

**CONTENTS**

SINGLE SOURCE MANUFACTURER .....17

SPECIAL INSTRUCTIONS .....17

NFPA 2016 STANDARDS .....17

ULC COMPLIANCY .....18

VEHICLE INSPECTION PROGRAM CERTIFICATION .....18

INSPECTION CERTIFICATE.....18

PUMP TEST .....19

GENERATOR TEST .....19

BREATHING AIR TEST .....19

AFTERMARKET SUPPORT WEBSITE .....19

BID BOND NOT REQUESTED.....20

PERFORMANCE BOND NOT REQUESTED .....21

APPROVAL DRAWING .....21

ELECTRICAL WIRING DIAGRAMS .....21

CHASSIS .....21

WHEELBASE .....21

GVW RATING.....22

FRAME.....22

FRAME REINFORCEMENT .....22

FRONT NON DRIVE AXLE.....22

FRONT SUSPENSION .....22

FRONT SHOCK ABSORBERS .....22

FRONT OIL SEALS.....22

FRONT TIRES .....22

REAR AXLE .....23

TOP SPEED OF VEHICLE.....23

SUSPENSION, REAR.....23

REAR OIL SEALS .....23

REAR TIRES .....23

TIRE BALANCE.....	24
TIRE PRESSURE MANAGEMENT .....	24
FRONT HUB COVERS .....	24
REAR HUB COVERS.....	24
MUD FLAPS .....	24
WHEEL CHOCKS .....	24
WHEEL CHOCK BRACKETS.....	24
ANTI-LOCK BRAKE SYSTEM .....	24
BRAKES.....	25
BRAKE SYSTEM AIR COMPRESSOR.....	25
BRAKE SYSTEM .....	25
BRAKE SYSTEM AIR DRYER.....	26
BRAKE LINES.....	26
AIR INLET .....	26
RECESSED BOX FOR AIR FITTING.....	26
ALL WHEEL LOCK-UP .....	26
ENGINE.....	26
HIGH IDLE .....	27
ENGINE BRAKE.....	27
CLUTCH FAN.....	27
ENGINE AIR INTAKE.....	27
EXHAUST SYSTEM.....	28
RADIATOR.....	28
COOLANT LINES .....	29
FUEL TANK .....	29
DIESEL EXHAUST FLUID TANK .....	29
FUEL SHUTOFF.....	30
FUEL COOLER.....	30
FUEL SEPARATOR .....	30
TRANSMISSION.....	30
TRANSMISSION SHIFTER.....	30

TRANSMISSION COOLER .....	30
DRIVELINE .....	30
STEERING .....	30
STEERING WHEEL .....	31
LOGO AND CUSTOMER DESIGNATION ON DASH .....	31
BUMPER .....	31
GRAVEL PAN .....	31
CENTER HOSE TRAY .....	31
CENTER HOSE TRAY COVER .....	31
LIFT AND TOW MOUNTS .....	32
TOW HOOKS .....	32
CAB .....	32
INTERIOR CAB INSULATION .....	33
FENDER LINERS .....	33
PANORAMIC WINDSHIELD .....	33
WINDSHIELD WIPERS .....	34
FAST SERVICE ACCESS FRONT TILT HOOD .....	34
ENGINE TUNNEL .....	34
CAB REAR WALL EXTERIOR COVERING .....	35
CAB LIFT .....	35
Cab Lift Interlock .....	35
GRILLE .....	35
FRONT CAB TRIM .....	35
SIDE OF CAB MOLDING .....	36
MIRRORS .....	36
CAB DOORS .....	36
CAB DOOR PANELS .....	37
RECESSED POCKET WITH ELASTIC COVER .....	37
ELECTRIC WINDOW CONTROLS .....	37
DUAL STEPS .....	37
STEP LIGHTS .....	37

FENDER CROWNS .....	38
CREW CAB WINDOWS .....	38
WINDOWS INTERIOR TRIM .....	38
CAB ROOF DRIP RAIL .....	38
CAB INTERIOR.....	38
CAB INTERIOR UPHOLSTERY .....	39
CAB INTERIOR PAINT .....	39
CAB FLOOR .....	39
CAB DEFROSTER .....	39
CAB/CREW CAB HEATER.....	40
AIR CONDITIONING .....	40
INTERIOR CAB INSULATION .....	41
SUN VISORS .....	41
GRAB HANDLE .....	41
ENGINE COMPARTMENT LIGHTS.....	41
ACCESS TO ENGINE DIPSTICKS .....	42
CAB SAFETY SYSTEM .....	42
FRONTAL IMPACT PROTECTION .....	43
SIDE ROLL PROTECTION .....	43
SEATING CAPACITY .....	43
DRIVER SEAT.....	43
OFFICER SEAT .....	44
REAR FACING DRIVER SIDE OUTBOARD SEAT .....	45
REAR FACING PASSENGER SIDE OUTBOARD SEAT .....	45
FORWARD FACING CENTER SEATS.....	46
SEAT UPHOLSTERY .....	46
AIR BOTTLE HOLDERS .....	46
SEAT BELTS .....	46
SHOULDER HARNESS HEIGHT ADJUSTMENT .....	47
HELMET STORAGE PROVIDED BY FIRE DEPARTMENT.....	47
CAB DOME LIGHTS .....	47

OVERHEAD MAP LIGHTS.....	47
PORTABLE HAND LIGHTS, PROVIDED BY FIRE DEPARTMENT.....	48
CAB INSTRUMENTATION.....	48
GAUGES.....	48
INDICATOR LAMPS.....	50
ALARMS.....	51
INDICATOR LAMP AND ALARM PROVE-OUT.....	51
CONTROL SWITCHES.....	51
CUSTOM SWITCH PANELS.....	53
DIAGNOSTIC PANEL.....	53
CAB LCD DISPLAY.....	54
AIR RESTRICTION INDICATOR.....	54
"DO NOT MOVE APPARATUS" INDICATOR.....	54
DO NOT MOVE TRUCK MESSAGES.....	54
SWITCH PANELS.....	55
WIPER CONTROL.....	56
HOURMETER - AERIAL DEVICE.....	56
AERIAL MASTER.....	56
AERIAL PTO SWITCH.....	56
SPARE CIRCUIT.....	56
INFORMATION CENTER.....	56
GENERAL SCREEN DESIGN.....	57
HOME/TRANSIT SCREEN.....	57
ON SCENE SCREEN.....	58
VIRTUAL BUTTONS.....	58
PAGE SCREEN.....	58
VEHICLE DATA RECORDER.....	60
Seat Belt Monitoring System.....	61
RADIO ANTENNA MOUNT.....	61
VEHICLE CAMERA SYSTEM.....	61
ELECTRICAL POWER CONTROL SYSTEM.....	62

SOLID-STATE CONTROL SYSTEM .....	62
CIRCUIT PROTECTION AND CONTROL DIAGRAM .....	63
ON-BOARD ADVANCED/VISUAL ELECTRICAL SYSTEM DIAGNOSTICS .....	64
TECH MODULE WITH WIFI.....	64
PROGNOSTICS .....	64
ADVANCED DIAGNOSTICS .....	65
INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM .....	65
VOLTAGE MONITOR SYSTEM .....	65
DEDICATED RADIO EQUIPMENT CONNECTION POINTS .....	65
ENHANCED SOFTWARE .....	65
EMI/RFI PROTECTION .....	66
ELECTRICAL .....	66
BATTERY SYSTEM .....	67
BATTERY SYSTEM .....	68
MASTER BATTERY SWITCH.....	68
BATTERY COMPARTMENTS .....	68
JUMPER STUDS.....	68
BATTERY CHARGER .....	68
AUTO EJECT FOR SHORELINE.....	69
ALTERNATOR.....	69
ELECTRONIC LOAD MANAGER .....	69
SEQUENCER.....	70
HEADLIGHTS .....	71
DIRECTIONAL LIGHTS .....	71
INTERMEDIATE LIGHT .....	71
REAR CLEARANCE/MARKER/ID LIGHTING .....	71
CAB CLEARANCE/MARKER/ID LIGHTS .....	72
MARKER LIGHTS .....	72
REAR FMVSS LIGHTING.....	72
LICENSE PLATE BRACKET .....	73
LIGHTING BEZEL .....	73

BACK-UP ALARM.....	73
CAB PERIMETER SCENE LIGHTS .....	73
PUMP HOUSE PERIMETER LIGHTS .....	73
BODY PERIMETER SCENE LIGHTS .....	73
STEP LIGHTS .....	74
12 VOLT LIGHT BRACKET .....	74
12 VOLT LIGHTING.....	74
12 VOLT LIGHTING.....	74
12 VOLT LIGHTING.....	75
12 VOLT LIGHTING.....	75
12 VOLT LIGHTING.....	75
DECK LIGHTS .....	75
WALKING SURFACE LIGHT .....	76
WATER TANK .....	76
HOSE BED .....	77
AERIAL HOSE BED HOSE RESTRAINT .....	77
RUNNING BOARDS .....	77
TURNTABLE STEPS .....	78
STEP LIGHTS .....	78
SMOOTH ALUMINUM REAR WALL .....	78
TOW EYES .....	78
COMPARTMENTATION .....	78
AGGRESSIVE WALKING SURFACE .....	80
LOUVERS .....	80
DRIVER SIDE COMPARTMENTATION.....	80
PASSENGER SIDE COMPARTMENTATION.....	80
ROLL-UP DOOR, SIDE COMPARTMENTS.....	81
BODY MODIFICATION FROM STANDARD.....	82
REAR BUMPER .....	82
DOOR GUARD .....	82
COMPARTMENT LIGHTING.....	82

COMPARTMENT LIGHT .....	82
MOUNTING TRACKS .....	82
ADJUSTABLE SHELVES.....	82
SLIDE-OUT/TILT-DOWN TRAY .....	83
SLIDE-OUT FLOOR MOUNTED TRAY.....	83
REAR WALL .....	84
RUB RAIL .....	84
BODY FENDER CROWNS.....	84
HARD SUCTION HOSE .....	84
HANDRAILS .....	84
SINGLE AIR BOTTLE STORAGE COMPARTMENT .....	85
EXTENSION LADDER.....	85
AERIAL EXTENSION LADDERS .....	85
ROOF LADDER.....	85
ADDED ROOF LADDER.....	85
AERIAL ATTIC EXTENSION LADDER .....	85
AERIAL FOLDING LADDER .....	85
GROUND LADDER STORAGE.....	85
LADDER STORAGE LIGHTING.....	86
PIKE POLES .....	86
8' PIKE POLE .....	86
6' PIKE POLE.....	86
STEPS .....	86
STIRRUP STEP .....	87
PUMP.....	87
PUMP TRANSMISSION .....	88
PUMPING MODE.....	88
AIR PUMP SHIFT .....	88
TRANSMISSION LOCK-UP.....	89
AUXILIARY COOLING SYSTEM.....	89
INTAKE RELIEF VALVE.....	89



PRESSURE CONTROLLER .....	89
PRIMING PUMP .....	89
PUMP MANUALS .....	90
PLUMBING, STAINLESS STEEL AND HOSE .....	90
MAIN PUMP INLETS .....	90
MAIN PUMP INLET CAP.....	90
VALVES.....	90
LEFT SIDE INLET.....	90
INLET CONTROL.....	91
FRONT INLET PROVISION.....	91
INLET BLEEDER VALVE .....	91
TANK TO PUMP .....	91
TANK REFILL.....	91
LEFT SIDE DISCHARGE OUTLETS .....	91
RIGHT SIDE DISCHARGE OUTLETS.....	91
FRONT DISCHARGE OUTLET.....	92
DISCHARGE CAPS.....	92
OUTLET BLEEDER VALVE .....	92
LEFT SIDE OUTLET EBLOWS .....	92
RIGHT SIDE OUTLET ELBOWS .....	92
ADDITIONAL RIGHT SIDE OUTLET ELBOWS .....	93
ADAPTER .....	93
DISCHARGE OUTLET CONTROLS .....	93
AERIAL OUTLET .....	93
CROSSLAY HOSE BEDS .....	93
2.50" CROSSLAY HOSE BED.....	94
CROSSLAY/DEADLAY HOSE RESTRAINT.....	94
FOAM PROPORIONER.....	94
System Capacity.....	94
Control System.....	95
Hydraulic Drive System.....	95

Foam Concentrate Pump.....	95
External Foam Concentrate Connection .....	96
Panel Mounted External Pick-Up Connection / Valve .....	96
Pick-Up Hose .....	96
Discharges.....	96
System Electrical Load .....	96
SINGLE FOAM TANK REFILL .....	96
FOAM TANK.....	97
FOAM TANK DRAIN .....	97
PUMP COMPARTMENT .....	97
PUMP MOUNTING.....	98
LEFT SIDE PUMP CONTROL PANELS .....	98
IDENTIFICATION TAGS .....	98
PUMP PANEL CONFIGURATION.....	99
PUMP OPERATOR'S PLATFORM .....	99
PUMP OPERATOR'S PLATFORM PERIMETER LIGHT .....	99
PUMP AND GAUGE PANEL .....	99
PUMP COMPARTMENT LIGHT .....	99
VACUUM AND PRESSURE GAUGES .....	100
PRESSURE GAUGES.....	100
WATER LEVEL GAUGE.....	100
FOAM LEVEL GAUGE .....	101
LIGHT SHIELD .....	101
AIR HORN SYSTEM.....	102
Air Horn Location.....	102
AIR HORN CONTROL .....	102
ELECTRONIC SIREN .....	102
SPEAKER.....	102
AUXILIARY MECHANICAL SIREN .....	103
MECHANICAL SIREN CONTROL .....	103
FRONT ZONE UPPER WARNING LIGHTS.....	103

CAB FACE WARNING LIGHTS .....	103
HEADLIGHT FLASHER.....	104
SIDE ZONE LOWER LIGHTING.....	104
REAR ZONE LOWER LIGHTING.....	104
REAR/SIDE ZONE UPPER WARNING LIGHTS .....	105
TRAFFIC DIRECTING LIGHT.....	105
ELECTRICAL SYSTEM GENERAL DESIGN for ALTERNATING CURRENT .....	105
General.....	105
Grounding.....	105
Operation.....	106
Overcurrent protection .....	106
Wiring Identification.....	107
Wet Locations .....	107
Dry Locations.....	108
Listing .....	108
Electrical System Testing .....	108
Operational Test per Current NFPA 1901 Standard.....	108
GENERATOR .....	109
Generator Instruments and Controls .....	109
GENERATOR LOCATION.....	109
GENERATOR START.....	109
GENERATOR REMOTE FIELD SWITCH .....	109
CIRCUIT BREAKER PANEL.....	109
ELECTRIC CORD REEL .....	109
CORD .....	110
REEL ENCLOSURE .....	110
FOUR (4)-SECTION 105 FOOT AERIAL LADDER.....	110
CONSTRUCTION STANDARDS.....	110
LADDER CONSTRUCTION .....	112
VERTICAL HEIGHT.....	113
HORIZONTAL REACH .....	113

TURNTABLE.....	113
ELEVATION SYSTEM.....	113
EXTENSION/RETRACTION SYSTEM.....	114
ROTATION SYSTEM.....	115
ROTATION INTERLOCK.....	115
TORQUE BOX.....	115
LOAD CAPACITIES.....	116
50 MPH WIND CONDITIONS/WATERWAY DRY.....	116
50 MPH WIND CONDITIONS/WATERWAY CHARGED.....	116
BOOM SUPPORT.....	117
AERIAL BOOM SUPPORT LIGHT.....	117
FUTURE BOOM SUPPORT COMPARTMENT PROVISION.....	117
AERIAL BOOM PANEL.....	117
EXTENSION INDICATOR.....	117
FOLDING STEPS.....	117
AERIAL DEVICE RUNG COVERS.....	117
STABILITY TEST.....	118
LIMITED RETRACTION.....	118
STOKES AND BACKBOARD STORAGE BOX.....	118
LIGHTS FOR TURNTABLE WALKWAY.....	118
ROTATION BEARING COVER.....	118
TURNTABLE CONTROL STATION.....	119
STABILIZER CONTROL STATION.....	119
STABILIZERS.....	120
STABILIZER PADS.....	121
AUXILIARY STABILIZER PADS.....	121
STABILIZER CONTROLS.....	121
STABILIZER PINS.....	122
STABILIZER CONTROL BOX SMOOTH ALUMINUM DOOR.....	122
HYDRAULIC SYSTEM.....	122
HYDRAULIC CYLINDERS.....	123

HYDRAULIC PUMP .....	124
EMERGENCY PUMP .....	124
AERIAL CONTROL VALVE .....	124
OIL RESERVOIR.....	124
HIGH PRESSURE FILTER .....	124
RETURN FILTER .....	125
HYDRAULIC SWIVEL.....	125
ELECTRIC SWIVEL .....	125
12-BIT ABSOLUTE ENCODER.....	125
ELECTRICAL SYSTEM .....	126
DRIVER SIDE TORQUE BOX POWER DISTRIBUTION PANEL .....	126
TURNTABLE LIGHTING.....	127
TURNTABLE CONSOLE .....	127
TURNTABLE OVERRIDE CONTROLS .....	127
MASTER OVERRIDE CONTROLS .....	127
BOOM SUPPORT .....	127
STABILIZER INDICATOR.....	127
CRADLE INTERLOCK SYSTEM .....	128
STABILIZER ALARM .....	128
STABILIZER SCENE LIGHTS.....	128
SPOTLIGHTS.....	128
LIGHTING ON AERIAL LADDER.....	128
STABILIZER WARNING LIGHTS .....	129
STABILIZER BEAM WARNING LIGHTS.....	129
STABILIZER SCENE LIGHTS.....	129
2-WAY AERIAL COMMUNICATION SYSTEM .....	129
RAISED AERIAL PEDESTAL .....	129
LIFTING EYE ASSEMBLY - ROPE RESCUE ATTACHMENT .....	130
COLLISION AVOIDANCE.....	130
CONTROL SYSTEM WARRANTY.....	131
AERIAL TURNTABLE SAFETY BARS.....	131

WATER SYSTEM.....	131
WATERWAY SEALS.....	131
AERIAL MONITOR .....	132
AERIAL WATERWAY FLOW METER .....	132
REAR INLET .....	132
WATERWAY LOCKING SYSTEM.....	132
TOOLS.....	133
MANUALS.....	133
INITIAL INSTRUCTION .....	133
LOOSE EQUIPMENT.....	133
NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT .....	133
SOFT SUCTION HOSE PROVIDED BY FIRE DEPARTMENT.....	135
DRY CHEMICAL EXTINGUISHER.....	135
WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT.....	135
FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT .....	135
PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT.....	135
PAINT.....	135
PAINT - ENVIRONMENTAL IMPACT.....	137
PAINT CHASSIS FRAME ASSEMBLY .....	137
PAINT, REAR WHEELS.....	138
COMPARTMENT INTERIOR PAINT .....	138
AERIAL DEVICE PAINT COLOR.....	138
REFLECTIVE STRIPES .....	139
REAR CHEVRON STRIPING.....	139
REFLECTIVE STRIPE ON STABILIZERS .....	139
"Z" JOG IN REFLECTIVE STRIPE .....	140
REFLECTIVE STRIPE OUTLINE.....	140
CAB DOOR REFLECTIVE STRIPE.....	140
UNDERCOATING, CAB & BODY .....	140
FIRE APPARATUS PARTS CD MANUAL.....	141
SERVICE PARTS INTERNET SITE .....	142

CHASSIS SERVICE CD MANUALS .....	142
CHASSIS OPERATION CD MANUALS .....	142
ONE (1) YEAR MATERIAL AND WORKMANSHIP .....	142
THREE (3) YEAR MATERIAL AND WORKMANSHIP.....	142
ENGINE WARRANTY.....	143
STEERING GEAR WARRANTY .....	143
FIFTY (50) YEAR STRUCTURAL INTEGRITY .....	143
FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY...	143
REAR AXLE TWO (2) YEAR MATERIAL AND WORKMANSHIP WARRANTY .....	143
BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY	143
TEN (10) YEAR STRUCTURAL INTEGRITY .....	143
TEN (10) YEAR PRO-RATED PAINT AND CORROSION .....	144
FIVE (5) YEAR MATERIAL AND WORKMANSHIP.....	144
CAMERA SYSTEM WARRANTY.....	144
COMPARTMENT LIGHT WARRANTY.....	144
TRANSMISSION WARRANTY.....	144
TRANSMISSION COOLER WARRANTY .....	144
WATER TANK WARRANTY .....	144
TEN (10) YEAR STRUCTURAL INTEGRITY .....	145
ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY .....	145
PUMP WARRANTY.....	145
TEN (10) YEAR PUMP PLUMBING WARRANTY .....	145
FOAM SYSTEM WARRANTY .....	145
TWENTY (20) YEAR AERIAL DEVICE STRUCTURAL INTEGRITY WARRANTY ....	145
AERIAL SWIVEL WARRANTY.....	146
HYDRAULIC SYSTEM COMPONENTS WARRANTY .....	146
HYDRAULIC SEAL WARRANTY .....	146
AERIAL WATERWAY WARRANTY .....	146
FOUR (4) YEAR PRO-RATED PAINT AND CORROSION .....	146
SIX (6) YEAR GENERATOR MATERIAL AND WORKMANSHIP WARRANTY.....	146
TEN (10) YEAR PRO-RATED PAINT AND CORROSION .....	146

VEHICLE STABILITY CERTIFICATION.....	147
ENGINE INSTALLATION CERTIFICATION .....	147
POWER STEERING CERTIFICATION .....	147
CAB INTEGRITY CERTIFICATION.....	147
CAB DOOR DURABILITY CERTIFICATION .....	147
WINDSHIELD WIPER DURABILITY CERTIFICATION .....	147
ELECTRIC WINDOW DURABILITY CERTIFICATION .....	147
SEAT BELT ANCHOR STRENGTH.....	148
SEAT MOUNTING STRENGTH.....	148
CAB DEFROSTER CERTIFICATION .....	148
CAB HEATER CERTIFICATION .....	148
AMP DRAW REPORT .....	148



	Bidder Complies	
	Yes	No
<p>The bidder shall state the location of the factory where the apparatus is to be built.</p> <p><b><u>SINGLE SOURCE MANUFACTURER</u></b></p> <p>Bids shall only be accepted from a single source apparatus manufacturer. The definition of single source is a manufacturer that designs and manufactures their products using an integrated approach, including the chassis, cab weldment, cab, pump house (including the sheet metal enclosure, valve controls, piping and operators panel) body and aerial device being designed, fabricated and assembled on the bidder's premises. The electrical system (hardwire or multiplex) shall be both designed and integrated by the same apparatus manufacturer. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) must be from a single source manufacturer and not split between manufacturers (i.e. body, pump house, cab weldment, chassis and aerial). The bidder shall provide evidence that they comply with this requirement.</p> <p><b><u>SPECIAL INSTRUCTIONS</u></b></p> <p>The apparatus being proposed shall be designed and built to match the this truck is identical to job number 30378, with two changes. Husky 3 Foam System added, Engine changed to the 2017 model year . Pump house and cargo compartment to match 30357.. However, some variation may be necessary due to changes in our manufacturing processes or our product offering. Revisions in NFPA guidelines and/or other regulations may also affect our ability to match the previous unit.</p> <p><b><u>NFPA 2016 STANDARDS</u></b></p> <p>This unit shall comply with the NFPA standards effective January 1, 2016, except for fire department directed exceptions. These exceptions shall be set forth in the Statement of Exceptions.</p> <p>Certification of slip resistance of all stepping, standing and walking surfaces shall be supplied with delivery of the apparatus.</p> <p>All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and designated access paths to destination points shall be identified on the customer approval print and are shown as approximate. Actual location(s) shall be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required. Access paths may require the operation of devices and equipment such as the aerial device or ladder rack.</p> <p>A plate that is highly visible to the driver while seated shall be provided. This plate shall show the overall height, length, and gross vehicle weight rating.</p>		

	Bidder Complies	
	Yes	No
<p>The manufacturer shall have programs in place for training, proficiency testing and performance for any staff involved with certifications.</p> <p>An official of the company shall designate, in writing, who is qualified to witness and certify test results.</p> <p><b><u>ULC COMPLIANCY</u></b></p> <p>Apparatus proposed by the bidder shall meet the applicable requirements of the CAN/ULC-S515 standard as stated in the current edition at the time of contract execution. Fire department's specifications that differ from ULC specifications shall be indicated in the proposal as "non-ULC" compliant. The apparatus shall be in service at an elevation of [Fill in Blank].</p> <p><b><u>VEHICLE INSPECTION PROGRAM CERTIFICATION</u></b></p> <p>To assure the vehicle is built to current CAN/ULC-S515 standards, the apparatus, in its entirety, shall be third-party, independent, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition of CAN/ULC-S515. The certification includes: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus (no exception).</p> <p>A placard shall be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.</p> <p><b><u>INSPECTION CERTIFICATE</u></b></p> <p>A third party inspection certificate for the aerial device shall be furnished upon delivery of the aerial device. The certificate shall be Underwriters Laboratories Inc. Type 1 and shall indicate that the aerial device has been inspected on the production line and after final assembly.</p> <p>Visual structural inspections shall be performed on all welds on both aluminum and steel ladders.</p> <p>On critical weld areas, or on any suspected defective area, the following tests shall be conducted:</p> <ul style="list-style-type: none"> <li>- Magnetic particle inspection shall be conducted on steel aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. Magnets shall be placed on each side of the weld while iron powder is placed on the weld itself. The powder shall detect any crack that may exist. This test shall conform to ASTM E709 and be performed prior to assembly of the aerial device.</li> <li>- A liquid penetrant test shall be conducted on aluminum aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. This test shall conform to ASTM E165 and be performed prior to assembly of the aerial device.</li> <li>- Ultrasonic inspection shall be conducted on all aerials to detect any flaws in pins, bolts and other critical mounting components.</li> </ul>		

	Bidder Complies	
	Yes	No
<p>In addition to the tests above, functional tests, load tests, and stability tests shall be performed on all aerials. These tests shall determine any unusual deflection, noise, vibration, or instability characteristics of the unit.</p> <p><b><u>PUMP TEST</u></b>  The pump shall be tested, approved and certified by Underwriter's Laboratory. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the manufacturer's record of pump construction details shall be forwarded to the Fire Department.</p> <p><b><u>GENERATOR TEST</u></b>  If the unit has a generator, the generator shall be tested, approved, and certified by Underwriters Laboratories. The test results shall be provided to the Fire Department at the time of delivery.</p> <p><b><u>BREATHING AIR TEST</u></b>  If the unit has breathing air, the apparatus manufacturer shall draw an air sample from the air system and certify that the air quality meets the requirements of CSA Z180.1-13, <i>Compressed Breathing Air and Systems</i>.</p> <p><b><u>AFTERMARKET SUPPORT WEBSITE</u></b>  A Customer Service website shall provide authorized dealers access to comprehensive information pertaining to the maintenance and service of their customer's apparatus. This tool shall provide the authorized dealer the ability to service and support their customers to the best of their ability with factory support at their fingertips.</p> <p>This website shall also be accessible to the end user through the guest login. Limited access is available and vehicle specific parts information accessible by entering a specific VIN number. All end users should see their local authorized dealer for additional support and service.</p> <p>The website shall provide the following to the designated individuals:</p> <ul style="list-style-type: none"> <li>- Authorized dealer only - ability to access truck detail information on the major components of the vehicle, warranty information, available vehicle photographs, vehicle drawings, sales options, applicable vehicle software downloads, etc.</li> <li>- Authorized dealer and customer - parts look-up capability, with the aid of digital photographs, part drawings, and assembly drawings.</li> <li>- Authorized dealer only - ability to electronically submit warranty claims directly to the factory for reimbursement.</li> </ul>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>- Authorized dealer only - accessibility to multiple dealer reports that allow the dealership to maintain communication with the customer on the status of orders, claims, and phone contacts.</li> <li>- Authorized dealer and customer - access to all currently published Operation and Maintenance and Service publications.</li> <li>- Authorized dealer only - access to manufacturer Service Bulletins and Work Instructions containing information on current service topics and recommendations provided.</li> <li>- Authorized dealer and customer - access to upcoming training classes offered by the manufacturer.</li> <li>- Authorized dealer only - access to interactive electronic learning modules (Operators Guides) covering the operation of major vehicle components.</li> <li>- Authorized dealer only - access to customer service articles, corporate news, quarterly newsletters, and key contacts.</li> </ul> <p><b><u>BID BOND NOT REQUESTED</u></b></p> <p>A bid bond shall not be included. If requested, the following shall apply:</p> <p>All bidders shall provide a bid bond as security for the bid in the form of a 5% bid bond to accompany their bid. This bid bond shall be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond shall be issued by an authorized representative of the Surety Company and shall be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond shall include language, which assures that the bidder/principal shall give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.</p> <p>Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle shall apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle shall not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision shall prevail.</p>		

Bidder Complies	
Yes	No

**PERFORMANCE BOND NOT REQUESTED**

A performance bond shall not be included. If requested at a later date, one shall be provided to you for an additional cost and the following shall apply:

The successful bidder shall furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond shall be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category of XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required.

Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Bumper to Bumper warranty period included within this proposal. Owner agrees that the penal amount of this bond shall be simultaneously amended to 25 percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type shall not exceed three (3) years from the date of such satisfactory acceptance and delivery, or the actual Bumper to Bumper warranty period, whichever is shorter.

**APPROVAL DRAWING**

A drawing of the proposed apparatus shall be provided for approval before construction begins. The sales representative shall also have a copy of the same drawing. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.

A "revised" approval drawing of the apparatus shall be prepared and submitted by the manufacturer to the purchaser showing any changes made to the approval drawing.

**ELECTRICAL WIRING DIAGRAMS**

Two (2) electrical wiring diagrams, prepared for the model of chassis and body, shall be provided.

**CHASSIS**

The chassis provided shall be a new, tilt-type custom fire apparatus. The chassis shall be manufactured in the apparatus body builder's facility, eliminating any split responsibility. The chassis shall be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required.

**WHEELBASE**

The wheelbase of the vehicle shall be no greater than 249.00".

	Bidder Complies	
	Yes	No
<p><b><u>GVW RATING</u></b> The gross vehicle weight rating shall be a minimum of 74,800#.</p> <p><b><u>FRAME</u></b> The chassis frame shall be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus.</p> <p>The side rails shall have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to 10.75" over the rear axle.</p> <p>Each rail shall have a section modulus of 25.992 cubic inches and a resisting bending moment (rbm) of 3,119,040 in-lb over the critical regions of the frame assembly, with a section modulus of 18.96 cubic inches with an rbm of 2,275,200 in-lb over the rear axle.</p> <p>The frame rails shall be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.</p> <p><b><u>FRAME REINFORCEMENT</u></b> In addition, a mainframe inverted "L" liner shall be provided. It shall be heat-treated steel measuring 12.00" x 3.00" x 0.25". Each liner shall have a section modulus of 7.795 cubic inches, yield strength of 110,000 psi, and rbm of 857,462 in-lb. Total rbm at wheelbase center shall be 3,976,502 in-lb.</p> <p>The frame liner shall be mounted inside of the chassis frame rail and extend the full length of the frame.</p> <p><b><u>FRONT NON DRIVE AXLE</u></b> The front axle shall be of the independent suspension design with a ground rating of 22,800 lb.</p> <p>The turning angle shall be 45 degrees.</p> <p><b><u>FRONT SUSPENSION</u></b> Front independent suspension shall be provided with a minimum ground rating of 22,800 lb.</p> <p><b><u>FRONT SHOCK ABSORBERS</u></b> Heavy-duty telescoping shock absorbers shall be provided on the front suspension.</p> <p><b><u>FRONT OIL SEALS</u></b> Oil seals with viewing window shall be provided on the front axle.</p> <p><b><u>FRONT TIRES</u></b> Front tires shall be 425/65R22.50 radials, 20 ply highway tread, rated for 22,800 lb maximum axle load and 68 mph maximum speed.</p>		

	Bidder Complies	
	Yes	No
<p>The tires shall be mounted on 22.50" x 12.25" polished aluminum disc type wheels with a ten (10) stud, 11.25" bolt circle.</p> <p><b><u>REAR AXLE</u></b></p> <p>The rear axle shall be a tandem axle assembly with a capacity of 52,000 lb.</p> <p>An inter-axle differential, which divides torque evenly between axles, shall be provided with an indicator light mounted on the cab instrument panel.</p> <p><b><u>TOP SPEED OF VEHICLE</u></b></p> <p>NFPA 1901, 2016 edition requires limits on the top speed of vehicles. NFPA 4.15.2 requires that the maximum top speed of fire apparatus with a GVWR over 26,000 lb shall not exceed either 68 mph or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower. NFPA 4.15.3 requires that if the combined water tank and foam agent tank on the fire apparatus exceed 1250 gallons or the GVWR of the vehicle is over 50,000 lb, the maximum top speed of the apparatus shall not exceed either 60 mph or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower. It is the intention of the standard to improve safety by limiting the speed of all apparatus to 68 mph, and tankers or heavy apparatus to 60 mph. By requesting an exception to this requirement, the purchasing authority is consciously choosing to operate their apparatus at speeds above the limits designated as safe speeds by the NFPA Technical Committee on Fire Department Apparatus.</p> <p>The top speed of the apparatus as manufactured exceeds the NFPA requirements. Per fire department specification of a top speed that exceeds NFPA requirements, the apparatus shall be non-compliant to NFPA 1901 standards at time of contract execution.</p> <p>A rear axle ratio shall be furnished to allow the vehicle to reach an approximate top speed of 65 MPH.</p> <p><b><u>SUSPENSION, REAR</u></b></p> <p>Rear suspension shall be a combination air ride and walking beam with a ground rating of 52,000 lb.</p> <p><b><u>REAR OIL SEALS</u></b></p> <p>Oil seals shall be provided on the rear axle(s).</p> <p><b><u>REAR TIRES</u></b></p> <p>Rear tires shall be eight (8) 12R22.50 radials, 16 ply all season tread, rated for 54,240 lb maximum axle load and 75 mph maximum speed.</p> <p>The outside tires shall be mounted on 22.50" x 8.25" polished aluminum disc wheels with a ten (10) stud, 11.25" bolt circle.</p>		

	Bidder Complies	
	Yes	No
<p>The inside tires shall be mounted on 22.50" x 8.25" steel disc wheels with a ten (10) stud, 11.25" bolt circle.</p> <p><b><u>TIRE BALANCE</u></b> All tires shall be balanced with balancing beads. The beads shall be inserted into the tire and eliminate the need for wheel weights.</p> <p><b><u>TIRE PRESSURE MANAGEMENT</u></b> There shall be a LED tire alert pressure management system provided, that shall monitor each tire's pressure. A sensor shall be provided on the valve stem of each tire for a total of 10 tires.</p> <p>The sensor shall calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor shall activate an integral battery operated LED when the pressure of that tire drops 5 to 8 psi.</p> <p>Removing the cap from the sensor shall indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED shall immediately start to flash.</p> <p><b><u>FRONT HUB COVERS</u></b> Stainless steel hub covers shall be provided on the front axle. An oil level viewing window shall be provided.</p> <p><b><u>REAR HUB COVERS</u></b> Stainless steel, high hat, hub covers shall be provided on the rear axle hubs.</p> <p><b><u>MUD FLAPS</u></b> Mud flaps shall be installed behind the front and rear wheels of the apparatus.</p> <p><b><u>WHEEL CHOCKS</u></b> There shall be one (1) pair of folding aluminum alloy wheel blocks, with easy-grip handle provided.</p> <p><b><u>WHEEL CHOCK BRACKETS</u></b> There shall be one (1) pair of horizontal mounting wheel chock brackets provided for the folding wheel chocks. The brackets shall be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets shall be mounted forward of the left side rear tire.</p> <p><b><u>ANTI-LOCK BRAKE SYSTEM</u></b> The vehicle shall be equipped with an anti-lock braking system. The ABS shall provide a four (4) channel anti-lock braking control on both the front and rear wheels (rear tandem wheels). A digitally controlled system that utilizes microprocessor technology shall control the anti-lock braking system. Each wheel shall be monitored by the system. When any particular wheel</p>		



Bidder Complies	
Yes	No

begins to lockup, a signal shall be sent to the control unit. This control unit then shall reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system shall eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

**BRAKES**

The service brake system shall be full air type. The front brakes shall be 17.00" disc type.

The rear brakes shall be 16.50" x 7.00" cam operated with automatic slack adjusters. Dust shields shall be provided.

**BRAKE SYSTEM AIR COMPRESSOR**

The air compressor shall have 18.7 cubic feet per minute output.

**BRAKE SYSTEM**

The brake system shall include:

- Dual brake treadle valve
- Heated automatic moisture ejector on air dryer
- Total air system capacity of 6,653 cubic inches
- Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi
- Spring set parking brake system
- Parking brake operated by a push-pull style control valve
- A parking "brake on" indicator light on instrument panel
- Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, shall be provided with an automatic spring brake application at 40 psi
- A pressure protection valve shall be provided to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa).
- 1/4 turn drain valves on each air tank

The air tank shall be primed and painted to meet a minimum 750 hour salt spray test.

Bidder Complies	
Yes	No

To reduce the effects of corrosion, the air tank shall be mounted with stainless steel brackets. (no exception).

**BRAKE SYSTEM AIR DRYER**

The air dryer shall be properly sized for the brake system with spin-on coalescing filter cartridge and 100 watt heater.

**BRAKE LINES**

Color-coded nylon brake lines shall be provided. The lines shall be wrapped in a heat protective loom where necessary in the chassis.

**AIR INLET**

One (1) air inlet with 3D series male coupling shall be provided. It shall allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet shall be located in the driver side lower step well of cab. A check valve shall be provided to prevent reverse flow of air. The inlet shall discharge into the "wet" tank of the brake system. A mating female fitting shall also be provided with the loose equipment.

**RECESSED BOX FOR AIR FITTING**

One (1) air inlet shall have an aluminum treadplate recessed box provided. The box(es) shall allow the air fitting to be recessed inside the stepwell to prevent damage. driver side step well, upper rear corner..

**ALL WHEEL LOCK-UP**

An additional all wheel lock-up system shall be installed which applies air to the front brakes only. The standard spring brake control valve system shall be used for the rear.

**ENGINE**

The chassis shall be powered by an electronically controlled engine as described below:

Power:	565 hp at 1800 rpm
Torque:	1850 lb-ft at 1200 rpm
Governed Speed:	2100 rpm
Emissions Level:	EPA 2017
Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	912 cubic inches (14.9L)
Starter:	Heavy duty
Fuel Filters:	Frame mounted spin-on style primary filter with water separator and water-in-fuel sensor. Engine mounted secondary spin-on style filter.

	Bidder Complies	
	Yes	No
<p>The engine shall include On-board diagnostics (OBD), which provides self diagnostic and reporting. The system shall give the owner or repair technician access to state of health information for various vehicle sub systems. The system shall monitor vehicle systems, engine and after treatment. The system shall illuminate a malfunction indicator light on the dash console if a problem is detected.</p> <p><b><u>HIGH IDLE</u></b></p> <p>A high idle switch shall be provided, inside the cab, on the instrument panel, that shall automatically maintain a preset engine rpm. A switch shall be installed, at the cab instrument panel, for activation/deactivation.</p> <p>The high idle shall be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light shall be provided, adjacent to the switch. The light shall illuminate when the above conditions are met. The light shall be labeled "OK to Engage High Idle."</p> <p><b><u>ENGINE BRAKE</u></b></p> <p>An engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.</p> <p>The driver shall be able to turn the engine brake system on/off and have a high, medium and low setting.</p> <p>The engine brake shall activate when the system is on and the throttle is released.</p> <p>The high setting of the brake application shall activate and work simultaneously with the variable geometry turbo (VGT) provided on the engine.</p> <p>The engine brake shall be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.</p> <p>The ABS system shall automatically disengage the auxiliary braking device, when required.</p> <p><b><u>CLUTCH FAN</u></b></p> <p>A fan clutch shall be provided. The fan clutch shall be automatic when the pump transmission is in "Road" position, and fully engaged in "Pump" position.</p> <p><b><u>ENGINE AIR INTAKE</u></b></p> <p>An air intake with an ember separator (to prevent road dirt, burning embers, and recirculating hot air from entering the engine) shall be mounted at the front of the apparatus, on the passenger side of the engine.</p>		

	Bidder Complies	
	Yes	No
<p>The ember separator shall be mounted in the air intake with flame retardant, roto-molded polyethylene housing. It shall be easily accessible by the hinged access panel at the front of the vehicle.</p> <p><b><u>EXHAUST SYSTEM</u></b></p> <p>The exhaust system shall include an aftertreatment device to meet current EPA standards. The exhaust system shall be stainless steel from the turbo to the inlet of the aftertreatment device, and shall be 5.00" in diameter. An insulation wrap shall be provided on all exhaust pipes between the turbo and aftertreatment device to minimize the heat loss to the aftertreatment device. The exhaust shall terminate horizontally ahead of the right side rear wheels. A tailpipe diffuser shall be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields shall be provided to isolate chassis and body components from the heat of the tailpipe diffuser.</p> <p><b><u>RADIATOR</u></b></p> <p>The radiator and the complete cooling system shall meet or exceed NFPA and engine manufacturer cooling system standards.</p> <p>For maximum corrosion resistance and cooling performance, the entire radiator core shall be constructed using long life aluminum alloy. The core shall be made of aluminum fins, having a serpentine design, brazed to aluminum tubes. The tubes shall be brazed to aluminum headers. No solder joints or leaded material of any kind shall be acceptable in the core assembly. The radiator core shall have a minimum frontal area of 1434 square inches. Supply tank made of glass-reinforced nylon and a return tank of cast aluminum alloy shall be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly. The radiator shall be compatible with commercial antifreeze solutions.</p> <p>There shall be a full steel frame around the entire radiator core assembly. The radiator core assembly shall be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability. The radiator shall be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly shall be isolated from the chassis frame rails with rubber isolators.</p> <p>The radiator assembly shall include an integral deaeration tank permanently mounted to the top of the radiator framework, with a readily accessible remote-mounted overflow tank. For visual coolant level inspection, the radiator shall have a built-in sight glass. The radiator shall be equipped with a 15 psi pressure relief cap.</p> <p>A drain port shall be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.</p>		

	Bidder Complies	
	Yes	No
<p>A heavy-duty fan shall draw in fresh, cool air through the radiator. Shields or baffles shall be provided to prevent recirculation of hot air to the inlet side of the radiator.</p> <p><b><u>COOLANT LINES</u></b></p> <p>Silicone hoses shall be used for all engine/heater coolant lines installed by the chassis manufacturer.</p> <p>Hose clamps shall be stainless steel "constant torque type" to prevent coolant leakage. They shall react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.</p> <p><b><u>FUEL TANK</u></b></p> <p>A 65 gallon fuel tank shall be provided and mounted at the rear of the chassis. The tank shall be constructed of 12-gauge, hot rolled steel. It shall be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank shall be mounted with stainless steel straps (no exception).</p> <p>A 0.75" drain plug shall be provided in a low point of the tank for drainage.</p> <p>A fill inlet shall be located on the left hand side of the body and be covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."</p> <p>A 0.50" diameter vent shall be provided running from top of tank to just below fuel fill inlet.</p> <p>The tank shall meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.</p> <p>All fuel lines shall be provided as recommended by the engine manufacturer.</p> <p><b><u>DIESEL EXHAUST FLUID TANK</u></b></p> <p>A 4.5 gallon diesel exhaust fluid (DEF) tank shall be provided and mounted in the driver's side body forward of the rear axle.</p> <p>A 0.50" drain plug shall be provided in a low point of the tank for drainage.</p> <p>A fill inlet shall be located on the driver's side of the body and be covered with a hinged, spring loaded, polished stainless steel door that is marked "Diesel Exhaust Fluid Only".</p> <p>The tank shall meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing.</p> <p>The tank shall include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>FUEL SHUTOFF</u></b> A fuel line shutoff valve shall be installed on both the inlet and outlet of the primary fuel filter.</p> <p><b><u>FUEL COOLER</u></b> An air to fuel cooler shall be installed in the engine fuel return line.</p> <p><b><u>FUEL SEPARATOR</u></b> The engine shall be equipped with an in-line spin-on fuel and water separator in addition to the engine fuel filters.</p> <p><b><u>TRANSMISSION</u></b> An electronic, torque converting, automatic transmission shall be provided.</p> <p>The transmission shall be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display shall indicate when service is due.</p> <p>Two (2) PTO openings shall be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock).</p> <p>A transmission temperature gauge with red light and buzzer shall be installed on the cab instrument panel.</p> <p><b><u>TRANSMISSION SHIFTER</u></b> A six (6)-speed push button shift module shall be mounted to right of driver on console. Shift position indicator shall be indirectly lit for after dark operation.</p> <p>The transmission ratio shall be: 1st - 4.70 to 1.00, 2nd - 2.21 to 1.00, 3rd - 1.53 to 1.00, 4th - 1.00 to 1.00, 5th - 0.76 to 1.00, 6th - 0.67 to 1.00, R - 5.55 to 1.00.</p> <p><b><u>TRANSMISSION COOLER</u></b> A plate and fin transmission oil cooler shall be provided using engine coolant to control the transmission oil temperature.</p> <p><b><u>DRIVELINE</u></b> Drivelines shall be a heavy-duty metal tube and be equipped with universal joints.</p> <p>The shafts shall be dynamically balanced before installation.</p> <p>A splined slip joint shall be provided in each driveshaft.</p> <p><b><u>STEERING</u></b> Dual steering gears, with integral heavy-duty power steering, shall be provided. For reduced system temperatures, the power steering shall incorporate an air to oil cooler and a hydraulic</p>		

	Bidder Complies	
	Yes	No
<p>pump with integral pressure and flow control. All power steering lines shall have wire braded lines with crimped fittings.</p> <p>A tilt and telescopic steering column shall be provided to improve fit for a broader range of driver configurations.</p> <p><b><u>STEERING WHEEL</u></b></p> <p>The steering wheel shall be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design.</p> <p><b><u>LOGO AND CUSTOMER DESIGNATION ON DASH</u></b></p> <p>The dash panel shall have an emblem containing the fire apparatus manufacturer's logo and customer name. The emblem shall have three (3) rows of text for the customer's department name. There shall be a maximum of eight (8) characters in the first row, 11 characters in the second row and 11 characters in the third row.</p> <p>The first row of text shall be:</p> <p>The second row of text shall be:</p> <p>The third row of text shall be:</p> <p><b><u>BUMPER</u></b></p> <p>A one (1) piece, stainless steel bumper shall be attached to the front of the frame.</p> <p>A 9.00" channel shall be mounted directly behind the bumper for additional strength.</p> <p>The bumper shall be extended 19.00" from front face of cab.</p> <p><b><u>GRAVEL PAN</u></b></p> <p>A gravel pan, constructed of bright aluminum treadplate, shall be furnished between the bumper and cab face. The gravel pan shall be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.</p> <p><b><u>CENTER HOSE TRAY</u></b></p> <p>A hose tray, constructed of aluminum, shall be placed in the center of the bumper extension.</p> <p>The tray shall have a capacity of 150' of 1.75" double jacket cotton-polyester hose.</p> <p>Black rubber grating shall be provided at the bottom of the tray. Drain holes are also provided.</p> <p><b><u>CENTER HOSE TRAY COVER</u></b></p> <p>A bright aluminum treadplate cover shall be provided over the center hose tray.</p> <p>The cover shall be attached with a stainless steel hinge.</p>		

	Bidder Complies	
	Yes	No
<p>One (1) D-ring latch shall secure the cover in the closed position and a pneumatic stay arm shall hold the cover in the open position.</p> <p><b><u>LIFT AND TOW MOUNTS</u></b></p> <p>Mounted to the frame extension shall be lift and tow mounts. The lift and tow mounts shall be designed and positioned to adapt to certain tow truck lift systems.</p> <p>The lift and tow mounts with eyes shall be painted the same color as the frame.</p> <p><b><u>TOW HOOKS</u></b></p> <p>No tow hooks are to be provided. This truck shall be equipped with a lift and tow package with integral tow eyes.</p> <p><b><u>CAB</u></b></p> <p>The cab shall be designed specifically for the fire service and shall be manufactured by the chassis builder.</p> <p>To provide quality at the source and single source customer support, the cab shall be built by the apparatus manufacturer in a facility located on the manufacturer's premises (no exception).</p> <p>For reasons of structural integrity and enhanced occupant protection, the cab shall be of heavy duty design, constructed to the following minimal standards.</p> <p>The cab shall have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts) and rear wall areas. The A-pillar shall be constructed of 0.25" heavy wall extrusions joined by a solid A356-T6 aluminum joint casting. The B-pillar and C-pillar shall also be constructed from 0.25" heavy wall extrusions. The rear wall shall be constructed of two (2) 4.00" x 2.00" outer aluminum extrusions and two (2) 3.00" x 2.00" inner aluminum extrusions. All main vertical structural members shall run from the floor to 7.50" x 3.50" x 0.125" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.75" thick corner casting at each of the front corners of the roof assembly.</p> <p>The front of the cab shall be constructed of a 0.25" thick firewall, covered with a 0.125" front skin (for a total thickness of 0.38"), and reinforced with 24.50" wide x 10.00" deep x 0.50" thick supports on each side of the engine tunnel. The cross-cab support shall be welded to the A-pillar, 0.25" firewall, and engine tunnel, on the left and right sides.</p> <p>The cab floors shall be constructed of 0.1875" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.44" of structural material at the front floor area. The front floor area shall also be supported with three (3) 0.50" plates bolted together that also provides the mounting point for the cab lift. This tubing</p>		



	Bidder Complies	
	Yes	No
<p>shall run from the front of the cab to the 0.1875" thick engine tunnel, creating the structure to support the forces created when lifting the cab.</p> <p>The cab shall be a full-tilt style. A 3-point cab mount system with rubber isolators shall improve ride quality by isolating chassis vibrations from the cab.</p> <p>The crew cab shall be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.</p> <p>The forward cab section shall have an overall height (from the cab roof to the ground) of approximately 102.00". The crew cab section shall have a 10.00" raised roof, with an overall cab height of approximately 112.00". The raised portion shall start at the most forward point of the B-pillar and continue rearward to the back of the cab. The overall height listed shall be calculated based on a truck configuration with the lowest suspension weight ratings, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension shall increase the overall height listed.</p> <p>The raised roof section of the crew cab shall have a 58.00" wide x 10.00" high square notch in the center section of the roof. This shall allow the aerial device to be bedded in the same location as a non-raised roof.</p> <p>The cab shall have an interior width of not less than 93.50". The driver and passenger seating positions shall have a minimum 24.00" clear width at knee level.</p> <p>To reduce injuries to occupants in the seated positions, proper head clearance shall be provided. The floor-to-ceiling height inside the forward cab shall be no less than 60.25". The floor-to-ceiling height inside the crew cab shall be no less than 52.95" in the center position and 68.75" in the outboard positions.</p> <p>The crew cab shall measure a minimum of 57.50" from the rear wall to the backside of the engine tunnel (knee level) for optimal occupant legroom.</p> <p><b><u>INTERIOR CAB INSULATION</u></b></p> <p>The cab walls, ceiling and engine tunnel shall be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab shall be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling.</p> <p><b><u>FENDER LINERS</u></b></p> <p>Full-circular, aluminum inner fender liners in the wheel wells shall be provided.</p> <p><b><u>PANORAMIC WINDSHIELD</u></b></p> <p>A one (1)-piece, safety glass windshield with more than 2,802 square inches of clear viewing area shall be provided. The windshield shall be full width and shall provide the occupants with a</p>		

	Bidder Complies	
	Yes	No
<p>panoramic view. The windshield shall consist of three (3) layers: the outer light, the middle safety laminate, and the inner light. The 0.114" thick outer light layer shall provide superior chip resistance. The middle safety laminate layer shall prevent the windshield glass pieces from detaching in the event of breakage. The inner light shall provide yet another chip resistant layer. The cab windshield shall be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern shall be applied on the outside perimeter of the windshield for a finished automotive appearance.</p> <p><b><u>WINDSHIELD WIPERS</u></b></p> <p>Three (3) electric windshield wipers with a washer, in conformance with FMVSS and SAE requirements, shall be provided. The wiper blades shall be 21.65" long and together shall clear a minimum of 1,783 square inches of the windshield for maximum visibility in inclement weather.</p> <p>The windshield washer fluid reservoir shall be located at the front of the vehicle and be accessible through the access hood for simple maintenance.</p> <p><b><u>FAST SERVICE ACCESS FRONT TILT HOOD</u></b></p> <p>A full-width access hood shall be provided for convenient access to engine coolant, steering fluid, wiper fluid, cab lift controls, headlight power modules, and ember separator. The hood shall also provide complete access to the windshield wiper motor and components. The hood shall be contoured to provide a sleek, automotive appearance. The hood shall be constructed of two (2) fiberglass panels bonded together and shall include reinforcing ribs for structural integrity. The hood shall include air cylinders to hold the hood in open and closed positions, and a heavy duty latch system that shall meet FMVSS 113 (Hood Latch System). The spring-loaded hood latch shall be located at the center of the hood with a double-action release lever located behind the upper grille. The two (2)-step release requires the lever first be pulled to the driver side until the hood releases from the first latch (primary latch) then to the passenger side to fully release the hood (secondary latch).</p> <p><b><u>ENGINE TUNNEL</u></b></p> <p>To provide structural strength, the engine tunnel sidewalls shall be constructed of .50" aluminum plate that is welded to both the .25" firewall and .38" heavy wall extrusion under the crew cab floor. To maximize occupant space, the top edges shall be tapered.</p> <p>The engine tunnel shall be insulated on both sides for thermal and acoustic absorption. The underside of the tunnel shall be covered with 1.00" thick polyether foam that is reinforced with an aluminized face. Thermal rating for this insulation shall be -40 degrees Fahrenheit to 300 degrees Fahrenheit. The insulation shall keep noise (dBA) levels at or lower than the specifications in the current edition of the NFPA 1901 standards.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>CAB REAR WALL EXTERIOR COVERING</u></b></p> <p>The exterior surface of the rear wall of the cab shall be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.</p> <p><b><u>CAB LIFT</u></b></p> <p>A hydraulic cab lift system shall be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. The hydraulic pump shall have a backup manual override, for use in the event of an electrical failure.</p> <p>The cab lift controls shall be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls shall include a permanently mounted raise/lower switch. For enhanced visibility during cab tilt operations, a remote control tether with on/off switch shall be supplied on a coiled cord that shall extend from 2.00' (coiled) to 6.00' (extended).</p> <p>The cab shall be capable of tilting 42 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. The cab pivots shall be located 46.00" apart to provide stability while tilting the cab.</p> <p>The rear of the cab shall be locked down by a two (2)-point, automatic, hydraulic, double hook mechanism that fully engages after the cab has been lowered (self-locking). The dual 2.25" diameter hydraulic cylinders shall be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.</p> <p>For increased safety, a redundant mechanical stay arm shall be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device shall be manually stowed to its original position before the cab can be lowered.</p> <p><b><u>Cab Lift Interlock</u></b></p> <p>The cab lift safety system shall be interlocked to the parking brake. The cab tilt mechanism shall be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism shall be disabled.</p> <p><b><u>GRILLE</u></b></p> <p>A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, shall be provided on the front center of the cab, and shall serve as an air intake to the radiator.</p> <p><b><u>FRONT CAB TRIM</u></b></p> <p>A 10.00" band of 22 gauge patterned stainless steel trim shall be installed across the front of the cab, from door hinge to door hinge. The trim band shall be centered on the head lights and</p>		

