

# Quotation

	Description
0100-011 <b>MODEL</b>	Metro Star
8012-019 <b>CUSTOMERS / OEMS</b>	Toyne (TOY1000)[1002914]
8011-019 <b>MODEL YEAR</b>	Model Year - 2019
8001-001 <b>COUNTRY OF SERVICE</b>	Country of Service United States Of America
8017-001 <b>CAB AND CHASSIS LABELING LANGUAGE</b>	Cab and Chassis Labeling Language English
8006-009 <b>APPARATUS TYPE</b>	Apparatus Type Pumper
8008-001 <b>VEHICLE TYPE</b>	Vehicle Type Straight Truck
8008A-000 <b>VEHICLE ANGLE OF APPROACH PACKAGE</b>	Vehicle Angle of Approach NFPA Minimum 8.00 Degrees
0104-001 <b>AXLE CONFIGURATION</b>	Axle Configuration 4x2 (Rear Axle Drive Only)
0101-003 <b>GROSS AXLE WEIGHT RATINGS FRONT</b>	GAWR Front 20000#
0102-004 <b>GROSS AXLE WEIGHT RATINGS REAR</b>	GAWR Rear 27000#
8010-101 <b>PUMP PROVISION</b>	Pump Provision Driveline Midship w/Auto Park Brake "N"
8009-013 <b>WATER &amp; FOAM TANK CAPACITY</b>	Water & Foam Tank Capacity 750 to 1250 Gallons
1000-004 <b>CAB STYLE</b>	Cab Style MFD 10" Raised Roof
8101-105 <b>OCCUPANT PROTECTION</b>	Occupant Protection Advanced Protection System
1501-002 <b>CAB FRONT FASCIA</b>	Cab Frt Fascia Classic
1518-025 <b>FRONT GRILLE</b>	Cab Frt Grille Hinged Classic Styled
1551-002 <b>CAB UNDERCOAT</b>	Cab Undercoat
1552-002 <b>CAB SIDE DRIP RAIL</b>	Cab Side Drip Rail
1521-002 <b>CAB PAINT EXTERIOR</b>	Cab Paint Exterior Two Tone
1533-001 <b>CAB PAINT MANUFACTURER</b>	Cab Paint Manufacturer PPG
1522-367 <b>CAB PAINT PRIMARY/LOWER COLOR</b>	Cab Paint Primary/Lower Color PPG Red FBCH 71528 ALT
1523-244 <b>CAB PAINT SECONDARY/UPPER COLOR</b>	Cab Paint Sec/Upper Color PPG White FBCH 2185
1524-002 <b>CAB PAINT EXTERIOR BREAKLINE</b>	Cab Paint Exterior Breakline Classic
1515-004 <b>CAB PAINT PINSTRIPE</b>	Cab Paint Pinstripe 1/2" Gold Leaf
8013-042 <b>CAB PAINT WARRANTY</b>	Cab Paint Warranty 2019 (10) Year/100,000 Miles
1334-038 <b>CAB PAINT INTERIOR</b>	Cab Paint Int Multi-tone Dark Red
1005-001 <b>CAB ENTRY DOORS</b>	Cab Entry Doors (4)
1101-102 <b>CAB ENTRY DOOR TYPE</b>	Cab Entry Door Type Barrier Free w/Pollak Switches
1322-002 <b>CAB INSULATION</b>	Cab Insulation
8004-026 <b>CAB STRUCTURAL WARRANTY</b>	Cab Structural Warranty 2019 (10) Year/100,000 Miles
9001-006 <b>CAB TEST INFORMATION</b>	Cab Test Information Crash Test ECE-R29/SAE J2420/SAE J2422
5000-018 <b>ELECTRICAL SYSTEM</b>	Elec System 12V DC Multiplex
5005-218 <b>MULTIPLEX DISPLAY</b>	MUX Display Weldon Touchscreen IV (2) L/R Sw Pnl
5046-035 <b>MULTIPLEX DISPLAY SPECIAL LAYOUT</b>	Multiplex Display Special Layout Toyne INC
5004-002 <b>LOAD MANAGEMENT SYSTEM</b>	Load Management System Multiplex
5622-003 <b>DATA RECORDING SYSTEM</b>	Data Recording Sys Vehicle Data Weldon MUX
5031-007 <b>ACCESSORY POWER</b>	Accessory Pwr & Gnd Stud 40A Batt Dir & 15A Ign Sw & 200A Mstr Sw w/Fus OEM Conn
5030-066 <b>AUXILIARY ACCESSORY POWER</b>	Aux Acc Pwr & Gnd Stud Bhd Sw Pnl 60A Mstr Sw

5011-001	<b>EXTERIOR ELECTRICAL TERMINAL COATING</b>	Exterior Electrical Terminal Coating Spray On Plasti Dip
1701-158	<b>ENGINE</b>	Engine Diesel 450HP Cummins L9 - EPA 2017
1329-001	<b>CAB ENGINE TUNNEL</b>	Cab Engine Tunnel Small/Medium
1731-002	<b>DIESEL PARTICULATE FILTER CONTROLS</b>	DPF Ctrl Regeneration Sw & Inhibit Sw
1718-002	<b>ENGINE PROGRAMMING HIGH IDLE SPEED</b>	Engine Programming High Idle Speed 1250 RPM
1719-005	<b>ENGINE HIGH IDLE CONTROL</b>	Engine High Idle Ctrl Manual and Automatic w/MUX
1710-001	<b>ENGINE PROGRAMMING ROAD SPEED GOVERNOR</b>	Engine Programming Road Speed Governor Enabled
1713-010	<b>AUXILIARY ENGINE BRAKE</b>	Aux Engine Brake Compression Brake w/VG Turbo
1708-008	<b>AUXILIARY ENGINE BRAKE CONTROL</b>	Aux Engine Brake Ctrl Off/Low/Med/High MUX
1720-003	<b>ELECTRONIC ENGINE OIL LEVEL INDICATOR</b>	Elec Engine Oil Level Indicator
1715-001	<b>FLUID FILLS</b>	Fluid Fills Fwd For Med Displacement Cap
1735-001	<b>ENGINE DRAIN PLUG</b>	Engine Drain Plug
8002-001	<b>ENGINE WARRANTY</b>	Engine Warranty Cummins (5) Year/100,000 Miles
1707-130	<b>REMOTE THROTTLE HARNESS</b>	Rmt Throttle Harness PSG FRC INControl 300/400 Top Mnt Shift Interlock
1721-001	<b>ENGINE PROGRAMMING REMOTE THROTTLE</b>	Engine Program Rmt Throttle Off
1727-001	<b>ENGINE PROGRAMMING IDLE SPEED</b>	Engine Programming Idle Speed 700 RPM
2704-002	<b>ENGINE FAN DRIVE</b>	Engine Fan Drive Clutch
2701-019	<b>ENGINE COOLING SYSTEM</b>	Engine Cooling Sys Serial Flow Medium/Package Drop-Out Prov/Rwd Sight Glass
2711-005	<b>ENGINE COOLING SYSTEM PROTECTION</b>	Engine Cooling System Protection Light Duty Skid Plate Paint Frame Color
2708-001	<b>ENGINE COOLANT</b>	Engine Coolant Extended Life
2706-003	<b>ELECTRONIC COOLANT LEVEL INDICATOR</b>	Elec Low Coolant Level Indicator
2705-002	<b>ENGINE PUMP HEAT EXCHANGER</b>	Engine Pump Heat Exchanger
2709-004	<b>COOLANT HOSES</b>	Coolant Hoses Silicone Heater & Radiator w/Cab Int Rubber Hoses
2710-002	<b>ENGINE COOLANT OVERFLOW BOTTLE</b>	Engine Coolant Overflow Bottle
2801-009	<b>ENGINE AIR INTAKE</b>	Engine Air Intake Filtration and Restriction w/SS Housing & Replaceable Element
2802-003	<b>AIR INTAKE PROTECTION</b>	Air Intake Protection Light Duty Skid Plate Painted Frame Color
2901-068	<b>ENGINE EXHAUST SYSTEM</b>	Eng Exhaust Sys Under Frm RH Single Module Aftertreatment Inboard
2907-003	<b>DIESEL EXHAUST FLUID TANK</b>	Diesel Exhaust Fluid Tank LH 6 Gal Fill Thru Rr Step
2902-010	<b>ENGINE EXHAUST ACCESSORIES</b>	Engine Exh Acc Exh Temp Mitigation
2906-002	<b>ENGINE EXHAUST WRAP</b>	Engine Exhaust Wrap
1801-015	<b>TRANSMISSION</b>	Transmission Allison 3000 EVS
1806-002	<b>TRANSMISSION MODE PROGRAMMING</b>	Transmission Mode Programming 5th Startup/5th Mode
1811-004	<b>TRANSMISSION FEATURE PROGRAMMING</b>	Transmission Feature Programming Allison Gen V-E I/O Package 198/Pumper
1815-002	<b>ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR</b>	Elec Transmission Oil Level Indicator
1807-005	<b>TRANSMISSION SHIFT SELECTOR</b>	Transmission GEN V-E Shift Sel Key Pad/Push Button
1814-002	<b>TRANSMISSION PRE-SELECT WITH</b>	2nd Gear Pre-Select

