling should a line be severed at any point within the hydraulic system.

Cables attached to the base and mid ladder sections shall be routed over sheave wheels on the base section and cylinder sheave mount. This cable arrangement shall act as a stroke multiplier to provide full ladder extension and retraction. The sheave wheel bearings shall be maintenance free and not require external lubrication. Extension and retraction cables shall have a minimum safety factor of 5 :1 and shall be .50" diameter from the base to mid section cable and be .375" from the base to the fly section.. The minimum ratio of the diameter of wire rope to the sheave used shall be 1:12.

EXTENSION CYLINDERS PAINTED LADDER PAINT COLOR

QTY: 1

The extension cylinders shall be painted to match the color of the ladder.

LADDER SLIDE PADS

QTY: 1

Nylatron slide pads with a sliding coefficient of friction of .15 shall be used between the telescoping ladder sections.

Slides are required because of greater surface area for load transfer between the telescoping sections.

Slide pads shall also be used to control side play between the ladder sections.

The rear slide pads shall be held into place by a machined receiver, which is welded into the base rail of the extending sections.

Each slide pad shall be held in place with an easily removable keeper, allowing the pad to be removed from the rear of the ladder section.

To control movement side to side the receiver shall allow for adjustment of each pad.

LADDER, 120 VOLT ELECTRICAL SYSTEM

QTY: 1

Two (2) 120 volt 20 amp electrical circuits utilizing 12 gauge five strand electrical cable shall be provided to the tip.

Circuits shall be wired from the tip to the turntable through the collector ring assembly.

LADDER, 120 VOLT NEMA L5-20 AMP RECEPTACLE

QTY: 1

One (1) 120 volt weatherproof outlet, Nema L5-20R, twist lock type and an environmental cover shall be furnished near the end of the fly section.

LADDER TIP LIGHTING

QTY: 1

Two (2) Whelen "Pioneer" model #PSP1ALP, 150 watt, 120 volt Low Profile permanently mounted, swivel based, LED lights shall be mounted at the tip of the ladder, one on each side of the fly section

The lights shall be individually switched at the light head and at the turntable console.

The lights shall be provided Black in color.

The lighting circuit for two (2) 150 watt quartz light shall require one (1) 120V, 15 amp circuit breaker.

CRADLE ILLUMINATION LIGHTS

QTY: 1

Two (2) 12 volt FireTech #FT-CU-P500 LED flood lights shall be mounted near the ladder travel support to illuminate this area during night time operation.

The lights shall be wired and activated by the ladder power circuit.

The lights shall have a limited lifetime warranty.

HEEL PIN STEP LIGHTS

QTY: 1

Seven (7) polished stainless steel, TecNiq Eon 3-LED horizontal surface mounted lights shall be provided and installed with a gasket at the base of the ladder in the turntable heel pin step area.

TURNTABLE CONSOLE LIGHT

QTY: 1

A sealed LED light shall be used to illuminate the turntable control console.

The light shall be mounted across the top of the control panel to assure proper illumination of all controls.

The light shall be wired to the ladder power circuit.

TURNTABLE CONSOLE STEP LIGHT

QTY: 1

One (1) LED horizontal surface mounted lights shall be provided and installed with a gasket at the front face of the turntable console facing the operator, to illuminate the step area in front of the control console.

LADDER WORK LIGHTING

QTY: 1

Two (2) Whelen #MPPB*S Pioneer Micro super LED work lights shall be mounted at the rear of the base ladder section, one on each handrail.

Each light shall have twelve (12) LED’s, pedestal mount and chrome rear cover.

Built in On/Off Switch.

LADDER WORK LIGHTING

QTY: 1

One (1) Whelen #MPPB*S super LED work light shall be mounted near the tip of the ladder, on the right side.

The light shall have twelve (12) LED’s, pedestal mount, chrome rear cover, and a built in on/off switch.

LADDER WORK LIGHTING

QTY: 1

One (1) Whelen #MPPB*S super LED work light shall be mounted near the tip of the ladder, on the left side.

The light shall have twelve (12) LED’s, pedestal mount, chrome rear cover, and a built in on/off switch.

WHELEN L31, BLUE LED BEACON ON LEFT SIDE OF LADDER

QTY: 1

One (1) Whelen, L31H*F self contained super LED beacon shall be provided on the left side of the ladder tip.

The light shall give the operator at the turntable a visual indication of the ladder tip location, when the ladder is in smoke or steam and shall be activated by the ladder power circuit.

The light shall have blue LEDs and a colored lens.

WHELEN L31, BLUE LED BEACON ON RIGHT SIDE OF LADDE

QTY: 1

One (1) Whelen, L31H*F self contained super LED beacon shall be provided on the right side of the ladder tip.

The light shall give the operator at the turntable a visual indication of the ladder tip location, when the ladder is in smoke or steam and shall be activated by the ladder power circuit.

The light shall have blue LEDs and a colored lens.

LADDER WALKWAY ILLUMINATION LIGHTS

QTY: 1

The ladder sections shall be equipped with LED striping lighting for aerial illumination.

This system shall illuminate the rungs of the ladder to support night time operations.

The system shall consist of a continuous path of LED lights spaced every ¾" which shall offer a minimum viewing angle of 120 degrees.

The assembly shall be encapsulated within an enclosure which is resistant to UV and ozone and shall be terminated using sealed end caps with RTV silicone.

The complete assembly shall offer a minimum water proof rating of IP68.

This sealed enclosure shall be mounted within a clear anodized aluminum bracket on the inside of the rung base rail, on each ladder section.

The assembly shall incorporate a UV stabilized high impact poly-carbonate shield.

The system shall be wired to the ladder power circuit with a disabling switch at the turntable control console.