	Bidder Complies	
	Yes	No
<p>applied with two (2)-sided tape. A 0.625" self-adhesive trim strip shall be applied around the perimeter of the trim band.</p> <p>There shall be polished stainless steel corner covers provided over the painted cab corner where the cab turn signals are located.</p> <p><b><u>SIDE OF CAB MOLDING</u></b></p> <p>Chrome molding shall be provided on both sides of cab.</p> <p><b><u>MIRRORS</u></b></p> <p>A dual vision, motorized, west coast style mirror, with chrome finish, shall be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass shall be heated and adjustable with remote control within reach of the driver.</p> <p><b><u>CAB DOORS</u></b></p> <p>The forward cab and crew cab doors shall be the half-height style door. To enhance entry and egress to the cab, the forward cab doors shall be a minimum of 43.59" wide x 64.71" high. The crew cab doors shall measure a minimum of 37.87" wide x 73.75" high.</p> <p>The forward cab and crew cab doors shall be constructed of extruded aluminum with a nominal material thickness of 0.125". The exterior door skins shall be constructed from 0.090" aluminum.</p> <p>The forward cab door windows shall include a 7.50" high x 10.00" wide drop area at the front to enhance visibility.</p> <p>A customized, vertical, pull-down type door handle shall be provided on the exterior of each cab door. The exterior handle shall be designed specifically for the fire service to prevent accidental activation, and shall provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands. Each door shall also be provided with an interior flush, open style paddle handle that shall be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles shall provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.</p> <p>The cab doors shall be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The locks shall be capable of activating when the doors are open or closed. The doors shall remain locked if locks are activated when the doors are opened, then closed.</p> <p>A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf shall be provided on all cab doors. There shall be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.</p>		

	Bidder Complies	
	Yes	No
<p>A chrome grab handle shall be provided on the inside of each cab and crew cab door.</p> <p>The cab steps at each cab door location shall be located below the cab doors and shall be exposed to the exterior of the cab.</p> <p><b><u>CAB DOOR PANELS</u></b></p> <p>The inner cab door panels shall be constructed out of brushed stainless steel. The cab door panels shall be removable.</p> <p><b><u>RECESSED POCKET WITH ELASTIC COVER</u></b></p> <p>To provide organized storage (clutter control) in the cab for miscellaneous equipment, the cab interior shall be provided with recessed storage pockets. The pockets shall be 5.63" wide x 2.00" high x 4.00" deep. The pockets shall be provided with a perforated elastic material cover to secure the equipment in the pocket. The pockets shall be installed in all available mounting locations of the overhead console.</p> <p><b><u>ELECTRIC WINDOW CONTROLS</u></b></p> <p>Each cab entry door shall be equipped with an electrically operated tempered glass window. A window control panel shall be located on the door panel within easy reach of the respective occupant. Each switch shall allow intermittent or auto down operation for ease of use. Auto down operation shall be actuated by holding the window down switch for approximately 1 second. The driver control panel shall contain a control switch for each cab door's window. All other door control panels shall contain a single switch to operate the window within that door.</p> <p>The window switches shall be connected directly to the battery power. This allows the windows to be raised and lowered when the battery switch is in the off position.</p> <p><b><u>DUAL STEPS</u></b></p> <p>A dual step shall be provided below each cab and crew cab door. The steps shall be designed with a grip pattern punched into bright aluminum treadplate material providing support, slip resistance, and drainage. The steps shall be a bolt-on design and provide a 24.00" wide x 7.00" deep stepping surface. The step design raises the middle step higher and closer to the cab floor, resulting in a 12.00" distance from the step to cab floor in the cab and a 13.50" distance from the step to cab floor in the crew cab. Stepping distances from the ground to first step shall be 16.50" and from first step to middle step shall be 12.00".</p> <p>The first step shall be lit by a 12 volt DC LED light provided on the step.</p> <p><b><u>STEP LIGHTS</u></b></p> <p>For reduced overall maintenance costs compared to incandescent lighting, there shall be four (4) white LED step lights provided. The lights shall be installed at each cab and crew cab door, one</p>		

	Bidder Complies	
	Yes	No
<p>(1) per step. The lights shall be located in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep.</p> <p>In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light.</p> <p>The lights shall be activated when the adjacent door is opened.</p> <p><b><u>FENDER CROWNS</u></b></p> <p>Stainless steel fender crowns shall be installed at the cab wheel openings.</p> <p><b><u>CREW CAB WINDOWS</u></b></p> <p>One (1) fixed window with tinted glass shall be provided on each side of the cab, to the rear of the front cab door. The windows shall be sized to enhance light penetration into the cab interior. The windows shall measure 20.00" wide x 20.50" high.</p> <p><b><u>WINDOWS INTERIOR TRIM</u></b></p> <p>For improved aesthetics, the cab side windows shall include a vacuum formed ABS interior trim panel.</p> <p><b><u>CAB ROOF DRIP RAIL</u></b></p> <p>For enhanced protection from inclement weather, a drip rail shall be furnished on the sides of the cab. The drip rail shall be constructed of bright polished extruded aluminum, and be bonded to the sides of the cab. The drip rail shall extend the full length of the cab roof.</p> <p><b><u>CAB INTERIOR</u></b></p> <p>With safety as the primary objective, the wrap-around style cab instrument panel shall be designed with unobstructed visibility to instrumentation. The dash layout shall provide the driver with a quick reference to gauges that allows more time to focus on the road.</p> <p>The center console shall be a high impact ABS polymer and shall be easily removable for access to the defroster. The center console shall include louvers strategically located for optimal air flow and defrost capability to the windshield.</p> <p>The passenger side dashboard shall be constructed of painted aluminum for durability and low maintenance. For enhanced versatility, the passenger side dash shall include a flat working surface.</p> <p>To provide optional (service friendly) control panels, switches and storage modules, a painted aluminum overhead console shall also be provided.</p>		

	Bidder Complies	
	Yes	No
<p>To complete the cab front interior design, painted aluminum modesty panels shall be provided under the dash on both sides of the cab. The driver side modesty panel shall provide mounting for the battery switch and diagnostic connectors, while the passenger side modesty panel provides a glove box, and ground access to the main electrical distribution panel via quick quarter turn fasteners.</p> <p>To provide a deluxe automotive interior, the engine tunnel shall be covered by leather grain vinyl that is resistant to oil, grease, and mildew. For durability and ease of maintenance, the cab interior side walls and rear wall shall be painted aluminum.</p> <p>The headliner shall be installed in both forward and rear cab sections. The headliner panel shall be a composition of an aluminum panel covered with a sound barrier and upholstery.</p> <p>The cab structure shall include designated raceways for electrical harness routing from the front of the cab to the rear upper portion of the cab. Raceways shall be extruded in the forward door frame, floor, walls and overhead in the area where the walls meet the ceiling. The raceways located in the floor shall be covered by aluminum extrusion, while the vertical and overhead raceways shall be covered by painted aluminum covers. The raceways shall improve harness integrity by providing a continuous harness path that eliminates wire chafing and abrasion associated with exposed wiring or routing through drilled metal holes. Harnesses shall be laid in place. Routing through holes in tubing shall not be accepted due to chaffing that installation causes.</p> <p><b><u>CAB INTERIOR UPHOLSTERY</u></b></p> <p>The cab interior upholstery shall be dark silver gray. All cab interior materials shall meet FMVSS 302 (flammability of interior materials).</p> <p><b><u>CAB INTERIOR PAINT</u></b></p> <p>The cab interior metal surfaces shall be painted fire smoke gray, vinyl texture paint.</p> <p><b><u>CAB FLOOR</u></b></p> <p>The cab and crew cab floor areas shall be covered with floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.</p> <p>The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a 0.25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.</p> <p><b><u>CAB DEFROSTER</u></b></p> <p>To provide maximum defrost and heating performance, a 54,961 BTU heater-defroster unit with 558 SCFM of air flow shall be provided inside the cab. The defroster unit shall be strategically located under the center forward portion of the instrument panel. For easy access, a removable</p>		

	Bidder Complies	
	Yes	No
<p>metal cover shall be installed over the defroster unit. The defroster shall include an integral aluminum frame air filter, high performance dual scroll blowers, and ducts designed to provide maximum defrosting capabilities for the 1-piece windshield. The defroster ventilation shall be built into the design of the cab dash instrument panel and shall be easily removable for maintenance. The defroster shall be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system shall meet or exceed SAE J382 requirements.</p> <p><b><u>CAB/CREW CAB HEATER</u></b></p> <p>Two (2) 36,702 BTU auxiliary heaters with 276 SCFM (each unit) of air flow shall be provided inside the crew cab, one (1) in each outboard rear facing seat riser. The heaters shall include high performance dual scroll blowers, one (1) for each unit. Outlets for the heaters shall be located below each rear facing seat riser and below the fronts of the driver and passenger seats, for efficient airflow. An extruded aluminum plenum shall be incorporated in the cab structure that shall transfer heat to the forward cab seating positions.</p> <p>The heater/defroster and crew cab heaters shall be controlled by an integral electronic control panel. The heater control panel shall allow the driver to control heat flow to the front and rear independently. The control panel shall include variable adjustment for temperature and fan control, and be conveniently located on the dash in clear view of the driver. The control panel shall include highly visible, progressive LED indicators for both fan speed and temperature.</p> <p><b><u>AIR CONDITIONING</u></b></p> <p>A high-performance, customized air conditioning system shall be furnished inside the cab and crew cab. A 13.10 cubic inch compressor shall be installed on the engine.</p> <p>A roof-mounted condenser with a 63,000 BTU output that meets and exceeds the performance specification shall be installed on the cab roof. Mounting the condenser below the cab or body would reduce the performance of the system and shall not be acceptable. The condenser cover and mounting legs to be painted white as provided by manufacturer.</p> <p>The evaporator unit shall be installed in the cab, located in the center of the cab ceiling over the engine tunnel. The evaporator shall include two (2) high performance cores and plenums with multiple outlets, one (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.</p> <p>There shall be a hinge on the forward edge of the filter cover and two (2) quarter turn fasteners with a knob on the rear edge to allow easy access.</p> <p>The evaporator unit shall have a 49,000 BTU rating that meets and exceeds the performance specifications.</p>		



	Bidder Complies	
	Yes	No
<p>Adjustable air outlets shall be strategically located on the evaporator cover per the following:</p> <ul style="list-style-type: none"> <li>• Four (4) shall be directed towards the drivers location</li> <li>• Four (4) shall be directed towards the officers location</li> <li>• Eight (8) shall be directed towards crew cab area</li> </ul> <p>The air conditioner refrigerant shall be R-134A and shall be installed by a certified technician.</p> <p>The air conditioner shall be controlled by dual zone integral electronic control panels for the heater, defroster and air conditioner. The cab control panel shall be located in the center console. For ease of operation, the control panels shall include variable adjustment for temperature and fan control.</p> <p><b><u>INTERIOR CAB INSULATION</u></b></p> <p>The cab walls, ceiling, and engine tunnel shall be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab shall be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling. Headliners shall be constructed from a 0.20" high density polyethylene corrugated material. Each headliner shall be wrapped with a 0.25" thick foil faced poly damp low emissivity foam insulation barrier for acoustic and thermal control. For ease of installation and removal, all headliners shall be held in place by a dual lock fastening system. Headliner installation requiring removal of mechanical fasteners shall not be acceptable.</p> <p>Designed for maximum sound absorption and thermal insulation, the rear cab wall shall be insulated with 1.50" thick open cell acoustical foam. The thermal protection of the foam shall provide an R-value of four (4) per 1.00" thickness.</p> <p><b><u>SUN VISORS</u></b></p> <p>Two (2) smoked polycarbonate sun visors provided. The sun visors shall be located above the windshield with one (1) mounted on each side of the cab.</p> <p>There shall be no retention bracket provided to help secure each sun visor in the stowed position.</p> <p><b><u>GRAB HANDLE</u></b></p> <p>A black rubber covered grab handle shall be mounted on the door post of the driver side cab door to assist in entering the cab. The grab handle shall be securely mounted to the post area between the door and windshield.</p> <p>A long rubber grab handle shall be mounted on the dash board in front of the officer.</p> <p><b><u>ENGINE COMPARTMENT LIGHTS</u></b></p> <p>There shall be two (2) 12 volt DC, 3.00" white LED light(s) with chrome flange kit(s) installed under the cab to be used as engine compartment illumination.</p>		

	Bidder Complies	
	Yes	No
<p>These light(s) shall be activated automatically when the cab is raised.</p> <p><b><u>ACCESS TO ENGINE DIPSTICKS</u></b></p> <p>For access to the engine oil and transmission fluid dipsticks, there shall be a door on the engine tunnel, inside the crew cab. The door shall be on the rear wall of the engine tunnel, on the vertical surface. The door shall be 17.75" wide x 12.75" high and be flush with the wall of the engine tunnel.</p> <p>The engine oil dipstick shall allow for checking only. The transmission dipstick shall allow for both checking and filling. An additional port shall be provided for filling the engine oil.</p> <p>The door shall have a rubber seal for thermal and acoustic insulation. One (1) flush latch shall be provided on the access door.</p> <p><b><u>CAB SAFETY SYSTEM</u></b></p> <p>The cab shall be provided with a safety system designed to protect occupants in the event of a side roll or frontal impact, and shall include the following:</p> <ul style="list-style-type: none"> <li>• A supplemental restraint system (SRS) sensor shall be installed on a structural cab member behind the instrument panel. The SRS sensor shall perform real time diagnostics of all critical subsystems and shall record sensory inputs immediately before and during a side roll or frontal impact event.</li> <li>• A slave SRS sensor shall be installed in the cab to provide capacity for eight (8) crew cab seating positions.</li> <li>• A fault-indicating light shall be provided on the vehicle's instrument panel allowing the driver to monitor the operational status of the SRS system.</li> <li>• A driver side front air bag shall be mounted in the steering wheel and shall be designed to protect the head and upper torso of the occupant, when used in combination with the 3-point seat belt.</li> <li>• A passenger side knee bolster air bag shall be mounted in the modesty panel below the dash panel and shall be designed to protect the legs of the occupant, when used in combination with the 3-point seat belt.</li> <li>• Air curtains shall be provided in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall.</li> <li>• Suspension seats shall be provided with devices to retract them to the lowest travel position during a side roll or frontal impact event.</li> <li>• Seat belts shall be provided with pre-tensioners to remove slack from the seat belt during a side roll or frontal impact event.</li> </ul>		

Bidder Complies	
Yes	No

**FRONTAL IMPACT PROTECTION**

The SRS system shall provide protection during a frontal or oblique impact event. The system shall activate when the vehicle decelerates at a predetermined G force known to cause injury to the occupants. The cab and chassis shall have been subjected, via third party test facility, to a crash impact during frontal and oblique impact testing. Testing included all major chassis and cab components such as mounting straps for fuel and air tanks, suspension mounts, front suspension components, rear suspensions components, frame rail cross members, engine and transmission and their mounts, pump house and mounts, frame extensions and body mounts. The testing provided configuration specific information used to optimize the timing for firing the safety restraint system. The sensor shall activate the pyrotechnic devices when the correct crash algorithm, wave form, is detected (no exception).

The SRS system shall deploy the following components in the event of a frontal or oblique impact event:

- Driver side front air bag
- Passenger side knee bolster air bag
- Air curtains mounted in the outboard bolster of outboard seat backs
- Suspension seats shall be retracted to the lowest travel position
- Seat belts shall be pre-tensioned to firmly hold the occupant in place

**SIDE ROLL PROTECTION**

The SRS system shall provide protection during a fast or slow 90 degree roll to the side, in which the vehicle comes to rest on its side. The system shall analyze the vehicle's angle and rate of roll to determine the optimal activation of the advanced occupant restraints.

The SRS system shall deploy the following components in the event of a side roll:

- Air curtains mounted in the outboard bolster of outboard seat backs
- Suspension seats shall be retracted to the lowest travel position
- Seat belts shall be pre-tensioned to firmly hold the occupant in place

**SEATING CAPACITY**

The seating capacity in the cab shall be six (6).

**DRIVER SEAT**

A cam action seat with air suspension shall be provided in the cab for the driver. For increased convenience, the seat shall include electric controls to adjust the rake, height and horizontal position. Electric controls shall be located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat shall be furnished with an adjustable reclining back. The seat back shall be a high back style with manual lumbar

	Bidder Complies	
	Yes	No
<p>adjustment lever, for lower back support, and shall include minimum 7.50" deep side bolster pads for maximum support. For optimal comfort, the seat shall be provided with dual density foam cushions designed with EVC (elastomeric vibration control).</p> <p>The seat shall include the following features incorporated into the side roll protection system:</p> <ul style="list-style-type: none"> <li>• Side air curtain shall be mounted integral to the outboard bolster of the seat back. The air curtain shall be covered by a decorative panel when in the stowed position.</li> <li>• A suspension seat safety system shall be included. When activated, this system shall pretension the seat belt and retract the seat to its lowest travel position.</li> </ul> <p>The seat shall be furnished with a 3-point, shoulder type seat belt. The seat belt shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.</p> <p><b><u>OFFICER SEAT</u></b></p> <p>A cam action seat with air suspension shall be provided in the cab for the passenger. For increased convenience, the seat shall include a manual control to adjust the horizontal position. The manual horizontal control shall be a towel-bar style located below the forward part of the seat cushion. For optimal comfort, the seat shall be provided with dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat shall be equipped with seat belt sensors in the seat cushion and belt receptacle that shall activate an alarm indicating a seat is occupied but not belted.</p> <p>The seat back shall be an SCBA back style with 7.5 degree fixed recline angle, and shall include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity shall be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p> <p>The seat shall include the following features incorporated into the side roll protection system:</p> <ul style="list-style-type: none"> <li>• Side air curtain shall be mounted integral to the outboard bolster of the seat back. The air curtain shall be covered by a decorative panel when in the stowed position.</li> <li>• A suspension seat safety system shall be included. When activated, this system shall pretension the seat belt, then retract the seat to its lowest travel position.</li> </ul> <p>The seat shall be furnished with a 3-point, shoulder type seat belt. The seat belt shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>REAR FACING DRIVER SIDE OUTBOARD SEAT</u></b></p> <p>There shall be one (1) rear facing seat provided at the driver side outboard position in the crew cab. For optimal comfort, the seat shall be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat shall be equipped with seat belt sensors in the seat cushion and belt receptacle. It shall activate an alarm indicating a seat is occupied but not buckled.</p> <p>The seat back shall be an SCBA back style with 7.5 degree fixed recline angle, and shall include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity shall be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p> <p>The seat shall include the following features incorporated into the side roll protection system:</p> <ul style="list-style-type: none"> <li>• Side air curtain shall be mounted integral to the outboard bolster of the seat back. The air curtain shall be covered by a decorative panel when in the stowed position.</li> <li>• A seat safety system shall be included. When activated, this system shall pretension the seat belt around the occupant to firmly hold them in place in the event of a side roll.</li> </ul> <p>The seat shall be furnished with a 3-point, shoulder type seat belt. The seat belt shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.</p> <p><b><u>REAR FACING PASSENGER SIDE OUTBOARD SEAT</u></b></p> <p>There shall be one (1) rear facing seat provided at the passenger side outboard position in the crew cab. For optimal comfort, the seat shall be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat shall be equipped with seat belt sensors in the seat cushion and belt receptacle that shall activate an alarm indicating a seat is occupied but not buckled. The seat back shall be an SCBA back style with 7.5 degree fixed recline angle, and shall include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity shall be adjustable from front to rear in 1.00" increments to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p> <p>The seat shall include the following features incorporated into the side roll protection system:</p> <ul style="list-style-type: none"> <li>• Side air curtain shall be mounted integral to the outboard bolster of the seat back. The air curtain shall be covered by a decorative panel when in the stowed position.</li> <li>• A seat safety system shall be included. When activated, this system shall pretension the seat belt and firmly hold the occupant in the event of a side roll.</li> </ul>		

	Bidder Complies	
	Yes	No
<p>The seat shall be furnished with a 3-point, shoulder type seat belt. The seat belt shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.</p> <p><b><u>FORWARD FACING CENTER SEATS</u></b></p> <p>There shall be two (2) forward facing seats provided at the center position in the crew cab. The seats shall be spaced 8.00" apart to provide additional room for each occupant. To provide improved ride comfort, and maximize accessibility to the crew cab, the seats shall be provided with 15.00" deep foam cushions, and the seat backs shall be provided with 0 degree fixed recline angle. To ensure safe operation, the seats shall be equipped with seat belt sensors in the seat cushion and belt receptacle that shall activate an alarm indicating a seat is occupied but not buckled. The seat backs shall be an SCBA back style. The SCBA cavity shall be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p> <p>The seats shall include the following feature incorporated into the side roll protection system:</p> <ul style="list-style-type: none"> <li>• A seat safety system shall be included. When activated, this system shall pretension the seat belts around the occupants to firmly hold them in place in the event of a side roll.</li> </ul> <p>The seats shall be furnished with 3-point, shoulder type seat belts. The seat belts shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.</p> <p><b><u>SEAT UPHOLSTERY</u></b></p> <p>All seat upholstery shall be gray woven with black water resistant material.</p> <p><b><u>AIR BOTTLE HOLDERS</u></b></p> <p>All SCBA type seats in the cab shall have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket shall include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp shall constrain the SCBA bottle in the seat and shall exceed the NFPA standard of 9G. Bracket designs with manual restraints (belts, straps, buckles) that could be inadvertently left unlocked and allow the SCBA to move freely within the cab during an accident, shall not be acceptable.</p> <p>There shall be a quantity of five (5) SCBA brackets.</p> <p><b><u>SEAT BELTS</u></b></p> <p>All seating positions in the cab and crew cab shall have red seat belts.</p>		

	Bidder Complies	
	Yes	No
<p>To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length shall meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.</p> <p>The 3-point shoulder type seat belts shall also include a D-loop assembly to the shoulder belt system. This feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.</p> <p><b><u>SHOULDER HARNESS HEIGHT ADJUSTMENT</u></b></p> <p>All seating positions furnished with 3-point shoulder type seat belts shall include a height adjustment. This adjustment shall optimize the belts effectiveness and comfort for the seated firefighter.</p> <p>A total of six (6) seating positions shall have the adjustable shoulder harness.</p> <p><b><u>HELMET STORAGE PROVIDED BY FIRE DEPARTMENT</u></b></p> <p>NFPA 1901, 2016 edition, section 14.1.7.4.1 requires a location for helmet storage be provided.</p> <p>There is no helmet storage on the apparatus as manufactured. The fire department shall provide a location for storage of helmets.</p> <p><b><u>CAB DOME LIGHTS</u></b></p> <p>There shall be four (4) dual LED dome lights with black bezels provided. Two (2) lights shall be mounted above the inside shoulder of the driver and officer and two (2) lights shall be installed and located, one (1) on each side of the crew cab.</p> <p>The color of the LED's shall be red and white.</p> <p>The white LED's shall be controlled by the door switches and the lens switch.</p> <p>The color LED's shall be controlled by the lens switch.</p> <p>In order to ensure exceptional illumination, each white LED dome light shall provide a minimum of 10.1 foot-candles (fc) covering an entire 20.00" x 20.00" square seating position when mounted 40.00" above the seat.</p> <p><b><u>OVERHEAD MAP LIGHTS</u></b></p> <p>There shall be two (2) white halogen, round adjustable map lights installed in the cab:</p> <ul style="list-style-type: none"> <li>• One (1) overhead in front of the driving position.</li> <li>• One (1) overhead in front of the passenger's position.</li> </ul> <p>Each light shall include a switch on the light housing.</p>		

	Bidder Complies	
	Yes	No
<p>The light switches shall be connected directly to the battery switched power.</p> <p><b><u>PORTABLE HAND LIGHTS, PROVIDED BY FIRE DEPARTMENT</u></b>            NFPA 1901, 2016 edition, section 5.9.4 requires two portable hand lights mounted in brackets fastened to the apparatus.</p> <p>The hand lights are not on the apparatus as manufactured. The fire department shall provide and mount these hand lights.</p> <p><b><u>CAB INSTRUMENTATION</u></b>            The cab instrument panel shall consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches shall be identified by a label adjacent to each item. Actuation of the headlight switch shall illuminate the labels in low light conditions. Telltale indicator lamps shall not be illuminated unless necessary. The cab instruments and controls shall be conveniently located within the forward cab section directly forward of the driver. Gauge and switch panels shall be designed to be removable for ease of service and low cost of ownership.</p> <p><b><u>GAUGES</u></b>            The gauge panel shall include the following ten (10) ivory gauges with chrome bezels to monitor vehicle performance:</p> <ul style="list-style-type: none"> <li>- Voltmeter gauge (Volts)</li> <li>Low volts (11.8 VDC)</li> <li>Amber indicator on gauge assembly with alarm</li> <li>High volts (15 VDC)</li> <li>Amber indicator on gauge assembly with alarm</li> <li>Very low volts (11.3 VDC)</li> <li>Amber indicator on gauge assembly with alarm</li> <li>Very high volts (16 VDC)</li> <li>Amber indicator on gauge assembly with alarm</li> <li>- Tachometer (RPM)</li> <li>- Speedometer (Primary (outside) MPH, Secondary (inside) Km/H)</li> <li>- Fuel level gauge (Empty - Full in fractions)</li> </ul>		



	Bidder Complies	
	Yes	No
<p>Low fuel (1/8 full)</p> <p>Amber indicator on gauge assembly with alarm</p> <p>Very low fuel (1/32) fuel</p> <p>Amber indicator on gauge assembly with alarm</p> <p>- Engine oil pressure gauge (PSI)</p> <p>Low oil pressure to activate engine warning lights and alarms</p> <p>Red indicator on gauge assembly with alarm</p> <p>- Front air pressure gauge (PSI)</p> <p>Low air pressure to activate warning lights and alarm</p> <p>Red indicator on gauge assembly with alarm</p> <p>- Rear air pressure gauge (PSI)</p> <p>Low air pressure to activate warning lights and alarm</p> <p>Red indicator on gauge assembly with alarm</p> <p>- Transmission oil temperature gauge (Fahrenheit)</p> <p>High transmission oil temperature activates warning lights and alarm</p> <p>Amber indicator on gauge assembly with alarm</p> <p>- Engine coolant temperature gauge (Fahrenheit)</p> <p>High engine temperature activates an engine warning light and alarm</p> <p>Red indicator on gauge assembly with alarm</p> <p>- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions)</p> <p>Low fluid (1/8 full)</p> <p>Amber indicator on gauge assembly with alarm</p> <p>All gauges and gauge indicators shall perform prove out at initial power-up to ensure proper performance.</p>		

Bidder Complies	
Yes	No

**INDICATOR LAMPS**

To promote safety, the following telltale indicator lamps shall be integral to the gauge assembly and are located above and below the center gauges. The indicator lamps shall be "dead-front" design that is only visible when active. The colored indicator lights shall have descriptive text or symbols.