## AUXILIARY BRAKE

1808-007	<b>TRANSMISSION COOLING SYSTEM</b>	Transmission Cooling System
1817-001	<b>TRANSMISSION DRAIN PLUG</b>	Transmission Drain Plug
8005-001	<b>TRANSMISSION WARRANTY</b>	Transmission Warranty Allison (5) Year
2005-009	<b>PTO LOCATION</b>	PTO Location 8:00/4:00
3001-001	<b>DRIVELINE</b>	Driveline Spicer 1710
3004-003	<b>DRIVELINE GUARDS</b>	Driveline Guards (2)
3005-061	<b>MIDSHIP PUMP / GEARBOX</b>	Midship Pump Jackshaft w/Toyne Module Holes
3008-054	<b>MIDSHIP PUMP / GEARBOX MODEL</b>	Midship Pump/Gearbox Model Hale QMAX
3048-005	<b>MIDSHIP PUMP GEARBOX DROP</b>	Midship Pump Gearbox Drop Hale "X"
3009-024	<b>MIDSHIP PUMP RATIO</b>	Midship Pump Ratio 2.32:1 (23)
3010-1040	<b>MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE</b>	Midship Pump Location C/L Suction to C/L Rear Axle 104.0"
3109-060	<b>FUEL FILTER/WATER SEPARATOR</b>	Fuel Filter/Wtr Separator Fleetguard FS1098 w/Lt & Alarm
3111-001	<b>FUEL LINES</b>	Fuel Lines Nylon
3104-001	<b>FUEL SHUTOFF VALVE</b>	Fuel Shutoff Valve at Primary Filter
3103-008	<b>ELECTRIC FUEL PRIMER</b>	Electric Fuel Primer Engine Sply Electric Lift Pump
3101-101	<b>FUEL TANK</b>	Fuel Tank 50 Gallon
3130-005	<b>FUEL TANK MATERIAL AND FINISH</b>	Fuel Tank Material SS & Finish Spar-Liner
3131-005	<b>FUEL TANK STRAP MATERIAL AND FINISH</b>	Fuel Tank Strap Material Galvanized
3102-007	<b>FUEL TANK FILL PORT</b>	Fuel Tank Fill Port LH Rwd/RH Mid
3115-002	<b>FUEL TANK DRAIN PLUG</b>	Fuel Tank Drain Plug Magnetic
2401-003	<b>FRONT AXLE</b>	Frt Axle Meritor MFS 20000# Beam
8059-015	<b>FRONT AXLE WARRANTY</b>	Front Axle Warranty Meritor 2019
2405-002	<b>FRONT WHEEL BEARING LUBRICATION</b>	Frt Wheel Bearing Lube Synthetic
2502-002	<b>FRONT SHOCK ABSORBERS</b>	Frt Shock Absorbers Bilstein
2501-016	<b>FRONT SUSPENSION</b>	Frt Suspension 10 Leaf 20000-21500#
2601-006	<b>STEERING COLUMN/WHEEL</b>	Steering Column/Wheel Tilt/Telescopic 18" 4 Spoke
2609-002	<b>ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR</b>	Elec Power Steering Fluid Level Indicator
2603-011	<b>POWER STEERING PUMP</b>	Power Steering Pump TRW w/Passive Cooler
2606-009	<b>FRONT AXLE CRAMP ANGLE</b>	Front Axle Cramp Angle 48L/44R Degrees
2610-003	<b>POWER STEERING GEAR</b>	Power Steering Gear TRW TAS 65 w/Assist
2608-001	<b>CHASSIS ALIGNMENT</b>	Chassis Alignment
3401-003	<b>REAR AXLE</b>	Rear Axle 27000# Meritor RS-25-160
3403-002	<b>REAR AXLE DIFFERENTIAL LUBRICATION</b>	Rear Axle Differential Lubrication Synthetic
8061-012	<b>REAR AXLE WARRANTY</b>	Rear Axle Warranty Meritor 2019
3411-002	<b>REAR WHEEL BEARING LUBRICATION</b>	Rear Wheel Bearing Lubrication Synthetic
3408-008	<b>VEHICLE TOP SPEED</b>	Vehicle Top Speed 68 MPH
3501-032	<b>REAR SUSPENSION</b>	Rear Susp Reyco 79KB Spring 21000-31500# Conventional
3601-012	<b>FRONT TIRE</b>	Frt Tire 365/70R 22.5 Michelin XZA
3602-012	<b>REAR TIRE</b>	Rear Tire 12R 22.5 Michelin XDN2
3413-513	<b>REAR AXLE RATIO</b>	Rear Axle Ratio 5.13

3614-030	<b>TIRE PRESSURE INDICATOR</b>	Tire Pressure Ind Frt & Rr LED
3701-013	<b>FRONT WHEEL</b>	Frt Wheel Alcoa 22.5 x 10.5 Alum
3703-027	<b>REAR WHEEL</b>	Rr Whl Alcoa LvL One 22.5 x 8.25 Alum
3725-002	<b>WHEEL GUARDS</b>	Wheel Guards Between Dual Rear Wheels
3205-014	<b>BRAKE SYSTEM</b>	Brake System ABS/ATC/ESC Sgl Axle MUX Btn
3206-003	<b>FRONT BRAKES</b>	Frt Brakes Meritor EX225 Disc 17"
3207-005	<b>REAR BRAKES</b>	Rr Brakes S-Cam Drum 16.5" x 7" Cast Iron Shoe
3208-001	<b>PARK BRAKE</b>	Prk Brake Rr Wheels Only
3204-015	<b>PARK BRAKE CONTROL</b>	Prk Brake Ctrl Ctr Dash Mnt 6" LH of Ctr
3214-001	<b>REAR BRAKE SLACK ADJUSTERS</b>	Rr Brake Slack Adjusters Meritor
3212-002	<b>REAR BRAKE DUST SHIELDS</b>	Rr Brake Dust Shields
3202-005	<b>AIR DRYER</b>	Air Dryer Wabco System Saver 1200 Bhd LH Batt Box
3215-004	<b>FRONT BRAKE CHAMBERS</b>	Frt Brake Chambers MGM Type 24 Long Stroke
3210-015	<b>REAR BRAKE CHAMBERS</b>	Rr Brake Chambers TSE 30/36 Long Stroke
3320-001	<b>AIR COMPRESSOR</b>	Air Compressor Wabco SS318 18.7 CFM
3339-004	<b>AIR GOVERNOR</b>	Air Governor Mnt on Air Dryer Bracket
3303-011	<b>MOISTURE EJECTORS</b>	Moisture Ejectors Auto/Auto Htd Wet Tank
3307-001	<b>AIR SUPPLY LINES</b>	Air Sply Lines Nylon
3334-002	<b>AIR TANK SPACERS</b>	Air Tank Spacers Inboard 1.5"
2103-2220	<b>WHEELBASE</b>	Wheelbase 222.0"
2106-0470	<b>REAR OVERHANG</b>	Rear Overhang 47.0"
2101-002	<b>FRAME</b>	Frame Double Channel 35.00" Width
8007-024	<b>FRAME WARRANTY</b>	Frame Warranty Lifetime 2019
2111-096	<b>MISC FRAME OPTIONS</b>	Misc Frame Options Toyne Pumper Body Mnt Hole Pattern #1
2117-028	<b>FRAME CLEAR AREA</b>	Frame Clear Area Inside LH Rail 34" To 46" Fwd From C/L of R/A
2110-207	<b>FRAME PAINT</b>	Frame Paint Hot Dipped Galvanized Addl Components Ptd Gloss Black w/Gap Sealant
2201-002	<b>FRONT BUMPER</b>	Frt Bumper Structural Steel Channel Severe Duty
2202-005	<b>FRONT BUMPER EXTENSION LENGTH</b>	Frt Bumper Extension Length 21"
2206-001	<b>FRONT BUMPER PAINT</b>	Frt Bumper Paint Primary/Lower Cab Color
2208-006	<b>FRONT BUMPER APRON</b>	Frt Bumper Apron For 21" Extension
2237-005	<b>FRONT BUMPER DISCHARGE</b>	Front Bumper Discharge 2.5" LH Frame Mnt Plumbing
2211-003	<b>FRONT BUMPER COMPARTMENT CENTER</b>	Frt Bumper Cmpt Ctr w/Cover
2210-002	<b>FRONT BUMPER COMPARTMENT COVER HARDWARE</b>	Frt Bumper Cmpt Cover Hardware Gas Cylinder/D-ring
5503-022	<b>MECHANICAL SIREN</b>	Mechanical Siren Federal Signal Q2B Pedestal Mnt
2218-002	<b>MECHANICAL SIREN LOCATION</b>	Mech Siren Location Frt Bmpr Apron LH OB
5501-020	<b>AIR HORN</b>	Air Horn (2) 21" Round Hadley E-Tone
2216-010	<b>AIR HORN LOCATION</b>	Air Horn Location (2) Frt Bmpr Face R/L IB
2232-002	<b>AIR HORN RESERVOIR</b>	Air Horn Reservoir (1) 1200 Cu In
5504-067	<b>ELECTRONIC SIREN SPEAKER</b>	Elect Siren Speaker 100W Whelen SP123BMC
2217-005	<b>ELECTRONIC SIREN SPEAKER LOCATION</b>	Elec Siren Speaker Location Frt Bmpr Face RH OB
2203-006	<b>FRONT BUMPER TOW HOOKS</b>	Frt Bumper Tow Hooks Painted Side Rwd

2301-001	<b>CAB TILT SYSTEM</b>	Cab Tilt System
2303-003	<b>CAB TILT LIMIT SWITCH</b>	Cab Tilt Limit Sw Preset Limit
2305-001	<b>CAB TILT CONTROL RECEPTACLE</b>	Cab Tilt Ctrl Receptacle Temp
2306-002	<b>CAB TILT LOCK DOWN INDICATOR</b>	Cab Tilt Lock Down Indicator
1401-009	<b>CAB WINDSHIELD</b>	Cab Windshield
1402-005	<b>GLASS FRONT DOOR</b>	Glass Frt Dr Roll Down/XDuty Regulator
1407-001	<b>GLASS TINT FRONT DOOR</b>	Glass Tint Frt Dr Automotive Green
1419-012	<b>GLASS REAR DOOR RIGHT HAND</b>	Glass Rr Dr RH Roll Down/XDuty Regulator
1430-001	<b>GLASS TINT REAR DOOR RIGHT HAND</b>	Glass Tint Rr Door RH Automotive Green
1412-013	<b>GLASS REAR DOOR LEFT HAND</b>	Glass Rr Dr LH Roll Down/XDuty Regulator
1431-001	<b>GLASS TINT REAR DOOR LEFT HAND</b>	Glass Tint Rr Door LH Automotive Green
1410-003	<b>GLASS SIDE MID RIGHT HAND</b>	Glass Side Mid RH Fxd 16"W x 26"H
1432-001	<b>GLASS TINT SIDE MID RIGHT HAND</b>	Glass Tint Side Mid RH Automotive Green
1409-003	<b>GLASS SIDE MID LEFT HAND</b>	Glass Side Mid LH Fxd 16"W x 26"H
1433-001	<b>GLASS TINT SIDE MID LEFT HAND</b>	Glass Tint Side Mid LH Automotive Green
1614-204	<b>CLIMATE CONTROL</b>	Climate Ctrl Htr Defroster A/C SGM Ovrhd Alum 10-24" RR Short Plenum
1632-002	<b>CLIMATE CONTROL DRAIN</b>	Climate Control Drain Gravity
1617-108	<b>CLIMATE CONTROL ACTIVATION</b>	Climate Ctrl Actv MUX
1620-018	<b>HVAC OVERHEAD COVER PAINT</b>	HVAC Overhead Cover Paint Multi-tone Dark Red
1603-003	<b>A/C CONDENSER LOCATION</b>	A/C Condenser Location Roof Mnt Fwd Ctr
1601-013	<b>A/C COMPRESSOR</b>	A/C Compressor TM-31/QP-31
1608-002	<b>CAB CIRCULATION FANS FRONT</b>	Cab Circulation Fans Frt (2) Outboard
1530-001	<b>UNDER CAB INSULATION</b>	Under Cab Insulation Engine Tunnel
1327-001	<b>INTERIOR TRIM FLOOR</b>	Interior Trim Floor
1302-001	<b>INTERIOR TRIM</b>	Interior Trim Vinyl
1368-002	<b>REAR WALL INTERIOR TRIM</b>	Rear Wall Interior Trim Vinyl
1306-006	<b>HEADER TRIM</b>	Header Trim XDuty
1305-014	<b>TRIM CENTER DASH</b>	Trim Center Dash XDuty
1339-102	<b>TRIM LEFT HAND DASH</b>	Trim LH Dash XDuty
1321-004	<b>TRIM RIGHT HAND DASH</b>	Trim RH Dash XDuty Glove Cmpt/MDT Prov
1324-021	<b>TRIM RIGHT HAND DASH ACCESSORIES</b>	Trim RH Dash Acc XDuty Dash Slide-Out Locking Tray
1307-002	<b>ENGINE TUNNEL TRIM</b>	Eng Tnl Trim Flr Mat
5040-096	<b>POWER POINT DASH MOUNT</b>	Pwr Pnt Dash Mnt Batt Dir (2) Sw Pnl/(2) 2.4A USB Sw Pnl
1303-017	<b>STEP TRIM</b>	Step Trim Grip Strut Lwr Flex-Tred Mid
1379-003	<b>UNDER CAB ACCESS DOOR</b>	Under Cab Access Door Rear Step LH Painted
1102-013	<b>INTERIOR DOOR TRIM</b>	Interior Door Trim Painted
1323-001	<b>DOOR TRIM CUSTOMER NAMEPLATE</b>	Door Trim Customer Nameplate
1105-001	<b>CAB DOOR TRIM REFLECTIVE</b>	Cab Dr Trim Reflective Vert Stripe/6" Chevron w/Logo
1308-001	<b>INTERIOR GRAB HANDLE "A" PILLAR</b>	Interior Grab Handle 'A' Pillar 11" Molded
1332-008	<b>INTERIOR GRAB HANDLE FRONT DOOR</b>	Interior Grab Handle Frt Door Horiz 9"
1345-002	<b>INTERIOR GRAB HANDLE REAR DOOR</b>	Int Grab Handle Rr Dr Alum Window Span 30" Black Powder Coat
1301-002	<b>INTERIOR SOFT TRIM COLOR</b>	Interior Soft Trim Color Red
1337-001	<b>INTERIOR TRIM SUNVISOR</b>	Interior Trim Sunvisor Vinyl

