

Gladiator

Spartan Chassis
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METZ AERIAL

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Quotation

Description

VEHICLE

0100-008	MODEL	Gladiator
8001-001	COUNTRY OF SERVICE	United States of America (USA)
8006-010	APPARATUS TYPE	Apparatus Type Rear Mount Aerial
8008-001	TRUCK TYPE	Truck Type Straight
0104-001	AXLE CONFIGURATION	Axle Configuration 4x2 (Rear Axle Drive Only)
0101-016	GROSS AXLE WEIGHT RATINGS FRONT	GAWR Front 23000#
0102-005	GROSS AXLE WEIGHT RATINGS REAR	GAWR Rear 31000#
8010-002	PUMP PROVISION	Pump Provision Driveline Midship
8009-002	WATER TANK CAPACITY	Water Tank Capacity Up to 1000 Gallons

CAB

1000-004	CAB STYLE	Cab Style MFD 10" Raised Roof
1501-001	CAB FRONT FASCIA	Cab Front Fascia Evolution
1518-004	FRONT GRILLE	Cab Front Grille Evolution
1329-002	CAB ENGINE TUNNEL	Cab Engine Tunnel for Large Displacement Engine
1005-001	CAB ENTRY DOORS	Cab Entry Doors (4)
1101-001	CAB ENTRY DOOR TYPE	Cab Entry Door Type Full Length
8004-001	CAB WARRANTY	Cab Structural Warranty (10) Years/100,000 Miles
9001-002	CAB TEST INFORMATION	Cab Crash Test ECE-29
1521-002	CAB PAINT EXTERIOR	Cab Paint Exterior Two Tone
1533-001	CAB PAINT MANUFACTURER	Cab Paint Manufacturer PPG
1522-086	CAB PAINT PRIMARY/LOWER CAB COLOR	Lower Cab Color-PPG FBCH 71663 Red
1523-244	CAB PAINT SECONDARY/UPPER CAB COLOR	Upper Cab Color-PPG FBCH 2185 White
1524-003	CAB PAINT EXTERIOR BREAKLINE	Cab Paint Exterior Breakline Evolution
1515-005	CAB PAINT PINSTRIPE	Cab Paint Pinstripe 1/2" Black Temporary
8013-001	CAB PAINT WARRANTY	Cab Paint Warranty (10) Years/100,000 Miles

LOW VOLTAGE ELECTRICAL POWER DISTRIBUTION

5000-002	LOW VOLTAGE ELECTRICAL SYSTEM	Low Voltage Electrical System 12V DC Multiplex Weldon V-Mux
5012-002	AUXILIARY OEM CUSTOM WIRING	Auxiliary OEM Custom Wiring Metz 21 Signal I/O
5008-007	OEM WIRING	OEM Wiring Rsnbr w/Pump Controls/RK Aer MUX Button
5005-003	MULTIPLEX DISPLAY	Multiplex Display (2) LH/RH Switch Panel Weldon Vista
5031-001	POWER & GROUND STUD	Power & Ground Stud 40A Batt Direct
5030-003	AUXILIARY POWER & GROUND STUD	Power & Ground Stud Behind Switch Panel 40A Batt Direct
5032-007	ADDITIONAL POWER & GROUND STUD	Power & Ground Stud Offr Underseat Strg Cmpt 40A Batt Direct
5011-001	EXTERIOR ELECTRICAL TERMINAL COATING	Exterior Electrical Terminal Coating Spray On Plasti Dip

ENGINE

1701-080	ENGINE	Engine Diesel 500 HP Cummins ISM
1719-005	ENGINE HIGH IDLE CONTROL	Engine High Idle Control Manual and Automatic w/ V-MUX
1718-002	ENGINE PROGRAMMING HIGH IDLE SPEED	Engine Programming High Idle Speed 1250 RPM
1710-001	ENGINE PROGRAMMING ROAD SPEED GOVERNOR	Engine Programming Road Speed Governor Enabled
1713-002	AUXILIARY ENGINE BRAKE	Auxiliary Engine Brake Jacobs
1708-007	AUXILLIARY ENGINE BRAKE CONTROL	Aux Engine Brake Cntrl Off/Low/High Weldon MUX Vista Button
1715-001	FORWARD FILLS	Forward Fluid Fills
1720-003	ELECTRONIC ENGINE OIL LEVEL INDICATOR	Electronic Engine Oil Level Indicator Electronic
1721-002	ENGINE PROGRAMMING REMOTE THROTTLE	Engine Program Remote Throttle On
8002-001	ENGINE WARRANTY	Engine Warranty (5) Year/100,000 Miles Cummins
1711-1550	PEAK TORQUE (LBS-FT)	1550 lbs-ft
1727-001	ENGINE PROGRAMMING IDLE SPEED	Engine Programming Idle Speed 700 RPM

COOLING

2704-002	ENGINE FAN DRIVE	Engine Fan Drive Clutch
2701-006	ENGINE COOLING SYSTEM	Engine Cooling System Large Displacement Capacity
2708-001	ENGINE COOLANT	Engine Coolant Extended Life
2707-002	ENGINE COOLANT FILTER	Engine Coolant Filter
2706-003	ELECTRONIC COOLANT LEVEL INDICATOR	Electronic Low Coolant Indicator
2705-002	ENGINE PUMP HEAT EXCHANGER	Engine Pump Heat Exchanger
2709-001	COOLANT HOSES	Silicone Coolant Hoses

AIR INTAKE

2801-001	ENGINE AIR INTAKE	Engine Air Intake Filtration and Restriction
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EXHAUST

2901-001	ENGINE EXHAUST SYSTEM	Engine Exhaust System Under Frame RH
2902-005	ENGINE EXHAUST ACCESSORIES	Engine Exhaust Accessories Angled Chrome Extension

TRANSMISSION

1801-004	TRANSMISSION	Transmission Allison 4000 EVS w/Retarder
1806-001	TRANSMISSION MODE PROGRAMMING	Transmission Mode Programming 4th Startup/5th Mode
1811-001	TRANSMISSION FEATURE PROGRAMMING	Transmission Feature Programming I/O Package 198
1807-001	TRANSMISSION SHIFT SELECTOR	Transmission Shift Selector Key Pad/Push Button
1815-002	ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR	Electronic Transmission Oil Level Indicator
1812-004	TRANSMISSION RETARDER CONTROL	Transmission Ret Cntrl 1/3 Throttle 2/3 Brake On/Off Mux
1814-002	TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE	2nd Gear Pre-Select

1808-002	TRANSMISSION COOLING SYSTEM	Transmission Cooling System w/ Retarder
8005-001	TRANSMISSION WARRANTY	Transmission Warranty (5) Year Allison EVS

POWER TAKE OFF

2004-003	LH PTO	LH PTO Spartan Supplied
2001-013	LH PTO MODEL	PTO LH Chelsea Model 277-XBFJP-B5XD
2005-003	PTO LOCATION	PTO Location 8:00
2009-006	PTO CONTROL	PTO Control LH Programmable Mux Actv

DRIVELINE

3001-002	DRIVELINE	Driveline Spicer 1810 HD
3005-007	MIDSHIP PUMP / GEARBOX	Midship Pump Customer Supplied
3008-008	MIDSHIP PUMP / GEARBOX MODEL	Midship Pump Hale DSD FWD
3009-020	MIDSHIP PUMP RATIO	Midship Pump Ratio 2.28 (23)
3010-1020	MIDSHIP PUMP LOCATION C/L SUCTION	Midship Pump Location C/L Suction 102"
3011-005	MIDSHIP PUMP LOCATION SUCTION ANGLE	Midship Pump Location Suction Angle 4 Degrees
3012-006	MIDSHIP PUMP LOCATION SUCTION HEIGHT	Midship Pump Location Suction Height 1.00" Below Frame
1803-002	OUTPUT FLANGES / YOKES	1810 Output Flange / Yoke

FUEL SYSTEMS

3109-025	FUEL FILTER/WATER SEPARATOR	Fuel Filter/Water Separator Fleetguard FS1000
3111-002	FUEL LINES	Fuel Lines Wire Braid
3112-002	FUEL COOLER	Fuel Cooler
3101-002	FUEL TANK	Fuel Tank 68 Gallon
3102-020	FUEL TANK FILL PORT	Fuel Tank Fill Port LH Fwd / LH Mid / RH Mid w/LH Vent Hole

FRONT AXLE

2401-022	FRONT AXLE	Front Axle 23000# Beam Meritor MFS-23
2405-001	FRONT WHEEL BEARING LUBRICATION	Front Wheel Bearing Lubrication Oil

FRONT SUSPENSION

2502-002	FRONT SHOCK ABSORBERS	Front Shock Absorbers Bilstein
2501-003	FRONT SUSPENSION	Front Suspension 3 Leaf 22000-23000#

STEERING

2601-001	STEERING COLUMN/WHEEL	Steering Column/Wheel Tilt/Telescopic 18"
2603-002	POWER STEERING PUMP	Power Steering Pump Vickers
2609-002	ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR	Electronic Power Steering Fluid Level Indicator
2606-009	FRONT AXLE CRAMP ANGLE	Front Axle Cramp Angle 48L/44R Degrees
2608-001	CHASSIS ALIGNMENT	Chassis Alignment

REAR AXLE

3401-014	REAR AXLE	Rear Axle 31500# Meritor RS-30-185
3411-001	REAR WHEEL BEARING LUBRICATION	Rear Wheel Bearing Lubrication Oil
3403-001	REAR AXLE DIFFERENTIAL LUBRICATION	Rear Axle Differential Lubrication Oil
3407-002	REAR AXLE DIFFERENTIAL CONTROL	Rear Axle Driver Controlled Differential Lock
3408-004	VEHICLE TOP SPEED	Vehicle Top Speed 65 MPH

REAR SUSPENSION

3501-020	REAR SUSPENSION	Rear Suspension 21000-31000# Spring Reyco 79KB
3504-005	SUSPENSION CONTROLS	Suspension Controls Kneeling For Metz Aerial

TIRES

3601-017	FRONT TIRE	Front Tire 425/65R 22.5 Michelin XZY3
3602-019	REAR TIRE	Rear Tire 315/80R 22.5 Michelin XDN2 Grip

WHEELS

3701-018	FRONT WHEEL	Front Wheel 12.25 x 22.5 Aluminum Alcoa Durabright
3703-015	REAR WHEEL	Rear Wheel 9.00 x 22.5 Aluminum Alcoa Durabright
3702-002	WHEEL TRIM	Wheel Trim Hub and Nut Covers SS Ship Loose

TIRE CHAINS

3801-002	TIRE CHAINS	Tire Chains Rear Axle 6 Strand Automatic On-Spot (1) Set
3802-003	TIRE CHAINS ACTIVATION	Tire Chains V-MUX Vista Button Activated

BRAKES

3205-009	BRAKE SYSTEM	Brake System ABS/ATC/RSC MUX Vista Switch Single Axle
3206-003	FRONT BRAKES	Front Brakes Disc 17" Meritor EX225
3207-001	REAR BRAKES	Rear Brakes S-Cam Drum 16.5"x7"
3208-003	PARK BRAKE	Park Brake Rear W/Supplemental Front w/Frt Limit 40 psi
3204-001	PARK BRAKE CONTROL	Park Brake Control LH Dash Mounted
3213-003	FRONT BRAKE SLACK ADJUSTERS	Front Brake Slack Adjuster Brake Supplied
3214-002	REAR BRAKE SLACK ADJUSTERS	Rear Brake Slack Adjusters Haldex
3202-001	AIR DRYER	Air Dryer Wabco System Saver 1200 Behind Officer's Step
3210-002	BRAKE CHAMBERS	Brake Chambers TSE 30/36 Long Stroke

AIR SUPPLY SYSTEMS

3320-001	AIR COMPRESSOR	Air Compressor 18.7 CFM Wabco SS318
3339-001	AIR GOVERNOR	Air Governor MTD on Air Cleaner Bracket
3303-004	MOISTURE EJECTORS	Moisture Ejectors Htd Automatic
3307-001	AIR SUPPLY LINES	Air Supply Lines Nylon
3334-002	AIR TANK SPACERS	Air Tank Spacers 1" Inboard
3338-002	REAR AIR TANK MOUNTING	Air Tanks Mounted Behind Fuel Tanks Side To Side

FRAME

2103-2160	WHEELBASE	Wheelbase 216.0"
2106-1020	REAR OVERHANG	Rear Overhang 102.0"
2101-002	FRAME	Frame Double Channel 35.00" Frame Width
2110-004	FRAME PAINT	Frame Paint Gloss Black
8007-001	FRAME WARRANTY	Frame Warranty Lifetime