The following amber telltale lamps shall be present:

- Low coolant
- Trac cntl (traction control) (where applicable)
- Check engine
- Check trans (check transmission)
- Aux brake overheat (Auxiliary brake overheat)
- Air rest (air restriction)
- Caution (triangle symbol)
- Water in fuel
- DPF (engine diesel particulate filter regeneration)
- Trailer ABS (where applicable)
- Wait to start (where applicable)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- SRS (supplemental restraint system) fault (where applicable)
- DEF (low diesel exhaust fluid level)

The following red telltale lamps shall be present:

- Warning (stop sign symbol)
- Seat belt
- Parking brake

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>- Stop engine</li> <li>- Rack down</li> </ul> <p>The following green telltale lamps shall be provided:</p> <ul style="list-style-type: none"> <li>- Left turn</li> <li>- Right turn</li> <li>- Battery on</li> </ul> <p>The following blue telltale lamp shall be provided:</p> <ul style="list-style-type: none"> <li>-High beam</li> </ul> <p><b><u>ALARMS</u></b></p> <p>Audible steady tone warning alarm: A steady audible tone alarm shall be provided whenever a warning message is present.</p> <p>Audible pulsing tone caution alarm: A pulsing audible tone alarm (chime/chirp) shall be provided whenever a caution message is present without a warning message being present.</p> <p>Alarm silence: Any active audible alarm shall be able to be silenced by holding the ignition switch at the top position for three (3) to five (5) seconds. For improved safety, silenced audible alarms shall intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp shall act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition shall enable the steady or pulsing tones respectively.</p> <p><b><u>INDICATOR LAMP AND ALARM PROVE-OUT</u></b></p> <p>Telltale indicators and alarms shall perform prove-out at initial power-up to ensure proper performance.</p> <p><b><u>CONTROL SWITCHES</u></b></p> <p>For ease of use, the following controls shall be provided immediately adjacent to the cab instrument panel within easy reach of the driver.</p> <p>Emergency master switch: A molded plastic push button switch with integral indicator lamp shall be provided. Pressing the switch shall activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.</p>		

	Bidder Complies	
	Yes	No
<p>Headlight / Parking light switch: A three (3)-position maintained rocker switch shall be provided. The first switch position shall deactivate all parking lights and the headlights. The second switch position shall activate the parking lights. The third switch position shall activate the headlights.</p> <p>Panel backlighting intensity control switch: A three (3)-position momentary rocker switch shall be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect the backlighting intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.</p> <p>The following standard controls shall be integral to the gauge assembly and are located below the right hand gauges. All switches have backlit labels for low light applications.</p> <p>High idle engagement switch: A two (2)-position momentary rocker switch with integral indicator lamp shall be provided. The first switch position is the default switch position. The second switch position shall activate and deactivate the high idle function when pressed and released. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch shall indicate when the high idle function is engaged.</p> <p>"Ok To Engage High Idle" indicator lamp: A green indicator light shall be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.</p> <p>The following standard controls shall be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches shall have backlit labels for low light applications.</p> <p>Ignition switch: A three (3)-position maintained/momentary rocker switch shall be provided. The first switch position shall deactivate vehicle ignition. The second switch position shall activate vehicle ignition. The third momentary position shall disable the Command Zone audible alarm if held for three (3) to five (5) seconds. A green indicator lamp shall be activated with vehicle ignition.</p> <p>Engine start switch: A two (2)-position momentary rocker switch shall be provided. The first switch position is the default switch position. The second switch position shall activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.</p> <p>4-way hazard switch: A two (2)-position maintained rocker switch shall be provided. The first switch position shall deactivate the 4-way hazard switch function. The second switch position shall activate the 4-way hazard function. The switch actuator shall be red and includes the international 4-way hazard symbol.</p>		

	Bidder Complies	
	Yes	No
<p>Heater, defroster, and optional air conditioning control panel: A control panel with membrane switches shall be provided to control heater/defroster temperature and heater, defroster, and air conditioning fan speeds. A green LED status bar shall indicate the relative temperature and fan speed settings.</p> <p>Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls shall be provided. The windshield wiper control shall have high, low, and intermittent modes.</p> <p>Parking brake control: An air actuated push/pull park brake control valve shall be provided.</p> <p>Chassis horn control: Activation of the chassis horn control shall be provided through the center of the steering wheel.</p> <p><b><u>CUSTOM SWITCH PANELS</u></b></p> <p>The design of cab instrumentation shall allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There shall be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and up to two (2) switch panels in the engine tunnel console facing the officer. All switches shall have backlit labels for low light applications.</p> <p><b><u>DIAGNOSTIC PANEL</u></b></p> <p>A diagnostic panel shall be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel shall allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches shall allow ABS systems to provide blink codes should a problem exist.</p> <p>The diagnostic panel shall include the following:</p> <ul style="list-style-type: none"> <li>- Engine diagnostic port</li> <li>- Transmission diagnostic port</li> <li>- ABS diagnostic port</li> <li>- SRS diagnostic port (where applicable)</li> <li>- Command Zone USB diagnostic port</li> <li>- ABS diagnostic switch (blink codes flashed on ABS telltale indicator)</li> <li>- Diesel particulate filter regeneration switch (where applicable)</li> </ul>		

	Bidder Complies	
	Yes	No
<p>- Diesel particulate filter regeneration inhibit switch (where applicable)</p> <p><b><u>CAB LCD DISPLAY</u></b></p> <p>A digital four (4) row by 20 character dot matrix display shall be integral to the gauge panel. The display shall be capable of showing simple graphical images as well as text. The display shall be split into three (3) sections. Each section shall have a dedicated function. The upper left section shall display the outside ambient temperature.</p> <p>The upper right section shall display, along with other configuration specific information:</p> <ul style="list-style-type: none"> <li>- Odometer</li> <li>- Trip mileage</li> <li>- PTO hours</li> <li>- Fuel consumption</li> <li>- Engine hours</li> </ul> <p>The bottom section shall display INFO, CAUTION, and WARNING messages. Text messages shall automatically activate to describe the cause of an audible caution or warning alarm. The LCD shall be capable of displaying multiple text messages should more than one caution or warning condition exist.</p> <p><b><u>AIR RESTRICTION INDICATOR</u></b></p> <p>A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm shall be provided.</p> <p><b><u>"DO NOT MOVE APPARATUS" INDICATOR</u></b></p> <p>A flashing red indicator light, located in the driving compartment, shall be illuminated automatically per the current NFPA requirements. The light shall be labeled "Do Not Move Apparatus If Light Is On."</p> <p>The same circuit that activates the Do Not Move Apparatus indicator shall activate a pulsing alarm when the parking brake is released.</p> <p><b><u>DO NOT MOVE TRUCK MESSAGES</u></b></p> <p>Messages shall be displayed on the color display located within sight of the driver whenever the Do Not Move Truck light is active. The messages shall designate the item or items not in the stowed for vehicle travel position (parking brake disengaged).</p> <p>The following messages shall be displayed (where applicable):</p>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• Do Not Move Truck</li> <li>• DS Cab Door Open (Driver Side Cab Door Open)</li> <li>• PS Cab Door Open (Passenger's Side Cab Door Open)</li> <li>• DS Crew Cab Door Open (Driver Side Crew Cab Door Open)</li> <li>• PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open)</li> <li>• DS Body Door Open (Driver Side Body Door Open)</li> <li>• PS Body Door Open (Passenger's Side Body Door Open)</li> <li>• Rear Body Door Open</li> <li>• DS Ladder Rack Down (Driver Side Ladder Rack Down)</li> <li>• PS Ladder Rack Down (Passenger Side Ladder Rack Down)</li> <li>• Deck Gun Not Stowed</li> <li>• Lt Tower Not Stowed (Light Tower Not Stowed)</li> <li>• Fold Tank Not Stowed (Fold-A-Tank Not Stowed)</li> <li>• Aerial Not Stowed (Aerial Device Not Stowed)</li> <li>• Stabilizer Not Stowed</li> <li>• Steps Not Stowed</li> <li>• Handrail Not Stowed</li> </ul> <p>Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved shall be displayed as a caution message after the parking brake is disengaged.</p> <p><b><u>SWITCH PANELS</u></b></p> <p>The emergency light switch panel shall have a master switch for ease of use plus individual switches for selective control. Each switch panel shall contain eight (8) membrane-type switches each rated for one million (1,000,000) cycles. Panels containing less than eight (8) switch assignments shall include non-functioning black appliques. Documentation shall be provided by the manufacturer indicating the rated cycle life of the switches. The switch panel(s) shall be located in the overhead position above the windshield on the driver side overhead to allow for easy access.</p> <p>Additional switch panel(s) shall be located in the overhead position(s) above the windshield or in designated locations on the lower instrument panel layout.</p> <p>The switches shall be membrane-type and also act as an integral indicator light. For quick, visual indication the entire surface of the switch shall be illuminated white whenever back lighting is activated and illuminated green whenever the switch is active. An active illuminated switch shall flash when interlock requirements are not met or device is actively being load managed. For ease of use, a two (2)-ply, scratch resistant laser engraved label indicating the use</p>		

	Bidder Complies	
	Yes	No
<p>of each switch shall be placed in the center of the switch. The label shall allow light to pass through the letters for ease of use in low light conditions.</p> <p><b><u>WIPER CONTROL</u></b>  For simple operation and easy reach, the windshield wiper control shall be an integral part of the directional light lever located on the steering column. The wiper control shall include high and low wiper speed settings, a one (1)-speed intermittent wiper control and windshield washer switch. The control shall have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.</p> <p><b><u>HOURLMETER - AERIAL DEVICE</u></b>  An hourmeter for the aerial device shall be provided and located within the cab display or instrument panel.</p> <p><b><u>AERIAL MASTER</u></b>  There shall be a master switch for the aerial operating electrical system provided.</p> <p><b><u>AERIAL PTO SWITCH</u></b>  A PTO switch for the aerial with indicator light shall be provided.</p> <p><b><u>SPARE CIRCUIT</u></b>  There shall be two (2) pair of wires, including a positive and a negative, installed on the apparatus.</p> <p>The above wires shall have the following features:</p> <ul style="list-style-type: none"> <li>• The positive wire shall be connected directly to the battery power</li> <li>• The negative wire shall be connected to ground</li> <li>• Wires shall be protected to 15 amps at 12 volts DC</li> <li>• Power and ground shall terminate officer side dash area</li> <li>• Termination shall be with 15 amp, power point plug with rubber cover</li> <li>• Wires shall be sized to 125 percent of the protection</li> </ul> <p>The circuit(s) may be load managed when the parking brake is set.</p> <p><b><u>INFORMATION CENTER</u></b>  An information center employing a 7.00" diagonal touch screen color LCD display shall be encased in an ABS plastic housing.</p> <p>The information center shall have the following specifications:</p> <ul style="list-style-type: none"> <li>• Operate in temperatures from -40 to 185 degrees Fahrenheit</li> <li>• An Optical Gel shall be placed between the LCD and protective lens</li> </ul>		



	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• Five weather resistant user interface switches</li> <li>• Grey with black accents</li> <li>• Sunlight Readable</li> <li>• Linux operating system</li> <li>• Minimum of 1000nits rated display</li> <li>• Display can be changed to an available foreign language</li> <li>• A LCD display integral to the cab gauge panel shall be included as outlined in the cab instrumentation area.</li> <li>• Programmed to read US Customary</li> </ul> <p><b><u>GENERAL SCREEN DESIGN</u></b></p> <p>Where possible, background colors shall be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background shall be used.</p> <p>If a caution or warning situation arises the following shall occur:</p> <ul style="list-style-type: none"> <li>• An amber background/text color shall indicate a caution condition</li> <li>• A red background/text color shall indicate a warning condition</li> <li>• The information center shall utilize an "Alert Center" to display text messages for audible alarm tones. The text messages shall be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages shall cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" shall change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color shall be shown for all alert center messages.</li> <li>• A label for each button shall exist. The label shall indicate the function for each active button for each screen. Buttons that are not utilized on specific screens shall have a button label with no text or symbol.</li> </ul> <p><b><u>HOME/TRANSIT SCREEN</u></b></p> <p>This screen shall display the following:</p> <ul style="list-style-type: none"> <li>• Vehicle Mitigation (if equipped)</li> <li>• Water Level (if equipped)</li> <li>• Foam Level (if equipped)</li> <li>• Seat Belt Monitoring Screen</li> <li>• Tire Pressure Monitoring (if equipped)</li> <li>• Digital Speedometer</li> <li>• Active Alarms</li> </ul>		

	Bidder Complies	
	Yes	No
<p><b><u>ON SCENE SCREEN</u></b></p> <p>This screen shall display the following and shall be auto activated with pump engaged (if equipped):</p> <ul style="list-style-type: none"> <li>• Battery Voltage</li> <li>• Fuel</li> <li>• Oil Pressure</li> <li>• Coolant Temperature</li> <li>• RPM</li> <li>• Water Level (if equipped)</li> <li>• Foam Level (if equipped)</li> <li>• Foam Concentration (if equipped)</li> <li>• Water Flow Rate (if equipped)</li> <li>• Water Used (if equipped)</li> <li>• Active Alarms</li> </ul> <p><b><u>VIRTUAL BUTTONS</u></b></p> <p>There shall be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.</p> <p><b><u>PAGE SCREEN</u></b></p> <p>The page screen shall display the following and allow the user to progress into other screens for further functionality:</p> <ul style="list-style-type: none"> <li>• Diagnostics <ul style="list-style-type: none"> <li>○ Faults <ul style="list-style-type: none"> <li>▪ Listed by order of occurrence</li> <li>▪ Allows to sort by system</li> </ul> </li> <li>○ Interlock <ul style="list-style-type: none"> <li>▪ Throttle Interlocks</li> <li>▪ Pump Interlocks (if equipped)</li> <li>▪ Aerial Interlocks (if equipped)</li> <li>▪ PTO Interlocks (if equipped)</li> </ul> </li> <li>○ Load Manager <ul style="list-style-type: none"> <li>▪ A list of items to be load managed shall be provided. The list shall provide a description of the load.</li> <li>▪ The lower the priority numbers the earlier the device shall be shed should a low voltage condition occur.</li> <li>▪ The screen shall indicate if a load has been shed (disabled) or not shed.</li> <li>▪ "At a glance" color features are utilized on this screen.</li> </ul> </li> </ul> </li> </ul>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>○ Systems <ul style="list-style-type: none"> <li>▪ Command Zone <ul style="list-style-type: none"> <li>• Module type and ID number</li> <li>• Module Version</li> <li>• Input or output number</li> <li>• Circuit number connected to that input or output</li> <li>• Status of the input or output</li> <li>• Power and Constant Current module diagnostic information</li> </ul> </li> <li>▪ Foam (if equipped)</li> <li>▪ Pressure Controller (if equipped)</li> <li>▪ Generator Frequency (if equipped)</li> </ul> </li> <li>○ Live Data <ul style="list-style-type: none"> <li>▪ General Truck Data</li> </ul> </li> <li>• Maintenance <ul style="list-style-type: none"> <li>○ Engine oil and filter</li> <li>○ Transmission oil and filter</li> <li>○ Pump oil (if equipped)</li> <li>○ Foam (if equipped)</li> <li>○ Aerial (if equipped)</li> </ul> </li> <li>• Setup <ul style="list-style-type: none"> <li>○ Clock Setup</li> <li>○ Date &amp; Time <ul style="list-style-type: none"> <li>▪ 12 or 24 hour format</li> <li>▪ Set time and date</li> </ul> </li> <li>○ Backlight <ul style="list-style-type: none"> <li>▪ Daytime</li> <li>▪ Night time</li> <li>▪ Sensitivity</li> </ul> </li> <li>○ Unit Selection</li> <li>○ Home Screen</li> <li>○ Virtual Button Setup</li> <li>○ On Scene Screen Setup</li> <li>○ Configure Video Mode <ul style="list-style-type: none"> <li>▪ Set Video Contrast</li> <li>▪ Set Video Color</li> <li>▪ Set Video Tint</li> </ul> </li> </ul> </li> <li>• Do Not Move</li> </ul>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>○ The screen shall indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices shall be indicate <ul style="list-style-type: none"> <li>▪ Driver Side Cab Door</li> <li>▪ Passenger's Side Cab Door</li> <li>▪ Driver Side Crew Cab Door</li> <li>▪ Passenger's Side Crew Cab Door</li> <li>▪ Driver Side Body Doors</li> <li>▪ Passenger's Side Body Doors</li> <li>▪ Rear Body Door(s)</li> <li>▪ Ladder Rack (if applicable)</li> <li>▪ Deck Gun (if applicable)</li> <li>▪ Light Tower (if applicable)</li> <li>▪ Hatch Door (if applicable)</li> <li>▪ Stabilizers (if applicable)</li> <li>▪ Steps (if applicable)</li> </ul> </li> <li>• Notifications <ul style="list-style-type: none"> <li>○ View Active Alarms <ul style="list-style-type: none"> <li>▪ Shows a list of all active alarms including date and time of the occurrence is shown with each alarm</li> <li>▪ Silence Alarms - All alarms are silenced</li> </ul> </li> </ul> </li> <li>• Timer Screen</li> <li>• HVAC (if equipped)</li> <li>• Tire Information (if equipped)</li> <li>• Aerial Set Up Confirmation (if equipped)</li> </ul> <p>Button functions and button labels may change with each screen.</p> <p><b><u>VEHICLE DATA RECORDER</u></b></p> <p>There shall be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.</p> <p>The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.</p> <p>The vehicle data recorder shall be capable of recording the following data via hardwired and/or CAN inputs:</p> <ul style="list-style-type: none"> <li>• Vehicle Speed - MPH</li> </ul>		

Bidder Complies	
Yes	No

- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle
- ABS Event - On/Off
- Seat Occupied Status - Yes/No by Position
- Seat Belt Buckled Status - Yes/No by Position
- Master Optical Warning Device Switch - On/Off
- Time - 24 Hour Time
- Date - Year/Month/Day

**Seat Belt Monitoring System**

A seat belt monitoring system (SBMS) shall be provided on the color display. The SBMS shall be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:

- Seat Occupied & Buckled = Green LED indicator illuminated
- Seat Occupied & Unbuckled = Red LED indicator with audible alarm
- No Occupant & Buckled = Red LED indicator with audible alarm
- No Occupant & Unbuckled = No indicator and no alarm

The seat belt monitoring screen shall become active on the color display when:

- The home screen is active:
  - and there is any occupant seated but not buckled or any belt buckled with an occupant.
  - and there are no other Do Not Move Apparatus conditions present. As soon as all Do Not Move Apparatus conditions are cleared, the SBMS shall be activated.

The SBMS shall include an audible alarm that shall warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.

**RADIO ANTENNA MOUNT**

There shall be one (1) standard 1.125", 18 thread antenna-mounting base(s) installed on the right side on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the instrument panel area. A weatherproof cap shall be installed on the mount.

**VEHICLE CAMERA SYSTEM**

There shall be a color vehicle camera system provided with the following:

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse</li> </ul> <p>The camera images shall be displayed on the driver's color display. Audio from the microphone on the active camera shall be not provided.</p> <p>The following components shall be included:</p> <ul style="list-style-type: none"> <li>One (1) camera</li> <li>One (1) amplified speaker (if applicable)</li> <li>All necessary cables</li> </ul> <p><b><u>ELECTRICAL POWER CONTROL SYSTEM</u></b></p> <p>The primary power distribution shall be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers shall be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers shall be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers shall be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays shall be easily accessible.</p> <p>Distribution centers located throughout the vehicle shall contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.</p> <p>Circuit protection devices, which conform to SAE standards, shall be utilized to protect electrical circuits. All circuit protection devices shall be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers shall be Type-I automatic reset (continuously resetting). When required, automotive type fuses shall be utilized to protect electronic equipment. Control relays and solenoid shall have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.</p> <p><b><u>SOLID-STATE CONTROL SYSTEM</u></b></p> <p>A solid-state electronics based control system shall be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network shall consist of electronic modules located near their point of use to reduce harness lengths and improve reliability. The control system shall comply with SAE J1939-11 recommended practices.</p> <p>The control system shall operate as a master-slave system whereas the main control module instructs all other system components. The system shall contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error.</p>		

	Bidder Complies	
	Yes	No
<p>The system shall utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership.</p> <p>For increased reliability and simplified use the control system modules shall include the following attributes:</p> <ul style="list-style-type: none"> <li>• Green LED indicator light for module power</li> <li>• Red LED indicator light for network communication stability status</li> <li>• Control system self test at activation and continually throughout vehicle operation</li> <li>• No moving parts due to transistor logic</li> <li>• Software logic control for NFPA mandated safety interlocks and indicators</li> <li>• Integrated electrical system load management without additional components</li> <li>• Integrated electrical load sequencing system without additional components</li> <li>• Customized control software to the vehicle's configuration</li> <li>• Factory and field re programmable to accommodate changes to the vehicle's operating parameters</li> <li>• Complete operating and troubleshooting manuals</li> <li>• USB connection to the main control module for advanced troubleshooting</li> </ul> <p>To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules shall meet the following specifications:</p> <ul style="list-style-type: none"> <li>• Module circuit board shall meet SAE J771 specifications</li> <li>• Operating temperature from -40C to +70C</li> <li>• Storage temperature from -40C to +70C</li> <li>• Vibration to 50g</li> </ul> <p>IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)</p> <p>Operating voltage from eight (8) volts to 16 volts DC</p> <p>The main controller shall activate status indicators and audible alarms designed to provide warning of problems before they become critical.</p> <p><b><u>CIRCUIT PROTECTION AND CONTROL DIAGRAM</u></b></p> <p>Copies of all job-specific, computer network input and output (I/O) connections shall be provided with each chassis. The sheets shall indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>ON-BOARD ADVANCED/VISUAL ELECTRICAL SYSTEM DIAGNOSTICS</u></b></p> <p>The on-board information center shall include the following diagnostic information:</p> <ul style="list-style-type: none"> <li>• Text description of active warning or caution alarms</li> <li>• Simplified warning indicators</li> <li>• Amber caution indication with intermittent alarm</li> <li>• Red warning indication with steady tone alarm</li> </ul> <p>All control system modules, with the exception of the main control module, shall contain on-board visual diagnostic LEDs that assist in troubleshooting. The LEDs shall be enclosed within the sealed, transparent module housing near the face of the module. One LED for each input or output shall be provided and shall illuminate whenever the respective input or output is active. Color-coded labels within the modules shall encompass the LEDs for ease of identification. The LED indicator lights shall provide point of use information for reduced troubleshooting time without the need for an additional computer.</p> <p><b><u>TECH MODULE WITH WIFI</u></b></p> <p>An in cab module will provide WiFi wireless interface and data logging capability (no exception). The WiFi interface will comply with IEEE 802.11 b/g/n capabilities while communicating at 2.4 Gigahertz. The module will provide an external antenna connection allowing a line of site communication range of up to 300 feet with a roof mounted antenna.</p> <p>The module will transmit a password protected web page to a WiFi enabled device (i.e. most smart phones, tablets or laptops) allowing two levels of user interaction. The firefighter level will allow vehicle monitoring of the vehicle and firefighting systems on the apparatus. The technician level will allow diagnostic access to inputs and outputs installed on the control and information system.</p> <p>The data logging capability will record faults from the engine, transmission, ABS and control and information systems as they occur. No other data will be recorded at the time the fault occurs. The data logger will provide up to 2 Gigabytes of data storage.</p> <p>A USB connection will be provided on the Tech Module. It will provide a means to download data logger information and update software in the device.</p> <p><b><u>PROGNOSTICS</u></b></p> <p>A software based vehicle tool shall be provided to predict remaining life of the vehicles critical fluid and events (no exception).</p> <p>The system shall send automatic indications to the color display and/or wireless enabled device to proactively alert of upcoming service intervals.</p>		



	Bidder Complies	
	Yes	No
<p>Prognostics shall include:</p> <ul style="list-style-type: none"> <li>• Engine oil and filter</li> <li>• Transmission oil and filter</li> <li>• Pump oil (if equipped)</li> <li>• Foam oil (if equipped)</li> <li>• Aerial oil and filter (if equipped)</li> </ul> <p><b><u>ADVANCED DIAGNOSTICS</u></b></p> <p>An advanced, Windows-based, diagnostic software program shall be provided for this control system. The software shall provide troubleshooting tools to service technicians equipped with a Windows-based computer or wireless enabled device.</p> <p>The service and maintenance software shall be easy to understand and use and have the ability to view system input/output (I/O) information.</p> <p><b><u>INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM</u></b></p> <p>A system shall be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.</p> <p><b><u>VOLTAGE MONITOR SYSTEM</u></b></p> <p>A voltage monitoring system shall be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system shall provide visual and audible warning when the system voltage is below or above optimum levels.</p> <p>The alarm shall activate if the system falls below 11.8 volts DC for more than two (2) minutes.</p> <p><b><u>DEDICATED RADIO EQUIPMENT CONNECTION POINTS</u></b></p> <p>There shall be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment.</p> <ul style="list-style-type: none"> <li>• The studs shall consist of the following: <ul style="list-style-type: none"> <li>• 12-volt 40-amp battery switched power</li> <li>• 12-volt 60-amp ignition switched power</li> <li>• 12-volt 60-amp direct battery power</li> </ul> </li> </ul> <p>There shall also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.</p> <p><b><u>ENHANCED SOFTWARE</u></b></p> <p>The solid-state control system shall include the following software enhancements:</p>		

	Bidder Complies	
	Yes	No
<p>All perimeter lights and scene lights (where applicable) shall be deactivated when the parking brake is released.</p> <p>Cab and crew cab dome lights shall remain on for ten (10) seconds for improved visibility after the doors close. The dome lights shall dim after ten (10) seconds or immediately if the vehicle is put into gear.</p> <p>Cab and crew cab perimeter lights shall remain on for ten (10) seconds for improved visibility after the doors close. The dome lights shall dim after ten (10) seconds or immediately if the vehicle is put into gear.</p> <p><b><u>EMI/RFI PROTECTION</u></b></p> <p>To prevent erroneous signals from crosstalk contamination and interference, the electrical system shall meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system shall be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.</p> <p>The apparatus shall have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system shall meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, shall provide EMC testing reports from testing conducted on an entire apparatus and shall certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements. Component and partial (incomplete) vehicle testing is not adequate as overall vehicle design can impact test results and thus is not acceptable by itself.</p> <p>EMI/RFI susceptibility shall be controlled by applying appropriate circuit designs and shielding. The electrical system shall be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing shall be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.</p> <p><b><u>ELECTRICAL</u></b></p> <p>All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern automotive practices. All wiring shall be high temperature crosslink type. Wiring shall be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers shall be provided which conform to SAE Standards. Wiring shall be color, function and number coded. Function and number codes shall be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors shall be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.</p>		

