

# Quotation

## Description

### VEHICLE

0100-020	<b>MODEL</b>	FC-94
8012-019	<b>CUSTOMERS / OEMS</b>	Toyne (TOY1000)[1002914]
8011-022	<b>MODEL YEAR</b>	Model Year - 2022
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#
8010-201	<b>PUMP PROVISION</b>	Pump Provision Driveline Midship, Pump Mode Prog w/Auto Park Brake "N"
8009-013	<b>WATER &amp; FOAM TANK CAPACITY</b>	Water & Foam Tank Capacity 750 to 1250 Gallons

### CAB

1000-004	<b>CAB STYLE</b>	Cab Style MFD 10" Raised Roof
1501-018	<b>CAB FRONT FASCIA</b>	Cab Frt Fascia Classic w/Quad Headlight Bezels
1518-060	<b>FRONT GRILLE</b>	Cab Frt Grille FC-94
1551-002	<b>CAB UNDERCOAT</b>	Cab Undercoat
1552-002	<b>CAB SIDE DRIP RAIL</b>	Cab Side Drip Rail
1521-001	<b>CAB PAINT EXTERIOR</b>	Cab Paint Exterior Single Color
1533-001	<b>CAB PAINT MANUFACTURER</b>	Cab Paint Manufacturer PPG
1522-086	<b>CAB PAINT PRIMARY/LOWER COLOR</b>	Cab Paint Primary/Lower Color PPG Red FBCH 71663
8013-052	<b>CAB PAINT WARRANTY</b>	Cab Paint Warranty (1) Year/100,000 Miles
1334-044	<b>CAB PAINT INTERIOR</b>	Cab Paint Int Easy-to-Clean Gray
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
8004-031	<b>CAB STRUCTURAL WARRANTY</b>	Cab Structural Warranty (5) Year/Unlimited Miles
9001-006	<b>CAB TEST INFORMATION</b>	Cab Test Information Crash Test ECE-R29/SAE J2420/SAE J2422

### ELECTRICAL POWER DISTRIBUTION

5000-018	<b>ELECTRICAL SYSTEM</b>	Elec System 12V DC Multiplex
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
5031-005	<b>ACCESSORY POWER</b>	Accessory Pwr & Gnd Stud 40A Batt Dir & 15A Ign Sw & 225A Batt Dir OEM Conn

5011-001	<b>EXTERIOR ELECTRICAL TERMINAL COATING</b>	Exterior Electrical Terminal Coating Spray On Plasti Dip
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## ENGINE

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1701-166	<b>ENGINE</b>	Engine Diesel 380HP Cummins L9 - EPA 2021
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
1719-004	<b>ENGINE HIGH IDLE CONTROL</b>	Engine High Idle Ctrl Manual and Automatic
1710-001	<b>ENGINE PROGRAMMING ROAD SPEED GOVERNOR</b>	Engine Programming Road Speed Governor Enabled
1713-005	<b>AUXILIARY ENGINE BRAKE</b>	Aux Engine Brake VG Turbo
1708-002	<b>AUXILIARY ENGINE BRAKE CONTROL</b>	Aux Engine Brake Ctrl On/Off Sw Pnl
1720-003	<b>ELECTRONIC ENGINE OIL LEVEL INDICATOR</b>	Elec Engine Oil Level Indicator
1715-008	<b>FLUID FILLS</b>	Fluid Fills Under Cab
1735-001	<b>ENGINE DRAIN PLUG</b>	Engine Drain Plug
8002-001	<b>ENGINE WARRANTY</b>	Engine Warranty Cummins (5) Year/100,000 Miles
1707-116	<b>REMOTE THROTTLE HARNESS</b>	Rmt Throttle Harness Cab Harness Only 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

## AIR INTAKE

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2801-010	<b>ENGINE AIR INTAKE</b>	Engine Air Intake Filtration and Restriction w/Replaceable Element Abv Radiator
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## COOLING

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2704-019	<b>ENGINE FAN DRIVE</b>	Engine Fan Drive Variable Speed w/Actv Sw on Dash
2701-021	<b>ENGINE COOLING SYSTEM</b>	Engine Cooling System Serial Flow w/Package Drop-Out Prov
2711-002	<b>ENGINE COOLING SYSTEM PROTECTION</b>	Engine Cooling System Protection Light Duty Skid Plate
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
2709-001	<b>COOLANT HOSES</b>	Coolant Hoses Silicone
2710-005	<b>ENGINE COOLANT OVERFLOW BOTTLE</b>	Engine Coolant Overflow Expansion Bottle

## EXHAUST

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2901-068	<b>ENGINE EXHAUST SYSTEM</b>	Eng Exhaust Sys Under Frm RH Single Module Aftertreatment Inboard
2907-012	<b>DIESEL EXHAUST FLUID TANK</b>	Diesel Exhaust Fluid Tank LH 6 Gal Undercab Fill
2902-010	<b>ENGINE EXHAUST ACCESSORIES</b>	Engine Exhaust Acc Temp Mitigation
2906-002	<b>ENGINE EXHAUST WRAP</b>	Engine Exhaust Wrap

## TRANSMISSION

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1801-015	<b>TRANSMISSION</b>	Transmission Allison 3000 EVS
1806-001	<b>TRANSMISSION MODE PROGRAMMING</b>	Transmission Mode Programming 4th 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 AUXILIARY BRAKE</b>	2nd Gear Pre-Select
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

## POWER TAKE OFF

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2005-009	<b>PTO LOCATION</b>	PTO Location 8:00/4:00
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## DRIVELINE

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3001-014	<b>DRIVELINE</b>	Driveline MSI 1710 w/Meritor U-Joints w/Thrust Washers
3005-002	<b>MIDSHIP PUMP / GEARBOX</b>	Midship Pump Jackshaft Only
3008-054	<b>MIDSHIP PUMP / GEARBOX MODEL</b>	Midship Pump/Gearbox Model Hale QMAX Fwd
3048-004	<b>MIDSHIP PUMP GEARBOX DROP</b>	Midship Driveline Pump Gearbox Drop Hale "L"
3009-020	<b>MIDSHIP PUMP RATIO</b>	Midship Pump Ratio 2.28:1 (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"

## FUEL SYSTEMS

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3109-067	<b>FUEL FILTER/WATER SEPARATOR</b>	Fuel Filter/Wtr Separator Fleetguard FS20121 w/Lt & Alarm
3111-001	<b>FUEL LINES</b>	Fuel Lines Nylon
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
3130-001	<b>FUEL TANK MATERIAL AND FINISH</b>	Fuel Tank Material Steel & Finish Painted Frame Components Color
3131-001	<b>FUEL TANK STRAP MATERIAL AND FINISH</b>	Fuel Tank Strap Material Steel & Finish Painted Frame Components Color
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

## FRONT AXLE

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2401-003	<b>FRONT AXLE</b>	Frt Axle Meritor MFS 20000# Beam
8059-020	<b>FRONT AXLE WARRANTY</b>	Front Axle Warranty Meritor 2022
2405-001	<b>FRONT WHEEL BEARING LUBRICATION</b>	Frt Wheel Bearing Lube Oil

## FRONT SUSPENSION

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2502-002	<b>FRONT SHOCK ABSORBERS</b>	Frt Shock Absorbers Bilstein
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2501-016    **FRONT SUSPENSION**

Frt Suspension 10 Leaf 20000-21500#

## **STEERING**

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2601-005	<b>STEERING COLUMN/WHEEL</b>	Steering Column/Wheel Tilt/Telescopic 18" 2 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