PATRIOTIC - LADDER ILLUMINATION LIGHTS

QTY: 1

The color of the ladder illumination light shall be:

- Lower section(s) - RED
- Mid section - WHITE
- Upper section(s) - BLUE

LADDER, CONTROL STATION

QTY: 1

There shall be a control station at the turntable.

All elevation, extension and rotation operational controls shall operate from this position.

These controls shall be arranged to permit the operator to regulate the speed of these operations within the safe limits as determined by the manufacturer.

Load instruction plates shall be located at the control station to show the recommended safe load of the ladder.

The control devices shall be clearly marked and suitably lighted.

CONSOLE LOCATION

QTY: 1

The turntable control station shall be located on the right side of the turntable such that the operator can easily observe the ladder tip while operating the controls.

PAINTED ALUMINUM TURNTABLE CONSOLE - MATCH LADDER

QTY: 1

The control console shall be manufactured from aluminum material and designed to support the components mounted in and on the console.

The console shall be painted to match the ladder structure.

TURNTABLE CONTROL STATION

QTY: 1

The console shall be mounted to the turntable weldment by a formed pipe pedestal, to provide as much foot room as possible for the operator.

An access door shall be provided on the heel pin step to provide complete access to the manual hydraulic components mounted inside the step.

The console shall be illuminated for night operations, and shall have the following controls/indicators:

The following items shall be clearly marked:

- Three (3) ladder control levers
- A foot operated "dead man switch"
- Engine fast idle control switch
- Moment emergency pump power switch
- Intercom controls
- Electric Monitor Controls (if applicable)

AERIAL FLOWMETER @ TURNTABLE CONSOLE

QTY: 1

The apparatus shall be equipped with a digital flow meter displayed through the turntable console which shall give the operator or engineer an indication of actual volume of water (in gallons) being discharged through the aerial waterway.

A flow sensor paddle wheel shall be installed on the discharge piping with a machined housing or clamp.

Flow rate shall be displayed through the display on the turntable console.

TURNTABLE CONSOLE COVER - PAINTED

QTY: 1

The turntable control console shall be designed with an aluminum cover to match the console.

The cover shall be designed with a rectangular shape that pivots over the top of the control panel and does not obstruct viability for the operator when the ladder is operated at low angles.

COMMUNICATION SYSTEM

QTY: 1

A Fire Research "ACT" communication system shall be furnished between the ladder tip and the rear operator's position.

A master control at the turntable operator's console shall be provided, with a push-to-talk button and a volume control.

COMMUNICATION SYSTEM

QTY: 1

A self-contained, hands-free speaker microphone shall be located at the ladder tip.

No operator action shall be required to transmit or receive messages at this speaker microphone.

WATERWAY SYSTEM

QTY: 1

The aerial waterway system shall be capable of being supplied by an external water source with the inlet on the left and right side of the trailer gooseneck.

To provide proper clearance for adapters when the trailer is in the jack knife position, the centerline of each inlet shall be a minimum of 12" to the rear of the fifth wheel centerline.

The piping to the turntable swivel shall be 4" aluminum pipe.

A 4" water swivel shall be located in the riser pipe from the tee permitting 360 degree continuous rotation of the ladder.

WATERWAY

QTY: 1

An anodized aluminum telescopic waterway shall be mounted beneath the center of the aerial ladder.

The waterway shall have a 5" base section tube, 4 1/2" lower mid section tube, 4" upper mid section tube and a 3 1/2" fly section tube.

The waterway shall be secured to the ladder sections with cradle type mounts to provide a minimum of 2" of up and down movement in the waterway.

This design shall protect the waterway from bending if the ladder comes in contact with a building or a water hammer is imposed to the waterway discharge.

HEEL PIN SWIVEL

QTY: 1

A 4" heel pin swivel connection between the ladder waterway and the turntable swivel permitting water tower operations from -5 to +80 degrees shall be provided.

AUTOMATIC WATER DRAIN/VENT

QTY: 1

An automatic drain shall be provided in aerial water way to automatically drain the system for freezing conditions.

This valve shall also act as a vacuum relief valve for the waterway when extending the aerial device with the discharges in the closed position.

WATERWAY RELIEF VALVE

QTY: 1

A relief valve preset at 225 psi shall be located beneath the turntable to protect the water system from excessive pressures.

TILLER AERIAL WATERWAY DRAIN, 1-1/2" VALVE

QTY: 1

A 1-1/2" drain valve shall be installed and operated from the side of the apparatus in the gooseneck area.

AERIAL WATERWAY DRAIN CONTROL

QTY: 1

The waterway drain shall be controlled from a manual control near the aerial inlet on the officer's side of the vehicle.

TILLERS, SIDE INLETS 4" NST ADAPTERS W/CAPS

QTY: 1

The left and right side rear aerial inlets shall be equipped with 4” NST adapters with long handle cap.

TECHNOCHECK ON EACH AERIAL INLET

QTY: 1

There shall be a Technocheck valve installed on the each side aerial inlet.

INLET GAUGE

QTY: 1

NOTE: A 2.5" Class One pressure gauge shall be provided at each aerial inlet(s) to indicate the waterway pressure.

The gauge shall be silicone filled pressure gauge to help with pulse and vibration dampening.

To prevent internal freezing, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals.

AERIAL MONITOR

QTY: 1

An Akron model #3480 "StreamMaster II" electrically controlled monitor shall be installed on the outer end of the telescoping aerial waterway.

The CAN based control system shall be attached to the monitor, and shall be easily accessible for service.

Vertical travel 45° below and 120° above horizontal

The monitor shall be equipped with a 3-1/2" outlet and a 4" inlet.

The monitor shall have a vertical sweep of 165°, and a horizontal sweep of 355°.