BUMPER

2201-002	FRONT BUMPER	Front Bumper Structural Steel Channel Severe Duty
2202-006	FRONT BUMPER EXTENSION LENGTH	Front Bumper Extension Length 24"
2226-002	FRONT BUMPER EXTENSION WIDTH	Front Bumper Extension Width 44.75"
2206-001	FRONT BUMPER PAINT	Front Bumper Paint Primary/Lower Cab Color
2208-007	FRONT BUMPER APRON	Front Bumper Apron 24"
5501-003	AIR HORN	Air Horn (2) 24" Round Grover
2216-011	AIR HORN LOCATION	Air Horn Location (2) Frt Bmpr Face R/L Outboard
2232-002	AIR HORN RESERVOIR	Air Horn Reservoir (1) 1200 Cubic Inches
5504-029	ELECTRONIC SIREN SPEAKER	Elect Siren Speaker (1) 100W Cast Products SA4301
2217-006	ELECTRONIC SIREN SPEAKER LOCATION	Elect Siren Speaker Location (1) Frt Bmpr Face RH Inboard
2203-001	FRONT BUMPER TOW HOOKS	Front Bumper Tow Hooks Chrome Below Fwd Position

CAB TILT

2301-001	CAB TILT SYSTEM	Cab Tilt System
2303-002	CAB TILT LIMIT SWITCH	Cab Tilt Limit Switch
2305-001	CAB TILT CONTROL RECEPTACLE	Cab Tilt Control Receptacle Temporary

CAB GLASS

1401-009	CAB WINDSHIELD	Cab Windshield
1402-001	GLASS FRONT DOOR	Cab Glass Frt Door Roll Window Manual
1407-001	GLASS TINT FRONT DOOR	Automotive Glass Tint Front Doors
1419-006	GLASS REAR DOOR RH	Cab Glass Rr Door RH Roll Window Manual
1430-001	GLASS TINT REAR DOOR RH	Automotive Glass Tint Rear Door RH
1412-006	GLASS REAR DOOR LH	Cab Glass Rr Door LH Roll Window Manual
1431-001	GLASS TINT REAR DOOR LH	Automotive Glass Tint Rear Door LH
1410-003	GLASS SIDE MID RH	Cab Side Glass Mid RH Fixed 26"H x 16"W
1432-001	GLASS TINT SIDE MID RH	Automotive Glass Tint Side MID RH
1409-003	GLASS SIDE MID LH	Cab Glass Side Mid LH Fixed 26"H x 16"W
1433-001	GLASS TINT SIDE MID LH	Automotive Glass Tint Side MID LH

CLIMATE CONTROL

1322-001	CAB INSULATION	Cab Insulation
1530-001	UNDERCAB INSULATION	Engine Tunnel Insulation
1614-003	CLIMATE CONTROL	Climate Control Heater Defroster A/C Overhead
1617-003	CLIMATE CONTROL ACTIVATION	Climate Control Activation Vista Screen

1606-003	AUXILIARY CLIMATE CONTROL FRONT UNDERSEAT	Aux Climate Control Frt Underseat Heater MUX Vista Button
1611-002	AUXILIARY CLIMATE CONTROL REAR UNDERSEAT	Aux Climate Control Rr Underseat (1) Heater Fwd Facing
1610-002	HEATER HOSE INSULATION	Heater Hose Insulation
1603-007	A/C CONDENSER LOCATION	A/C Condenser Location Roof Mnt Mid RH
1601-001	A/C COMPRESSOR	A/C Compressor (1) TM-21

CAB INTERIOR

1327-001	INTERIOR TRIM FLOOR MAT	Interior Trim Floor Mat
1302-001	INTERIOR TRIM VINYL	Interior Trim Vinyl
1306-001	HEADER TRIM	Header Trim ABS
1337-003	INTERIOR TRIM SUNVISOR	Interior Trim Sunvisor Vinyl w/Tinted Lexan Extension
1339-001	TRIM LH DASH	Trim LH Dash ABS
1305-002	TRIM CENTER DASH	Trim Center Dash Xtreme Duty 3-Panel
1321-004	TRIM RH DASH	Trim RH Dash Xtreme Duty Glove Compt/MDT Prov
1324-003	TRIM RH DASH ACCESSORIES	Trim RH Dash Accessories MDT Slide-Out Tray Wide
1307-002	ENGINE TUNNEL TRIM	Engine Tunnel Trim Floor Mat
1310-005	ENGINE TUNNEL ACCESSORIES	Engine Tunnel Accessories Console
5040-003	POWER POINT DASH MOUNT	Power Point Dash Mount (2) 12VDC Switch Panel Battery Switch
5041-002	POWER POINT CONSOLE MOUNT	Power Point Console Mount (2) 12VDC Battery Switched
1303-003	STEP TRIM	Step Trim Indented Lwr Treadplate Mid
1102-013	INTERIOR DOOR TRIM	Interior Door Trim 1-Piece Painted Aluminum
1323-001	DOOR TRIM CUSTOMER NAMEPLATE	Door Trim Customer Nameplate
1105-001	CAB DOOR TRIM REFLECTIVE	Cab Door Trim Reflective Tape 1" Vert & 6" Chevron
1308-001	INTERIOR GRAB HANDLE 'A' PILLAR	Interior Grab Handle 'A' Pillar 11" Molded
1332-008	INTERIOR GRAB HANDLE FRONT DOOR	Interior Grab Handle Front Door Horz 9"
1345-002	INTERIOR GRAB HANDLE REAR DOOR	Interior Grab Handle Rr Door 30" Blk Pwdr Coat Chicago Style
1304-001	INTERIOR FLOOR MAT COLOR	Interior Floor Mat Color Gray
1301-003	INTERIOR TRIM VINYL COLOR	Interior Trim Vinyl Color Gray
1318-003	INTERIOR ABS TRIM COLOR	Interior ABS Trim Color Gray
1334-003	CAB PAINT INTERIOR	Cab Paint Interior Zolatone Silver Gray
1335-002	CAB PAINT INTERIOR DOOR TRIM	Cab Paint Interior Door Trim Zolatone Silver Gray
1344-001	SWITCH PANEL GROUP	96" Standard 3-Panel
1312-002	SWITCH PANEL CENTER	Switch Panel 6 Switches Upper LH
1313-002	SWITCH PANEL DRIVER	Switch Panel LH 1 Switch
1314-001	SWITCH PANEL OFFICER	Switch Panel 0 RH Switches
1315-002	SWITCH PANEL IGNITION	Ignition Panel

CAB SEATS

1225-001	SEAT BELT WARNING	Seat Belt Warning
1237-001	SEAT MATERIAL	Seat Material Ballistic
1243-001	SEAT COLOR	Seat Color Gray
1249-003	SEAT BACK LOGO	Seat Back Logo Rosenbauer

1201-004	SEAT DRIVER	Seat Driver 6-Way Electric ABTS Seats Inc 911
1213-001	SEAT BACK DRIVER	Seat Back Driver Non-SCBA ABTS
1219-001	SEAT MOUNTING DRIVER	Seat Mounting Driver
1202-008	SEAT OFFICER	Seat Officer Fixed ABTS Seats Inc 911
1214-002	SEAT BACK OFFICER	Seat Back Officer SCBA Zico ULL Bracket w/ LLS Strap
1220-002	SEAT MOUNTING OFFICER	Seat Mounting Officer
1297-002	POWER SEAT WIRING	Power Seats Wiring Battery Direct
1263-001	SEAT QUANTITY REAR FACING OUTER	Seat Quantity RFO (2) R/L
1203-008	SEAT CREW REAR FACING OUTER	Seat Crew RFO Fixed Seats Inc 911
1215-002	SEAT BACK REAR FACING OUTER	Seat Back RFO SCBA Zico ULL Bracket w/ LLS Strap
1221-002	SEAT MOUNTING REAR FACING OUTER	Seat Mounting RFO
1273-001	SEAT BELT ORIENTATION CREW	Seat Belt Orientation Crew Outboard Shoulder To Inboard Hip
1266-001	SEAT QUANTITY FORWARD FACING CENTER	Seat Quantity FFC (2) R/L
1206-011	SEAT CREW FORWARD FACING CENTER	Seat Crew FFC Flip-Up Seats Inc 911
1218-002	SEAT BACK FORWARD FACING CENTER	Seat Back FFC SCBA Zico ULL Bracket w/ LLS Strap
1224-002	SEAT MOUNTING FOWARD FACING CENTER	Seat Mounting FFC
1269-012	SEAT FRAME FORWARD FACING	Seat Frame Fwd Facing Dual
1311-007	CAB FRONT UNDERSEAT STORAGE ACCESS DOOR	Cab Frt Underseat Storage Access Door Vented Non-Locking Ptd

CAB EXTERIOR

1511-003	WINDSHIELD WIPER SYSTEM	Windshield Wiper System Single Motor
1534-002	ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR	Electronic Windshield Fluid Level Indicator
1103-002	CAB DOOR HARDWARE	Cab Door Hardware Black
1111-001	DOOR LOCKS	Manual Door Locks
1503-002	GRAB HANDLES	Cab Exterior Grab Handle SS
1504-035	REARVIEW MIRRORS	Mirror Bus Style Ramco CRM-310-1750-TPCHR
1529-003	REARVIEW MIRROR HEAT SWITCH	Rearview Mirror Heat Switch Weldon MUX Vista Button
1513-001	CAB FENDER	Cab Fender Stainless Steel
1502-021	CAB EXTERIOR MODEL NAMEPLATE	Cab Exterior Model Namplate Gladiator
1526-001	CAB EXTERIOR FRONT & SIDE EMBLEMS	Cab Side Exterior Emblems Installed

START / CHARGING SYSTEMS

5109-001	IGNITION	Ignition Master Switch w/ Keyless Start
5101-002	BATTERY	Batteries (6) Group 31 Harris
5106-003	BATTERY BOX	Battery Box (2) R/L Steel
5102-001	BATTERY CABLE	Battery Cables
5108-002	BATTERY JUMPER STUD	Battery Jumper Stud Frt LH Lwr Step
5104-001	ALTERNATOR	Alternator (1) 270A Leece-Neville

LINE VOLTAGE ELECTRICAL POWER DISTRIBUTION

5202-004	BATTERY CONDITIONER	Battery Conditioner Kussmaul 1200
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5203-002	BATTERY CONDITIONER DISPLAY	Battery Conditioner Display LH Mid Glass
3314-005	AUXILIARY AIR COMPRESSOR	Aux Air Compressor 12V Behind Drvr Seat Kussmaul Pump Plus
5204-009	ELECTRICAL INLET CONNECTION	120V 20A Auto Eject Batt Cond LH Cab Side Mid
5206-007	ELECTRICAL INLET CONNECTION COLOR	Electrical Auto Eject Cover Red

LIGHTING

5301-004	HEADLIGHTS	Headlights w/DRL Evolution MUX Activation
5337-002	HEADLIGHT LOCATION	Headlights Above Front Warning Lights
5303-001	FRONT TURN SIGNALS	Front Turn Signals Integrated with Headlights
5336-002	SIDE MARKER/TURN LIGHTS	Side Turn/Marker Lights Integrated with Headlights
5302-003	MARKER AND ICC LIGHTS	Cab Marker Lights Face Mount LED
5311A-001	FOG LIGHT	Fog Light Family
5311-006	FOG LIGHTS	Fog Lights Perlux Clear Weldon MUX Vista Button Activation
5314-005	FOG LIGHT LOCATION	Fog Light Location Recessed in Bumper Center
5308-008	GROUND LIGHTS	Ground Lights Vista and Respective Door MUX
5312-001	ENGINE COMPARTMENT LIGHTS	Engine Compartment Work Light (1)
5317-014	FRONT SCENE LIGHTS	FRC Optimum 120V 750 Watt QH (2)
5335-004	FRONT SCENE LIGHTS ACTIVATION	Front Scene Light Pre-Wire Only
5306-006	SIDE SCENE LIGHT MODEL	Havis Kwik-Strike 12V 35W Clear HID
5318-004	SIDE SCENE LIGHT LOCATION	Upper Mid Rearward 10" Roof Position
5316-008	SIDE SCENE ACTIVATION	Side Scene Lights Indiv and Resp Side Door Switched MUX
5305-003	INTERIOR OVERHEAD LIGHTING	Interior Overhead Lighting W/ MUX Activation

OPTICAL WARNING DEVICES

5406-011	DO NOT MOVE APPARATUS LIGHT	Flashing Red Light MUX Audible Alarm
5422-002	MASTER WARNING SWITCH	Master Warning Switch Weldon MUX Vista Button
5409-002	ALTERNATING HEADLIGHTS	Alternating Headlights
5425-003	ALTERNATING HEADLIGHTS SWITCH	Alternating Headlights Switch Weldon MUX Vista Button
5401-003	INBOARD FRONT WARNING LIGHTS MODEL	Whelen 600 Series 5MM LED Inboard Front Warning Lights
5413-002	INBOARD FRONT WARNING LIGHTS COLOR	Red Inboard Front Warning Lights
5414-003	OUTBOARD FRONT WARNING LIGHTS MODEL	Whelen 600 Series 5MM LED Outboard Front Warning Lights
5415-002	OUTBOARD FRONT WARNING LIGHTS COLOR	Red Outboard Front Warning Lights
5423-003	FRONT WARNING SWITCH	Front Warning Switch Weldon MUX Vista Button
5404-003	INTERSECTION WARNING LIGHTS MODEL	Whelen 600 Series 5MM LED Intersection Warning Lights
5419-002	INTERSECTION WARNING LIGHTS COLOR	Red Intersection Warning Lights
5420-002	INTERSECTION WARNING LIGHTS LOCATION	Bumper Tail Mount Intersection Warning Lights
5424-003	SIDE AND INTERSECTION WARNING SWITCH	Side and Intersection Warning Switched MUX Vista Button

