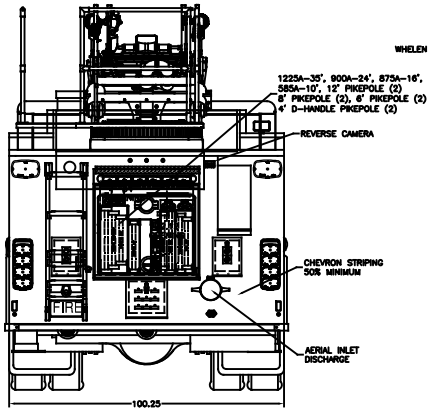
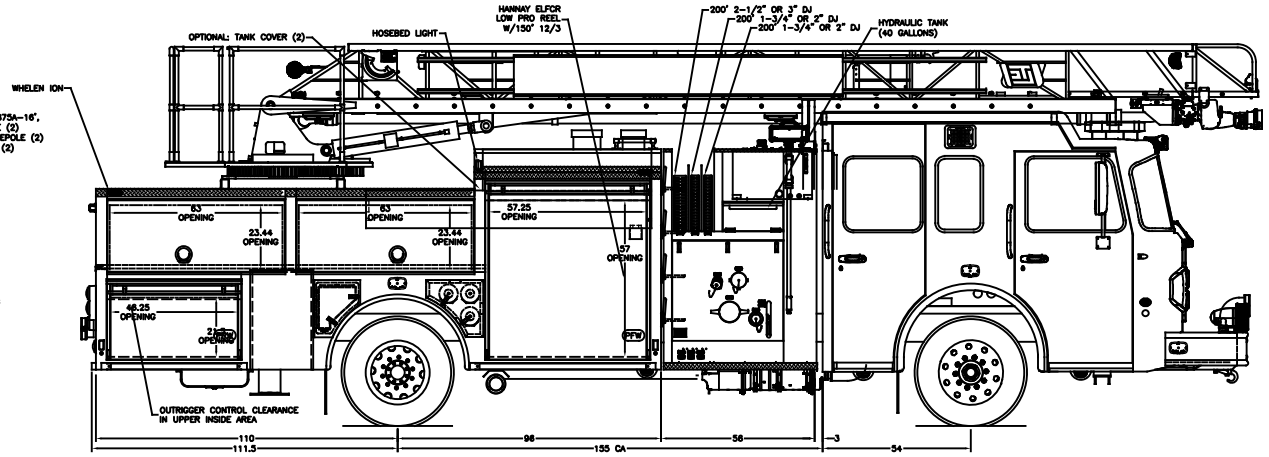
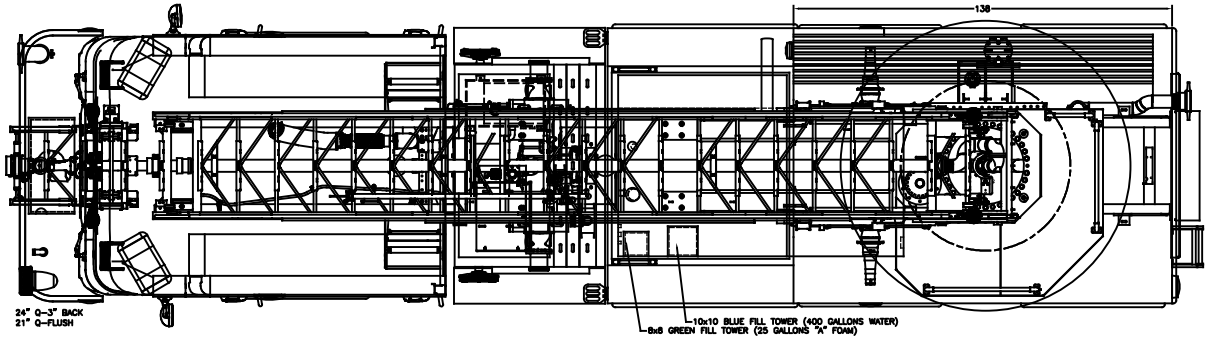


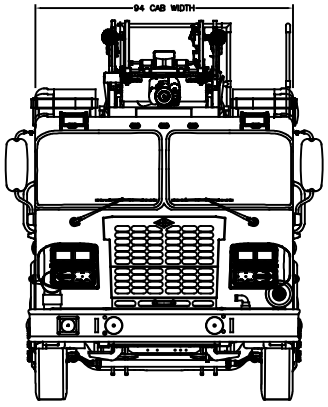


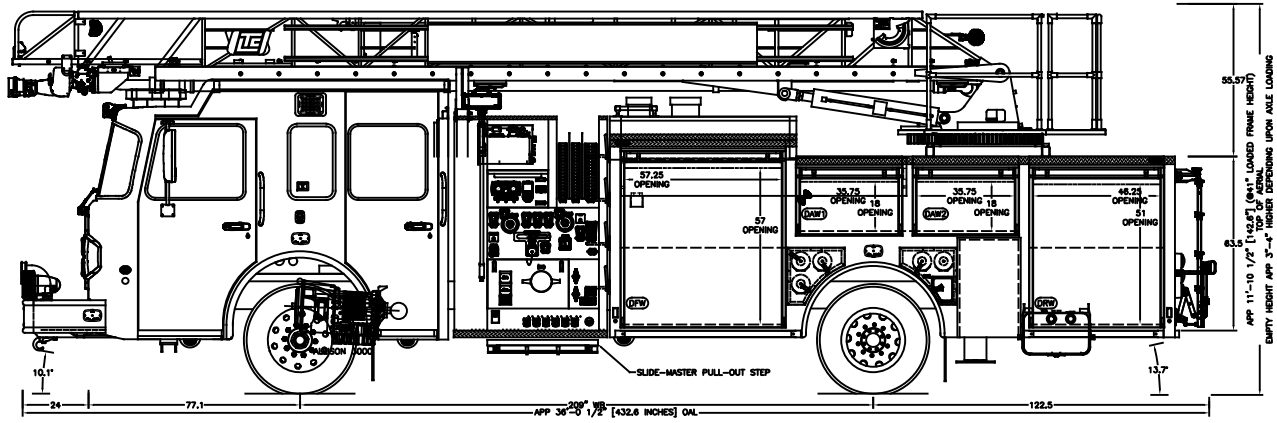
TREADBRITE TEXTURE NOT SHOWN IN TOP VIEW

REFERENCE SCALE IN INCHES
0 10 20 30 40

COMP.	HEIGHT	WIDTH	USABLE DEPTH UPPER	USABLE DEPTH LOWER	DIVIDE HEIGHT	FT²
DFW	67.12	63.75	14	24	28	44.98
DAW1	27.12	42.25	14	–	–	9.62
DAW2	27.12	42.25	14	–	–	9.62
DRW	61.12	52.75	14	22	28	32.93
PFW	67.12	63.75	24	24	–	54.48
PRW	29.62	52.75	22	22		19.88
HOSEBED	29	22	–	138	–	50.95
FRONT XLAY	26	4.5	–	73.75	–	5.12
MIDDLE XLAY	26	4.5	–	73.75	–	5.12
REAR XLAY	26	6	–	73.75	–	7.51





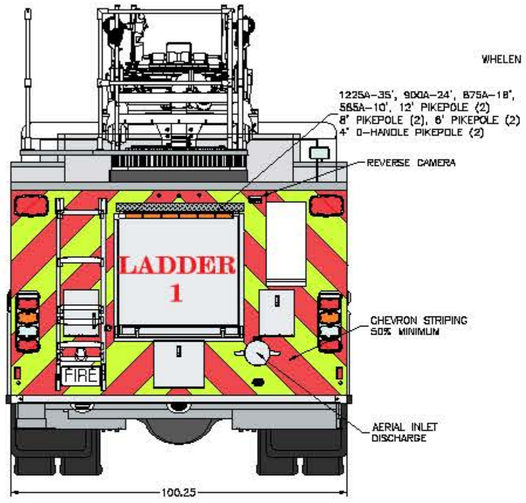


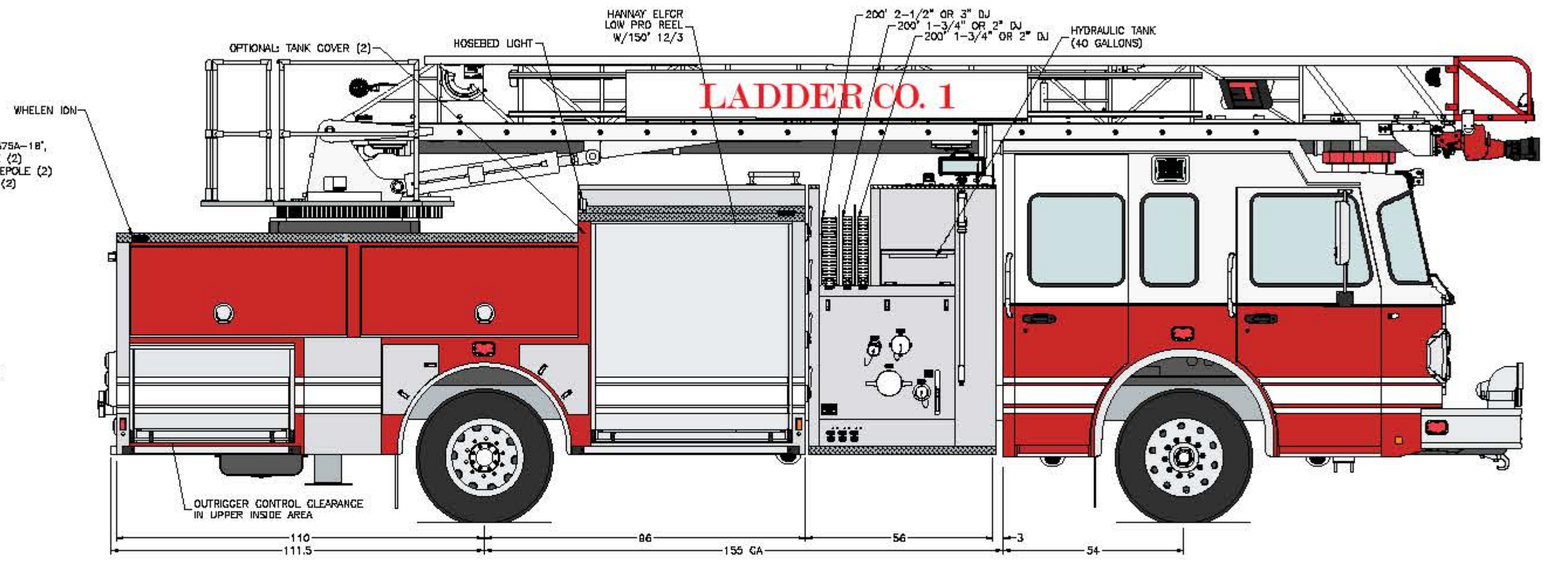
NOTE:
DIMENSIONS SHOWN ARE APPROXIMATE AND ARE SUBJECT TO MINOR CHANGE AS MAY BE FOUND NECESSARY DURING CONSTRUCTION. MINOR DETAILS MAY NOT BE SHOWN. IF DISCREPANCIES EXIST BETWEEN THIS DRAWING AND THE WRITTEN SPECIFICATIONS PROVIDED BY TOYNE, THE WRITTEN SPECIFICATIONS SHALL PREVAIL.

ORIGINAL DRAWING	04MAY20	CHASSIS:	SPARTAN METROSTAR MFD 10" RR	SCALE: 1/70	SHEET: A
AS BUILT: ANDY	19DEC24	WB-CA-AF:	209"-155"-109" D18	CITY: ??	
		BODY MATL:	BOLTED STAINLESS STEEL	STATE: ??	
		PUMP:	HALE QMAX-XS 2000	DLR: ??	
		TANK:	500/25 UPF POLY-III	CAD: GROSSMAN	
		FOAM SYSTEM:	PRE-PIPE	DATE: 01 JUNE 2018	
		GENERATOR:	HARRISON 10KW	FILE: 13775 75 DEMO	

Toyne
Built to take the call.
BREDA, IA 51436
800-648-3358
WWW.TOYNE.COM

TOYNE LTC-75
CUSTOM 75' LTC QUINT

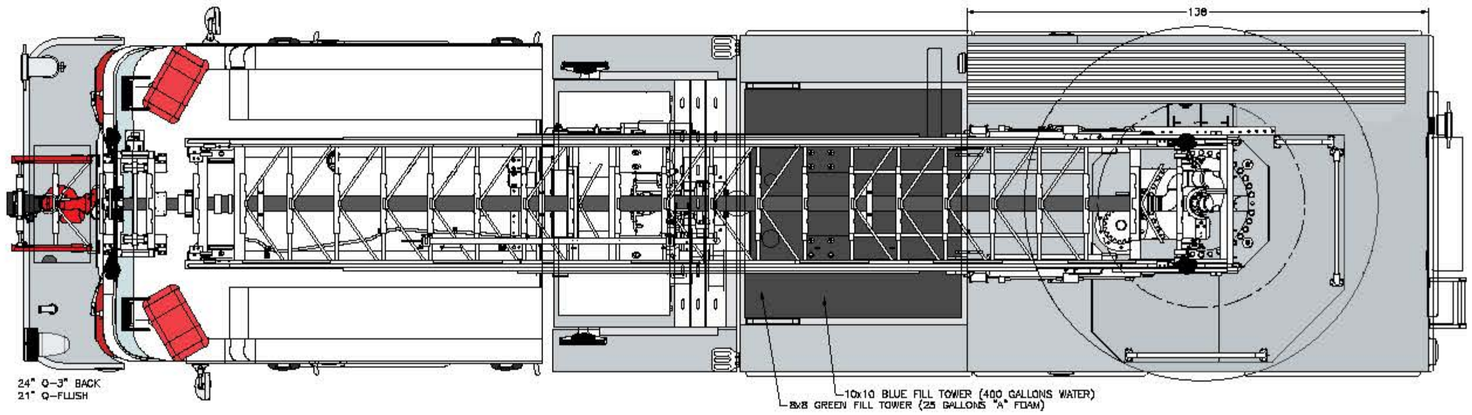




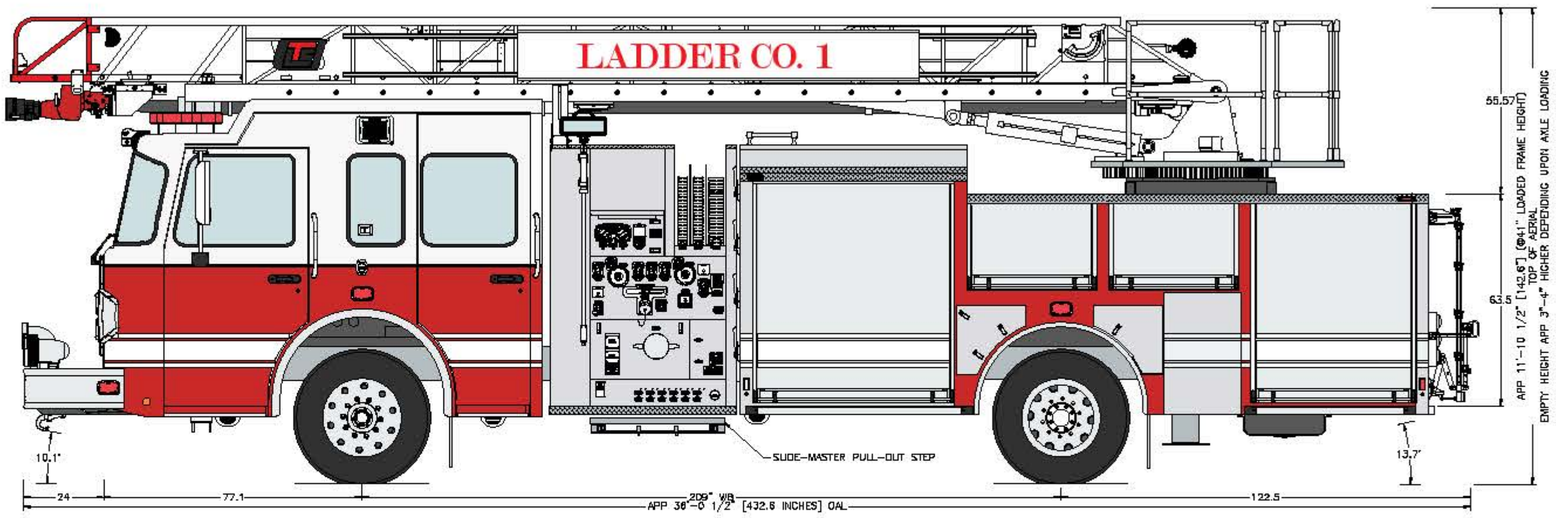
TREADBRITE TEXTURE NOT SHOWN IN TOP VIEW

REFERENCE SCALE IN INCHES
0 10 20 30 40

COMP.	HEIGHT	WIDTH	USABLE DEPTH UPPER	USABLE DEPTH LOWER	DIVIDE HEIGHT	FT³
DFW	67.12	63.75	14	24	28	44.98
DAW1	27.12	42.25	14	–	–	9.62
DAW2	27.12	42.25	14	–	–	9.62
DRW	61.12	52.75	14	22	28	32.93
PFW	67.12	63.75	24	24	–	54.48
PRW	29.62	52.75	22	22		19.88
HOSEBED	29	22	–	138	–	50.95
FRONT XLAY	26	4.5	–	73.75	–	5.12
MIDDLE XLAY	26	4.5	–	73.75	–	5.12
REAR XLAY	26	6	–	73.75	–	7.51







NOTE:
DIMENSIONS SHOWN ARE APPROXIMATE AND ARE SUBJECT TO MINOR CHANGE AS MAY BE FOUND NECESSARY DURING CONSTRUCTION. MINOR DETAILS MAY NOT BE SHOWN. IF DISCREPANCIES EXIST BETWEEN THIS DRAWING AND THE WRITTEN SPECIFICATIONS PROVIDED BY TOYNE, THE WRITTEN SPECIFICATIONS SHALL PREVAIL.

ORIGINAL DRAWING	04MAY20	CHASSIS:	SPARTAN METROSTAR MFD 10" RR	SCALE: 1/70	SHEET: A
		WB–CA–AF:	209"–155"–109" D18	CITY: ??	
		BODY MATL:	BOLTED STAINLESS STEEL	STATE: ??	
		PUMP:	HALE QMAX–XS 2000	DLR: ??	
		TANK:	500/25 UPF POLY–III	CAD: GROSSMAN	
		FOAM SYSTEM:	PRE–PIPE	DATE:	
		GENERATOR:	HARRISON 10KW	FILE: 75 DEMO	

Toyne
Built to take the call.
BREDA, IA 51436
800–648–3358
WWW.TOYNE.COM

TOYNE LTC-75
CUSTOM 75' LTC QUINT

Quotation

		Description
VEHICLE		
0100-011	**MODEL**	Metro Star
8012-019	**CUSTOMERS / OEMS**	Toyne (TOY1000)[1002914]
8011-026	**MODEL YEAR**	Model Year - 2026
8001-001	**COUNTRY OF SERVICE**	Country of Service United States Of America
8017-009	**CAB AND CHASSIS LABELING LANGUAGE**	Cab and Chassis Labeling Language English w/Innovative Controls Labels
8006-011	**APPARATUS TYPE**	Apparatus Type Rear Mount Quint
8066-014	**REAR MOUNT AERIAL DEVICE**	Rear Mount Aerial Device Ladder L.T.C. 75'
8069-001	**AERIAL APPARATUS WITH HYDRAULIC GENERATOR**	Aerial Apparatus w/Hydraulic Generator Piggyback PTO Driven
8008-001	**VEHICLE TYPE**	Vehicle Type Straight Truck
8008A-000	**VEHICLE ANGLE OF APPROACH PACKAGE**	Vehicle Angle of Approach NFPA Minimum 8.00 Degrees
0104-001	**AXLE CONFIGURATION**	Axle Configuration 4x2 (Rear Axle Drive Only)
0101-016	**GROSS AXLE WEIGHT RATINGS FRONT**	GAWR Front 23000#
0102-023	**GROSS AXLE WEIGHT RATINGS REAR**	GAWR Rear 33000#
8010-201	**PUMP PROVISION**	Pump Provision Driveline Midship, Pump Mode Prog w/Auto Park Brake "N"
8009-013	**WATER & FOAM TANK CAPACITY**	Water & Foam Tank Capacity 750 to 1250 Gallons
8003-197	**WARRANTY**	Warranty Cab and Chassis (2) Year RFW0102
CAB		
1000-004	**CAB STYLE**	Cab Style MFD 10" Raised Roof
8101-200	**OCCUPANT PROTECTION**	Occupant Protection IMMI 4Front & RollTek w/SRA
1501-002	**CAB FRONT FASCIA**	Cab Frt Fascia Classic
1518-025	**FRONT GRILLE**	Cab Frt Grille Hinged Classic Styled
1551-002	**CAB UNDERCOAT**	Cab Undercoat
1552-002	**CAB SIDE DRIP RAIL**	Cab Side Drip Rail
1521-002	**CAB PAINT EXTERIOR**	Cab Paint Exterior Two Tone
1533-001	**CAB PAINT PROCESS/MANUFACTURER**	Cab Paint Process/Manufacturer PPG
1522-086	**CAB PAINT PRIMARY/LOWER COLOR**	Cab Paint Primary/Lower Color PPG Red FBCH 71663
1523-244	**CAB PAINT SECONDARY/UPPER COLOR**	Cab Paint Sec/Upper Color PPG White FBCH 2185
1524-002	**CAB PAINT EXTERIOR BREAKLINE**	Cab Paint Exterior Breakline Classic
1515-005	**CAB PAINT PINSTRIPE**	Cab Paint Pinstripe 1/2" Black Temporary
8013-156	**CAB PAINT WARRANTY**	Cab Paint Warranty PPG (10) Year RFW0710
1334-039	**CAB PAINT INTERIOR**	Cab Paint Int Multi-tone Onyx Blk
1005-001	**CAB ENTRY DOORS**	Cab Entry Doors (4)
1101-101	**CAB ENTRY DOOR TYPE**	Cab Entry Door Type Full Length w/Pollak Switches
1322-007	**CAB INSULATION**	Cab Insulation Nonwoven Polyester Fiber
1002-009	**CAB ROOF TRENCH**	Cab Roof Trench 50"W x 10"D

8004-033	**CAB STRUCTURAL WARRANTY**	Cab Structural Warranty (10) Year RFW0602
9001-006	**CAB TEST INFORMATION**	Cab Test Information Crash Test ECE-R29/SAE J2420/SAE J2422

ELECTRICAL POWER DISTRIBUTION

5000-018	**ELECTRICAL SYSTEM**	Elec System 12V DC Multiplex
5006-002	**APPARATUS WIRING PROVISION**	Apparatus Wiring Provision (8) Circuit Panel
5005-301	**VEHICLE DISPLAY**	Vehicle Display UltraView 780 Touchscreen w/Push Button Surround (2) L/R Sw Pnl
5046-035	**MULTIPLEX DISPLAY SPECIAL LAYOUT**	Multiplex Display Special Layout Toyne INC
5004-002	**LOAD MANAGEMENT SYSTEM**	Load Management System Multiplex
5622-003	**DATA RECORDING SYSTEM**	Data Recording Sys Vehicle Data Weldon MUX
5031-005	**ACCESSORY POWER**	Accessory Pwr & Gnd Stud 40A Batt Dir & 15A Ign Sw & 225A Batt Dir OEM Conn
5030-061	**AUXILIARY ACCESSORY POWER**	Aux Acc Pwr & Gnd Stud Frame Mnt Bhd Batt Box 600A Labeled "Aerial EPU" Batt Dir
5032-064	**ADDITIONAL ACCESSORY POWER**	Addl Acc Pwr 6 Fuse Blue Sea Pnl Eng Tnl Bhd Off Seat w/40A Brkr Batt Dir 4'Loop
5011-001	**EXTERIOR ELECTRICAL TERMINAL COATING**	Exterior Electrical Terminal Coating Spray On Plasti Dip
8014-002	**ELECTRICAL SYSTEM WARRANTY**	Electrical System Warranty (2) Year RFW0202

ENGINE

1701-168	**ENGINE**	Engine Diesel 450HP Cummins L9 - EPA 2021-26
1329-001	**CAB ENGINE TUNNEL**	Cab Engine Tunnel Small/Medium
1731-002	**DIESEL PARTICULATE FILTER CONTROLS**	DPF Ctrl Regeneration Sw & Inhibit Sw
1718-002	**ENGINE PROGRAMMING HIGH IDLE SPEED**	Engine Programming High Idle Speed 1250 RPM
1719-005	**ENGINE HIGH IDLE CONTROL**	Engine High Idle Ctrl Automatic and Manual w/Disp Actv
1710-001	**ENGINE PROGRAMMING ROAD SPEED GOVERNOR**	Engine Programming Road Speed Governor Enabled
1713-010	**AUXILIARY ENGINE BRAKE**	Aux Engine Brake Compression Brake w/VG Turbo
1708-008	**AUXILIARY ENGINE BRAKE CONTROL**	Aux Engine Brake Ctrl Off/Low/Med/High Disp
1720-003	**ELECTRONIC ENGINE OIL LEVEL INDICATOR**	Elec Engine Oil Level Indicator
1715-001	**FLUID FILLS**	Fluid Fills Fwd For Med Displacement Cap
1735-001	**ENGINE DRAIN PLUG**	Engine Drain Plug
8002-001	**ENGINE WARRANTY**	Engine Warranty Cummins (5) Year/100,000 Miles
1707-166	**REMOTE THROTTLE HARNESS**	Rmt Throttle Harness PSG FRC Pump Boss MAX Dual Sensors Side Mnt Shift Interlock
1721-001	**ENGINE PROGRAMMING REMOTE THROTTLE**	Engine Program Rmt Throttle Off
1727-001	**ENGINE PROGRAMMING IDLE SPEED**	Engine Programming Idle Speed 700 RPM

AIR INTAKE

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

COOLING

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

EXHAUST

2901-067	**ENGINE EXHAUST SYSTEM**	Eng Exhaust Sys Under Frm RH Single Module Aftertreatment Outboard
2907-003	**DIESEL EXHAUST FLUID TANK**	Diesel Exhaust Fluid Tank LH 6 Gal Fill Thru Rr Step
2902-010	**ENGINE EXHAUST ACCESSORIES**	Engine Exhaust Acc Temp Mitigation
2906-002	**ENGINE EXHAUST WRAP**	Engine Exhaust Wrap
8018-002	**EMISSIONS SYSTEM WARRANTY**	Emissions System Warranty (5) Years/100,000 Miles RFW0140

TRANSMISSION

1801-015	**TRANSMISSION**	Transmission Allison 3000 EVS
1806-003	**TRANSMISSION MODE PROGRAMMING**	Transmission Mode Programming 5th Startup/6th Mode
1811-004	**TRANSMISSION FEATURE PROGRAMMING**	Transmission Feature Programming Allison Gen 5 & 6-E I/O Package 198/Pumper
1807-005	**TRANSMISSION SHIFT SELECTOR**	Transmission GEN 5 & 6-E Shift Sel Key Pad/Push Button
1815-002	**ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR**	Elec Transmission Oil Level Indicator
1814-002	**TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE**	2nd Gear Pre-Select
1808-007	**TRANSMISSION COOLING SYSTEM**	Transmission Cooling System
1817-001	**TRANSMISSION DRAIN PLUG**	Transmission Drain Plug
8005-001	**TRANSMISSION WARRANTY**	Transmission Warranty Allison (5) Year