NOZZLE

QTY: 1

An Akron model #5177 "Akromatic" electrically controlled master stream nozzle shall be installed on the end of the monitor.

The model #5177 shall allow a maximum flow rate of 1250 gpm @ 80 psi.

LADDER, AKRON MONITOR CONTROLS W/ AUTO STOW

QTY: 1

The monitor and nozzle functions shall be controlled from the tip of the fly section and from the aerial control console.

The monitor and nozzle controls at the tip and turntable shall consist of three (3) individual weather resistant switches.

The monitor shall be capable of wireless remote operation.

The monitor and nozzle control functions shall be as follows:

UP / DOWN
LEFT / RIGHT
STRAIGHT STREAM / FOG

The monitor shall be equipped with an "Auto Stow" feature that shall automatically deploy the monitor and shall also place the monitor into its stowed position when actuated.

LADDER, SELECTABLE WATERWAY TROLLEY, ALL LADDER DE

QTY: 1

The waterway monitor shall be "retractable", allowing the monitor to be secured at the tip of the fly section for water tower operations, or at the end of the upper section for rescue operations. An aluminum sliding monitor support assembly shall be installed at the end of the fly section waterway tube. This support assembly shall guide the monitor along the base rails of the aerial fly section. An electric actuator shall move the trolley lock to position the monitor to either the fly section or mid-section. A control switch shall be located on the turntable control console. The "monitor lock" shall be movable when the ladder is fully retracted. The lock assembly shall be constructed from stainless steel that is electropolished for smooth operation and to keep from corroding.

In "rescue mode", this feature shall allow the tip of the fly section to be placed very close to the edge of a building or window, minimizing the working and access heights "on" and "off" the ladder tip, without worrying about the monitor being damaged. Permanent monitor guards installed below the tip of the aerial are unacceptable.

To accommodate the movement of the "retractable" electric remote monitor, the monitor power/control cable for the electric monitor shall be equipped with a slide track to eliminate the need for plugs or reels.

Movable monitor designs that require a spring-rewind cord reel for the monitor power/control cord are unacceptable due to the additional cost, maintenance, weight and unattractive appearance associated with a cord reel permanently installed on the outside of the aerial base section.

"STORE FRONT BLITZ" DESCRIPTION

QTY: 1

The ladder waterway system shall be designed to provide “Store Front Blitz” feature. This feature shall allow the fire department to position the truck in front of a low structure and sweep the front of the building with a 1500-GPM master stream upward for initial interior attack.

Features shall include:

- High tip load while flowing water
- Waterway flow rate of 1500-GPM in any position
- High 1500-GPM flow in an upward direction
- 30-degrees above horizontal nozzle position
- 135-degrees below horizontal nozzle position
- 180-degree nozzle sweep.

The position of the aerial nozzle shall be monitored electronically at all times. Since the nozzle can be elevated to 35 degrees above horizontal when affixed to the tip of the fly section, the nozzle position monitor shall automatically prevent the nozzle from being raised above horizontal when the nozzle is affixed to the top of the outer mid section of the aerial in order to prevent damage to the nozzle or the device during extension and retraction operations.

LADDER CAPACITIES,

QTY: 1

The following ladder tip load capacities shall be established with the truck level, the outriggers fully extended and lowered to relieve the chassis weight from the axles. Capacities are based upon full extension and 360 degree rotation.

LADDER CAPACITIES IN POUNDS
(50 MPH WIND and 1/4" ICE BUILD UP CONDITIONS / UNCHARGED WATERWAY)
DEGREES OF ELEVATION

	-7 to 10	11 to 20	21 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80
Base Section	250	250	500	500	500	500	500	500

Lower Mid	250	250	250	250	250	500	500	500
Upper Mid	---	---	---	---	250	250	500	500
Fly Section	---	---	---	---	---	---	250	500
Fly Tip	500	500	500	500	500	500	500	500

The ladder and water system shall be designed to permit the following flows:

- 1500 GPM at 90 degrees to ladder centerline either side.
- 1500 GPM parallel to ladder centerline and as far below horizontal as nozzle design allows.
- 1500 GPM above ladder centerline as far as deck gun design allows.

Note: Tip capacity is reduced to 250 lbs when flowing water with the nozzle above the waterway centerline.

LADDER CAPACITIES IN POUNDS
(50 MPH WIND and 1/4" ICE BUILD UP CONDITIONS / CHARGED WATERWAY)
DEGREES OF ELEVATION

	-7 to 10	11 to 20	21 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80
Base Section	---	---	250	250	500	500	500	500
Lower Mid	---	---	---	---	250	250	500	500
Upper Mid	---	---	---	---	---	250	250	500
Fly Section	---	---	---	---	---	---	250	250
Fly Tip	500	500	500	500	500	500	500	500

The aerial unit can be operated in any plane up to 3.5 degrees out of level at full capacities. Operation beyond this limit shall be at operator's discretion.

AERIAL LADDER, MANUALS, TWO (2) SETS

QTY: 1

The aerial manufacturer shall provide the following manuals pertaining to the aerial device:

- Two (2) Operator's manuals
- Two (2) Parts manuals
- Two (2) Complete Electrical and Hydraulic Diagrams

SPECIAL AERIAL TOOLS

QTY: 1

A steel tool box shall be provided with the following special tools for retorquing of specified bolts as recommended by the aerial manufacturer:

Torque wrench

4:1 multiplier

Extensions, adapters and sockets as required

F D AERIAL FAMILIARIZATION - PROVIDED BY FACTORY

QTY: 1

An on-site program for familiarization of Fire Department personnel shall be provided.

This program shall be designed to assure complete understanding of all aspects of the aerial device in the operating environment.