1304-002	<b>INTERIOR FLOOR MAT COLOR</b>	Interior Floor Mat Color Black
1335-020	<b>CAB PAINT INTERIOR DOOR TRIM</b>	Cab Paint Int Dr Trim Multi-tone Dark Red
1371-020	<b>HEADER TRIM INTERIOR PAINT</b>	Header Trim Interior Paint Multi-tone Dark Red
1370-022	<b>TRIM CENTER DASH INTERIOR PAINT</b>	Trim Center Dash Interior Paint Multi-tone Dark Red
1378-021	<b>TRIM LEFT HAND DASH INTERIOR PAINT</b>	Trim LH Dash Interior Paint Multi-tone Dark Red
1373-021	<b>TRIM RIGHT HAND DASH INTERIOR PAINT</b>	Trim RH Dash Interior Paint Multi-tone Dark Red
1374-021	<b>RIGHT HAND DASH ACCESSORIES INTERIOR PAINT</b>	RH Dash Acc Interior Paint Multi-tone Dark Red
1344-002	<b>DASH PANEL GROUP</b>	Dash Pnl Group 3-Pnl
1312-001	<b>SWITCHES CENTER PANEL</b>	Switches Ctr Pnl 0
1313-002	<b>SWITCHES LEFT PANEL</b>	Switches Left Pnl 1 Wiper
1314-001	<b>SWITCHES RIGHT PANEL</b>	Switches Right Pnl 0
1225-007	<b>SEAT BELT WARNING</b>	Seat Belt Warn Vista Display w/VDR
1237-005	<b>SEAT MATERIAL</b>	Seat Material Durawear Plus
1243-003	<b>SEAT COLOR</b>	Seat Color Black/Red Seat Belts
1249-126	<b>SEAT BACK LOGO</b>	Seat Back Logo Toyne
1201-033	<b>SEAT DRIVER</b>	Seat Driver Bostrom Firefighter 8-Way Elect 500 Series ABTS
1213-025	<b>SEAT BACK DRIVER</b>	Seat Back Driver Non-SCBA ABTS
1219-001	<b>SEAT MOUNTING DRIVER</b>	Seat Mounting Driver
8102-103	<b>OCCUPANT PROTECTION DRIVER</b>	Occupant Protection Driver Advanced Protection System
1202-037	<b>SEAT OFFICER</b>	Seat Officer Bostrom Firefighter Fixed 500 Series ABTS
1214-034	<b>SEAT BACK OFFICER</b>	Seat Back Officer SCBA IMMI SmartDock
1220-002	<b>SEAT MOUNTING OFFICER</b>	Seat Mounting Officer
8103-103	<b>OCCUPANT PROTECTION OFFICER</b>	Occupant Protection Officer Advanced Protection System
1297-002	<b>POWER SEAT WIRING</b>	Power Seats Wiring Battery Direct
1273-001	<b>SEAT BELT ORIENTATION CREW</b>	Seat Belt Orientation Crew Outboard Shoulder To Inboard Hip
1263-001	<b>SEAT REAR FACING OUTER LOCATION</b>	Seat RFO Location (2) R/L
1203-020	<b>SEAT CREW REAR FACING OUTER</b>	Seat Crew RFO Bostrom Firefighter Fixed 500 Series
1215-031	<b>SEAT BACK REAR FACING OUTER</b>	Seat Back RFO SCBA IMMI SmartDock
1221-009	<b>SEAT MOUNTING REAR FACING OUTER</b>	Seat Mounting RFO Rwd 2"
8104-103	<b>OCCUPANT PROTECTION RFO</b>	Occupant Protection RFO Advanced Protection System
1266-001	<b>SEAT FORWARD FACING CENTER LOCATION</b>	Seat FFC Location (2) Ctr
1206-031	<b>SEAT CREW FORWARD FACING CENTER</b>	Seat Crew FFC Bostrom Firefighter Fold & Hold Flip-Up 500 Series
1218-035	<b>SEAT BACK FORWARD FACING CENTER</b>	Seat Back FFC SCBA IMMI SmartDock
8107-102	<b>OCCUPANT PROTECTION FFC</b>	Occupant Protection FFC Advanced Protection System
1269-101	<b>SEAT FRAME FORWARD FACING</b>	Seat Frm Fwd Fcg Dual
1281-101	<b>SEAT FRAME FORWARD FACING STORAGE ACCESS</b>	Seat Frm Fwd Fcg Strg Acc Dr (2) R/L Sd
1224-002	<b>SEAT MOUNTING FORWARD FACING CENTER</b>	Seat Mounting Forward Facing Center
1311-101	<b>CAB FRONT UNDERSEAT STORAGE ACCESS DOOR</b>	Cab Frt Undrst Strg Acc Dr
1355-022	<b>SEAT COMPARTMENT DOOR FINISH</b>	Seat Compartment Door Finish Multi-tone Dark Red

1511-100	<b>WINDSHIELD WIPER SYSTEM</b>	Windshield Wiper System
1534-002	<b>ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR</b>	Electronic Windshield Fluid Level Indicator
1103-005	<b>CAB DOOR HARDWARE</b>	Cab Door Hardware Black w/Scuff Plate
1111-001	<b>DOOR LOCKS</b>	Door Locks Manual
1503-002	<b>GRAB HANDLES</b>	Grab Handles SS 18"
1504-013	<b>REARVIEW MIRRORS</b>	Mirror Aerodynamic Retractor 613275 Rmt Htd
1529-003	<b>REARVIEW MIRROR HEAT SWITCH</b>	Rearview Mirror Heat Sw MUX
1507-002	<b>TRIM REAR WALL EXTERIOR</b>	Trim Rear Wall Exterior Treadplate
1513-010	<b>CAB FENDER</b>	Cab Fender Alum Wide
1514-002	<b>MUD FLAPS FRONT</b>	Mud Flaps Frt
1526-027	<b>CAB EXTERIOR FRONT &amp; SIDE EMBLEMS</b>	Cab Ext Frt & Side Emblems Spartan w/APS
5109-001	<b>IGNITION</b>	Ign Mstr Sw w/Keyless Start
5101-021	<b>BATTERY</b>	Batt (6) Group 31 Harris
5106-003	<b>BATTERY TRAY</b>	Batt Tray (2) R/L Steel
5107-007	<b>BATTERY BOX COVER</b>	Batt Box Cover (2) Steel w/Black Handles
5102-001	<b>BATTERY CABLE</b>	Batt Cables
5108-002	<b>BATTERY JUMPER STUD</b>	Batt Jumper Stud Frt LH Lwr Step
5104-002	<b>ALTERNATOR</b>	Alternator Leece-Neville 320A
5105-001	<b>STARTER MOTOR</b>	Starter Motor Delco
5202-004	<b>BATTERY CONDITIONER</b>	Batt Cond Kussmaul 1200 LH RFO Seat Position
5203-002	<b>BATTERY CONDITIONER DISPLAY</b>	Batt Cond Display LH Mid Glass
3314-043	<b>AUXILIARY AIR COMPRESSOR</b>	Aux Air Cmp Kussmaul Auto Pump 120V Bhd Drv Seat w/Auto Drain Horiz
5204-055	<b>ELECTRICAL INLET</b>	Elec Inlet 120V 20A Auto Eject
5209-002	<b>ELECTRICAL INLET LOCATION</b>	Elec Inlet Location LH Cab Side Mid
5210-005	<b>ELECTRICAL INLET CONNECTION</b>	Elec Inlet Conn to Batt Conditioner & Air Pump
5206-003	<b>ELECTRICAL INLET COLOR</b>	Elec Inlet Color Red
5301-102	<b>HEADLIGHTS</b>	Headlights 4 Headlamps LED
5303-005	<b>FRONT TURN SIGNALS</b>	Frt Turn Signals Whelen 600 LED Above Frt Warn
5337-002	<b>HEADLIGHT LOCATION</b>	Headlights Above Frt Warn Lts
5336-003	<b>SIDE TURN/MARKER LIGHTS</b>	Side Turn/Marker Lts LED
5302-003	<b>MARKER &amp; ICC LIGHTS</b>	Marker & ICC Lts Face Mnt LED
5350-060	<b>HEADLIGHT AND MARKER LIGHT ACTIVATION</b>	Hdlt & Mrkr Lt Actv MUX/DRL
5308-011	<b>GROUND LIGHTS</b>	Ground Lts LED Resp Side Dr, Prk Brk Sw & Vista
5309-024	<b>LOWER CAB STEP LIGHTS</b>	Lwr Cab Step Lts LED w/Prk Brk
5382-002	<b>INTERMEDIATE STEP LIGHTS</b>	Intermediate Step Lts LED
5312-003	<b>ENGINE COMPARTMENT LIGHT</b>	Engine Cmpt Work Lt LED (1)
5403-071	<b>LIGHTBAR PROVISION</b>	Lightbar Prov Wire & Lwr Mnt Spartan Supply w/Painted Jct Box
5450-237	<b>CAB FRONT LIGHTBAR</b>	Cab Frt Ltbar Whelen Freedom F4N72QLED 14R2C Layout 1
5426-003	<b>LIGHTBAR SWITCH</b>	Lightbar Sw Vista
5317-186	<b>FRONT SCENE LIGHTS</b>	Frt Scene Lts FireTech FT-B-46-B 12V LED 46" Black
5335-003	<b>FRONT SCENE LIGHTS ACTIVATION</b>	Frt Scene Lts Actv Vista