## **REAR AXLE**

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3401-003	<b>REAR AXLE</b>	Rear Axle 27000# Meritor RS-25-160
3403-001	<b>REAR AXLE DIFFERENTIAL LUBRICATION</b>	Rear Axle Differential Lubrication Oil
8061-017	<b>REAR AXLE WARRANTY</b>	Rear Axle Warranty Meritor 2022
3411-001	<b>REAR WHEEL BEARING LUBRICATION</b>	Rear Wheel Bearing Lubrication Oil
3408-008	<b>VEHICLE TOP SPEED</b>	Vehicle Top Speed 68 MPH

## **REAR SUSPENSION**

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3501-032	<b>REAR SUSPENSION</b>	Rear Susp Reyco 79KB Spring 21000-31500# Conventional
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## **TIRES**

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3625-002	<b>TIRE INTERMITTENT SERVICE RATING</b>	Tire Intermittent Service Ratings Acceptable
3601-038	<b>FRONT TIRE</b>	Frt Tire 315/80R 22.5 Goodyear G289 WHA
3602-043	<b>REAR TIRE</b>	Rear Tire 12R 22.5 Goodyear G622 RSD
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

## **WHEELS**

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3701-036	<b>FRONT WHEEL</b>	Frt Wheel Alcoa LvL One 22.5 x 9.00 Alum
3703-027	<b>REAR WHEEL</b>	Rr Whl Alcoa LvL One 22.5 x 8.25 Alum

## **BRAKES**

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3205-012	<b>BRAKE SYSTEM</b>	Brake System ABS/ATC/ESC Sgl Axle
3206-001	<b>FRONT BRAKES</b>	Frt Brakes S-Cam Drum 16.5" x 6"
3207-009	<b>REAR BRAKES</b>	Rr Brakes S-Cam Drum 16.5" x 8.6" Cast Iron Shoe
3208-001	<b>PARK BRAKE</b>	Prk Brake Rr Wheels Only
3204-029	<b>PARK BRAKE CONTROL</b>	Prk Brake Ctrl LH Tunnel Mnt, Integrated w/Shift Pod Console
3213-001	<b>FRONT BRAKE SLACK ADJUSTERS</b>	Frt Brake Slack Adjusters Meritor
3214-001	<b>REAR BRAKE SLACK ADJUSTERS</b>	Rr Brake Slack Adjusters Meritor
3202-001	<b>AIR DRYER</b>	Air Dryer Wabco System Saver 1200 Bhd RH Step
3215-001	<b>FRONT BRAKE CHAMBERS</b>	Frt Brake Chambers MGM Type 30
3210-015	<b>REAR BRAKE CHAMBERS</b>	Rr Brake Chambers TSE 30/36 Long Stroke

## AIR SUPPLY SYSTEMS

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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
3303-001	<b>MOISTURE EJECTORS</b>	Moisture Ejectors Manual
3307-001	<b>AIR SUPPLY LINES</b>	Air Sply Lines Nylon
3309-033	<b>AIR INLET CONNECTION</b>	Air Inlet Connection
3349-002	<b>AIR INLET LOCATION</b>	Air Inlet Location LH Lwr Frt Step Fwd
3326-002	<b>AIR INLET/OUTLET FITTING TYPE</b>	Air Inlet/Outlet Manual Conn Tru-Flate Interchange 1/4"

## FRAME

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2103-2100	<b>WHEELBASE</b>	Wheelbase 210.0"
2106-0470	<b>REAR OVERHANG</b>	Rear Overhang 47.0"
2101-002	<b>FRAME</b>	Frame Double Channel 35.00" Width
8007-032	<b>FRAME WARRANTY</b>	Frame Warranty 5 Years/Unlimited Mileage
2110-101	<b>FRAME PAINT</b>	Frame Paint Powder Coat Black

## BUMPER

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2201-001	<b>FRONT BUMPER</b>	Frt Bumper Stainless Steel Flat
2202-006	<b>FRONT BUMPER EXTENSION LENGTH</b>	Frt Bumper Extension Length 24"
2208-007	<b>FRONT BUMPER APRON</b>	Frt Bumper Apron For 24" Extension
2237-010	<b>FRONT BUMPER DISCHARGE</b>	Front Bumper Discharge 2.0" RH 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
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
5504-060	<b>ELECTRONIC SIREN SPEAKER</b>	Elect Siren Speaker 100W Federal Signal Dynamax w/EF Grille
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

## CAB TILT

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2301-001	<b>CAB TILT SYSTEM</b>	Cab Tilt System
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

## CAB GLASS

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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

## CLIMATE CONTROL

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1614-101	<b>CLIMATE CONTROL</b>	Climate Ctrl Htr Defroster Frt Ovrhd/Htr A/C Tunnel Mnt
1632-002	<b>CLIMATE CONTROL DRAIN</b>	Climate Control Drain Gravity
1617-101	<b>CLIMATE CONTROL ACTIVATION</b>	Climate Ctrl Actv Device Mnt Ovrhd/Device Mnt Tunnel
1603-003	<b>A/C CONDENSER LOCATION</b>	A/C Condenser Location Roof Mnt Fwd Ctr
1601-001	<b>A/C COMPRESSOR</b>	A/C Compressor Large Capacity
1530-100	<b>UNDER CAB INSULATION</b>	Under Cab Insulation Engine Tunnel

## CAB INTERIOR

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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
1307-002	<b>ENGINE TUNNEL TRIM</b>	Eng Tnl Trim Flr Mat
5040-086	<b>POWER POINT DASH MOUNT</b>	Pwr Pnt Dash Mnt Batt Dir (1) Sw Pnl/(1) Dual USB 2.1A Batt Dir Sw Pnl
1303-017	<b>STEP TRIM</b>	Step Trim Grip Strut Lwr Flex-Tred Mid
1102-013	<b>INTERIOR DOOR TRIM</b>	Interior Door Trim Painted
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"
1301-003	<b>INTERIOR SOFT TRIM COLOR</b>	Interior Soft Trim Color Gray
1337-001	<b>INTERIOR TRIM SUNVISOR</b>	Interior Trim Sunvisor Vinyl
1304-001	<b>INTERIOR FLOOR MAT COLOR</b>	Interior Floor Mat Color Gray
1335-023	<b>CAB PAINT INTERIOR DOOR TRIM</b>	Cab Paint Int Dr Trim Easy-to-Clean Gray
1371-024	<b>HEADER TRIM INTERIOR PAINT</b>	Header Trim Interior Paint Easy-to-Clean Gray
1370-027	<b>TRIM CENTER DASH INTERIOR PAINT</b>	Trim Center Dash Interior Paint Easy-to-Clean Matte Gray
1378-026	<b>TRIM LEFT HAND DASH INTERIOR PAINT</b>	Trim LH Dash Interior Paint Easy-to-Clean Matte Gray
1373-026	<b>TRIM RIGHT HAND DASH INTERIOR PAINT</b>	Trim RH Dash Interior Paint Easy-to-Clean Matte Gray
1344-002	<b>DASH PANEL GROUP</b>	Dash Pnl Group 3-Pnl
1312-005	<b>SWITCHES CENTER PANEL</b>	Switches Ctr Pnl 12 Up
1313-004	<b>SWITCHES LEFT PANEL</b>	Switches Left Pnl 8 (6+2) w/Headlight/Dimmer/Wiper
1314-001	<b>SWITCHES RIGHT PANEL</b>	Switches Right Pnl 0