	Bidder Complies	
	Yes	No
<p>Electrical wiring and equipment shall be installed utilizing the following guidelines:</p> <ol style="list-style-type: none"> <li>1. All holes made in the roof shall be caulked with silicon, rope caulk is not acceptable. Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof.</li> <li>2. Any electrical component that is installed in an exposed area shall be mounted in a manner that shall not allow moisture to accumulate in it. Exposed area shall be defined as any location outside of the cab or body.</li> <li>3. Electrical components designed to be removed for maintenance shall not be fastened with nuts and bolts. Metal screws shall be used in mounting these devices. Also a coil of wire shall be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.</li> <li>4. Corrosion preventative compound shall be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections shall require this compound in the plug to prevent corrosion and for easy separation (of the plug).</li> <li>5. All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.</li> <li>6. All electrical terminals in exposed areas shall have silicon (1890) applied completely over the metal portion of the terminal.</li> </ol> <p>All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, shall be furnished. Rear identification lights shall be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads shall be protected from damage by installing a false bulkhead inside the rear compartments.</p> <p>An operational test shall be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.</p> <p>The results of the tests shall be recorded and provided to the purchaser at time of delivery.</p> <p><b><u>BATTERY SYSTEM</u></b></p> <p>There shall be six (6) 12 volt batteries that include the following features shall be provided:</p> <ul style="list-style-type: none"> <li>• 950 CCA, cold cranking amps</li> <li>• 190 amp reserve capacity</li> <li>• High cycle</li> <li>• Group 31</li> <li>• Rating of 5700 CCA at 0 degrees Fahrenheit</li> <li>• -140 minutes of reserve capacity</li> <li>• Threaded stainless steel studs</li> </ul>		

	Bidder Complies	
	Yes	No
<p>Each battery case shall be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover shall be manifold vented with a central venting location to allow a 45 degree tilt capacity.</p> <p>The inside of each battery shall consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.</p> <p><b><u>BATTERY SYSTEM</u></b></p> <p>There shall be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.</p> <p><b><u>MASTER BATTERY SWITCH</u></b></p> <p>There shall be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.</p> <p>An indicator light shall be provided on the instrument panel to notify the driver of the status of the battery system.</p> <p><b><u>BATTERY COMPARTMENTS</u></b></p> <p>The batteries shall be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments shall be constructed of 3/16" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The compartments shall include formed fit heavy-duty roto-molded polyethylene battery tray inserts with drains on each side of the frame rails. The batteries shall be mounted inside of the roto-molded trays.</p> <p><b><u>JUMPER STUDS</u></b></p> <p>One (1) set of battery jumper studs with plastic color-coded covers shall be installed on the battery box on the driver's side. This shall allow enough room for easy jumper cable access.</p> <p><b><u>BATTERY CHARGER</u></b></p> <p>There shall be a battery charger with controller provided.</p> <p>The battery charger shall be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.</p> <p>There shall be a remote indicator included.</p> <p>Battery charger shall be located in the crew cab seat riser.</p> <p>The battery charger indicator shall be located behind the driver's door on the outside of the cab.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>AUTO EJECT FOR SHORELINE</u></b></p> <p>There shall be one (1) 20 amp 120 volt AC shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus.</p> <p>The shoreline inlet(s) shall include red weatherproof flip up cover(s).</p> <p>There shall be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.</p> <p>The shoreline(s) shall be connected to the battery charger.</p> <p>There shall be a mating connector body supplied with the loose equipment.</p> <p>There shall be a label installed near the inlet(s) that state the following:</p> <ul style="list-style-type: none"> <li>• Line Voltage</li> <li>• Current Rating (amps)</li> <li>• Phase</li> <li>• Frequency</li> </ul> <p>The shoreline receptacle shall be located on the driver side of cab, above wheel.</p> <p><b><u>ALTERNATOR</u></b></p> <p>An alternator shall be provided that has a rated output current of 430 amps, as measured by SAE method J56. The alternator shall feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator shall be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.</p> <p><b><u>ELECTRONIC LOAD MANAGER</u></b></p> <p>An electronic load management (ELM) system shall be provided that monitors the vehicles 12-volt electrical system, automatically reducing the electrical load in the event of a low voltage condition, and automatically restoring the shed electrical loads when a low voltage condition expires. This ensures the integrity of the electrical system.</p> <p>For improved reliability and ease of use, the load manager system shall be an integral part of the vehicle's solid state control system requiring no additional components to perform load management tasks. Load management systems which require additional components shall not be allowed.</p> <p>The system shall include the following features:</p> <ul style="list-style-type: none"> <li>• System voltage monitoring.</li> </ul>		

Bidder Complies	
Yes	No

- A shed load shall remain inactive for a minimum of five minutes to prevent the load from cycling on and off.
- Sixteen available electronic load shedding levels.
- Priority levels can be set for individual outputs.
- High Idle to activate before any electric loads are shed and deactivate with the service brake.
  - If enabled:
    - "Load Man Hi-Idle On" shall display on the information center.
    - Hi-Idle shall not activate until 30 seconds after engine start up.
- Individual switch "on" indicator to flash when the particular load has been shed.
- The information center indicates system voltage.

The information center, where applicable, includes a "Load Manager" screen indicating the following:

- Load managed items list, with priority levels and item condition.
- Individual load managed item condition:
  - ON = not shed
  - SHED = shed

**SEQUENCER**

A sequencer shall be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation shall allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12 volt load to prolong the life of the alternator.

For improved reliability and ease of use, the load sequencing system shall be an integral part of the vehicle's solid state control system requiring no additional components to perform load sequencing tasks. Load sequencing systems which require additional components shall not be allowed.

Emergency light sequencing shall operate in conjunction with the emergency master light switch. When the emergency master switch is activated, the emergency lights shall be activated one by one at half-second intervals. Sequenced emergency light switch indicators shall flash while waiting for activation.

When the emergency master switch is deactivated, the sequencer shall deactivate the warning light loads in the reverse order.

Sequencing of the following items shall also occur, in conjunction with the ignition switch, at half-second intervals:

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• Cab Heater and Air Conditioning</li> <li>• Crew Cab Heater (if applicable)</li> <li>• Crew Cab Air Conditioning (if applicable)</li> <li>• Exhaust Fans (if applicable)</li> <li>• Third Evaporator (if applicable)</li> </ul> <p><b><u>HEADLIGHTS</u></b></p> <p>There shall be four (4) rectangular LED lights mounted in the front quad style, chrome trim housing on each side of the cab grille:</p> <ul style="list-style-type: none"> <li>• The outside light on each side shall contain an LED low beam module.</li> <li>• The inside light on each side shall contain an LED high beam module.</li> </ul> <p><b><u>DIRECTIONAL LIGHTS</u></b></p> <p>There shall be two (2) LED combination directional/marker lights provided. The lights shall be located on the outside cab corners, next to the headlights.</p> <p>The color of the lenses shall be clear.</p> <p><b><u>INTERMEDIATE LIGHT</u></b></p> <p>There shall be two (2) amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light shall double as a turn signal and marker light.</p> <p><b><u>REAR CLEARANCE/MARKER/ID LIGHTING</u></b></p> <p>There shall be three (3) LED identification lights located at the rear installed per the following:</p> <ul style="list-style-type: none"> <li>• As close as practical to the vertical centerline</li> <li>• Centers spaced not less than 6.00" or more than 12.00" apart</li> <li>• Red in color</li> <li>• All at the same height</li> </ul> <p>There shall be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:</p> <ul style="list-style-type: none"> <li>• To indicate the overall width of the vehicle</li> <li>• One (1) each side of the vertical centerline</li> <li>• As near the top as practical</li> <li>• Red in color</li> <li>• To be visible from the rear</li> <li>• All at the same height</li> </ul>		

	Bidder Complies	
	Yes	No
<p>There shall be two (2) LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:</p> <ul style="list-style-type: none"> <li>• To indicate the overall length of the vehicle</li> <li>• One (1) each side of the vertical centerline</li> <li>• As near the top as practical</li> <li>• Red in color</li> <li>• To be visible from the side</li> <li>• All at the same height</li> </ul> <p>The lights shall be mounted with no guard.</p> <p>There shall be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.</p> <p>There shall be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.</p> <p>Per FMVSS 108 and CMVSS 108 requirements.</p> <p><b><u>CAB CLEARANCE/MARKER/ID LIGHTS</u></b></p> <p>There shall be seven (7) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:</p> <ul style="list-style-type: none"> <li>• Three (3) amber LED identification lights shall be installed in the center of the cab above the windshield.</li> <li>• Two (2) amber LED clearance lights shall be installed, one (1) on each outboard side of the cab above the windshield.</li> <li>• Two (2) amber LED marker lights shall be installed, one (1) on each side above the cab doors.</li> </ul> <p><b><u>MARKER LIGHTS</u></b></p> <p>There shall be one (1) pair of amber and red LED marker lights with rubber arm, located at the rear lower corner of the body. The amber lens shall face the front and the red lens shall face the rear of the truck.</p> <p>These lights shall be activated with the running lights of the vehicle.</p> <p><b><u>REAR FMVSS LIGHTING</u></b></p> <p>The rear stop/tail and directional LED lighting shall consist of the following:</p>		



	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• Two (2) red LED stop/tail lights</li> <li>• Two (2) amber LED arrow turn lights</li> </ul> <p>The lights shall be provided with clear lenses.</p> <p>The lights shall be mounted in a polished combination housing.</p> <p>There shall be two (2) LED backup lights provided in the tail light housing.</p> <p><b><u>LICENSE PLATE BRACKET</u></b></p> <p>There shall be one (1) license plate bracket mounted on the rear of the body.</p> <p>A white LED light shall illuminate the license plate. A polished stainless steel light shield shall be provided over the light that shall direct illumination downward, preventing white light to the rear.</p> <p><b><u>LIGHTING BEZEL</u></b></p> <p>There shall be two (2) four (4) place chromed ABS housings provided for the rear stop/tail, directional, back up, scene lights or warning lights.</p> <p><b><u>BACK-UP ALARM</u></b></p> <p>A solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse shall be provided. The device shall sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.</p> <p><b><u>CAB PERIMETER SCENE LIGHTS</u></b></p> <p>There shall be four (4) 20.00" white LED strip lights provided, one (1) for each cab door.</p> <p>These lights shall be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.</p> <p><b><u>PUMP HOUSE PERIMETER LIGHTS</u></b></p> <p>There shall be one (1) 20.00" LED weatherproof strip light with bracket provided under the passenger's side pump panel running board.</p> <p>The light shall be controlled by the same means as the body perimeter lights.</p> <p><b><u>BODY PERIMETER SCENE LIGHTS</u></b></p> <p>There shall be two (2) 20.00" 12 volt DC LED strip lights provided.</p> <p>The lights shall be mounted in the following locations:</p> <ul style="list-style-type: none"> <li>• One (1) light under the driver's side turntable access steps</li> <li>• One (1) light under the passenger's side turntable access steps</li> </ul>		

	Bidder Complies	
	Yes	No
<p>The perimeter scene lights shall be activated when the parking brake is applied.</p> <p><b><u>STEP LIGHTS</u></b></p> <p>Two (2) LED step lights shall be provided, one (1) on each side of the front body.</p> <p>In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.</p> <p>The lights shall be actuated with the pump panel light switch.</p> <p>All other steps on the apparatus shall be illuminated per the current edition of NFPA 1901.</p> <p><b><u>12 VOLT LIGHT BRACKET</u></b></p> <p>There shall be two (2) aluminum treadplate bracket(s) installed one each side mounted above D2 &amp; P2 for the recessed flood light. The bracket(s) shall have all wiring totally enclosed.</p> <p><b><u>12 VOLT LIGHTING</u></b></p> <p>There shall be one (1) 12 volt surface mounted LED combination spot/flood light(s) located mounted in 4-way aluminum box above compartment P2.. The lights shall be mounted with chrome flange(s).</p> <p>The light(s) selected above shall be controlled by the following:</p> <ul style="list-style-type: none"> <li>• from the same switches provided to activate other scene lights</li> <li>• no additional switch location</li> <li>• no additional switch location</li> <li>• no additional switch location</li> </ul> <p>These light(s) may be load managed when the parking brake is set.</p> <p><b><u>12 VOLT LIGHTING</u></b></p> <p>There shall be one (1) 12 volt surface mounted LED combination spot/flood light(s) located mounted behind driver side crew cab door, high as possible.. The lights shall be mounted with chrome flange(s).</p> <p>The light(s) selected above shall be controlled by the following:</p> <ul style="list-style-type: none"> <li>• a switch at the driver's side switch panel</li> <li>• no additional switch location</li> <li>• no additional switch location</li> <li>• no additional switch location</li> </ul>		

	Bidder Complies	
	Yes	No
<p>These light(s) may be load managed when the parking brake is set.</p> <p><b><u>12 VOLT LIGHTING</u></b></p> <p>There shall be one (1) 12 volt surface mounted LED combination spot/flood light(s) located mounted behind passenger side crew cab door, high as possible. The lights shall be mounted with chrome flange(s).</p> <p>The light(s) selected above shall be controlled by the following:</p> <ul style="list-style-type: none"> <li>• a switch at the driver's side switch panel</li> <li>• no additional switch location</li> <li>• no additional switch location</li> <li>• no additional switch location</li> </ul> <p>These light(s) may be load managed when the parking brake is set.</p> <p><b><u>12 VOLT LIGHTING</u></b></p> <p>There shall be one (1) 12 volt surface mounted LED combination spot/flood light(s) located mounted in 4-way aluminum box above compartment D2.. The lights shall be mounted with chrome flange(s).</p> <p>The light(s) selected above shall be controlled by the following:</p> <ul style="list-style-type: none"> <li>• from the same switches provided to activate other scene lights</li> <li>• no additional switch location</li> <li>• no additional switch location</li> <li>• no additional switch location</li> </ul> <p>These light(s) may be load managed when the parking brake is set.</p> <p><b><u>12 VOLT LIGHTING</u></b></p> <p>There shall be one (1) 16,200 lumens 12 volt DC LED light(s) provided on the front visor, centered.</p> <p>The painted parts of this light assembly to be white.</p> <p>The light(s) shall be controlled by a switch at the driver's side switch panel.</p> <p>These light(s) may be load managed when the parking brake is applied.</p> <p><b><u>DECK LIGHTS</u></b></p> <p>There shall be two (2) 12 volt DC LED floodlights with swivel mount provided at the rear of the hose bed, one (1) each side.</p>		

	Bidder Complies	
	Yes	No
<p>The lights shall be activated by a control from a switch at the rear of the truck and a switch located at the driver side switch panel.</p> <p><b><u>WALKING SURFACE LIGHT</u></b></p> <p>There shall be 4" round black 12 volt DC LED floodlight with bolt mount provided to illuminate the entire designated walking surface on top of the body.</p> <p>The light shall be activated when the body step lights are on.</p> <p><b><u>WATER TANK</u></b></p> <p>It shall have a capacity of 500 gallons and shall be constructed of polypropylene plastic in a rectangular shape.</p> <p>The joints and seams shall be nitrogen welded inside and out.</p> <p>The tank shall be baffled in accordance with NFPA Bulletin 1901 requirements.</p> <p>The baffles shall have vent openings at both the top and bottom of each baffle to permit movement of air and water between compartments.</p> <p>The longitudinal partitions shall be constructed of .38" polypropylene plastic and extend from the bottom of the tank through the top cover to allow positive welding.</p> <p>The transverse partitions extend from 4" off the bottom to the underside of the top cover.</p> <p>All partitions interlock and shall be welded to the tank bottom and sides.</p> <p>The tank top shall be constructed of .50" polypropylene.</p> <p>It shall be recessed .38" and shall be welded to the tank sides and the longitudinal partitions.</p> <p>It shall be supported to keep it rigid during fast filling conditions.</p> <p>Construction shall include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions.</p> <p>Two of the dowels shall be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes.</p> <p>A sump shall be provided at the bottom of the water tank. The sump shall include a drain plug and the tank outlet.</p> <p>Tank shall be installed in a fabricated "cradle" assembly constructed of structural steel.</p> <p>Sufficient crossmembers are provided to properly support bottom of tank.</p>		

	Bidder Complies	
	Yes	No
<p>Crossmembers are constructed of steel bar channel or rectangular tubing.</p> <p>Tank "floats" in cradle to avoid torsional stress caused by chassis frame flexing.</p> <p>Rubber cushions, .50" thick x 3.00" wide, shall be placed on all horizontal surfaces that the tank rests on.</p> <p>Stops are provided to prevent an empty tank from bouncing excessively while moving vehicle.</p> <p>Tank mounting system is approved by the manufacturer.</p> <p>Fill tower shall be constructed of .50" polypropylene and shall be a minimum of 8.00" wide x 14.00" long.</p> <p>Fill tower shall be furnished with a .25" thick polypropylene screen and a hinged cover.</p> <p>An overflow pipe, constructed of 4.00" schedule 40 polypropylene, shall be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.</p> <p><b><u>HOSE BED</u></b></p> <p>The hose bed shall be fabricated of 0.125" thick 5052-H32 aluminum with a tensile strength range of 31,000 to 38,000 psi. The sides of the hose bed shall not form any portion of the fender compartments. The upper and rear edges of the hose bed side panels shall have a double break for rigidity. The hose bed shall be located ahead of the ladder turntable, between the tank and the side compartments.</p> <p>There shall be one (1) hose chute to the rear of the hose bed, on the passenger side, to allow for payout/removal of the hose. The hose chute shall be enclosed with a full-height smooth aluminum door and a spring-loaded hinge at the top of the door.</p> <p>The hose bed flooring shall consist of removable aluminum grating with a top surface that is corrugated to aid in hose aeration. The grating slats shall be 0.50" wide x 4.50" long with spacing between the slats for hose ventilation.</p> <p>Hose capacity shall be a minimum of 1000' of 5.00" large diameter hose.</p> <p><b><u>AERIAL HOSE BED HOSE RESTRAINT</u></b></p> <p>The hose in the hose bed shall be restrained by one (1) black nylon hook and loop strap at the top of the hose bed. The strap shall be installed to the top of the hose bed side sheets.</p> <p><b><u>RUNNING BOARDS</u></b></p> <p>The running boards shall be fabricated of aluminum grating, with a serrated top edge, supported by structural steel angle assemblies bolted to the chassis frame rails.</p>		

	Bidder Complies	
	Yes	No
<p>Running boards shall be 12.75" deep and are spaced away from the body .50".</p> <p>A riser shall be installed on the body to protect the painted surface from damage by stepping on the running boards.</p> <p>The entire outer edge of the stepping surface shall be covered with bright aluminum treadplate.</p> <p><b><u>TURNTABLE STEPS</u></b></p> <p>Steps to access the turntable from the driver side and passenger side shall be provided just behind the compartmentation.</p> <p>The steps shall be a swing-down design, with the stepping area made of non-slip material.</p> <p>The step height for the bottom step (the distance from the top surface of the step to the ground) shall not exceed 24.00" with the step in its extended position.</p> <p>No step height (the distance between the top surfaces of any two (2) adjacent steps) shall be greater than 14.00".</p> <p>The stepwell shall be lined with bright aluminum treadplate to act as scuffplates.</p> <p>The steps shall be connected to the "Do Not Move Truck" indicator.</p> <p>A handrail shall be provided on each side of the access steps.</p> <p><b><u>STEP LIGHTS</u></b></p> <p>There shall be three (3) LED step lights provided for each set of aerial turntable access steps.</p> <p>In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.</p> <p>The step lights shall be actuated by the aerial master switch in the cab.</p> <p><b><u>SMOOTH ALUMINUM REAR WALL</u></b></p> <p>The rear wall shall be smooth aluminum.</p> <p><b><u>TOW EYES</u></b></p> <p>Two (2) rear painted tow eyes shall be located at the rear of the apparatus and shall be mounted directly to the torque box. The inner and outer edges of the tow eyes shall be radiused.</p> <p><b><u>COMPARTMENTATION</u></b></p> <p>Compartmentation shall be fabricated of 0.125" 5052 aluminum. The side compartments are an integral assembly with the rear fenders. Fully enclosed rear wheel housings shall be provided to</p>		

	Bidder Complies	
	Yes	No
<p>prevent rust pockets and for ease of maintenance. Due to the severe loading requirements of this aerial, a method of compartment body support suitable for the intended load shall be provided.</p> <p>The backbone of the support system shall be the chassis frame rail, which is the strongest component of the chassis and is designed for sustaining maximum loads.</p> <p>A support system shall be used which shall incorporate a floating substructure by using Neoprene Elastomer isolators to allow the body to remain rigid while the chassis goes through its natural flex. The isolators shall have a broad range of proven viability in vehicular applications, be of a fail safe design, and allow for all necessary movement in three (3) transitional and rotational modes. This shall result in a 500 lb equipment rating for each lower compartment of the body.</p> <p>The compartmentation in front of the rear axle shall include a 3.00" steel support assemblies which are bolted to the chassis frame rails. A steel framework shall be mounted to the body above these support assemblies connected to the support assemblies with isolators. There shall be one (1) support assembly mounted to each chassis frame rail.</p> <p>The compartmentation behind the rear axle shall include 3.00" steel support assemblies which are bolted to the chassis frame rails and extend underneath to the outside edge of the body. The support assembly shall be coated to isolate the dissimilar metals before it is bolted to the body. There shall be one (1) support assembly mounted to each chassis frame rail.</p> <p>A design with body compartments hanging off of the chassis frame in an unsupported fashion shall not be acceptable.</p> <p>Compartment flooring shall be of the sweep out design with the floor higher than the compartment door lip. The compartment door openings are framed by flanging the edges in 1.75" and bending out again 0.75" to form an angle. Drip protection is provided over all door openings by means of bright aluminum extrusion or formed bright aluminum treadplate. Side compartment tops shall be covered with bright aluminum treadplate with a 1.00" rolled over edge on the front, rear and outward side. The covers are fabricated in one (1) piece and have the corners welded. A bright aluminum treadplate cover shall be provided on the front wall of each side compartment. All screws and bolts which protrude into a compartment shall have acorn nuts at the ends to prevent injury.</p> <p>The body design has been fully tested. Proven engineering and test techniques such as finite element analysis, model analysis, stress coating and strain gauging have been performed with special attention given to fatigue life and structural integrity of the compartment body and substructure.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>AGGRESSIVE WALKING SURFACE</u></b></p> <p>All exterior surfaces designated as stepping, standing, and walking areas shall comply with the required average slip resistance of the current NFPA standards.</p> <p><b><u>LOUVERS</u></b></p> <p>All body compartments shall have a minimum of one (1) set of louvers stamped into a wall to provide the proper airflow inside the compartment and to prevent water from dripping into the compartment. These louvers shall be formed into the metal and not added to the compartment as a separate plate.</p> <p><b><u>DRIVER SIDE COMPARTMENTATION</u></b></p> <p>A full height roll-up door compartment ahead of the rear wheels shall be 41.75" wide x 64.00" high x 24.25" deep inside with an clear door opening of 38.75" wide x 56.38" high.</p> <p>One (1) roll-up door compartment above the fender compartments and over the rear axles shall be provided. The compartment shall be 72.13" wide x 33.25" high x 24.25" deep inside with a clear door opening of 63.75" wide x 25.50" high.</p> <p>A compartment with a single pan stainless steel door shall be located above the front stabilizer. The compartment shall be 23.00" high x 18.00" wide x 24.25" deep with a door opening of 15.75" high x 12.00" wide.</p> <p>A full height roll-up door compartment behind the rear wheels shall be 43.75" wide x 49.25" high x 21.25" deep. The clear door opening shall be 40.75" wide x 41.62" high.</p> <p>One (1) lift-up door compartment below the turntable shall be provided. The compartment shall be 39.38" wide x 18.38" high x 21.25" deep inside with a door opening of 35.00" wide x 14.88" high.</p> <p><b><u>PASSENGER SIDE COMPARTMENTATION</u></b></p> <p>A full height roll-up door compartment ahead of the rear wheels shall be 41.75" wide x 56.38" high x 24.25" deep inside the lower 29.75" and 12.00" deep inside the upper portion with a clear door opening of 38.75" wide x 56.38" high.</p> <p>One (1) roll-up door compartment shall be provided above the fender compartments and over the rear axles. The compartment shall be 72.13" wide x 33.25" high x 12.00" deep inside with a clear door opening of 63.75" wide x 25.50" high.</p> <p>A compartment with a single pan stainless steel door shall be located above the front stabilizer. The compartment shall be 18.00" wide x 23.00" high x 12.00" deep with a door opening of 12.00" wide x 15.75" high.</p>		



	Bidder Complies	
	Yes	No
<p>A full height roll-up door compartment behind the rear wheels shall be approximately 43.75" wide x 49.25" high x 21.25" deep inside the lower 29.75" and 12.00" deep in the upper portion. The clear door opening shall be approximately 40.75" wide x 41.62" high.</p> <p>One (1) compartment below the turntable with a lift-up door shall be approximately 39.38" wide x 18.38" high x 12.00" deep inside with a door opening of approximately 35.00" wide x 14.88" high.</p> <p><b><u>ROLL-UP DOOR, SIDE COMPARTMENTS</u></b></p> <p>There shall be six (6) compartment doors installed on the side compartments. The doors shall be double faced aluminum construction, and painted one (1) color to match the lower portion of the body.</p> <p>Lath sections shall be an interlocking rib design and shall be individually replaceable without complete disassembly of door.</p> <p>Between each slat at the pivoting joint shall be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals shall allow door to operate in extreme temperatures ranging from plus 180 to minus 40 degrees Fahrenheit. Side, top and bottom seals shall be provided to resist ingress of dirt and weather and be made of Santoprene.</p> <p>All hinges, barrel clips and end pieces shall be nylon 66. All nylon components shall withstand temperatures from plus 300 to minus 40 degrees Fahrenheit. Hardened plastic shall not be acceptable.</p> <p>A polished stainless steel lift bar to be provided for each roll-up door. Lift bar shall be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge shall be supplied over lift bar for additional area to aid in closing the door.</p> <p>Doors shall be constructed from an aluminum box section. The exterior surface of each slat shall be flat. The interior surfaces shall be concave to provide strength and prevent loose equipment from jamming the door from inside.</p> <p>To conserve space in the compartments, the spring roller assembly shall not exceed 3.00" in diameter. A garage style roll door shall not be acceptable.</p> <p>The header for the roll-up door assembly shall not exceed 4.00".</p> <p>A heavy-duty magnetic switch shall be used for control of open compartment door warning lights.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>BODY MODIFICATION FROM STANDARD</u></b></p> <p>The compartment above the stabilizers (if applicable) shall be decreased due to deeper stabilizer depth. The height of the compartment shall decrease 4.00" and the compartment door shall move up 4.00" higher. The stabilizer frame opening as well as the stabilizer pan shall be increased in height by 6.00".</p> <p><b><u>REAR BUMPER</u></b></p> <p>A 5.00" rear bumper shall be furnished. Bumper shall be constructed of steel framework and shall be covered with polished aluminum treadplate. The bumper shall be 4.00" deep x 5.00" high and shall be spaced away from the body approximately 1.00". It shall extend the full width of the body.</p> <p><b><u>DOOR GUARD</u></b></p> <p>There shall be six (6) compartment doors that shall include a guard/drip pan designed to protect the roll-up door from damage when in the retracted position and contain any water spray. The guard shall be fabricated from stainless steel and installed in compartments D1, D3, D4, P1, P3, P4..</p> <p><b><u>COMPARTMENT LIGHTING</u></b></p> <p>There shall be eight (8) compartment(s) with two (2) white 12 volt DC LED compartment light strips. The dual light strips shall be centered vertically along each side of the door framing. There shall be two (2) light strips per compartment. The dual light strips shall be in all body compartment(s).</p> <p>Any remaining compartments without light strips shall have a 6.00" diameter light. Each light shall have a number 1076 one filament, two wire bulb.</p> <p>Opening the compartment door shall automatically turn the compartment lighting on.</p> <p><b><u>COMPARTMENT LIGHT</u></b></p> <p>There shall be two (2) white 12 volt DC LED light(s) provided one light in compartments D5 &amp; P5.</p> <p>The light(s) shall be controlled by the door switch.</p> <p><b><u>MOUNTING TRACKS</u></b></p> <p>There shall be six (6) sets of tracks for mounting shelf(s) in D3, D1, P1, P3, D4 and P4. These tracks shall be installed vertically to support the adjustable shelf(s), and shall be full height of the compartment. The tracks shall be painted to match the compartment interior.</p> <p><b><u>ADJUSTABLE SHELVES</u></b></p> <p>There shall be seven (7) shelves with a capacity of 500 lb provided.</p>		