The familiarization shall cover all applicable required items in NFPA 1900 code, and be performed by a qualified person per the code.

The familiarization program shall be designed to instruct the individual who has never utilized an aerial device of this type before.

The individual shall receive thorough instructions on operation of the device including hands-on operations for personnel.

The training shall include at a minimum:

Location and operation of all gauges and indicators, as well as fluid level checks.

How to tilt the cab (if a tilt cab is provided), or how to locate all required maintenance areas.

Explanation of all cab controls, instruments, mirrors, safety devices or alarms, brake operations, transmission control, pump controls (if equipped), exhaust regeneration (if provided), seat adjustments, warning light engagement, and other operational equipment.

Familiarization of the aerial device engagement, operations, emergency overrides, safety devices, and maintenance systems.

If the unit is equipped with a fire pump, familiarization of the complete pumping system components, engagement, operations, etc.

If the unit is equipped with a generator, familiarization of the generator system engagement and operations.

If the unit is equipped with a foam system, familiarization of the foam system engagement and operations.

FACTORY FAMILIARIZATION - THREE (3) DAYS

QTY: 1

After the unit has been accepted, a factory qualified person shall be provided for a minimum of three (3) days of familiarization.

AERIAL SERVICE, ALL DEVICES

QTY: 1

Due to the importance of keeping this vital piece of firefighting apparatus in service with a minimum of downtime, the bidder maintains a network of service centers with factory trained personnel.

The bidder shall have a separate facility for service of units so they do not conflict with production units.

The service facility carries an inventory of parts, separate from production parts.

WARNING DECALS, ALL DEVICES

QTY: 1

Warning decals shall be provided in appropriate locations to alert the operator of potential hazards and operating instructions.

All warning labels shall be in general compliance with ANSI Z34.1 recommendations.

CERTIFICATION & TESTING

QTY: 1

The aerial device shall be tested in compliance with the National Fire Protection Association's Standard #1901 (latest edition).

Ongoing structural and physical property testing during construction shall also be done.

The following tests shall be conducted by personnel holding a Level II certification to detect defects and improperly secured components:

Magnetic particle inspection shall be conducted on all ferrous welds to assure the integrity of the weldments and also detect any flaws or weaknesses. These tests shall be performed prior to paint or assembly.

Dye penetrant testing be conducted on all structural aluminum welds.

Ultrasonic inspection shall be used to detect any flaws in pins, bolts and other critical mounting components. The bolts shall be tested after any torqueing to ensure the bolt was not damaged.

All extension/retraction cables shall be proof load tested, serialized, and certified by the cable vendor.

All cable ends shall be dye penetrant tested to find any cracks, imperfections, etc.

Functional tests, load tests, stability tests and visual structural examination shall be performed.

These tests shall determine any unusual deflection, vibration, or instability characteristic of the unit.

Hydraulic oil sample test prior to delivery.

Additionally, a waterway pressure test shall be performed.

Upon completion of the preceding inspections, the independent testing company shall issue a Certificate of Inspection indicating that all specified standards have been satisfied.

Aerial manufacturers not utilizing third party, independent testing companies shall not be acceptable.

The following test shall be conducted to the aerial device prior to delivery.

The manufacturer of the aerial device is required to provide a written statement signed by the Chief Engineer certifying the aerial's ability to perform the following tests:

1-1/2:1 DYNAMIC STABILITY AND LIFT TEST -A test of the apparatus shall be performed that the ladder sections are so designed and powered to support a load representing 150% of the manufacturer's rated tip load capacity at maximum horizontal reach on level ground. Since this is a dynamic test, the load will be raised, lowered and rotated without evidence of instability. Specifically, 750 pounds at the ladder tip with the ladder fully extended at zero degrees shall be rotated 360°.

1-1/3:1 DYNAMIC STABILITY AND LIFT TEST -A test of the apparatus shall be performed that the tip and ladder sections are so designed and powered to support a load representing 133% of the manufacturer's rated tip load capacity at maximum horizontal reach on a five (5) degree slope. Since this is a dynamic test, the load will be raised, lowered and rotated without evidence of instability. Specifically, 666 pounds at the ladder tip with the ladder fully extended at zero degrees shall be rotated 360°.

TIME TEST - A test of the apparatus shall be performed to raise the ladder from a bedded position extended to full height and rotated through a 90° turn smoothly and without undue vibration in not over 120 seconds.

WATER TOWER TEST #1 -A test of the apparatus shall be performed to test its ability to discharge 1000 gallons per minute parallel to the ladder with the unit at full extension and zero degree elevation and through a 360° rotation. The unit shall be capable of performing this test with a rated tip load of 250 pounds at the ladder tip.

WATER TOWER TEST #2 -A test of the apparatus shall be performed to test the ability to discharge 1000 gallons per minute, 90° to the ladder with the ladder at full extension, zero degree elevation and through 360° of rotation. The unit shall be capable of performing this test with a rated tip load of 250 pounds at the ladder tip.

WATER TEST #3 -A test of the apparatus shall be performed to test the ability to discharge 1000 GPM above the ladder centerline and as many degrees above 0° as the deck gun design allows. This test shall also be performed with the ladder fully extended at 0° elevation and through 360° of rotation with a rated tip load of 250 pounds.

Bidders must state their ability to comply with all of the above tests. Failure to do so shall be grounds for rejection of their bid.

INSIDE/UNDERSIDE BODY -UNPAINTED

QTY: 1

The inside and underside areas of the complete body assembly shall be cleaned and un-painted prior to the installation of the body on the chassis or torque box.

GENERAL PAINT DESCRIPTION

QTY: 1

The apparatus body shall be painted with PPG paint product. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces of the body. Any vertically or horizontally hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on body, door jambs and door edges.