5411-002	TANK LEVEL LIGHTS	Tank Level lights Rear Cab Sides Whelen PSTANK
5403-004	FRONT LIGHTBAR	Pre-Wire Junction Boxes (2) Customer Installed Lightbars
5426-003	LIGHTBAR SWITCH	Lightbar Switch Weldon V-Mux Vista Button

AUDIBLE WARNING DEVICES

5514-005	HORN RING SELECTOR SWITCH	Horn Ring Selector Switch Elect Horn/Air Horn Mux
5512-004	AIR HORN ACTIVATION	Air Horn Activation Strg Wheel/PB Sw Pnl
5505-006	BACK-UP ALARM	Back-Up Alarm w/Disable Sw VMux Vista Button Ecco 575

INSTRUMENTATION

5601-001	INSTRUMENTATION	Instrumentation - Standard
5621-003	AUXILIARY VOLT METER	Auxiliary Volt Meter (1) 24V Pre-Wire In Instrument Panel

COMMUNICATIONS SYSTEMS

5701-003	AM/FM RADIO	Radio Weather Band AM/FM w/CD Overhead Driver
5707-002	ANTENNAS-AM/FM RADIO	AM/FM Weather Band Radio Antenna LH Side Cab Top
5020-001	PANEL LAYOUT	Panel Layout

ADDITIONAL EQUIPMENT

8806-001	FIRE EXTINGUISHER	Fire Extinguisher Ship Loose
8810-001	DOOR KEYS	Door Keys (4) for Manual Locks
8805-002	AS-BUILT WIRING DIAGRAMS	As-Built Wiring Diagrams (1) Set

SALES ADMIN

8003-001	WARRANTY - CAB AND CHASSIS	Cab and Chassis Warranty (1) One Year
8011-008	MODEL YEAR	Model Year - 2008
8030-001	OPERATOR & PART LIST MANUAL	Operator & Part List Manuals (1) Set
8031-001	ENGINE & TRANSMISSION OPERATION MANUAL	Engine & Transmission Operation Manuals (1) Set

Specification

MODEL

The cab and chassis shall include design considerations for one hundred (100) percent on-road applications, a high horsepower engine, including high speed operations and a consideration for above normal starts and stops. This chassis shall be designed and manufactured for heavy duty service with adequate strength and capacity of all components for the intended load to be sustained. The chassis shall be designed for a duty rating of one hundred (100) percent loaded full time.

COUNTRY OF SERVICE

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

APPARATUS TYPE

The apparatus shall be created for the Emergency Services industry and include the functions of an Aerial apparatus. The apparatus shall be equipped with a rear mount aerial ladder, elevating platform or water tower.

TRUCK TYPE

The chassis shall be manufactured as a truck style and designed to include permanently mounted compartments behind the cab, known as the body. The body of the truck shall be supplied and installed by the apparatus manufacturer.

AXLE CONFIGURATION

The chassis shall offer a single rear drive axle with a single front steer axle configuration (4 X 2).

GAWR FRONT

The gross apparatus weight rating and the gross capacity weight rating shall be adequate to carry the weight of equipment and the apparatus, with water tanks full and other tanks at full capacity, miscellaneous equipment and all personnel weights considered as recommended by the most current edition of NFPA 1901.

The chassis front gross axle weight rating (GAWR) shall be 23,000 pounds. This rating shall require special approval from the wheel manufacturer.

GAWR REAR

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

PUMP PROVISION

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

WATER TANK CAPACITY

The chassis shall include a carrying capacity of up to 1000 gallons (4540 litres). The water tank shall be supplied and installed by the apparatus manufacturer.

CAB STYLE

The cab shall be a custom, enclosed model, built specifically for the fire service by a company specializing in cab and chassis design for all fire service applications.

The cab shall be manufactured for heavy-duty service utilizing adequate strength and capacity for the application of protecting firefighters. The cab shall be of a modular design offering improved strength, durability and reduced weight. The modular design shall allow for faster, less costly replacement of components. Per pound, sheet panel aluminum extrusions offer a higher tensile strength, 45,000 PSI, and yield strength, 40,000 PSI, than that of lower grade sheet such as 3003-H13. For this reason, the cab shall be of aluminum extrusion construction, which shall offer superior strength and the truest, flattest surface ensuring less expensive paint repairs if needed.

The method of cab construction shall use a process incorporating techniques outlined in accordance with the American Welding Society D1.1-96 requirements for structural steel welding. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.

To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side panels shall be assembled using proven industrial adhesives, designed specifically for aluminum fabrication, which exceed the strength of a weld, for construction.

The insulation shall be installed throughout the cab as well as around the engine compartment and tunnel reducing engine noise and offering a quieter cab. All interior and exterior seams shall be sealed for optimum noise reduction in addition to the most favorable efficiency for heating and cooling retention.

The cab shall be constructed of 5052-H32 Marine Grade, .090 of an inch thick, one hundred percent primary aluminum plate. A single formed, one (1) piece extrusion, manufactured from 6061-T6 100 percent primary one-quarter inch thick aluminum shall be used for the "A" pillar adding strength and rigidity to the cab as well as additional roll-over protection.

The cab shall incorporate tongue and groove fitted 6061-T6 0.25 inch thick aluminum extrusions for extreme duty situations. The cab shall include multi-layer composite insulation for improved cab heating and cooling in addition to noise reduction.

Proposals offering products built with anything less than the alloy-temper mentioned or from any other material, other than aluminum, shall not be considered. Additionally, any cabs utilizing recycled or recovered aluminum plate or extrusion products shall not be considered due to impurities in the composition leading to a lack of strength.

The cab shall incorporate a fully enclosed design, allowing for a spacious cab area with no partition between the front and rear sections of the cab. The walls of the vehicle shall include roof supports allowing for an open design. The outside dimension of the cab shall be 96 inches wide with a minimum interior width of 90 inches.

The cab overall length shall be 128.00 inches in length with 54.00 inches from the centerline of the front of the axle to the back of the cab. The cab shall offer a height of 58.00 inches from the front floor to the headliner and a rear floor to headliner height of 65.00 inches, at a minimum. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

In order to offer the optimum amount of cab space to occupants, there shall be no consideration given for any cab unable to comply with the minimum measurements for interior cab space as listed.

The cab shall include a driver and officer area with two (2) cab door openings. The front door opening shall offer a clear door opening of 43.00 inches wide X 56.00 inches high. The rear door opening shall offer a clear door opening of 34.00 inches wide X 63.00 inches high. This style of cab shall also include a crew area offering up to (8) seating positions.

The cab shall incorporate a (2) step configuration from the ground to the cab floor for each door opening. The lower step shall be constructed of heavy duty safety grating which meets or exceeds Federal Specification RRG-1602-latest revision and performs under dry, greasy, muddy, soapy and icy conditions and offers open drainage.

The first step for the driver and officer area shall measure 11.44 inches deep X 31.13 inches wide. The height from the ground to the first step shall not exceed 21.00 inches. The intermediate step shall measure 8.75 inches deep X 33.00 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.

The first step for the crew area shall measure 12.13 inches deep X 20.44 inches wide. The height from the ground to the first step shall not exceed 21.00 inches. The intermediate step shall measure 10.50 inches deep X 23.00 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.50 inches.

CAB GRILLE EVOLUTION

The front cab fascia shall be constructed of lightweight, impact resistant fiberglass reinforced plastic which shall be attached to the front cab skin to offer an appealing exterior. The cab fascia will encompass the front of the aluminum cab structure at the bottom of the windshield to the lower section of the cab and include an Evolution style design.

The Evolution style cab fascia shall include module provisions for two (2) single Hi/Low beam headlight assemblies. The module shall offer an integrated side or turn marker light assembly and shall be hinged permitting easy maintenance of the headlight and turn and marker light assemblies. The hinged headlight module shall offer access to the ember separator, the electrical bulkhead connections, the transmission electronic communications module and the multiplex V-MUX control (if applicable).

The Evolution style fascia shall also offer four (4) additional blank modules below those specified for the head lights for the provision of up to four (4) warning lights.

FRONT GRILLE EVOLUTION

The fascia shall include a (2) piece hinged, stainless steel raised front grille 40.00 inches wide x 31.95 inches height X .88 inches deep. The grille shall include a minimum free air intake of 519.30 square inches shall be installed on the front of the cab fascia. The upper portion of the grille will be hinged and will have (2) flush push button latches that allow access to the front fluid fills of the cab.

CAB ENGINE TUNNEL

The cab interior shall include a fixed type engine tunnel cover sized to accommodate an engine with a smaller block or an engine which has a large block. The engine tunnel shall be an integral part of the cab constructed of 5052-H32 Marine Grade, .090 of an inch thick, one hundred percent primary aluminum plate. The tunnel shall be a maximum of 41.50 inches wide X 29.00 inches high.

The engine tunnel shall be insulated with multi-layer insulating material, consisting of foam, a sound barrier of 1.0 pounds per square foot with a facing which resists heat transfer. This insulation shall be held in place by adhesive, aluminum stick pins and retention caps. Any exposed insulation seams and edges shall be sealed reducing moisture and debris.

CAB ENTRY DOORS

The cab shall include a driver and officer area with two cab door openings which offer a clear door opening of 40.75 inches wide.

The doors shall be constructed of extruded aluminum with a nominal thickness of .125 inch. The exterior skins shall be constructed of .125 inch aluminum plate. The cab shall include four (4) entry doors as high as possible for ease of entering and egress when outfitted with an SCBA.

All cab and crew doors shall be of substantial weight for the optimum strength and rigidity for the best performance in all cab crash testing. Any cab with front and crew doors manufactured of less than the material thickness of .125 inch in both the extrusion and exterior skin shall not be considered.

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

All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each hinge shall be .375 inch piano style and be constructed of stainless steel.

The piano style hinge and hidden flush mounted door is the most favorable construction keeping dirt and debris out of the hinge allowing for optimum operation throughout the lifetime of the door.

Proposals offering door hinge thickness any less than stated shall not be considered.

Proposals including doors that do not comply with the flush mounting as described or those including exposed hinges shall not be considered.

CAB ENTRY DOOR TYPE

All entry doors shall be of a flush, full height design and shall be located on the sides of the cab.

CAB STRUCTURAL WARRANTY

The cab structure shall be warranted for a period of ten (10) years. Warranty conditions may apply and shall be listed in the detailed warranty document that shall be provided upon request.

CAB CRASH TEST ECE-29

The cab shall have successfully achieved survival of the International crash test ECE-29, Addendum 28, Revision 1 as indicated below.

As part of the ECE regulation 29 test, the frontal area of the cab is struck by a 3,700 pound pendulum weight. The weight is brought back to a sixty degree angle and then the weight is released and allowed to swing forward, imparting some 32,600 pounds foot of force to the cab front face. The cab shall be so constructed that after the test, there will be minimal intrusion of the cab structure into the passenger area. The doors shall remain usable for both entry and exit. Also, as part of the test the cab roof must withstand a static load bearing test. The cab shall withstand a weight of over 60,000 pounds without permanent damage or collapse. The above tests shall be witnessed by and attested to by an independent third party. The test results shall be recorded on/by cameras, high speed imagers, accelerometers and strain gauges, with notarized copies of the letters verifying the test results and videos of said test shall be available upon request.

CAB PAINT EXTERIOR

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

All metal surfaces on the entire cab shall be ground by disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once the surface is machine ground a high quality acid etching of base primer shall be applied. Upon the application of body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface paint adhesion. The maximum thickness of the primer coat shall be 2.00 mils.

The entire cab shall then be coated with an intermediate solid or epoxy surfacing agent that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be a sanding of the cab with 360 grit paper, the seams shall be sealed with SEM brand seam sealer and painted with two (2) to four (4) coats of an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene.

The cab shall then be painted with the upper and lower colors specifically designated by the customer with a minimum thickness of two 2.00 mils of paint, followed by a clear top coat not to exceed 2.00 mils.

CAB PAINT MANUFACTURER

The cab shall be painted with PPG Industries paint.

CAB PAINT PRIMARY/ LOWER COLOR

The lower paint color shall be PPG FBCH 71663 Red.

CAB PAINT SECONDARY/ UPPER COLOR

The upper paint color shall be PPG FBCH 2185 White.

CAB PAINT EXTERIOR BREAK LINE

The upper and lower paint shall meet at a break line on the cab which shall fall approximately 1.00 inch under the cab door windows and above the exterior door handles. The break line shall extend in a straight line and drop approximately 6.50 inches under the windshield, above the windshield wipers and below the windshield wipers on the front of the cab.

CAB PINSTRIPE

Where the upper and lower paint colors meet a temporary 0.50 inch black pinstripe shall be applied over this break line to offer a more finished look prior to the final pinstripe being installed by the OEM.