POWER TAKE OFF

2004-003	**LH PTO**	LH PTO Chassis Sply
2001-152	**LH PTO MODEL**	LH PTO Model Chelsea 281-GMFJP-E5XD
2005-008	**PTO LOCATION**	PTO Location 8:00/1:00
2015-058	**LH PTO CONTROL**	LH PTO Ctrl Prog Disp Actv w/Aerial PTO Override Tgl
2007-011	**PTO PROGRAMMING**	PTO Programming Engine Engage 0900/Oper 4000 Transmission Engage 250/Oper 5000

DRIVELINE

3001-014	**DRIVELINE**	Driveline MSI 1710 w/Meritor U-Joints w/Thrust Washers
3005-061	**MIDSHIP PUMP / GEARBOX**	Midship Pump Jackshaft w/Toyne Module Holes

3008-138	**MIDSHIP PUMP / GEARBOX MODEL**	Midship Pump/Gearbox Model Hale QMAX-XS Fwd
3048-004	**MIDSHIP PUMP GEARBOX DROP**	Midship Driveline Pump Gearbox Drop Hale "LG"
3009-020	**MIDSHIP PUMP RATIO**	Midship Pump Ratio 2.28:1 (23)
3010-1210	**MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE**	Midship Pump Location C/L Suction to C/L Rear Axle 121.0"

FUEL SYSTEMS

3109-067	**FUEL FILTER/WATER SEPARATOR**	Fuel Filter/Wtr Separator Fleetguard FS20121 w/Lt & Alarm
3111-002	**FUEL LINES**	Fuel Lines Wire Braid
3104-001	**FUEL SHUTOFF VALVE**	Fuel Shutoff Valve at Primary Filter
3103-008	**ELECTRIC FUEL PRIMER**	Electric Fuel Primer Engine Sply Electric Lift Pump
3101-102	**FUEL TANK**	Fuel Tank 68 Gallon
3130-001	**FUEL TANK MATERIAL AND FINISH**	Fuel Tank Material Steel & Finish Painted Frame Components Color
3131-001	**FUEL TANK STRAP MATERIAL AND FINISH**	Fuel Tank Strap Material Steel & Finish Painted Frame Components Color
3102-016	**FUEL TANK FILL PORT**	Fuel Tank Fill Port LH Mid/RH Mid/LH Fwd
3114-002	**FUEL TANK SERVICEABILITY PROVISIONS**	Fuel Tank Serviceability Prov 8' Fuel Line Extension
3115-002	**FUEL TANK DRAIN PLUG**	Fuel Tank Drain Plug Magnetic

FRONT AXLE

2401-022	**FRONT AXLE**	Frt Axle Meritor MFS 23000# Beam
8059-024	**FRONT AXLE WARRANTY**	Front Axle Warranty Meritor 2026
2405-001	**FRONT WHEEL BEARING LUBRICATION**	Frt Wheel Bearing Lube Oil

FRONT SUSPENSION

2502-002	**FRONT SHOCK ABSORBERS**	Frt Shock Absorbers Bilstein
2501-018	**FRONT SUSPENSION**	Frt Suspension 11 Leaf 23000#

STEERING

2601-006	**STEERING COLUMN/WHEEL**	Steering Column/Wheel Tilt/Telescopic 18" 4 Spoke
2609-002	**ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR**	Elec Power Steering Fluid Level Indicator
2603-011	**POWER STEERING PUMP**	Power Steering Pump TRW w/Passive Cooler
2606-009	**FRONT AXLE CRAMP ANGLE**	Front Axle Cramp Angle 48L/44R Degrees
2610-005	**POWER STEERING GEAR**	Power Steering Gear TRW TAS 85 w/Assist
2608-001	**CHASSIS ALIGNMENT**	Chassis Alignment

REAR AXLE

3401-014	**REAR AXLE**	Rear Axle 33000# Meritor RS-30-185
3403-001	**REAR AXLE DIFFERENTIAL LUBRICATION**	Rear Axle Differential Lubrication Oil
8061-021	**REAR AXLE WARRANTY**	Rear Axle Warranty Meritor 2026
3411-001	**REAR WHEEL BEARING LUBRICATION**	Rear Wheel Bearing Lubrication Oil
3407-002	**REAR AXLE DIFFERENTIAL CONTROL**	Rear Axle Differential Ctrl DCDL

3408-003	**VEHICLE TOP SPEED**	Vehicle Top Speed 60 MPH
3410-001	**REAR AXLE EXTERNAL VENT**	Rear Axle External Vent OEM Housing Breather

REAR SUSPENSION

3501-001	**REAR SUSPENSION**	Rear Susp Reyco 79KB Spring 21000-33000# w/Helper

TIRES

3625-002	**TIRE INTERMITTENT SERVICE RATING**	Tire Intermittent Service Ratings Acceptable
3601-083	**FRONT TIRE**	Frt Tire 385/65R 22.5 Michelin X Multi HL Z
3602-019	**REAR TIRE**	Rear Tire 315/80R 22.5 Michelin XDN2 Grip
3413-614	**REAR AXLE RATIO**	Rear Axle Ratio 6.14
3614-030	**TIRE PRESSURE INDICATOR**	Tire Pressure Ind Frt & Rr LED

WHEELS

3701-033	**FRONT WHEEL**	Frt Wheel Alcoa 22.5 x 12.25 Alum
3703-053	**REAR WHEEL**	Rr Whl Alcoa 22.5 x 9.00 Alum
3702-002	**WHEEL TRIM**	Wheel Trim Hub & Nut Covers SS Shiploose
3725-003	**WHEEL GUARDS**	Wheel Guards Between Dual Wheels & All Axles

BRAKES

3205-014	**BRAKE SYSTEM**	Brake System ABS/ATC/ESC Sgl Axle Disp Actv
3206-003	**FRONT BRAKES**	Frt Brakes Meritor EX225 Disc 17"
3207-009	**REAR BRAKES**	Rr Brakes S-Cam Drum 16.5" x 8.6" Cast Iron Shoe
3208-001	**PARK BRAKE**	Prk Brake Rr Wheels Only
3204-003	**PARK BRAKE CONTROL**	Prk Brake Ctrl Ctr Dash Mnt
3214-002	**REAR BRAKE SLACK ADJUSTERS**	Rr Brake Slack Adjusters Haldex
3202-001	**AIR DRYER**	Air Dryer Wabco System Saver 1200 Bhd RH Step
3215-004	**FRONT BRAKE CHAMBERS**	Frt Brake Chambers MGM Type 24 Long Stroke
3210-015	**REAR BRAKE CHAMBERS**	Rr Brake Chambers TSE 30/36 Long Stroke

AIR SUPPLY SYSTEMS

3320-001	**AIR COMPRESSOR**	Air Compressor Wabco SS318 18.7 CFM
3339-004	**AIR GOVERNOR**	Air Governor Mnt on Air Dryer Bracket
3303-007	**MOISTURE EJECTORS**	Moisture Ejectors Manual/Auto Htd Wet Tank
3307-101	**AIR SUPPLY LINES**	Air Sply Lines Nylon w/PTC Fittings
3334-002	**AIR TANK SPACERS**	Air Tank Spacers Inboard 1.5"
3338-001	**REAR AIR TANK MOUNTING**	Rear Air Tank Mnt Any Bhd Rear Axle Parallel w/Frame

FRAME

2103-2090	**WHEELBASE**	Wheelbase 209.0"
2106-1090	**REAR OVERHANG**	Rear Overhang 109.0"
2101-002	**FRAME**	Frame Double Channel 35.00" Width
2111-122	**MISC FRAME OPTIONS**	Misc Frame Options Toyne Pumper Body Mnt Hole Pattern #4

2117-004	**FRAME CLEAR AREA**	Frame Clear Area Inside/Outside Rail 30" Rwd Back of Cab
2110-201	**FRAME PAINT**	Frame Paint Hot Dipped Galvanized - Frame Only Addl Comp Blk Powder Coat
2170-002	**FRAME PAINT - MISCELLANEOUS**	Frame Paint Miscellaneous - Gap Sealant
8007-036	**FRAME ASSEMBLY STRUCTURAL WARRANTY**	Frame Assembly Structural Warranty (50) Year RFW0305
8019-003	**FRAME RAIL CORROSION WARRANTY**	Frame Rail Corrosion Warranty (25) Year RFW0316
8022-004	**FRAME COMPONENTS CORROSION WARRANTY**	Frame Components Corrosion Warranty (3) Year RFW0315
2105-002	**REAR MUD FLAP**	Rear Mud Flap & Fender Temp Mnt
2161-001	**FRAME PARTS**	Misc Frame Parts Aerial Hydraulic Bracket 4205-MM5

BUMPER

2201-001	**FRONT BUMPER**	Frt Bumper Stainless Steel Flat
2202-006	**FRONT BUMPER EXTENSION LENGTH**	Frt Bumper Extension Length 24"
2215-002	**FRONT BUMPER SUCTION PROVISION**	Frt Bumper Suction Provision 5.0" RH Vertical Outboard
2208-007	**FRONT BUMPER APRON**	Frt Bumper Apron For 24" Extension
2237-018	**FRONT BUMPER DISCHARGE**	Front Bumper Discharge 2.0" w/LH IB Vert Chicksan Termination On Apron
2211-043	**FRONT BUMPER COMPARTMENT CENTER**	Frt Bumper Cmpt Ctr w/Notched Cover LH Side
2210-002	**FRONT BUMPER COMPARTMENT COVER HARDWARE**	Frt Bumper Cmpt Cover Hardware Gas Cylinder/D-Ring
5503-022	**MECHANICAL SIREN**	Mechanical Siren Federal Signal Q2B Pedestal Mnt
2218-002	**MECHANICAL SIREN LOCATION**	Mech Siren Location Frt Bmpr Apron LH OB
5501-020	**AIR HORN**	Air Horn (2) 21" Round Hadley E-Tone
2216-010	**AIR HORN LOCATION**	Air Horn Location (2) Frt Bmpr Face R/L IB
2232-002	**AIR HORN RESERVOIR**	Air Horn Reservoir (1) 1200 Cu In
5504-060	**ELECTRONIC SIREN SPEAKER**	Elect Siren Speaker 100W Federal Signal Dynamax w/EF Grille
2217-005	**ELECTRONIC SIREN SPEAKER LOCATION**	Elec Siren Speaker Location Frt Bmpr Face RH OB
2203-001	**FRONT BUMPER TOW HOOKS**	Frt Bumper Tow Hooks Chrome Below Fwd

CAB TILT

2301-001	**CAB TILT SYSTEM**	Cab Tilt System
2303-002	**CAB TILT LIMIT SWITCH**	Cab Tilt Limit Sw
2305-001	**CAB TILT CONTROL RECEPTACLE**	Cab Tilt Ctrl Receptacle Temp
2306-002	**CAB TILT LOCK DOWN INDICATOR**	Cab Tilt Lock Down Indicator

CAB GLASS

1401-009	**CAB WINDSHIELD**	Cab Windshield
1402-005	**GLASS FRONT DOOR**	Glass Frt Dr Roll Down/XDuty Regulator
1407-001	**GLASS TINT FRONT DOOR**	Glass Tint Frt Dr Automotive Green
1419-012	**GLASS REAR DOOR RIGHT HAND**	Glass Rr Dr RH Roll Down/XDuty Regulator
1430-002	**GLASS TINT REAR DOOR RIGHT HAND**	Glass Tint Rr Door RH Automotive Dark Gray
1412-013	**GLASS REAR DOOR LEFT HAND**	Glass Rr Dr LH Roll Down/XDuty Regulator

1431-002	**GLASS TINT REAR DOOR LEFT HAND**	Glass Tint Rr Door LH Automotive Dark Gray
1410-003	**GLASS SIDE MID RIGHT HAND**	Glass Side Mid RH Fxd 16"W x 26"H
1432-002	**GLASS TINT SIDE MID RIGHT HAND**	Glass Tint Side Mid RH Automotive Dark Gray
1409-003	**GLASS SIDE MID LEFT HAND**	Glass Side Mid LH Fxd 16"W x 26"H
1433-002	**GLASS TINT SIDE MID LEFT HAND**	Glass Tint Side Mid LH Automotive Dark Gray

CLIMATE CONTROL

1614-202	**CLIMATE CONTROL**	Climate Ctrl Htr Defroster A/C SGM Ovrhd Alum
1632-002	**CLIMATE CONTROL DRAIN**	Climate Control Drain Gravity
1617-201	**CLIMATE CONTROL ACTIVATION**	Climate Ctrl Actv Rotary Dash Mnt Ctr
1620-019	**HVAC OVERHEAD COVER PAINT**	HVAC Overhead Cover Paint Multi-tone Onyx Black
1603-002	**A/C CONDENSER LOCATION**	A/C Condenser Location Roof Mnt Mid LH
1601-013	**A/C COMPRESSOR**	A/C Compressor TM-31/QP-31
1530-100	**UNDER CAB INSULATION**	Under Cab Insulation Engine Tunnel

CAB INTERIOR

1327-036	**INTERIOR TRIM FLOOR**	Interior Trim Floor w/Cast Alum Trim
1302-001	**INTERIOR TRIM**	Interior Trim Vinyl
1368-003	**REAR WALL INTERIOR TRIM**	Rear Wall Interior Trim Painted Aluminum
1306-006	**HEADER TRIM**	Header Trim XDuty
1305-016	**TRIM CENTER DASH**	Trim Center Dash XDuty Deluxe w/Gas Cylinder Stay
1339-102	**TRIM LEFT HAND DASH**	Trim LH Dash XDuty
1321-030	**TRIM RIGHT HAND DASH**	Trim RH Dash XDuty Glove Cmpt/MDT Prov/4.50"H Glovebox
1307-002	**ENGINE TUNNEL TRIM**	Eng Tnl Trim Flr Mat
5040-169	**POWER POINT DASH MOUNT**	Pwr Pnt Dash Mnt Batt Dir (2) Dual USB Blue Sea 4.8A Sw Pnl
1303-039	**STEP TRIM**	Step Trim Embossed & Diamond Cut SS Lwr, TPlt Mid
1336-002	**STEP TRIM KICKPLATE**	Step Trim Kickplate Treadplate
1379-002	**UNDER CAB ACCESS DOOR**	Under Cab Access Door Rear Step LH DA Sanded
1102-013	**INTERIOR DOOR TRIM**	Interior Door Trim Painted
1323-050	**DOOR TRIM CUSTOMER NAMEPLATE**	Door Trim Customer Nameplate
1105-001	**CAB DOOR TRIM REFLECTIVE**	Cab Dr Trim Reflective Vert Stripe/6" Chevron w/Logo
1308-001	**INTERIOR GRAB HANDLE "A" PILLAR**	Interior Grab Handle 'A' Pillar 11" Molded
1332-008	**INTERIOR GRAB HANDLE FRONT DOOR**	Interior Grab Handle Frt Door Horiz 9"
1345-002	**INTERIOR GRAB HANDLE REAR DOOR**	Int Grab Handle Rr Dr Alum Window Span 30" Black Powder Coat
1301-001	**INTERIOR SOFT TRIM COLOR**	Interior Soft Trim Color Black
1337-004	**INTERIOR TRIM SUNVISOR**	Interior Trim Sunvisor Vinyl Black
1304-002	**INTERIOR FLOOR MAT COLOR**	Interior Floor Mat Color Black
1335-018	**CAB PAINT INTERIOR DOOR TRIM**	Cab Paint Int Dr Trim Multi-tone Onyx Black
1371-021	**HEADER TRIM INTERIOR PAINT**	Header Trim Interior Paint Multi-tone Onyx Black
1370-023	**TRIM CENTER DASH INTERIOR PAINT**	Trim Center Dash Interior Paint Multi-tone Onyx Black
1378-022	**TRIM LEFT HAND DASH INTERIOR PAINT**	Trim LH Dash Interior Paint Multi-tone Onyx Black
1373-022	**TRIM RIGHT HAND DASH INTERIOR PAINT**	Trim RH Dash Interior Paint Multi-tone Onyx Black

1369-018	**REAR WALL INTERIOR PAINT**	Rear Wall Interior Paint Multi-tone Onyx Black
1344-002	**DASH PANEL GROUP**	Dash Pnl Group 3-Pnl
1312-002	**SWITCHES CENTER PANEL**	Switches Ctr Pnl 6 Upr LH
1313-002	**SWITCHES LEFT PANEL**	Switches Left Pnl 1 Wiper
1314-001	**SWITCHES RIGHT PANEL**	Switches Right Pnl 0

CAB SEATS

1225-007	**SEAT BELT WARNING**	Seat Belt Warn Disp w/VDR
1237-005	**SEAT MATERIAL**	Seat Material Bostrom Durawear Plus
1243-001	**SEAT COLOR**	Seat Color Gray/Red Seat Belts
1249-126	**SEAT BACK LOGO**	Seat Back Logo Toyne
1201-033	**SEAT DRIVER**	Seat Driver Bostrom Firefighter 8-Way Elect 500 Series ABTS
1213-025	**SEAT BACK DRIVER**	Seat Back Driver Non-SCBA ABTS
1219-001	**SEAT MOUNTING DRIVER**	Seat Mounting Driver
8102-200	**OCCUPANT PROTECTION DRIVER**	Occupant Protection Driver 4Front & Mechanical/Elect Seat RollTek w/SRA
1202-037	**SEAT OFFICER**	Seat Officer Bostrom Firefighter Fixed 500 Series ABTS
1214-034	**SEAT BACK OFFICER**	Seat Back Officer SCBA IMMI SmartDock
1220-003	**SEAT MOUNTING OFFICER**	Seat Mounting Officer Rwd 2"
8103-200	**OCCUPANT PROTECTION OFFICER**	Occupant Protection Officer 4Front & Mechanical/Elect Seat RollTek w/SRA
1297-002	**POWER SEAT WIRING**	Power Seats Wiring Battery Direct
1273-001	**SEAT BELT ORIENTATION CREW**	Seat Belt Orientation Crew Outboard Shoulder To Inboard Hip
1263-001	**SEAT REAR FACING OUTER LOCATION**	Seat RFO Location Primary Pos (2) R/L
1203-020	**SEAT CREW REAR FACING OUTER**	Seat Crew RFO Bostrom Firefighter Fixed 500 Series
1215-031	**SEAT BACK REAR FACING OUTER**	Seat Back RFO SCBA IMMI SmartDock
1221-009	**SEAT MOUNTING REAR FACING OUTER**	Seat Mounting RFO Rwd 2"
8104-200	**OCCUPANT PROTECTION RFO**	Occupant Protection RFO RollTek w/SRA
1266-001	**SEAT FORWARD FACING CENTER LOCATION**	Seat FFC Location Secondary Pos (2) Ctr
1206-031	**SEAT CREW FORWARD FACING CENTER**	Seat Crew FFC Bostrom Firefighter Fold & Hold Flip-Up 500 Series
1218-035	**SEAT BACK FORWARD FACING CENTER**	Seat Back FFC SCBA IMMI SmartDock
8107-101	**OCCUPANT PROTECTION FFC**	Occupant Protection FFC RollTek Belt Pretensioner
1269-101	**SEAT FRAME FORWARD FACING**	Seat Frm Fwd Fcg Dual Width
1281-101	**SEAT FRAME FORWARD FACING STORAGE ACCESS**	Seat Frm Fwd Fcg Strg Acc Dr (2) R/L Sd
1224-002	**SEAT MOUNTING FORWARD FACING CENTER**	Seat Mounting Forward Facing Center
1311-101	**CAB FRONT UNDERSEAT STORAGE ACCESS DOOR**	Cab Frt Undrst Strg Acc Dr
1355-023	**SEAT COMPARTMENT DOOR FINISH**	Seat Compartment Door Finish Multi-tone Onyx Black

CAB EXTERIOR

1511-200	**WINDSHIELD WIPER SYSTEM**	Windshield Wiper System
1534-002	**ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR**	Electronic Windshield Fluid Level Indicator

1103-002	**CAB DOOR HARDWARE**	Cab Door Hardware Black Composite
1111-001	**DOOR LOCKS**	Door Locks Manual
1503-200	**GRAB HANDLES**	Grab Handles SS 18"
1504-014	**REARVIEW MIRRORS**	Mirror Aerodynamic Retrac 613305 Rmt Htd
1529-003	**REARVIEW MIRROR HEAT SWITCH**	Rearview Mirror Heat Sw Disp
1525-002	**EXTERIOR TRIM REAR CORNER**	Exterior Trim Rear Corner Scuff Plate
1513-009	**CAB FENDER**	Cab Fender SS Wide w/ABS Liner
1514-002	**MUD FLAPS FRONT**	Mud Flaps Frt
1526-026	**CAB EXTERIOR FRONT & SIDE EMBLEMS**	Cab Ext Frt & Side Emblems Spartan
1502-050	**CAB EXTERIOR MODEL NAMEPLATE**	Cab Exterior Model Nameplate Metro Star

START / CHARGING SYSTEMS

5109-015	**IGNITION**	Ign Mstr Rkr Sw w/Push-Button Start
5101-021	**BATTERY**	Batt (6) Group 31 Harris
5106-003	**BATTERY TRAY**	Batt Tray (2) R/L Steel
5107-007	**BATTERY BOX COVER**	Batt Box Cover (2) Steel w/Black Handles
5102-001	**BATTERY CABLE**	Batt Cables
5108-010	**BATTERY JUMPER STUD**	Batt Jumper Stud Frt LH Lwr Step 8" Apart
5104-002	**ALTERNATOR**	Alternator Leece-Neville 320A
5105-001	**STARTER MOTOR**	Starter Motor Delco

LINE VOLTAGE ELECTRICAL POWER DISTRIBUTION

5202-400	**BATTERY CONDITIONER**	Batt Cond Kussmaul Chief 4012 40A
5218-002	**BATTERY CONDITIONER LOCATION**	Batt Cond Loc LH RFO Seat Position
5203-200	**BATTERY CONDITIONER DISPLAY**	Batt Cond Display Integrated In Elec Inlet w/Digital Status Center
5220-002	**BATTERY CONDITIONER DISPLAY LOCATION**	Batt Cond Display Location Integrated with Elec Inlet
3314-202	**AUXILIARY AIR COMPRESSOR**	Aux Air Cmp Kussmaul Auto Pump 120V
3370-006	**AUX AIR COMPRESSOR LOCATION**	Aux Air Compressor Location Bhd Off Seat
5209-002	**ELECTRICAL INLET LOCATION**	Elec Inlet Location LH Cab Side Mid
5204-055	**ELECTRICAL INLET**	Elec Inlet 120V 20A Auto Eject
5210-005	**ELECTRICAL INLET CONNECTION**	Elec Inlet Conn to Batt Conditioner & Air Pump
5206-002	**ELECTRICAL INLET COLOR**	Elec Inlet Color Yellow

LIGHTING

5301-102	**HEADLIGHTS**	Headlights 4 Headlamps LED
5337-002	**HEADLIGHT LOCATION**	Headlights Above Frt Warn Lts
5303-017	**FRONT TURN SIGNALS**	Frt Turn Signals Whelen M6 LED
5336-015	**SIDE TURN/MARKER LIGHTS**	Side Turn/Marker Lts LED Tecniq S170
5302-022	**MARKER & ICC LIGHTS**	Marker & ICC Lts Face Mnt LED Tecniq S170
5350-060	**HEADLIGHT AND MARKER LIGHT ACTIVATION**	Hdlt & Mrkr Lt Actv MUX/DRL
5305-350	**INTERIOR OVERHEAD LIGHTS**	Interior Overhead Lts Red/Clear LED

5388-003	**INTERIOR OVERHEAD LIGHTING ACTIVATION**	Int Ovrhd Lt Actv Resp Dr & MUX
5403-073	**LIGHTBAR PROVISION**	Lightbar Prov Wire & Lwr Mnt (2) Chassis Supply
5450N-006	**CAB FRONT LIGHTBAR MODEL**	Cab Front Lightbar Model Whelen F4NMINI (2)
5450-999	**CAB FRONT LIGHTBAR**	Cab Front Lightbar - Configured in 5450M Subcategory
5450M-002	**FRONT LIGHTBAR LAYOUT**	Cab Front Lightbar Layout
5450X-003	**FRONT LIGHTBAR ORIENTATION**	Front Lightbar Orientation - Outboard/Aerial Mnt
5450L2-002	**FRONT LIGHTBAR LIGHT POSITION 2**	Cab Front Lightbar Position 2 - Red LH Side
5450L4-003	**FRONT LIGHTBAR LIGHT POSITION 4**	Cab Front Lightbar Position 4 - White
5450L5-003	**FRONT LIGHTBAR LIGHT POSITION 5**	Cab Front Lightbar Position 5 - White
5450L12-003	**FRONT LIGHTBAR LIGHT POSITION 12**	Cab Front Lightbar Position 12 - White
5450L13-003	**FRONT LIGHTBAR LIGHT POSITION 13**	Cab Front Lightbar Position 13 - White
5450L15-032	**FRONT LIGHTBAR LIGHT POSITION 15**	Cab Front Lightbar Position 15 - Red RH Side
5426-003	**LIGHTBAR SWITCH**	Lightbar Sw Disp
5317-194	**FRONT SCENE LIGHTS**	Frt Scene Lts Whelen Pioneer 12V LED PFH1 (2)
5329-006	**FRONT SCENE LIGHT LOCATION**	Frt Scene Lt Loc (2) Outboard Brow Pos
5335-003	**FRONT SCENE LIGHTS ACTIVATION**	Frt Scene Lts Actv Disp
5306-060	**SIDE SCENE LIGHTS**	Side Scene Lts Whelen M9 Series 12V LED
5318-004	**SIDE SCENE LIGHT LOCATION**	Side Scene Lt Loc Upper Mid Rwd 10" Roof Position
5316-007	**SIDE SCENE ACTIVATION**	Side Scene Actv Indv Disp Actv
5308-300	**GROUND LIGHTS**	Ground Lts Tecniq T44 LED
5386-004	**GROUND LIGHTING ACTIVATION**	Ground Lt Actv Prk Brk, Resp Sd Dr & Disp
5309-003	**LOWER CAB STEP LIGHTS**	Lwr Cab Step Lts Tecniq T44 LED
5382-007	**INTERMEDIATE STEP LIGHTS**	Intermediate Step Lts Tecniq D06 LED
5310-010	**MAP LIGHTS**	Map Lt Sunnex Ovrhd On A/C Cvr RH
5312-003	**ENGINE COMPARTMENT LIGHT**	Engine Cmpt Work Lt LED (1)

OPTICAL WARNING DEVICES

5406-119	**DO NOT MOVE APPARATUS LIGHT**	Do Not Move App Lt Flashing Red Tecniq K50 LED w/Alarm
5422-002	**MASTER WARNING SWITCH**	Mstr Warn Sw MUX
5409-002	**HEADLIGHT FLASHER**	Headlight Flasher Alternating
5425-003	**HEADLIGHT FLASHER SWITCH**	Headlight Flasher Sw Disp
5401-032	**INBOARD FRONT WARNING LIGHTS**	Inboard Frt Warn Lts Whelen M6 LED Chrm Bezel
5413-002	**INBOARD FRONT WARNING LIGHTS COLOR**	Inboard Frt Warn Lts Color Red
5423-003	**FRONT WARNING SWITCH**	Frt Warn Sw Disp
5404-027	**INTERSECTION WARNING LIGHTS**	Intersection Warn Lts Whelen M6 LED
5419-002	**INTERSECTION WARNING LIGHTS COLOR**	Int Warn Lts Color Red