Any location where the material is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, hand rails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

GENERAL PRIMER & PREP DESCRIPTION

QTY: 1

All exposed welds shall be ground smooth for final finishing of areas to be painted. The compartments and doors are totally degreased and phosphatized. After final body work is completed, grinding (36 and 80 grit), and finish sanding shall be used in preparation for priming.

GENERAL PRIMER & PREP DESCRIPTION

QTY: 1

The body shall be finish sanded and prepared for final paint. Upon completion of final preparation, the body shall be painted utilizing the highest quality, state of the art, low V.O.C., polyurethane base paint. Finish paint shall be applied in multiple coats to ensure proper paint coverage with a high gloss finish.

COMMERCIAL CAB PAINT FINISH

QTY: 1

The chassis shall be painted and detailed as provided from the chassis OEM and shall meet their quality guidelines.

BODY BUFFING & FINISH

QTY: 1

The visable and exposed areas of the body shall be buffed and detailed.

COMPARTMENT INTERIOR FINISH

QTY: 1

The interior of the compartments shall be finish painted with Multispec #7251 Gray Stone scuff resistant paint to provide a protective application over all of the compartment interior surfaces.

FENDER COMPARTMENT INTERIOR

QTY: 1

The interior of the fender storage compartments (if fender compartments are specified) shall be finish painted job color.

PUMPHOUSE & PLUMBING PAINT

QTY: 1

The pump enclosure and pump/plumbing within the pump enclosure shall be painted black.

SINGLE COLOR BODY PAINT SCHEME - TBD

QTY: 1

The body paint finish shall be PPG paint system in a single color, to match customer furnished paint codes and requirements.

FINALIZATION & DETAILING

QTY: 1

Prior to delivery of the vehicle, the interior and exterior be cleaned and detailed. The finalization process detailing shall include installation of NFPA required labels, checking fluid levels, sealing and caulking required areas of the cab and body, rust proofing, paint touch-up, etc.

LADDER PAINT

QTY: 1

Prior to any painting, all weldments such as the outrigger beams, torque box, turntable, and ladder sections shall be sand blasted, cleaned and inspected to insure the removal of any surface imperfections and to insure superior paint adhesion to the metal.

The entire painting system shall utilize a single manufacturer's paint for compatibility between primers and finished coats. All painting shall be done in atmosphere controlled spray booths. The weldments shall then be primed with Sikkens primer. All seams between adjoining pieces that are not continuously welded shall be caulked to inhibit corrosion.

Before assembly, in preparation for final painting, the aerial unit shall be thoroughly cleaned, conforming to good painting practices.

The aerial components shall then be sprayed with Sikkens Polyurethane primer sealer. Finished paint used on the turntable, lift cylinder, and ladder sections shall be painted Sikkens FLNA41532 black.

EXTENSION CYLINDERS PAINT

QTY: 1

The extension cylinders shall be painted to match the color of the ladder.

URETHABOND RUNG RAIL COATING

QTY: 1

The rung rails of the extending ladder sections shall be painted with Silver Urethabond 104 non-leafing aluminum urethane primer/finish.

TORQUEBOX PAINT

QTY: 1

The torque box shall be painted black, allowing easy touch-up after extended use.

OUTRIGGER PAINT

QTY: 1

The outrigger beams shall be painted Sikkens #9000 black enamel, allowing easy touch-up after extended use.

TURNTABLE PAINT

QTY: 1

The turntable shall be painted to match the base color of the ladder, allowing easy touch-up after extended use.

TURNTABLE CONSOLE PAINT

QTY: 1

The turntable console shall be painted to match the base color of the ladder, allowing easy touch-up after extended use.

LIFT CYLINDERS PAINT

QTY: 1

The aerial lift cylinders shall be painted to match the base color of the ladder, allowing easy touch-up after extended use.

TILLER CAB, INTERIOR PAINT - TEXTURED GRAY

QTY: 1

The structure and interior surfaces of the cab shall be painted with a texture gray finish.

LETTERING ON FRONT CAB DOORS

QTY: 1

Gold leaf, "Real Gold" vinyl, with drop shadow lettering shall be provided on the cab driver's and officer's doors per the fire department requirements.

The design of the lettering on the cab doors shall be designed to fit in the 496 sq. inches available.

3" LETTERING ON FRONT CAB DOORS

QTY: 1

Lettering provided on the driver's and officer's cab doors shall be 3" high.

FRONT CAB DOOR TEXT LINE 1 - TBD

QTY: 1

FRONT CAB DOOR TEXT LINE 2 - DATA ERROR

QTY: 1

INSTALL FIRE DEPARTMENT SUPPLIED DOOR DECAL

QTY: 1

KME shall install two (2) fire department supplied decals, the location to be determined at pre-con.

LETTERING ON REAR CAB DOORS

QTY: 1

Gold leaf, "Real Gold" vinyl, with drop shadow lettering shall be provided on the cab driver's and officer's doors per the fire department requirements.

The design of the lettering on the cab doors shall be designed to fit in the 496 sq. inches available.

REAR CAB DOOR TEXT LINE 1 - TBD

QTY: 1

REAR CAB DOOR TEXT LINE 2 - DATA ERROR

QTY: 1

LETTERING ON FRONT CAB

QTY: 1

Gold leaf, "Real Gold" vinyl, with drop shadow lettering shall be provided on the front of the cab per the fire department requirements.

The design of the lettering on the front of the cab shall be designed to fit in the 167 sq. inches available.

FRONT OF CAB TEXT - TBD

QTY: 1

3" LETTERING ON REAR CAB DOOR

QTY: 1

Lettering provided on the front of cab shall be 3" high.

3" LETTERING ON FRONT OF CAB

QTY: 1

Lettering provided on the front of cab shall be 3" high.