## **CAB SEATS**

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1225-018	<b>SEAT BELT WARNING</b>	Seat Belt Warn Indv Seat Loc & LED Display w/VDR Weldon
1237-005	<b>SEAT MATERIAL</b>	Seat Material Durawear Plus
1243-001	<b>SEAT COLOR</b>	Seat Color Gray/Red Seat Belts
1249-001	<b>SEAT BACK LOGO</b>	Seat Back Logo Spartan
1201-022	<b>SEAT DRIVER</b>	Seat Driver Bostrom Firefighter 4-Way Air ABTS
1213-025	<b>SEAT BACK DRIVER</b>	Seat Back Driver Non-SCBA ABTS
1219-001	<b>SEAT MOUNTING DRIVER</b>	Seat Mounting Driver
1202-047	<b>SEAT OFFICER</b>	Seat Officer Bostrom Firefighter Fixed 300 Series ABTS
1214-030	<b>SEAT BACK OFFICER</b>	Seat Back Officer SCBA Bostrom SecureAll w/Quick-Adjust
1220-002	<b>SEAT MOUNTING OFFICER</b>	Seat Mounting Officer
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
1203-026	<b>SEAT CREW REAR FACING OUTER</b>	Seat Crew RFO Bostrom Firefighter Fixed 300 Series
1215-027	<b>SEAT BACK REAR FACING OUTER</b>	Seat Back RFO SCBA Bostrom SecureAll w/Quick-Adjust
1221-009	<b>SEAT MOUNTING REAR FACING OUTER</b>	Seat Mounting RFO Rwd 2"
1266-001	<b>SEAT FORWARD FACING CENTER LOCATION</b>	Seat FFC Location (2) Ctr
1206-041	<b>SEAT CREW FORWARD FACING CENTER</b>	Seat Crew FFC Bostrom Firefighter Flip-Up 300 Series
1218-031	<b>SEAT BACK FORWARD FACING CENTER</b>	Seat Back FFC SCBA Bostrom SecureAll w/Quick-Adjust
1269-112	<b>SEAT FRAME FORWARD FACING</b>	Seat Frm Fwd Fcg Risers
1224-002	<b>SEAT MOUNTING FORWARD FACING CENTER</b>	Seat Mounting Forward Facing Center

## **CAB EXTERIOR**

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1511-200	<b>WINDSHIELD WIPER SYSTEM</b>	Windshield Wiper System
1534-002	<b>ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR</b>	Electronic Windshield Fluid Level Indicator
1103-002	<b>CAB DOOR HARDWARE</b>	Cab Door Hardware Black Composite
1111-001	<b>DOOR LOCKS</b>	Door Locks Manual
1503-002	<b>GRAB HANDLES</b>	Grab Handles SS 18"
1504-078	<b>REARVIEW MIRRORS</b>	Mirror West Coast Retractable 1171-980-4 Rmt
1513-003	<b>CAB FENDER</b>	Cab Fender Rubber
1526-005	<b>CAB EXTERIOR FRONT &amp; SIDE EMBLEMS</b>	Cab Ext Frt & Side Emblems Spartan Frt Only

## **START / CHARGING SYSTEMS**

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5109-001	<b>IGNITION</b>	Ign Mstr Sw w/Keyless Start
5101-020	<b>BATTERY</b>	Batt (3) Group 31 Harris
5106-001	<b>BATTERY TRAY</b>	Batt Tray LH Steel
5107-002	<b>BATTERY BOX COVER</b>	Batt Box Cover LH Steel w/Black Handle
5102-001	<b>BATTERY CABLE</b>	Batt Cables
5108-011	<b>BATTERY JUMPER STUD</b>	Batt Jumper Stud Rear LH Batt Box
5104-001	<b>ALTERNATOR</b>	Alternator Leece-Neville 270A



5105-001	<b>STARTER MOTOR</b>	Starter Motor Delco
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## **LINE VOLTAGE ELECTRICAL POWER DISTRIBUTION**

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5202-075	<b>BATTERY CONDITIONER</b>	Batt Cond Kussmaul Auto Charge 40 LPC LH RFO Seat Position
5203-002	<b>BATTERY CONDITIONER DISPLAY</b>	Batt Cond Display LH Mid Glass
3314-076	<b>AUXILIARY AIR COMPRESSOR</b>	Aux Air Cmp Kussmaul 12V RH Under Dash w/Autodrain
5209-002	<b>ELECTRICAL INLET LOCATION</b>	Elec Inlet Location LH Cab Side Mid
5204-055	<b>ELECTRICAL INLET</b>	Elec Inlet 120V 20A Auto Eject
5210-004	<b>ELECTRICAL INLET CONNECTION</b>	Elec Inlet Conn to Batt Conditioner
5206-002	<b>ELECTRICAL INLET COLOR</b>	Elec Inlet Color Yellow

## **LIGHTING**

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5301-102	<b>HEADLIGHTS</b>	Headlights 4 Headlamps LED
5303-037	<b>FRONT TURN SIGNALS</b>	Frt Turn Signals Techniq K60 LED Arrow
5337-001	<b>HEADLIGHT LOCATION</b>	Headlights Below Frt Warn Lts
5336-015	<b>SIDE TURN/MARKER LIGHTS</b>	Side Turn/Marker Lts LED Tecniq S170
5302-022	<b>MARKER &amp; ICC LIGHTS</b>	Marker & ICC Lts Face Mnt LED Tecniq S170
5350-092	<b>HEADLIGHT AND MARKER LIGHT ACTIVATION</b>	Hdlt & Mrkr Lt Actv Rkr Sw/DRL Ign Sw
5308-300	<b>GROUND LIGHTS</b>	Ground Lts Tecniq T44 LED
5386-002	<b>GROUND LIGHTING ACTIVATION</b>	Ground Lt Actv Prk Brk
5309-003	<b>LOWER CAB STEP LIGHTS</b>	Lwr Cab Step Lts Tecniq T44 LED
5382-007	<b>INTERMEDIATE STEP LIGHTS</b>	Intermediate Step Lts Tecniq D06 LED
5403-062	<b>LIGHTBAR PROVISION</b>	Lightbar Prov Wire & Lwr Mnt Spartan Supply
5450-232	<b>CAB FRONT LIGHTBAR</b>	Cab Frt Ltbar Whelen Freedom F4N72QLED 6R2C Layout 1
5426-002	<b>LIGHTBAR SWITCH</b>	Lightbar Sw Pnl
5306-065	<b>SIDE SCENE LIGHTS</b>	Side Scene Lts Whelen 900 12V Super 24 LED Clear Gradient
5318-004	<b>SIDE SCENE LIGHT LOCATION</b>	Side Scene Lt Loc Upper Mid Rwd 10" Roof Position
5316-004	<b>SIDE SCENE ACTIVATION</b>	Side Scene Actv Indv Sw & Resp Side Doors
5305-300	<b>INTERIOR OVERHEAD LIGHTS</b>	Interior Overhead Lts LED
5312-003	<b>ENGINE COMPARTMENT LIGHT</b>	Engine Cmpt Work Lt LED (1)

## **OPTICAL WARNING DEVICES**

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5406-119	<b>DO NOT MOVE APPARATUS LIGHT</b>	Do Not Move App Lt Flashing Red Tecniq K50 LED w/Alarm
5422-001	<b>MASTER WARNING SWITCH</b>	Mstr Warn Sw Pnl
5401-082	<b>INBOARD FRONT WARNING LIGHTS</b>	Inboard Frt Warn Lts Whelen C6 LED Chrm Bezel
5413-002	<b>INBOARD FRONT WARNING LIGHTS COLOR</b>	Inboard Frt Warn Lts Color Red
5423-007	<b>FRONT WARNING SWITCH</b>	Frt Warn Sw Pnl
5404-114	<b>INTERSECTION WARNING LIGHTS</b>	Intersection Warn Lts Whelen C6 LED
5419-002	<b>INTERSECTION WARNING LIGHTS COLOR</b>	Int Warn Lts Color Red
5420-002	<b>INTERSECTION WARNING LIGHTS LOCATION</b>	Intersection Warn Lts Location Bumper Tail Rwd
5424-008	<b>SIDE AND INTERSECTION WARNING</b>	Side & Intersection Warn Sw Pnl