5420-002	**INTERSECTION WARNING LIGHTS LOCATION**	Intersection Warn Lts Location Bumper Tail Rwd
5402-029	**SIDE WARNING LIGHTS**	Side Warn Lts Whelen M6 LED
5418-002	**SIDE WARNING LIGHTS COLOR**	Side Warn Lts Color Red
5412-002	**SIDE WARNING LIGHTS LOCATION**	Side Warn Lts Location Lwr Mid
5424-003	**SIDE AND INTERSECTION WARNING SWITCH**	Side & Intersection Warn Sw Disp

AUDIBLE WARNING DEVICES

5510-004	**SIREN CONTROL HEAD**	Siren Ctrl Head Whelen 295HFS2
5514-101	**STEERING WHEEL HORN BUTTON SELECTOR SWITCH**	Horn Btn Sel Sw Elec Horn/Air Horn MUX
5526-004	**AUDIBLE WARNING LH FOOT SWITCH**	Audible Warning LH Foot Switch Siren
5526D-001	**MECHANICAL SIREN FOOT SWITCH LH**	Mechanical Siren Foot Switch LH Linemaster 491-S
5526E-001	**MECHANICAL SIREN FOOT SWITCH LH LOCATION**	Mechanical Foot Switch LH Location A-Pillar
5526F-001	**MECHANICAL SIREN FOOT SWITCH LH POSITION**	Mechanical Siren Foot Switch Position Outboard of Other Foot Switches
5529-002	**AUDIBLE WARNING LH FOOT SWITCH BRACKET**	Audible Warn LH Ft Sw Double Brkt 30Deg TPlate
5527-004	**AUDIBLE WARNING RH FOOT SWITCH**	Audible Warning RH Foot Switch Siren
5527C-001	**MECHANICAL SIREN FOOT SWITCH RH**	Mechanical Siren Foot Switch RH Linemaster 491-S
5527D-002	**MECHANICAL SIREN FOOT SWITCH RH LOCATION**	Mechanical Siren Foot Switch RH Location Temporary Firewall Inboard Coiled
5530-002	**AUDIBLE WARNING RH FOOT SWITCH BRACKET**	Audible Warn RH Ft Sw Indv Brkt 30Deg TPlate Shiploose
5512-013	**AIR HORN AUXILIARY ACTIVATION**	Air Horn Actv L/R Lanyard
5513-504	**MECHANICAL SIREN BRAKE/AUXILIARY ACTIVATION**	Mech Siren Brk (2), L/R Disp
5532-001	**MECHANICAL SIREN INTERLOCK**	Mechanical Siren Interlock Master Warn Only
5505-006	**BACK-UP ALARM**	Back-Up Alarm Ecco 575 w/Disable Sw MUX

INSTRUMENTATION

5601-041	**INSTRUMENTATION**	Instrumentation Standard
5624-003	**BACKLIGHTING COLOR**	Backlighting Color White
5607-103	**HOUR METER**	Hour Meter in Instrument Pnl for LH PTO

COMMUNICATIONS SYSTEMS

5701-300	**RADIO**	Radio Jensen WB/AM/FM/BT
5736-100	**RADIO LOCATION**	Radio Overhead LH
5707-002	**AM/FM ANTENNA**	AM/FM Antenna LH Fwd Cab Roof
5737-200	**RADIO SPEAKERS**	Radio Speakers (4) Front/Rear
5728-009	**CAMERA REAR**	Camera HD Rear Box
5731-005	**CAMERA DISPLAY**	Camera Display on (2) Disp
5732-002	**CAMERA SPEAKER**	Camera Speaker

5703-011	**COMMUNICATION ANTENNA**	Comm Ant Base LH Fwd Cab Rf Chassis Sply
5708-003	**COMMUNICATION ANTENNA CABLE ROUTING**	Comm Ant Cable Routing Under Rkr Sw Pnl
5709-002	**AUXILIARY COMMUNICATION ANTENNA**	Aux Comm Ant Base RH Fwd Cab Roof Chassis Sply
5710-002	**AUXILIARY COMMUNICATION ANTENNA CABLE ROUTING**	Aux Comm Ant Cable Routing Under RH Frt Seat
5702-057	**TWO-WAY RADIOS**	Two-Way Radio Exterior Conduit 1.5" to Under RH Seat
5020-002	**PANEL LAYOUT**	Panel Layout

ADDITIONAL EQUIPMENT

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

SALES ADMIN

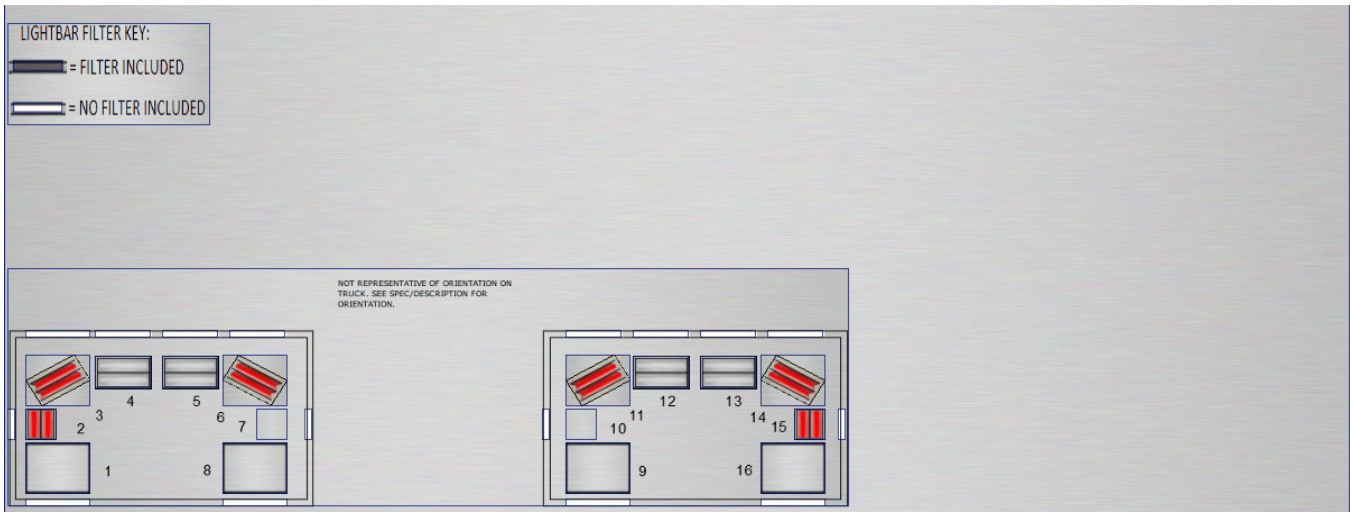
8030-006	**CHASSIS OPERATION MANUAL**	Chassis Operation Manual Digital Copy (2)
8031-024	**ENGINE & TRANSMISSION OPERATION MANUAL**	Eng & Trans Operation Man Eng Hard Copy/Trans Digital/Eng Owner Digital
8805-007	**CAB/CHASSIS AS BUILT WIRING DIAGRAMS**	Cab/Chassis As Built Wiring Diagrams Digital Copy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

ENGINEERING

9005-004	**DRIVELINE LAYOUT CONFIRMATION**	Driveline Layout Confirmation Required Body Builder & Apparatus Supplier
9006-002	**3D CHASSIS LAYOUT**	3D Chassis Layout Required
2124-009	**EFCM/REAR CROSSMEMBERS**	End of Frame Cross Member 2.25" From EOF

Front Lightbar Layout

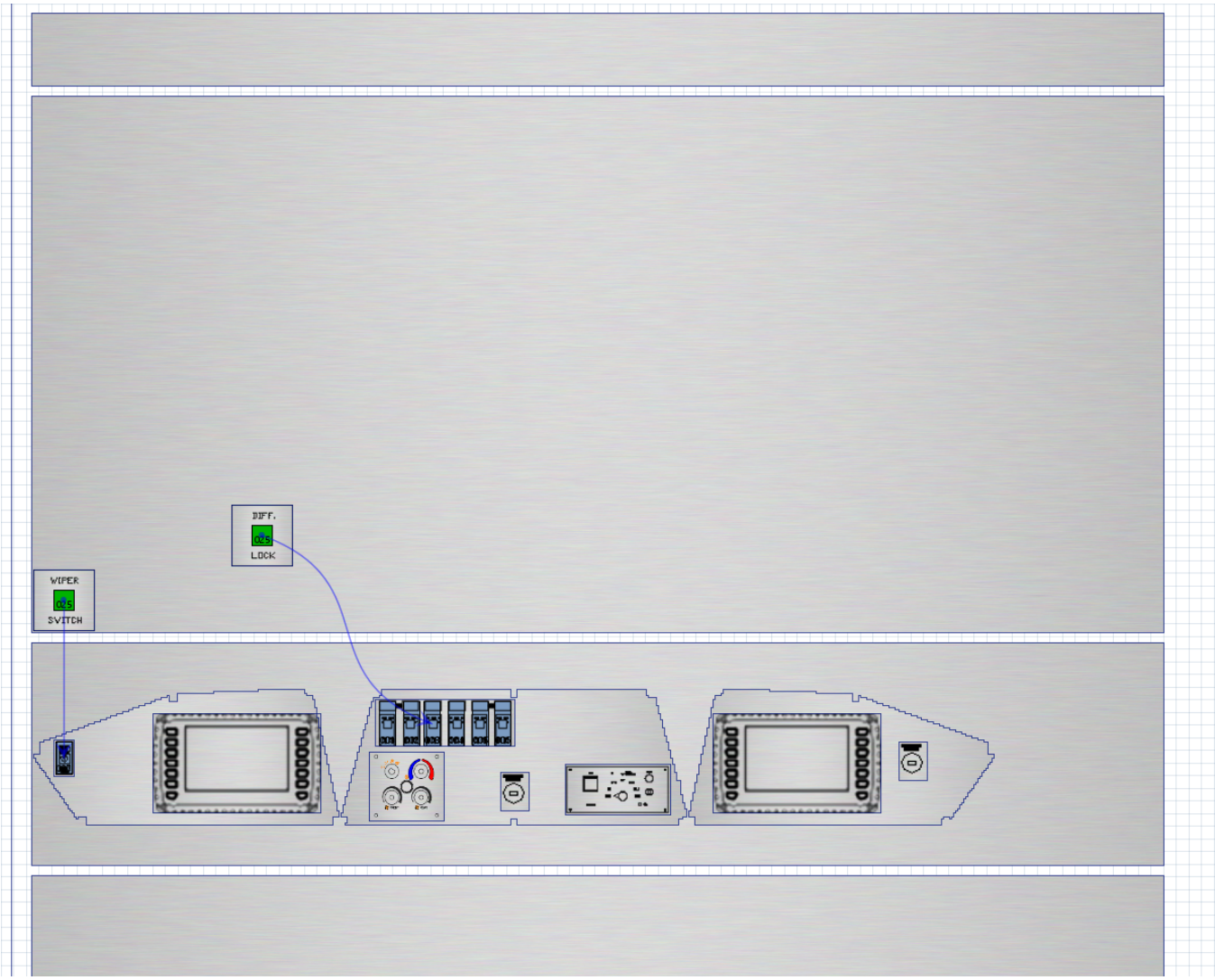
5450M-002 Cab Front Lightbar Layout



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

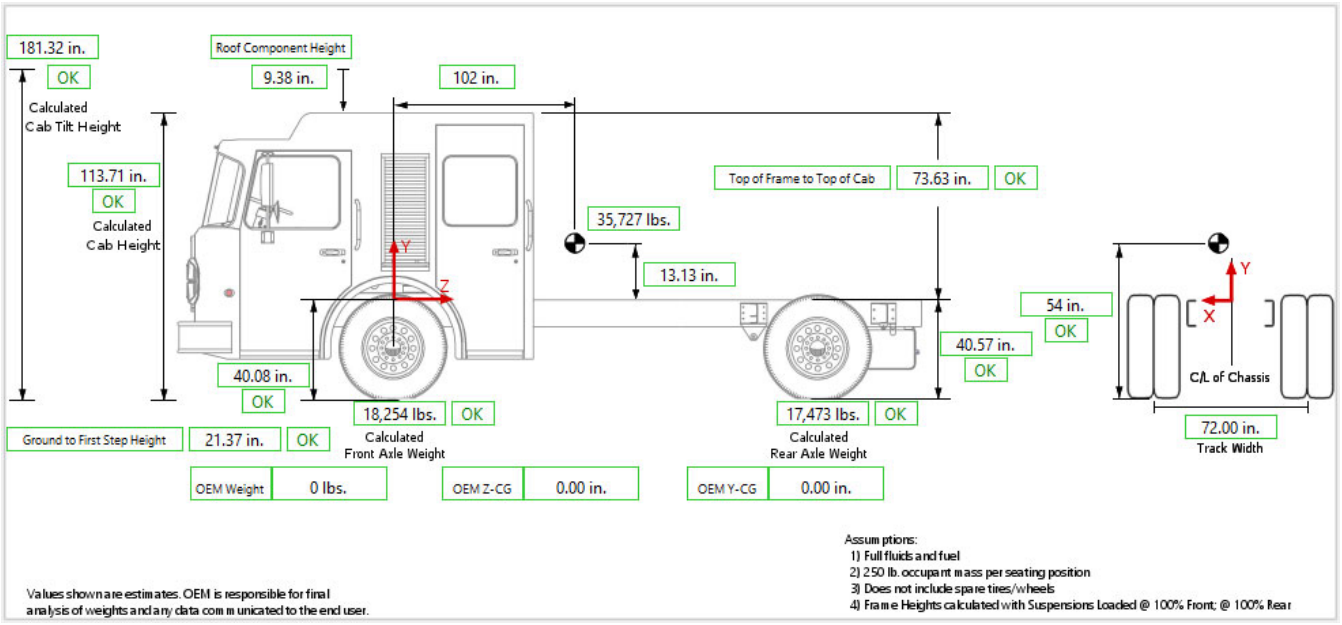
Panel Layout

5020-002 Panel Layout



Option Description
SWITCH PANEL - MISC PANELS
LEGEND LOCATION
CLIMATE CTRLS CTR DASH ABS ROTARY SGM 94"
SW PNL 6 SW UPR LH 2010 94"
SIREN CONTROL HEAD WHELEN 295HFS2
PWR POINT DASH MNT BATT DIR DUAL USB 1.13" HOLE SW PNL
VEHICLE DISPLAY UV780 OFFICER PNL
PWR POINT DASH MNT BATT DIR DUAL USB 1.13" HOLE SW PNL
VEHICLE DISPLAY UV780 DRIVER DASH PNL
SWITCH PANEL LH (1) WIPER SWITCH 2010 94"
REAR AXLE DRIVER CONTROL DIFFERENTIAL LOCK
WINDSHIELD WIPER SYSTEM SINGLE MOTOR

Weight Distribution

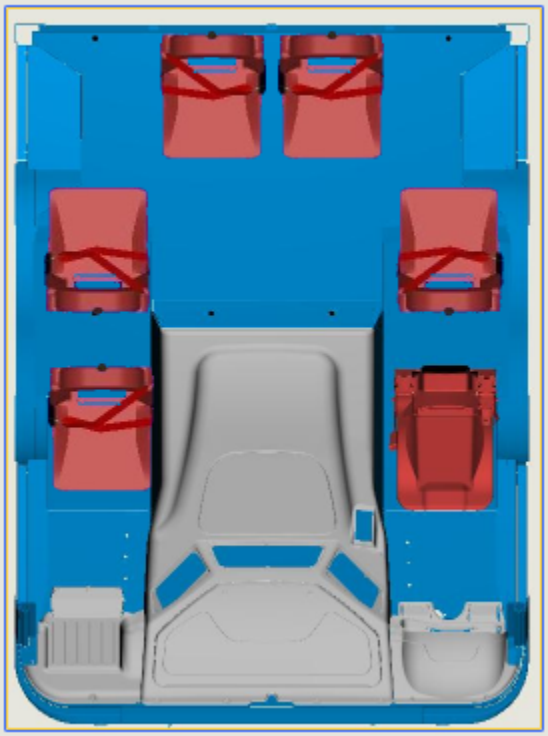


Calculated Apparatus Weight	35,727 lbs.
Calculated Apparatus Z-CG	102 in.
Calculated Apparatus Y-CG	13.13 in.

Note:

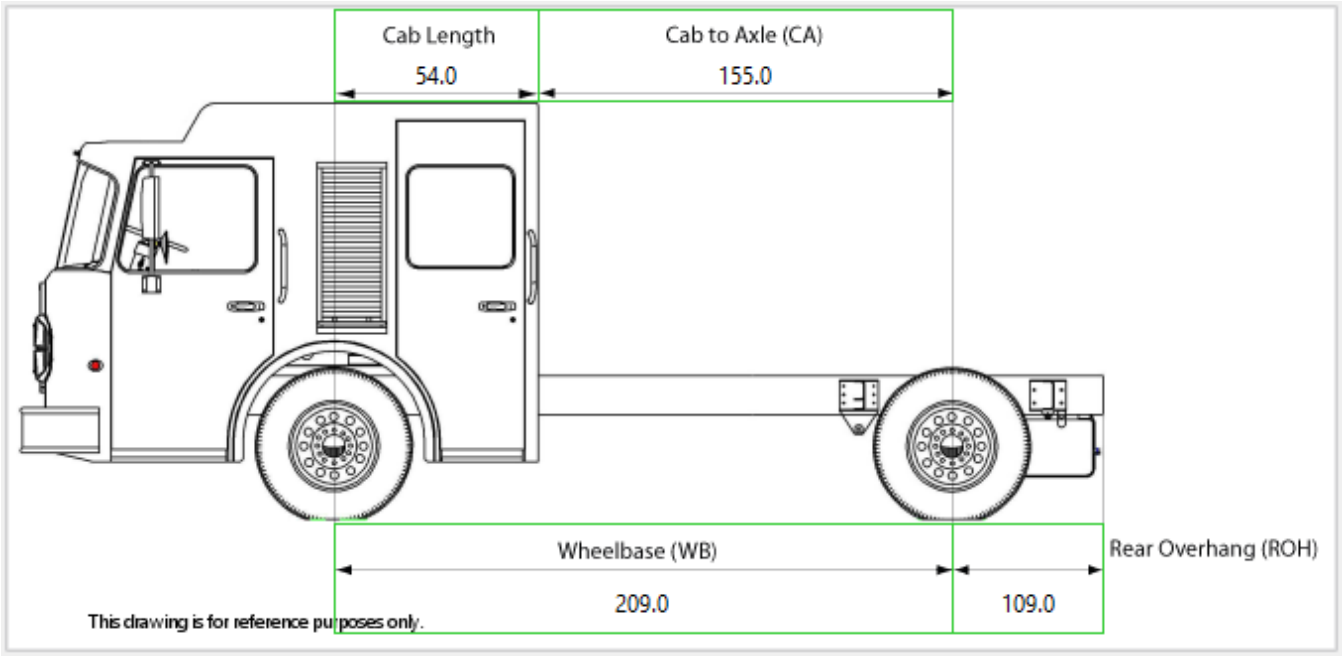
The Y-CG value above is calculated from the top of the frame.
Apparatus refers to total combined value for cab and chassis and OEM inputs.

Seat Locations

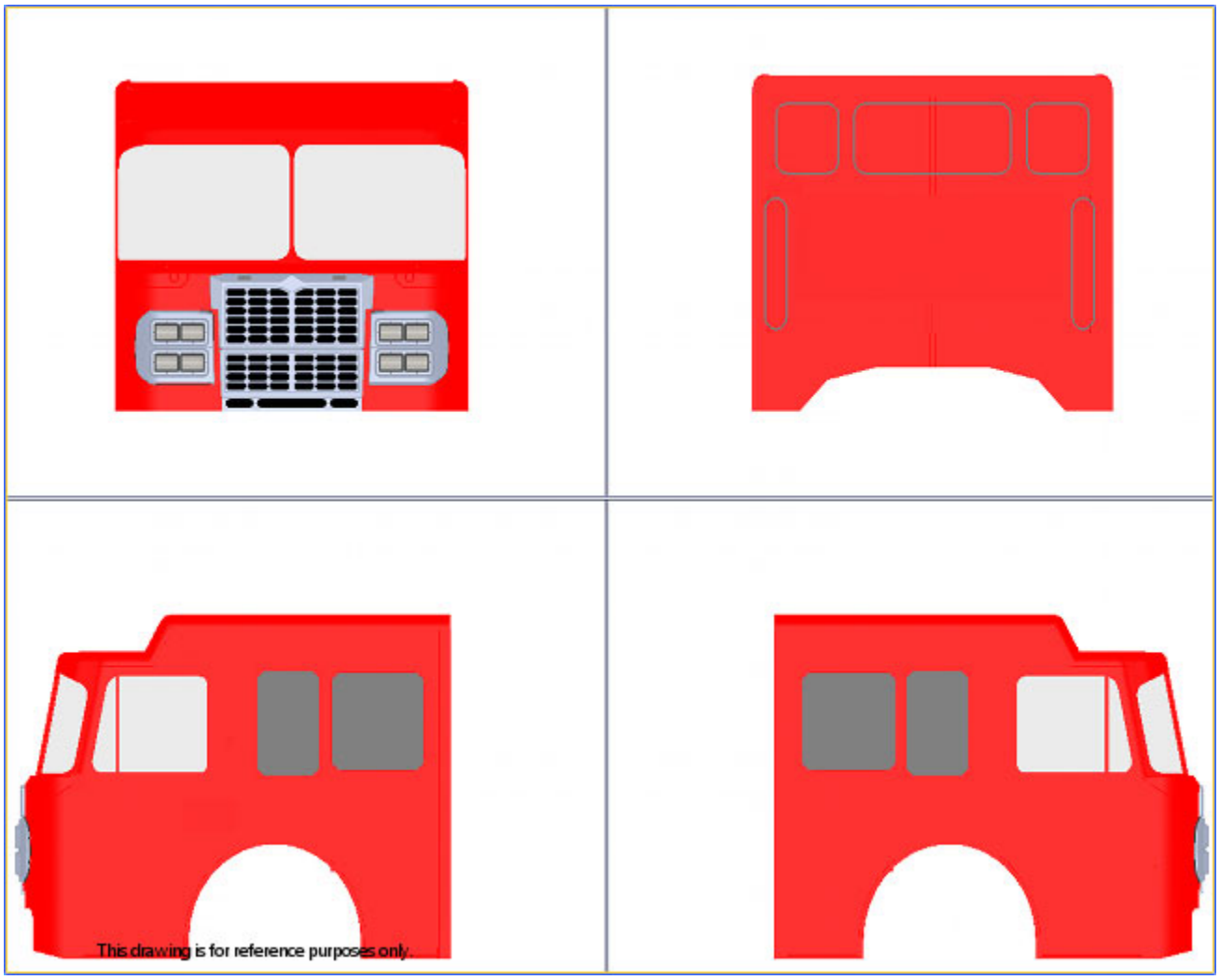


This drawing is for reference purposes only.

Frame Dimensions



Cab Glass



V.R.S. Sales Ltd

CORPORATE OWNERSHIP OF MANUFACTURER

The manufacturer of the apparatus must be fully owned and managed by a Parent Company, Corporation, or Individual(s) that is 100% held by United States of America based Company, Corporation, or United States citizen(s).

Proposals from any manufacturer that is fully or partially owned and/or operated by a foreign company, Corporation or Individual(s) under any type of ownership, partnership, or any similar type of agreement will be immediately rejected.

TOP OF THE LINE FIRE APPARATUS

If the manufacturer or bidder for the apparatus manufacturer represents two or more different lines of apparatus and/or operates two or more manufacturing plants, it should be clearly stated in the bid proposal.

In addition to this requirement, the bidder shall give a detailed explanation of why the particular line, brand, model or manufacturing facility will be used.

Manufacturer's or bidder's with multiple lines (two or more) or multiple manufacturing facilities (two or more) shall be required to submit bid proposals on only the top of the line brand/model or from the top of the line facility.

It is the intention of the purchaser to purchase a top of the line, first class, #1 quality fire apparatus. Any bidder that submits a bid on a "lower end" line, brand, model, or from a "lower end" manufacturing facility will be immediately rejected.

The purchaser is not interested in purchasing a manufacturer's or bidders "lower end" apparatus. Because of this, any bids submitted that do not comply with the above requirements will be immediately rejected.

CERTIFICATION OF NFPA 1900-2024 COMPLIANCE

As per NFPA 1900, the Purchaser shall assume the responsibility of determining, prior to the purchase of the apparatus, who will be responsible for ensuring that all aspects of NFPA are met. The manufacturer shall be responsible for providing or performing only the items requested by the purchaser in the documents provided to the manufacturer by the purchaser.

Written certification shall be provided by the manufacturer stating that the delivered apparatus complies with the NFPA Standard. If the purchaser has elected to provide, perform, outsource and/or contract with a third party or waive any item required by NFPA, the manufacturer shall provide, upon delivery, a "Statement of Exceptions" per Chapter 7 of NFPA 1900.

The "Statement of Exceptions" shall include:

- A separate specification of the section of the NFPA Standard for which the apparatus is lacking compliance.
- A description of the particular aspect of the apparatus that is not compliant therewith or required equipment that is missing.
- A description of the further changes or modifications to the delivered apparatus which must be completed to achieve full compliance.
- An identification of the entity that will be responsible for making the necessary post-delivery changes or modifications or for suppling and installing any missing required equipment to the apparatus to achieve full compliance to the standard.

Prior to, or at the time of, delivery of the apparatus, the Statement of Exceptions shall be signed by an authorized agent of

the entity responsible for the final assembly of the apparatus and by an authorized agent of the purchasing entity, indicating a mutual understanding and agreement between the parties regarding the substance thereof.

The purchaser shall not place the apparatus into active emergency service until fully compliant with NFPA.

NFPA REQUIRED EQUIPMENT

The end user of this apparatus shall provide all other equipment and accessories that are required by NFPA but not specifically listed in these specifications.

MAXIMUM TOP SPEED

The maximum top speed of this apparatus shall be determined using the following NFPA criteria:

- Apparatus with 1250 gallon combined tank capacities shall not exceed 60 MPH.
- Apparatus with GVWR of over 50,000 lbs. shall not exceed 60 MPH.
- Apparatus weighing over 26,000 lbs. shall not exceed 68 MPH.

HALE MODEL Q-MAX-XS 2,000 GPM SINGLE STAGE PUMP

The fire pump shall be a Hale Fire Pump Company Q-MAX-XS that complies with all applicable requirements of the latest edition of the "Standard for Automotive Fire Apparatus" published by the National Fire Protection Association.

PUMP WARRANTY

The pump shall be covered by the Hale Pro-Tech 5-year pump warranty against workmanship and materials. Both parts and labor shall be covered for the first 2 years and years 3-5 shall have parts only coverage.

PUMP PERFORMANCE - 2,000 U.S. GPM.