CAB PAINT WARRANTY

The cab and chassis shall be covered by a limited manufacturer paint warranty which shall be in effect for 10 years from the first owner's date of purchase or in service or the first 100,000 actual miles, whichever occurs first.

LOW VOLTAGE 12VDC ELECTRICAL SYSTEM

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

OEM CUSTOM WIRING

The wiring system shall include a custom interface harness provided by the aerial device manufacturer which shall include the select aerial device controls. This shall include a virtual switch on the MUX display.

The wiring system shall also include a custom interface harness provided by Spartan Chassis to the specs provided by OEM. This shall include a road and pump switch, with pump engaged and ok to pump lamps mounted on the dash, one rear warning virtual switch on the MUX display, one (1) 12 volt 200 amp continuous duty solenoid and 200 amp fuse mounted above the drivers battery box controlled by master power.

MULTIPLEXING DISPLAY

The multiplexing electrical system shall include (2) Weldon Vista III displays which shall be located (1) within the driver side instrument panel ahead of the engine tunnel and (1) in the officer panel. The Vista III displays shall feature full color LED display screens which include a message bar displaying the time of day, the current ambient outside temperature and important messages requiring acknowledgement by the user which shall all be displayed on the top of the screen in the order they are received. There shall be virtual controls for the auto climate control, on-board diagnostics, and video ready for back-up cameras, thermal cameras and DVD.

The Vista III displays shall measure approximately 10.38 inches wide X 7.50 inches overall. The displays shall offer varying fonts and background colors. The displays shall also be fully programmable to the needs of the customer which offers an infinite amount of flexibility for viewable options.

POWER AND GROUND STUD

A 40 amp battery direct power and ground stud shall be provided and installed in the electrical distribution panel. The stud shall be size #10 and protected with a 40 amp circuit breaker.

POWER AND GROUND STUDS - BATTERY DIRECT

Power and grounding studs shall be provided and installed behind the electrical center cover with a breaker. The studs shall be #10 and capable of carrying up to a 40 amp battery direct load.

ADDITIONAL POWER AND GROUND STUDS

An additional set of power and grounding studs shall be provided and installed in the officer side under seat storage compartment. The power and ground studs shall be circuit protected with a 40 amp breaker. The studs shall be .375 inch diameter and be capable of carrying up to a 40 amp battery direct load.

EXTERIOR ELECTRICAL TERMINAL COATING

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

ENGINE

The power plant for the vehicle shall offer a high pressure performance, turbo charged engine which shall feature a high pressure common rail fuel system. This system shall be coupled with a proven Holset turbo which delivers outstanding performance at ratings up to 500 HP. The Cummins ISM engine shall include replaceable mid-stop cylinder liners plus heavy duty roller followers, targeted piston cooling and 30% more efficient oil cooling for improved durability and reliability. The heavy duty design shall also feature stronger braking capacity.

The engine shall be EPA certified to meet the very latest emissions standards without compromising performance, reliability or durability. The Cummins ISM 500 engine shall feature an air charge cooled engine which consists of an in line six (6) cylinder, four cycle diesel powered engine. The engine shall offer a rating of 500 horse power at 2000 RPM which shall be governed at 2100 RPM. The torque rating shall feature 1550 foot pounds of torque at 1200 RPM with 661 cubic inches of displacement. The Cummins ISM 500 engine shall feature an electronic governor.

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

The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent SAE 15W40 CJ4 low ash engine oil which shall be utilized for proper engine lubrication.

ENGINE HIGH IDLE CONTROL WITH V-MUX

The vehicle shall be equipped with an automatic high-idle speed control. It shall be pre-set so when activated, it will operate the engine at the appropriate RPM to increase alternator output. This device shall operate only when the master switch is activated and the transmission is in neutral or park with the parking brake set. The device shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake is released, or when the transmission is placed in neutral or park. There shall be an indication on the Vista screen for the high idle speed control.

ENGINE HIGH IDLE SPEED

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

ENGINE PROGRAMMING

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

AUXILIARY ENGINE BRAKE

A Jacobs engine compression brake, for the six (6) cylinder engine, with brake light actuation and cutout relay for when in pump mode or when an ABS event occurs shall be installed. The engine brake shall activate upon 0% accelerator when in operation mode.

AUXILIARY ENGINE BRAKE CONTROL

An engine compression brake control device shall be included. The control device shall be electronic and shall prevent the activation of the engine compression brake during operating wherein undesirable conditions will result if the engine brakes are active. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected: a valid gear ratio is detected; the driver has requested or enabled engine compression brake operation; the throttle is at a minimum engine speed position; and the electronic controller is not presently attempting to execute an electronically controlled final drive gear shift. The compression brake shall be controlled via an off/low/high virtual button through the VMUX display.

FORWARD FLUID FILLS

The front of the chassis shall accommodate fluid fills for the engine oil, the windshield washer fluid and the power steering fluid through the grille. This area shall also accommodate checks for the engine oil, and power steering fluid.

ELECTRONIC LOW ENGINE OIL INDICATOR

The engine oil shall be monitored electronically and shall send a signal to activate a light in the instrument panel when levels fall below normal. The light shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.

ENGINE PROGRAMMING REMOTE THROTTLE

The engine remote throttle control harness programmed "ON".

ENGINE WARRANTY

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

ENGINE PROGRAMMING IDLE SPEED

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

COOLING SYSTEM FAN

The engine cooling system shall incorporate a thermostatically controlled, Horton clutched fan. The fan shall be installed on the engine and shall include an air directive shroud.

When the clutched fan is disengaged it shall facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan control design shall be fail safe.

ENGINE COOLING SYSTEM

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

The cooling system shall be comprised of a stacked, single depth package that provides the maximum cooling capacity for the specified engine as well as offers excellent serviceability. The main components shall include a surge tank, charge air cooler, recirculation shield, radiator and transmission cooler. The system shall utilize a surge tank and shall include a coolant overflow tank as an option.

There shall be a single depth core that allows greater efficiency, enhanced serviceability, and lighter weight with a higher ambient capability. The individual cores shall be mounted to allow expansion and contraction at various rates without inducing stress into the adjoining core.

The system shall be compact enough to be removed through the grille area rather than lifting the entire package over the engine. The cooling package core shall be protected by a radiator skid plate and not protrude below the frame of the vehicle by more than 3.5 inches. This feature shall provide an improved angle of approach thereby reducing possible damage.

The radiator shall be a cross-flow design constructed completely of aluminum with welded side tanks. The radiator shall include a minimum of a 910 square inch core and shall be bolted to the bottom of the charge air cooler to allow a single depth core, thus allowing a more efficient and serviceable cooling system. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

The cooling system shall be equipped with a surge tank that is capable of being filled and removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and sight glass to monitor the level of the coolant. The surge tank shall have a cap that meets the engine manufacturer's pressure requirements as well as the system design requirements.

All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance. When a center hose well is installed an additional shield may be required to redirect the airflow into the coolers.

The charge air cooler shall be a cross-flow design constructed completely of aluminum with welded side tanks. The charge air cooler shall have a minimum of a 473 square inch core and be bolted to the top of the radiator to allow a single depth core, thus allowing a more efficient and serviceable cooling system.

All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel "constant torque" style clamps meeting the engine manufacturer's requirements.

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC) installed. The use of ELC provides longer life and change intervals providing improved performance. The coolant shall contain propylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees F.

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

COOLANT FILTER

An engine coolant filter with a shut-off valve for the inlet and outlet shall be installed on the chassis. The location of the filter shall allow for easy maintenance.

Proposals offering engines equipped with coolant filters shall be supplied with standard non-chemical type particulate filters.

LOW COOLANT INDICATOR LIGHT AND TONE ALARM

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

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant. This shall allow the use of water from the discharge side of the pump to assist in cooling the engine.

COOLANT HOSES

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

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator air intake filter which shall be located in the front of the cab behind the officer side fascia. This filter shall protect the downstream air filter from embers using a combination of unique flat and crimped metal screens constructed into a galvanized steel frame. This multilayered screen shall be designed to trap embers or allow them to burn out before passing through the pack, while creating only minimal air flow restriction through the system. Periodic cleaning or replacement of the screen shall be all that is required after installation.

The engine shall also include an air intake filter which shall be bolted to the frame and located under the front of the cab on the officer side. The completely disposable dry type filter shall ensure containment of dust and debris safely contained inside the disposable housing, eliminating the chance of contaminating the air intake system during air filter service via a leak-tight seal.

The air flow distribution and dust loading shall be uniform throughout the high-performance filter cone pack, which shall result in increased capacity and lower pressure differential for improved horsepower and fuel economy. The air intake shall be mounted within easy access via a hinged panel behind the headlight module. The air intake system shall include a restriction indicator light in the warning light cluster which shall activate when the air cleaner element requires replacement.

The charge air cooler hose shall be formed from aluminized steel tubing and include silicone hump hose with stainless expansion rings and stainless steel "constant torque" style clamps meeting the engine manufactures requirements.

Proposals shall include an indication light representative of the need for replacement of the air intake filter and shall be located at the front of the vehicle.

EXHAUST SYSTEM

The exhaust system shall be installed under the frame and shall terminate horizontally on the officer side of the vehicle ahead of the rear tires. A muffler and 0.065 wall aluminized steel exhaust tubing shall be installed. The tubing shall be supported by brackets which are bolted to the frame for strength and

rigidity. Stainless steel flex tubing shall be installed between exhaust pipe and the muffler system. Any joints throughout the system shall be connected with overlapping band style clamps.

TAIL PIPE CHROME EXTENSION

A radiused chrome exhaust tail pipe extension, to direct exhaust gases downward, which terminates on the right hand side of the chassis, forward of the rear tires, shall be installed with a galvaneal band clamp.

TRANSMISSION

The drive train shall include an Allison Gen IV model EVS 4000 torque converting, automatic transmission which shall include electronic controls and an output retarder. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

The transmission shall include two (2) internal oil filters which shall offer Castrol TranSynd™ synthetic TES 295 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The transmission gear ratios shall be:

1st- 3.51 to 1; 2nd- 1.91 to 1; 3rd- 1.43 to 1; 4th- 1.00 to 1; 5th- 0.74 to 1; 6th- 0.64 to 1 (if applicable); Rev- 4.80

TRANSMISSION MODE PROGRAMMING

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

TRANSMISSION FEATURE PROGRAMMING

The EVS group package number 127 shall contain the 198 vocational package in consideration of the duty of this apparatus as a Pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override. This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide. An 8 pin Delphi connector will be provided next to the steering column connector. This will contain the following input/output circuits to the transmission tcm.

Function ID	Description	Wire assignment
C	PTO Request	142
J	Fire Truck Pump Mode (4th Lockup)	122 / 123
C	Range Indicator	145 (4th)
G	PTO Enable Output	130
	Signal Return	103

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach.

ELECTRONIC LOW TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically and shall send a signal to activate a light in the instrument panel when levels fall below normal.

TRANSMISSION RETARDER CONTROL

The Allison transmission retarder control shall be modulated by a one-third at 0% throttle and two-thirds brake pedal actuation and shall include a virtual button on the multiplex display. The activation of the retarder shall activate the brake lights and shall be inactive during pump mode.

TRANSMISSION PRE-SELECT WITH AUXILLIARY BRAKE

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

TRANSMISSION COOLING SYSTEM

The transmission shall include an air to oil cooler integrated into the lower portion of cooling package. The transmission cooling system shall meet all transmission manufacturer requirements.

The transmission retarder application shall feature a separate water to oil cooling system. The cooler will be installed into the transmission hydraulic circuit providing cooling for the retarder. The tube bundle cooler shall be mounted to the chassis, connected to the engine cooling system plumbing.

TRANSMISSION WARRANTY

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

TRANSMISSION DRIVEN POWER TAKE OFF (PTO)

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

POWER TAKE OFF

A ten (10) bolt Chelsea model 277-XBFJP-B5XD heavy duty transmission driven PTO shall be installed. The clutched shifted PTO is designed specifically for the Allison world transmission and provides torque ranges from 250 to 335 lb. ft.

TRANSMISSION DRIVEN PTO LOCATION

The transmission driven power take off (PTO) shall be mounted in the 8:00 o'clock position.

TRANSMISSION DRIVEN PROGRAMMING CONTROL

The power take off shall be controlled through a virtual button on the Vista display.

DRIVELINES

All drivelines shall be heavy duty metal tube and equipped with Spicer 1810 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. A splined slip joint shall be provided in each driveshaft and shall be coated with Glide coat®.

DRIVELINE PUMP

A pump as specified shall be supplied by the apparatus manufacturer and installed by the cab and chassis manufacturer.

DRIVELINE

The driveline shall be for a Hale DSD model pump which shall be installed by the original equipment manufacturer or body builder.

DRIVELINE PUMP RATIO

The ratio for the pump shall be set at 2.28 at the time of driveline installation.

DRIVELINE PUMP CENTER LINE

The pump driveline shall include a centerline of the rear axle to the center line of the suction dimension of 102.00 inches.

DRIVELINE PUMP LOCATION ANGLE

The pump driveline shall be installed at a 4-degree angle.