## SWITCH

### AUDIBLE WARNING DEVICES

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5510-004	<b>SIREN CONTROL HEAD</b>	Siren Ctrl Head Whelen 295HFS2
5514-002	<b>STEERING WHEEL HORN BUTTON SELECTOR SWITCH</b>	Horn Btn Sel Sw Elec Horn/Air Horn
5527-002	<b>AUDIBLE WARNING RH FOOT SWITCH</b>	Audible Warning RH Foot Switch Air Horn
5527A-001	<b>AIR HORN FOOT SWITCH RH</b>	Air Horn Foot Switch RH Linemaster 491-S
5527B-002	<b>AIR HORN FOOT SWITCH RH LOCATION</b>	Air Horn Foot Switch RH Location Temporary Firewall Inboard Coiled
5530-002	<b>AUDIBLE WARNING RH FOOT SWITCH BRACKET</b>	Audible Warn RH Ft Sw Indv Brkt 30Deg TPlate Shiploose
5531-002	<b>AIR HORN CIRCUIT INTERLOCK</b>	Air Horn Circuit Interlock Master Warn
5505-002	<b>BACK-UP ALARM</b>	Back-Up Alarm Ecco 575

### INSTRUMENTATION

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5601-041	<b>INSTRUMENTATION</b>	Instrumentation Standard
5624-001	<b>BACKLIGHTING COLOR</b>	Backlighting Color Red

### COMMUNICATIONS SYSTEMS

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5701-043	<b>RADIO</b>	Radio Jensen WB/AM/FM/CD/iPod/Sat Lower RH Ctr Pnl
5707-002	<b>AM/FM ANTENNA</b>	AM/FM Antenna LH Fwd Cab Roof
5728-009	<b>CAMERA REAR</b>	Camera HD Rear Box
5731-012	<b>CAMERA DISPLAY</b>	Camera Display LH HD Monitor
5703-010	<b>COMMUNICATION ANTENNA</b>	Comm Ant Base RH Fwd Cab Rf Spartan Sply
5708-003	<b>COMMUNICATION ANTENNA CABLE ROUTING</b>	Comm Ant Cable Routing Under Rkr Sw Pnl
5020-001	<b>PANEL LAYOUT</b>	Panel Layout

### ADDITIONAL EQUIPMENT

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8814-002	<b>CAB EXTERIOR PROTECTION</b>	Cab Exterior Protection Front
8806-001	<b>FIRE EXTINGUISHER</b>	Fire Extinguisher Shiploose
8810-001	<b>DOOR KEYS</b>	Door Keys for Manual Locks (4)

### SALES ADMIN

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8003-195	<b>WARRANTY</b>	Warranty Cab and Chassis 2022 (1) Year
8030-006	<b>CHASSIS OPERATION MANUAL</b>	Chassis Operation Manual Digital Copy (2)
8031-034	<b>ENGINE &amp; TRANSMISSION OPERATION MANUAL</b>	Eng & Trans Op Man Eng Hard Copy/Trans Digital/Eng Owner Digital USB Flash Drive
8805-007	<b>CAB/CHASSIS AS BUILT WIRING DIAGRAMS</b>	Cab/Chassis As Built Wiring Diagrams Digital Copy (2)
8039-001	<b>SALES TERMS</b>	Sales Terms

### ENGINEERING

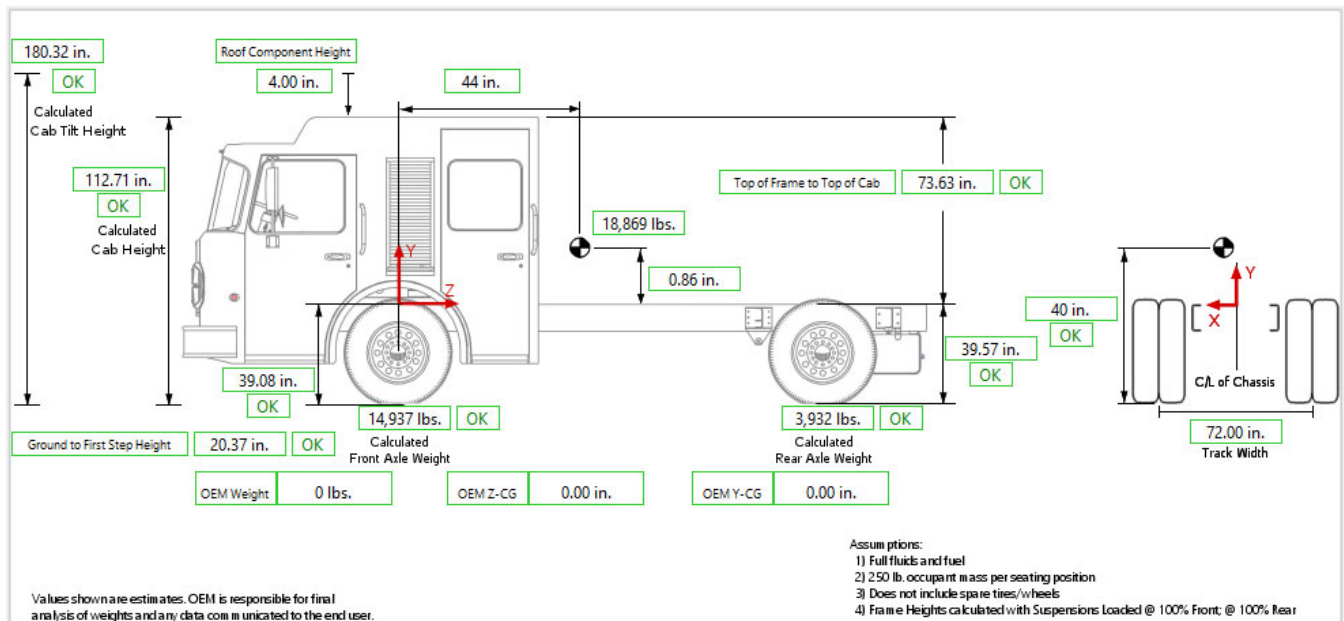
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9005-002	<b>DRIVELINE LAYOUT CONFIRMATION</b>	Driveline Layout Confirmation Required
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2124-009 **EFCM/REAR CROSSMEMBERS**

End of Frame Cross Member 2.25" From EOF

# Weight Distribution

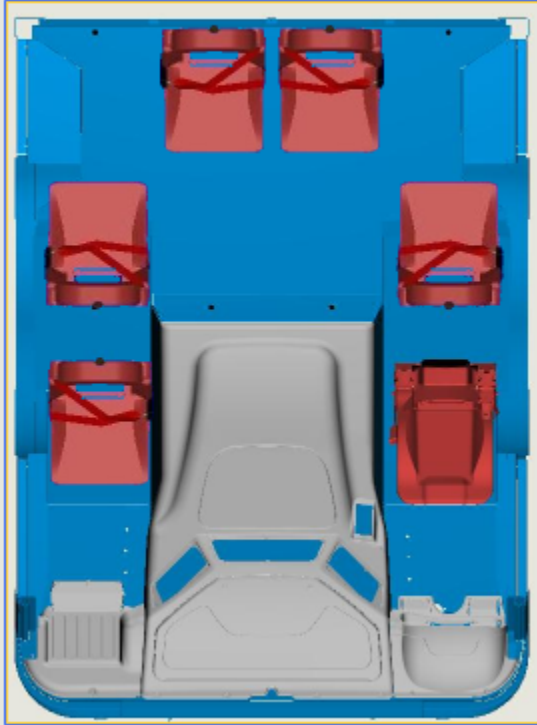


Calculated Apparatus Weight 18,869 lbs.  
 Calculated Apparatus Z-CG 44 in.  
 Calculated Apparatus Y-CG 0.86 in.