The pump shall be a single stage centrifugal with a class "A" rated capacity of 2,000 United States gallons per minute. The pump shall deliver the percentage of rated discharge pressures as indicated below:

- 100 percent of rated capacity at 150 pounds net pressure.
- 70 percent of rated capacity at 200 pounds net pressure.
- 50 percent of rated capacity at 250 pounds net pressure.
- 100 percent of rated capacity at 165 pounds net pressure.

PUMP CONSTRUCTION

The entire pump shall be manufactured and tested at the pump manufacturer's factory.

The pump shall be driven by a drive line from the truck transmission. The pump shall be free from objectionable pulsation and vibration under all normal operating conditions. The engine shall provide sufficient horsepower and revolutions per minute to allow the pump to meet or exceed its rated performance.

The entire pump including both suction and discharge passages, shall be hydrostatically tested to a pressure of 500 psi. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by NFPA.

The pump body and related parts shall be of fine grain alloy cast iron with a minimum tensile strength of 30,000 PSI. All moving parts in contact with water shall be of high quality bronze or stainless steel. Pumps utilizing castings made of lower tensile strength cast iron are not acceptable.

The pump body shall be horizontally split, on a single plane, in two (2) sections, for easy removal of entire impeller assembly including wear rings and bearings from beneath the pump without disturbing piping or the mounting of the pump on the chassis.

The pump shaft shall be rigidly supported by three (3) bearings for minimum deflection. The bearings shall be heavy-duty, deep groove style bearings in the gearbox and they shall be splash lubricated.

The pump impeller shall be of hard, fine grain bronze with a mixed flow design; accurately machined, hand ground, and individually balanced. The vanes of the impeller intake eyes shall be hand ground and polished to a sharp edge, and shall be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.

The pump shaft shall be fabricated of heat-treated, electric furnace, corrosion resistant stainless steel, and shall be super finished under the shaft seal. The pump shaft must be sealed with double lip oil seal to keep road dirt and water out of gearbox.

GEAR BOX

The gear box shall be completely manufactured and tested at the pump manufacturer's factory.

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

The gearbox drive shafts shall be of heat-treated chrome nickel steel and shall be a minimum of 2.75 inches in diameter, on both the input and the output drives shafts. The gearbox shall withstand the full torque of the engine in both road and pump operating conditions.

All gears, both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and the gear teeth shall be crown shaven, and hardened for smooth, quiet running, and a higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust.

The pump gear ratio shall be selected by the apparatus manufacturer to give the maximum performance with the engine and transmission selected.

PUMP INTERLOCK MODULE

An interlock module shall be provided on the pump shift to comply with NFPA shift safety requirements.

GEARCASE COOLING LINE

A cooling line shall be provided in the pump gear case. A line shall be routed from the discharge side of the pump to the gear case, through the gear case then back into the intake side of the pump.

MECHANICAL SEAL

The pump shaft shall be equipped with a single mechanical type seal on the suction (inboard) side of the pump. The mechanical seal shall be a minimum of two inches in diameter and shall be spring loaded, maintenance free and self-adjusting. The mechanical seal shall be constructed of a carbon sealing ring, stainless steel coil spring, Viton rubber cup, and a tungsten carbide seat with Teflon backup seal.

SACRIFICIAL PUMP ANODES - (3)

To aid in protecting the pump from internal corrosion, three sacrificial anodes shall be provided and located one in the lower section of each side inlet and one on the discharge side of the pump.

FRC PUMP BOSS MAX PRESSURE GOVERNOR SYSTEM

Fire Research Pump Boss Max pressure governor and monitoring display kit shall be installed. The kit shall include a control module, pressure sensor, and cables.

The following continuous displays shall be provided on shown on the LCD screen:

- Check engine/stop engine warning
- Engine rpm
- Engine oil pressure
- Engine temperature
- Battery voltage
- PSI / RPM setting
- Throttle ready LED.

An on LCD screen 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.

The program shall store the accumulated operating hours for the pump and engine with push button display. The program shal display and provide audible and visual warning alarms for the following conditions:

- High Transmission Temperature
- Low Battery Voltage (Engine Off)
- Low Battery Voltage (Engine Running)
- High Battery Voltage
- Low Engine Oil Pressure
- High Engine Coolant Temperature
- Out of water (visual alarm only)
- No engine response (visuall alarm only)
- Accumulated engine and pump hours.

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 illuminate 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.

TFT A-18 INTAKE RELIEF VALVE

A TFT model A-18 intake relief/dump valve shall be provided on the intake side of the pump to relieve excess incoming pressure. The system shall be designed to automatically restore to a non-relieving position when excessive pressure is no longer present. The pressure adjustment range shall be from 50 psi to 200 psi. The relief system shall be adjustable with a common type box end wrench.

The intake relief valve shall be pre-set to 125 psi.

PUMP SHIFT MECHANISM -AIR/ELECTRIC

The pump shall be shifted from road to pump by means of a cab mounted air over electric pump shift switch. The switch shall have a built in positive locking mechanism to prevent accidental movement of the switch. The locking mechanism shall require the operator to manually lift up on the switch lever to disengage the lock.

The switch shall have three positions:

- Position 1 = road position
- Position 2 = neutral position
- Position 3 = pump position

A green indicator light shall be provided in the driving compartment and shall be energized when the pump shift has been completed. This light shall be labeled "PUMP ENGAGED".

When the apparatus is equipped with an automatic transmission, a green indicator light shall be provided in the driver's compartment. It shall be energized when both the pump shift has been completed and the chassis transmission is in pump gear. This light shall be labeled "OK TO PUMP".

TRIDENT PRIMING SYSTEM

A Trident air priming system shall be provided.

HEAT EXCHANGER - CHASSIS PROVIDED

The heat exchanger (engine cooler) shall be provided on the chassis.

If current or future EPA regulations or engine re-design make the heat exchanger installation impractical or impossible, it will not be provided and the purchaser will be credited for the cost of the exchanger.

MANIFOLD DRAIN VALVE

The pump shall have a manifold type drain valve assembly consisting of a stainless steel plunger in a bronze body with

multiple ports. The control for the valve shall be on the left side along the bottom of the panel and above the side running board. The valve shall be a rotary type with a large easy to grip handle. The valve shall be labeled “PUMP DRAIN”.

ICI "LEVER LIFT" BLEEDER/DRAIN VALVES

ICI 3/4" quarter turn ball type bleeder/drain valve shall be provided for each discharge and auxiliary intake. A hose shall be connected to the valve that will direct water below the apparatus and away from the immediate pump operator's location.

The control handle shall be "lever lift" style for easy actuation. The handle for the control shall have a recessed area for the color coded identification label.

LOW POINT AUTO-DRAINS

Automatic drains shall be provided in low points of any discharge piping. The drain shall drain to the ground below its location. This drain shall be a supplementary drain and will not be considered the required 3/4" bleeder drain.

6" LEFT (DRIVER) SIDE MASTER INTAKE

A 6" master intake shall be provided on the left (driver) side of the apparatus. The intake shall have a 6" male NST connection. The intake shall have a removable screen to prevent the entry of large objects into the pump. The screen shall be constructed of a material that will provide cathodic protection to the pump. A label shall be provided above the intake that states “DRIVER SIDE MASTER INTAKE". The label shall be color coded burgundy.

LEFT SIDE MASTER INTAKE CAP

A 6" FNST LH chrome cap shall be provided on the left side master intake.

6" RIGHT (PASSENGER) SIDE MASTER INTAKE

A 6" master intake shall be provided on the right (passenger) side of the apparatus. The intake shall have a 6" male NST connection. The intake shall have a removable screen to prevent the entry of large objects into the pump. The screen shall be constructed of a material that will provide cathodic protection to the pump. A label shall be provided above the intake that states "PASSENGER SIDE MASTER INTAKE". The label shall be color coded burgundy.

RIGHT SIDE MASTER INTAKE CAP

A 6" FNST LH chrome cap shall be provided on the right side master intake.

FRONT BUMPER INTAKE

A front bumper intake shall be provided and located on the right side of the front bumper.

HALE MIV-E MASTER INTAKE VALVE FOR FRONT INTAKE

The front intake shall be equipped with a Hale model MIV-E electrically operated intake valve. The valve shall be a full flow butterfly type valve designed to mount on the fire pump between the suction tube extension and the suction tube

behind the pump panel. The valve shall not interfere with other suction or discharge openings on the fire pump or with the operating control properly mounted.

The entire valve shall be cast, manufactured, and tested at the pump manufacturer's factory. The valve body and related components that are in contact with water shall be fine grained corrosion resistant bronze. The butterfly disc shall be manufactured of 80,000 psi minimum yield strength heat treated cast steel then coated with a durable nitrile rubber to provide a positive seal when the valve is closed. The valve shall be hydrostatically tested to 600 psig and vacuum tested to 26" hg.

A pressure relief valve shall be provided that is factory set at 125 psi and field adjustable from 75 to 250 psi. The pressure relief valve shall provide overpressure protection for the soft suction hose even when the intake valve is closed.

The inlet valve shall be operated by a 12 VDC electric motor with the control on the pump panel. The valve shall be provided with panel placards indicating control operation. The placards shall have status lights to indicate whether the valve is open, closed, or traversing from one position to the other. The valve shall have a gear operator that will open/close the valve in no less than 3 seconds. The gear actuators shall be sealed to provide reliable service in the hard pump compartment environment. The ratio of the actuator will be such that the handwheel will close the valve in no more than 10 complete turns.

A label stating the following will be provided near the intake: "WARNING-SERIOUS INJURY OR DEATH COULD OCCUR IF INLET IS SUPPLIED BY A PRESSURIZED SOURCE WHEN THE VALVE IS CLOSED.

MANUAL MIV "BACKUP" CONTROL - FRONT INTAKE

A manually operated "backup" handwheel control shall be provided for the front intake valve and located in an accessible location. Because the backup control moves when the electric control is activated, the backup control shall not be located in any location that firefighting personnel may come into contact with the control during normal operations.

FRONT MIV VALVE DRAIN

A 3/4" drain shall be provided on the valve body to allow draining of the outer side of the valve.

FRONT MIV BLEEDER VALVE

A 1/4" bleeder valve shall be provided on valve body to bleed off air on the outer side of the valve.

FRONT INTAKE PIPING DRAIN(S)

3/4" drain(s) shall be provided in the low points on the front intake piping. The manually operated drain controls shall be accessible from the right side of the apparatus.

FRONT INTAKE SWIVEL CONNECTION

A **chrome plated** front suction swivel elbow with 6" MNST thread shall be provided. The elbow shall have a vertical lock to prevent vacuum leaks due to side loads and shall have dual o-rings for a positive seal. The elbow, as well as the swivel bearings, shall be brass for increased durability. A built in strainer shall also be included with the elbow.

FRONT MASTER INTAKE CAP

A 6" female NST long handle chrome cap shall be provided on the front master intake.

HALE TRV120 THERMAL RELIEF VALVE

A Hale model TRV120 thermal relief valve shall be provided and installed on the discharge side of the pump. The valve shall function automatically when the water temperature in the pump exceeds 120 degrees Fahrenheit. The valve shall discharge a 3/8" stream of water helping prevent pump overheat. The valve shall be self-resetting after the temperature of the water in the pump drops below 120 degrees Fahrenheit.

The water shall be discharged to the booster tank.

TANK REFILL/RECIRCULATION DISCHARGE

A discharge shall be provided from the pump discharge manifold to allow pump cooling when necessary as well as to refill the booster tank.

The water tank fill gauge shall be directly in line with this discharge control.

The valve and piping shall be 2".

The refill/recirculation discharge shall be manually controlled on the pump panel.

STAINLESS STEEL PIPING

All piping for discharges shall be stainless steel using stainless steel fittings. High pressure helix wire reinforced flexible piping with a minimum burst pressure of 1200 psi may be used in some areas to minimize friction losses. All flexible piping couplings shall be high tensile strength stainless steel.

All piping shall be properly supported and braced to prevent movement of piping other than what is allowed by the flexible couplings to compensate for apparatus flexing.

Any discharge manifolds provided on the apparatus must be fabricated of a minimum of schedule 10 304 marine grade piping. Use of any welded light gauge (less than Schedule 10) manifolding or plumbing will not be acceptable.

The stainless steel piping shall be warranted to be free from corrosion perforation for a period of 10 years following the delivery of the apparatus.

VICTAULIC COUPLINGS

Victaulic style couplings shall be used in the assembly of the pump piping system. The couplings shall allow flex in the piping and provide for a disassembly point for maintenance and repairs.

VENTED LUG CAPS AND PLUGS

All discharges and intakes that specify caps and/or plugs shall be provided with vented lug type designed to relieve trapped pressure and help reduce possible operator injuries.

AKRON HD-8800 SERIES VALVES

All discharge and small diameter auxiliary intakes shall have heavy duty Akron 8800 series brass ball valves with stainless steel ball. This shall include the tank to pump and tank fill valve.

RIGHT SIDE FORWARD AUXILIARY INTAKE

An auxiliary intake shall be provided on the right side of the pump compartment in the forward position.

The valve control shall be manually controlled at the intake location.

The intake shall have a 2 1/2" chrome plated female NST swivel connection with screen and a male NST chrome plated intake plug and chain.

A 3/4" bleeder/drain valve shall be provided.

FUTURE FOAM CAPABILITIES

The apparatus shall be pre-piped for future installation of a foam system. The manifold shall be stainless steel. This manifold shall be fed from the main pump discharge manifold and shall have a spacer pipe installed between the two manifolds with Victaulic couplings on each end. The spacer pipe shall be the length required for future installation of an electronic foam system.

To minimize the future costs of installing foam on the apparatus, there shall be no exception to this requirement.

PUMP PANEL CUTOUT - NONE

There will be no pump panel cut outs for future foam system control panels.

AERIAL WATERWAY 4" DISCHARGE

One 4" discharge shall be provided from the pump to feed the aerial device.

The discharge shall be manually controlled from the pump operator's position with a gear actuated handwheel control featuring position indication.

REAR AERIAL INTAKE

There shall be a 4" intake installed on the rear of the apparatus to be used for supplying the aerial waterway from an external source.

The intake connection shall be a 4" MNST chrome fitting.

AERIAL INTAKE CAP - 4"

A 4 FNST-LHF chrome cap shall be provided on the external feed aerial intake.

RIGHT SIDE DISCHARGES

One 2 1/2" discharge and one 4" discharge shall be provided on the right side pump panel. The 4" discharge shall be located forward of the intake and the 2 1/2" shall be located rear of the intake.

One (1) right side 2 1/2" discharge(s):

The right side 2 1/2" discharge shall be manually controlled on the pump panel.

The discharge shall be equipped with a chrome plated brass or bright finish stainless steel discharge elbow with 2 1/2" MNST thread.

A 2 1/2" chrome plated NST cap and chain shall be provided.

One (1) right side 4" discharge(s):

The right side 4" discharge shall be manually controlled from the pump operator's position with a gear actuated hand wheel control featuring position indication.

The discharge shall extend straight out of the apparatus with no elbow.

A 4" chrome plated NST rocker lug discharge cap shall be provided.

LEFT SIDE DISCHARGE

One 2 1/2" discharge shall be provided on the left side pump panel. The discharge shall be located forward of the intake.

One (1) left side 2 1/2" discharge(s):

The left side 2 1/2" discharge shall be manually controlled on the pump panel with a horizontal side-to-side lever control.

The discharge shall be equipped with a chrome plated brass or bright finish stainless steel discharge elbow with MNST thread.

A 2 1/2" chrome plated NST cap and chain shall be provided.

1 3/4" CROSSLAY PRECONNECTS

Two 1 3/4" preconnected crosslays shall be provided and located above the side mount pump panel.

The crosslay compartment shall be constructed of 5052 smooth aluminum sheet material with a random brushed finish applied after fabrication. Each crosslay shall be piped using 2" piping or high pressure hose incorporating a 2" ball valve with the control on the side mount pump operator's panel.

The #1 - hand line crosslay shall have the capacity to hold 200' of 1 3/4" or 2" fire hose and nozzle.

The #2 - hand line crosslay shall have the capacity to hold 200' of 1 3/4" or 2" fire hose and nozzle.

The valve(s) shall be manually controlled on the pump panel.

There shall be two (2) 2" swivel elbows with 1 1/2" male NST hose thread connections provided on the 1 3/4" cross lay hose beds. The swivels shall be mounted in a position to prevent hose "pinching" at the hose thread connection.

3/4" manual drain valves shall be provided for all 1 3/4" crosslays. The valves shall have an all brass body with heavy duty neoprene seal.

The #1 hand line crosslay shall be pre-piped for future foam system installation.

The #2 hand line crosslay shall be pre-piped for future foam system installation.

2 1/2" CROSSLAY PRECONNECT(S)

One (1) 2 1/2" pre-connected crosslay(s) shall be provided and located above the side mount pump panel.

The crosslay compartment shall be constructed of 5052 smooth aluminum sheet material with a random brushed finish applied after fabrication. Each crosslay shall be piped using 2 1/2" piping or high pressure hose incorporating a 2 1/2" ball valve with the control on the side mount pump operator's panel.

The #1 - 2 1/2" crosslay shall have the capacity to hold 200' of 2 1/2" or 3" fire hose and nozzle.

The valve(s) shall be manually controlled on the pump panel.

There shall be one (1) 2 1/2" swivel elbow with a 2 1/2" male NST hose thread connection provided on the 2 1/2" cross lay hose bed. The swivel shall be mounted in a position to prevent hose "pinching" at the hose thread connection.

The #1 2 1/2" crosslay shall be pre-piped for future foam system installation.

3/4" manual drain valves shall be provided for all 2 1/2" crosslays. The valves shall have an all brass body with heavy duty neoprene seal.

CROSSLAY COMPARTMENT ENDS - BLACK WEBBING

The crosslay compartment shall be enclosed on each end using a heavy duty webbing to prevent hose from accidently unloading. The webbing shall be black.

A yellow nozzle strap shall be provided for each crosslay. The strap shall be designed to loop through the nozzle handle and secured to the apparatus to keep nozzle from coming out of the crosslay compartment without manually disconnecting the nozzle strap.

The crosslay/speedlay end cover shall be secured with footman loops and velcro straps.

VINYL CROSSLAY COVER

A vinyl cover shall be provided to cover the crosslay compartment.

VINYL CROSSLAY COVER - RED

A red vinyl coated nylon end cover shall be provided to cover the crosslays.

75' AERIAL DISCHARGE AND COMPONENTS

1 3/4" FRONT BUMPER DISCHARGE(S)

There shall be one (1) 1 3/4" discharge(s) provided on the front of the apparatus. Piping and valve shall be 2".

The valve shall be manually controlled on the pump panel.

The front bumper 1 3/4" discharge shall be pre-piped for future foam system installation.

FRONT BUMPER HOSE WELL FLOORING - TURTLE TILE

Turtle Tile flooring shall be provided in the hose well.

The Turtle Tile shall be black.

PUMP COMPARTMENT

A modular pump compartment with side mounted pump operator's panel shall be provided. The modular design of the pump compartment shall allow the compartment to be fully independent of the apparatus body. A 1" flex joint shall be provided between the pump compartment and the apparatus body.

The modular design of the pump compartment shall allow the entire pump system, including the pump itself, to be removed from the apparatus in a one-piece assembly while leaving the body intact and without having to cut any sheet metal or welds.

STAINLESS STEEL PUMP COMPARTMENT CONSTRUCTION

The entire pump compartment shall be constructed using only 304 marine grade stainless steel fabricated sheeting with a #4 annealed and polished finish on all exterior surfaces. The pump compartment shall not require any finish painting. Due to the extreme twisting and flexing that all fire apparatus are subjected to, aluminum shall not be used in any portion of the pump compartment structural support. The use of any type of enclosed tubing that requires the use of self-tapping or any other type of machine screw shall not be acceptable.

CROSSLAY HOSE LAY

The crosslay shall be designed to stack in a 'single' stack configuration to allow for a low floor height to allow easy loading of firehose.

PUMP COMPARTMENT WIDTH – 56”

The pump compartment shall be 56” from the forward wall to the rear wall. This shall include the entire pump compartment as well as any components such as the ladder cradle, hydraulic system, etc.

PUMP COMPARTMENT RUNNING BOARDS

The pump compartment side running boards shall be constructed of NFPA compliant slip resistant aluminum treadbrite.

PUMP OPERATOR'S ROLL OUT PLATFORM

A pull out pump operator's platform shall be provided at the pump operator's control panel. The platform shall be designed to support a minimum of 500 pounds. The top surface shall be constructed of NFPA aluminum treadbrite with "raised grip" knurled serrations for slip resistance. The platform shall be approximately 18" deep x 40" wide. The platform shall lock in both the retracted and extended positions.

OPERATOR'S PANEL PLATFORM SLIDE OUT TRACKS - POWDER COATED

The pump operator's platform roll out tracks shall be powder coated black.

PUMP COMPARTMENT FRONT WALL

The center section of the pump compartment front wall shall be constructed of aluminum treadbrite which is bolted to the pump compartment assembly and removable.

The outer sections shall remain brushed stainless steel.

PUMP COMPARTMENT RIGHT SIDE ACCESS DOOR - SIDE MOUNT

A brushed stainless steel horizontally hinged access door shall be provided on the right side of the pump compartment above the lower pump discharge/intake panel. The door shall have a pneumatic hold open device and push button type flush latches.

SIDE MOUNT BRUSHED STAINLESS STEEL PUMP PANEL

All controls and instruments shall be located on the left side of the apparatus. All discharge and designated intake valve controls shall be located on the left side pump panel.

BRUSHED STAINLESS STEEL PUMP PANELS

The left and right side lower pump panels shall be constructed of 304 2B marine grade brushed stainless steel with a #4 brushed and polished finish. The panels shall be held into place with two latches on the top to allow for easy removal of the panels.

The upper section of the left side pump panel shall be constructed of the same 304 2B marine grade stainless steel. The upper section shall be vertically hinged and have a chrome plated latch to secure the panel when closed.

LED SIDE MOUNT PUMP PANEL LIGHTS

The side mount pump panel shall be illuminated using a track type LED light assembly.

The light shall be constructed of an unbreakable type clear poly flexible material housed in an aluminum extrusion mounted behind a brushed stainless steel light shield provided across the top of the gauge panel.

LED RIGHT SIDE DISCHARGE/INTAKE PANEL LIGHTS

The right side discharge and intake panels shall be illuminated using a track type LED light assembly.

The light shall be constructed of an unbreakable type clear poly type flexible material housed in an aluminum extrusion mounted behind a brushed stainless steel light shield provided across the top of the hinged access door.

AUTOMATIC PUMP PANEL LIGHT ACTIVATION

The pump panel lights above the pump control panel shall function automatically with the pump shift activation.

PUSH/PULL VALVE CONTROL HANDLES

Unless otherwise specified in these specifications, the apparatus pump panel shall be equipped with Innovative Controls side mount valve controls to open/close the manually operated discharge valves.

The ergonomically designed ¼ turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and verbiage. The control rod shall provide a true positive lock to eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long term operation.

The control shall include a decorative chrome plated zinc panel mounting bezel.

DISCHARGE VALVE CONTROL HANDLE LAYOUT

All discharge valve control handles shall be located in one or two horizontal lines across the mid-section of the pump

panel. The control handles shall be located immediately below their corresponding pressure gauge for ease of pump operation.

Any pump operator's panel discharge(s) shall have direct horizontal lever style control(s) with the gauge adjacent to the control.

VALVE CONTROL LINKAGES

All manual valve controls requiring remote actuation shall have control rod linkages constructed of 1/2" galvanized pipe and shall implement heavy ball swivel joints and clevises for smooth valve operation.

ICI MASTER PUMP DISCHARGE PRESSURE GAUGE

An ICI 4" diameter master pressure gauge shall be provided to indicate the main pump discharge pressure. The gauge shall read from 30" hg vacuum to 400 psi and shall be accurate within +/- 1%. The gauge shall be glycerin filled (-40F to +150F) and have a high impact resistant clear acrylic lens.

ICI MASTER PUMP INTAKE PRESSURE GAUGE

An ICI 4" diameter master pressure gauge shall be provided to indicate the pump intake pressure. The gauge shall read from 30" hg vacuum to 400 psi and shall be accurate within +/- 1%. The gauge shall be glycerin filled (-40F to +150F), read up to 400 psi, be accurate within +/- 1% and have a high impact resistant clear acrylic lens.

The master intake and discharge gauges shall have bright finish bezels.

The master gauge dials shall be white with black markings. The needle shall match the color of the markings.

The master intake gauge shall be clearly labeled "PUMP INTAKE" and shall be located to the left of the master discharge pressure gauge. The label shall be burgundy color.

The master discharge gauge shall be clearly labeled "PUMP DISCHARGE" and shall be located to the right of the intake pressure gauge. The label shall be black color.

The master intake/discharge pressure gauges shall have a lifetime non-yellowing and freeze warranty. The gauges shall also be warrantied for 4 years for defects in materials and workmanship, including fluid leakage. The warranty will not cover labor costs and/or transportation costs.

PRESSURE/VACUUM TEST PLUGS

Underwriter's test plug adapters shall be provided for connection of pump test gauges.

INNOVATIVE CONTROLS SOFT-GLO TANK GAUGE - PUMP PANEL

An Innovative Controls Soft-Glo tank gauge shall be provided on the pump panel. The gauge shall feature a 180 degree highly visible wide view Soft-Glo LED display showing the level of the booster tank.

The gauge shall have a chrome bezel.

TANK GAUGE PARK BRAKE DISABLE

The tank gauge(s) shall be disabled when the park brake is released so that the lights are not a distraction when the vehicle is in motion.

ICI DISCHARGE PRESSURE GAUGES

Unless otherwise specified, each 1 1/2" or larger discharge shall have an ICI pressure gauge. The gauge shall be glycerin filled (-40F to +150F), read from 0 - 400 psi, be accurate within +/- 1% and have a high impact resistant clear acrylic lens.

The individual discharge pressure gauges shall have a 2 3/4" diameter.

The discharge pressure gauge dials shall be white with black markings. The needle shall match the color of the markings.

The pressure gauge shall be directly in line with or adjacent to the discharge control handle for the discharge that they provide pressure readout for. **For ease of operation, this requirement must be strictly adhered to. There shall be no exception to this requirement.**

The gauges shall be clearly labeled with permanent color coded labels.

The discharge pressure gauges shall have a lifetime non-yellowing and freeze warranty. The gauge shall also be warrantied for four years for defects in materials and workmanship including fluid leakage. Warranty will not cover labor costs and/or transportation costs.

IDENTIFICATION LABELS FOR PUMP PANEL

Innovative Controls verbiage label bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These labels shall be designed and manufactured to withstand the specified apparatus service environment.

Where required, the verbiage label bezel assemblies shall include a chrome plated panel mount bezel with durable easy to read UV resistant polycarbonate inserts featuring the specified verbiage and color coding. The UV resistant polycarbonate verbiage and color inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.

The color scheme for the discharge and intake labels shall be per NFPA.

DUNNAGE COMPARTMENT

A dunnage compartment shall be provided above the pump compartment. The compartment shall be as large as space permits. Usable space in the compartment may be effected by other apparatus components.

The dunnage compartment shall be open on top without any type of cover.

The Department will have the responsibility to insure that all equipment stored in the dunnage area is properly secured to NFPA recommendations.