LETTERING ON CAB SIDE

QTY: 1

Gold leaf, "Real Gold" vinyl, with drop shadow lettering shall be provided on the cab side panel per the fire department requirements.

The design of the lettering on the cab side panel shall be designed to fit in the 150 sq. inches available.

3" LETTERING ON CAB SIDE PANEL

QTY: 1

Lettering provided on the cab side panel shall be 3" high.

CAB SIDE PANEL TEXT LINE 1 - TBD

QTY: 1

CAB SIDE PANEL TEXT LINE 2 - DATA ERROR

QTY: 1

LETTERING ON REAR BODY

QTY: 1

Gold leaf, "Real Gold" vinyl, with drop shadow lettering shall be provided on the rear body panel per the fire department requirements.

The design of the lettering on the rear of the body shall be designed to fit in the 167 sq. inches available.

3" LETTERING ON REAR BODY

QTY: 1

Lettering provided on the rear body panel shall be 3" high.

REAR BODY TEXT LINE 1 - TBD

QTY: 1

REAR BODY TEXT LINE 2 - DATA ERROR

QTY: 1

REAR BODY TEXT LINE 3 - DATA ERROR

QTY: 1

CAB ROOF LETTERING

QTY: 1

Scotch-Lite without drop shadow lettering shall be provided on the cab roof per the fire department requirements.

The design of the lettering on the cab roof shall be designed to fit in the 2500 sq. inches available.

18" LETTERING ON CAB ROOF

QTY: 1

Lettering provided on the cab roof shall be 18" high per Fire Department and engineering design.

CAB ROOF TEXT LINE 1 - TBD

QTY: 1

CAB ROOF TEXT LINE 2 - DATA ERROR

QTY: 1

BODY SIDE SHEET LETTERING

QTY: 1

Gold leaf, "Real Gold" vinyl, with drop shadow lettering shall be provided on the body side sheet per the fire department requirements.

The design of the lettering on the body side sheet shall be designed to fit in the 2500 sq. inches available.

6" LETTERING ON BODY SIDE SHEET

QTY: 1

Lettering provided on the body side sheet shall be 6" high.

SIDE OF BODY TEXT LINE 1 - TBD

QTY: 1

SIDE OF BODY TEXT LINE 2 - DATA ERROR

QTY: 1

SIDE OF BODY TEXT LINE 3 - DATA ERROR

QTY: 1

"NEVER FORGET" MURAL

QTY: 1

There shall be one (1) pair of emblems with the words "HONORING AMERICA'S BRAVEST 9-11-01" in gold leaf lettering, and a Scotch-lite colored imaged firefighter's helmet installed on the vehicle and located on top of the EMS door upper section.

SCOTCH-LITE STRIPE

QTY: 1

A six (6) inch high "Scotch-Lite" stripe shall be provided. The stripe shall be applied on a minimum of 60 percent of each side of the unit, 60 percent on the rear of the unit and 40 percent on the front of the unit. The Scotch-Lite stripe layout shall be determined by the Fire Department.

BLACK SCOTCH-LITE

QTY: 1

The Scotch-Lite shall be black in color.

DUAL 6" SCOTCH-LITE "Z" IN STRIPE

QTY: 1

Dual six (6) inch simple "Z" effect shall be incorporated into the Scotch-Lite scheme on the body.

Final layout of this configuration shall be determined by the Fire Department.

DUAL 1" SCOTCH-LITE ACCENT ON MAIN STRIPE

QTY: 1

A 1" high Scotch-Lite material accent stripe shall be incorporated into the Scotch-Lite scheme to border the primary Scotch-Lite stripe on the top and bottom edges.

Final layout of this configuration shall be determined by the Fire Department.

REAR CHEVRON STRIPING

QTY: 1

REAR CHEVRON STRIPING

50% VERTICAL SURFACE

QTY: 1

At least 50% of the rear facing vertical surface shall be covered with alternating strips of reflective striping.

6" 50% REAR SCOTCH-LITE DIAMOND GRADE CHEVRON

QTY: 1

The striping shall be 6" Diamond Grade Scotch-Lite.

RED & FLUORESCENT YELLOW GREEN DIAMOND

QTY: 1

The Diamond Grade Scotch-Lite shall be Red and Fluorescent Yellow Green in color.

FRONT BUMPER STRIPING

QTY: 1

The striping shall be 4" diamond grade Scotch-Lite.

FRONT BUMPER STRIPING

QTY: 1

The Diamond Grade Scotch-Lite shall be Red and Fluorescent Yellow Green in color.

LETTERING PANELS ON BASE SECTION

QTY: 1

Painted aluminum panels shall be furnished on each side of the aerial device base section. The panels shall be approximately 19" high X 144" long.

SIGN PANELS PAINTED TO MATCH BODY COLOR

QTY: 1

The sign panels shall be painted to match the body paint color.

AERIAL LETTERING

QTY: 1

Gold leaf, "Real Gold" vinyl, with drop shadow lettering shall be provided on the signboard per the fire department requirements. The design of the lettering on the signboard shall be designed with a maximum text height of 12" and fit in the available area.

SCBA CYLINDER STORAGE

QTY: 4

A Zico SCBA bottle brackets mounted as directed by the fire department.

WHEEL CHOCKS

QTY: 1

Two (2) ZICO #SAC-44 folding wheel chocks shall be mounted forward of the rear wheels on the driver side below the side running board compartments.

KME WARRANTY, STARTING ON IN-SERVICE DATE

QTY: 1

Warranty coverage by KME will begin when the customer places the unit in service. This date may not exceed 60 days from the date of delivery to the customer.

The Customer must email kmeservice@kmefire.com within 60 days of delivery, or the warranty start date will default to the original delivery date.