	Bidder Complies	
	Yes	No
<p>The shelf construction shall consist of .188" aluminum painted spatter gray with 2.00" sides.</p> <p>Each shelf shall be infinitely adjustable by means of a threaded fastener, which slides in a track.</p> <p>The shelves shall be held in place by .12" thick stamped plated brackets and bolts.</p> <p>The location(s) shall be in D1 at the transition point, in P1 in the upper third, in P3 centered between the floor and ceiling, in D4 at the transition point, in D4 centered between the floor and ceiling, in P4 at the transition point and in P4 centered between the floor and ceiling.</p> <p><b><u>SLIDE-OUT/TILT-DOWN TRAY</u></b></p> <p>There shall be one (1) slide-out tray provided.</p> <p>The bottom of each tray shall be constructed of 0.188" thick aluminum painted spatter gray while special aluminum extrusions shall be utilized for the tray sides, ends, and tracks. The corners shall be welded to form a rigid unit.</p> <p>A spring loaded lock shall be provided on each side at the front of the tray. Releasing the locks shall allow the tray to slide out approximately two-thirds (2/3) of its length from the stowed position and tip 30 degrees down from horizontal. The tray shall be equipped with ball bearing rollers for smooth operation.</p> <p>Rubber padded stops shall be provided for the tray in the extended position.</p> <p>The capacity rating of the tray shall be a minimum of 215 lb in the extended position.</p> <p>The vertical position of the tray within the compartment shall be adjustable.</p> <p>The location(s) shall be in D3 centered between the floor and ceiling.</p> <p><b><u>SLIDE-OUT FLOOR MOUNTED TRAY</u></b></p> <p>There shall be four (4) floor mounted slide-out tray(s) provided.</p> <p>Each tray shall have 2.00" high sides and a minimum capacity rating of 500 lb in the extended position.</p> <p>Each tray shall be constructed of aluminum painted spatter gray</p> <p>There shall be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides shall have a safety factor rating of 2.</p> <p>To ensure years of dependable service, the slides shall be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.</p>		

	Bidder Complies	
	Yes	No
<p>To ensure years of easy operation, the slides shall require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file shall have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance shall be provided upon request.</p> <p>Automatic locks shall be provided for both the "in" and "out" positions. The trip mechanism for the locks shall be located at the front of the tray for ease of use with a gloved hand.</p> <p>The location(s) shall be D1, P1, P4 and D4.</p> <p><b><u>REAR WALL</u></b></p> <p>The entire rear surface of the apparatus and all the doors shall be covered with smooth aluminum.</p> <p><b><u>RUB RAIL</u></b></p> <p>Bottom edge of the side compartments shall be trimmed with a bright aluminum extruded rub rail.</p> <p>Trim shall be 2.12" high with 1.38" flanges turned outward for rigidity.</p> <p>The rub rails shall not be an integral part of the body construction, which allows replacement in the event of damage.</p> <p><b><u>BODY FENDER CROWNS</u></b></p> <p>Stainless steel fender crowns shall be provided around the rear wheel openings.</p> <p>A rubber welting shall be provided between the body and the crown to seal the seam and restrict moisture from entering.</p> <p><b><u>HARD SUCTION HOSE</u></b></p> <p>Hard suction hose shall not be required.</p> <p><b><u>HANDRAILS</u></b></p> <p>The handrails shall be 1.25" diameter anodized aluminum extrusion, with a ribbed design, to provide a positive gripping surface.</p> <p>Chrome plated end stanchions shall support the handrail. Plastic gaskets shall be used between end stanchions and any painted surfaces.</p> <p>Drain holes shall be provided in the bottom of all vertically mounted handrails.</p> <p>Handrails shall be provided to meet NFPA 1901 section 15.8 requirements. The handrails shall be installed as noted on the sales drawing.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>SINGLE AIR BOTTLE STORAGE COMPARTMENT</u></b></p> <p>A quantity of seven (7) air bottle compartments, 7.75" in diameter x 26.00" deep, shall be provided on the driver side rearward of the rear wheels, on the passenger side forward of the rear wheels, on the passenger side rearward of the rear wheels, on the passenger side, two single compartments between the tandem rear wheels and on the driver side, two single compartments between the tandem rear wheels. A polished stainless steel door with a chrome plated flush lift &amp; turn latch shall be provided to contain the air bottle. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.</p> <p>Inside the compartment, black rubber matting shall be provided.</p> <p><b><u>EXTENSION LADDER</u></b></p> <p>There shall be one (1) 35' two (2) section aluminum extension ladder(s) provided.</p> <p><b><u>AERIAL EXTENSION LADDERS</u></b></p> <p>There shall be one (1) 28' two (2) section aluminum extension ladder(s) provided and located in the aerial torque box.</p> <p><b><u>ROOF LADDER</u></b></p> <p>There shall be one (1) 16' aluminum roof ladder(s) provided.</p> <p><b><u>ADDED ROOF LADDER</u></b></p> <p>There shall be one (1) 20' roof, aluminum ladder provided.</p> <p><b><u>AERIAL ATTIC EXTENSION LADDER</u></b></p> <p>There shall be one (1) 14' aluminum attic extension ladder(s) provided.</p> <p><b><u>AERIAL FOLDING LADDER</u></b></p> <p>There shall be one (1) 10' aluminum folding ladder(s) provided and located in the ladder storage compartment.</p> <p><b><u>GROUND LADDER STORAGE</u></b></p> <p>The ground ladders are stored within the torque box and are removable from the rear.</p> <p>Ladders shall be enclosed to prevent road dirt and debris from fouling or damaging the ladders.</p> <p>The ladders rest in full length stainless steel slides and are arranged in such a manner that any one ladder can be removed without having to move or remove any other ladder.</p> <p>A rollup door shall be provided at the rear, double faced, aluminum construction, and an anodized satin finish. The latching mechanism shall consist of a full length lift bar lock with latches on the outer extrusion of the door frame.</p>		

	Bidder Complies	
	Yes	No
<p>A stainless plate with a 2-bend flange and a stainless steel hinge shall be provided to secure the aerial ladder complement. The plate assembly shall be mounted to the bottom of the entrance of the torque box ladder storage area.</p> <p>When the plate is vertical, it shall secure the ladders and prevent them from migrating to the rear of the apparatus. When the plate is down and not securing the ladders, the rollup door can not close, which shall activate the "Open Door Indicator Light" within the cab. The rollup door together with hinge friction shall secure the plate in place during driving operations.</p> <p>A door guard shall be provided to prevent tools inside the torque box from damaging the rollup door.</p> <p><b><u>LADDER STORAGE LIGHTING</u></b></p> <p>There shall be 21.00" white 12 volt DC LED strip lights in the torque box ladder storage compartment. One (1) light shall be provided on each side of the ladder storage area.</p> <p>The lights shall be activated when the ladder storage compartment door is opened.</p> <p><b><u>PIKE POLES</u></b></p> <p>There shall be two (2) 12' pike pole(s) with fiberglass I-beam handles provided. The pike pole(s) shall be stored in tubular holders located in the ground ladder storage compartment.</p> <p><b><u>8' PIKE POLE</u></b></p> <p>There shall be two (2) 8' pike pole(s) with fiberglass handle provided. The pike pole(s) shall be stored in tubular holders located in the ground ladder storage compartment.</p> <p><b><u>6' PIKE POLE</u></b></p> <p>There shall be two (2) 6' pike pole(s) with fiberglass handle provided. The pike pole(s) shall be stored in tubular holders located in the ground ladder storage compartment.</p> <p><b><u>STEPS</u></b></p> <p>A folding step shall be provided on the front of each fender compartment for access to the hose bed. The step shall be bright finished, non-skid with a black coating. The step shall incorporate an LED light to illuminate the stepping surface. The step can be used as a hand hold with two openings wide enough for a gloved hand.</p> <p>Three (3) additional folding steps shall be located one (1) on the driver side front bulkhead and two (2) on the passenger side front bulkhead. The step(s) shall be bright finished, non-skid with a black coating. Each step shall incorporate an LED light to illuminate the stepping surface. The step(s) can be used as a hand hold with two openings wide enough for a gloved hand.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>STIRRUP STEP</u></b></p> <p>There shall be one (1) stirrup step(s) provided below the body. Each step shall be designed with a grip pattern punched into bright aluminum treadplate material, providing support, slip resistance and drainage. The step(s) shall be a bolt-on design and provide an 18.50" wide x 5.00" deep stepping surface.</p> <p>The step(s) shall be located under passenger side running board, in place of standard step..</p> <p>The stirrup step(s) shall be lit by a white 12 volt DC LED light provided on the step.</p> <p>The additional step(s) lights shall be activated by the same means as the standard step lights.</p> <p><b><u>PUMP</u></b></p> <p>Pump shall be a 2000 gpm single (1) stage midship mounted centrifugal type.</p> <p>Pump shall be the class "A" type.</p> <p>Pump shall deliver the percentage of rated discharge at pressures indicated below:</p> <ul style="list-style-type: none"> <li>- 100% of rated capacity at 150 psi net pump pressure.</li> <li>-70% of rated capacity at 200 psi net pump pressure.</li> <li>-50% of rated capacity at 250 psi net pump pressure.</li> </ul> <p>Pump body shall be close-grained gray iron, bronze fitted, and horizontally split in two (2) sections for easy removal of the entire impeller shaft assembly (including wear rings).</p> <p>Pump shall be designed for complete servicing from the bottom of the truck, without disturbing the pump setting or apparatus piping.</p> <p>Pump case halves shall be bolted together on a single horizontal face to minimize a chance of leakage and facilitate ease of reassembly. No end flanges shall be used.</p> <p>Discharge manifold of the pump shall be cast as an integral part of the pump body assembly and shall provide a minimum of three (3) 3.50" openings for flexibility in providing various discharge outlets for maximum efficiency.</p> <p>The three (3) 3.50" openings shall be located as follows: one (1) outlet to the right of the pump, one (1) outlet to the left of the pump, and one (1) outlet directly on top of the discharge manifold.</p> <p>Impeller shaft shall be stainless steel, accurately ground to size. It shall be supported at each end by sealed, anti-friction ball bearings for rigid precise support. Impeller shall have flame plated hubs assuring maximum pump life and efficiency despite any presence of abrasive matter in the water supply.</p>		

	Bidder Complies	
	Yes	No
<p>Bearings shall be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. No special or sleeve type bearings shall be used.</p> <p>Pump shall be equipped with a self-adjusting, maintenance-free, mechanical shaft seal.</p> <p>The mechanical seal shall consist of a flat, highly polished, spring fed carbon ring that rotates with the impeller shaft. The carbon ring shall press against a highly polished stainless steel stationary ring that is sealed within the pump body.</p> <p>In addition, a throttling ring shall be pressed into the steel chamber cover, providing a very small clearance around the rotating shaft in the event of a mechanical seal failure. The pump performance shall not deteriorate, nor shall the pump lose prime, while drafting if the seal fails during pump operation.</p> <p>Wear rings shall be bronze and easily replaceable to restore original pump efficiency and eliminate the need to replace the entire pump casing due to wear.</p> <p><b><u>PUMP TRANSMISSION</u></b></p> <p>The pump transmission shall be made of a three (3) piece, aluminum, horizontally split casing. Power transfer to pump shall be through a high strength Morse HY-VO silent drive chain. By the use of a chain rather than gears, 50% of the sprocket shall be accepting or transmitting torque, compared to two (2) or three (3) teeth doing all the work.</p> <p>Drive shafts shall be 2.35" diameter hardened and ground alloy steel and supported by ball bearings. The case shall be designed to eliminate the need for water cooling.</p> <p><b><u>PUMPING MODE</u></b></p> <p>An interlock system shall be provided to ensure that the pump drive system components are properly engaged so that the apparatus can be safely operated. The interlock system shall be designed to allow stationary pumping only.</p> <p><b><u>AIR PUMP SHIFT</u></b></p> <p>Pump shift engagement shall be made by a two (2) position sliding collar, actuated pneumatically (by air pressure), with a three (3) position air control switch located in the cab.</p> <p>Two (2) indicator lights shall be provided adjacent to the pump shift inside the cab. One (1) green light shall indicate the pump shift has been completed and be labeled "pump engaged". The second green light shall indicate when the pump has been engaged, and that the chassis transmission is in pump gear. This indicator light shall be labeled "OK to pump".</p> <p>Another green indicator light shall be installed adjacent to the hand throttle on the pump panel and indicate either the pump is engaged and the road transmission is in pump gear, or the road</p>		



	Bidder Complies	
	Yes	No
<p>transmission is in neutral and the pump is not engaged. This indicator light shall be labeled "Warning: Do not open throttle unless light is on".</p> <p>The pump shift shall be interlocked to prevent the pump from being shifted out of gear when the chassis transmission is in gear to meet NFPA requirements.</p> <p>The pump shift control in the cab shall be illuminated to meet NFPA requirements.</p> <p><b><u>TRANSMISSION LOCK-UP</u></b></p> <p>The direct gear transmission lock-up for the fire pump operation shall engage automatically when the pump shift control in the cab is activated.</p> <p><b><u>AUXILIARY COOLING SYSTEM</u></b></p> <p>A supplementary heat exchange cooling system shall be provided to allow the use of water from the discharge side of the pump for cooling the engine water. Heat exchanger shall be cylindrical type and shall be a separate unit. It shall be installed in the pump or engine compartment with the control located on the pump operator's control panel. Exchanger shall be plumbed to the master drain valve.</p> <p><b><u>INTAKE RELIEF VALVE</u></b></p> <p>A relief valve shall be installed on the suction side of the pump preset at 125 psig.</p> <p>Relief valve shall have a working range of 75 psig to 250 psig.</p> <p>Outlet shall terminate below the frame rails with a 2.50" National Standard hose thread adapter and shall have a "do not cap" warning tag.</p> <p>Control shall be located behind an access door at a side pump panel.</p> <p><b><u>PRESSURE CONTROLLER</u></b></p> <p>A pressure governor shall be provided.</p> <p>A pressure transducer shall be installed in the water discharge manifold on the pump.</p> <p>The display panel shall be located at the pump operator's panel.</p> <p><b><u>PRIMING PUMP</u></b></p> <p>The priming pump shall be a compressed air powered, high efficiency, multistage venturi based priming system, conforming to standards outlined in the current edition of NFPA 1901.</p> <p>All wetted metallic parts of the priming system are to be of brass and stainless steel construction.</p> <p>One (1) priming control shall open the priming valve and start the pump primer.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>PUMP MANUALS</u></b></p> <p>There shall be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals shall be provided by the pump manufacturer in the form of two (2) CDs. Each manual shall cover pump operation, maintenance, and parts.</p> <p><b><u>PLUMBING, STAINLESS STEEL AND HOSE</u></b></p> <p>All inlet and outlet lines shall be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's shall be equipped with brass or stainless steel couplings. All stainless steel hard plumbing shall be a minimum of a schedule 10 wall thickness.</p> <p>Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping shall be equipped with victaulic or rubber couplings.</p> <p>Plumbing manifold bodies shall be ductile cast iron or stainless steel.</p> <p>All piping lines are to be drained through a master drain valve or shall be equipped with individual drain valves. All drain lines shall be extended with a hose to drain below the chassis frame.</p> <p>All water carrying gauge lines shall be of flexible polypropylene tubing.</p> <p>All piping, hose and fittings shall have a minimum of a 500 PSI hydrodynamic pressure rating.</p> <p><b><u>MAIN PUMP INLETS</u></b></p> <p>A 6.00" pump manifold inlet shall be provided on each side of the vehicle. The suction inlets shall include screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.</p> <p><b><u>MAIN PUMP INLET CAP</u></b></p> <p>The main pump inlets shall have National Standard Threads with a long handle chrome cap.</p> <p>The cap shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).</p> <p><b><u>VALVES</u></b></p> <p>All discharges shall use in-line ball valves.</p> <p><b><u>LEFT SIDE INLET</u></b></p> <p>There shall be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.</p> <p>The auxiliary inlet shall be provided with a strainer, chrome swivel and plug.</p>		

	Bidder Complies	
	Yes	No
<p>The location of the valve for the one (1) inlet shall be recessed behind the pump panel.</p> <p><b><u>INLET CONTROL</u></b></p> <p>The side auxiliary inlet(s) shall incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism shall indicate the position of the valve.</p> <p><b><u>FRONT INLET PROVISION</u></b></p> <p>Provisions for a front inlet shall be provided on the passenger side pump suction manifold. Flange shall be capped off for possible addition of front inlet at a later date.</p> <p><b><u>INLET BLEEDER VALVE</u></b></p> <p>A 0.75" bleeder valve shall be provided for each side gated inlet. The valves shall be located behind the panel with a swing style handle control extended to the outside of the panel. The handles shall be chrome plated and provide a visual indication of valve position. The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders shall be routed below the chassis frame rails.</p> <p><b><u>TANK TO PUMP</u></b></p> <p>The booster tank shall be connected to the intake side of the pump with heavy duty piping and a quarter turn 3.00" full flow line valve with the control remotely located at the operator's panel. Tank to pump line shall run straight (no elbows) from the pump into the front face of the water tank and angle down into the tank sump. A rubber coupling shall be included in this line to prevent damage from vibration or chassis flexing.</p> <p>A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.</p> <p><b><u>TANK REFILL</u></b></p> <p>A 1.50" combination tank refill and pump re-circulation line shall be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.</p> <p><b><u>LEFT SIDE DISCHARGE OUTLETS</u></b></p> <p>There shall be one (1) discharge outlet with a 2.50" valve on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.</p> <p><b><u>RIGHT SIDE DISCHARGE OUTLETS</u></b></p> <p>There shall be one (1) discharge outlet with a 2.50" valve on the right side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.</p> <p>There shall be a 4.00" discharge outlet with a 3.00" valve with a 3.00" ball, installed on the right side of the apparatus, terminating with a 4.00" (M) National Standard hose thread adapter. This</p>		

	Bidder Complies	
	Yes	No
<p>discharge outlet shall be actuated with a handwheel control with position indicator at the pump operator's control panel.</p> <p><b><u>FRONT DISCHARGE OUTLET</u></b></p> <p>There shall be one (1) 1.50" discharge outlet piped to the front of the apparatus and located in the center bumper tray.</p> <p>Plumbing shall consist of 2.00" piping and flexible hose with a 2.00" ball valve with control at the pump operator's panel. A fabricated weldment made of stainless steel pipe shall be used in the plumbing where appropriate. The piping shall terminate with a 1.50" NST with 90 degree stainless steel swivel.</p> <p>There shall be Class 1 automatic drains provided at all low points of the piping.</p> <p><b><u>DISCHARGE CAPS</u></b></p> <p>Chrome plated, rocker lug, caps with vinyl covered cables shall be furnished for all discharge outlets.</p> <p>The auxiliary inlet plugs shall have vinyl covered cables.</p> <p><b><u>OUTLET BLEEDER VALVE</u></b></p> <p>A 0.75" bleeder valve shall be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.</p> <p>The valves shall be located behind the panel with a swing style handle control extended to the outside of the side pump panel. The handles shall be chrome plated and provide a visual indication of valve position. The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders shall be located at the bottom of the pump panel. They shall be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders shall be routed below the chassis frame rails.</p> <p><b><u>LEFT SIDE OUTLET EBLOWS</u></b></p> <p>The one (1) discharge outlet, located on the left side pump panel, shall be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) CSA, chrome plated, 30 degree elbow.</p> <p>The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).</p> <p><b><u>RIGHT SIDE OUTLET ELBOWS</u></b></p> <p>The one (1) discharge outlet, located on the right side pump panel, shall be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) CSA, chrome plated, 30 degree elbow.</p>		

	Bidder Complies	
	Yes	No
<p>The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).</p> <p><b><u>ADDITIONAL RIGHT SIDE OUTLET ELBOWS</u></b></p> <p>The 4.00" outlet shall be furnished with a 4.00" (F) National Standard hose thread x 5.00" Storz elbow adapter with Storz cap.</p> <p><b><u>ADAPTER</u></b></p> <p>There shall be four (4) adapters with 1.50" FNST X NPSH. These adapters shall be installed on FRONT HOSE BED / 2 CROSSLAYS / TANK FILL .</p> <p><b><u>DISCHARGE OUTLET CONTROLS</u></b></p> <p>The discharge outlets shall incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism shall indicate the position of the valve.</p> <p>If a handwheel control valve is used, the control shall be a minimum of a 3.9" diameter stainless steel handwheel with a dial position indicator built in to the center of the handwheel.</p> <p><b><u>AERIAL OUTLET</u></b></p> <p>The aerial waterway shall be plumbed from the pump to the water tower line with 5.00" pipe and a 4.00" valve. The handwheel control for the waterway valve shall be located at the pump operator's panel.</p> <p>An indicator shall be provided to show the position of the valve.</p> <p><b><u>CROSSLAY HOSE BEDS</u></b></p> <p>Two (2) crosslays with 1.50" outlets shall be provided. Each bed to be capable of carrying 200' of 1.75" double jacketed hose and shall be plumbed with 2.00" i.d. pipe and gated with a 2.00" quarter turn ball valve.</p> <p>Outlets to be equipped with a 1.50" National Standard hose thread 90 degree swivel located in the hose bed so that hose may be removed from either side of apparatus.</p> <p>The crosslay controls shall be at the pump operator's panel.</p> <p>The center crosslay dividers shall be fabricated of 0.25" aluminum and shall provide adjustment from side to side. The divider shall be unpainted with a brushed finish.</p> <p>Vertical scuffplates constructed of stainless steel shall be provided at the front and rear ends of the bed on each side of vehicle.</p> <p>Crosslay bed flooring shall consist of removable perforated brushed aluminum.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>2.50" CROSSLAY HOSE BED</u></b></p> <p>One (1) crosslay with 2.50" outlets shall be provided. This bed to be capable of carrying 200' of 2.50" double jacketed hose and shall be plumbed with 2.50" i.d. pipe and gated with a 2.50" quarter turn ball valve.</p> <p>Outlet to be equipped with a 2.50" National Standard hose thread 90 degree swivel located in the hose bed so that hose may be removed from either side of apparatus.</p> <p>The crosslay control shall be at the pump operator's panel.</p> <p>The center crosslay dividers shall be fabricated of 0.25" aluminum and shall provide adjustment from side to side. The divider shall be unpainted with a brushed finish. The remainder of the crosslay bed shall be painted job color.</p> <p>Stainless steel vertical scuffplates shall be provided at hose bed ends (each side of vehicle). Bottom of hose bed ends (each side) shall also be equipped with a stainless steel scuffplate.</p> <p>Crosslay bed flooring shall consist of removable perforated brushed aluminum.</p> <p><b><u>CROSSLAY/DEADLAY HOSE RESTRAINT</u></b></p> <p>Elastic netting shall be provided across the top and ends of three (3) crosslay/deadlay opening(s) to secure the hose during travel. The netting shall be permanently attached at the top center of the crosslay/deadlay bed and removable on each end.</p> <p><b><u>FOAM PROPORTIONER</u></b></p> <p>A foam proportioning system shall be provided that is an on demand, automatic proportioning, single point, direct injection system suitable for all types of Class A and B foam concentrates, including the high viscosity (6000 cps), alcohol resistant Class B foams. Operation shall be based on direct measurement of water flow, and remain consistent within the specified flows and pressures. The system shall automatically proportion foam solution at rates from .1 percent to 3.0 percent regardless of variations in water pressure and flow, up to the maximum rated capacity of the foam concentrate pump.</p> <p>The design of the system shall allow operation from draft, hydrant, or relay operation.</p> <p><b><u>SYSTEM CAPACITY</u></b></p> <p>The system shall have the ability to deliver the following minimum foam solution flow rates at accuracies that meet or exceed NFPA requirements at a pump rating of 150 psi.</p> <p>100 gpm @ 3 percent</p> <p>300 gpm @ 1 percent</p> <p>600 gpm @ 0.5 percent</p>		

	Bidder Complies	
	Yes	No
<p>Class A foam setting in .1 percent increments from .1 percent to 1 percent. Typical settings of 1 percent, .5 percent and .3 percent (maximum capacity shall be limited to the plumbing and water pump capacity).</p> <p><b><u>CONTROL SYSTEM</u></b></p> <p>The system shall be equipped with a digital electronic control display located on the pump operators panel. Push button controls shall be integrated into the panel to turn the system on/off, control the foam percentage, and to set the operation modes.</p> <p>The percent of injection shall have a preset. This preset can be changed at the fire department as desired. The percent of injection shall be able to be easily changed at the scene to adjust to changing demands.</p> <p>Three (3) .50 tall LEDs shall display the foam percentage in numeric characters. Three (3) indicator LEDs shall also be included, one (1) green, one (1) red, and one (1) yellow. The LEDs shall indicate various system operation or error states.</p> <p>The indications shall be:</p> <p>Solid Green - System On</p> <p>Solid Red - Valve Position Error</p> <p>Solid Yellow - Priming System</p> <p>Flashing Green - Injecting Foam</p> <p>Flashing Red - Low Tank Level</p> <p>Flashing Yellow - Refilling Tank</p> <p>The control display shall house a microprocessor, which receives input from the systems water flow meter while also monitoring the position of the foam concentrate pump. The microprocessor shall compare the values of the water flow versus the position/rate of the foam pump, to ensure the proportion rate is accurate. One (1) check valve shall be installed in the plumbing to prevent foam from contaminating the water pump.</p> <p><b><u>HYDRAULIC DRIVE SYSTEM</u></b></p> <p>The foam concentrate pump shall be powered by an electric over hydraulic drive system. The hydraulic system and motor shall be integrated into one (1) unit.</p> <p><b><u>FOAM CONCENTRATE PUMP</u></b></p> <p>The foam concentrate pump shall be of positive displacement, self-priming; linear actuated design, driven by the hydraulic system. The pump shall be constructed of brass body; chrome</p>		

	Bidder Complies	
	Yes	No
<p>plated stainless steel shaft, with a stainless steel piston. In order to increase longevity of the pump, no aluminum shall be present in its construction.</p> <p>A relief system shall be provided which is designed to protect the drive system components and prevent over pressuring the foam concentrate pump</p> <p>The foam concentrate pump shall have minimum capacity for 3 gpm with all types of foam concentrates with a viscosity at or below 6000 cps including protein, fluoroprotein, AFFF, FFFP, or AR-AFFF. The system shall deliver only the amount of foam concentrate flow required, without recirculating foam back to the storage tank. Recirculating foam concentrate back to the storage tank can cause agitation and premature foaming of the concentrate, which can result in system failure. The foam concentrate pump shall be self-priming and have the ability to draw foam concentrate from external supplies such as drums or pails.</p> <p><b><u>EXTERNAL FOAM CONCENTRATE CONNECTION</u></b></p> <p>An external foam pick-up shall be provided to enable use of a foam agent that is not stored on the vehicle. The external foam pick-up shall be designed to allow continued operation after the on-board foam tank is empty, or the use of foam different than the foam in the foam tank.</p> <p><b><u>PANEL MOUNTED EXTERNAL PICK-UP CONNECTION / VALVE</u></b></p> <p>A bronze three (3)-way valve shall be provided. The unit shall be mounted to the pump panel. The valve unit shall function as the foam system tank to pump valve and external suction valve. The external foam pick-up shall be one (1) .75" male connection GHT (garden hose thread) with a cap.</p> <p><b><u>PICK-UP HOSE</u></b></p> <p>A .75" flexible hose with an end for insertion into foam containers shall be provided. The hose shall be supplied with a .75" female swivel GHT (garden hose thread) swivel connector. The hose shall be shipped loose.</p> <p><b><u>DISCHARGES</u></b></p> <p>The foam system shall be plumbed to the center of front bumper, front crosslay, center crosslay and rear crosslay.</p> <p><b><u>SYSTEM ELECTRICAL LOAD</u></b></p> <p>The maximum current draw of the electric motor and system shall be no more than 55 amperes at 12 VDC.</p> <p><b><u>SINGLE FOAM TANK REFILL</u></b></p> <p>The foam system's proportioning pump shall be used to fill the foam tank. This shall allow use of the auxiliary foam pick-up to pump the foam from pails or a drum on the ground into the foam tank. A foam shut-off switch shall be installed in the fill dome of the tank to shut the system</p>		