The dunnage compartment floor shall be aluminum treadbrite. Drain holes shall be provided.

LED lighting shall be provided to illuminate the dunnage compartment. The lighting shall function with the pump operator's panel lights.

BOOSTER TANK

The tank shall have a LIFETIME warranty provided by the manufacturer of the tank.

The tank shall be constructed of 1/2" thick polypropylene sheet stock. This material shall be non-corrosive stress relieved thermoplastic U.V. stabilized for maximum protection. The booster tank shall be of a specific configuration and is so designed to be completely independent of the body and compartments. All joints and seams shall be nitrogen welded and tested for maximum strength and integrity. The top of the booster tank is fitted with removable lifting eyes designed with a 3 to 1 safety factor to facilitate easy removal.

The transverse swash partitions shall be manufactured of 3/8" polypropylene material. The longitudinal swash partitions shall be constructed of 3/8" polypropylene and extend through the cover to allow for positive welding and maximum integrity. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be de-signed to provide maximum water flow. All swash partitions shall interlock with one another and are welded to each other as well as to the walls of the tank.

The tank cover shall be constructed of 1/2" thick polypropylene stress relieved, UV stabilized material and shall incorporate a three piece locking design which will allow for individual removal of each section of necessary. The tank cover shall be recessed 3/8" from the top of the tank and shall be welded to both sides and longitudinal partitions of maximum integrity. Each of the covers shall have hold downs consisting of 2" polypropylene dowels spaced a maxi-mum of 30" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions. A minimum of two lifting dowels shall be drilled and tapped to accommodate the lifting eyes.

The sump shall be constructed of 1/2" polypropylene. The sump shall have a 3" NPT threaded outlet on the bottom for a drain plug. An anti-swirl plate shall be located approximately 2 1/2" above the sump.

The tank cradle assembly shall be designed to provide support to the tank. The assembly shall be approved by the manufacturer of the tank.

BOOSTER TANK CAPACITY 500 GALLONS

The poly booster tank shall have a capacity of 500 U.S. gallons.

BOOSTER TANK FILL TOWER - LEFT SIDE FRONT

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 of **12" x 12"** outer dimension. The tower shall be located in the left front corner of the hose bed. The tower shall have a 1/4" thick removable polypropylene screen and polypropylene hinged type cover.

4" TANK OVERFLOW

A 4" diameter tank vent/overflow shall be provided and integrated into the tank. The piping shall be a minimum of schedule 40 polypropylene designed to run through the tank and discharge behind the rear wheels to the ground.

1" TANK SUMP DRAIN

A 1" drain shall be provided in the bottom of the tank sump to fully drain the tank. The drain shall use 1" stainless steel piping with a 1" valve.

The control for the valve shall be remoted to the driver's side of the apparatus just under and behind the side rub rail. The drain control handle shall be labeled "TANK DRAIN".

3" TANK SUMP CLEAN OUT PLUG

A 3" tank sump clean out plug shall be provided in the bottom of the tank sump.

25 GALLON CLASS A FOAM TANK

A 25 gallon Class A foam tank shall be provided. The tank shall have all connections necessary to connect to the foam system and shall also have a 1/4 turn drain valve with hose attached to allow the tank to be drained.

The tank shall have an **8" x 8"** fill tower with hinged type lid with latch. A vent shall be provided in the lid.

A label shall be provided on the lid that reads "CLASS A FOAM TANK FILL" and "WARNING: DO NOT MIX BRANDS OR TYPES OF FOAM".

CLASS A FOAM TANK/BOOSTER TANK INTEGRATION

The class A foam tank shall be integrated into the apparatus booster tank. The foam tank shall not be separate from the booster tank.

3" TANK TO PUMP

One 3" tank to pump line(s) and valve(s) shall be provided between the tank and the pump. The piping from the sump to the valve shall be 4".

The tank to pump valve shall be manually controlled on the pump panel.

TANK TO PUMP CHECK VALVE

A check valve assembly shall be provided on the pump. The valve shall prevent unintentional back filling of the tank through the tank to pump line. Connection from the valve to the tank shall be made by using a non-collapsible flexible rubber hose.

HOT DIPPED GALVANIZED SUB FRAME

The tank cradle and body substructure shall be constructed of high strength ASTM A-36 structural steel with 36,000 psi minimum yield strength. The entire substructure shall be framed and jig welded together to insure a truly square assembly. The substructure shall be fastened to the chassis rails so that it may be easily removed from the chassis for repair, replacement or mounting to a new chassis.

After complete assembly of the tank cradle substructure, the entire assembly shall be hot dipped galvanized for superior corrosion protection.

Due to the extreme duty that this apparatus will experience during its intended service life and to prevent rusting and corrosion from shortening the service life of this apparatus, sub frames fabricated of painted/undercoated steel or aluminum tubing shall not be acceptable.

20 YEAR SUB-STRUCTURE WARRANTY

The tank cradle and body substructure shall have a 20 warranty covering failure due to corrosion perforation or structural design error.

This warranty shall be in effect for 20 years after delivery of the apparatus to the customer. **NO EXCEPTION**.

***HYPER-FLEX* BODY MOUNTING**

The body module assembly shall be mounted to the chassis frame rails with "*Hyper-Flex'"* vibration and shock isolators using a forward mounting system. Flexible neoprene pads, or U-springs especially developed for the expected weight and torsional flexing of the apparatus body, shall be incorporated into the system to eliminate chassis frame rail flex from transmitting harmful loads and twisting onto the body.

APPARATUS BODY MATERIAL

The entire apparatus body shall be constructed of 304 marine grade stainless steel with a #4 annealed and polished finish. The interior of the apparatus body shall not require any finish painting. The compartment interiors must be a #4 finish. Mill finish or DA sanded finish will not be acceptable.

APPARATUS BODY CONSTRUCTION

The entire apparatus body shall be formed by sheering and bending the sheet metal. Metal tubular structures or extrusions shall not be used in the construction of the apparatus body. All edges of the sheared metal shall be sanded to remove any sharp shearing edges prior to bending the metal. After sheering and bending, the body shall be assembled on a jig table that is designed to hold all parts securely in place to insure an accurately built apparatus body.

APPARATUS BODY ASSEMBLY METHOD

The entire apparatus body shall be assembled using only bolted type construction. All apparatus body parts shall be able to be unbolted without the need to cut welds, etc. No exceptions to this requirement as all apparatus manufacturers have the capability to manufacture apparatus bodies in this manner.

COMPARTMENT FLOORS

All compartment floors shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish on the interior surface. The drain ports shall be designed to prevent road spray from entering the compartment. The front edge shall consist of a minimum of two bends to provide additional strength in the compartment floor and shall then form the lower door jamb.

All compartment floors shall be sweep out design. This shall include the lower side compartments, any compartments above the wheel well, any transverse compartments, and the rear face compartment(s).
Any exception to this requirement will cause immediate rejection of bid.

INTERIOR COMPARTMENT SURFACES

All visible interior compartment surfaces shall be 304 marine grade stainless steel with a # 4 annealed and polished finish. Surfaces that are painted or coated in any manner, raw material or any surface with any type sanded finish are not acceptable.

FRONT COMPARTMENT CORNERS

The apparatus body front compartment corners and vertical faces on both sides shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish. The corners shall be a one-piece fabrication from top to bottom and from the inner body panel to the outer face of the compartment to provide maximum strength. Corners using structural support channels or extrusions that require two or more pieces shall not be implemented.

The # 4 finish corner shall wrap around the side of the apparatus body and form the front compartment door jamb providing front corner protection.

REAR COMPARTMENT CORNERS - BRUSHED

The apparatus body rear compartment corners and vertical faces on both sides shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish. The corners shall be a one- piece fabrication from top to bottom and from the inner body panel to the outer face of the compartment to provide maximum strength. Corners using structural support channels or extrusions that require two or more pieces shall not be implemented.

The # 4 finish corner shall wrap around the side of the apparatus body and form the rear compartment door jamb providing front corner protection.

COMPARTMENT TOPS/CEILINGS

The apparatus body compartment tops shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish on the interior surface.

COMPARTMENT TOP OVERLAY

The compartment top shall be overlaid with 1/8" aluminum treadbrite. The aluminum treadbrite shall be an overlay only and shall not form any structural part of the apparatus body or shall the bottom side of the treadbrite be visible when looking into the compartment.

PAINTED FENDERWELLS

The left and right side rear fender wells shall be constructed of stainless sheet steel. The fender wells shall be radius cut and shall have a full circular inner liner to prevent rust pockets and for ease of cleaning. A 1" gap shall be provided on the bottom of each side of the circular liner to allow drainage of water and for easy cleanout. Sufficient clearance shall be provided for tire chains. Before the booster tank is installed, the fender wells shall be thoroughly cleaned and all seams sealed to prevent corrosion in the fender well area.

UPPER DOOR POSTS - PAINTED

The upper door post to the front and rear of the compartment door above the rear wheels shall be constructed of stainless sheet steel.

The outer surface of these door posts shall be finished painted.

REMOVABLE INNER FENDER LINER

The fender wells shall be radius cut and shall have a circular inner liner to prevent corrosion pockets and for ease of cleaning. The inner liner shall be constructed of high impact polypropylene material and shall be fully removable for chassis suspension access.

To prevent the accumulation of potential corrosive materials in the fender well area, there shall be no exception to the removable inner fender liner.

STAINLESS STEEL FENDERETTE

The fender wells shall be trimmed with a polished stainless steel fenderette. The stainless steel fenderette shall be secured into place with stainless steel fasteners and shall be easily removable for replacement. A black rubber fender welting shall be provided between the fenderette and the inner liner surface. The fenderettes shall protrude from the apparatus body a maximum of 1".

REPLACEABLE FENDERETTE

The stainless steel fenderette shall be secured to the apparatus body with stainless steel fasteners and shall be easily removable for replacement.

Fenderettes that are welded to the apparatus body are not acceptable.

OUTER BODY SIDES

The outer left and right side body panels above the compartment tops shall be constructed of 304 2B marine grade

stainless steel with a # 4 brushed finish and shall not require any finish paint.

COMPARTMENT VENTILATION

Each compartment shall be ventilated to the exterior of the body through a removable metal ventialation plate in the compartment wall or through pass through ventilation into an adjioning compartment.

A cleanable filter material shall be provided behind the plate.

ROM SERIES IV ROLL UP COMPARTMENT DOORS

For all compartments requiring roll up doors, Robinson (ROM) Series IV roll up doors shall be installed.

Each shutter slat, track, bottom rail, and drip rail shall be constructed from anodized 6063 T6 aluminum.

The shutter slats shall feature a double wall extrusion 0.315” thick with a concave interior surface to minimize loose equipment jamming the shutter door closed. Shutter slats shall feature an interlocking end shoe to prevent side to side binding of the shutter door during operation. Slats must have interlocking joints with an inverted locking flange. The slat inner seal shall be a one piece PVC extrusion designed to prevent metal to metal contact while minimizing dirt and water from entering the compartment.

The shutter door tracks shall be one piece design with integral overlapping flange to provide a clean finished look without the need of caulk. Door tracks shall feature an extruded Santoprene rubber double lip low profile side seal with a silicone co-extruded back to reduce friction during shutter operation.

The shutter bottom rail shall be a one piece double wall extrusion with integrated finger pull. The finger pull shall be curved upward with a linear striated surface to improve operator grip while operating the shutter door. The bottom rail shall have a smooth contoured interior surface to prevent loose equipment from jamming the shutter door. Bottom rail seal shall be made from Santoprene and shall be a double “V” seal to prevent water and debris from entering compartment. The bottom rail lift bar shall be a one piece “D” shaped aluminum extrusion with linear striations to improve operator grip during operation. The lift bar shall have a wall thickness of 0.125” and be supported by no less than two pivot blocks constructed from Type 66 Glass filled reinforced nylon for superior strength. The bottom rail end blocks shall have incorporated drain holes which will allow any moisture that collects inside the extrusion to drain out.

Shutter door shall have an enclosed counter balance system. The system shall be 4” in diameter and held in place by 2 heavy duty 18 gauge zinc plated plates. The counter balance system shall have 2 over-molded rubber guide wheels to provide a smooth transition from vertical track to counter balance system; no foam material of any kind shall be permitted or used in this area.

STAINLESS STEEL COATED FASTENERS

All fasteners used in the finish construction of the apparatus body shall be marine grade stainless steel. Fasteners that pass through a dissimilar metal panel shall be Magna-Gard, or equal, coated to help prevent metal reaction and corrosion.

As the Magna-Gard, or equal, coating is a "baked on" type coating providing for excellent adhesion to the fastener, spray on type coatings may be used in conjunction with the Magna-Gard, or equal, but not in place of it.

Because dissimilar metal corrosion is a common occurrence on all apparatus and the Magna-Gard (or similar "baked on" coatings) fasteners are commercially available to all manufacturers and is not a proprietary product, there shall be no

exception to this requirement.

DRIVER'S SIDE COMPARTMENT AHEAD OF REAR WHEELS

A compartment shall be provided in front of the rear wheels on the driver's side. The interior compartment dimensions shall be 67" high x 63" wide x 24" usable depth in lower section and 14" useable depth in the upper section.

The compartment shall have a roll up door with satin finish.

DRIVER'S SIDE COMPARTMENT ABOVE REAR WHEELS

A compartment shall be provided above the rear wheels on the driver's side. The interior compartment dimensions shall be 27" high x 42" wide x 14" useable depth.

The compartment shall have a roll up door with satin finish.

DRIVER'S SIDE COMPARTMENT ABOVE REAR WHEELS

A compartment shall be provided above the rear wheels on the driver's side. The interior compartment dimensions shall be 27" high x 42" wide x 14" useable depth.

The compartment shall have a roll up door with satin finish.

DRIVER'S SIDE COMPARTMENT BEHIND REAR WHEELS

A compartment shall be provided behind the rear wheels on the driver's side. The interior compartment dimensions shall be 61" high x 49" wide x 22" usable depth in lower section and 14" useable depth in the upper section.

The compartment shall have a roll up door with satin finish.

PASSENGER'S SIDE COMPARTMENT AHEAD OF REAR WHEELS

A compartment shall be provided in front of the rear wheels on the passenger's side. The interior compartment dimensions shall be 67" high x 63" wide x 24" usable depth in the lower 57" and 14" in the remaining upper section.

The compartment shall have a roll up door with satin finish.

PASSENGER'S SIDE COMPARTMENT BEHIND REAR WHEELS

A compartment shall be provided behind the rear wheels on the passenger's side. The interior compartment dimensions shall be 31" high x 49" wide x 22" usable depth.

The compartment shall have a roll up door with satin finish.

RUBRAILS - BRIGHT ANODIZED ALUMINUM

Extruded aluminum rub rails shall be provided on the apparatus body sides. The rub rails shall have a bright finish with anodized coating to protect the finish. The rub rails shall be spaced from the apparatus body a minimum of 1/4" with poly spacers.

The rub rails must be bolted on to the apparatus body to allow easy replacement if damaged. Rub rails that are permanently fastened to the apparatus body by welding or any other permanent method will not be acceptable. **NO EXCEPTION WILL BE ALLOWED TO THIS REQUIREMENT.**

RUB RAIL ENDS

The rub rail ends shall be 'capped' with a high impact resistant black EPDM contoured block.

75' REAR MOUNT TORQUE BOX COMPONENTS

HOSE BED

The hose bed shall be located to the right side of the turntable support structure above the right rear side low compartment extending over the right side wheel well.

The hose bed shall extend backward, past the right side of the turntable support, and exit at the rear of the apparatus. The access shall be free of obstructions that may interfere with the deployment and loading of hose.

The hose bed shall be a minimum of 22" wide x 30" high x 138" depth. A minimum of 52 cubic feet of hose bed space shall be provided.

HOSE BED FLOORING

The floor of the hose bed shall be constructed of 1/8" smooth aluminum with drainage slots.

HOSEBED ACCESS DOORS

Two raise up doors shall be provided on the exterior of the hosebed to access the hosebed. The doors shall have a 63" wide x 23" high opening each.

HOSE BED COVER END COVER

A heavy duty vinyl end cover shall extend downward to cover the exposed rear of the hose bed.

The hosebed end cover shall be red.

The hosebed end cover shall be secured with footman loops and velcro straps.

GROUND LADDER STORAGE COMPARTMENT

A storage compartment shall be provided on the rear of the apparatus inside the aerial torque box. The compartment shall have individual slides for each ladder to allow individual removal of ladders. The individual slides shall be lined with a slip material to allow easy removal of the ladders. The ladder storage rack shall be a one piece assembly which is easily removable from the torque box without disassembly.

PIKE POLE STORAGE COMPARTMENT

A pike pole storage compartment shall be provided on the rear of the apparatus inside the aerial torque box. The compartment shall have individual tubes for each pike pole. The tubes shall be constructed of PVC or aluminum.

LADDER ACCESS DOOR - HINGED

The ladder compartment shall have a single horizontally hinged raise up overlapping door constructed of mill finish smooth aluminum.

The inner panel of the door shall be aluminum treadbrite.

DUO SAFETY 35' 3-SECTION ALUMINUM LADDER

One (1) Duo Safety 1225A 35' NFPA compliant three section aluminum extension ladder shall be provided and mounted.

DUO SAFETY 24' 2-SECTION ALUMINUM LADDER

One (1) Duo Safety 900A 24' NFPA compliant two section aluminum extension ladder provided and mounted.

DUO SAFETY 16' ALUMINUM ROOF LADDER

One (1) Duo Safety model 875A 16' NFPA compliant aluminum roof ladder with folding hooks provided and mounted.

DUO SAFETY 10' ALUMINUM FOLDING ATTIC LADDER

One (1) Duo Safety 585A 10' NFPA compliant aluminum folding attic ladder shall be provided and mounted.

COMPARTMENT SHELF TRACKS - ALUMINUM

Five (5) sets consisting of two heavy duty aluminum adjustable tracks shall be provided in specified compartments, one for each end of shelf.

The tracks shall not be welded to the apparatus body.

SHALLOW DEPTH COMPARTMENT SHELVING

There shall be three (3) shallow depth shelves provided. The shelves shall be constructed of 1/8" smooth aluminum with a 2" upward bend on the front and rear edges.

The shelves shall have a random orbit sanded finish.

TURTLE TILE SHELF MAT

Each shallow depth shelf shall have Turtle Tile matting.

DRIVER'S SIDE FRONT OF WHEELWELL SPARE CYLINDER COMPARTMENT

A compartment shall be provided in the wheel area in front of the rear axle on the driver's side to hold three spare SCBA cylinders.

The compartment shall be injection molded high strength polyethylene designed specifically for the SCBA cylinder storage. The compartment shall be slanted towards the rear and have a drain port at the low point of the compartment.

DRIVER'S SIDE REAR OF WHEELWELL SPARE CYLINDER COMPARTMENT

A compartment shall be provided in the wheel area behind the rear axle on the driver's side to hold three spare SCBA cylinders.

The compartment shall be injection molded high strength polyethylene designed specifically for the SCBA cylinder storage. The compartment shall be slanted towards the rear and have a drain port at the low point of the compartment.

PASSENGER'S SIDE FRONT OF WHEELWELL SPARE CYLINDER COMPARTMENT

A compartment shall be provided in the wheel area in front of the rear axle on the passenger's side to hold three spare SCBA cylinders.

The compartment shall have a drain port at the low point of the compartment.

OIL DRY COMPARTMENT

An aluminum oil dry compartment shall be provided and integrated into the apparatus body in the passenger's side wheel area behind the rear axle.

The compartment shall be designed to roll out of the wheel well area for dispensing oil dry material and for filling. An 8" x 8" hinged fill cover shall be provided on the top of the compartment.

A reflective stripe shall be provided on the front and rear face of the compartment.

WHEELWELL STORAGE COMPARTMENT DOORS – BRUSHED FINISH STAINLESS

Brushed finish stainless steel access doors shall be provided on each wheel well storage compartment in the wheel well.

The doors shall be secured using chome plated thumb lever latches.

WHEELWELL SCBA CYLINDER COMPARTMENT RETENTION STRAPS

One 1" wide loop of high visibility yellow webbing shall be installed in each wheel well spare cylinder compartment for each cylinder to be stored in the compartment. The loop(s) shall be designed to loop around the cylinder valve and help prevent the cylinder from sliding out of the compartment if the door is not latched or fails.

OUTRIGGER COVERS

The outriggers shall be covered with a brushed stainless steel cover.

TURTLE TILE FLOOR MATS

All lower level apparatus body compartment floors shall be provided with 3/4" thick Turtle Tile modular 12" x 12" square tiles with perforated surface for ventilation and air circulation. The tiles shall be easily removable for cleaning the compartment. The tiles shall interlock into each other to form a "one piece" floor liner.

Floors with permanent mounted or bolted in place accessories will not have floor mats.

TURTLE TILE - BLACK

The Turtle Tile shall be black in color.

FOLDING ACCESS STEPS - LIGHTED

Austin FS-200 CHR chrome plated folding access steps shall be provided in areas listed in these specifications. All access steps provided on the apparatus shall support a minimum static load of 500 lbs. and be mounted in accordance to recommended mounting procedures as outlined by NFPA. The steps shall be **minimum** of 6.5" wide x 6.5" depth. The steps shall be attached to the apparatus using stainless steel bolts with locking type nuts.

The steps shall each have a MBH-1132-A01-CHR LED light above the step area. The lights shall be activated by the park brake.

Any step that is mounted on a non-permanent surface will not be lighted.

Four NFPA compliant folding steps shall be provided on the right side front compartment face.

Four NFPA compliant folding steps shall be provided on the left side front compartment face.

ZICO RL15-2-6 ACCESS LADDER

A Zico model RL15-2-6 access ladder shall be provided on the rear of the apparatus to access the aerial turn table.

The ladder hand rails shall be constructed of 1 1/4" heavy wall aluminum extrusions that are covered with a black heat resistant power coated finish. Each step shall have a flat non-skid surface that is 3” deep x 15 1/2" wide. The lower section of the ladder containing the bottom two steps shall swing out and down.

The rear access ladder shall be mounted on the left (driver) side of the apparatus.

NFPA KNURLED FINISH HANDRAILS

All handrails shall be 1 1/4" diameter extruded aluminum "knurled finish" with chrome plated stanchions. Rubber gaskets shall be provided between the stanchions and any painted surfaces.

RIGHT FRONT HOSEBED GRAB RAIL

A 12" NFPA compliant horizontal handrail shall be provided on the upper right front of the apparatus towards the front of the hose bed.

LEFT FRONT HOSEBED GRAB RAIL

A 12" NFPA compliant horizontal handrail shall be provided on the upper left front of the apparatus towards the front of the hose bed.

LEFT REAR GRAB RAIL

A 12" NFPA compliant horizontal handrail shall be provided on the left rear of the apparatus towards the rear of the hose bed.

NFPA CERTIFIED 12 VOLT ELECTRICAL SYSTEM

The 12-volt apparatus body electrical system shall be provided and shall be in compliance with NFPA testing and certification procedures as follows:

NFPA MINIMUM ELECTRICAL LOAD DEFINITION

The NFPA defined minimum electrical load shall consist of the total amperage required to simultaneously operate the following in a stationary mode:

- Propulsion engine and transmission.
- The clearance and marker lights.
- Communication equipment (5 amp default).
- Illumination of all control and instrument panels.
- Illumination of all walking surfaces, the ground at all egress points, control and instrumentation panels and 50% of total compartment lighting.
- Minimum warning lights required for "blocking right of way" mode.
- The current to simultaneously operate and fire pump and all specified electrical devices.
- Anything defined by the purchaser, in the advertised specifications, to be critical to the mission of the apparatus.

RESERVE CAPACITY TEST

A Reserve Capacity Test shall performed on the completed apparatus. All items listed in NFPA Minimum Load Definition shall be activated with the engine shut off. After 10 minutes of operation, those items shall be deactivated. After deactivation, the battery system shall have ample reserve to start the engine.

ALTERNATOR PERFORMANCE TEST AT IDLE

An "alternator performance test at idle" test shall be completed. The minimum continuous electrical load shall be activated with the engine running at idle speed. When the engine temperature has been stabilized at idle speed, the battery system shall be tested to detect any battery discharge current.

ALTERNATOR PERFORMANCE TEST AT FULL LOAD

An "alternator performance test at full load" test shall be completed. The minimum continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed for a 2 hour period.

TEST CONDITIONS

All electrical testing shall be performed with the engine compartment at approximately 200 degrees.

12-VOLT WIRING SYSTEM

All 12-volt electrical wiring shall be SXL cross link rated to carry 125% of the maximum current for which the circuit is protected. The wire shall be of sufficient size so that voltage drop in any electrical device does not exceed 10%. All wiring shall be color, number, and function coded with the number and function being printed every 3" along the entire length of all apparatus body wires (as required by NFPA). All wiring shall be routed through heavy duty PVC split loom securely attached and protected against heat, oil, and physical damage. All locations where the wire passes through a body panel shall be protected with electrical grommets.

All connections shall be made using mechanical connectors and be screwed to terminal or junction box with machine screws. Wire nut, insulation displacement, or piercing connections shall not be used.

All circuits shall be provided with properly rated low voltage over current protective devices of the automatic reset type.

Removable access panels shall be provided to provide access to the wire and electrical components.

MULTI-PLEXED ELECTRICAL SYSTEM

The apparatus body electrical system shall incorporate a Multiplexed Electrical System. The multiplex system shall consist of all solid-state components contained inside aluminum extrusions referred to as nodes. Each node shall consist of (24) output channels and (24) input channels. All inputs and outputs will be configured into an electrical harness utilizing Deutsch connectors. The nodes must be waterproof and not require special mounting requirements.

The system, at a minimum, shall be capable of performing the following functions: load management sequencing, switch loads, receive digital and analog signals, perform and report diagnostics, continuously report vehicle status and the system is expandable.

Placement of nodes throughout the apparatus enables a reduction in wire harness bundles, elimination of redundant harnesses and separate circuit boards, relay and circuit breakers, electrical hardware, separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs. The multiplex system shall be field re-programmable and re-configurable by any authorized dealer or service center. This complete system shall eliminate the need for the following separate components or devices: load manager, load sequencer, warning lamp flasher, door open notification system, interlock modules, separate volt meter and ammeter.

The base system shall include:

- Total Load Management
- Load Shedding Capabilities
- Load Sequencing Capabilities
- "On-Board" Diagnostics Readout
- Very Reliable, Solid-State Hardware
- Error Reporting
- Continuous system monitoring and reporting
- Emergency warning lamp flasher
- Door Ajar System
- Field Configurable
- Expandability Capabilities
- Advanced PC Diagnostics

As-built wiring harness drawings and a master circuit list of electrical circuits that the apparatus builder installs shall be furnished in the delivery manuals. These schematics must show the electrical system broken down into separate functions, or small groups of related functions. Schematics shall depict circuit numbers, electrical components, harnesses, and connectors from beginning to end. **A single drawing for all electrical circuits installed by the apparatus builder shall not be accepted**.

VMUX WARRANTY

The VMUX multiplexed electrical system shall be warranted, under normal use and service, for a period of four years. One year parts and labor and the remaining three years parts only.

REAR LICENSE PLATE LIGHT/BRACKET

A chrome plated LED license plate light shall be provided on the rear of the apparatus.