DRIVELINE PUMP SUCTION HEIGHT

The pump driveline shall be installed with a suction height of 1.00 inch below the frame.

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a fuel filter/water separator as a primary filter as approved by the engine manufacturer.

FUEL LINES

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

FUEL COOLER

An aluminum cross flow air to fuel cooler shall be provided to lower fuel temperature allowing the vehicle to operate at higher ambient temperatures.

FUEL TANK

The fuel tank shall have a minimum capacity of sixty-eight (68) gallons and measure 35.00 inches wide X 17.00 inches high X 29.00 long. The baffled tank shall be made of 14 gauge aluminized steel. The tank exterior is painted with a PRP Corsol™ black anti-corrosive exterior metal treatment finish. This results in a tank which offers the internal and external corrosion resistance.

The fuel tank shall be mounted 2.00 inch below the frame, behind the rear axle. The tank can be easily lowered and removed for service purposes.

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

Dual draw tubes and dual sender ports shall be installed. A 2.00 inch NPT fill ports shall be available for right or left hand fill. A 0.5 inch NPT drain plug shall be centered in the bottom of the tank.

FUEL FILL PROVISIONS

The fuel tank fill ports shall be offset with the left fill port located in the forward position extending to the middle position with the right fill port located in the middle position on the fuel tank.

A 1.50 inch diameter hole shall be provided in the left frame rail for vent hose routing provisions. The hole shall be located 32.12 inches from the rear of the axle and 3.00 inches up from the bottom of the rail.

FRONT AXLE

The front axle shall be a Meritor Easy Steer Non drive front axle, model number MFS-23. The axle shall include a 3.74 inch drop and a 71.50 inch king pin intersection (KPI). The axle shall include a conventional style hub with a standard knuckle. The weight capacity for the axle shall be rated to 23,000 pounds FAWR. The axle shall have a nominal track of 84.25 inches. This rating shall require special approvals from the wheel manufacturers.

FRONT WHEEL BEARING LUBRICATION

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

FRONT SHOCK ABSORBERS

Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintains consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life.

The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.

The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and “road sensing” shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers.

Proposals offering the use of conventional twin tube or “road sensing” designed shocks shall not be considered.

FRONT SUSPENSION

The front suspension shall include three (3), 54.00 inch long and 4.00 inch wide taper leaf springs with a military style double wrapped front eye. Both spring eyes shall have a case hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall be rated at 23,000 pounds.

STEERING COLUMN/ WHEEL

The cab shall include a Douglas Autotech steering column shall be a seven (7) position tilt and 2.25 inch telescopic type with an 18.00 inch steering wheel located on the left side of the cab designating the driver’s position. The steering wheel shall be covered with black absorbite padding.

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

POWER STEERING PUMP

The hydraulic power steering pump shall be a Vickers 20V and shall be gear driven from the engine. The pump shall be a fixed displacement vane type.

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

The power steering fluid shall be monitored electronically and shall send a signal to activate a light in the instrument panel when levels fall below normal.

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 48 degrees to the left and 44 degrees to the right.

CHASSIS ALIGNMENT

The chassis frame rails shall be cross checked to insure the length and to make sure each is square. The front and rear axles shall be laser aligned, additionally the tires and wheels shall be aligned and toe-in set on the front tires. The completed apparatus shall be rechecked for proper alignment once the chassis has been fully loaded.

REAR AXLE

The rear axle shall be a Meritor model number RS-30-185 single drive axle. The axle shall offer the widest range of ratios available, providing for compatibility engines to ensure maximum fuel efficiency and performance. The axle shall feature a life housing design with a standard 0.56 inch wall thickness.

The axle shall feature precision forged differential gears and shall have a rated capacity of 31,500 pounds.

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

REAR AXLE DIFFERENTIAL CONTROL

A driver controlled differential lock shall be installed on the rear axle. This feature shall allow the differential to be locked and unlocked when the vehicle is stationary to provide maximum wheel end traction. The differential lock shall be controlled by a rocker switch on the switch panel. The light on the switch shall illuminate with positive engagement of the differential control.

VEHICLE TOP SPEED

The top speed of the vehicle shall be approximately 65 MPH +/-2 MPH at governed engine RPM.

REAR SUSPENSION

The single rear axle shall feature a Reyco 79KB vari-rate, self-leveling captive slipper type spring suspension, with 57.50 inch X 3.00 inch springs. One (1) adjustable and one (1) fixed torque rod shall be provided.

The rear suspension capacity shall be rated from 21,000 to 31,000 pounds.

FRONT TIRES

The front tires shall be Michelin 425/65R-22.5 20PR "L" tubeless radial XZY3 mixed service tread.

The front tire stamped load capacity shall be 22,800 pounds per axle with a speed capacity of 65 miles per hour when properly inflated to 120 pounds per square inch.

REAR TIRES

The rear tires shall be Michelin 315/80R-22.5 20PR "L" tubeless radial XDN2 Grip all weather tread.

The rear tire stamped load capacity shall be 33,080 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 130 pounds per square inch.

The rear tire US Fire Service Intermittent Usage load capacity shall be 33,080 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 130 pounds per square inch.

FRONT WHEELS

The front wheels shall be Alcoa hub piloted, 12.25 inch X 22.50 inch aluminum wheels with the Alcoa Dura-Bright® wheel treatment as an integral part of the wheel. Alcoa Dura-Bright® wheels keep their shine without polishing; the wheels shall come clean simply by spraying with soap and water. Brake dust, grime and dulling oxidation shall wash off with no scrubbing and no special chemicals required.

REAR WHEEL

The rear wheels shall be Alcoa hub piloted, 9.00" x 22.5" aluminum wheels with the Alcoa Durabright wheel treatment as an integral part of the wheel.

WHEEL TRIM

The front wheels shall include stainless steel lug nut covers and stainless steel baby moons with cutouts for oil seal viewing (there shall be no cutout on front drive or IFS axles). The covers and baby moons shall feature a mirror shine finish and shall be shipped loose with the chassis for installation by the apparatus builder.

The rear wheels shall include stainless steel lug nut covers and band mounted spring clip stainless steel high hats, also in a mirror shine finish, which shall be shipped loose with the chassis for installation by the apparatus builder.

The lug nut covers, baby moons, and high hats shall be RealWheels® brand, and constructed of 304L grade, non-corrosive stainless steel meeting D.O.T. certification standards.

TIRE CHAINS

OnSpot, six (6) strand automatic ice chains shall be installed on the rear axle of the chassis to provide instant traction while traveling on ice and snow at speeds below 35 mph.

TIRE CHAIN ACTIVATION

The tire chain system shall be controlled through a virtual switch on the multiplex display. The virtual switch shall display "Active" when the tire chains are engaged. The tire chains shall be interlocked with the transmission and shall engage when the vehicle is traveling 30 MPH or less. After traveling over 30 MPH, the vehicle must be reduced to a speed below 5 MPH for the tire chains to be engaged or re-engaged.

BRAKE SYSTEM

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

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

A Meritor-Wabco four (4) sensor, four (4) modulator anti-lock braking system (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

Additional safety shall be accommodated through automatic traction control which shall be installed on the single rear axle. The automatic traction control system shall apply the anti-lock braking system when the drive wheels loose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces. The ATC light and the light on the mud/snow rocker switch shall illuminate during excessive wheel slip and ATC is operational.

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

Additional handling capabilities shall include roll stability control. Roll Stability Control (RSC) shall continually check and update lateral acceleration of the tractor and compare it to a critical threshold where rollover may occur. When the critical threshold is met, RSC shall intervene by reducing the engine torque and engaging the engine retarder, while automatically applying the brakes. Normal vehicle operation shall resume once the problematic conditions cease. Roll stability control shall be integral with the ABS and ATC systems. Roll stability control capability shall be based on operating weight, rather than capacity and shall be a minimum of 17,000 pounds.

FRONT BRAKES

The front brakes shall be Meritor EX225 Disc Plus disc brakes with 17" vented rotors.

REAR BRAKES

The rear brakes shall be Meritor 16.50 inch X 7.00 inch S-cam drum type.

PARK BRAKE

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

In addition to the mechanical rear brake engagement, the front service brakes will also engage via air pressure, providing additional braking capability.

The air pressure to the front service brakes will be limited to 40 psi.

PARK BRAKE ACTUATION VALVE

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color.

The parking brake actuation valve shall be mounted on the driver's dash within easy access.

FRONT BRAKE SLACK ADJUSTERS

Front brake automatic slack adjusters shall be an integral part of the brake assembly and be supplied by the brake manufacturer.

REAR BRAKE SLACK ADJUSTERS

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

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be located on the right frame rail behind the officer step.

BRAKE CHAMBERS

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

AIR COMPRESSOR

The air compressor provided for the engine shall be a two (2) cylinder reciprocating Wabco® SS318 compressor which shall be capable of producing a minimum of 18.7 CFM. The air compressor shall

feature a higher delivery efficiency translating to more air delivery per horsepower absorbed. Superior piston and bore finishing technology shall reduce oil consumption up to 90% significantly reducing the system component life. The compressor shall include an aluminum cylinder head which shall improve cooling, reduce weight and decrease carbon formation.

AIR GOVERNOR

An air governor which shall cut-in and cut-out pressures on the vehicle shall be provided and shall be adjusted so that the maximum pressure in the air system and the minimum cut-in pressure. The air governor shall be located on the air cleaner bracket on the right frame rail behind the officer step.

AIR SUPPLY MOISTURE EJECTORS

Heated, automatic moisture ejectors with a manual drain provision shall be installed on all reservoirs of the air supply system.

AIR SUPPLY LINES

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

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

AIR TANK POSITION

There shall be spacers included which shall move the air tanks 1.00 inch inward towards the center of the chassis.

REAR AIR TANK MOUNTING

The air reservoir located towards the rear of the chassis shall be installed side to side.

WHEELBASE

The chassis wheelbase shall be 216.00 inches.

REAR OVERHANG

The chassis rear overhang shall be 102.00 inches.

FRAME

The frame shall consist of double channel side rails and cross members forming a ladder style frame. The sides of the rails shall be constructed of "C" channel, 10.25 inches high X 3.5 inches deep X .38

inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and .38 inches thick, 110,000 psi minimum yield high strength low alloy steel. Each rail shall be considered on the following key items: Each rail shall be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100 inch pounds and have a minimum section modulus of 29.21 cubic inches calculated by the radius method. The frame shall measure 35.00 inches in width.

RBM refers to the measure of stiffness of a cross section relative to the yield stress of the material the frame is manufactured from.

Every cross sectional profile of an object has a measure of its mechanical properties based on its shape. These properties of its shape can be broken down relative to the horizontal and vertical direction, represented as I_{xx} and I_{yy} . These act as a measure of the shape's resistance to bending.

The section modulus of mass of this profile takes into consideration the stresses imposed on this profile when a load is applied, by considering the maximum distance from the center of the profile to its outer most extremity. Section modulus is a method of measurement for the relative stiffness of a beam section and is based on the horizontal and vertical directional value plus the distance from the center of mass to the extremities of the cross section from the coordinate axis, such that $Z_{yy} = I_{yy}/Y$ and $Z_{xx} = I_{xx}/X$.

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

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

A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the engine mounting, body mounting, pump mounting or bumpers shall not be considered as a cross member. The cross members shall be attached using grade 8 flanged head bolts and flanged lock nuts. Each cross member shall be mounted to the frame rails a minimum of utilizing 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.

Any proposals not including additional reinforcement for each cross member shall not be considered.

All holes for bolts shall be drilled into the frame rails, preventing fracture or fatigue. Each hole shall be custom placed relative to its component preventing unnecessary holes that present fatigue along each frame rail.

The frames proposed shall be custom drilled for each component and shall not include any unnecessary holes.

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

The frame and cross members shall carry a lifetime warranty to the original purchaser. A copy of the frame warranty shall accompany the bid.

Proposals offering warranties for frames not including cross members shall not be considered.

FRAME PAINT

The chassis under carriage consisting of frame, axles, driveline running gear, battery boxes, air tanks and other assorted chassis mounted components shall be painted with gloss black paint. Paint shall be applied prior to airline and electrical wiring installation.

FRAME WARRANTY

The frame and cross members shall carry a lifetime warranty to the original purchaser.

FRONT BUMPER

The cab shall include a five (5) piece, structural channel front bumper. The bumper shall be constructed of ASTM A-36 steel; the bumper shall then be painted. The bumper shall include a .38 thick structural steel channel which shall be 12.00 inches high and 101.00 inch wide, with angled front corners.

FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended 24.00 inches ahead of the cab.

FRONT BUMPER EXTENSION WIDTH

The front bumper extension splayed frame rails shall include an overall width of 44.75 inches.

FRONT BUMPER PAINT

The front bumper shall include a finish topcoat painted the same as the lower cab color.

FRONT BUMPER APRON

The bumper extension shall include a bumper apron which consists of 0.19 inch thick aluminum tread plate constructed for an exact fit within the 24.00 inch bumper extension. The apron shall be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the bumper flange.

AIR HORNS

The front bumper shall include two (2) Grover brand air horns which shall measure 24.50 inches long with a 6.00 inch round flare. The air horn shall be a trumpet style and shall include a chrome finish.