	Bidder Complies	
	Yes	No
<p>down when the tank is full. The fill operation shall be controlled by a mode in the foam system controller. While the proportioner pump is filling the tank, the controller shall display a flashing yellow LED to indicate that the tank is filling. When the tank is full, as determined by the float switch in the tank dome, the pump shall stop and the controller shall shut the yellow LED off. If it attempted to use tank fill and the refill valve and suction valve are in the wrong position(s), then a red LED shall illuminate to indicate the improper valve position(s). When the valves are positioned properly, then filling shall commence.</p> <p><b><u>FOAM TANK</u></b></p> <p>The foam tank shall be an integral portion of the polypropylene water tank. The cell shall have a capacity of 20 gallons of foam with the intended use of Class A foam. The foam cell shall not reduce the capacity of the water tank. The foam cell shall have a screen in the fill dome and a breather in the lid.</p> <p><b><u>FOAM TANK DRAIN</u></b></p> <p>A system of 1.00" foam tank drains shall be provided, integrated into the foam systems strainer and tank to foam pump valve management system. The tank to pump hoses running from the tank(s) to the strainer shall 1.00" diameter. The foam system controller shall have a mode that allows for a given foam valve to be opened at will. Flow of foam from the tank valve to the strainer shall be usable as a tank drain mode.</p> <p>An adaptor shall be supplied, that allows the 1.00" foam intake screen to assembly to be used as a drain outlet. The standard supplied 1.00" foam pick up hose shall be attached to the screen assembly by way of the adaptor. The drain mode shall allow the operator to open and close the tank valve as required from the control head, to drain foam and re-fill foam containers through the connected hose, without foam spillage beneath the vehicle.</p> <p><b><u>PUMP COMPARTMENT</u></b></p> <p>The pump compartment shall be separate from the hose body and compartments so that each may flex independently of the other. The pump compartment shall be constructed of the same material as the body compartmentation.</p> <p>The pump compartment substructure shall be a fabricated assembly of steel tubing, angles and channels which supports both the fire pump and the side running boards.</p> <p>The pump compartment shall be mounted on the chassis frame rails with rubber biscuits in a four point pattern to allow for chassis frame twist.</p> <p>Pump compartment, pump, plumbing and gauge panels shall be removable from the chassis in a single assembly.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>PUMP MOUNTING</u></b></p> <p>Pump shall be mounted to a substructure which shall be mounted to the chassis frame rail using rubber isolators. The mounting shall allow chassis frame rails to flex independently without damage to the fire pump.</p> <p><b><u>LEFT SIDE PUMP CONTROL PANELS</u></b></p> <p>All pump controls and gauges shall be located at the left (driver's) side of the apparatus and properly identified.</p> <p>Layout of the pump control panel shall be ergonomically efficient and systematically organized.</p> <p>The pump operator's control panel shall be removable in two (2) main sections for ease of maintenance:</p> <p>The upper section shall contain sub panels for the mounting of the pump pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable). Sub panels shall be removable from the face of the pump panel for ease of maintenance. Below the sub panels shall be located all valve controls and line pressure gauges.</p> <p>The lower section of the panel shall contain all inlets, outlets, and drains.</p> <p>All push/pull valve controls shall have 1/4 turn locking control rods with polished chrome plated zinc tee handles. Guides for the push/pull control rods shall be chrome plated zinc castings securely mounted to the pump panel. Push/pull valve controls shall be capable of locking in any position. The control rods shall pull straight out of the panel and shall be equipped with universal joints to eliminate binding.</p> <p><b><u>IDENTIFICATION TAGS</u></b></p> <p>The identification tag for each valve control shall be recessed in the face of the tee handle.</p> <p>All discharge outlets shall have color coded identification tags, with each discharge having its own unique color. Color coding shall include the labeling of the outlet and the drain for each corresponding discharge.</p> <p>All line pressure gauges shall be mounted directly above the corresponding discharge control tee handles and recessed within the same chrome plated casting as the rod guide for quick identification. The gauge and rod guide casting shall be removable from the face of the pump panel for ease of maintenance. The casting shall be color coded to correspond with the discharge identification tag.</p> <p>All remaining identification tags shall be mounted on the pump panel in chrome plated bezels.</p>		

	Bidder Complies	
	Yes	No
<p>The pump panel on the right (passenger's) side shall be removable with lift and turn type fasteners.</p> <p>Trim rings shall be installed around all inlets and outlets.</p> <p>The trim rings for the side discharge outlets shall be color coded and labeled to correspond with the discharge identification tag.</p> <p><b><u>PUMP PANEL CONFIGURATION</u></b></p> <p>The pump panel configuration shall be arranged and installed in an organized manner that shall provide user-friendly operation.</p> <p><b><u>PUMP OPERATOR'S PLATFORM</u></b></p> <p>A pull out, flip down platform shall be provided at the pump operator's control panel.</p> <p>The front edge and the top surface of the platform shall be made of DA finished aluminum with a Morton Cass insert.</p> <p>The platform shall be approximately 13.75" deep when in the stowed position and approximately 22.00" deep when extended. The platform shall be 35.00" wide. The platform shall lock in the retracted and the extended position.</p> <p>The platform shall be wired to the "step not stowed" indicator in the cab.</p> <p><b><u>PUMP OPERATOR'S PLATFORM PERIMETER LIGHT</u></b></p> <p>There shall be a 20.00" white 12 volt DC LED strip light provided to illuminate the ground area.</p> <p><b><u>PUMP AND GAUGE PANEL</u></b></p> <p>The pump and gauge panels shall be constructed of aluminum with a black vinyl finish. A polished aluminum trim molding shall be provided around each panel.</p> <p>The passenger's side pump panel shall be removable and fastened with swell type fasteners.</p> <p><b><u>PUMP COMPARTMENT LIGHT</u></b></p> <p>There shall be two (2) 3.00" white 12 volt DC LED light(s) with flange(s) installed in the pump compartment.</p> <p>There shall be a switch accessible through a door on the pump panel included with this installation.</p> <p>Engine monitoring graduated LED indicators shall be incorporated with the pressure controller.</p> <p>Also provided at the pump panel shall be the following:</p> <ul style="list-style-type: none"> <li>- Master Pump Drain Control</li> </ul>		

	Bidder Complies	
	Yes	No
<p><b><u>VACUUM AND PRESSURE GAUGES</u></b></p> <p>The pump vacuum and pressure gauges shall be liquid filled.</p> <p>The gauges shall be a minimum of 4.00" in diameter and shall have white faces with black markings, with a pressure range of 30.00" 0-400 psi/kpa.</p> <p>Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.</p> <p>The pump pressure and vacuum gauges shall be installed adjacent to each other at the pump operator's control panel.</p> <p>Test port connections shall be provided at the pump operator's panel. One (1) shall be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They shall have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They shall be marked with a label.</p> <p>This gauge shall include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</p> <p><b><u>PRESSURE GAUGES</u></b></p> <p>The individual "line" pressure gauges for the discharges shall be fluid filled.</p> <p>They shall be a minimum of 2.00" in diameter and the dial shall have white faces with black markings.</p> <p>Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.</p> <p>Gauges shall have a pressure rating of 0-400 psi/kpa.</p> <p>The individual pressure gauge shall be installed as close to the outlet control as practical.</p> <p>This gauge shall include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</p> <p><b><u>WATER LEVEL GAUGE</u></b></p> <p>There shall be an electronic water level gauge provided on the operator's panel that registers water level by means of five (5) colored LED lights. The lights shall be durable, ultra-bright five (5) LED design viewable through 180 degrees. The water level indicators shall be as follows:</p> <ul style="list-style-type: none"> <li>• 100 percent = Green</li> <li>• 75 percent = Yellow</li> <li>• 50 percent = Yellow</li> </ul>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• 25 percent = Yellow</li> <li>• Refill = Red</li> </ul> <p>The light shall flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights shall flash sequentially when the water tank is empty.</p> <p>The level measurement shall be based on the sensing of head pressure of the fluid in the tank.</p> <p>The display shall be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. The encapsulated design shall provide complete protection from water and environmental elements. An industrial pressure transducer shall be mounted to the outside of the tank. The field calibratable display measures head pressure to accurately show the tank level.</p> <p><b><u>FOAM LEVEL GAUGE</u></b></p> <p>An electronic foam level gauge shall be provided on the operator's panel that registers foam level by means of five (5) colored LED lights. The lights shall be durable, ultra-bright five (5) LED design viewable through 180 degrees. The foam level indicators shall be as follows:</p> <ul style="list-style-type: none"> <li>• 100 percent = Green</li> <li>• 75 percent = Yellow</li> <li>• 50 percent = Yellow</li> <li>• 25 percent = Yellow</li> <li>• Refill = Red</li> </ul> <p>The light shall flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights shall flash sequentially when the foam tank is empty.</p> <p>The level measurement shall be based on the sensing of head pressure of the fluid in the tank.</p> <p>The display shall be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. The encapsulated design shall provide complete protection from foam and environmental elements. An industrial pressure transducer shall be mounted to the outside of the tank. The display shall be able to be calibrated in the field and shall measure head pressure to accurately show the tank level.</p> <p><b><u>LIGHT SHIELD</u></b></p> <p>There shall be a polished, 16 gauge stainless steel light shield installed over the pump operator's panel.</p>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• There shall be 12 volt DC white LED lights installed under the stainless steel light shield to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights shall be activated by the pump panel light switch. Additional lights shall be included every 18.00" depending on the size of the pump house.</li> <li>• One (1) pump panel light shall come on when the pump is in ok to pump mode.</li> </ul> <p>There shall be a light activated above the pump panel light switch when the parking brake is set. This is to afford the operator some illumination when first approaching the control panel.</p> <p>There shall be a green pump engaged indicator light activated on at the operator's panel when the pump is shifted into gear from inside the cab.</p> <p><b><u>AIR HORN SYSTEM</u></b></p> <p>There shall be two (2) air horns recessed in the front bumper. The horn system shall be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve shall be installed in-line to prevent loss of air in the air brake system.</p> <p><b><u>Air Horn Location</u></b></p> <p>The air horns shall be located on each side of the bumper, towards the outside.</p> <p><b><u>AIR HORN CONTROL</u></b></p> <p>The air horns shall be actuated by a chrome push button located on the officer's side of the engine tunnel and by the horn button in the steering wheel. The driver shall have the option to control the air horns or the chassis horns from the horn button by means of a selector switch located on the instrument panel.</p> <p><b><u>ELECTRONIC SIREN</u></b></p> <p>An electronic siren with noise canceling microphone shall be provided.</p> <p>This siren to be active when the battery switch is on and that emergency master switch is on.</p> <p>Electronic siren head shall be recessed in the overhead console above the engine tunnel on the driver side.</p> <p>The electronic siren shall be controlled on the siren head and by a push button located officer side of instrument panel..</p> <p><b><u>SPEAKER</u></b></p> <p>There shall be one (1) speaker provided. Each speaker shall be a black nylon composite, 100-watt, with through bumper mounting brackets and polished stainless steel grille. Each speaker shall be connected to the siren amplifier.</p>		

	Bidder Complies	
	Yes	No
<p>The speaker(s) shall be recessed in the center of the front bumper.</p> <p><b><u>AUXILIARY MECHANICAL SIREN</u></b></p> <p>A mechanical siren shall be furnished. A siren brake button shall be installed on the switch panel.</p> <p>The control solenoid shall be powered up after the emergency master switch is activated.</p> <p>The mechanical siren shall be mounted on the bumper deck plate. It shall be mounted on the left side A reinforcement plate shall be furnished to support the siren.</p> <p><b><u>MECHANICAL SIREN CONTROL</u></b></p> <p>The mechanical siren shall be actuated by a push button located on the officer's side instrument panel and by a foot switch on the driver's side.</p> <p><b><u>FRONT ZONE UPPER WARNING LIGHTS</u></b></p> <p>There shall be two (2) 21.50" LED lightbars mounted on the cab roof, one (1) on each side, above the driver's and passenger's door, facing forward.</p> <p>The driver's side lightbar shall include the following:</p> <ul style="list-style-type: none"> <li>• One (1) red flashing LED module in the outside end position.</li> <li>• One (1) red flashing LED module in the outside front corner position.</li> <li>• One (1) red flashing LED module in the outside front position.</li> <li>• One (1) red flashing LED module in the inside front position.</li> <li>• One (1) red flashing LED module in the inside front corner position.</li> </ul> <p>The passenger's side lightbar shall include the following:</p> <ul style="list-style-type: none"> <li>• One (1) red flashing LED module in the inside front corner position.</li> <li>• One (1) red flashing LED module in the inside front position.</li> <li>• One (1) red flashing LED module in the outside front position.</li> <li>• One (1) red flashing LED module in the outside front corner position.</li> <li>• One (1) red flashing LED module in the outside end position.</li> </ul> <p>There shall be clear lenses included on the lightbar.</p> <p>There shall be a switch in the cab on the switch panel to control the lightbars.</p> <p><b><u>CAB FACE WARNING LIGHTS</u></b></p> <p>There shall be four (4) LED flashing warning lights installed on the cab face, above the headlights, mounted in a common bezel.</p>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• The driver's side front outside warning light to be red</li> <li>• The driver's side front inside warning light to be red</li> <li>• The passenger's side front inside warning light to be red</li> <li>• The passenger's side front outside warning light to be red</li> </ul> <p>All four (4) lights shall include a clear lens.</p> <p>There shall be a switch located in the cab, on the switch panel, to control the four (4) lights.</p> <p>The inside lights may be load managed if colored or disabled if white, when the parking brake is set.</p> <p><b><u>HEADLIGHT FLASHER</u></b></p> <p>The high beam headlights shall flash alternately between the left and right side.</p> <p>There shall be a switch installed in the cab on the switch panel to control the high beam flash. This switch shall be live when the battery switch and the emergency master switches are on.</p> <p>The flashing shall automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.</p> <p><b><u>SIDE ZONE LOWER LIGHTING</u></b></p> <p>There shall be six (6) flashing LED warning lights with chrome trim installed per the following:</p> <ul style="list-style-type: none"> <li>• Two (2) lights, one (1) each side on the bumper extension. The side front lights to be red.</li> <li>• Two (2) lights, one (1) each side above the front wheels. The side middle lights to be red.</li> <li>• Two (2) lights, one (1) each side located between the tandems. The side rear lights to be red.</li> <li>• The lights shall include clear lenses.</li> </ul> <p>There shall be a switch in the cab on the switch panel to control the lights.</p> <p><b><u>REAR ZONE LOWER LIGHTING</u></b></p> <p>There shall be two (2) LED flashing warning lights located at the rear of the apparatus.</p> <ul style="list-style-type: none"> <li>• The driver's side rear light to be red</li> <li>• The passenger's side rear light to be red</li> </ul> <p>Both lights shall include a lens that is clear.</p> <p>There shall be a switch located in the cab on the switch panel to control the lights.</p>		



	Bidder Complies	
	Yes	No
<p><b><u>REAR/SIDE ZONE UPPER WARNING LIGHTS</u></b></p> <p>There shall be two (2) LED warning beacons provided at the rear of the truck, located one (1) each side. There shall be a switch located in the cab on the switch panel to control the beacons.</p> <p>The color of the lights shall be red LEDs with both domes clear.</p> <p><b><u>TRAFFIC DIRECTING LIGHT</u></b></p> <p>There shall be one (1) 36.01" long x 2.84" high x 2.24" deep, amber LED traffic directing light installed at the rear of the apparatus.</p> <p>The control head shall be included with this installation.</p> <p>The auxiliary warning mode shall be activated with the control head only.</p> <p>This traffic directing light shall be mounted on top of the body below the turntable at the rear of the apparatus.</p> <p>The traffic directing light control head shall be located in the driver side overhead switch panel in the right panel position.</p> <p><b><u>ELECTRICAL SYSTEM GENERAL DESIGN FOR ALTERNATING CURRENT</u></b></p> <p>The following guidelines shall apply to the 120/240 VAC system installation:</p> <p><b><u>General</u></b></p> <p>Any fixed line voltage power source producing alternating current (ac) line voltage shall produce electric power at 60 cycles plus or minus 3 cycles.</p> <p>Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures shall conform to NFPA 70, National Electrical Code (herein referred to as the NEC).</p> <p>Line voltage electrical system equipment and materials included on the apparatus shall be listed and installed in accordance with the manufacturer's instructions. All products shall be used only in the manner for which they have been listed.</p> <p><b><u>Grounding</u></b></p> <p>Grounding shall be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems shall not be used. Only stranded or braided copper conductors shall be used for grounding and bonding.</p> <p>An equipment grounding means shall be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.</p>		

	Bidder Complies	
	Yes	No
<p>The grounded current carrying conductor (neutral) shall be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor shall be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.</p> <p>In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. This conductor shall have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements shall be permitted to be used.</p> <p>All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source.</p> <p><b><u>Operation</u></b></p> <p>Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, shall be permanently attached to the apparatus at any point where such operations can take place.</p> <p>Provisions shall be made for quickly and easily placing the power source into operation. The control shall be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train shall be equipped with a means to prevent the unintentional movement of the control device from its set position.</p> <p>A power source specification label shall be permanently attached to the apparatus near the operator's control station. The label shall provide the operator with the information detailed in Figure 19-4.10.</p> <p>Direct drive (PTO) and portable generator installations shall comply with Article 445 (Generators) of the NEC.</p> <p><b><u>Overcurrent protection</u></b></p> <p>The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 144.00" (3658 mm) in length.</p> <p>For fixed power supplies, all conductors in the power supply assembly shall be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit (90 degrees Celsius).</p>		

	Bidder Complies	
	Yes	No
<p>For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device shall be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).</p> <p><b><u>Wiring Methods</u></b>  Fixed wiring systems shall be limited to the following:</p> <ul style="list-style-type: none"> <li>• Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius)</li> <li>• or</li> <li>• Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius)</li> </ul> <p>Electrical cord or conduit shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring shall be run as follows.</p> <ul style="list-style-type: none"> <li>• Separated by a minimum of 12.00" (305 mm), or properly shielded, from exhaust piping</li> <li>• Separated from fuel lines by a minimum of 6.00" (152 mm) distance</li> </ul> <p>Electrical cord or conduit shall be supported within 6.00" (152 mm) of any junction box and at a minimum of every 24.00" (610 mm) of continuous run. Supports shall be made of nonmetallic materials or corrosion protected metal. All supports shall be of a design that does not cut or abrade the conduit or cable and shall be mechanically fastened to the vehicle.</p> <p><b><u>Wiring Identification</u></b>  All line voltage conductors located in the main panel board shall be individually and permanently identified. The identification shall reference the wiring schematic or indicate the final termination point. When prewiring for future power sources or devices, the unterminated ends shall be labeled showing function and wire size.</p> <p><b><u>Wet Locations</u></b>  All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, shall be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.</p> <p>All receptacles located in a wet location shall be not less than 24.00" (610 mm) from the ground. Receptacles on off-road vehicles shall be a minimum of 30.00" (762 mm) from the ground.</p> <p>The face of any wet location receptacle shall be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle shall be installed in a face up position.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>Dry Locations</u></b></p> <p>All receptacles located in a dry location shall be of the grounding type. Receptacles shall be not less than 30.00" (762 mm) above the interior floor height.</p> <p>All receptacles shall be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they shall be so marked.</p> <p><b><u>Listing</u></b></p> <p>All receptacles and electrical inlet devices shall be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages shall be rated for the appropriate service.</p> <p><b><u>Electrical System Testing</u></b></p> <p>The wiring and associated equipment shall be tested by the apparatus manufacturer or the installer of the line voltage system.</p> <p>The wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900-volts for one (1) minute. The test shall be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test shall be conducted after all body work has been completed.</p> <p>Electrical polarity verification shall be made of all permanently wired equipment and receptacles to determine that connections have been properly made.</p> <p><b><u>Operational Test per Current NFPA 1901 Standard</u></b></p> <p>The apparatus manufacturer shall perform the following operation test and ensure that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order. The test shall be witnessed and the results certified by an independent third-party certification organization.</p> <p>The prime mover shall be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.</p> <p>The power source shall be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in the current NFPA 1901 standard.</p> <p>Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in the current NFPA 1901 standard shall be applied to the low voltage electrical system during the operational test.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>GENERATOR</u></b></p> <p>The apparatus shall be equipped with a complete AC (alternating current) electrical power system. The generator shall be a hydraulic driven unit.</p> <p>The generator shall be driven by a transmission power take off unit, through a hydraulic pump and motor.</p> <p>The hydraulic engagement supply shall be operational at any time (no interlocks).</p> <p>An electric/hydraulic valve shall supply hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.</p> <p><b><u>Generator Instruments and Controls</u></b></p> <p>To properly monitor the generator performance, a voltmeter shall be furnished near the breaker box.</p> <p><b><u>GENERATOR LOCATION</u></b></p> <p>The generator shall be mounted in the in the area over the pump on the left side. The flooring in this area shall be either reinforced or constructed in such a manner that it shall handle the additional weight of the generator.</p> <p><b><u>GENERATOR START</u></b></p> <p>There shall be a switch provided on the cab instrument panel to engage the generator.</p> <p><b><u>GENERATOR REMOTE FIELD SWITCH</u></b></p> <p>A remote switch shall be provided in the cab switch panel and on the pump panel to engage the field of the hydraulic generator. A light shall be provided to indicate that the generator field is active.</p> <p><b><u>CIRCUIT BREAKER PANEL</u></b></p> <p>The circuit breaker panel shall be located high on the rear wall of compartment D5.</p> <p><b><u>ELECTRIC CORD REEL</u></b></p> <p>Furnished with the 120/240 volt AC electrical system shall be cord reel. The reel shall be provided with a 12 volt electric rewind switch that is guarded to prevent accidental operation and labeled for its intended use. The switch shall be protected with a fuse and installed at a height not to exceed 72.00" above the operators standing position.</p> <p>The reel shall be capable holding 200' of 10/4, 600 volt cable.</p> <p>The exterior finish of the reel(s) shall be powder coated silver from the reel manufacturer.</p> <p>No guide is required on the reel assembly. A ball stop shall be provided to prevent the cord from being wound on the reel.</p>		

	Bidder Complies	
	Yes	No
<p>A label shall be provided in a readily visible location adjacent to the reel. The label shall indicate current rating, current type, phase, voltage and total cable length.</p> <p>A total of one (1) cord reel shall be provided one (1) above the pump area, opposite side of the generator.</p> <p>The cord reel should be configured with four (4) conductors.</p> <p><b><u>CORD</u></b></p> <p>Provided for electric distribution shall be one (1) length installed on the reel of 200 feet of yellow 10/4 electrical cord. A Hubbell L14-20, 20 amp, 120/240 volt, twist lock connector body shall be installed on the end of the cord.</p> <p><b><u>REEL ENCLOSURE</u></b></p> <p>An aluminum treadplate enclosure shall be installed over the reel. The enclosure shall be provided with a stainless steel hinge that shall allow the cover to be opened.</p> <p>A captive roller assembly shall be provided through the side sheet to assist with the pay out of the cord. A ball stop shall be provided on the cord to stop the cord at the roller assembly</p> <p>A total of one (1) shall be installed over cord reel on passenger side of cargo compartment..</p> <p><b><u>FOUR (4)-SECTION 105 FOOT AERIAL LADDER</u></b></p> <p><b><u>CONSTRUCTION STANDARDS</u></b></p> <p>The ladder shall be constructed to meet all of the requirements as described in the current NFPA 1901 standards.</p> <p>The aerial device shall be a true ladder type device; therefore ladders attached to booms shall not be considered.</p> <p>These capabilities shall be established in an unsupported configuration.</p> <p>All structural load supporting elements of the aerial device that are made of a ductile material shall have a design stress of not more than 50% of the minimum yield strength of the material based on the combination of the live load and the dead load. This 2:1 structural safety factor meets the current NFPA 1901 standard.</p> <p>All structural load supporting elements of the aerial device that are made of non-ductile material shall have a design stress of not more than 20% of the minimum ultimate strength of the material, based on the combination of the rated capacity and the dead load. This 5:1 safety factor meets the current NFPA 1901 standard.</p>		

	Bidder Complies	
	Yes	No
<p>Wire ropes and attaching systems used to extend and retract the fly sections shall have a 5:1 safety factor based on the ultimate strength under all operating conditions. The factor of safety for the wire rope shall remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used shall be 1:12. Wire ropes shall be constructed of seven (7) strands over an inner wire core for increased flexibility. The wire rope shall be galvanized to reduce corrosion.</p> <p>The aerial base pivot bearings shall be maintenance free type bearings and require no external lubrication.</p> <p>The aerial device shall be capable of sustaining a static load one and one-half times its rated tip load capacity (live load) in every position in which the aerial device can be placed when the vehicle is on a firm level surface.</p> <p>The aerial device shall be capable of sustaining a static load one and one-third times its rated tip load capacity (live load) in every position the aerial device can be placed when the vehicle is on a slope of five degrees downward in the direction most likely to cause overturning.</p> <p>With the aerial device out of the cradle in the in the fully extended position at zero degrees elevation, a test load shall be applied in a horizontal direction normal to the centerline of the ladder. The turntable shall not rotate and the ladder shall not deflect beyond what the product specification allows.</p> <p>All welding of aerial components, including the aerial ladder sections, turntable, pedestal, and outriggers, shall be in compliance with the American Welding Society standards. All welding personnel shall be certified, as qualified under AWS welding codes.</p> <p>The aerial device shall be capable of operating with the maximum rated tip load in either of the two (2) following conditions:</p> <ul style="list-style-type: none"> <li>- Conditions of high wind up to 50 mph</li> <li>- Conditions of icing, up to a coating of .25" over the entire aerial structure</li> </ul> <p>All of the design criteria must be supported by the following test data (no exception):</p> <ul style="list-style-type: none"> <li>- Strain gage testing of the complete aerial device</li> <li>- Analysis of deflection data taken while the aerial device was under test load</li> </ul> <p>The following standards for materials are to be used in the design of the aerial device:</p> <ul style="list-style-type: none"> <li>- Materials are to be certified by the mill that manufactured the material</li> </ul>		