5329-003	<b>FRONT SCENE LIGHT LOCATION</b>	Frnt Scene Lt Loc Ctr Brow Pos
5306-107	<b>SIDE SCENE LIGHTS</b>	Side Scene Lts FRC Spectra 900 LED 12V
5318-004	<b>SIDE SCENE LIGHT LOCATION</b>	Side Scene Lt Loc Upper Mid Rwd 10" Roof Position
5316-008	<b>SIDE SCENE ACTIVATION</b>	Side Scene Actv Indv Vista Buttons & Resp Side Doors
5305-157	<b>INTERIOR OVERHEAD LIGHTS</b>	Interior Overhead Lts Weldon LED w/Front Map Lts/MUX Actv
5406-076	<b>DO NOT MOVE APPARATUS LIGHT</b>	Do Not Move App Lt Flashing Red Whelen Ion LED w/Alarm
5422-002	<b>MASTER WARNING SWITCH</b>	Mstr Warn Sw MUX
5409-002	<b>HEADLIGHT FLASHER</b>	Headlight Flasher Alternating
5425-003	<b>HEADLIGHT FLASHER SWITCH</b>	Headlight Flasher Sw MUX
5401-032	<b>INBOARD FRONT WARNING LIGHTS</b>	Inboard Frnt Warn Lts Whelen M6 LED Chrm Bezel
5413-003	<b>INBOARD FRONT WARNING LIGHTS COLOR</b>	Inboard Frnt Warn Lts Color Red w/Clr Lens
5414-022	<b>OUTBOARD FRONT WARNING LIGHTS</b>	Outboard Frnt Warn Lts Whelen M6 LED Chrm Bezel
5415-003	<b>OUTBOARD FRONT WARNING LIGHTS COLOR</b>	Outboard Frnt Warn Lts Color Red w/Clr Lens
5423-003	<b>FRONT WARNING SWITCH</b>	Frnt Warn Sw Vista
5404-027	<b>INTERSECTION WARNING LIGHTS</b>	Intersection Warn Lts Whelen M6 Super LED
5419-003	<b>INTERSECTION WARNING LIGHTS COLOR</b>	Int Warn Lts Color Red w/Clr Lens
5420-002	<b>INTERSECTION WARNING LIGHTS LOCATION</b>	Intersection Warn Lts Location Bumper Tail Rwd
5402-029	<b>SIDE WARNING LIGHTS</b>	Side Warn Lts Whelen M6 Super LED
5418-003	<b>SIDE WARNING LIGHTS COLOR</b>	Side Warn Lts Color Red w/Clr Lens
5412-002	<b>SIDE WARNING LIGHTS LOCATION</b>	Side Warn Lts Location Lwr Mid
5424-003	<b>SIDE AND INTERSECTION WARNING SWITCH</b>	Side & Intersection Warn Sw Vista
5407-023	<b>INTERIOR DOOR OPEN WARNING LIGHTS</b>	Int Dr Open Warn Lts Red Truck-Lite 4" LED Flsh/Amber Weldon 15" LED Dir Flsh
5510-006	<b>SIREN CONTROL HEAD</b>	Siren Ctrl Head Whelen 295HFSA7
5514-005	<b>HORN BUTTON SELECTOR SWITCH</b>	Horn Btn Sel Sw Elec Horn/Air Horn MUX
5512-005	<b>AIR HORN ACTIVATION</b>	Air Horn Actv Strg Whl/RH Lanyard
5513-021	<b>MECHANICAL SIREN ACTIVATION</b>	Mech Siren Actv R/L Ft Sw/Brk Sw MUX and PB Brk
5505-002	<b>BACK-UP ALARM</b>	Back-Up Alarm Ecco 575
5601-041	<b>INSTRUMENTATION</b>	Instrumentation Standard
5624-001	<b>BACKLIGHTING COLOR</b>	Backlighting Color Red
5701-056	<b>RADIO</b>	Radio Jensen WB/AM/FM/CD/iPod/Sat Ovrhd LH
5707-002	<b>AM/FM ANTENNA</b>	AM/FM Antenna LH Fwd Cab Roof
5706-033	<b>CAMERA</b>	Cam Rr Box/RH Teardrop on (2) Vistas
5703-011	<b>COMMUNICATION ANTENNA</b>	Comm Ant Base LH Fwd Cab Rf Spartan Sply
5708-002	<b>COMMUNICATION ANTENNA CABLE ROUTING</b>	Comm Ant Cable Routing Under RH Frnt Seat
5709-002	<b>AUXILIARY COMMUNICATION ANTENNA</b>	Aux Comm Ant Base RH Fwd Cab Roof Spartan Sply
5710-002	<b>AUXILIARY COMMUNICATION ANTENNA CABLE ROUTING</b>	Aux Comm Ant Cable Routing Under RH Frnt Seat
5702-023	<b>TWO-WAY RADIOS</b>	Two-Way Radio Exterior Conduit to Under RH Seat
5020-001	<b>PANEL LAYOUT</b>	Panel Layout



8814-002	<b>CAB EXTERIOR PROTECTION</b>	Cab Exterior Protection Front
8806-001	<b>FIRE EXTINGUISHER</b>	Fire Extinguisher Shiploose
8807-002	<b>ROAD SAFETY KIT</b>	Road Safety Kit Shiploose
8810-001	<b>DOOR KEYS</b>	Door Keys for Manual Locks (4)
8811-003	<b>DIAGNOSTIC SOFTWARE OCCUPANT PROTECTION</b>	Diagnostic Software Occupant Protection Advanced Protection System
8003-155	<b>WARRANTY</b>	Warranty Cab and Chassis 2019 (2) Year
8030-006	<b>CHASSIS OPERATION MANUAL</b>	Chassis Operation Manual Digital Copy (2)
8031-024	<b>ENGINE &amp; TRANSMISSION OPERATION MANUAL</b>	Eng & Trans Operation Man Eng Hard Copy/Trans Digital/Eng Owner Digital
8805-007	<b>CAB/CHASSIS AS BUILT WIRING DIAGRAMS</b>	Cab/Chassis As Built Wiring Diagrams Digital Copy (2)
8063-006	<b>CAB PAINT CONFIRMATION</b>	Cab Paint Confirmation - PPG - Confirmation #1
8039-001	<b>SALES TERMS</b>	Sales Terms
9005-003	<b>DRIVELINE LAYOUT CONFIRMATION</b>	Driveline Layout Confirmation Completed

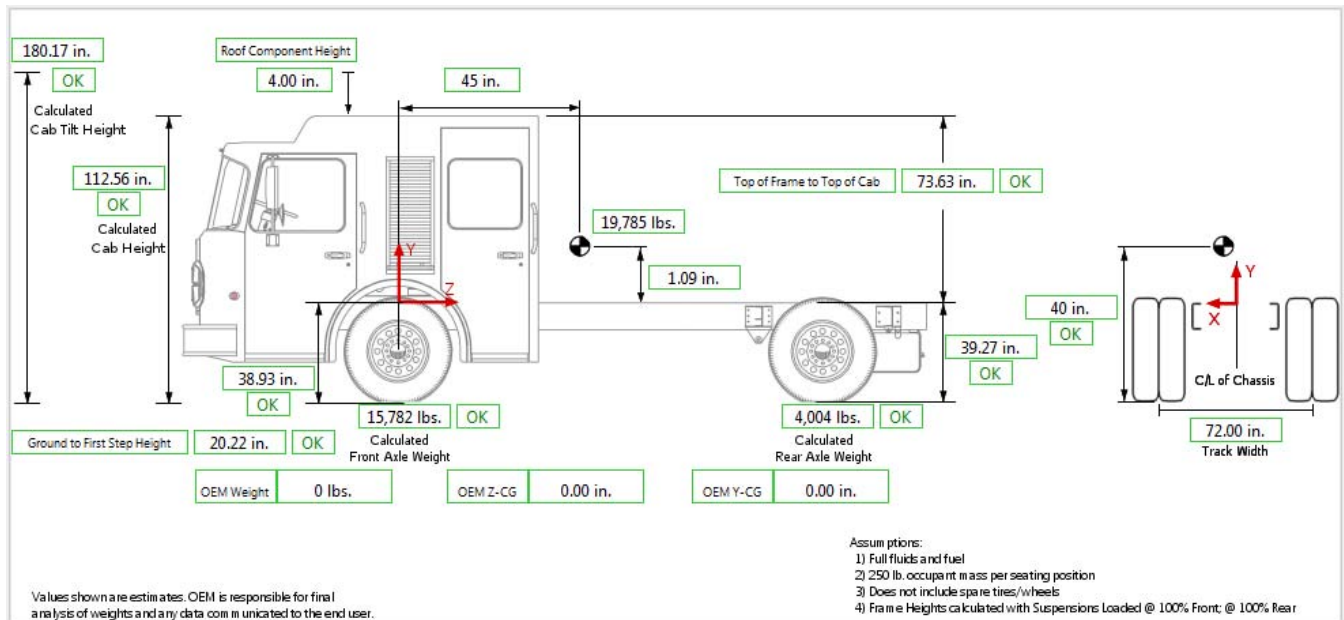
# *Panel Visual Layout*

## **5020-001 Panel Layout**

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# Weight Distribution

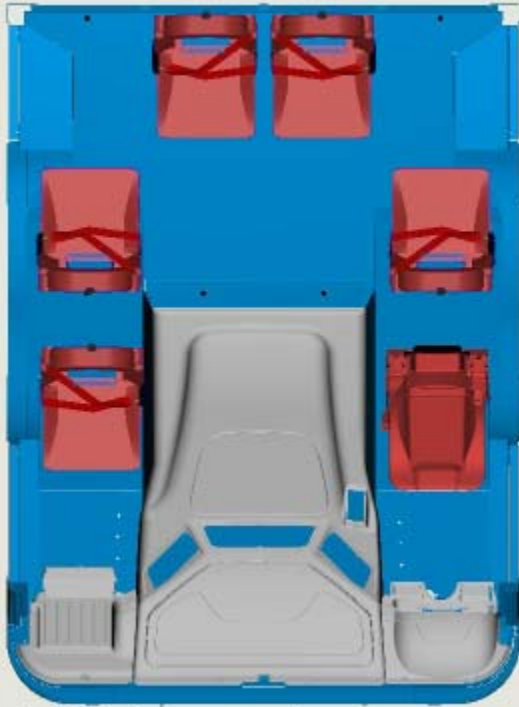


Calculated Apparatus Weight      19,785 lbs.  
 Calculated Apparatus Z-CG      45 in.  
 Calculated Apparatus Y-CG      1.09 in.