AIR HORN LOCATION

The air horns shall be recess mounted in the front bumper face, (1) on the driver side of the bumper in the outboard position relative to the left hand frame rail and (1) on the officer side of the bumper in the outboard position relative to the right hand frame rail.

AIR HORN AIR RESERVOIR

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

ELECTRONIC SPEAKER

The bumper shall include one (1) Cast Products Inc. model SA4301, 100 watt speaker which shall be recess mounted within the bumper fascia. The speaker shall include a flat mounting flange and be chrome in color.

ELECTRONIC SPEAKER LOCATION

The speaker shall be located in the officer's side of the front bumper fascia, just outside of the frame rails.

FRONT BUMPER TOW HOOKS

Two (2) heavy duty chrome plated tow hooks shall be installed below the front bumper, forward position and bolted directly to the chassis frame with grade 8.00 bolts.

CAB TILT SYSTEM

The entire cab shall be capable of tilting 45.00 degrees to allow for easy maintenance of the engine and transmission. The lift system shall include an ignition interlock and red lock down indicator lamp, which shall illuminate when holding the "Down" switch to indicate safe road operation. It shall be necessary to activate the master battery switch with the park brake set in order to tilt the cab. Two cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab pivots shall be 1.90" ball and be anchored to frame brackets with 1.25" diameter studs.

Two (2) spring loaded hydraulic hold down hooks located outboard of the frame which shall be installed designed for holding the cab securely to the frame. A steel safety assembly shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety assembly shall fall over the lift cylinder when the cab is in the "Up" position. A cable release system shall also be provided to clear the safety assembly from the lift cylinder when lowering the cab.

CAB TILT LIMIT SWITCH

A cab limit switch shall be installed. The switch will effectively limit cab's travel when being tilted. The final adjustment of the switch shall be performed by the apparatus manufacturer to prevent damage to the cab and any bumper mounted option mounted in the cab tilt arc.

CAB TILT CONTROL RECEPTACLE

The cab tilt shall include a receptacle which shall be temporarily located on the right hand chassis rail rear of the cab to provide a place to plug in the cab tilt remote control pendant. The tilt pump shall include 8.00 feet of cable with a 6-pin Deutsch connector that includes a cap. The remote control pendant shall also include 20.00 feet of cable which also includes a mating connector.

CAB WINDSHIELD

The cab windshield shall have a maximum of 2808 sq. in. area and be of the wraparound design, 52.00 inches wide X 27.00 inches high for maximum visibility. The distance from the Driver or Officer to the

front windshield shall be a minimum of 42.00 inches at the furthest seated position. This distance shall ensure the safety of the Driver and Officer from intruding objects in the unlikely event of a head on collision. All glass utilized for the windshield or windows shall include an automotive tint. The left and right windshield shall use the same interchangeable glass.

Each proposal shall include the left and right windshield shall be fully interchangeable thereby minimizing maintenance costs. All proposals offering windshields not in compliance with the minimum measurement of viewing area stated above and are not fully interchangeable shall not be considered.

CAB GLASS FRONT DOOR

The front cab doors shall include a window which is 26.00 inches wide X 31.00 inches high. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished manually utilizing a crank style handle on the door. The front cab door windows shall be mounted in a black anodized aluminum frame with lower drain slots.

There shall be a right angle triangular shaped fixed window which shall measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches high, more commonly known as “cozy glass” ahead of the front cab door windows. These windows shall be mounted in a rubberized frame.

The glass utilized for these windows shall include a green automotive tint unless otherwise noted.

WINDOW TINT FRONT

The cab windshield shall have a standard green automotive tint which shall allow seventy-five (75) percent light transmittance.

The cab driver and officer door glass shall have a standard green automotive tint which shall allow seventy-five (75) percent light transmittance.

CAB GLASS REAR DOOR OFFICER SIDE

The rear officer’s side crew door shall include a window which is 26.00 inches wide X 31.00 inches high. This window shall have the capability to roll down completely within the door housing. This shall be accomplished manually utilizing a crank style handle on the inside of the door. The window shall be mounted in a black anodized aluminum frame with lower drain slots. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

WINDOW TINT OFFICER SIDE

The officer side window shall include a standard green automotive tint which shall allow seventy-five (75) percent light transmittance.

CAB GLASS REAR DOOR DRIVER SIDE

The rear driver’s side crew door shall include a window which is 26.00 inches wide X 31.00 inches high. This window shall have the capability to roll down completely within the door housing. This

shall be accomplished manually utilizing a crank style handle on the inside of the door. The window shall be mounted in a black anodized aluminum frame with lower drain slots. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

WINDOW TINT DRIVER SIDE

The driver side window shall include a standard green automotive tint which shall allow seventy-five (75) percent light transmittance.

CAB GLASS SIDE MID OFFICER SIDE

The cab shall include a window on the officer's side behind the front and ahead of the crew doors which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

WINDOW TINT MIDDLE OFFICER SIDE

The window on the officer side of the cab located between the driver and officer doors shall include a standard green automotive tint which shall allow seventy-five (75) percent light transmittance.

CAB GLASS SIDE MID DRIVER SIDE

The cab shall include a window on the driver's side behind the front door and ahead of the crew door and above the wheel well which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

WINDOW TINT MIDDLE DRIVER SIDE

The window on the driver side of the cab located between the driver and officer doors shall include a standard green automotive tint which shall allow seventy-five (75) percent light transmittance.

CAB INSULATION

The cab ceiling and walls shall include 1.00 inch thick foam insulation. The insulation shall include a foil facing which includes grid reinforcement. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

ENGINE TUNNEL INSULATION

The exterior of the cab tunnel surrounding the engine shall include reinforced closed cell foam insulation. The insulation shall measure 1.00 inch thick and shall include a foil backing and grid reinforcement. The foam shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation under the tunnel shall act as a noise barrier absorbing noise from the engine as well as assisting in sustaining the desired climate within the cab interior.

CEILING MOUNTED HEATING AND A/C UNIT

The heating and air conditioning unit shall include a vacuum formed ABS cover mounted on the ceiling of the cab between the driver and officer seating positions over the engine tunnel. The combination air conditioning and defrosting unit shall measure 48.00 inches long X 34.50 inches wide X 13.00 inches deep. The system shall be rated for 45,000 BTU of cooling and 36,000 BTU of heating and shall heat and cool the cab through nine (9) different directional vents located one (1) each at the driver and officer position, one (1) each over the tunnel, and six (6) at the back of the unit for heating the crew area. There shall be six (6) total vents at the front of the unit in the direction of the windshield for defrosting purposes.

CLIMATE CONTROL ACTIVATION

The heating controls, and air conditioning if included, shall be located on the Vista screen.

AUXILIARY CLIMATE CONTROL FRONT UNDERSEAT

Two (2) 13,500 Btu heaters shall be provided and installed in the face of the seat riser storage area for the driver and officer. The fan controls shall be located on the driver side multiplex display.

The auxiliary heater system hoses shall be silicone with stainless steel constant torque clamps approved for use with silicone hose. All auxiliary heaters shall be plumbed in series independent of the heater defroster system. One (1) seasonal shut-off valve for the auxiliary heater series shall be supplied at the front of the right hand corner of the cab.

AUXILIARY CLIMATE CONTROL REAR UNDERSEAT

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

The auxiliary heater system hoses shall be silicone with stainless steel constant torque clamps approved for use with silicone hose. All auxiliary heaters shall be plumbed in series independent of the heater defroster system. One (1) seasonal shut-off valve for the auxiliary heater series shall be supplied at the front of the right hand corner of the cab.

HEATER HOSE INSULATION

The heater hoses leading from the engine to the cab shall include a foam insulation wrap which runs the length of the hose improving heating in extreme cold climates. The heating hoses which shall be routed inside the cab shall not be insulated.

A/C CONDENSER LOCATION

A roof mounted A/C condenser shall be installed on officer's side of the cab, mid-roof.

A/C COMPRESSOR

The air-conditioning compressor shall be an engine driven Seltec TM-21 and utilize R-134A refrigerant.

INTERIOR TRIM FLOOR MAT

The floor of the cab shall be covered with a multi-layer mat consisting of .25 inch sound absorbing closed cell foam and a .06 inch non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive with aluminum cornering trim. All exposed seam shall be sealed to reduce moisture and debris.

INTERIOR TRIM VINYL

The cab interior shall include trim on the front and rear crew ceiling, the cab walls and the rear wall of the cab. The trim shall be constructed of insulated vinyl over a hard board backing. The material shall be securely fastened to the interior of the cab utilizing snap style fasteners with a decorative fastener for a more appealing appearance.

CAB INTERIOR TRIM HEADER ABS

The cab interior shall include a header over the driver and officer dash which shall be vacuum formed ABS composite panel with robust styling grooves providing structural integrity. The header shall include (2) vents within the header which are directed at the windshield. Also included will be a drop down panel for access behind the header for service of electronic components, if necessary. The header shall include (2) cut outs, (1) over the driver and (1) over the officer to accommodate speakers and molded areas to accommodate the sun visors.

INTERIOR TRIM SUN VISOR

The header shall include one (1) sun visor above the driver and officer seating positions and above the windshield spanning the length of each windshield. Each sun visor shall be constructed of masonite and covered with insulated vinyl. There shall be an additional extension from the sun visor which shall be high impact resistant, flame resistant, solar gray colored Lexan® polycarbonate.

CAB INTERIOR TRIM LH DASH ABS

The driver side dash shall be a (1) piece hinged panel which shall be constructed of durable vacuum formed ABS composite panel which shall be custom molded for a perfect fit surrounding the dash. The ABS shall be aesthetically pleasing in its gray coloring.

CAB INTERIOR CENTER DASH

The main center dash cover shall be constructed of 5052-H32 Marine Grade, .090 of an inch thick, one hundred percent primary aluminum plate. The cover shall include three (3) panels within the dash which shall accommodate any additional gauges and controls. All gauges and controls within the panels shall be backlit for night vision and clearly identified representative of their specific function. The center panel shall be within comfortable reach of both the driver and officer.

TRIM OFFICER DASH

The cab interior officer panel dash trim shall consist of 5052-H32 Marine Grade, .090 of an inch thick, one hundred percent primary aluminum plate consisting of a glove compartment with a hinged locking door and a mobile data terminal provision. The mobile data provision shall be located above the glove

compartment and shall be recessed 3.00 inches below the surface of the dash. The mobile data provision shall provide a total surface area of 13.75 inches wide X 9.50 inches deep.

The cab interior dash trim officer panel shall consist of a high impact resistant aluminum module, which contains a glove compartment with a hinged non-locking door. A Mobile Data Terminal (MDT) provision shall be provided above the glove compartment. The MDT provision shall be recessed 3.00 inches below the surface of the dash. The surface area of the MDT provision shall be 16.00 inches wide X 14.00 inches deep.

TRIM OFFICER DASH

The cab interior officer panel dash trim shall consist of 5052-H32 Marine Grade, .090 of an inch thick, one hundred percent primary aluminum plate consisting of a glove compartment with a hinged locking door and a mobile data terminal provision. The mobile data provision shall be recessed 7.00 inch below the surface of the dash and provide a surface area of over 14.00 inches wide X 9.50 inches deep and include a slide-out tray with locking mechanism for easier and more ergonomic typing.

ENGINE TUNNEL TRIM

The cab engine tunnel shall be covered with .44 of an inch thick multi-layer mat consisting of .25 inch closed cell foam, .13 of an inch thick rubber and .06 inch thick non-slip pebble grain.

ENGINE TUNNEL ACCESSORIES

The engine tunnel shall include a .090 thick aluminum console which shall include a large storage bin, a map compartment and two (2) cup holders and an additional bin for smaller items such as cell phones, and other miscellaneous equipment.

POWER POINT DASH MOUNT

The cab dash panel shall include two (2) each 12 volt cigarette lighter type receptacles as a power source for additional portable or mobile items. The receptacles shall be wired to be hot when the battery master switch is on.

POWER POINT CONSOLE MOUNT

The cab interior shall include two (2) 12 volt cigarette lighter type receptacles. This receptacle shall be provided to act as a power source for additional portable or mobile items. The receptacles shall be connected to the master power switch.

STEP TRIM

The cab steps shall include a 14 gauge 304 perforated stainless steel construction on the first step, the step closest to the ground. The stainless steel finish shall be a number 7 mirror. The step shall include a frame which is integral with the construction of the cab for rigidity and strength. The perforation shall allow water and other debris to flow through rather than becoming packed under the step. The middle step shall be integral with the cab in construction and shall be trimmed in 3003-H22 embossed aluminum tread plate which is 0.084 inches thick.

INTERIOR DOOR TRIM

The doors of the cab shall include an aluminum plate the same weight and grade as the cab on the interior of the door. The aluminum shall be then painted.

DOOR PANEL CUSTOMER NAMEPLATE

The interior door trim on the front doors shall include a customer nameplate which states the vehicle was custom built for their Department.