A license plate mounting bracket shall be provided that spaces the license plate away from the apparatus body.

The license plate shall be on the left side lower rear.

CLEARANCE LIGHTS/REFLECTORS

All apparatus body clearance lights shall be LED style. All lower clearance lights and reflectors shall be mounted in a manner that provides protection from damage, and shall comply with FMVSS-108 regulations.

MID-MOUNTED SIDE TURN SIGNAL - LED

An amber LED side turn signal shall be provided in the mid-section area of the apparatus on both sides.

LED PUMP COMPARTMENT LIGHTS (2)

Two LED compartment lights shall be provided to illuminate the pump compartment.

The lights shall function with the pump operator's gauge panel lights.

DUAL TRACK TYPE LED COMPARTMENT LIGHTING

Each apparatus body compartment shall have two track type LED lights vertically mounted in the compartment. The lights shall be constructed of an unbreakable type clear poly type flexible material housed in an aluminum extrusion.

A compartment that is considered a 'full height' compartment shall each have two 48" long light sections and a 'low height' or above wheel compartment shall each have two 18" long sections.

The lights shall function automatically and independently of other compartments when the compartment door is opened.

COMPARTMENT LIGHT SWITCHES

Each hinged apparatus body door compartment shall have a magnetic style reed indicator switch.

Each roll up door shall have an integral door open indicator magnet in the lift bar. If the bar is not properly closed, it shall activate the "Door Open" light in the cab.

The compartment lights shall function automatically when the door is opened. A master compartment light switch shall not be acceptable.

DOOR AJAR INDICATOR PARK BRAKE DISABLE

All apparatus body door ajar indicators shall be disabled when the park brake is set.

LED PERIMETER GROUND LIGHTING - seven (7)

There shall be seven (7) LED perimeter ground lights furnished and installed on the apparatus body. The lights shall have an unbreakable polycarbonate lens and housing. The lights shall be sealed to help prevent moisture entry.

The ground lights shall be activated with the parking brake.

NOTE: Chassis ground lighting is listed in the chassis section of this specification.

LED APPARATUS BODY STEP LIGHTING

All apparatus steps and running boards shall be illuminated using chrome plated or stainless steel LED lights. The lights shall function automatically with the park brake.

GROUND/STEP LIGHTING CUTOFF SWITCH

A ground/step light cut off switch shall be provided in the cab to allow the driver to disable the ground lights and other lights that activate when the parking brake is set. The switch shall automatically re-set itself when the parking brake is released.

WHELEN M6 QUAD-CLUSTER TAILLIGHTS - LED

Whelen M6BTT 4" x 6" LED taillights and M6T 4" x 6" LED turn signals shall be provided. The backup lights shall be M6BUW 4" x 6" clear LED's.

An additional space shall be provided in the quad-cluster for the lower C warning lights.

M6FCV4 polished trim housings shall be provided.

BACKUP LIGHTS PARK FUNCTION

The backup lights shall automatically activate when the park brake is set to provide work lighting at the rear of the apparatus.

ZONE A UPPER WARNING LIGHTING

The lightbar shall be provided on the chassis. Specifications for the lightbar are listed in the chassis specifications.

SIDE FACING LOWER REAR WARNING LIGHTS

One Whelen M6R red LED light shall be provided on each side of the apparatus as low and as far rearward as possible on the apparatus.

M6FC chrome trim housings shall be provided.

REAR FACING LOWER WARNING LIGHTS

Two Whelen M6R red LED lights shall be provided on the lower rear of the apparatus.

M6FC chrome trim housings shall be provided.

WHELEN ION UPPER ZONE B/D WARNING LIGHTING

Two Whelen ION-T TLIR red LED light heads shall be mounted on each side of the apparatus above the side compartments.

TIONFC chrome plated trim housings shall be provided.

WHELEN M6R UPPER ZONE C WARNING LIGHTING

Two Whelen model M6R red LED light heads shall be mounted on the rear of the apparatus, one each side.

M6FC chrome plated trim housings shall be provided.

WHELEN TAL65 TRAFFIC ADVISOR

A Whelen TAL65 36" 6 lamp LED directional traffic advisor shall be provided and mounted on the rear of the apparatus. The advisor shall be subject to load management shedding to comply with NFPA.

A Whelen TACTL5 controller shall be provided for the Traffic Advisor.

The control head shall be mounted using the standard bail strap mounting bracket provided.

DIRECTIONAL LIGHT MOUNTING

The directional light shall be surface mounted to the rear face of the apparatus.

LED HOSE BED LIGHT

One LED light shall be provided and mounted in the front of the hose bed .

The light shall be controlled by the pump panel light switch.

10 KW SMART POWER HYDRAULIC GENERATOR SET

A Smart Power model HR-10 10,000 watt hydraulic generator shall be provided.

The generator system shall come with a standard 5 year/1,000 hour fully transferable warranty from the manufacturer.

The unit shall come equipped with: generator tray assembly (which includes the generator, hydraulic motor, cooler, fan, electronics package, 10 micron spin-on fluid filter and reservoir), axial piston hydraulic pump with pressure compensated control, and Command and Control Center (CCC) display with all required wiring harnesses. The CCC shall be an interactive operator control center, equipped with smart touch solid state buttons, with displays for voltage, frequency, amperage, hour meter, service reminders, operator warnings, system faults and diagnostics. Standard electronics package shall include smart start engagement to reduce mechanical stress, precise voltage and frequency control, cold

start system, automatic load and temperature compensation, integrated diagnostics system, and other automated control features to protect system, vehicle and operator.

The generator tray assembly shall be delivered with the cooler/fan assembly mounted such that the hot air is exhausted straight up, through an NFPA approved walking grate.

The body of the generator tray assembly (including reservoir) shall be 32" long x 13.5" wide x 17" high, weighing approximately 185 pounds. The hydraulic pump shall be driven by a chassis transmission mounted power take off (PTO).

HYDRAULIC GENERATOR START SWITCH – CAB CONSOLE

The hydraulic generator start/stop control shall be located on the cab console. The activation switch shall include an integrated indicator light that illuminates when the generator is running.

HYDRAULIC GENERATOR PTO - "HOT SHIFT" TYPE

The generator shall be powered by a Chelsea or Muncie "Hot Shift" type PTO. A lighted and guarded switch shall be provided on the control console that electrically engages/disengages the PTO.

HYDRAULIC GENERATOR MOUNTING

The generator shall be mounted in the forward area of the hose bed properly protected and ventilated to prevent overheat. A front hose bed bulkhead shall also be provided.

An aluminum treadbrite cover shall be provided to cover any hydraulic hoses that extend through the front of the apparatus body then into the pump compartment.

GROUNDING

Grounding shall be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems shall not be used. Only stranded or braided copper conductors shall be used for grounding and bonding. An equipment grounding means shall be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC. 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 accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.

In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. This conductor shall have a minimum amperage rating of 115 percent of the nameplate current rating of the source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements shall be permitted to be used.

MAIN OVERCURRENT PROTECTION DEVICE

A main overcurrent protection device shall be provided on the generator. The device shall be factory installed by the

generator manufacturer.

WIRING METHODS

All fixed wiring systems shall be either metallic or nonmetallic liquid tight conduit or shall be type SO or SEO with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit.

Electrical cord or conduit shall not be attached to 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 separated by a minimum of 12", or properly shielded, from exhaust piping and shall be separated from any fuel lines by a minimum of 6".

Electrical cord or conduit shall be supported within 6" of any junction box and at a minimum of every 24" of continuous run. Supports shall be made of nonmetallic materials or corrosion protected metal. All supports shall be of a design that does not cut or abrade the conduit or cable and shall be mechanically fastened to the vehicle.

BREAKER PANEL BOARD

Each individual circuit that is to be powered by the generator shall have a branch circuit overcurrent protection device (circuit breaker). The device shall be sized at not less than 15 amps in accordance with Section 240-3 (Protection of Conductors) of the NEC. If more than 6 individual branch circuits are required on the apparatus, the panel board shall have a main breaker. The panel board shall be readily visible and located so that there is unimpeded access to the panel board controls.

All line voltage conductors located in the main panel board shall be individually and permanently identified. The identification shall reference the wiring schematic or indicate the final termination point. When pre-wiring for future power sources or devices, the unterminated ends shall be labeled showing its function and wire size.

A hinged access door shall be provided on the panel board.

LOAD BALANCING

The breaker panel shall be load balanced to allow the most efficient distribution of the AC load as possible.

BREAKER PANEL LOCATION

The breaker panel shall be located on the lower front wall of the driver’s side compartment ahead of the rear wheels.

FROG DISPLAY

There shall be a FROG D provided with the generator. The FROG D shall automatically sense a generator signal and begin displaying information. The digital meter display shall constantly monitor and display voltage, frequency (accurate to within 1 decimal point) and current draw on two separate lines. The display shall be capable of displaying total accumulated run time hours when the MODE button is pressed.

The FROG meter shall be located adjacent to or below the breaker panel.

FRC SPECTRA MAX LED TELESCOPING LIGHT

Two (2) Fire Research model SPA530-J28 bottom raising telescoping light(s) shall be mounted on the apparatus. The light head shall be 240 volt AC and create 28,000 lumens.

The pole shall be secured in any raised position with a non-directional advanced twist lock locking device. The twist lock mechanism shall have a knurled positive grip. The light(s) shall include a three wire coiled cord which is wired into the electrical distribution panel with an individual breaker for each light (if more than one light).

The light(s) shall be electrically tested so that they are safe for their intended use. The light(s) shall be certified by Underwriter's Laboratories (UL) and shall meet/exceed NFPA 1901.

The telescoping light(s) shall be controlled from the breaker panel.

The telescoping light(s) shall be mounted at the pump panel.

HANNAY ELECTRIC REWIND CORD REEL

There shall be one (1) Hannayl ELFCR1636-10-11-6 electric rewind cord reel(s) provided and properly mounted.

The reel(s) shall be wired to the electrical panel board through flexible PVC conduit. An individual breaker shall be provided at the panel for the reel. A momentary push button switch shall be provided and mounted in close proximity to the reel for activating the electric rewind. The switch shall be labeled "CORD REEL REWIND".

CORD REEL MOUNTING LOCATION

The cord reel shall be mounted in the _____ compartment with access provided by opening the compartment doors.

200' 12/3 SEOW-A ELECTRICAL CABLE

A continuous 200' length of 12/3 SEOW-A electrical cable shall be provided on the reel(s). The cable shall be rated at 600 volts at 194 degrees.

YELLOW ELECTRICAL CABLE

The electrical cable on the cord reel(s) shall be yellow.

AKRON BRASS EJBX LIGHTED JUNCTION BOX

There shall be one (1) Akron Brass EJBX lighted junction box(es) provided. The box shall be 120 volt single circuit and have a large handle shall be provided on the top of the box to allow a gloved firefighter to carry the box with ease.

The box shall provide lighting around the box in accordance with NFPA. The box shall be designed to keep the exterior

electrical components above 2" of standing water and shall be be listed for use in wet locations.

The junction box shall hard wired to the cord. A strain relief shall be provided to protect the cord.

Position #1 shall have a 5-20 GFCI duplex 20 amp 120 volt outlet. (BK-1).

Position #2 shall have a 5-20 duplex 20 amp 120 volt outlet. (229-R/D).

Position #3 shall have a L5-20P single 20 amp twist-lock 120 volt outlet. (224-R).

Position #4 shall have a L5-20P single 20 amp twist-lock 120 volt outlet. (224-R).

The junction box shall be standard gray color.

The receptacle covers shall be standard gray.

JUNCTION BOX HOLDER

An aluminum treadbrite bracket shall be provided to hold the cord reel junction box.

CORD REEL ROLLER ASSEMBLY WITH BALL STOP

A roller assembly with ball stop shall be provided for the cord reel(s). The assembly shall be mounted in a location that will help deflect the cable/hose from the surfaces adjacent to the reel.

MISCELLANEOUS 120/240 VOLT ITEMS

BACKUP CAMERA MOUNTING

The camera for the chassis provided backup camera system shall be mounted on the rear of the apparatus.

FIRE HELMET MOUNTING

The end user of the apparatus shall be responsible for insuring that all helmets are either stored in an exterior compartment or a securely mounted to NFPA standards inside the cab.

APPARATUS BODY BRUSHED FINISH

The apparatus body shall remain its natural # 4 brushed stainless steel finish. No paint shall be applied to the apparatus body.

All seams or flanges on the apparatus body shall be caulked or properly sealed to prevent moisture accumulation in flanged areas.

ELECTROLYSIS CORROSION CONTROL

The apparatus shall be assembled using ECK or electrolysis corrosion control, on all high corrosion potential areas, such as door latches, door hinges, trim plates, fenderettes, etc. This coating is a high zinc compound that shall act as a sacrificial barrier to help minimize electrolysis and corrosion between dissimilar metals. This shall be in addition to any other barrier material that may be used.

APPARATUS BODY UNDERCOATING

The apparatus body shall be undercoated after assembly is completed. A bituminous based automotive type undercoat shall be used. Care shall be taken to avoid undercoat application to items that would hinder normal maintenance.

COMPARTMENT INTERIORS - BRUSHED STAINLESS FINISH

The compartment interiors shall be brushed stainless steel # 4 finish. The brushed finish shall be as provided by the manufacturer of the material.

Interiors with any type of paint, sprayed-on coatings, DA finish, or standard "mill finish" will not be acceptable.

TIRE PRESSURE MONITORING SYSTEM

A cab dash mounted tire pressure monitoring system shall be provided. The system shall monitor tire pressure for each individual tire.

LETTERING

The apparatus dealer shall provide and apply all vehicle lettering and numbering.

1"-6"-1" NFPA REFLECTIVE STRIPE

A 6" reflective stripe shall be applied to the apparatus.

A 1" gap shall be provided on both the top and bottom of the 6" stripe followed by a 1" reflective stripe above and below the upper and lower gap.

A single 6" stripe shall be applied to the front if space does not permit for the 3 stripe pattern.

The striping shall be applied to a minimum of 50% of the length of the apparatus on each side and 25% across the front of the apparatus. The stripe shall comply with NFPA requirements.

PRIMARY REFLECTIVE STRIPE COLOR - WHITE

The primary reflective stripe shall be 680-10 white.

SECONDARY UPPER REFLECTIVE STRIPE COLOR - WHITE

The secondary upper reflective stripe shall be 680-10 white.

SECONDARY LOWER REFLECTIVE STRIPE COLOR - WHITE

The secondary lower reflective stripe shall be 680-10 white.

REFLECTIVE STRIPE - HORIZONTAL

The reflective stripe shall be applied in a straight horizontal line from front to rear. The height of the stripe on the chassis cab and the body shall be as close as possible.

REAR CHEVRON STRIPING

A minimum of 50 percent of the rear vertical surface of the apparatus shall be covered with 6 inch alternating red and fluorescent yellow green retro-reflective striping. The striping shall slope downward away from the centerline of the apparatus at a 45-degree angle.

The retro-reflective material shall conform to the requirements of ASTM D 4956 "Standard Specification for Retro-Reflective Sheeting for Traffic Control", Type I or better.

REAR COMPARTMENT DOOR CHEVRONS

The rear compartment door(s) shall have a reflective chevron covering. The body panels above and below the door shall be chevron covered as well.

ENGINE HORIZONTAL EXHAUST

Shielding shall be provided between the apparatus body and the exhaust pipe if necessary to deflect heat away from the body. The exhaust system shall be designed and installed to comply with EPA equipment requirements and shall not be modified.

LEFT (DRIVER'S) SIDE FUEL FILL DOOR

A chassis fuel fill shall be located in the driver's side rear wheel well. The fill shall be located in the outrigger cover and have a brushed stainless steel hinged door with flush latch. The fuel fill shall be properly vented.

FRONT MUD FLAPS

The front mud flap shall be provided on the chassis.

REAR MUD FLAPS

Heavy duty black rubber mud flaps shall be provided on the rear wheels. The mud flaps shall be attached to the apparatus in the rear wheel well area using heavy duty stainless steel retention straps that are secured into place using stainless steel fasteners.

FRAME RAIL TOW EYES - CHROME PLATED

Two 3/4" chrome plated steel tow eyes shall be attached direct to the end of the frame rails on the rear of the apparatus. The eyes shall have a minimum of a 3" diameter pass through. Each eye shall be attached to the frame rail with a minimum of four 3/4" hardened steel bolts with locking nuts.

BATTERY DANGERS LABEL - FAMA01

A permanent label shall be provided near the battery location that warns of potential injury or death that could be caused by the batteries. The label shall also state precautions that should be taken while working on or around the batteries.

ROTATING SHAFTS DANGER LABEL - FAMA02

A permanent label shall be provided on each side of the frame rail and in any other location(s) where rotating shaft hazards are apparent. The label shall warn of potential injury or death that could be caused by the movement of the shaft(s) as well as precautions that should be taken while working on or around them.

HOT SURFACE DANGERS LABEL - FAMA03

A permanent label shall be provided near any hot surface that warns of potential injury or death that could be caused by contact with the surface. The label shall also state precautions that should be taken while working on or around the surface.

HOT EXHAUST DANGERS LABEL - FAMA04

A permanent label shall be provided near any hot exhaust surface that warns of potential injury or death that could be caused by contact with the surface. The label shall also state precautions that should be taken while working on or around the surface.

SPINNING ENGINE FAN DANGER LABEL - FAMA05

A permanent label shall be provided on both sides of the engine fan. The label shall warn of potential injury or death that could be caused by the movement of the fan as well as precautions that should be taken while working on or around them.

SEATED AND BELTED WARNING LABEL - FAMA07

A permanent label shall be provided that is visible to all occupants that states that they should be seated and belted while the apparatus is in motion. The label shall also state potential injuries or death that could be caused if the safety belts are not used properly.

AIR CONDITIONING REFRIGERANT WARNING LABEL - FAMA09

If the apparatus is equipped with any type of air conditioning system, a permanent label shall be provided that is located in an area that would be visible to service personnel. The label shall state that the system contains R134A, the necessary precautions that should be taken and the dangers of working on or around the system.

CAB INTERIOR EQUIPMENT MOUNTING DANGER LABEL - FAMA10

A permanent label shall be provided inside of the cab warning of the dangers of unsecured equipment inside the cab. The label shall state that all equipment shall be properly secured and also warn of potential injury or death that could be caused by failing to do so.

FIRE SERVICE TIRE RATING LABEL - FAMA12

A permanent label shall be provided inside of the cab in view of the driver while entering the cab warning of the dangers of improper use of the tires on the apparatus. The label shall also warn of potential injury or death that could be caused by improper tire use or condition.

ELECTRONIC STABILITY CONTROL LABEL - FAMA13

If the apparatus is equipped with an electronic stability control system, a permanent label shall be provided inside of the cab in view of the driver warning of the dangers of improper operation of the apparatus and the importance of safe driving. The label shall also warn of potential injury or death that could be caused by improper operation of the apparatus.

MAXIMUM OCCUPANCY LABEL - FAMA14

A permanent label shall be provided inside of the cab in view of the driver stating the maximum number of personnel that can ride in the apparatus. The label shall also warn of potential injury or death that could be caused by exceeding the stated capacity.

DO NOT WEAR HELMET LABEL - FAMA15

A permanent label shall be provided inside of the cab in view of all seated positions stating that helmets should not be worn in cab. The label shall also warn of potential injury or death that could be caused by wearing helmet in cab.

PUMP PANEL DEPLOYABLE STEPS LABEL - FAMA16

A permanent label shall be provided that warns of potential injury or death that could be caused by failing to insure that the pump panel roll out step(s) are in the proper position for use.

VEHICLE BACKING LABEL - FAMA17

A permanent label shall be provided inside of the cab in view of the driver advising of proper procedures to following when the apparatus is in reverse motion. The label shall also warn of potential injury or death that be caused by failing to follow proper procedures.

INTAKE/DISCHARGE CAP PRESSURE LABEL - FAMA18

A permanent label shall be provided in all areas that intakes and discharges are capped. The label shall give instruction on how to properly remove the cap. The label shall also warn of potential dangers, injury or death that be caused by failing to follow proper cap removal procedures.

HOSE RESTRAINT LABEL - FAMA22

A permanent label shall be provided near any hose storage area. The label shall instruct the operator to insure that all hose is properly secured prior to placing the apparatus in motion and to provide warning of potential dangers, including injury or death, in failing to do so.

ACCESS STEPS/LADDER LABEL - FAMA23

A permanent label shall be provided at any area of the apparatus where personnel will be boarding or exiting the apparatus. The label shall instruct the operator in the proper method of climbing into or onto the apparatus as well as exiting and provide indication of potential injury or death that could occur in failing to do so.

TRAINED OPERATOR ONLY LABEL - FAMA25

A permanent label shall be provided on the pump panel that states that only properly trained personnel should operate the apparatus and shall indicate that injury or death could occur as a result.

TRAINED OPERATOR ONLY LABEL - FAMA25

A permanent label shall be provided on the aerial control panel that states that only properly trained personnel should operate the apparatus and shall indicate that injury or death could occur as a result.

NOT A STEP WARNING LABEL - FAMA26

A permanent label shall be provided in any horizontal location that a firefighter may feel tempted to use as a step but is not designed, constructed or intended to be a stepping, standing or walking surface. The label shall state that the surface is not intended for this purpose and indicate potential injury or death in doing so.

COMPARTMENT TOP WARNING LABEL - FAMA26

A permanent label shall be provided on the front and rear of the compartment tops on both sides warning that the area is not designed, constructed or intended to be a stepping, standing or walking surface. The label shall state that the surface is not intended for this purpose and indicate potential injury or death in doing so.

FRONT BUMPER EXTENSION WARNING LABEL - FAMA26

A permanent label shall be provided on the front bumper extension warning that the area is not designed, constructed or intended to be a stepping, standing or walking surface. The label shall state that the surface is not intended for this purpose and indicate potential injury or death in doing so.

BREAKER PANEL WARNING LABEL - FAMA27

A permanent label shall be provided on the breaker panel. The label shall warn of electrical shock hazards, proper service procedures and indicate potential injury or death due to improper use and service.

HYDRAULIC HIGH PRESSURE LEAKS WARNING LABEL - FAMA29

If the apparatus is equipped with any component(s) that are powered by high hydraulic pressure, a permanent label shall be provided near the majority of all hydraulic lines and components.

The label shall warn of potential injury or death that could occur when working on or around any hydraulic component or hose and provide basic safety precautions that should be taken when doing so.

STABILIZER CRUSH WARNING LABEL - FAMA30

A permanent label shall be provided near each stabilizer and at the stabilizer control area warning of potential injury or death that could be caused by the stabilizer. The label shall also indicate safety precautions that should be taken while operating or working around the stabilizer.

STABILIZER PINS AND PADS WARNING LABEL - FAMA31

A permanent label shall be provided at the stabilizer control area warning of potential injury or death that could be caused by the improper use of or failing to use stabilizer pins and pads as well as safety precautions that should be taken when deploying the stabilizers.

STABILIZER PADS WARNING LABEL - FAMA32

A permanent label shall be provided at the stabilizer control area warning of potential injury or death that could be caused by the improper use of or failing to use stabilizer pads as well as safety precautions that should be taken when deploying the stabilizers.

STABILIZERS NOT EXTENDED WARNING LABEL - FAMA33

A permanent label shall be provided adjacent to the 'stabilizer not extended' warning light stating that the stabilizers are not fully extended.

FALL RESTRAINT/SAFETY HARNESS WARNING LABEL - FAMA34

A permanent label shall be provided at the base as well as the ladder tip warning of potential injury or death that could be caused by not using a safety harness and restraint belt not properly attached to the device.

AERIAL ELECTROCUTION WARNING LABEL - FAMA35

A permanent label shall be provided at the base at the aerial control location(s) and pump panel (if apparatus is equipped with a pump) warning of potential injury or death that could be caused by coming into or operating in the area, of power lines and related equipment. The label shall also state safety precautions that should be taken while operating around power lines.

AERIAL ELECTROCUTION WARNING LABEL - FAMA36

A permanent label shall be provided on both sides and rear of the apparatus warning of potential injury or death that could be caused by coming into or operating in the area, of power lines and related equipment. The label shall also state safety precautions that should be taken while operating around power lines.

AERIAL DEVICE LOAD CAPACITY WARNING LABEL - FAMA37

A permanent label shall be provided at the turn table, in the platform (if applicable) and at tip control (if applicable) warning of potential injury of death that could be caused by exceeding rated load capacity of the device. The label shall also state safety precautions relating to wind, ice and surface stability.

AERIAL LADDER RUNG PINCH WARNING LABEL - FAMA38

A permanent label shall be provided at any aerial control location warning of potential injury or death that could be caused by movement of the ladder rungs. The label shall also state safety precautions relating hand and feet placement on the rungs.

AERIAL INSPECTION LABEL - FAMA39

A permanent label shall be provided at the turn table control location warning of potential injury or death that could be caused by failing to follow the instruction manual and inspection/maintenance schedules.

FALL PROTECTION ANCHOR LABEL - FAMA40

A permanent label shall be provided adjacent to any fall protection anchor. The label shall serve as a reminder to properly connect to the anchor.

CAB TILT WARNING LABEL - FAMA41

A permanent label shall be provided inside the driver's door warning of potential injury or death that could be received in the area under or around a tilted cab. The label shall also state safety precautions that should be taken when the cab is tilted.

CAB TILT BUMPER OBSTRUCTION WARNING LABEL

If any potential obstruction exists, a permanent label shall be provided immediately adjacent to the cab tilt switch instructing the individual activating the cab tilt switch to check front bumper for any potential cab contact with bumper mounted equipment prior to tilting cab.

SIREN NOISE WARNING LABEL - FAMA42

A permanent label shall be provided inside the driver's door warning of potential injury that could be received from the noise of the siren. The label shall also state safety precautions that should be taken when the siren is in use.

AERIAL DEVICE OPERATOR ATTENTION LABEL - FAMA47

A permanent label shall be provided at the turn table control panel and tip controls/platform (if applicable) on the pump panel that states that only properly trained personnel should operate the apparatus as well as notice to discontinue use and remove personnel from device in dangerous conditions. The label shall also warn of potential injury or death if proper

rules are not followed.

FLUID CAPACITY LABEL

A permanent plate shall be mounted in the driver's compartment specifying the quantity and type of the following fluids used in the apparatus (if applicable) for normal maintenance:

- Engine oil.
- Engine coolant.
- Chassis transmission fluid.
- Pump transmission fluid.
- Pump primer fluid.
- Drive axle fluid.
- Air conditioning refrigerant.
- Air conditioning lubrication oil.
- Power steering fluid.
- Cab-tilt mechanism fluid (if applicable).
- Transfer case fluid (if applicable).
- Equipment rack fluid (if applicable).
- CAFS compressor system lubricant (if applicable).
- Generator system lubricant (if applicable).
- Front tire cold pressure.
- Rear tire cold pressure.
- Maximum tire speed ratings.

LENGTH, HEIGHT, WEIGHT LABEL

A permanent plate or label shall be provided in the cab in clear view of the driver stating the overall length, height and the gross vehicle weight rating (GVWR), in tons, of the completed apparatus.

The wording on this label shall indicate that the information on the plate/label was current at the time of manufacture and if the overall height of the apparatus changes while the vehicle is in service, the purchaser shall revise the height dimension on the plate.