Note:

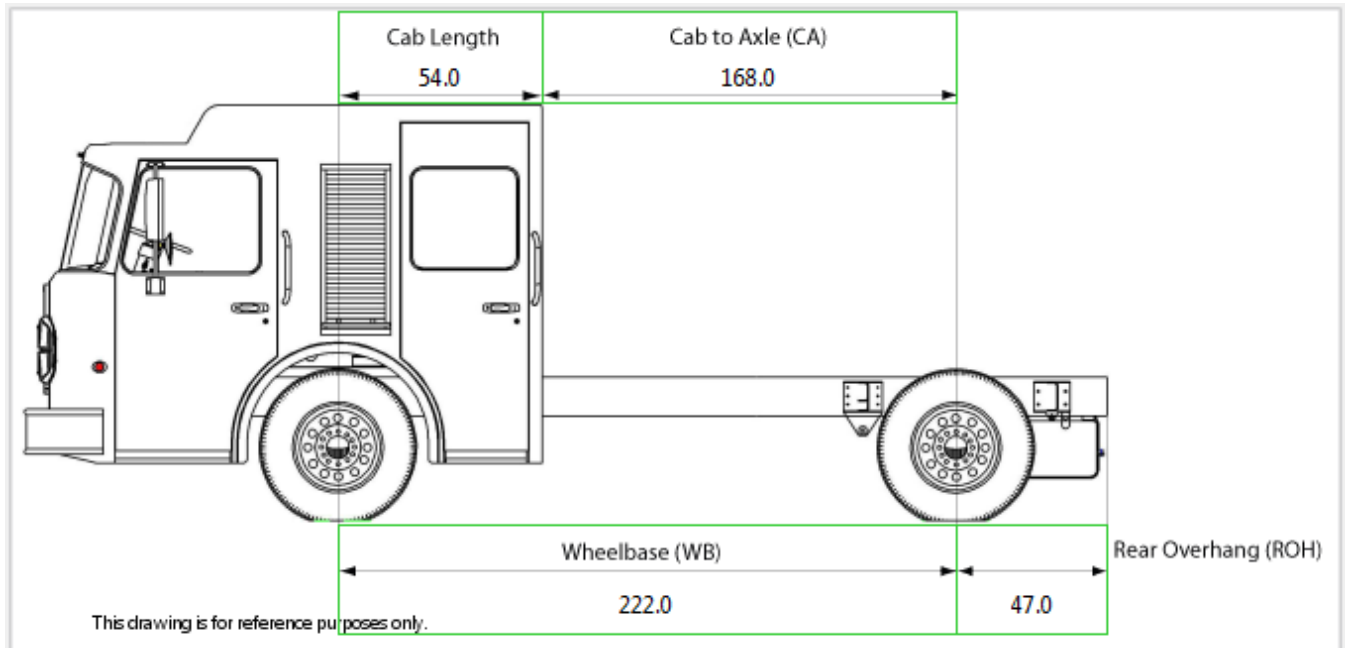
The Y-CG value above is calculated from the top of the frame.  
 Apparatus refers to total combined value for cab and chassis and OEM inputs.

## *Seat Locations*



This drawing is for reference purposes only.

## Frame Dimensions



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## **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.

## **CORPORATE CONTACT INFORMATION**

The purchaser shall be provided with the following information to allow them to contact the President/CEO of the manufacturing company (not dealer) when deemed necessary:

- Name of Company President.
- Office address.
- Office telephone number.
- Email address.
- Home address.
- Home telephone number.
- 24/7 Cellular telephone number.

If the manufacturing company is a subsidiary of, division of, or owned by a different Company, the above information shall also be provided on the 'Parent' Company.

There will be no exception to this requirement.

## **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.

## **BLUEPRINT DRAWING(S) - one (1)**

All bidder's must submit with their proposal one (1) blueprint drawing(s) of the exact apparatus being proposed. Drawing(s) of similar units **will not** be acceptable. Blueprint(s) must be submitted on minimum "B" size, 11" x 17" paper to allow for an accurate, easy to read, visual interpretation of the apparatus proposed by the manufacturer.

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The drawing(s) shall show the complete left side view of the apparatus, including the chassis as well as right side and rear body views showing all compartment dimensions, door opening sizes, compartment depths, and total cubic feet of usable compartment space per compartment.

Any proposal received without the required drawing(s) will be immediately rejected.

## **SERVICE CENTER**

The bidder shall provide service information on the apparatus. The bidder shall list the nearest service center in relationship to the purchaser's location and the distance from the purchaser shall also be listed. This service center must be capable of performing all maintenance and repairs on the apparatus in a timely manner.

## **CERTIFICATION OF NFPA 1901-2016 COMPLIANCE**

As per NFPA 1901, 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 1901 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 1901 Standard. If the purchaser has elected to provide, perform, outsource and/or contract with a third party or waive any item required by NFPA 1901, the manufacturer shall provide, upon delivery, a "Statement of Exceptions" per Chapter 4 of NFPA 1901 4.21.

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 supplying 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 1901.

## **NFPA REQUIRED EQUIPMENT**

The end user of this apparatus shall provide all other equipment and accessories that are required by NFPA 1901 but not specifically listed in these specifications.

## **MAXIMUM TOP SPEED**

The maximum top speed of this apparatus shall be determined using the following NFPA 1901 Chapter 4 criteria:

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- Apparatus with 1250 gallon combined water tank capacity 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 1750 GPM SINGLE STAGE PUMP**

The fire pump shall be a Hale Fire Pump Company Q-MAX that complies with all applicable requirements of the latest edition of the "Standard for Automotive Fire Apparatus" published by the National Fire Protection Association and printed in Pamphlet 1901.

## **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.

## **UNDERWRITER'S LABORATORY CERTIFICATION**

The completed apparatus shall be tested and approved by the independent testing company Underwriter's Laboratories, Inc. The manufacturer of the apparatus shall be responsible for all costs involved in this test. The certification of inspection and approval shall be presented to the Fire Chief of the Department upon delivery of the completed apparatus.

## **PUMP PERFORMANCE - 1,750 U.S. GPM.**

The pump shall be a single stage centrifugal with a class "A" rated capacity of 1,750 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 1901.



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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.

## **NFPA 2016 INTERLOCK MOULE**

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.

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## **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**

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 IN CONTROL 400 PRESSURE GOVERNOR**

Fire Research In-Control TGA400 pressure governor and monitoring display kit shall be installed.

The following continuous displays shall be provided:

- Pump discharge; shown with four daylight bright LED digits more than 1/2" high.
- Pump Intake; shown with four daylight bright LED digits more than 1/2" high.
- Pressure / RPM setting; shown on a dot matrix message display.
- Pressure and RPM operating mode LEDs.
- Throttle ready LED. Engine RPM; shown with four daylight bright LED digits more than 1/2" high.
- Check engine and stop engine warning LEDs.
- Oil pressure; shown on a dual color (green/red) LED bar graph display.
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display.
- Transmission Temperature: shown on a dual color (green/red) LED bar graph display.
- Battery voltage; shown on a dual color (green/red) LED bar graph display.

The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and night time operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

- High Battery Voltage.
- Low Battery Voltage (Engine Off).
- Low Battery Voltage (Engine Running).
- High Transmission Temperature.
- Low Engine Oil Pressure.
- High Engine Coolant Temperature.
- Out of Water (visual alarm only).
- No Engine Response (visual alarm only).

The program features shall be accessed via push buttons and a control knob located on the front of the control panel. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

Inputs to the control panel from the pump discharge and intake pressure sensors shall be electrical. The discharge pressure display shall show pressures from 0 to 600 psi. The intake pressure display shall show pressures from -30 in. Hg to 600 psi.

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The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor, monitoring and master pressure display shall be programmed to interface with a specific engine

## **HALE/CLASS 1 INTAKE RELIEF VALVE**

A Hale/Class 1 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 75 psi to 250 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".

## **MANUAL PUMP SHIFT OVERRIDE- REMOTE CABLE ACTUATION**

A manual pump shift override shall be provided on the apparatus. The shift shall be remote cable actuated. The remote cable shall have a "T" handle control which shall be positioned just inside the pump compartment on the driver's side. The control shall be easily accessed through the side panel hinged access door. The control shall be clearly labeled "MANUAL PUMP SHIFT".

## **TRIDENT PRIMING SYSTEM**

# Toyne Inc.

A Trident air priming system shall be provided.

## **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.

## **6" REAR INTAKE**

# Toyne Inc.

A 6" rear intake shall be provided and located on the right side of the rear face extended through the rear compartment. (Intake may effect rear compartment dimensions listed elsewhere in these specifications.)

The intake shall have a Southpark IL35S32AC chrome plated MNST hose connection with screen insert.

All piping in the rear intake shall be 5" suction pipe. Victaulic couplings shall be used throughout the piping assembly to allow for easy disassembly if necessary. All elbows used in the piping shall be smooth radius type to allow maximum flow and minimum pressure loss.

Bleeder/drain valves shall be installed in all low points in the piping.

## **HALE MIV-E MASTER INTAKE VALVE FOR REAR INTAKE**

The rear 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 - REAR INTAKE**

A manually operated "backup" handwheel control shall be provided for the rear 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.

## **REAR MIV VALVE DRAIN**

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

## **REAR 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.

## **REAR MASTER INTAKE PRE-PRIME**

A priming control shall be provided on the pump panel to allow pre-priming of the rear master intake when the intake valve is closed.

## **REAR INTAKE PIPING - STAINLESS STEEL**

The rear intake piping shall be 304 stainless steel.

## **REAR MASTER INTAKE CAP**

A 6" female NST long handle chrome cap shall be provided on the rear 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 to the atmosphere thereby preventing pump overheat. The valve shall be self-resetting after the temperature of the water in the pump drops below 120 degrees Fahrenheit.

## **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.

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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 - GALVANIZED**

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.

The Victaulic couplings shall be galvanized coated.

## **VENTED LUG CAPS AND PLUGS**

All intake and discharge plugs and caps and plugs shall be 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.

## **LEFT SIDE FORWARD AUXILIARY INTAKE**

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

The intake valve and piping shall be 2 1/2".

The valve shall be manually controlled from the pump operator's position.

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.

## **RIGHT SIDE DISCHARGES**

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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 Kocheck model SKE5T4R 4" FNST x 5" locking swivel Storz elbow adapter with a model ZCC507 5" blind cap and chain shall be provided.

## **LEFT SIDE DISCHARGES**

Two 2 1/2" discharges shall be provided on the left side pump panel. The discharges shall be located one forward of the intake and one located rear of the intake.