CAB DOOR TRIM REFLECTIVE

A reflective chevron sign shall be installed on the lowest portion of the inner door panel, one (1) on each door. A stripe of reflective tape shall be installed at the outer edge of each door.

INTERIOR GRAB HANDLE

A rubber covered 11.00 inch grab handle shall be provided on the inside of the cab on the hinge post at the driver and officer doors. The handle shall assist personnel in exiting and entering the cab.

GRAB HANDLE FRONT DOOR

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

INTERIOR GRAB HANDLE REAR DOOR

A black powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door the full width of the door below the window glass and shall measure 30 inches in length. The handle shall assist personnel in exiting and entering the cab.

CAB INTERIOR FLOOR MAT COLOR

The cab interior floor mat shall be gray in color.

INTERIOR TRIM VINYL COLOR

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

INTERIOR ABS TRIM COLOR

The cab interior vacuum formed ABS composite trim surfaces shall be gray in color.

CAB PAINT INTERIOR

The interior metal surfaces shall be painted with a Zolatone #20-72 silver gray texture finish.

CAB PAINT INTERIOR DOOR TRIM

The inner door panel surfaces shall be painted with a Zolatone #20-72 silver gray texture finish.

CONTROL PANELS

The dash shall include three removable panel's located one (1) to the right of the driver position, one (1) in the center of the dash just ahead of the engine tunnel and one (1) to the right of the officer position.

SWITCH PANEL CENTER

The center dash shall include a panel with six (6) rocker switches in the upper left quadrant of the panel.

SWITCH PANEL DRIVER

The interior shall include a durable vacuum formed ABS composite switch panel which shall include one (1) switch which shall be located in the left of the dash. This panel shall be appropriately labeled as to it's specific function.

Proposals offering add-on style panel shall not be considered, all panels shall be designed for the specific chassis and shall match the interior for a more uniform and attractive appearance.

SWITCH PANEL OFFICER

The interior shall include a durable vacuum formed ABS composite switch panel which shall be located on the officer side of the dash and shall not include any switches.

SWITCH PANEL IGNITION

The vehicle shall be equipped with a keyless ignition and master, with an "Off/ On" and a two switch for "Off/ Start".

SEATBELT WARNING SYSTEM

A seatbelt warning system shall be installed for each seat within the chassis. The system shall provide visual and audible warning when any seat is occupied (sixty pounds minimum), the corresponding seat belt remains unfastened, and the park brake is released.

Once activated, the visual and audible indicators shall remain active until all occupied seats have the seat belts fastened.

SEAT MATERIAL

The seats shall include a covering of high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids.

SEAT COLOR

All seats supplied on the chassis shall be gray in color. This material shall be semi-resistant to UV rays and from being saturated or contaminated by fluids.

SEAT BACK LOGO

The seat back shall include a black and red capital R representing the Rosenbauer logo. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.

DRIVER SEAT

The driver's seat shall be a Seats Inc. 911 Universal series. The seat shall feature a tapered and padded seat, cushion. The seat shall feature electric six (6) way adjustable positioning. The six (6) positions shall include up and down and fore and aft. The control shall be located on the right side of the seat forward the center of the seat.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a red, three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 37.00 inches measured with the height adjustment in its lowest position and the suspension inflated and/ or raised to the upper limit of its travel.

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

DRIVER SEAT BACK

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

OFFICER SEAT

The officer's seat shall be a Seats Inc. 911 ABTS series. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a red, three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall measure at minimum 37.00 inches, from the height adjustment in its lowest position and the suspension inflated and/ or raised to the upper limit of its travel to the cab ceiling.

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

OFFICER SEAT BACK

The officer's seat back shall include a Ziamatic brand Load and Lock™ walk away self contained breathing apparatus (SCBA) bracket. The mechanical walk away bracket shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs. The bracket shall consist of a back plate and a short back plate, both of which shall be thermoplastic coated for trouble free service. The bracket shall feature two (2) high cycle double coated clips which shall not mar the cylinders.

The bracket shall accommodate and secure all types of self-contained breathing apparatus cylinders. Each bracket shall include a model LLS strap assembly which shall meet the NFPA 1901-03 standard for SCBA retention and shall be easily adjustable. The seat back shall include a removable padded vinyl cover which shall be provided over the SCBA cavity.

POWER SEAT WIRING

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

REAR FACING OUTER SEAT QUANTITY

The crew area shall include two (2) rear facing crew seats, which include one (1) located directly behind the driver seat and one (1) located directly behind the officer seat.

REAR FACING OUTBOARD SEAT

The crew area shall include a seat in the rear facing outboard position which shall be a Seats Inc. 911 ABTS series. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a red, three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall measure at minimum 37.00 inches, from the height adjustment in its lowest position and the suspension inflated and/ or raised to the upper limit of its travel to the cab ceiling.

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

REAR FACING OUTER SEAT BACK

The crew area shall include a seat back in the rear facing outer position which shall include a Ziamatic brand Load and Lock™ walk away self contained breathing apparatus (SCBA) bracket. The mechanical walk away bracket shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs. The bracket shall consist of a back plate and a short back plate, both of which shall be thermoplastic coated for trouble free service. The bracket shall feature two (2) high cycle double coated clips which shall not mar the cylinders.

The bracket shall accommodate and secure all types of self-contained breathing apparatus cylinders. Each bracket shall include a model LLS strap assembly which shall meet the NFPA 1901-03 standard for SCBA retention and shall be easily adjustable. The seat back shall include a removable padded vinyl cover which shall be provided over the SCBA cavity.

SEAT BELT ORIENTATION

The crew position seat belts shall follow the standard orientation which extends from the left hand shoulder extending to the right hand hip.

FORWARD FACING CENTER SEAT QUANTITY

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

FORWARD FACING CENTER SEAT

The crew area shall include a seat in the forward facing center position which shall be a Seats Inc. 911 series. The seat shall feature a tapered and padded seat, and cushion. The seat and cushion shall be hinged and compact in design for additional room and shall remain in the stored position until occupied.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a red, three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall measure at minimum 37.00 inches, from the height adjustment in its lowest position and the suspension inflated and/ or raised to the upper limit of its travel to the cab ceiling.

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

FORWARD FACING CENTER SEAT BACK

The crew area shall include a seat back in the forward facing center position which shall include a Ziamatic brand Load and Lock™ walk away self contained breathing apparatus (SCBA) bracket. The mechanical walk away bracket shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs. The bracket shall consist of a back plate and a short back plate, both of which shall be thermoplastic coated for trouble free service. The bracket shall feature two (2) high cycle double coated clips which shall not mar the cylinders.

The bracket shall accommodate and secure all types of self-contained breathing apparatus cylinders. Each bracket shall include a model LLS strap assembly which shall meet the NFPA 1901-03 standard for SCBA retention and shall be easily adjustable. The seat back shall include a removable padded vinyl cover which shall be provided over the SCBA cavity.

FORWARD FACING SEAT FRAME

The forward facing center seating positions shall include an open style seat frame which is located and installed on the rear wall. This seat box shall accommodate the under seat heater option if chosen. The seat frame shall measure 42.38 inches wide X 12.38 inches high X 15.75 inches deep. The seat frame shall be constructed of 5052-H32 Marine Grade, .190 inch thick, 100 percent primary smooth aluminum plate. The seat box shall be painted with the same color as the remaining interior.

CAB FRONT UNDERSEAT STORAGE ACCESS DOOR

The driver under seat storage area shall include a painted, vented aluminum hinged door with latch.

The officer under seat storage area shall include a painted, vented aluminum hinged door with latch.

WINDSHIELD WIPER SYSTEM

The cab shall include a parallel arm wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers, one (1) for the driver and one (1) for the officer, which shall be affixed to a rod style arm. The system shall include a single motor which shall initiate

the arm in which both the driver and officer windshield wipers are attached, initiating a back and forth motion for each wiper. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position.

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

The windshield washer fluid level shall be monitored electronically and shall send a signal to activate a light in the instrument panel when levels fall below normal.

CAB DOOR HARDWARE

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be FRP composite with a black matt finish. All doors shall include keyed alike locks that are designed to prevent accidental lockout.

The interior latches shall be black flush paddle type, which are incorporated into an upper door panel.

DOOR LOCKS

The entry doors shall include an independent manual door lock actuated through the a toggle switch located on the interior of the cab door near the paddle handle or through a keyhole on the exterior of the door via a 2004 style Hansen door key.

CAB EXTERIOR GRAB HANDLES

The cab shall include one (1) each 18.00 inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The assist handle shall be made of 14 gauge 304- stainless steel and be 1.25 inch diameter to enable non-slip assistance with a gloved hand.

REARVIEW MIRRORS

The cab exterior shall include Ramco mirrors model CRM-310-1750-TPCHR, one (1) each on the driver and officer sides of the cab. The mirrors shall be flange mounted using die cast aluminum arms to each front door of the cab and shall measure 9.50 inches wide X 17.50 inches high. The mirror heads shall be chrome plated injection molded ABS plastic and shall include an upper heated remote convex glass with a heated remote flat bottom glass. The mirrors shall include the finest quality non-glare glass and shall include a rigid mounting thereby reducing vibration. Both of the mirrors shall be corrosion free under all weather conditions.

REARVIEW MIRROR HEAT SWITCH

The heated rearview mirrors shall be controlled through a virtual button on the multiplex display.

CAB FENDERS

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. The two-piece liners shall consist of an inner liner 16.00 inches wide made of vacuum formed ABS composite and an outer fenderette 3.50 inches wide made of 14 gauge 304 polished stainless steel.

CAB MODEL IDENTIFICATION

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

EXTERIOR EMBLEM

Each cab side shall include one (1) Spartan emblem installed on the outside of the cab above each front wheel well.

IGNITION

The master starting system, ignition system shall include chrome thumb turn switch which shall be mounted on the driver side of the cab to the left of the steering wheel on the dash. Each switch will be accompanied by (1) green LED indication light which shall light when the ignition is in the “ON” position and (1) for the master battery switch when in the “ON” position. The thumb turn switches shall also be accompanied by a chrome push button which shall only operate when both the master battery and ignition thumb switches are in the “ON” position.

BATTERIES

The single start electrical system shall include (6) Harris BCI 31 950 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541. The cables shall have encapsulated ends with heat shrink and sealant.

BATTERY BOXES

The batteries shall be contained within two (2) black powder coated steel battery boxes which shall be located on the driver and officer side of the chassis, securely bolted to the frame rails. The boxes shall include drain holes in the bottom for sufficient drainage of water and shall include phenolic board battery hold downs and a durable, Dry-Deck in the bottom of the tray under each battery to allow for air flow and drainage.

BATTERY CABLES

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

BATTERY JUMPER STUDS

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

ALTERNATOR

The starting system shall include a 270 amp Leece Neville 12 volt alternator, model number A0014949PA. The alternator shall include a self-excited integral regulator.

BATTERY CONDITIONER

A Kussmaul 1200 battery conditioner shall be supplied. The battery conditioner shall be mounted in the cab behind the driver's seat.

BATTERY CONDITIONER DISPLAY

A Kussmaul battery conditioner display shall be supplied. The battery conditioner display shall be mounted in the cab, viewable through the cab mid side window behind the driver's door.

AUXILIARY AIR COMPRESSOR

A Kussmaul Pump Plus 12V air compressor shall be supplied. The air compressor shall be installed behind the driver's seat. The air compressor shall be plumbed to the air brake system to maintain air pressure.

ELECTRICAL INLET CONNECTION

A Kussmaul 20 amp super auto-eject electrical receptacle shall be connected to the battery conditioner and installed on the driver's side of the cab above the wheel well. It shall automatically eject the plug when the starter button is depressed.

The U.L. maximum allowable amperage draw on receptacles is generally 80% of their listed rating, for example, the 20 amp receptacle should not carry more than 16 amp continuous load. When adding the different amperage draws of the components being installed on the chassis be sure to factor in whether the components will draw a continuous load or intermittent load.

Amp Draw Reference List:

Kussmaul 1000 Charger - 3.5 Amps

Kussmaul 1200 Charger - 10 Amps

Kussmaul 35/10 Charger - 10 Amps

1000W Engine Heater - 8.33 Amps

1500W Engine Heater - 12.5 Amps

120V Air Compressor - 4.2 Amps

AUTO- EJECT ELECTRICAL INLET COVER

The Kussmaul Auto- Eject electrical inlet connection shall include a red cover.

HEADLIGHTS

A hinged headlamp and combination side marker/turn lamp module shall be part of the front cab fascia. This combination shall include (2) rectangular halogen High/Low beam headlamps with integrated side marker/turn signal lamps. The headlamps shall be equipped with a "Daytime Running" light feature,

which will illuminate the headlights to 80% brilliance when the ignition switch is in the "On" position and the parking brake is released.

The headlights shall be controlled via a virtual button on the Vista display.

HEADLIGHT LOCATION

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

TURN SIGNALS

The headlamp assembly shall include a turn signal and side marker lamp combination within the same module. This light assembly shall be amber in color and shall have a visibility radius of 125 degrees.

SIDE MARKER/ TURN SIGNALS

The headlight module shall include two (2) side turn and marker lights which shall be integral with the headlights.