Note:

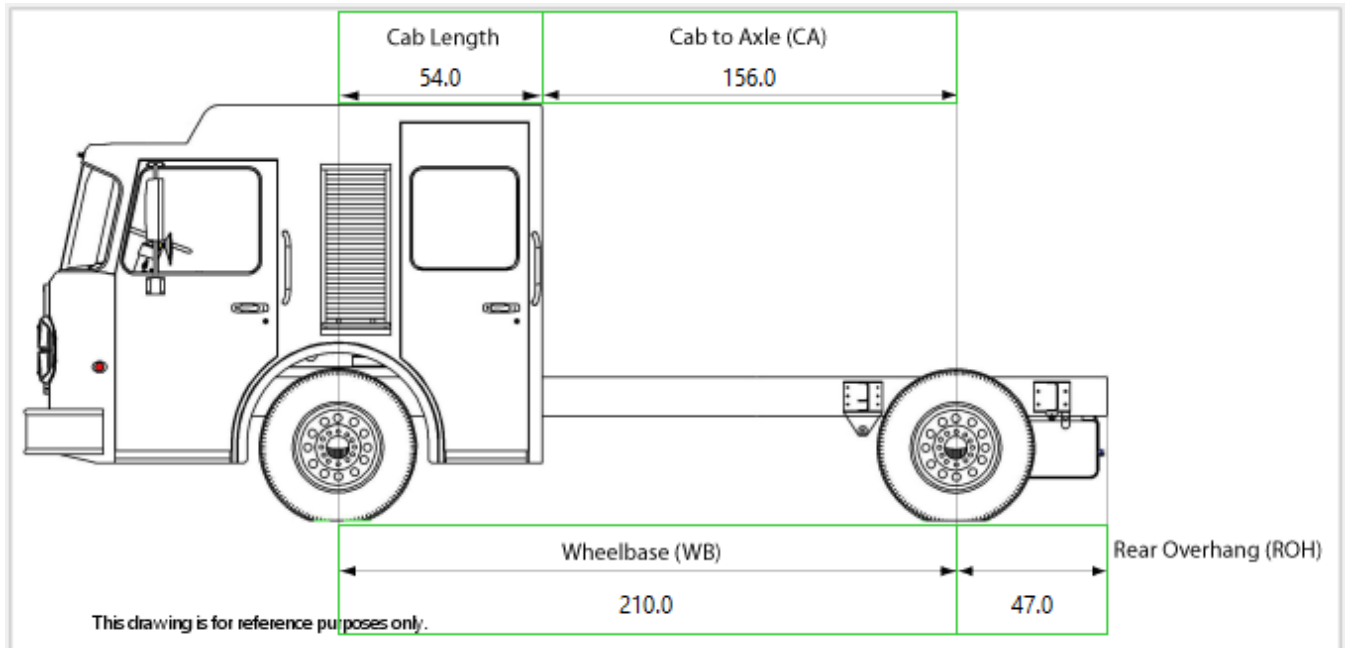
The Y-CG value above is calculated from the top of the frame.  
 Apparatus refers to total combined value for cab and chassis and OEM inputs.

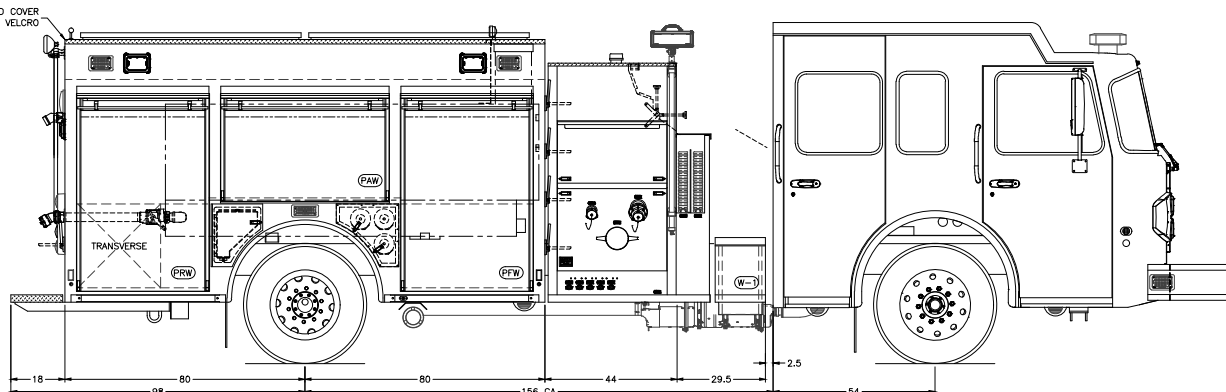
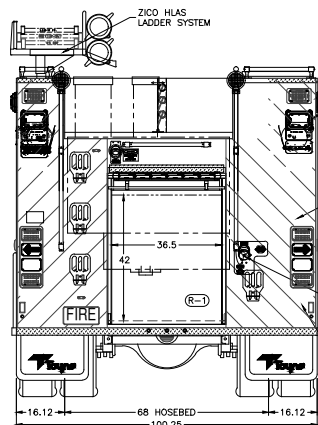
## *Seat Locations*



This drawing is for reference purposes only.

## *Frame Dimensions*

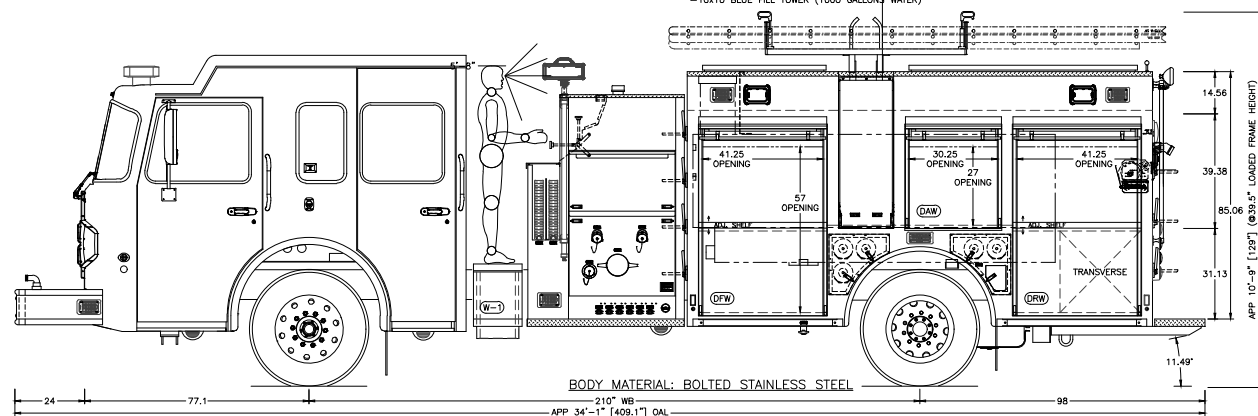
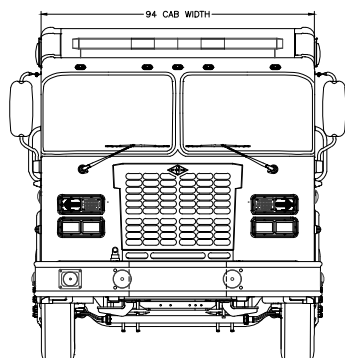
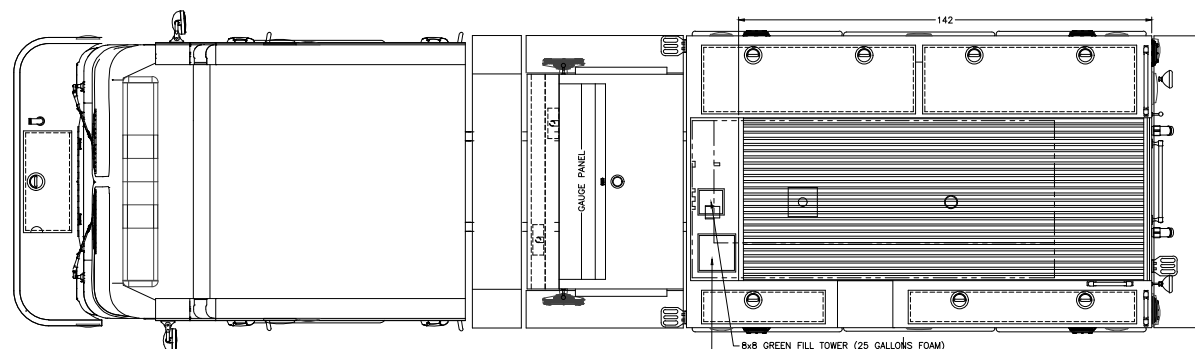