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

The left 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 MNST thread.

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

## **RIGHT REAR 3" X 2 1/2" DISCHARGE**

One (1) 3" x 2 1/2" discharge shall be provided on the right rear of the apparatus.

The valve shall be manually controlled on the pump panel.

The right rear 3" x 2 1/2" discharge shall have a permanent 2 1/2" MNST thread.

A chrome discharge elbow shall be provided.

## **LEFT REAR 2 1/2" DISCHARGE**



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One (1) 2 1/2" discharge shall be provided on the left rear of the apparatus.

The valve shall be manually controlled on the pump panel.

A chrome discharge elbow shall be provided with 2 1/2" NST threads.

The discharge shall be used as a pre-connected line and shall not require any cap or chain.

The discharge shall be used as a pre-connected line and shall not require any cap or chain.

## **1 3/4" SPEEDLAY PRECONNECTS**

Two 1 3/4" preconnected speedlays shall be provided and located ahead and below the top mount pump panel.

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

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

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

## **REMOVABLE SPEEDLAY TRAYS - three (3)**

The speedlays shall have removable trays to allow for reloading hose. The trays shall be constructed of 1/2" thick black poly material. The trays shall have handhold cutouts on the vertical and horizontal edges.

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 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.

The #1 - 2 1/2" crosslay shall have the capacity to hold 250 feet 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.

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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 accidentally 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.

## **3" MONITOR DISCHARGE**

A 3" monitor discharge shall be provided above the pump compartment. The discharge piping shall extend above the pump compartment a sufficient distance to allow use of the deck gun.

The valve shall be manually controlled on the pump panel. The control shall have an integrated slow closing mechanism to comply with NFPA 1901.

## **2 1/2" FRONT BUMPER DISCHARGE**

There shall be one (1) 2 1/2" discharge(s) provided on the driver's side of the apparatus bumper.

The valve shall be manually controlled on the pump panel.

The front bumper 2 1/2" discharge shall be pre-piped for future foam system installation.

The front bumper discharge shall have a 2 1/2" MNST thread connection.

## **FRONT DISCHARGE HOSE CONNECTION - CHROME SWIVEL**

The hose connection for the discharge shall be located immediately adjacent to the hosewell. A **chrome plated or polished stainless steel** swivel shall be provided. The lid for the hosewell shall be notched to allow for the hose to be preconnected.

## **FRONT BUMPER DISCHARGE HOSE CONNECTION - DRIVER'S SIDE**

The hose connection for the front bumper discharge shall be on the driver's side.

A 2 1/2" FNST x 1 1/2" MNST chrome plated brass reducer shall be provided on the front bumper 2 1/2" discharge. The discharge shall be used as a preconnected line and shall not require a cap and chain.

## **PUMP COMPARTMENT**

A modular pump compartment with top mounted pump operator's panel shall be provided. The modular design of the

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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.

## **TOP MOUNT PUMP OPERATOR'S WALKWAY**

A 22" wide (front to rear) pump operator's walkway shall be provided between the pump compartment and the chassis cab. A 1" minimum space shall be provided between the walkway edges, the pump compartment and rear wall of the chassis.

## **TOP MOUNT WALKWAY LIGHTING – LED**

Two teardrop style LED lights shall be provided to illuminate the top mount walkway area.

## **WALKWAY COMPARTMENT - OFFICER'S SIDE**

A compartment shall be incorporated into the walkway assembly on the officer's side of the apparatus. The compartment shall have a minimum depth of 22", and shall be a minimum of 16" wide x 18" high in the rear 13" and no less than 6" high in the forward section.

The entire step and running board assembly shall be horizontally hinged to allow complete access to the compartment. A pneumatic spring hold-open device shall be provided to hold the integrated step/door assembly open.

## **WALKWAY COMPARTMENT - DRIVER'S SIDE**

A compartment shall be incorporated into the walkway assembly on the driver's side of the apparatus. The compartment shall have a minimum depth of 22", and shall be a minimum of 16" wide x 18" high in the rear 13" and no less than 6" high in the forward section.

The entire step and running board assembly shall be horizontally hinged to allow complete access to the compartment. A pneumatic spring hold-open device shall be provided to hold the integrated step/door assembly open.

(The right side walkway compartment dimensions may be effected by the chassis exhaust system design.)

## **WALKWAY COMPARTMENT FLOOR**

The walkway compartment floors shall have Turtle Tile floor tiles.

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## **WALKWAY COMPARTMENT LIGHTING – LED**

An LED strip light shall be provided in the under walkway compartment(s). The light(s) shall be activated by the pump panel light switch.

## **TOP MOUNT PUMP OPERATOR'S WALKWAY MATERIAL**

The entire pump operator's walkway assembly shall be constructed of NFPA compliant slip resistant aluminum treadbrite on all stepping surfaces.

## **PUMP COMPARTMENT RUNNING BOARDS**

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

## **PUMP MODULE SEAL**

An extruded rubber seal shall be installed between the pump compartment and the body to help prevent entry of road debris, snow, ice, etc., into the pump compartment.

## **PUMP COMPARTMENT FRONT WALL**

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

## **PUMP COMPARTMENT SIDE ACCESS DOORS - TOP MOUNT**

A brushed stainless steel hinged access door shall be provided on each side of the pump compartment. The doors shall have pneumatic hold open devices and push button type flush latches. The doors shall be a minimum of 30" wide x 20" high.

## **TOP MOUNT BRUSHED STAINLESS STEEL PUMP PANEL**

A rear facing top mounted pump panel shall be provided to allow simple, efficient operation of all pump functions necessary during normal operations.

A dual level inclined pump panel shall be provided for convenient user friendly layout of the panel to simplify the operation of the apparatus. Both levels of the panel shall be sloped to provide an angled view of the panel so that the operator may read all identification labels easily.

All controls for the pump shall be identified using permanently engraved identification labels properly secured to the panel. All discharge and intake identification labels shall be color coded to NFPA 1901 recommendations with labels at the control, intake/discharge location and drain port location.

The front incline panel shall be constructed of brushed stainless steel and shall begin at the lower edge of the front panel just behind the control levers and continue back to the area which the second incline level begins.

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The rear incline panel shall be constructed of brushed stainless steel and shall begin just above the pressure gauge mounting area and continue up to the top of the pump compartment. The panel shall have a full width stainless steel hinge at the bottom to allow the panel to hinge forward for access to the back of the panel. A latch shall be provided on each end to secure the panel in the closed position. A full pump panel width brushed stainless steel light shield shall be provided at the top of the gauge panel.

## **SIDE INTAKE/DISCHARGE PANELS - TOP MOUNT**

The side panels of the pump compartment shall be constructed of brushed stainless steel. The side panels shall be easily removable and held into place using stainless steel or chrome plated flush mounted latches.

Panels that are permanently attached to the pump compartment or require removal of mechanical fasteners are not acceptable.

## **LED PUMP PANEL LIGHTS**

The top 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 shall be provided across the top of the gauge panel.

## **LED SIDE DISCHARGE/INTAKE PANEL LIGHTS**

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

The lights 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.

## **AUTOMATIC PUMP PANEL LIGHT ACTIVATION**

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

## **INNOVATIVE CONTROLS TOP MOUNT CONTROL HANDLES**

All top mount valve control handles shall be Innovative Controls 'locking' lever type with "T" handles. The "T" handles shall be chrome plated zinc and shall have a recessed area for the color coded identification label.

## **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.

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## PRESSURE/VACUUM TEST PLUGS

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

## INNOVATIVE CONTROLS SL PLUS TANK GAUGE - PUMP PANEL

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

## 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.

## PUMP PANEL AIR HORN BUTTON

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

## 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),

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which meets UL969 and NFPA standards.

The color scheme for the discharge and intake labels shall be per NFPA A.16.9.1.

## **FIRE RESEARCH MANSAYER BARS**

Two FRC Mansaver bars shall be provided and mounted one on each side of the pump operator's walkway. The bars shall help prevent an accidental fall from the walkway area when the vehicle is in stationary operation.

The Mansaver bars shall be designed to simply push in to allow entry to the walkway and must be lifted upward to exit the walkway.

The bars shall be covered with a heavy layer of foam padding and yellow rip-stop vinyl outer covering.

## **BOOSTER TANK- UNITED PLASTIC FABRICATING, INC.**

The tank shall have a LIFETIME warranty provided by United Plastic Fabricating, Inc.

The tank exterior shell shall be constructed of minimum 1/2" thick PT3 polypropylene sheet stock. This material shall be non-corrosive stress relieved thermoplastic which is U.V. stabilized for maximum protection. The booster tank shall be of a specific configuration and is 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 tank construction shall include Poly Pro Seal technology. A sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise.

The transverse swash partitions shall be manufactured of 3/8" PT3 polypropylene material. The longitudinal swash partitions shall be constructed of 3/8" PT3 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 designed 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. All partition spacing shall be compliant with NFPA 1091 recommendations.

The top of the booster tank shall be fitted with removable lifting eyes.

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

## **SPECIAL TANK DESIGN**

The booster tank shall be "L" shaped to allow for a lower hosebed height. The front section of the tank shall be higher than the rear section bringing the overall hosebed height down to a more accessible height.

There shall be **no exception** to this requirement.

## **BOOSTER TANK CAPACITY 1,000 GALLONS**

The poly booster tank shall have a capacity of 1,000 U.S. gallons.

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## **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 **10" x 10"** 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.

## **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**



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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.

## **100" BODY WIDTH**

The apparatus body shall be 100" wide from side to side measuring from the rub rail mounting surface.

## **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.

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## **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.

## **COMPARTMENT WEIGHT RATING**

Each compartment shall be designed to carry 1,000 lbs. of equipment distributed throughout the compartment.

## **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.

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## **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.

## **PAINTED FENDERWELLS**

The fender wells shall be finish painted the primary exterior color of the apparatus.

## **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 ultra-smooth 304 marine grade stainless sheet steel with a minimum tensile strength of 90,000 psi.

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**

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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 have a removable metal ventilation plate to allow for air movement in the compartment. A cleanable filter material shall be provided behind the plate.

Plastic cover plates will not be acceptable.

## **AMDOR ROLL UP COMPARTMENT DOORS**

Amdor roll up doors shall be installed on all compartments requesting roll up doors.

The doors shall be constructed of 1" aluminum double wall slats with continuous ball & socket hinge joint designed to prevent water ingress and weather tight recessed dual durometer seals.

The bottom panel shall be double wall reinforced with stainless steel lift bar latching system. The bottom panel flange shall have cut-outs for ease of access with gloved hands.

The slat shoes shall be reusable with positive snap-lock securement. A smooth interior door curtain surface shall be provided to prevent equipment hang-ups. The side frames shall be a one piece design constructed of aluminum.

A top drip rail with non-marring seal, recessed non-marring side seals and a dual leg bottom seal shall be provided.