POWER SOURCE SPECIFICATION LABEL - NFPA

A label shall be permanently attached to the apparatus near the operator’s control panel. The label shall provide the operator with the following information:

Operational Category	Continuous Duty Rating
Rated voltage(s) and type (ac or dc)	In watts
Phase	Single or three
Rated frequency (at rated voltage(s))	Hertz
Rated amperage	Amps
Continuous rated watts	Watts
Power source engine speed	RPM

POWER SOURCE INSTRUCTIONAL LABEL - NFPA

A label shall be permanently attached at any location on the apparatus that the AC power source may be activated. The label shall provide the operator with essential power source operating instructions including the power-up and power-down sequence.

CORD REEL INFORMATION LABEL - NFPA

A label shall be permanently attached adjacent to the cord reel displaying the following information:

- Current rating.
- Current type.
- Phase.
- Voltage.
- Total cord length.

PUMP AND AERIAL CERTIFICATIONS

Where applicable, the following documents shall be provided with the completed apparatus:

- Pump manufacturer's certification of suction capability.
- Special condition certifications, if any.
- Pump manufacturer's approval for stationary pumping.
- Engine manufacturer's certified brake horsepower curve showing maximum governed speed.
- Pump manufacturer's certification of hydrostatic test.
- Pump manufacturer's certification of hydrodynamic test, if required.
- Certification of inspection and tests for the fire pump.
- Certification of inspection and tests for the aerial device.
- NFPA 1911 technical information for inspections.

OPTICAL WARNING LIGHT CERTIFICATION

The emergency warning light system shall be certified using one of the available methods provided for in NFPA.

OPTICAL WARNING LIGHT CERTIFICATION

The emergency warning light system shall be certified using one of the available methods provided for in NFPA.

ELECTRICAL SYSTEM PERFORMANCE CERTIFICATION

A written load analysis and the results of the electrical system performance test shall be provided with the completed apparatus. The load analysis shall include the following:

- Nameplate rating of the alternator.
- The alternator rating under the conditions specified in NFPA.

- Each of the component loads specified in NFPA that make up the minimum continuous electrical load.
- Additional electrical loads that, when added to the minimum continuous electrical load, determine the total continuous electrical load.
- Each individual intermittent electrical load.

ELECTRICAL SYSTEM PERFORMANCE CERTIFICATION

A written load analysis and the results of the electrical system performance test shall be provided with the completed apparatus. The load analysis shall include the following:

- Nameplate rating of the alternator.
- The alternator rating under the conditions specified in NFPA.
- Each of the component loads specified in NFPA that make up the minimum continuous electrical load.
- Additional electrical loads that, when added to the minimum continuous electrical load, determine the total continuous electrical load.
- Each individual intermittent electrical load.

BOOSTER TANK CAPACITY CERTIFICATION

The manufacturer shall certify the capacity of the booster tank. Certification shall be documented on the Manufacturer's Record of Construction document.

CLASS A FOAM TANK CERTIFICATION

Certification of class A foam tank capacity shall be provided.

NFPA SLIP RESISTANCE CERTIFICATION

Any materials used as a stepping, standing or walking surface shall be certified to be compliant with NFPA. Documentation shall be provided with the completed apparatus.

NFPA GENERATOR SYSTEM TESTING

The generator and related electrical components shall be tested to NFPA requirements. Documentation of the tests shall be provided with the completed apparatus.

120/240 VOLT ELECTRICAL EQUIPMENT INSTALLATION

All 120/240 volt electrical equipment shall be installed by the apparatus manufacturer. This shall include any item related to the system, including, but not limited to the following:

- Generator.
- All scene lighting accessories.
- All outlets, and cord reels (where applicable)
- Breaker panel.

To maintain the integrity of the entire apparatus electrical system, all 120/240 volt equipment must be installed by the

apparatus manufacturer. Installation by the apparatus manufacturer will also allow the electrical system to be NFPA tested during the U.L. pump certification testing procedure.

Installation of any portion of the 120/240 volt system by a dealer or service center will not be acceptable. There shall be no exception to this requirement.

WEIGHT CERTIFICATION

Documents from a certified scale showing actual loading on the front, rear and overall apparatus shall be provided. The apparatus shall be scaled with the water tank full but without personnel, equipment and hose.

VEHICLE ROLLOVER STABILITY

The apparatus chassis shall be equipped with a stability control system and shall be certified to NFPA Rollover Stability requirements.

UNDERWRITER'S LABORATORIES TESTING

The apparatus shall undergo an Underwriter's Laboratories Aerial with Pump Certification Test to insure that the completed apparatus meets the requirements of NFPA. The certificate shall be provided to the purchaser upon completion. Underwriter's Laboratories shall also perform the required testing on the entire installed electrical system. Self-certification by the apparatus manufacturer will not be acceptable.

MANUFACTURER'S RECORD OF APPARATUS CONSTRUCTION

All information required to comply with NFPA shall be provided with the completed apparatus.

OPERATIONS AND SERVICE DOCUMENTATION

The apparatus shall be complete with all operation and service documentation covering the apparatus as delivered and accepted. The documentation shall address the inspection, service and operations of the apparatus and all major components as required in NFPA.

"ON-LINE" APPARATUS BODY OWNER'S MANUAL

Upon delivery, the end user shall be instructed on how to access applicable documentation pertaining to the operation of the apparatus and components included on the aparatus body through an on-line web based secure site.

FAMA FIRE APPARATUS SAFETY GUIDE

One (1) FAMA Fire Apparatus Safety Guide(s) shall be provided with the completed apparatus.

STATEMENT OF EXCEPTION - NFPA MISCELLANEOUS REQUIRED EQUIPMENT

The customer shall be responsible for providing all NFPA required miscellaneous equipment that is not contained within these specifications. All required equipment must be properly installed on the apparatus and in working condition prior to

the apparatus being placed into service.

FAMILIARIZATION AND DEMONSTRATION

Upon completion of the new apparatus, an authorized properly trained representative of the manufacturer shall provide a a "Familiarization and Demonstration" course of the apparatus and related components.

The Department shall provide the representative with a written list, by full proper names, of the individual(s) that are to receive the overview. Upon completion of the overview, each person in attendance will be required to acknowledge, by signature, that they understand the operation of the apparatus and all related components.

Items to be included in the course shall include all items listed in NFPA 1900 7.19.2.7.2.2.

CHASSIS FAMILIARIZATION

Familiarization of the apparatus shall include the following:

- How to locate gauges or indicators and check all fluid levels and operational use of the apparatus.
- How to tilt the chassis cab or hood assembly for access to the engine, fire pump (if applicable), or aerial control (if applicable), or any other device to allow access to fluids or for required maintenance.
- Interior cab controls, instruments, mirrors, safety devices or alarms, brake operations, transmission control, pump controls (if applicable) exhaust regeneration (if applicable), seat adjustments, warning light engagement and other operational equipment.

Fire Pump:

- Setting the parking brake, proper transmission gear and the fire pump engagement operations.
- Throttle control.
- Primer and tank-to-pump operation.
- Use of pressure control device.
- Tank refilling operations.
- Proper operation of discharge controls.
- Proper shutdown and draining of the system.

Generator:

- Proper engagement (if driven by the chassis).
- Start up, operation and shut down of the generator.
- Monitoring of controls and instruments.

Aerial System:

- Positioning and locating the apparatus for safe operations.
- Chassis parking brakes and engagement of hydraulic system.
- Deployment of stabilization devices and use of ground pads.
- Operation of elevation, extension, and rotation of the aerial device.
- Operation of waterway, nozzle and other firefighting devices.
- Operation and use of breathing air system if applicable.
- Specific aerial device maintenance and service areas for operator's.
- Shutdown and return to service operations.
- Operation of tip/platform controls where applicable.

- General familiarization and demonstration of aerial device.
- Review of all safety devices, interlocks, and operational hazards.

POST ACCEPTANCE TRAINING REQUIREMENTS

After apparatus acceptance, the Department shall be responsible for ongoing training of personnel. The Department shall not allow untrained or undertrained personnel to operate the apparatus or any included feature of the apparatus.

DUO-SAFETY 4FP 4' FIBERGLASS PIKE POLE WITH D HANDLE - two (2)

There shall be two (2) Duo-Safety 4FP 4' fiberglass pike pole(s) with D handle provided and mounted on the apparatus.

DUO-SAFETY 6FP 6' FIBERGLASS PIKE POLE - two (2)

There shall be two (2) Duo-Safety 6FP 6' fiberglass pike pole(s) provided and mounted on the apparatus.

DUO-SAFETY 8FP 8' FIBERGLASS PIKE POLE - two (2)

There shall be two (2) Duo-Safety 8FP 8' fiberglass pike pole provided and mounted on the apparatus.

DUO-SAFETY 12FP 12' FIBERGLASS PIKE POLE - two (2)

There shall be two (2) Duo-Safety 12FP 12' fiberglass pike pole(s) provided and mounted on the apparatus.

V.R.S. Sales Ltd

== 75' Aerial Ladder, 500# Tip, OEM - 10.320 01/16/25 ==

MANUALS

The aerial manufacturer shall provide the following manuals pertaining to the aerial device:

Two (2): Operators' manuals.
Two (2): Parts manuals in digital format.
Two (2): Electrical and Hydraulic Diagrams in digital format.

WARNING/INFORMATION LABELS

Warning and information labels shall be provided in appropriate locations to alert the operator of potential hazards and operating instructions. All warning and informational labels (non-vendor specific) shall be provided in compliance with the current NFPA Standard for Automotive Fire Apparatus, applicable regulations in effect as of the contract signing date, and installed in the appropriate locations to alert the operator of potential hazards and operating instructions.

AERIAL LADDER DEVICE DEMONSTRATION - (3) CONSECUTIVE DAYS

A factory trained and authorized instructor shall provide three (3) consecutive days of on-site classes after apparatus acceptance. Topics covered in the class shall include:

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

- Operation of tip controls and platform controls if equipped

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

WARRANTY - AERIAL DEVICE

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.

WARRANTY - AERIAL DEVICE COMPONENTS

Purchaser shall receive a General Two (2) Years or 36,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0002. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

WARRANTY - TELESCOPIC WATERWAY ASSEMBLY

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.

OEM Provided & Installed Hydraulic Generator on Apparatus

MAXIMUM OVERALL LENGTH REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum overall length.

MAXIMUM OVERALL HEIGHT REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum overall height.

MAXIMUM WHEEL BASE REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum wheel base.

75 FOOT REAR MOUNT AERIAL LADDER SPECIFICATIONS

GENERAL INFORMATION

The aerial ladder assembly shall be a three (3) section telescoping steel ladder, with a pre-piped waterway, steel turntable, torque box and outriggers.

INTENT OF AERIAL SPECIFICATIONS

The intent of these specifications is to describe a telescoping elevating ladder of the true ladder type. It shall consist of three (3) steel ladder sections, a steel turntable, a tube torque box and two outriggers. The rated vertical height of the unit shall be **75'** and the rated horizontal reach shall be **66** '.

It is the intent of the purchaser that the device must meet all the requirements of the current NFPA Standard for Automotive Fire Apparatus, applicable regulations in effect as of the contract signing date. It is also the intent of the purchaser to secure a fire service proven piece of apparatus that shall be manufactured in the U.S.A.

It is not the intent of the purchaser to deviate from this requirement; therefore, 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.

DESIGN STANDARDS

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:

1. All structural 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 rated capacity and the dead load. This 2:1 structural safety factor meets the American National Standards Institute (ANSI) and the current NFPA Standard for Automotive Fire Apparatus, applicable regulations in effect as of the contract signing date.

2. 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.

3. The aerial device shall be capable of sustaining a static load one and one-third times it's rated 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.

4. 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 will not occur.

5. The aerial shall be capable of operating with a rated tip load of either of the two of the following conditions:

A. Conditions of high wind of up to 38 mph.
B. Conditions of icing, up to a coating of .25” over the entire aerial structure.

The manufacture shall state what wind and ice conditions their aerial device is capable of operating without reducing the rated tip load. NO EXCEPTION!

All of the design criteria must be supported by the following test data:

1. Strain gauge testing of the complete aerial device certified by a **Registered Professional Engineer**.

2. Analysis of deflection data taken while the aerial device was under test load.

3.Hydraulic component operating and burst strength testing.

MATERIAL STANDARD

All structural materials used in the aerial shall be certified by the mill of the manufactured material. Materials that are not certified shall not be acceptable.

AERIAL DEVICE MOUNTING

The elevating aerial device turntable shall be rear mounted thus providing the following vehicle benefits:

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

2. Increased compartmentation, hose load and water capacity in body, resulting from the aerial being raised to clear the cab.

3. Shorter vehicle wheelbase.

4. Shorter overall length of vehicle.

HEIGHT AND REACH

The height of the unit shall be a minimum of **75'** as measured by the current NFPA Standard for Automotive Fire Apparatus, applicable regulations in effect as of the contract signing date, which requires the rated vertical height of an aerial ladder 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 bidder will state the height of the unit.

The horizontal reach of the unit shall be a minimum of **66'** as measured by the current NFPA Standard for Automotive Fire Apparatus, applicable regulations in effect as of the contract signing date, 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." The bidder shall state the reach of the unit.

WELDMENT FIXTURES

To ensure exact tolerances between parts and part interchangeability, all weldments shall be manufactured in fixtures. To further insure weld integrity in all weldments, all aerial device fixtures must be able to position the weldments in the number 1 flat welding position resulting in maximum weld penetration in the welded material for both the tack and final weld process of the aerial device.

AERIAL APPARATUS CERTIFICATIONS (TYPE 1)

The aerial device shall be tested in compliance with the current NFPA Standard for Automotive Fire Apparatus, applicable regulations in effect as of the contract signing date.

The following tests shall be conducted by personnel holding a Level II certification to detect defects and improperly secured components:

1. 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.

2. Ultrasonic inspection shall be used to detect any flaws in pins, bolts and other critical mounting components. The bolts shall be tested after they have been torqued to ensure the bolt was not damaged.

3. All extension/retraction cables shall be tested and certified by the cable vendor.

4. Functional tests, load tests, stability tests and visual structural examination shall be performed. These tests will determine any unusual deflection, vibration, or instability characteristic of the unit.

5. Hydraulic oil shall be sample tested prior to delivery.

6. A waterway system flow/pressure test shall be performed.

Upon completion of the preceding inspections, an independent third party testing company shall issue a Type I Certificate of Inspection indicating that all specified standards have been satisfied.

TESTS

The following test shall be conducted to the aerial device prior to delivery; all listed tests shall be witnessed and certified to ensure the device meets all requirements of the current NFPA Standard for Automotive Fire Apparatus, applicable regulations in effect as of the contract signing date.

1. 1-1/2:1 DYNAMIC STABILITY AND LIFT TEST - A test of the apparatus shall be performed that the aerial device 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 must be raised, lowered and rotated without evidence of instability.

2. 1-1/3:1 DYNAMIC STABILITY AND LIFT TEST - A test of the apparatus shall be performed that the tip and aerial device 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 must be raised, lowered and rotated without evidence of instability.

3. 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 degree turn smoothly and without undue vibration in not over 120 seconds.

4. 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 aerial device with the unit at full extension and zero degree elevation. The unit shall be capable of performing this test while loaded to its rated tip load capacity.

5. WATER TOWER TEST #2 - A test of the apparatus shall be performed to test the ability to discharge 1000 gallons per minute, 90 degrees to the side of the aerial device with the unit at full extension, zero degree elevation. The unit shall be capable of performing this test while loaded to its rated tip load capacity.

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.

Spartan will provide partial 3rd party certification for testing aerial weldments / assemblies, aerial function / timing and cylinder drift tests. OEM is responsible to price and provide final 3rd party test and certification (stability, electrical load and pump/water flow) to be completed at OEM location.

AERIAL PAINTING

Prior to any painting, all weldments such as the outrigger beams, torque box, turntable, and aerial ladder sections shall be shot blasted, cleaned and inspected to ensure 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. The paint shall be PPG Industries Delta® brand, applied throughout a multi-step process. All painting shall be done in atmosphere controlled spray booths. The weldments will be primed with a zinc corrosive inhibitor and an Epoxy 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.

AERIAL DEVICE PAINT

The aerial ladder sections, Turntable base, side plates and deck structure shall be painted the same color unless specified otherwise.

TORQUE BOX PAINT

SIGN PANEL PAINT

The egress shall be left in a "Natural" Stainless Steel finish.

The finished paint color shall be (to match) 2185 white.

The finished paint color shall be (to match) 2185 white.

The finished paint color shall be (to match) 9000 black.

The finished paint color shall be (to match) 33723 silver enamel.

TEMPORARY TRANSPORT PACKAGE

Temporary mudflaps and DOT lighting (Stop, Tail, Turn) shall be provided behind the rear axle on each side of the apparatus for transport to the body builder's location.

HYDRAULIC SYSTEM

The hydraulic system shall provide power in as efficient a manner as possible. The system shall use a piston type load sensing pump and shall be capable of operating under any rated load condition and aerial position at normal engine idle (slow idle) or governor controlled fast idle. The pump shall be capable of generating sufficient flows to allow multiple function operation without significant loss of speed.

The system shall not be dependent upon an auxiliary cooler to control system temperature.

POWER TAKE OFF (PTO)

The apparatus chassis shall be equipped with a "Hot-Shift" power take-off (PTO) driven by the chassis transmission as described elsewhere within these specifications. The PTO shall be actuated by an electric switch located inside the cab. An indicator light shall be located in the cab to show when the PTO is engaged.

A master "Aerial Power" switch shall be provided for engagement of all aerial device hydraulic functions and 12-volt power. The "Aerial Power" circuit shall only engage with the parking brake applied and the transmission in neutral or drive if the fire pump (if equipped) is engaged.

An indicator light shall be located in the cab to show when the "Aerial Power" circuit is energized. The emergency pump circuit shall be controlled separately.

OUTRIGGER/AERIAL INTERLOCK

The aerial hydraulic system shall include an interlock feature that will prevent the accidental operation of the outriggers during aerial operation. This interlock shall also prevent accidental operation of the aerial device prior to the outriggers being properly deployed.

In the event of electrical failure, the operator shall be able to override the hydraulic system to operate the aerial device or outriggers for continuous, uninterrupted operation. A 5,000 psi hydraulic oil pressure gauge shall be provided and installed at the override location to monitor the overall pressure of the hydraulic system.

HYDRAULIC OIL RESERVOIR

A 34 gallon hydraulic oil reservoir shall be provided to supply the needs of the hydraulic system. The tank shall be constructed from 7 gauge aluminum, which shall be welded at all interior and exterior seams.

Gated suction and drain lines shall be provided between the oil reservoir and the primary hydraulic pump. The tank fill shall be provided with a strainer screen, vent cap and magnetic drain plug. There shall be a sight level gauge for checking fluid levels.

The tank shall be cleaned and free from all contaminants before adding any fluid.

HYDRAULIC SYSTEM FILTRATION

Outgoing and return line filtration shall be provided. The pressure and return filters shall be easily accessible for maintenance.

Outgoing filtration shall be in the form of a pressure line filter installed between the hydraulic pump and entrance to any system components. The filter shall have an absolute rating of ten (10) microns. The pressure filter shall have a bypass circuit protected by a 50-psi 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.

A filter condition indicator shall be provided.

The return line flow shall be filtered by means of a return line filter. This filter shall have an absolute rating of ten (10) microns.

EMERGENCY HYDRAULIC PUMP SYSTEM

In the event of failure of the main hydraulic pump or vehicle engine, the unit shall be equipped with an emergency hydraulic pump.

The pump shall be plumbed into the hydraulic system and shall be electrically driven from the chassis batteries. The emergency pump shall be capable of limited functions of the ladder and outriggers to stow the unit. The pump shall be controlled from a switch located at the emergency override station unless otherwise specified.

The emergency pump shall have a separate hydraulic oil supply line, attached directly to the hydraulic oil reservoir. A shutoff valve shall be provided and a check valve shall be incorporated on the pressure side of the pump.

OUTRIGGER SYSTEM HYDRAULIC CONTROL VALVES

A directional control valve that is designed for parallel hydraulic circuit operations shall control the outrigger cylinder system. 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. Each valve shall be equipped with a heavy-duty electric solenoid for electric control of the outrigger from the remote operator's station.

LIFT, EXTENSION AND ROTATION HYDRAULIC CONTROL VALVE

A three-function hydraulic proportional valve bank shall control ladder functions. The valve shall be located at the turntable console area with access for maintenance as needed.

HYDRAULIC HOSE, TUBING AND FITTINGS

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 Nitrile elastomers and shall have 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: 100 R2 or 100R12.

AERIAL HYD, PUMP

The aerial hydraulic pump shall be drive shaft driven directly from the chassis provided PTO.

The pump shall be "Thru Drive" in design to allow the generator hydraulic pump to be directly attached and powered by a single PTO output.

ELEVATION SYSTEM

Two (2) double-acting lift cylinders shall provide smooth, precise elevation from 2 degrees below horizontal to 78 degrees above horizontal. Units that do not operate below minus 6 degrees shall not be acceptable.

The lift cylinders shall have a 6" internal diameter, 3-1/2" diameter cylinder rod and a 36-1/8" stroke. Integral cylinder holding valves shall be provided to prevent the unit from lowering should the charge lines be severed at any point within the hydraulic system. Units that do not use holding valves on the cylinders shall not be acceptable. A hydraulic holding valve shall be provided in the elevation circuit to retain the aerial ladder in its bed when the vehicle is in motion.

The elevation cylinders shall be provided with both rod and piston "hydraulic cushions". The cushions shall serve to decelerate the cylinder near the end of its stroke resulting in a smooth stop at full cylinder stroke.

AERIAL INTERLOCK SYSTEM

A limit switch at the aerial travel support shall be provided to prevent operation of the outriggers/stabilizers once the aerial device has been elevated from the nested position.

EXTENSION/RETRACTION SYSTEM

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/retraction cylinders shall be equipped with integral (on the cylinder) holding valves to prevent the unit from falling should the charge lines be severed any point within the hydraulic system.

The extension cylinders shall be provided with both rod and piston "hydraulic cushions". The cushions shall serve to decelerate the cylinder near the end of its stroke resulting in a smooth stop at full cylinder stroke.

Cylinders in excess of 25 feet with the rod extended, or that require the attachment of the rod to the mid section, shall not be desirable for two (2) reasons that are not consistent with the level of quality desired by the purchaser:

- Rod attachment to the mid section requires that the lower rung rail cannot be sealed from the atmosphere and therefore long-term corrosion cannot be adequately controlled.

- The cylinder shall be subjected to the buckling forces caused by normal ladder deflection.

Cables attached to the base and mid ladder sections shall be routed over sheave wheels on the base section and cylinder sheave mount. This cabling arrangement shall act as a stroke multiplier to provide full-power ladder extension and retraction.

Dual extension/retraction cables shall have a minimum safety factor of 5:1 and shall be of the following diameters:

- Mid Section: 1/2"
- Fly Section: 5/16"

EXTENSION INDICATORS

Reflective numerals shall be affixed to the inside of the handrail of the base section opposite the turntable control console. The numerals shall be at appropriate intervals indicating total aerial extension in 10-foot increments. A band on the first fly section shall align with these marks at the appropriate extension distance. An additional stripe shall be provided between the numbered stripes to indicate each 5 feet of aerial extension.

The extension indicator color shall provide a high contrast with the color of the ladder section to which it is applied.

This shall make the length of aerial extension easily readable by the operator by merely glancing at the indicators.

The extension markers shall be provided in red reflective material.

LADDER SLIDE MECHANISM

UHMW slide pads shall be provided on each ladder section for load transfer between sections. Slide pads shall be used on both upper and lower bearing surfaces and to control side sway of the sections.

The pads shall utilize low coefficient of friction materials to reduce the resistance between the pads and ladder sections. The ladder rails shall be sprayed with a rust prohibitive paint designed to ride on a set of pads which require no greasing of the rails.

In order to maintain a high “in service” level of operation, the ladder shall be designed to require minimum amounts of lubrication.

AIR/ELECTRIC LADDER TRACK

All air and electric line routing from the turntable to the tip of the aerial device shall be accomplished using a flexible conduit system. Routing shall be such that cables shall be fully enclosed except at points of transition between sections.

The conduit shall run along the handrail uprights, between the ladder sections, so the conduit does not decrease the interior width of the ladder.

ROTATION SYSTEM

An external tooth monorace bearing shall be provided for 360 degree continuous rotation in either direction. To ensure proper bearing installation and long service life, surfaces of both the open base bearing plate and the turntable bearing plate shall be milled. Units that do not have milled bearing surfaces shall not be acceptable.

The bearing shall be bolted to the turntable and bolted to the open base support plate, using 7/8" diameter Grade 8 bolts. A planetary drive, powered by a hydraulic motor, shall provide precision rotation control throughout 360 degrees of rotation. A spring-applied, hydraulically-released disc type brake shall be furnished to provide positive braking of the turntable assembly against reactionary forces such as water flow and gravity.

The turntable rotation bearing shall be easily accessible for lubrication and retorquing of bolts from the turntable side, for ease of access.

Access to the turntable bearing bolts which requires the removal of the ground ladders and/or the ground ladder slide assemblies, during bolt retorquing process, shall not be acceptable.

ROTATION SAFETY SYSTEM

The Rotation Safety System shall be designed to prevent the operator who has primary operational responsibility from rotating the aerial device into an overturning mode. This system senses outrigger and outrigger jack positioning in conjunction with the aerial device movement. Indicator lights (IQAN CLASSIC) or on-screen graphics and warning messages (IQAN ADVANCED) shall be provided on the turntable control console to indicate outrigger not fully deployed status.

If the aerial device operator attempts to rotate the aerial device (in excess of approximately 5 degrees beyond vehicle center) towards the side of the vehicle in which the outriggers are not fully deployed, the Rotation Safety System shall sense this fault and prevent the aerial from rotating further in said direction. At this point, only rotation to the fully deployed outrigger side shall be allowed.

CLASSIC CONTROLS - IQAN MOTION CONTROL SYSTEM

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 an IQAN MD4-7 Display. The display shall be completely weatherproof, shock resistant, and include an LCD touchscreen. 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. The display will have built-in troubleshooting and shall allow troubleshooting and error history monitoring for the entire motion control system. The IQAN motion control system shall receive rotation information from an absolute encoder. The encoder shall provide absolute position of the turntable at any given position from 0 degrees to 360 degrees of rotation.

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-screen:

- Elevation angle of the ladder.
- Continuous ladder extension in percent.
- Degrees of rotation from the centerline of the vehicle.
- E-ZONE Cab and Body Avoidance warning.
- Short Jack warning.
- Cradle alignment indicator.
- Rung alignment indicator.
- Warning messages to alert the operator to potentially unsafe conditions or errors.
- Aerial waterway flow and pressure (if applicable).
- Breathing air pressure (if applicable).
- Loadminder information (if applicable).

Controlled by the IQAN system, a collision avoidance 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 near the truck.

The E-Zone™ system shall automatically stop rotation or lowering functions when the device is in the defined zone. The system shall sound an audible alarm and display a warning on the display while in an avoidance zone. To leave an avoidance zone, the operator must either rotate in the opposite direction or elevate the ladder above the defined zone.

Standard avoidance zones include:

- Cab avoidance (except for TDA units).

- Body avoidance.
- Tiller Cab avoidance (TDA units only).