GENERAL ONE (1) YEAR WARRANTY

QTY: 1

Purchaser shall receive a General One (1) Year or 24,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0001. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

REGULATED EMISSIONS SYSTEMS FIVE (5) YEARS OR CARB

QTY: 1

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

ELECTRICAL ONE (1) YEAR WARRANTY

QTY: 1

Purchaser shall receive a Electrical One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0201. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

AERIAL LADDER STRUCTURE

QTY: 1

Purchaser shall receive a Aerial Ladder Structure Twenty (20) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0403. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

AERIAL TORQUE BOX STRUCTURE FIFTEEN (15) YEAR WTY

QTY: 1

Purchaser shall receive a Aerial Torque Box Structure Fifteen (15) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0412. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

AERIAL LEAK-FREE HYDRAULICS THREE (3) YEAR WARRANT

QTY: 1

Purchaser shall receive a Aerial Leak-Free Hydraulics Three (3) Years or 48,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0421. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

BODY STRUCTURE (ALUMINUM) FIFTEEN(15) YEAR WTY

QTY: 1

Purchaser shall receive a Body Structure (Aluminum) Fifteen(15) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0503. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

PAINT AND FINISH (EXTERIOR CLEAR COATED) WARRANTY

QTY: 1

Purchaser shall receive a Paint and Finish (Exterior Clear coated) Seven (7) Years limited warranty in accordance with, and subject to, warranty certificate RFW0707. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

PLUMBING AND PIPING (STAINLESS STEEL) WARRANTY

QTY: 1

Purchaser shall receive a Plumbing and Piping (Stainless Steel) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0800. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

AERIAL WATERWAY TEN (10) YEAR WARRANTY

QTY: 1

Purchaser shall receive a Aerial Waterway Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0810. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

1 YEAR BRIGHTWORK WARRANTY

QTY: 1

KME Fire Apparatus (KME) warrants all bright finish components used in the construction of KME Fire Apparatus against defects and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original user-purchaser for a period of one (1) year from the date of delivery/acceptance to the original user-purchaser, whichever occurs first.

The expressed warranty excludes corrosion or degradation of bright finished components caused by damage to the component.

LIFETIME POLY TANK WARRANTY - ALL TANKS

QTY: 1

The proposed water tank will be warranted by the water tank manufacturer for the "Lifetime" of the unit. A copy of the manufacturer's warranty will be supplied to define additional details of the warranty provisions.

WATEROUS 7 YEAR PUMP WARRANTY PARTS ONLY

QTY: 1

Waterous warrants, to the original Buyer only, that products manufactured by Waterous shall be free from defects in material and workmanship under normal use and service for a period of seven (7) years from the date the product is first placed in service or seven and one-half (7 1/2) years from the date of shipment by Waterous, whichever period shall be the first to expire; provided the buyer notifies Waterous, in writing, of the defect in said product within the warranty period, and said product is found by Waterous to be nonconforming with the aforesaid warranty.

AKRON HEAVY DUTY VALVE - 10 YEAR WARRANTY

QTY: 1

Akron Brass warrants Heavy Duty Swing-Out Valves for a period of ten (10) years after purchase against defects in material or workmanship. Akron Brass shall repair or replace any Heavy Duty Swing Out Valve which fails to satisfy this warranty.

CORROSION TREATMENT

QTY: 1

Upon apparatus completion, underside of the apparatus, from the pump enclosure-back, shall have anti corrosion film applied to help inhibit rust and the corrosion process. The semi-firm wax film shall be applied by air spray method. The film shall be applied as a minimum to the following areas: body substructure, underside of all body compartments, running board supports and rear step supports. No film shall be applied directly to the exhaust system or wheel wells.

NOTE: The film shall remain semi-firm to promote self-sealing. The film may leave a light tinted color to those areas treated.

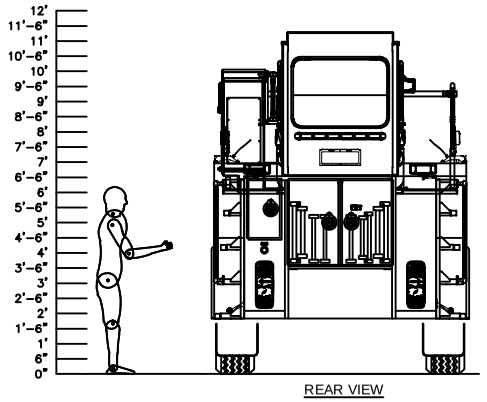
ADDITIONAL ITEMS SHIPPED WITH VEHICLE

QTY: 1

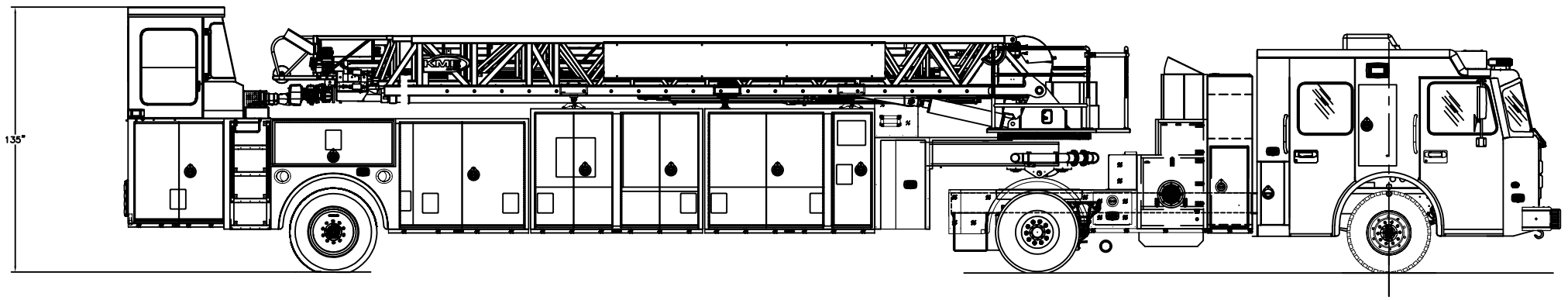
- 1 - Bag of assorted stainless steel nuts and bolts
- 1 - Complete set of hydraulic filters for the pressure filter and the return line filter