The door striker shall include support beneath the lift bar to prevent door curtain bounce and potential false door ajar indications.

## **BUNGEE STYLE DOOR PULL STRAPS**

Amdor bungee style pull straps shall be provided on the interior of all roll up doors on the side compartments.

One end of the pull strap shall be mounted to the bottom portion of the door and the other mounted to the side wall of the compartment. The end shall be mounted in a location that will prevent the strap from hanging out the door opening when the door is closed.

## **ROLL UP DOOR SHROUD**

Each compartment with roll up door shall have a metal shroud below the roll up door roll. This shroud shall protect the roll up drum from possible damage from shifting equipment and protect the stored equipment in the compartment from water drainage of snow or rain covered doors when they have been rolled up.

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## **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 IN FRONT OF THE REAR WHEELS**

A compartment shall be provided in front of the rear wheels. The compartment interior dimensions shall be 67" high x 47.75" wide with the lower 28" of the compartment being 26" usable depth and the remaining upper section being 14" usable depth.

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

## **DRIVER'S SIDE ABOVE WHEEL COMPARTMENT**

A compartment shall be provided above the rear wheels. The compartment interior dimensions shall be 37" high x 63.75" wide x 14" usable depth.

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

## **DRIVER'S SIDE COMPARTMENT BEHIND REAR WHEELS**

A compartment shall be provided behind the rear wheels. The compartment interior dimensions shall be 67" high x 44" wide x 26" useable depth in a portion of the lower section and the remaining upper section being 14" usable depth.

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

## **PASSENGER'S SIDE COMPARTMENT IN FRONT OF THE REAR WHEELS**

A compartment shall be provided in front of the rear wheels. The compartment interior dimensions shall be 67" high x 47.75" wide with the lower 28" of the compartment being 26" usable depth and the remaining upper section being 14" usable depth.

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

## **PASSENGER'S SIDE ABOVE WHEEL COMPARTMENT**

A compartment shall be provided above the rear wheels. The compartment interior dimensions shall be 37" high x 63.75" wide x 14" usable depth.

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

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## **PASSENGER'S SIDE COMPARTMENT BEHIND REAR WHEELS**

A compartment shall be provided behind the rear wheels. The compartment interior dimensions shall be 67" high x 44" wide x 26" useable depth in a portion of the lower section and the remaining upper section being 14" usable depth.

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

## **REAR FACE COMPARTMENT**

A rear compartment shall be provided on the apparatus just ahead of the rear step. The compartment shall be a minimum of 30" useable depth.

## **REAR COMPARTMENT HEIGHT**

The rear facing compartment shall extend upward and shall be flush with the top of the booster tank to maximize the height of the rear compartment.

There shall not be a void area between the top of the rear facing compartment and the bottom of the hose bed nor shall the booster tank extend over the rear compartment.

## **REAR COMPARTMENT DOORS - HINGED**

The rear compartment shall have vertically hinged doors constructed of aluminum treadbrite.

## **DRIVER'S SIDE REAR COMPARTMENT - TRANSVERSE**

The driver's side compartment behind the rear wheels shall be open into the rear facing compartment (transverse).

## **PASSENGER'S SIDE REAR COMPARTMENT - TRANSVERSE**

The passenger's side compartment behind the rear wheels shall open into the rear facing compartment (transverse).

## **UPPER DOOR JAMB EXTENSIONS**

The upper door jamb of the side compartments shall be extended upward on both sides providing a mounting area for side upper warning lights, scenelighting, large scale lettering, etc. The sides shall be extended up to the same height as the side walls of the hosebed area.

## **UPPER DOOR JAMB EXTENSIONS FINISH PAINTED**

The outer surface of the upper door jamb shall be finish painted to match the exterior of the apparatus body color.

## **REAR STEP MATERIAL - NFPA ALUMINUM TREADBRITE**

The rear step shall be constructed of NFPA complaint bright finish aluminum treadbrite.

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## **18" REAR TAILBOARD STEP**

An 18" depth rear tailboard step shall be provided on the apparatus. The step shall be spaced from the rear face of the apparatus body a minimum of 3/4" for easy wash out.

## **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.

## **HOSE BED FLOORING**

The floor of the hose bed shall be constructed of fiber reinforced Dura-Dek, or equal, material.

The top portion of each "T" cross section shall measure 1 5/8" wide x 3/16" thick with beaded ends. The vertical portion shall be 3/16" thick tapering out at the bottom to a thickness of 1/2" and have an overall height of 1". The "T" sections shall be spaced 3/4" apart to allow for drainage and ventilation.

The flooring shall then be protected with a polyurethane coating to screen out ultraviolet rays. The gray colored coating shall be baked on and include a slip resistant material.

## **HOSE BED - 68" WIDE**

The hose bed shall be 68" wide from side to side.

## **HOSE BED CAPACITY**

The hose bed shall have the capacity to carry the following hose load:

300' of 1 3/4"  
1,200' of 5"  
300' of 3"

## **LEFT SIDE HOSEBED DIVIDER**

The side of the slide in ladder compartment shall be extended up forming a separate hosebed area above the compartment.

## **RIGHT SIDE HOSEBED DIVIDER**

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The side of the slide in hard suction compartment shall be extended up forming a separate hosebed area above the compartment.

## **HOSE BED UPPER SUPPORT**

An upper horizontal support shall be provided at the rear of the hosebed.

## **HOSE BED BULKHEAD**

A bulkhead divider shall be provided in the front area of the hose bed separating the hose bed from the tank fill tower(s). The balance of this area that is not occupied by fill tower or other mounted equipment shall be used as a dunnage compartment.

## **HOSE BED COVER WITH VELCRO FASTENERS**

A heavy duty vinyl coated nylon hose bed cover shall be provided to protect the hose load from the weather. The cover shall extend from the front of the hose bed to the rear and then extend downward to cover the exposed rear of the bed.

The cover shall have a double reinforced area where the cover comes into contact with the upper rear corners of the hose bed dividers. The cover shall be secured to the apparatus using Velcro on the sides and lift dots on front.

The rear of the cover shall be secured to the apparatus using positive mechanical latches.

## **HOSE BED COVER - RED**

The hose bed cover shall be red.

## **LOW MOUNT ENCLOSED LADDER COMPARTMENT**

A ladder storage compartment shall be provided on the right side of the apparatus with an access door on the rear. The compartment shall be located below the hose bed level and shall not be located above or through the booster tank. The compartment shall be located between the booster tank and the right side compartments.

For ease of removal and replacement with limited staffing, the compartment shall be designed to carry all portable ladders vertically on their beams. Ladder racks that carry the ladders horizontally shall not be acceptable.

The compartment shall be constructed of 5052 1/8" aluminum with a brushed finish. Individual slides fabricated of 5052 H32 alloy aluminum shall be provided in the compartment on both sides to allow individual storage for all ladders. The slides shall be provided with permanently attached Rodex poly slip blocks with tapered front and rear edges allow easier loading/unloading of the ladders.

All ladders shall be capable of being removed individually without disturbing the remaining ladders.



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## **LADDER COMPARTMENT DOOR**

A smooth aluminum vertically hinged door with a slam-type latch shall be provided on the compartment. The latch shall be activated by a large "D" ring control. The use of lift-and-turn or small snap type latches on this door shall not be acceptable.

The door shall be covered with Chevron material.

## **PIKE POLE STORAGE**

Storage for two straight handle pike poles shall be provided in the ladder storage compartment.

## **LADDER COMPARTMENT LIGHT**

An LED light shall be provided in the ladder storage compartment. The light shall be mounted just inside the ladder compartment access door and activated with an automatic door switch.

The light switch shall be incorporated into the door ajar warning system in the cab.

## **ALCO LITE 24' 2-SECTION ALUMINUM LADDER**

One (1) Alco Lite model PEL-24, 24' NFPA compliant two section aluminum extension ladder shall be provided and mounted.

## **ALCO LITE 14' ALUMINUM ROOF LADDER**

One (1) Alco Lite PRL-14, 14' NFPA compliant aluminum roof ladder with folding hooks shall be provided and mounted.

## **ALCO LITE 10' ALUMINUM FOLDING ATTIC LADDER**

One (1) Alco Lite model FL-10, 10' NFPA compliant aluminum folding attic ladder shall be provided and mounted.

## **ENCLOSED HARD SUCTION COMPARTMENT**

A compartment for hard suction shall be provided on the left side of the apparatus with an access door with 12" wide x 23 1/2" high opening on the rear. The compartment shall be located below the hose bed level and between the booster tank and the left side compartments.

The compartment shall be constructed of 5052 1/8" aluminum with individual tubular slides constructed of PVC for storage of two lengths of hard suction. Each hard suction shall be capable of being removed individually without having to disturb the remaining hard suction.

The compartment shall have a small LED light mounted just inside the door with an automatic door switch. The light shall be incorporated into the door ajar warning system in the cab.

## **HARD SUCTION COMPARTMENT DOOR**

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A smooth aluminum vertically hinged door with a slam-type latch shall be provided on the compartment. The latch shall be activated by a large "D" ring control. The use of lift-and-turn or small snap type latches on this door shall not be acceptable.

The door shall be covered with Chevron material.

## **PIKE POLE STORAGE**

Storage for two straight handle pike poles shall be provided in the hard suction storage compartment.

## **6" x 10' HARD SUCTION HOSES (2)**

Two sections of 6" diameter x 10' length clear lightweight PVC hard suction hose shall be provided.

The hard suction shall be coupled long handle female NST x rocker lug male NST.

The hard suction shall be Harrington brand.

## **COMPARTMENT SHELF TRACKS - ALUMINUM**

Six (6) 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 four (4) 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 a total of three (3) 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

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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 a total of two (2) 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.

NOTE: The door for this compartment shall also cover the chassis fuel fill.

## **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 a total of three (3) spare SCBA cylinders.

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

## **PASSENGER'S SIDE REAR OF WHEELWELL SPARE CYLINDER COMPARTMENT**

A compartment shall be provided in the wheel area behind the rear axle on the passenger's side to hold a total of three (3) 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.

## **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.

## **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.

## **PAC-TRAC MOUNTING BOARDS**

There shall be four (4) PAC-TRAC mounting board(s) provided and mounted in the apparatus. The mounting boards shall be approximately 30" high x 40" wide.

## **PAC-TRAC MOUNTING BOARDS**

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There shall be two (2) PAC-TRAC mounting board(s) provided and mounted in the apparatus. The mounting boards shall be approximately 30" high x 52" wide.

## **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.

## **TURTLE TILE BEVELED EDGES - YELLOW**

The Turtle Tile shall have yellow beveled edge "ramps" on the outer edge of the compartments.

## **ROLL OUT TRAY**

There shall be two (2) roll out tray(s) provided. The tray shall be constructed of 3/16" aluminum. The tray shall have a 2" upward bent lip on all four sides of the tray.