TREADBRITE TEXTURE NOT SHOWN IN TOP VIEW

REFERENCE SCALE IN INCHES

COMP.	HEIGHT	WIDTH	USABLE DEPTH	DIVIDE	FT.
0	10	20	30	40	
COMP.	HEIGHT	WIDTH	USABLE DEPTH	DIVIDE	FT.
DFW	67.12	47.88	14	26	35.35
DAW	37.12	63.75	14	26	19.18
DRW	67.12	44.00	14	26	32.49
PFW	67.12	47.88	14	26	35.35
PAW	37.12	63.75	14	26	19.18
PRW	67.12	44.00	14	26	32.49
R-1	61.12	44.00	30	26	46.68
HOSEBED	19	68	142	26	106.17
FRONT XRAY	25.75	4.62	73.75	26	5.08
REAR XRAY	25.75	4.62	73.75	26	5.08



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

ORIGINAL DRAWING	19MAR21	CHASSIS:	SPARTAN FC97 MFD 10" RR	SCALE:	1/66	SHEET:	A
		WB-CA-AF:	210"-156"-47"	CITY:	---		
		BODY MATL:	BOLTED STAINLESS STEEL	STATE:	--		
		PUMP:	HALE QMAX 1500	DLR:	--		
		TANK:	1000/20 UPF POLY-TANK III	CAD:	GROSSMAN		
		FOAM SYSTEM:	PRE-PIPE	DATE:	19 MARCH 2021		
		GENERATOR:	N/A	FILE:	13030TMDemo		

**Toyne**  
Breda, IA 51436  
800-648-3358  
WWW.TOYNE.COM

**DEMO**  
CUSTOM PUMPER

# Toyne Inc.

## **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.

## **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



# Toyne Inc.

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:

- 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 1500 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**

# Toyne Inc.

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 - 1,500 U.S. GPM.**

The pump shall be a single stage centrifugal with a class "A" rated capacity of 1,500 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.

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**

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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.

## **MECHANICAL SEAL**

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

## **SACRIFICIAL PUMP ANODES - (3)**

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

## **FRC PUMP BOSS PRESSURE GOVERNOR SYSTEM**

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

The following continuous displays shall be provided:

- Check engine/stop engine warning lights

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- Engine rpm shown with four daylight bright LED digits more than 1/2" high
- Engine oil pressure; shown on an LED bar graph display in 10 psi increments
- Engine temperature shown on an LED bar graph display in 10 degree increments
- Battery voltage shown on an LED bar graph display in 0.5 volt increments
- PSI / RPM setting; shown on a dot matrix message display
- PSI and RPM mode LEDs
- Throttle ready LED.

A 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.

The program shall store the accumulated operating hours for the pump and engine, previous incident hours, and current incident hours in a non-volatile memory. Stored elapsed hours shall be displayed at the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

- High Engine RPM
- Pump Overheat
- High Transmission Temperature
- Low Battery Voltage (Engine Off)
- Low Battery Voltage (Engine Running)
- High Battery Voltage
- Low Engine Oil Pressure
- High Engine Coolant Temperature

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 control knob that uses optical technology shall adjust pressure or RPM settings. It shall be 2" in diameter with no mechanical stops, a serrated grip, and have a red idle push button in the center.

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.

## **TFT A-18 INTAKE RELIEF VALVE**

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

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

## **PUMP SHIFT MECHANISM -AIR/ELECTRIC**

The pump shall be shifted from road to pump by means of a cab mounted air over electric pump shift switch. The switch

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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**

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**

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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.

## **HALE TRV120 THERMAL RELIEF VALVE**

A Hale 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 booster tank 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**

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

## **VENTED LUG CAPS AND PLUGS**

All 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**

One 2 1/2" discharge and one 3" discharge shall be provided on the right side pump panel. The 3" discharge shall be located forward of the intake and the 2 1/2" shall be located rear of the intake.



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## 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 3" discharge(s):

The right side 3" discharge shall be manually controlled on the pump panel. The control shall have an integrated slow closing mechanism to comply with NFPA 1901.

The discharge shall extend straight out of the apparatus and terminate in a 4" MNST fitting.

A Kochek 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.

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

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.

## **1 3/4" MID MOUNT CROSSLAY PRECONNECTS**

Two 1 3/4" preconnected crosslays shall be provided and located in front of the top mounted pump panel, located side by

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side. The crosslays shall be positioned between the top pump panel and the area where the pump operator stands.

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

## **ALUMINUM TREADBRITE HINGED COVER**

An aluminum treadbrite full length hinged cover shall be provided on the top of the crosslay compartment. Rubber spacer blocks shall be provided on the back of the cab to keep the cover from contacting the cab when the cover is in the raised position.

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

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

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

There shall be two (2) 2" swivel elbows with 1 1/2" male NST hose thread connections provided on the 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.

## **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.

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

## **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.

## **CAPPED MONITOR DISCHARGE**

The monitor discharge shall be capped with a female National Pipe Thread cap for future installation of monitor assembly.

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## **1 3/4" FRONT BUMPER DISCHARGE(S)**

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

The valve shall be manually controlled on the pump panel.

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

## **FRONT BUMPER HOSE WELL FLOOR - SMOOTH ALUMINUM**

The floor of the hose well shall be smooth aluminum with no covering.

## **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 - PASSENGER'S SIDE**

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

## **PUMP COMPARTMENT**

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

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

## **STAINLESS STEEL PUMP COMPARTMENT CONSTRUCTION**

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

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

An 18" 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, pump compartment and rear wall of the chassis.

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

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

## **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 12" 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 - 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 12" 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.

## **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 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**

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A brushed stainless steel hinged access door shall be provided on each side of the pump compartment. The doors shall be horizontally hinged and 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.

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.

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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.

## **ICI MASTER PUMP DISCHARGE PRESSURE GAUGE**

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

## **ICI MASTER PUMP INTAKE PRESSURE GAUGE**

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

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

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

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

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

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

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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.

## **IDENTIFICATION LABELS FOR PUMP PANEL**

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

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

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

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

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



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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.

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

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

## **BOOSTER TANK FILL TOWER - LEFT SIDE FRONT**

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" polypropylene and shall be a minimum of **12" x 12"** outer dimension. The tower shall be located in the left front corner of the hose bed. The tower shall have a 1/4" thick removable polypropylene screen and polypropylene hinged type cover.

## **4" TANK OVERFLOW**

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

## **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**

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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.

## **2 1/2" REAR TANK FILL(S)**

one (1) 2 1/2" rear tank fills shall be provided on the rear of the apparatus. The valve shall be located on the inside of the rear compartment with the valve control and connection located on the exterior. The fill valve shall be connected to the tank with 2 1/2" stainless steel pipe.

The rear fill shall be located on the right (passenger) side.

An Akron 8825 series valve with R-1 handle shall be utilized on the tank fill. The control for the valve and the valve bleeder/drain control shall be remoted to the exterior of the rear compartment.