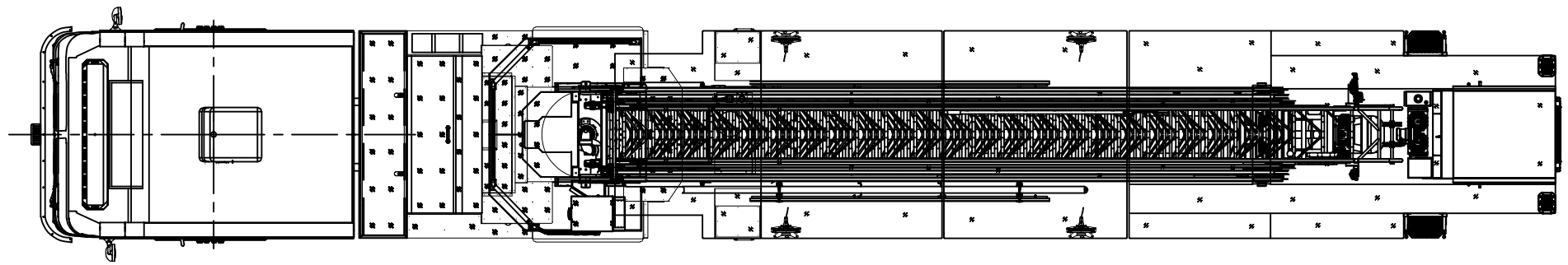
VEHICLE CLASS TIER 0

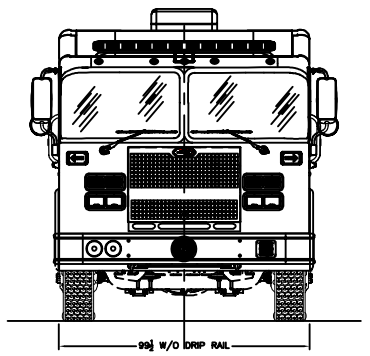
QTY: 1

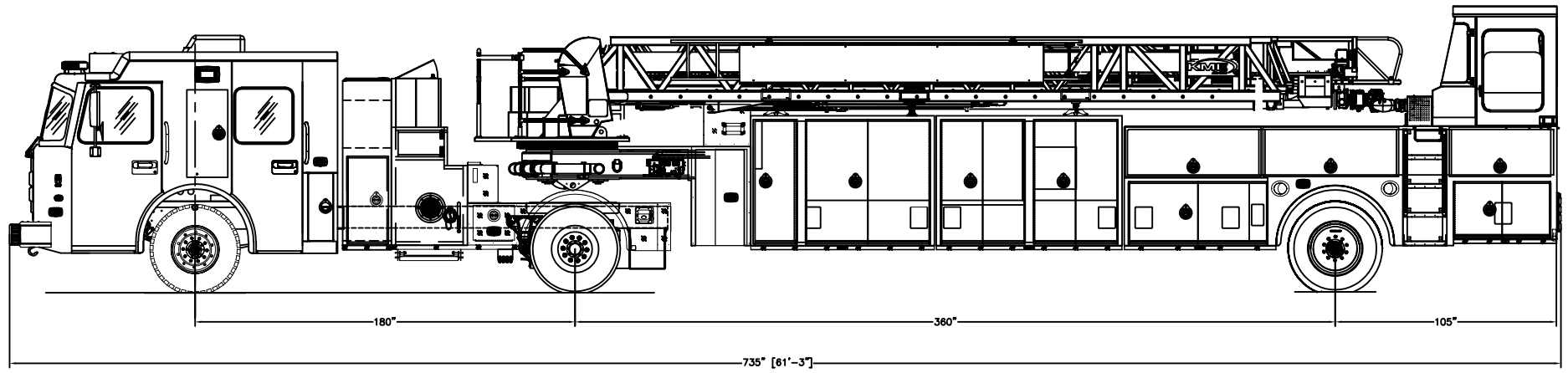


REAR VIEW









CAB: 99"W KME PREDATOR
ENGINE & TRANS: CUMMINS X15 605 HP/ALLISON 4500 EVS
AXLES: 22,000# FRONT/ 31,000# REAR / 23,000# STEER
PUMP: WATEROUS CX 1500 GPM SINGLE STAGE PUMP
WATER TANK: 300 GALLONS POLY

THIS DRAWING IS A GENERAL CONFIGURATION AND MAY NOT NECESSARILY REFLECT ALL CONTRACTUAL REQUIREMENTS. CONTRACT SPECIFICATIONS SHALL PREVAIL OVER DRAWING.

CUSTOMER APPROVAL:

NAME:

TITLE:

DATE:

SYM	DATE	REVISION DESCRIPTION	APP'D

SALES ENGINEER : T.B.D.

DIMENSIONS ARE APPROXIMATE & MAY VARY DUE TO BUILD ADJUSTMENTS

SCALE	DWG SIZE	DRAWN BY	DATE
NONE	B	Z.ZSCHUNE	1/14/25
		APPROVED BY	

CUSTOM DROP FRAME TDA

RIALTO FIRE DEPARTMENT,CA

QUOTE 9722-4

KME
ONE INDUSTRIAL COMPLEX - NESQUEHONING, PA 18240