The IQAN system shall also provide E-Cush™ technology when approaching extension limits, elevation limits, or avoidance zones. In these cases, the system shall throttle down allowed hydraulic flow the closer the aerial is to the physical stop or programmed zone. This will provide a more controlled stop.

IQAN Flowminder (IF SELECTED, replaces the need for a secondary display on the console)

TORQUE BOX

A torsion box sub-frame shall be installed over the chassis frame rails. The torque box assembly shall be capable of withstanding torsion and bending loads.

The torque box shall be bolted to the chassis frame with .75" SAE grade 8 bolts and Huck fasteners. The torque box shall be constructed of 0.375" steel bottom plate and a stiffened top plate.

The torque box shall be designed to enclose the ground ladders.

OUTRIGGER/STABILIZER DEPLOYMENT WARNING ALARM

An audible warning device shall be provided to warn personnel in the vicinity of the apparatus that the outriggers/stabilizers are in motion.

Whenever an outrigger/stabilizer control is actuated, the device shall produce a pulsing tone, separate and distinctive from that of other audible warning systems provided on the apparatus. When the control is returned to its neutral position, the signal shall cease.

The warning device shall automatically enable the dB level to be raised or lowered by measurements of the ambient noise level.

OUTRIGGER REFLECTIVE STRIPING

Retro-reflective material shall be provided and installed on both sides of the horizontal and vertical beams of the outriggers.

TURNTABLE/TURNTABLE DECK

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 steel bearing plate and matching top plate shall be machined to insure proper fit to the rotation bearing. Manufactures that do not mill both bearing surfaces shall not be acceptable.

Embossed aluminum diamond plate deck shall cover the entire turntable frame, providing a walking surface.

An embossed aluminum diamond plate access step shall be mounted at heel of the ladder.

All handrails shall be a minimum of 42” high. For ease of grip, the handrail shall be manufactured from 1-1/4" O.D. knurled stainless steel material.

Turntables with the drive motor or breathing air bottles mounted in any walking areas (front or rear) of the turntable shall not be acceptable.

The right side of the turntable deck shall be designed to allow access to the side hose bed.

TURNTABLE ACCESS SAFETY CHAINS

The one (1) turntable handrail opening shall be equipped with safety chains at the rear of the turntable.

CRADLE ALIGNMENT INDICATOR ARROWS

Stainless steel arrows shall be installed on the turntable surface in view of the operator when standing at the turntable control station. The arrows will assist the operator in indicating the alignment of the aerial ladder with the ladder travel cradle. The indicators shall be overlaid with red reflective material.

Indicators shall be shipped loose for OEM installation.

HYDRAULIC, ELECTRIC AND WATER SWIVEL

Hydraulic power to the turntable hydraulic circuits shall be provided through a three-port, high pressure hydraulic swivel permitting 360 degrees continuous rotation of the turntable.

Water shall be transferred to the aerial waterway by means of a 4" internal diameter water swivel, permitting 360 degree continuous rotation.

Electric power to the turntable electric circuits shall be comprised of a minimum of twenty two (22) ring collector assembly, permitting 360 degree continuous rotation of the turntable.

HEAVY DUTY LADDER TRAVEL SUPPORT

A heavy duty ladder rest shall be provided for support of the ladder in the travel position. The ladder rest shall be attached to the chassis frame rails immediately rearward of the cab. The travel support shall be fabricated

from heavy duty steel tubing and shall be designed to be easily removable to allow for ease of maintenance and repair if necessary.

The base section of the ladder shall contain stainless steel scuff plates where the ladder comes into contact with the ladder support. The travel rest shall be painted to match the torque box unless otherwise specified on the paint form.

AERIAL TRAVEL SUPPORT ILLUMINATION

A single Fire Tech model FT-WL-2000 series work light shall be installed to illuminate the travel support during nightime operations.

AERIAL LADDER SECTION CONSTRUCTION

The aerial ladder shall be comprised of three (3) sections. The ladder section design objective shall complement the support of heavy or uneven aerial loads at low angles of elevation, or at full extension. Each ladder section shall be fabricated in fixtures assuring uniformity, replace ability, or changeability, and shall be welded in accordance with American Welding Standards (AWS) criteria by certified welders.

The ladder sections shall be constructed of welded high-strength steel throughout. Each section shall be trussed diagonally, vertically, and horizontally, using steel rectangular tubing, reinforced at critical points for extra rigidity, thus giving a high strength-to-weight ratio. Each section shall be equipped with 1-1/4" diameter rungs, placed at no greater than 14-inch centers for ease of climbing.

To assure the level of quality desired, each ladder section shall include the following:

1. Base Section - All rails, including the lower rail, shall be sealed from the atmosphere. The base ladder section shall include a lift cylinder supporting structure welded into place where the lifting cylinders attach to the aerial ladder base section.

2. Mid Section and Fly Section - All rails, including the lower rung rail, shall be sealed as described for the base section.

All ladder rungs shall be welded to each rung rail section in two (2) places. K-bracing shall be provided between the rungs and the ladder rung rails to provide the ability to discharge water at 90 degrees to the side of the ladder.

All rungs shall be round and covered with deeply serrated, replaceable, heavy duty rubber sheaths, which shall be both glued and clamped securely to the rungs with metal clips. Due to high maintenance cost and difficulty in replacement of anti-slip rung surface and the inability to provide a safe surface during icing conditions, ladder designs that do not utilize rubber rung covers shall not be acceptable.

LADDER SECTION DIMENSIONS

All bidders shall state in the space provided below their dimensions on the unit proposed. Dimensions proposed must equal or exceed these specified.

Handrail	Height	Width
Base Section	**22.125**	**33.75”**
Mid Section	**19.625"**	**30.50"**
Fly Section	**17.50"**	**26.00”**

LADDER EGRESS

A removable bolt on stainless steel egress shall be installed on the tip of the fly section. Only certified structural fasteners shall be utilized to attach the egress to the tip of the fly section. Additionally, the fasteners shall be stainless steel. This design shall allow for easy replacement should the egress become damaged during rescue operations. This shall prevent the department from experiencing serious downtime, as is common with welded on egresses. For this reason, a design that allows the egress to be welded to the fly section shall not be acceptable.

The egress shall have knurled handrails with an extended radius design at the tip to eliminate corner joints, and increase strength. The straight design of the egress will allow the aerial waterway monitor/nozzle to be placed up to 30 degrees above horizontal centerline for additional range of water stream operation.

The rungs on the egress shall be held to the same design load criteria as the rungs of the aerial ladder sections. This mean that each egress rung shall be able to support the tip load rating of the aerial device, distributed across the rung as specified in NFPA Standard for Automotive Fire Apparatus. This shall be in excess of that required by the aforementioned standard.

FLY SECTION FOLDING STEPS

Two (2) spring-loaded aluminum folding steps with non-slip aluminum grating inserts shall be installed in the fly section of the aerial to provide footing for an operator stationed at the tip of the fly section. Springs shall hold the steps in place during use and secure the steps in the stowed position when not in use. Each step shall have a surface area of 72 square inches and a minimum design load of 500 lbs. A folding Toe "Kick Plate" shall be provided at the forward edge of each step surface.

OUTRIGGERS

Two (2) "H" style, "out and down" outriggers shall be located behind the rear wheels to provide vehicle stability during aerial tower operation.

The extension of the horizontal outrigger beams shall provide a 14’ outrigger stance. Five (5) slide pads shall be provided for each outrigger beam assembly to provide smooth operation and to extend the life of the outrigger.

For ease of service, the vertical jack cylinders shall be designed so they can be removed from the top. Designs that require the removal of the horizontal beams or dropping the cylinder out the bottom shall not be acceptable.

EXTENSION CYLINDERS

Each extension cylinder shall have a 3.00" internal bore with a minimum 2.00" chrome plated cylinder rod.

The extension cylinders shall be fully enclosed within the outrigger beam, preventing them from being nicked or scored during operations on the fire ground.

JACK CYLINDERS

Each jack cylinder shall have a 5.00" internal bore with a 3.50" chrome plated cylinder rod. 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.

To minimize side loading and subsequent seal failure of the vertical jack cylinder, a 1.62" wide load bearing UHMW wear band shall encircle the jack cylinder barrel, providing load distribution over a 360 degree plane. Designs which could allow load concentration on one side of the vertical jack cylinder shall not be acceptable.

In order to provide faster setup time for the aerial on the fire ground, and to eliminate the possibility of damage to the housing should the outriggers be retracted with the jack pins left in, designs that require the use of jack pins shall not be acceptable.

For ease of maintenance, the outer jack tube shall be designed so that the cylinder can be removed from the top. Designs that require the outrigger beams to be removed or the jack cylinder positioned over a pit for jack cylinder removal, shall not be acceptable.

OUTRIGGER BEAM PAINT

OUTRIGGER PADS

A permanently attached self-centering floating type 1/2" thick, 154 sq. inch steel pad shall be provided on each outrigger. The pad shall swivel and require no adjustment during outrigger set-up.

The outrigger pad shall be attached without the use of a bearing type swivel due to maintenance required on this design. Outrigger pads that pivot in only one plane shall not be acceptable due to their inability to distribute loading over the total pad surface on uneven terrain.

AUXILIARY OUTRIGGER GROUND PADS

Two (2) auxiliary outrigger ground pads shall be provided for additional load distribution. Each ground pad shall measure 1" x 24" x 24" (576 sq. in.) and shall be fabricated of Composite Plastic. Each ground pad shall be equipped with a handle for easy use. The auxiliary pads shall be stored in locations that are readily accessible.

AERIAL/OUTRIGGER INTERLOCK SYSTEM

An interlock system shall be provided between the outriggers and aerial device that prevents the operation of the aerial until the operator places all jacks in the load-supporting configuration. All jacks shall be equipped with a ground force sensitive switch that closes only when the jack is firmly in contact with the ground.

Until all the switches close, hydraulic power shall not be transmitted to the turntable, hence preventing aerial operation. Green indicator lights shall be provided on the outrigger control panel to indicate that the outrigger foot is in firm contact with the ground and in a load supporting position.

AERIAL WATER SYSTEM

The aerial waterway system shall be capable of being supplied by both the pump and an external water source with the inlet on the rear of the apparatus.

All piping from the pump or the inlet at the rear of the apparatus to the riser pipe below the turntable swivel shall be 4" Schedule 40 aluminum 6061 T6 pipe. Piping at the rear of the torque box shall terminate with a Victaulic groove for installation of OEM provided and installed rear inlet piping/termination fittings. Piping at the front of the torque box shall also terminate with a Victaulic groove for connection to the OEM provided and installed fire pump and plumbing. A 4" tee shall join the pump discharge line and the rear inlet line.

A 4" water swivel shall be located in the riser pipe from the tee permitting 360-degree continuous rotation of the aerial device.

A 4" heel pin swivel connection between the aerial device waterway and the turntable swivel permitting water tower operations thru full aerial elevation range shall be provided.

A 2-1/2" adjustable relief valve shall be located beneath the turntable to protect the water system from excessive pressures.

The plumbing shall include a drain valve system provided and installed by the body builder to drain the aerial device water system.

WATER SYSTEM FRICTION LOSS

As per NFPA, the friction loss (total system loss less head loss) shall not exceed 100 psi at 1000 GPM flow

with the aerial device at full horizontal extension. The pressure reading for friction loss measurement shall be taken at the base of the monitor and at a point below the waterway swivel.

TELESCOPIC WATERWAY

An anodized aluminum telescopic waterway shall be mounted beneath the center of the aerial ladder. The waterway shall have a 4" base section tube, 3-1/2" mid section tube and a 3" fly section tube.

AERIAL WATERWAY FLOWMETER AND PRESSURE DISPLAY

The apparatus shall be equipped with an IQAN Flowmeter and pressure gauge function to give the aerial operator an indication of the actual volume (in GPM or LPM) and pressure (in PSI or kPA) of water being discharged through the aerial waterway. The information will be displayed on the turntable screen.

The system shall consist of:

1. IQAN system to monitor and display flow and pressure.

2. A flow paddle wheel mounted in the aerial waterway.

3. A pressure transducer mounted in the aerial waterway.

The flowmeter and pressure gauge shall be checked and calibrated prior to delivery of the apparatus.

MOVABLE MONITOR FEATURE

The aerial ladder waterway monitor shall be capable of being positioned at either the fly section for water tower operation or at the next lower ladder section for rescue. The aerial ladder shall be capable of full extension and operation when the waterway is connected to either section of the ladder.

The waterway and monitor shall have a positive lever type latching system to secure them either to the tip of the fly section or next lower section of the aerial ladder. A latching system requiring a pin to be removed from one location and repositioned into another location shall not be acceptable due to the possibility of dropping the latching pin.

The monitor shall be remotely operable from either position and shall transfer the electrical power and controls automatically. When operated from the rescue position (mid section), the vertical range of motion of the monitor shall be limited to 0 degrees (horizontal center line of the aerial ladder).

The monitor and nozzle function switches shall be located on the movable monitor bracket, readily accessible from inside the ladder section. The monitor and nozzle control station shall consist of three (3) individual spring loaded, self-centering, and weather resistant toggle switches, suitably illuminated for nighttime operations.

Due to problems associated with aligning electrical connectors used to transfer power between rescue and water tower positions, the power transfer shall be achieved by a cable carrier system.

AERIAL WATER SYSTEM

A minimum 4" water swivel shall connect from the aerial waterway supply piping to the telescopic aerial waterway. The water swivel shall permit full operation at any elevation of the aerial device. The aerial waterway pipes shall be designed to reduce friction loss in the waterway.

All aerial waterway piping shall be completely removable for service or replacement. Aerial designs in which the waterway is welded or utilized for structural integrity of the aerial shall not be acceptable.

A 4" Akron model 7942 series, electrically actuated butterfly valve shall be provided below the turntable in the plumbing to the aerial waterway. The valve shall allow the aerial inlet to be used to supply the aerial waterway when open, or as a discharge from the pump when it is closed. The valve shall be controlled from an Akron 9333 Navigator Pro™ 2.0 (Open/Closed) Valve Controller located on the pump panel.

ELECTRICALLY CONTROLLED MONITOR

An Akron Brass, model 3480 StreamMaster II, 2000 gpm electric monitor, constructed of lightweight Pyrolite, shall be installed on the outer end of the telescoping aerial waterway.

The monitor and nozzle functions shall be actuated from the aerial station(s) specified.

The monitor shall be capable of a vertical sweep of 165 degrees, and a horizontal sweep of 180 degrees (90 degrees to each side of the aerial center line).

NOTE: Monitor operation above 0 degrees (horizontal center line of the aerial ladder) reduces payload capacity by 250 lbs.

A "Monitor Stow" function shall be provided on the turntable control console.

NOZZLE

An Akron Brass, model 5177, Akromatic 1250 electric combination fog and straight stream nozzle with automatic flow mechanism that provides a flow range of up to 1250 gpm at 80 psi shall be provided. The nozzle shall be constructed of durable, lightweight Pyrolite and shall have electric pattern selection from straight stream to wide fog controlled by a 12V motor and linear ball screw, a manual override pattern control knob, and a built-in stream shaper.

LADDER CAPACITIES

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.

AERIAL CRITERIA AND STANDARDS

The following aerial ladder capabilities shall be established in the unsupported configuration with the truck level, the outriggers fully extended and lowered to relieve the chassis weight from the suspension. The capacities shall be based upon 360 degree continuous rotation and up to full extension. The ratings shall be based on average weight of personnel on ladder at 250 lbs. each.
The ladder shall be designed to permit 500 pound tip load, up to full ladder extension from -2 to 78 degree elevation. In addition to the 500 pound personnel allowance, 100 pound allowance shall be included for equipment mounted on the fly section of the ladder.

Elevation	Tip or Evenly Distributed Load
-2 to 45 degrees	500 pounds @ tip or 1000 pounds evenly distributed
46 to 78 degrees	500 pounds @ tip or 2000 pounds evenly distributed

WATER TOWER OPERATION CAPABILITIES:

The ladder and water system shall be designed to permit 1500 GPM flow with water stream parallel to ladder or 90 degrees to either side of the ladder.

Ladder Elevation	Stream Elevation	Tip Load
-2 to 78 degrees	From Parallel to -135 Degrees	500 Pounds
-2 to 78 Degrees	From Parallel to 30 Degrees	250 Pounds

OPERATIONS ON GRADES

The aerial unit shall be capable of leveling on a slope of 8 degrees. Operation beyond this limit shall be at operator's discretion. Devices that cannot provide this leveling capability are not acceptable.

OUTRIGGER CONTROL STATIONS

Two (2) illuminated outrigger control stations shall be provided, one (1) on each side of the rear of the vehicle. For safety, ease of deployment and operational speed, the outrigger controls shall be of the electric over hydraulic proportional type with manual overrides immediately accessible.

The outrigger controls shall be enclosed in a recessed compartment to protect each control from damage or accidental movement. The controls shall be located such that the operator can see the outrigger that is being operating. Body designs that block the view of the outriggers from the control station shall not be acceptable.

Each outrigger control function shall be operated independently, so that the vehicle may be set up in restricted areas or on uneven terrain.

Each outrigger control station shall incorporate the following:

-Outrigger beam and jack actuator controller
-Beam Out & Jack Set deployed indicator light
-One Fast idle switch
-One Ladder Operation indicator light
-Warning decals

OUTRIGGER PADDLE CONTROLS

Each outrigger control station on the apparatus body shall incorporate paddle type actuators to control the outrigger beam and jack functions.

AERIAL CONTROL STATION

There shall be an aerial control station located 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.

The control console lid shall be provided with a black Line X finish.

The control console shall be equipped with manual ladder function joystick controllers.

TURN TABLE CONTROL STATION - IQAN CLASSIC

The control station shall be located on the left side of the turntable, as the operator is facing the tip of the nested aerial ladder (Driver's side of the apparatus), in order to provide increased visibility of the ladder tip while operating the controls. The pedestal shall be set forward, away from the operator, to provide additional foot room.

The pedestal shall be constructed from an aluminum framework with an aluminum diamond plate wrapper. Access to the electrical and hydraulic components mounted inside the console shall be provided by either hinged doors or removable access panels. A hinged cover shall be provided over the console to protect the panel and controls. The top of the console shall be angled to face the operator for ease of ladder operation.

The console and turntable working areas shall be illuminated for night operations, and shall have all controls and indicators clearly marked.

Controls and indicators provided shall include, but shall not be limited to;

Three (3) ladder function control levers.

A recessed, foot operated **"Operator Presence"** switch, which shall protect against accidental movement of the control handles.

Rung alignment indicator light and on screen display for ladder climbing operations.

Cradle alignment indicator light and on screen display.

Engine high idle control switch.

Emergency Pump button (hardwired).

Intercom controls in console lid.

Backlit bubble type angle indicator on base section near console.

Illuminated load chart.

Tracking Light Switch.

Tip Light Switch.

Monitor/Nozzle Control Switches.

Monitor Stowed Indicator.

Flowminder Display (If Selected).

Hydraulic Oil Pressure Gauge

Any additional switches and/or displays required by other options described elsewhere within these specifications, as available space permits.

AERIAL ELECTRICAL SYSTEM

12VDC electrical power for the aerial device shall be drawn from the chassis electrical system and routed through major segregated circuits and into an electric collector ring assembly. The circuits shall provide power for the aerial device controls, indicators, and interlocks; other circuits shall power auxiliary equipment such as lights, intercom, etc.

The electric collector ring assembly shall provide power for electrical ground, aerial device control functions, 12 and 120 volt systems. The collector rings shall be enclosed in a sealed, weatherproof housing to prevent corrosion.

All aerial device wiring shall be multi-conductor, copper 24 gauge (minimum), color-coded, with thermosetting cross-linked polyethylene insulation. All aerial device wiring shall be in pre-engineered harnesses with each circuit identified by number and color code. Harness connections shall be through locking, weatherproof, guided pin connectors.

AIR HORN BUTTON

An air horn button shall be provided at the turntable control console.

AERIAL PTO HOURMETER

An hourmeter shall be installed in the chassis cab as described elsewhere within these specifications. The hourmeter shall be wired to the PTO circuit to record hours of PTO operation for the aerial device. The hourmeter shall aid in scheduling preventative maintenance as outlined in the operator's manual.

AERIAL HOUR DISPLAY

The actual hours that the aerial device is in motion shall be displayed digitally on the turntable control console display screen to aid in scheduling preventative maintenance as outlined in the operator's manual.

ENGINE HIGH IDLE ACTUATOR

The high idle actuator shall be used to raise the engine RPM to a preset level for proper aerial operation. The high idle switches shall be located in the chassis cab, at the stabilizer control station and the aerial control station.

For the safety of personnel and equipment, the high idle system shall not activate unless the interlock systems have been applied, the chassis spring brake is set, and the transmission is in neutral.

OUTRIGGER LIGHTING AND REFLECTIVE STRIPING

Each outrigger shall be equipped with the following light and reflective striping package:

OUTRIGGER LIGHTING

There shall be an LED ground illumination light located at each outrigger or downrigger location to illuminate the footpad area.

A total of two (2) lights shall be provided.

The lights provided shall be TecNiq model T44 series, 4" round, 8 diode LED lights.

OUTRIGGER WARNING LIGHT WIRING

Wiring for an OEM provided and installed NFPA warning light shall be provided at each outrigger jack tower location.

COMMUNICATION SYSTEM

A Fire Research ICA910 Series (ACT) communication system shall be provided and installed between the aerial device tip and the aerial operator's position. The communication speaker at the tip shall require no operator attention to transmit or receive. The transmitting receiving volume controls shall be located at the aerial operator's position. These control modules shall have an LED volume display and push-button volume control.

Tec Niq T40-R series LED red flashing lights shall be provided as warning lights when the outrigger beams are extended.

Each stabilizer beam shall be equipped with a total of two (2) lights, one (1) facing forward and one (1) facing rearward. The lights shall be mounted inboard of vertical jack tubes.

Both the foot pad illumination lights and the flashing outrigger warning lights shall be activated by the aerial power switch in addition to the warning light being active in "Response" and "On Scene" mode.

AERIAL SPOTLIGHTS

All 12VDC aerial spotlights lights shall be mounted below handrail height, so as not to increase the overall height of the vehicle.

TRACKING LIGHTS

Two lights shall be mounted at the rear of the base ladder section handrails, one (1) each side.
Lights shall be switched from the turntable control station.

12VDC TIP LIGHT(S)

Two (2) 12VDC lights shall be mounted at the tip of the fly ladder section, one (1) each side. The lights shall be mounted below handrail height, so as not to increase overall height of the vehicle.

Whelen Pioneer Plus PFH1 series, 12 VDC, single panel, LED floodlight(s) shall be provided. The light head shall draw 6.5 amps and generate 12,000 lumens.

Whelen Micro Pioneer series, 45 watt, 4,100 lumen, 12 VDC, LED work/scene light(s) shall be provided.

An "On/Off" switch and black handle shall be provided along with three (3) interchangeable lenses for each light. Each light shall be installed on a low profile stainless steel swivel pedestal mount.

Light(s) shall include a white finish housing.

Light(s) shall include a white finish housing.

The LED lighting shall be Blue.

Light(s) shall include a die cast aluminum housing, powder coated white, and a polycarbonate chrome finish cover.

TURNTABLE WORK LIGHTS

Five (5) TecNiq, model #E03-W000-1, LED turntable work lights shall be installed in the turntable step cover to illuminate the turntable area.

WALKWAY ILLUMINATION

The climbing area of the ladder shall be continuously illuminated utilizing a series of light emitting diodes (LED's). The LED's shall be located on both sides of each ladder section and shall be positioned near the ladder rails to maintain a clear walking area. A switch shall be provided on the turntable control console to activate the rung illumination lighting.

AERIAL 110 VAC WIRING

The AC wiring up the ladder highly flexible with very fine copper stranding.

One (1) 110 volt, 20 amp electrical circuit, utilizing a single (min. 12 gauge, 3 conductor) electrical cable, shall be provided to the tip of the aerial device. An AC electrical connection point, for the OEM supplied and installed AC power source, shall be provided below the rotation point of the aerial device. The wiring connection points shall be clearly identified at the rotation swivel for the OEM to connect AC power.

OUTLET AT THE AERIAL TIP

A single 110 VAC outlet shall be provided at the tip of the aerial fly section, officer's side, as specified.

One (1) NEMA L5-20R, 120-volt, 3-wire, twist lock receptacle shall be installed. The receptacle shall have a 20-ampere rating and include a spring-loaded weather resistant cover if mounted in an exterior location. The receptacle shall be wired to the aerial 110VAC circuit.

AERIAL TIP 110V LIGHTING

Two (2) Whelen Pioneer Plus, PFP1AP1, single lamp, 120 volt, LED flood lights, with PBAPEDD pedestal mounts, shall be installed at the tip of the aerial device, one (1) each side. The lights shall be wired to the aerial 110-volt circuit and shall be equipped with a switch on each lighthead.

EQUIPMENT

AERIAL SPECIAL LABELS

Legible, permanent signs shall be installed in positions readily visible to the operator to provide operational directions, warnings, and cautions. The signs shall describe the function of each control and provide operating instructions.

Warning and caution signs shall indicate hazards inherent in the operation of the aerial device. These hazards shall include, but shall not be limited to:

Electrical hazards involved where the aerial device does not provide protection to the personnel from contact with, or near proximity to, an electrically charged conductor.

Electrical hazards involved where the aerial device does not provide protection to ground personnel who might contact the vehicle when in contact with energized electrically charged conductors.

Hazards from stabilizer motion.

Hazards that can result from failure to follow the manufacturer's operating instructions.

AERIAL DEVICE SPECIFICATION PLACARD

A permanent label shall disclose the following information relative to the aerial device:

Make

Model

Serial number

Date of manufacture

Rated capacity (s)

Rated vertical height

Rated horizontal reach

Maximum hydraulic system pressure

Hydraulic oil type and capacity

All other appropriate labels to ensure safe operation of the aerial device shall be permanently affixed in conspicuous locations.

APPARATUS LEVEL INDICATOR(S)

One (1) bubble type level indicator(s) shall be provided to assist in the aerial device setup. The leveling indicator(s) shall be backlit and color coded indicating the following conditions:

"Green" **Safe Operating Zone.**
"Yellow" **Caution Operating Zone.**
"Red" **Do Not Operate Zone – Reposition Apparatus.**

FORE/AFT LEVEL

An additional backlit leveling indicator shall be provided and installed to measure fore and aft level of the vehicle.

AERIAL SIGN PANELS

There shall be a total of two (2) Aerial sign panels provided and installed on the outside of the aerial base section, one (1) each side, for fire department lettering. Each sign panel shall have a lettering surface of approximately 13" wide x 120" long.

AERIAL FILTER & LUBE SET

The following Filters and Lube shall be shipped loose to assist in maintenance of the aerial device as described by the manufacturer:

· One (1) Pressure Filter element
· One (1) Return Filter element
· Four (4) Tubes, "Lube-A-Boom" aerial grease
· One (1) Can, "Lube -A- Rope".

AXE MOUNTING

There shall be a mount provided and installed for a flat head axe in the fly section of the aerial. The axe mount shall include a receptacle that will cover the entire axe head and a PAC bracket to secure the axe handle.

The mounting location shall be on the opposite side of the aerial ladder from the control console.

V.R.S. Sales Ltd