The fill shall have a 2 1/2" FNST swivel connection and 30-degree elbow with a chrome plated plug and chain.

The piping and valve for the tank fill will extend into the side rear compartment and may interfere with equipment storage in that area.

A 3/4" bleeder valve shall be provided on the the tank fill.

## **3" TANK TO PUMP**

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

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

## **TANK TO PUMP CHECK VALVE**

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

## **HOT DIPPED GALVANIZED SUB FRAME**

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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.

## **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.

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## **COMPARTMENT FLOORS**

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

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

## **INTERIOR COMPARTMENT SURFACES**

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

## **FRONT COMPARTMENT CORNERS**

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

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

## **REAR COMPARTMENT CORNERS - BRUSHED**

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

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

## **COMPARTMENT TOPS/CEILINGS**

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

## **COMPARTMENT TOP OVERLAY**

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

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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**

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.

## **COMPARTMENT VENTILATION**

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

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A cleanable filter material shall be provided behind the plate.

Plastic cover plates will not be acceptable.

## **ROM SERIES IV ROLL UP COMPARTMENT DOORS**

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

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

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

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

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

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

## **STAINLESS STEEL COATED FASTENERS**

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

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

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

## **DRIVER'S SIDE COMPARTMENT 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.

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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 40.5" 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 x 26" 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 26" usable depth.

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

## **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.

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.



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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 FACE COMPARTMENT DOOR - ROLL UP**

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

## **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.

## **LEFT SIDE COFFIN COMPARTMENTS**

Coffin compartments shall be provided above the side compartments on the left side. The length of the compartments shall be the same as the length of the side compartments. The width shall be the same as the upper depth of the side access compartments. Maximum depth will be provided based on design of the apparatus.

## **LEFT COFFIN COMPARTMENT ACCESS DOORS**

Two aluminum treadbrite access doors shall be provided for access to the left side coffin compartments. The doors shall have a 1" raised lip to help keep water from running into the compartment. The doors shall be fully weather stripped and shall have flush D ring latches.

Two pneumatic shocks shall be provided on each door to hold the door in the open position.

## **LEFT SIDE COFFIN COMPARTMENT LIGHTING**

Each left side coffin compartment shall have one 18" ILI track type L.E.D. light mounted in the center of the compartment door opening(s). The lights shall be constructed of an unbreakable type clear poly type flexible material housed in an aluminum extrusion.

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

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## **RIGHT SIDE COFFIN COMPARTMENTS**

Coffin compartments shall be provided above the side compartments on the right side. The length of the compartments shall be the same as the length of the side compartments. The width shall be the same as the upper depth of the side access compartments. Maximum depth will be provided based on design of the apparatus.

## **RIGHT COFFIN COMPARTMENT ACCESS DOORS**

Two aluminum treadbrite access doors shall be provided for access to the right side coffin compartments. The doors shall have a 1" raised lip to help keep water from running into the compartment. The doors shall be fully weather stripped and shall have flush D ring latches.

Two pneumatic shocks shall be provided on each door to hold the door in the open position.

## **RIGHT SIDE COFFIN COMPARTMENT LIGHTING**

Each right side coffin compartment shall have one 18" ILI track type L.E.D. light mounted in the center of the compartment door opening(s). The lights shall be constructed of an unbreakable type clear poly type flexible material housed in an aluminum extrusion.

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

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

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

## **18" REAR TAILBOARD STEP**

The outer rear edge of the rear step shall be positioned 18" from the rear face of the apparatus. This shall include an approximate 3/4" wash out gap at the rear face of body.

## **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**

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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 - 56" WIDE**

The hose bed shall be 56" wide from side to side.

## **HOSE BED CAPACITY**

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

## **HOSE BED DIVIDER(S)**

There shall be two (2) hose bed divider(s) to partition off hose. The divider(s) shall be constructed of 3/16" thick aluminum plate material. The lower edge of the divider(s) shall have a two inch 90-degree bend toward one side and a 2" x 2" x 3/16" aluminum angle welded to the other side.

The divider(s) shall be adjustable by sliding in tracks which are recessed flush into the hose bed flooring, one on front and one on rear. The divider shall be held in place by two bolts on each end.

The upper rear corner of the divider(s) shall have a minimum of a 3" radius cut with a 1" aluminum rub plate.

## **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).

## **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.

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## **HOSE BED COVER - RED**

The hose bed cover shall be red.

## **ELECTRIC/HYDRAULIC LADDER RACK - ZICO HLAS**

An electric over hydraulic ladder rack shall be installed on the left side of the apparatus body. A 12 volt electric hydraulic power pack shall be provided to operate the hydraulic cylinder. The pack shall be installed inside the compartment with all hydraulic hoses be properly protected and routed to prevent damage to the hoses.

**The ladder rack shall be of the single center pivot arm design and shall not require any stabilizing arms on the front or rear that hinder access to the side compartment with the rack in the lowered position.** The pivot arm and hydraulic cylinder shall be located in the center of the apparatus above the rear wheel well area.

## **HARD SUCTION TROUGHS**

Troughs for two lengths of hard suction hose shall be provided on the inboard side of the hydraulic rack. The troughs shall be constructed of smooth aluminum. Zico HLAS-HS-2KIT brackets shall be used to attach to the hydraulic rack.

When lowered, the hard suction shall be located above the ladders at a height that allows easy removal from the apparatus. The hard suction shall be secured to the troughs using velcro straps on each end of the rack.

## **ATTIC LADDER BACKETS**

Zico FLB/FLBA attic ladder brackets shall be provided on the ladder rack.

## **CENTER ARM COVER - BRUSHED STAINLESS**

The pivot arm and hydraulic cylinder shall be located in the center of the apparatus above the rear wheel well area shall have a brushed stainless steel cover panel. The cover panel shall be hinged at top with a stainless steel hinge. The cover shall have bottom latches to secure it to the lift arm. The cover shall automatically hinge down with the rack without the need for manual unlatching. When the rack is in the 'up' or 'stored' position, the cover can be unlatched and hinged up for access to the hydraulic mechanism.

## **HYDRAULIC RACK SAFETY LOCK**

An air actuated safety lock shall be provided to lock the rack in the stowed or travel position. The lock shall automatically disengage when the switch that controls the rack is activated.

## **HYDRAULIC RACK SAFETY INTERLOCKS**

An interlock shall be provided that will prevent operation of the hydraulic rack unless the parking brake activated. An interlock system shall also be provided on the side compartment doors that will prohibit the use of the hydraulic rack when any doors that may interfere with the operation of the rack are open.

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## **HYDRAULIC RACK WARNING LIGHTS**

Two red LED warning lights shall be provided and installed one on front and one on rear of the rack to provide emergency warning when the ladder is not in the stowed or travel position.

An indicator light shall be provided on the cab console to signal when the hydraulic rack is not properly stowed.

The outward side of the rack shall be stripped with white reflective material to indicate a hazard or obstruction.

## **HYDRAULIC RACK AUDIBLE WARNING ALARM**

An audible warning alarm shall automatically sound when the hydraulic rack is in motion, both and raise and lower mode.

## **HYDRAULIC RACK OPERATING SWITCH - REAR**

The hydraulic rack shall be controlled by a double pole, double throw momentary switch located at the rear of the body in clear view of the rack.

## **DUO SAFETY 24' 2-SECTION ALUMINUM LADDER**

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

## **DUO SAFETY 14' ALUMINUM ROOF LADDER**

One (1) Duo Safety model 775A 14' NFPA compliant aluminum roof ladder with folding hooks shall be provided and mounted.

## **DUO SAFETY 10' ALUMINUM FOLDING ATTIC LADDER**

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

## **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 Kocheck brand.

## **COMPARTMENT SHELF TRACKS - ALUMINUM**

Three (3) 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.