250 lb. total capacity heavy duty ball bearing type telescoping slides shall be provided.

A positive latching mechanism shall be provided to hold the tray in either the fully open or fully closed position.

## **TURTLE TILE ROLL OUT TRAY MAT**

Each roll out tray shall have Turtle Tile matting.

## **FOLDING ACCESS STEPS**

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 1901. 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.

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.

Three NFPA compliant folding steps shall be provided on the rear of the apparatus on the left side.

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## **INTERMEDIATE HOSEBED STEP**

A full width aluminum treadbrite step shall be provided on the rear face of the apparatus. The step assembly shall be bolted into place using stainless steel fasteners.

## **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.

## **LEFT REAR VERTICAL HAND RAILS**

An NFPA compliant handrail shall be provided on the left rear of the apparatus for boarding the rear step and using the left rear hose bed access steps.

## **RIGHT REAR VERTICAL HAND RAILS**

An NFPA compliant handrail shall be provided on the right rear of the apparatus for boarding the rear step and using the right rear hose bed access steps.

## **RIGHT FRONT GRAB RAIL**

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

## **LEFT FRONT GRAB RAIL**

A 12" NFPA compliant horizontal handrail shall be provided on the 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.

## **INTERMEDIATE REAR HORIZONTAL HAND RAIL**

An intermediate horizontal handrail shall be provided on the rear of the apparatus.

## **WALKWAY GRAB RAILS**

1 1/4" diameter extruded aluminum "knurled finish" handrails with chrome plated stanchions shall be provided on each side of the walkway entry.

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## **NFPA 1901 CERTIFIED 12 VOLT ELECTRICAL SYSTEM**

The 12-volt apparatus body electrical system shall be provided and shall be in compliance with NFPA 1901 testing and certification procedures as follows:

### **NFPA MINIMUM ELECTRICAL LOAD DEFINITION**

The NFPA 1901 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 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**

The first electrical test to be performed will be the Reserve Capacity Test. 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 1901). 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.

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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.**

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## **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.

## **AUTOMATIC HIGH IDLE FUNCTION**

An automatic high idle system shall be installed and will activate whenever the system voltage drops below a determined voltage. The high idle will remain on until adequate voltage is achieved.

## **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.

## **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 operators 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 lighting systems that are controlled by a single, dash mounted switch are not acceptable.**

## **COMPARTMENT LIGHT SWITCHES**

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



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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.

## **LED PERIMETER GROUND LIGHTING -three (3)**

There shall be three (3) 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 model M6RC red LED light with clear lens shall be provided shall be provided on each side of the apparatus as low and as far rearward as possible on the apparatus. A chrome bezel shall be provided around the lights.

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## **REAR FACING LOWER WARNING LIGHTS**

Two Whelen model M6RC red LED lights with clear lens shall be provided on the lower rear of the apparatus. A chrome bezel shall be provided around the lights.

## **WHELEN M9RC UPPER ZONE B/D WARNING LIGHTING**

Two Whelen model M9RC red LED light heads with clear lens shall be mounted on each side of the apparatus above the side compartments. An M9FC chrome bezel shall be provided for each light.

## **WHELEN M9RC/M9BC UPPER ZONE C WARNING LIGHTING**

One Whelen model M9RC red LED light head with clear lens and one Whelen M9BC blue LED light head with clear lens shall be mounted on the rear of the apparatus. Red on the driver's side and blue on the passenger's side. An M9FC chrome bezel shall be provided for each light.

## **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 1901.

## **DIRECTIONAL LIGHT MOUNTING - HOSEBED DIVIDER SUPPORT**

The arrowstick/advisor shall be mounted under the upper rear hosebed divider support.

## **FRC SPA900-Q70 SCENE LIGHTS (6)**

Six FRC model SPA900-Q70 scene lights shall be provided and mounted two on each side and one on each side on the rear. The lights shall be 12VDC and create up to 7,000 lumens each.

The lights shall have a chrome plate trim bezel.

## **12 VOLT SCENE LIGHT ACTIVATION SWITCH (1)**

A single switch shall be located on the cab control console to activate the 12 volt scene light(s).

## **DUAL FUNCTION SCENE LIGHT(S)**

The side rear and rear facing scene light(s) shall activate automatically when the apparatus transmission is placed into reverse.

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## **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.

## **FRC SPECTRA LED TELESCOPING LIGHT - 12 VOLT**

Two (2) Fire Research model SPA540-Q20 top raising telescoping light(s) shall be mounted on the apparatus. The lighthouse shall be 12 volt LED and shall draw a maximum of 18 amps creating 20,000 lumens.

The telescoping pole shall be constructed of heavy wall anodized tube. 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 be electrically tested so that they are safe for their intended use. The light(s) shall be certified by Underwriters Laboratories (UL) and shall meet/exceed NFPA 1901.

The telescoping light(s) shall be equipped with an on/off switch on the pump panel.

The telescoping light(s) shall be equipped with a FRC "TW" retractile coil cord out of the lighthouse.

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

## **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 1901 standards inside the cab.

## **PAINT PROCEDURE - PPG DELFLEET BASE COAT/CLEAR COAT**

All interior compartment surfaces shall remain # brushed stainless steel. There shall be no paint or any other type of coating on the interior compartment surfaces. Standard mill finish, DA finish or swirled finish shall not be accepted.

Any exterior surfaces that are to be painted shall be individually listed in the apparatus body portion of this specification.

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

## **PPG CERTIFIED 10 YEAR LIMITED PAINT WARRANTY**

The apparatus body exterior finish paint shall have a 10 year limited warranty. The warranty shall be certified by the manufacturer of the paint. Documentation of this shall be provided to the end user. Any warranty that is extended by the apparatus manufacturer and not backed by the paint manufacturer will not be acceptable.

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## **PPG Commercial OEM Product Warranty Coverage:**

### Warranty Inclusions:

- Delamination of the topcoat and/or other layers of paint.
- Cracking or checking due to failure of the product.
- Excessive loss of gloss caused by cracking, checking and hazing.

### Warranty Exclusions:

- Paint deterioration caused by blisters, bubbles, flaking or other degradation due to rust or corrosion originating from the substrate.
- Hazing, chalking or loss of gloss caused by improper care, abrasive polishes, cleaning agents, heavy-duty pressure washing, or aggressive mechanical wash systems.
- Paint deterioration caused by abuse, scratches, chips, gloss reduction, accidents, acid rain, chemical fallout, road treatment materials/chemicals or acts of nature.
- Any paint that was not applied by Toyne, Inc.
- Claims presented without proper Warranty documentation.
- Failure on finishes performed by Non-PPG Commercial Certified Technicians.
- Failure on finishes due to inadequate film builds.
- Failures due to improper cleaning or surface preparation or failure to follow the product use instructions.

THESE ARE THE ONLY WARRANTIES THAT PPG MAKES, AND ALL OTHER EXPRESSED OR IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATIONS, ANY WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR USE, ARE DISCLAIMED BY PPG.

## **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.

## **SINGLE COLOR APPARATUS BODY PAINT**

The apparatus body shall have a single color scheme.

## **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**

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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.

## **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 1901 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.

## **RUB RAIL REFLECTIVE STRIPING - RED/WHITE**

A 2" width alternating red/white reflective stripe shall be applied to the recessed area of the rub rail.

## **REAR CHEVRON STRIPING**

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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.

## **FUEL TANK ACCESS**

A removable panel shall be provided on the rear of the apparatus for maintenance access to the top of the fuel tank.

## **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.

## **DRIVER'S SIDE FUEL FILL**

A chassis fuel fill shall be located in the driver's side rear wheel well. The fuel fill shall be properly vented.

## **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 behind a brushed stainless steel hinged door with flush latch. The fuel fill shall be properly vented.

## **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.

## **FRONT/REAR AXLE NUT COVERS AND BABY MOONS**

The front and rear axles shall have stainless steel nut covers and baby moons.

## **REAR PULLING EYES**

Two rear 3/4" CRS pulling eyes shall be provided under the rear tailboard. The eyes shall have a minimum of a 3" clear opening for passing chains through the eye.

## **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

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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.

## **SCBA SEAT DANGER LABEL - FAMA11**

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If the apparatus is equipped with SCBA seats in the cab, a permanent label shall be provided inside of the cab warning of the dangers of using the seat without the SCBA properly secured or seat insert in place. The label shall warn of potential injury or death that could be caused by improper use of the seat.

## **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.

## **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**



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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.

## **DO NOT RIDE ON REAR STEP WARNING LABEL - FAMA24**

A permanent label shall be provided at the rear step area stating that riding in this area while the vehicle is in motion is prohibited and shall warn of the potential dangers, including injury or death, in doing so.

## **DO NOT RIDE IN WALKWAY WARNING LABEL - FAMA24**

A permanent label shall be provided in the walkway/crosswalk stating that riding in this area while the vehicle is in motion is prohibited and shall warn of the potential dangers, including injury or death, in doing 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.

## **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.

## **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.

## **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.

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## **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.
- Equipment rack fluid.
- CAFS compressor system lubricant.
- Generator system lubricant.
- 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 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.

## **PUMP 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.

## **OPTICAL WARNING LIGHT CERTIFICATION**

The emergency warning light system shall be certified using one of the available methods provided for in NFPA 1901 13.8.16.

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## **SIREN CERTIFICATION**

The siren manufacturer shall certify the siren to NFPA 1901 13.9.1.1.

## **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 1901 13.3.2.
- Each of the component loads specified in NFPA 1901 13.3.3 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 1901 15.7.4. Documentation shall be provided with the completed apparatus.

## **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 1901 Rollover Stability requirements.

## **UNDERWRITER'S LABORATORIES TESTING**

The apparatus shall undergo an Underwriter's Laboratories Certification Test to insure that the completed apparatus meets the requirements of NFPA 1901. 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.

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Self-certification by the apparatus manufacturer will not be acceptable.

## **MANUFACTURER'S RECORD OF APPARATUS CONSTRUCTION**

All information required to comply with NFPA 1901 4.20.1 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 1901 4.20.2.

## **"AS BUILT" APPARATUS BODY OWNERS MANUALS (2)**

Two "as built" apparatus body owner's manual USB drives shall be provided with the apparatus. All apparatus body electrical schematics shall be provided as well as all instructional and maintenance manuals on components provided and permanently mounted on the apparatus. A copy of the final apparatus body build specifications shall also be included on the drive. The USB shall be "read only" and shall not allow modification.

To eliminate component confusion, generic documentation with equipment that is not provided on the apparatus body shall not be acceptable.

## **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 perform a "Familiarization and Demonstration" overview 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.

## **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.

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- 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 FAMILIARIZATION**

Familiarization of the apparatus shall include the following items related to the fire pump system:

- 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.

## **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.

## **WHEELCHOCKS**

One set (2 chocks) of Worden HWG heavy duty extruded aluminum wheel chocks shall be provided and mounted using UO815 under body brackets.