MARKER AND ICC LIGHTS

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

FOG LIGHTS

The vehicle shall include clear perlux fog lights. These lights shall be controlled by a virtual switch on the multiplex display.

FOG LIGHT LOCATION

The fog lights shall be recess mounted in the bumper in the center position.

GROUND LIGHTS

Each door shall include incandescent NFPA compliant light heads mounted to the under side of the cab. The lights shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The ground lighting shall be activated by the opening of the respective door as well as through the multiplex system.

ENGINE COMPARTMENT LIGHT

There shall be an incandescent NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

BROW MOUNTED SCENE LIGHTING

The front of the cab shall include two (2) Fire Research Optimum model OPA800-S75 contour roof mount lights mounted to the brow of the cab.

Each lamp head shall have one (1) quartz halogen 750 watt 120 volt bulb. The bulb will draw 6.3 amps and generate 19,600 lumens. The lamp head shall produce a uniform beam that lights up an area 100° vertically by 150° horizontally. The lamp head shall be no more than 6 7/16" high by 8 11/16" wide. The lamp heads and brackets shall be powder coated white.

SCENE LIGHT ACTIVATION

The front scene lights shall be pre-wired to be activated by the OEM.

SIDE MOUNTED SCENE LIGHTING

The side of the cab shall include two (2) Havis Shield Kwik Strike 4000 scene lights within a chrome bezel, one (1) each side which shall be recess mounted. The Kwik-Strike lights shall offer 12 volts and 35 watt HID lighting.

SIDE SCENE LIGHT LOCATION

The scene lighting located on the driver and officer sides of the cab shall be mounted in the upper rearward portion of the 10.00 inch raised roof portion of the cab between the front and rear crew doors.

SIDE SCENE LIGHT ACTIVATION

The scene lighting shall be activated via the lights respective door and two (2) virtual buttons on the MUX display located inside the cab, one per side.

INTERIOR CAB LIGHTING

The cab shall include an incandescent dome lamp with a red and white lens located over each door. The dome lamps shall be rectangular in shape and shall measure 9.50 inches in length and approximately 5.00 inches wide including a black colored bezel. The white lamp shall be activated by its respective door when opened and via the multiplex display and both the red and white lamp shall be activated by an individual switch on the light.

A fifth red and clear lamp shall be located in the headliner, over the engine tunnel.

DO NOT MOVE APPARATUS WARNING

The front headliner of the cab shall include a red flashing light, located in the center for greatest visibility. The light shall be 6.00 inches long X 2.50 inches wide X 1.75 inches high and shall be clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be programmed into the MUX system which shall sound when a door is open, the air brake is released and the vehicle is shifted into gear.

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

MASTER WARNING

The optical warning system shall be controlled by a master switch which shall include all “ON” and all “OFF” capability via a virtual button within the MUX display. All warning lights which are “ON” when the master switch is activated shall also activate. This switch shall be clearly labeled for identification.

ALTERNATING HEADLIGHT SYSTEM

An alternating high beam headlamp flashing system shall be installed to allow the high beams to flash alternately from left to right.

The completed system shall be capable of using the high beam selection to override the flashing function which shall then flash the high beams when the low beam headlamps are selected.

ALTERNATING HEADLIGHT FUNCTION

The flashing headlights shall be activated through a virtual button on the MUX display.

INBOARD FRONT WARNING LIGHTS MODEL

The cab front fascia shall include dual Whelen series 600 high intensity, wide angle LED warning lights which shall offer multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be surface mounted to the front fascia of the cab within a chrome bezel in the inboard position.

INBOARD FRONT WARNING LIGHTS- COLOR

The front warning lights mounted on the fascia for the inboard position shall be red.

OUTBOARD FRONT WARNING LIGHTS

The cab front fascia shall include dual Whelen series 600 high intensity, wide angle LED warning lights which shall offer 14 flash patterns plus a steady burn for solid colors and 20 flash patters plus a steady burn for split colors. The lights shall be surface mounted to the front fascia of the cab within a chrome bezel in the outboard position.

OUTBOARD FRONT WARNING LIGHTS- COLOR

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

FRONT WARNING CONTROL

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

INTERSECTOR WARNING LIGHTS

Each bumper tail shall include one (1) Whelen series 600 high intensity wide angle LED warning lights which shall offer 14 flash patterns plus a steady burn for solid colors and 20 flash patters plus a steady burn for split colors. The lights shall be surface mounted within a chrome bezel.

INTERSECTOR FRONT WARNING LIGHTS- COLOR

The intersection lights shall be red.

INTERSECTOR FRONT WARNING LIGHTS- POSITION

The intersection lights shall be mounted in the rear position on the side of the bumper.

SIDE WARNING CONTROL

The side warning lights shall be controlled through a virtual control on the MUX display. This switch shall be clearly labeled for identification.

WATER TANK LEVEL LIGHTING

There shall be two (2) Whelen PS TANK water level light strips flush mounted vertically, one on each side of the cab behind the rear crew doors. The light strips shall include four colors of LED lights, green, blue, amber and red.

LIGHTBAR JUNCTION

There shall be two (2) junction boxes located on the driver and officer's side of the roof with electrical connections for the light bar.

LIGHTBAR CONTROL

The light bar shall be controlled through a virtual button located on the MUX display.

AIR HORN SELECTOR SWITCH

A virtual button on the MUX display shall allow control to either the air horn or the electric horn from the steering wheel horn button. The electric horn shall sound by default when the selector switch is in either position which is in accordance with FMVSS requirements.

AIR HORN ACTUATION

The air horn actuation shall be accomplished by the steering wheel horn button and a black push button on the switch panel. An air horn activation circuit shall be provided to the chassis harness pump panel harness connector.

BACKUP ALARM

An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of not less than 107 dB. The alarm will automatically activate when the transmission is placed in reverse. A virtual switch shall be provided on the MUX display to disable of the backup alarm.

INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. The gauges shall be backlit with red LED lamps. All gauges shall be driven by stepper motor movements. The instrumentation system shall be multiplexed and shall receive engine and transmission information over the J1939 data bus to reduce redundant sensors.

The instrument panel shall contain the following gauges:

One (1) electronic tachometer with an integral LCD hour meter shall be included. The scale on the tachometer shall read from 0 to 3000 RPM. The hour meter shall display engine hours of operation.

One (1) electronic speedometer with an integral LCD odometer/ trip odometer shall be included. The speedometer shall have a dual scale with miles per hour (MPH) as the dominant scale and kilometers per hour (KPH) on the minor scale. The speedometer scale shall read from 0 to 90 MPH (0 to 140 KPH). The odometer shall display up to 9,999,999.9 miles. The trip odometer shall display up to 9,999.9 miles. The LCD screen shall also be capable of displaying certain diagnostic functions.

One (1) three function gauge with primary system, secondary system and fuel level shall be included. The scale on the air pressure gauges shall read from 0 to 140 pounds per square inch (PSI). The air pressure scales shall be non-linear to expand the scales in the region of normal operation. A red indicator light in the gauge shall indicate a low air pressure. The scale on the fuel level gauge shall read from empty to full. A yellow indicator light shall indicate low fuel at the quarter tank level.

One (1) four function gauge with engine oil pressure, coolant temperature, transmission oil temperature and a voltmeter shall be included. The scale on the engine oil pressure gauge shall read from 0 to 140 pounds per square inch (PSI). The engine oil pressure scale shall be non-linear to expand the scale in the region of normal operation. A red indicator light in the gauge shall indicate low engine oil pressure. The scale on the coolant temperature gauge shall read from 160 to 250 degrees Fahrenheit (F). A red indicator light in the gauge shall indicate high coolant temperature. The scale on the transmission oil temperature gauge shall read from 100 to 300 degrees Fahrenheit (F). A red indicator light in the gauge shall indicate high transmission oil temperature. The scale on the voltmeter shall read from 8 to 16 volts. A red indicator light shall indicate high or low system voltage.

The instrument panel shall contain an Enunciator Module that contains the following indicator lights. All indicator lights shall contain LED lamps.

RED LAMPS

Stop Engine - indicates critical engine fault. (5)

Park Brake - indicates park brake is set.

Volts - indicates high or low system voltage. (4)

Low Oil Press - indicates low engine oil pressure. (4)

High Coolant Temp - indicates excessive engine coolant temperature. (4)

High Trans Temp - indicates excessive transmission oil temperature. (4)

Low Air - indicates low air pressure in either system one or system two. (4)

Low Coolant Level - indicates low engine coolant level. (1) (5)
Air Filter - indicates excessive engine air intake restriction. (5)
Brake System Fault – indicates a failure in the brake system (hydraulic brake systems only). (5)
Seat Belt Indicator – indicates when a seat is occupied and corresponding seat belt remains unfastened.

YELLOW LAMPS

Check Engine - indicates engine fault. (5)
Check Trans - indicates transmission fault. (5)
Wait to Start - indicates active engine air preheat cycle. (2) (5)
ABS - indicates anti-lock brake system fault. (5)
Water in Fuel - indicates presence of water in fuel filter. (1) (5)
Check Message Center – indicates there is a fault message present in the LCD digital display.
SRS – indicates a problem in the RollTek supplemental restraint system. (1) (5)
DPF – indicates a restriction of the diesel particulate filter. (3) (5)
HEST – indicates a high exhaust system temperature. (3) (5)
MIL – indicates an engine emission control system fault. (3) (5)
Low Fuel – indicates low fuel. (4)

GREEN LAMPS

Left and Right turn signal indicators.
Aux Brake Active - indicates secondary braking device is active. (1)
High Idle - indicates engine high idle is active. (1)
ATC – indicates low wheel traction for automatic tractions control equipped vehicles, also indicates mud/snow mode is active for ATC system. (1) (5)
OK to Pump – indicates the pump engage conditions have been met. (1)
Pump Engaged – indicates the pump is currently in use. (1)

BLUE LAMPS

High beam indicator.

The instrumentation system shall provide a constant audible alarm for the following situations:

Low air pressure.
Low engine oil pressure.
High engine coolant temperature.
High transmission oil temperature.
Low coolant level. (1)
High or low system voltage
Critical engine fault (Stop Engine).

The Check Message Center icon will illuminate and a message will be displayed in the LCD screen for the following situations:

Cab Ajar
Low Oil Level
Door Ajar
Engine Communication Error
Transmission Communication Error
ABS Communication Error
High Coolant Temp
Turn Signal Reminder

Low Fuel
Low Oil Pressure
Low Coolant Level
Low Battery Voltage
High Battery Voltage
Low Primary Air Pressure
Low Secondary Air Pressure
High Trans Temp

The instrumentation system will provide a continuous alarm for the following situations:

Stop Engine
Low Coolant Level (1)
Brake System Fault
Check Trans
Check Engine
ABS
Engine Communications Error
Transmission Communications Error
ABS Communications Error
Low Fuel
Low Primary Air Pressure
Low Secondary Air Pressure
Low or High Battery Voltage
High Trans Temp
Low Oil Pressure
High Coolant Temp

The instrumentation system will provide a 160mSec second alarm every 880mSec for the following situations:

Seat Belt
Air Filter
Water in Fuel (1)
Cab Ajar
Low Oil Level
Door Ajar

The instrumentation system will provide a 160mSec second alarm every 5Sec for the following situations:

Turn Signal Reminder

- (1) Feature only available when optionally equipped.
- (2) Feature only available on engines with preheat capability.
- (3) Feature only on vehicles with diesel particulate filter (DPF).
- (4) Warning light is present in gauge.
- (5) A message in the LCD screen will also be displayed.

AUXILIARY VOLT METER

The dash panel area shall include pre-wiring for an auxiliary volt meter for the 24 volt system.

COMPACT DISC RECEIVER

A Panasonic compact disc player with AM/FM stereo receiver, weather band and four (4) speakers shall be installed in the cab. The receiver shall be installed above the driver position. The speakers shall also be installed inside the cab with two (2) speakers recessed within the headliner of the front of the cab just behind the windshield and two (2) speakers in the upper rear corners of the cab.

RECEIVER ANTENNA

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

FIRE EXTINGUISHER

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

DOOR KEYS

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

AS BUILT DIAGRAMS

The cab and chassis shall include one (1) complete set of wiring schematics and option wiring diagrams.

CHASSIS WARRANTY

The chassis manufacturer shall warrant to the original purchaser the custom fire truck chassis for a period of twelve (12) months. The warranty period shall commence on the date the vehicle is delivered to the original purchaser and continue for twelve (12) months thereafter. The warranty shall include conditional items listed in the detailed warranty document which may be provided upon request.

MODEL YEAR

The chassis shall have a vehicle identification number that reflects a 2008 model year.

OPERATORS MANUAL AND PARTS LIST

There shall be one (1) chassis operator's manual which includes a parts list including wiring and air plumbing diagrams provided and shipped loose with the vehicle. All standard wiring and plumbing diagrams shall be created specifically to the chassis model.

ENGINE AND TRANSMISSION OPERATION MANUALS

There shall be one (1) set of engine operation and maintenance manuals and one (1) set of transmission operation manuals specific to the models ordered included with the final vehicle in the ship loose items.