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## **DUAL COMPARTMENT SHELF TRACKS - ALUMINUM**

Three (3) sets consisting of four heavy duty aluminum adjustable tracks shall be provided in specified compartments, two for each end of shelf.

The tracks shall not be welded to the apparatus body.

## **SHALLOW DEPTH COMPARTMENT SHELVING**

There shall be five (5) 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.

## **FULL DEPTH COMPARTMENT SHELVING**

There shall be four (4) full 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.

## **TURTLE TILE SHELF MAT**

Each full depth shelf shall have Turtle Tile matting.

## **DRIVER'S SIDE FRONT OF WHEELWELL SPARE CYLINDER COMPARTMENT**

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

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

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

A compartment shall be provided in the wheel area behind the rear axle on the driver's side to hold two 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**

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

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

## **OIL DRY COMPARTMENT**

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

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

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

## **WHEELWELL STORAGE COMPARTMENT DOORS – BRUSHED FINISH STAINLESS**

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

## **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.

## **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.

## **TOOL COMPARTMENT**

A compartment shall be provided for storing three straight handle pike poles. The compartment shall be designed to be open on the end for sliding in the stored equipment. A strap shall be provided to secure the equipment. The compartment shall be constructed of smooth aluminum.

The compartment shall be incorporated into a hosebed divider.

## **FOLDING ACCESS STEPS**

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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.

## **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.

The rear intermediate step shall be 8" depth.

## **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 HOSEBED GRAB RAIL**

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

## **LEFT FRONT HOSEBED GRAB RAIL**

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



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## **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.

## **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 fire pump and all specified electrical devices.
- Anything defined by the purchaser, in the advertised specifications, to be critical to the mission of the apparatus.

## **RESERVE CAPACITY TEST**

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

## **ALTERNATOR PERFORMANCE TEST AT IDLE**

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

## **ALTERNATOR PERFORMANCE TEST AT FULL LOAD**

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

## **TEST CONDITIONS**

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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.

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

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- Advanced PC Diagnostics

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

## **VMUX WARRANTY**

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

## **REAR LICENSE PLATE LIGHT/BRACKET**

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

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

## **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**

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

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

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

## **DOOR AJAR INDICATOR PARK BRAKE DISABLE**

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

## **LED PERIMETER GROUND LIGHTING - 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 C6 QUAD-CLUSTER TAILLIGHTS - LED**

Whelen C6BTT LED taillights, C6T LED turn signals and a C6BU clear backup lights shall be provided.

A PLASC4V chrome plated trim housing shall be provided, one each side for mounting the tail lights, turn signal lights, backup lights and warning lights.

## **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.

## **WHELEN C6LR SUPER MAX LED MID-SECTION WARNING LIGHTING**

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One Whelen C6LR Super Max red LED light head shall be mounted on each side in a lower mid-section position. A C6FC chrome bezel shall be provided around the lights.

## **WHELEN C6LR SUPER MAX LED SIDE REAR WARNING LIGHTING**

One Whelen C6LR Super Max red LED light head shall be mounted on each side in a lower rear position. A C6FC chrome bezel shall be provided around the lights.

## **WHELEN C6LR SURFACE MAX LED UPPER ZONE B/D WARNING LIGHTING**

Two Whelen C6LR Surface Max red LED light heads shall be mounted on each side of the apparatus above the side compartments. A C6FC chrome bezel shall be provided for each light.

## **WHELEN C9LR SUPER MAX LED UPPER ZONE C WARNING LIGHTING**

Two Whelen C9LR Super Max red LED light heads shall be mounted on the rear of the apparatus, one each side. A C9FC 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.

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

## **DIRECTIONAL LIGHT MOUNTING - INTERMEDIATE STEP**

The arrowstick/advisor shall be either recessed into or mounted under the rear intermediate step.

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

Six FRC 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.

Chrome trim housings shall be provided.

## **SCENELIGHT MOUNTING**

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Aluminum treadbitre mounting boxes shall be provided on the apparatus for side scenelights, rear warning lights and other items that may be mounted in this area.

The rear facing scenelights shall be surface mounted on the rear.

## **12 VOLT SCENE LIGHT ACTIVATION SWITCHES (3)**

Three switches shall be provided to activate the 12 volt scene light(s). The driver's side lights, passenger's side lights and the rear lights shall each be individually switched. The switches shall be located on the cab control console.

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

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

## **UNITY AG-C DECK/HOSE BED LIGHTS**

Two Unity model AG-C chrome plated lights shall be provided and mounted on the rear of the apparatus, one each side. The lights shall be controlled by light head mounted switches and shall be capable of 360 degrees of rotation and 90 degrees above and below horizontal tilt.

The lights shall be subject to load management shedding to comply with NFPA 1901.

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

Two (2) Fire Research SPA540-A28 top raising telescoping light(s) shall be mounted on the apparatus. The light head shall be 12 volt LED and shall draw a maximum of 20.8 amps creating 28,000 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 light head shall be white.

The telescoping light(s) shall be equipped with a off/on switch and a 3 position (spot/flood/both) switch on the light head(s).

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

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

## **FIRE HELMET MOUNTING**

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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.

### **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

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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 non-metallic paint 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**

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

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

## **TIRE PRESSURE MONITORING SYSTEM**

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

## **LETTERING**

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

## **1"-6"-1" NFPA REFLECTIVE STRIPE**

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

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

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

The striping shall be applied to a minimum of 50% of the length of the apparatus on each side and 25% across the front of the apparatus. The stripe shall comply with NFPA 1901 requirements.



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## **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 - "HOCKEY STICK" DESIGN**

The reflective stripe shall be applied in a "hockey stick" design. The stripe shall have a single upward angle on the forward compartment door on the apparatus body and then continue straight back to the end of the apparatus.

## **REAR CHEVRON STRIPING**

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

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

## **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.

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## **CAB TILT RECEPTACLE**

The cab tilt receptacle shall be located in side the right side pump access door.

## **FRONT MUD FLAPS**

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

## **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 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

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caused by contact with the surface. The label shall also state precautions that should be taken while working on or around the surface.

## **SPINNING ENGINE FAN DANGER LABEL - FAMA05**

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

## **SEATED AND BELTED WARNING LABEL - FAMA07**

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

## **AIR CONDITIONING REFRIGERANT WARNING LABEL - FAMA09**

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

## **CAB INTERIOR EQUIPMENT MOUNTING DANGER LABEL - FAMA10**

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

## **FIRE SERVICE TIRE RATING LABEL - FAMA12**

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

## **ELECTRONIC STABILITY CONTROL LABEL - FAMA13**

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

## **MAXIMUM OCCUPANCY LABEL - FAMA14**

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

## **DO NOT WEAR HELMET LABEL - FAMA15**

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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.

## **LADDER RACK WARNING LABEL - FAMA21**

A permanent label shall be provided on the front and rear area of the ladder rack to provide warning to stay clear of area around the moving rack and that the equipment could cause injury or death.

## **HOSE RESTRAINT LABEL - FAMA22**

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

## **ACCESS STEPS/LADDER LABEL - FAMA23**

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

## **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**

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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.

## **TANK FILL RATE LABEL**

A permanent label shall be provided near any tank fill location clearly stating the following tank fill limitations and procedures:

- Do not exceed 100 psi when filling tank.
- Fill rate in GPM = tank size capacity.
- For tanks over 1000 gallons, do not exceed maximum fill rate of 1,000 GPM.
- Gate back fill when water reaches top of the tank.

The label shall also state that failure to follow procedure could result in over-pressurization, premature tank failure and possibly void tank warranty.

## **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.

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

## **LENGTH, HEIGHT, WEIGHT LABEL**

A permanent plate or label shall be provided in the cab 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.

## **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.

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- 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. 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.

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## **"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.
- 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.



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- 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.