	Bidder Complies	
	Yes	No
<p>- Materials that are certified or recertified by vendors other than the mill shall not be acceptable</p> <p>- Material testing that is performed after the mill test shall be for verification only and not with the intent of changing the classification</p> <p>- All welded structural components for the ladder shall be traceable to their mill lots.</p> <p><b><u>LADDER CONSTRUCTION</u></b></p> <p>The ladder shall be comprised of four sections.</p> <p>The ladder shall have the capability to support a minimum of 500 pounds at the tip in the unsupported configuration, based upon 360 degree rotation, up to full extension and from -8 degrees to +75 degrees.</p> <p>The ladder (handrails, baserails, trusses, K-braces and rungs) shall be constructed of high strength low alloy steel, minimum 70,000 pounds per square inch yield, with full traceability on all structural members.</p> <p>Each section shall be trussed diagonally, vertically and horizontally using welded steel tubing.</p> <p>All ladder rungs shall be round and welded to each section utilizing "K" bracing for torsional rigidity.</p> <p>The inside width dimensions of the ladder shall be:</p> <ul style="list-style-type: none"> <li>- Base Section 39.00"</li> <li>- Inner-Mid Section 32.25"</li> <li>- Outer-Mid Section 26.62"</li> <li>- Fly Section 21.62"</li> </ul> <p>The height of the handrails above the centerline of the rungs shall be:</p> <ul style="list-style-type: none"> <li>- Base Section 26.75"</li> <li>- Inner-Mid Section 22.87"</li> <li>- Outer-Mid Section 20.25"</li> <li>- Fly Section 17.50"</li> </ul> <p>The ladder shall be designed to provide continuous egress for firefighters and civilians from an elevated position to the ground. The end of the fly section shall be constructed in a manner that aids personnel who are climbing off the ladder.</p>		



	Bidder Complies	
	Yes	No
<p>The egress section shall be designed to maintain the rated load of the aerial device. It shall be bolted on for easy replacement.</p> <p><b><u>VERTICAL HEIGHT</u></b></p> <p>The ladder shall extend to a minimum height of 105' above the ground at full extension and elevation. The measurement of height shall be consistent with NFPA standards.</p> <p><b><u>HORIZONTAL REACH</u></b></p> <p>The rated horizontal reach shall be a minimum of 100' (no exception). The measurement of horizontal reach shall be consistent with NFPA standards.</p> <p><b><u>TURNTABLE</u></b></p> <p>The upper turntable assembly shall connect the aerial ladder to the turntable bearing. The steel structure shall have a mounting position for the aerial elevation cylinders, ladder connecting pins, and upper turntable operator's position.</p> <p>The turntable shall be a 1.00" thick steel deck, coated with a non-skid, chemical resistant material in the walking areas. The stepping surfaces shall meet the skid-resistance requirements of the current NFPA 1901 standard.</p> <p>The turntable platform shall be approximately 95.00" wide x 84.50" long.</p> <p>The turntable handrails shall be a minimum 42.00" high and shall not increase the overall travel height of the vehicle. The handrails shall be constructed from aluminum and have a slip resistant knurled surface.</p> <p><b><u>ELEVATION SYSTEM</u></b></p> <p>Two (2) double acting lift cylinders shall be utilized to provide smooth precise elevation from 8 degrees below horizontal to 75 degrees above horizontal.</p> <p>The lift cylinders shall have a 6.00" internal diameter (bore), .50" wall thickness, 4.50" diameter cylinder rod and a 34.84" stroke.</p> <p>The lift cylinders shall be equipped with integral holding valves located on the cylinder to prevent the unit from falling should the charged lines be severed at any point within the hydraulic system.</p> <p>The lift cylinders shall be mounted utilizing maintenance free spherical bearings on both ends of the cylinders. The bearings shall help reduce pin wear.</p> <p>Ladder tip speed is automatically decelerated when the angle is above 60 degrees, reducing "tip-lash".</p>		

	Bidder Complies	
	Yes	No
<p>The pivot pins shall be stainless steel with greaseless bushings and shall be 2.25" in diameter. All elevation pins shall be stainless steel with greaseless ladder pivot pins.</p> <p><b><u>EXTENSION/RETRACTION SYSTEM</u></b></p> <p>A full hydraulic powered extension and retraction system shall be provided using two (2) hydraulic cylinders and wire ropes.</p> <p>Each cylinder is capable of operating the ladder in the event of a failure to the other.</p> <p>The extension cylinder shall have a 3.00" internal diameter (bore), 1.75" diameter rod and a 134.00" stroke.</p> <p>Extension and retraction shall be internally limited within the cylinders, eliminating excess strain on wire ropes, sheaves and the ladder structure.</p> <p>Each of the cylinders, wire ropes and sheave assemblies shall be completely independent of the other, so as to provide a safety factor wherein a failure of one assembly shall not affect the function and operation of the other.</p> <p>The extension cylinders shall be equipped with integral holding valves to prevent the unit from retracting should the charged lines be severed at any point within the hydraulic system.</p> <p>The extension cylinders shall be mounted utilizing maintenance free spherical bearings.</p> <p>The cylinders shall also have internal deceleration valves to cushion the movement of the cylinder when approaching full extension or retraction.</p> <p>The reeling of the wire rope shall be such as to provide synchronized, simultaneous movement of all sections to full extension.</p> <p>The extension/retraction wire ropes shall be: 7-flex galvanized wire rope with stainless steel threaded ends and shall have the following characteristics:</p> <ul style="list-style-type: none"> <li>- Lower mid Section .50" diameter with 26,200lb nominal design strength</li> <li>- Mid Section.38" diameter with 14,880lb nominal design strength</li> <li>- Fly Section.31" diameter with 10,380lb nominal design strength</li> </ul> <p>Wear pads that are made of polymer material shall be used between the telescoping sections for maximum weight distribution, strength and smoothness of operation.</p> <p>Adjustment screws shall be provided on the wear pads to permit proper side alignment.</p>		

	Bidder Complies	
	Yes	No
<p>All sheaves shall be plastic and greaseless and all sheave pins and pivot pins shall be polished stainless steel (no exception).</p> <p><b><u>ROTATION SYSTEM</u></b></p> <p>A 46.00" diameter, external tooth, monorace, slewing ring bearing shall be used for the rotation system. The gear teeth shall be stub tooth form.</p> <p>The bearing shall provide 360 degree continuous rotation.</p> <p>The turntable shall be bolted to the bearing using 36 SAE Grade 8, .875" diameter bolts.</p> <p>To secure the bearing to the torque box, 36 Grade 8, .875" diameter bolts shall be used.</p> <p>The turntable base and the torque box bearing plate shall be machined flat, within .007" thereby providing even distribution of forces.</p> <p>Two hydraulically driven planetary gear boxes will be used to provide infinite and minute rotation control throughout the entire rotational travel.</p> <p>Each planetary gearbox will have a torque rating of 130,000 pounds per inch.</p> <p>Each planetary gearbox will have a spring applied, hydraulically released disc type swing brake to provide positive braking of the turntable assembly.</p> <p><b><u>ROTATION INTERLOCK</u></b></p> <p>A permanently installed prevention mechanism shall be provided as part of the rotation system to prevent the rotation of the aerial device to the side in which the stabilizers have not been fully deployed or are short-jacked.</p> <p>The mechanism shall allow full and unrestricted use of the aerial in the 180 degree area on the side(s) where the stabilizers have been fully deployed.</p> <p>The system shall also have a manual override to comply with NFPA 1901.</p> <p>Systems that permit the aerial to rotate to the short jack side without automatically stopping the rotation and/or without actuation of the manual override shall not be accepted. Systems that only include an alarm are not considered an interlock and shall not be accepted.</p> <p><b><u>TORQUE BOX</u></b></p> <p>A "torsion box" subframe shall be installed between the two (2) sets of stabilizers.</p> <p>The torque box shall be constructed of .312" thick (minimum) steel plate (50,000 pounds per square inch yield) with steel tubing reinforcement on each side of the box in the turntable area.</p>		

Bidder Complies	
Yes	No

The torque box subframe assembly is capable of withstanding all torsional and horizontal loads when the unit is on the stabilizers.

The torque box shall be bolted to the chassis frame rails using 20 SAE Grade 8, .750" bolts with nuts.

**LOAD CAPACITIES**

The following load capacities shall be established, with the stabilizers at full horizontal extension and placed in the down position, to level the truck and to relieve the weight from the tires and axles.

Capacities shall be based upon full extension and 360 degree rotation.

A load chart, visible at the operator's station, shall be provided. The load chart shall show the recommended safe load at any condition of the aerial device's elevation and extension (no exception).

**50 MPH WIND CONDITIONS/WATERWAY DRY**

Degrees of Elevation	-8 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 75
Egress	500	500	500	500	500	500	500	500
Fly	-	-	-	-	250	250	750	1000
Upper Mid	-	-	-	250	250	500	1000	1000
Lower Mid	-	-	250	250	500	750	1000	1000
Base	-	250	500	500	750	1000	1000	1000

**50 MPH WIND CONDITIONS/WATERWAY CHARGED**

Degrees of Elevation	-8 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 75
Egress	500	500	500	500	500	500	500	500
Fly	-	-	-	-	-	250	500	750
Upper Mid	-	-	-	-	250	500	750	1000
Lower Mid	-	-	-	250	500	750	1000	1000
Base	-	-	250	500	750	1000	1000	1000

**Reduced loads at the tip can be redistributed in 250 lb. increments to the fly, mid, or base sections as needed.**

**The tip capacity shall be reduced to zero when flowing water with the nozzle above the waterway centerline.**

	Bidder Complies	
	Yes	No
<p><b><u>BOOM SUPPORT</u></b></p> <p>A heavy duty boom support shall be provided for support of the ladder in the travel position. On the base section of the ladder, a stainless steel scuffplate shall be provided where the ladder comes into contact with the boom support.</p> <p><b><u>AERIAL BOOM SUPPORT LIGHT</u></b></p> <p>There shall be one (1) white LED strip light mounted on the boom support cradle. This light shall be activated when the aerial master switch is activated.</p> <p><b><u>FUTURE BOOM SUPPORT COMPARTMENT PROVISION</u></b></p> <p>There shall be 0.50" of wheelbase added to allow for a boom support compartment to be added at a future time.</p> <p>The boom support shall be located just to the rear of the chassis cab.</p> <p><b><u>AERIAL BOOM PANEL</u></b></p> <p>There shall be one boom panel provided on the driver's side of the aerial ladder base section. The boom panel shall be painted White #10.</p> <p>The boom panel shall be designed so no mounting bolts are in the face of the panel. This shall keep the lettering surface free of holes.</p> <p><b><u>EXTENSION INDICATOR</u></b></p> <p>Extension markings and corresponding numerical indicators shall be provided along each inside and outside top rail of the base section of the aerial every 10'. They shall indicate various positions of extension up to full. Markings and indicators shall be clearly visible to the console operator. To aid in visibility during hours of darkness, the markings and numerical indicators shall be red reflective material.</p> <p><b><u>FOLDING STEPS</u></b></p> <p>One (1) set of folding steps shall be provided at the tip of the ladder. An additional set of folding steps shall be provided at the base of the fly section. The steps shall be bright finished, non-skid with a black coating.</p> <p><b><u>AERIAL DEVICE RUNG COVERS</u></b></p> <p>Each rung shall be covered with a secure, heavy-duty, fiberglass pultrusion that incorporates an aggressive, no-slip coating.</p> <p>The rung covers shall be glued to each rung, and shall be easily replaceable should the rung cover become damaged.</p> <p>The center portion of each rung cover shall be black and the outside 2.00" edge at each side shall be safety yellow.</p>		

	Bidder Complies	
	Yes	No
<p>Under no circumstances shall the rung covers be fastened to the rungs using screws or rivets (no exception).</p> <p>The rung covers shall have a 10-year, limited warranty.</p> <p><b><u>STABILITY TEST</u></b>  An aerial stability test shall be run on this apparatus using the maximum weight allowance for tip options.</p> <p><b><u>LIMITED RETRACTION</u></b>  The aerial device shall have limited retraction.</p> <p><b><u>STOKES AND BACKBOARD STORAGE BOX</u></b>  There shall be one (1) aluminum storage box(es) provided at the base section of the aerial ladder on the right side of the aerial device while viewed from the turntable. The box shall be painted to match the aerial device with the face of the box painted to match the boom sign color. The box(es) shall be located in place of the aerial boom panel and have a hinged cover with rubber hood latches and gas shocks to secure the equipment. The cover shall have the same finish as the box. A divider shall be provided to separate the stokes basket and the backboard. The box(es) shall have no louvers.</p> <p>The size of the stokes basket and backboard shall be Stokes basket size will be 86" L X 24" W X 9" D, (25 lb), Backboard size will be 72" L X 18" W X 2" D. (12 lb).</p> <p>The maximum capacity of each box shall be 75 lb.</p> <p><b><u>LIGHTS FOR TURNTABLE WALKWAY</u></b>  There shall be white LED lights provided at the aerial turntable. The lights shall be located to illuminate the entire walking surface of the turntable including the area around the turntable console. These lights shall be activated by the aerial master switch.</p> <p><b><u>TURNTABLE CONSOLE LIGHTING</u></b>  There shall be one (1), white LED light strip mounted in the turntable console cover to illuminate the controls located on both the upper and lower portion of the turntable control station. These lights shall be activated by the aerial master switch.</p> <p><b><u>ROTATION BEARING COVER</u></b>  An aluminum treadplate cover shall be fitted over the aerial rotation bearing and drive pinion gear(s). The cover shall be attached to the underside of the turntable deck.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>TURNTABLE CONTROL STATION</u></b></p> <p>There shall be a turntable control station located on the left hand side of the turntable so the operator shall be able to easily observe the ladder tip while operating the controls. The controls shall permit the operator to regulate the speed of the aerial functions within safe limits (as determined by the manufacturer and NFPA standards). The controls shall be clearly marked and lighted for nighttime operation. A hinged aluminum cover shall be provided. The momentary foot switch located at the turntable control station shall activate the aerial function controls. They are capable of being operated independently or simultaneously.</p> <p>The following controls and indicator lights shall be clearly identified, illuminated, and conveniently located for ease of operation and viewing:</p> <ul style="list-style-type: none"> <li>- Elevation, extension/retraction, and rotation controls</li> <li>- High idle switch</li> <li>- Rung alignment indicator light</li> <li>- Tip/Tracking lights switch</li> <li>- Hydraulic system pressure gauge</li> <li>- Indicator/Alarm test switch</li> <li>- EPU switch and light</li> <li>- Operator's load chart</li> <li>- Stabilizer Not Fully Extended indicator light</li> <li>- Monitor controls</li> <li>- Aerial waterway flow meter</li> </ul> <p><b><u>STABILIZER CONTROL STATION</u></b></p> <p>There shall be two (2) easily accessible control stations, one (1) for driver side stabilizers and one (1) for passenger side stabilizers, located at the rear of the apparatus.</p> <p>The following controls and indicator lights shall be clearly identified, illuminated, and conveniently located for ease of operation and viewing at each of the control stations except where otherwise noted:</p> <ul style="list-style-type: none"> <li>- Left Rear Stabilizer Firm On Ground indicator light (driver side panel only)</li> <li>- Left Rear Stabilizer Fully Extended Indicator light (driver side panel only)</li> </ul>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>- Left Rear Stabilizer In/Out switch (driver side panel only)</li> <li>- Left Rear Stabilizer Up/Down switch (driver side panel only)</li> <li>- Left Front Stabilizer Firm On Ground indicator light (driver side panel only)</li> <li>- Left Front Stabilizer Fully Extended indicator light (driver side panel only)</li> <li>- Left Front Stabilizer In/Out switch (driver side panel only)</li> <li>- Left Front Stabilizer Up/Down switch (driver side panel only)</li> <li>- Right Rear Stabilizer Firm On Ground indicator light (passenger side panel only)</li> <li>- Right Rear Stabilizer Fully Extended indicator light (passenger side panel only)</li> <li>- Right Rear Stabilizer In/Out switch (passenger side panel only)</li> <li>- Right Rear Stabilizer Up/Down switch (passenger side panel only)</li> <li>- Right Front Stabilizer Firm On Ground indicator light (passenger side panel only)</li> <li>- Right Front Stabilizer Fully Extended indicator light (passenger side panel only)</li> <li>- Right Front Stabilizer In/Out switch (passenger side panel only)</li> <li>- Right Front Stabilizer Up/Down switch (passenger side panel only)</li> <li>- Hydraulic emergency power switch</li> <li>- High idle switch</li> </ul> <p><b><u>STABILIZERS</u></b></p> <p>The vehicle shall come equipped with a stabilization system consisting of four (4) hydraulically operated out and down style stabilizers. This system shall meet or exceed all requirements of the NFPA specifications related to stabilization and setup on sloped surfaces.</p> <p>The stabilizer/leveling jacks shall have a maximum spread of 14' measured from the centerline of the jack footpads when the beams are fully extended. The beams shall be 6.88" wide x 9.00" high with 3/4" thick top and bottom plates and 1/2" thick sides of 100,000-PSI minimum yield strength steel. The cylinders shall have pilot-operated check valves with thermal relief designed to insure that the beams shall not drift out of the stowed position during travel. Wear pads shall guide the stabilizers.</p> <p>The horizontal extension cylinders shall be totally enclosed within the beams and shall incorporate telescoping hydraulic tubing to supply the jack cylinder hydraulic power. Stabilizer</p>		



	Bidder Complies	
	Yes	No
<p>hydraulic hoses shall remain stationary during operation of the stabilizers to prevent hose wear and potential failure. The cylinders shall be equipped with decelerators to reduce the speed of extension and retraction when the beams are near the fully retracted and extended positions. The stabilizer extension hydraulic cylinders shall have the following dimensions: 2.25" bore, 1.38" rod, and 39.25" stroke.</p> <p>The vertical jack cylinders shall be capable of 18.00" ground penetration. The cylinders shall be supplied with pilot operated check valves on each jack cylinder to hold the cylinder in the stowed or working position, should a charged line be severed at any point in the hydraulic system. For safety, the integral holding valves shall be located in the cylinder base end, NOT in the transfer tube. Vertical jack cylinder rods shall be fully enclosed by a telescoping inner box to protect the cylinder rods from damage. The stabilizer jack hydraulic cylinders shall have the following dimensions: 4.25" bore, 3.00" rod, and 34.88" stroke.</p> <p>Each stabilizer jack shall have a polished stainless steel shield. The stainless steel shield shall be a maximum of 14.00" wide so as to allow the extension of the stabilizer between parked cars or other obstacles. This plate shall serve as a protective guard and a mounting surface for warning lights. The top, forward, and rear edges shall be flanged back 90 degrees for added strength.</p> <p><b><u>STABILIZER PADS</u></b></p> <p>The stabilizer footpad shall be 12.00" in diameter. The footpad shall be attached to the jack cylinder rod by means of a machined ball at the end of the jack cylinder rod which mates to a socket machined into the footpad. The footpad shall have the ability to pivot 20 degrees from horizontal in any direction to allow setup on uneven terrain.</p> <p><b><u>AUXILIARY STABILIZER PADS</u></b></p> <p>An auxiliary ground pad shall be supplied for each stabilizer to provide additional load distribution on soft surfaces. The pads shall be 31" x 26" and made from a lightweight composite material. The ground pressure shall not exceed 75 pounds per square inch when the ground pads are used and the apparatus is fully loaded and the aerial device is carrying its rated capacity in any position. The pads shall be stored in a double stacked configuration, two (2) behind each rear tandem axle in a single bracket.</p> <p><b><u>STABILIZER CONTROLS</u></b></p> <p>An electrically controlled hydraulic valve shall power stabilizer movement. The valve can also be manually controlled in the event of electrical malfunction. Hydraulic power override controls shall be incorporated into the valve. The manual override mechanism shall be completely sealed within the valve assembly to prevent any possibility of corrosion.</p> <p>The stabilizer controls shall be located to provide the operator with a full view of each stabilizer being positioned. Each stabilizer control panel shall include the following:</p>		

	Bidder Complies	
	Yes	No
<p>-In/out stabilizer beam control toggle switch</p> <p>-Up/down stabilizer jack control toggle switch</p> <p>-Emergency hydraulic power unit (EPU) control toggle switch</p> <p>-High idle control toggle switch</p> <p>-Stabilizer fully extended LED indicator lights</p> <p>-Stabilizer planted LED indicator lights</p> <p>As a safety device, an electrically actuated diverter valve shall be provided. The hydraulic power shall be diverted to the aerial ladder controls automatically the instant all stabilizer jacks are firmly planted on the ground. Once the aerial ladder is raised from the bedded position, the stabilizer hydraulic power is cut off so the stabilizers shall not accidentally be moved while the aerial is being operated.</p> <p>To aid in leveling the unit, two bubble type angle indicators shall be located near the stabilizer controls. One indicator shall show the angle of the truck from the front to rear and the other shall show the side to side angle of the truck. The indicators shall be color coded green to show when the truck has been properly leveled allowing the aerial device to be operated at full capacity.</p> <p>A stabilizer deployment audible warning alarm shall be provided at each side of the body, activated by the stabilizer movement.</p> <p>A "Stabilizers Not Stowed" indicator light shall be provided in the cab within view of the driver. It shall illuminate automatically whenever the stabilizers are not fully stowed to prevent damage to the vehicle if it is moved. The stabilizer system shall also be wired to the "Do Not Move Truck" indicator light. This light shall flash whenever the apparatus parking brake is not engaged and the stabilizers are not fully stowed.</p> <p><b><u>STABILIZER PINS</u></b></p> <p>The stabilizer jacks shall not have holes for the stabilizer pins.</p> <p><b><u>STABILIZER CONTROL BOX SMOOTH ALUMINUM DOOR</u></b></p> <p>Vertically hinged smooth aluminum doors shall be provided over each stabilizer control box. The doors shall be hinged inboard.</p> <p><b><u>HYDRAULIC SYSTEM</u></b></p> <p>All hose assemblies shall be assembled and crimped by the hose manufactures certified technician. An assembly cell shall be located on the premises where the technician can perform audits of the final aerial assembly for proper fitting torque and hose routing.</p>		

	Bidder Complies	
	Yes	No
<p>All manufacturing employees responsible for the installation of hydraulic components shall be properly trained. Training shall include: proper handling, installation, torque requirements, cleanliness and quality control procedures for hydraulic components.</p> <p>Hoses used in the aerial hydraulic system shall be of a premium quality hose with a high abrasion resistant cover. All pressure hoses shall have a working pressure of 4000 psi. and a burst pressure rating of 16,000 psi.</p> <p>The hydraulic oil shall be a premium Multi-Vis product that shall have a leading edge additive package, provide oxidation stability, be extremely shear stable, and have maximum anti-wear properties. All oil delivered to the manufacturing site shall have a minimum ISO cleanliness level of 18/15/13.</p> <p>Each aerial shall be evaluated as to the region and climate where it shall be used to determine the optimum viscosity and proper oil grade. Oil viscosity shall be based on an optimum range of 80 to 1000 SUS during normal aerial use. Before shipment of the unit, an oil sample shall be taken and analyzed to confirm the oil is within the allowable ISO grade tolerance.</p> <p>The aerial hydraulic system shall have a minimum oil cleanliness level of ISO 18/15/13 based on the ISO 4406:1999 cleanliness standard. Each customer shall receive a certificate of actual cleanliness test results and an explanation of the rating system.</p> <p>Each aerial shall include an oil sample port, identified with a yellow dust cap and a label, for subsequent customer testing.</p> <p>Ball valves shall be provided in the hydraulic suction and return lines to permit component servicing without draining the oil reservoir.</p> <p>The system hydraulic pressure shall be displayed on a 2.5" liquid filled gauge, located on the control console.</p> <p>The hydraulic system shall be additionally protected from excessive pressure by a secondary pressure relief valve set at 3150 psi. In the event the main hydraulic pump compensator malfunctions, the secondary relief shall prevent system damage.</p> <p><b><u>HYDRAULIC CYLINDERS</u></b></p> <p>All cylinders used on the aerial device shall be produced by a manufacturer that specializes in the manufacture of hydraulic cylinders.</p> <p>Each cylinder shall include integral safety holding cartridges. No manifold or transfer tube mounted cartridges shall be acceptable.</p> <p>Each cylinder shall be designed to a minimum safety factor of 4:1 to failure.</p>		

	Bidder Complies	
	Yes	No
<p>All safety holding cartridges shall be installed at the cylinder manufacturer, in a controlled clean environment to avoid possible contamination and or failure.</p> <p><b><u>HYDRAULIC PUMP</u></b>  The hydraulic system shall be supplied by a variable displacement, load and pressure compensating piston pump. The pump shall meet the demands of all three (3) simultaneous aerial functions. The pump shall provide proper flow for a single aerial function with the engine at idle speed. A switch shall be provided on the control console to increase the engine speed for multiple function operation.</p> <p><b><u>EMERGENCY PUMP</u></b>  The aerial shall be equipped with an emergency hydraulic pump, electrically driven from the truck batteries. The pump shall be capable of running for 30 minutes for limited aerial functions to stow the unit in case of a main pump or truck system failure. A momentary switch shall be located at the stabilizer and aerial control locations to activate the emergency pump.</p> <p><b><u>AERIAL CONTROL VALVE</u></b>  The aerial hydraulic control valve shall be designed with special spool flows, limiting the oil flow for the designed function speed. The valve shall be manually controlled and be located in the control console with the handles protruding through the operating surface for operation. The activation handles shall be spaced a minimum of 3.5" for ease of operation.</p> <p><b><u>OIL RESERVOIR</u></b>  The oil reservoir shall have a minimum capacity of 38 gallons. The oil fill location shall be easily accessible and be labeled "Hydraulic Oil Only" and also indicate the grade of oil that is installed in the reservoir. The fill shall have a desiccant breather filter with a water capacity of 4 fluid ounces and a 5 micron rating. A drain hose shall be included and shall terminate with a quarter turn ball valve. Two (2) suction ports shall be provided, one (1) for the main hydraulic pump and one (1) for the emergency pump. The main suction shall be slightly elevated off the bottom of the reservoir and include a 100 mesh suction strainer. The emergency suction port shall be closer to the bottom of the reservoir to provide some reserve oil for emergency operation. A six (6) disc type magnetic drain shall also be provided to collect any ferrous contaminants. A float type sending unit in the reservoir shall provide an indication of oil level on an electric gauge mounted adjacent to the fill location.</p> <p><b><u>HIGH PRESSURE FILTER</u></b>  The pressure filter shall be rated for 6,000 psi working pressure and generously sized for efficiency and capacity. A 90 psi bypass spring shall be included to protect the element and hydraulic system during lower than normal system operating temperatures.</p>		

	Bidder Complies	
	Yes	No
<p>The 5Q filter element shall be constructed of a micro glass medium, which has the highest capture efficiency, dirt holding capacity and life expectancy over other media such as cellulose and synthetic. The nominal rating shall be 5 micron and have an efficiency rating of 99.3 % for 5 micron sized particles. The element shall have a dirt holding capacity of not less than 35 grams.</p> <p><b><u>RETURN FILTER</u></b></p> <p>The return filter shall be rated for 800 psi working pressure and generously sized for efficiency and capacity. A 25 psi bypass spring shall be included to protect the element and hydraulic system during lower than normal system operating temperatures. The 5Q filter element shall be constructed of a micro glass medium, which has the highest capture efficiency, dirt holding capacity and life expectancy over other media such as cellulose and synthetic. The nominal rating shall be 5 microns and have an efficiency rating of 99.6% for 5 micron sized particles. The element shall have a dirt holding capacity of not less than 40 grams.</p> <p><b><u>HYDRAULIC SWIVEL</u></b></p> <p>The aerial ladder shall be equipped with a three (3) port, high pressure hydraulic swivel which shall connect the hydraulic lines from the hydraulic pump and reservoir through the rotation point to the aerial control bank. The hydraulic swivel shall allow for 360 degree continuous rotation of the aerial.</p> <p><b><u>ELECTRIC SWIVEL</u></b></p> <p>The ladder shall be equipped with an electric swivel to allow 360 degrees rotation of the aerial while connecting all electrical circuits through the rotation point. A minimum of 32 collector rings shall be provided that are capable of supplying 20 amp continuous service. All collector rings shall be enclosed and protected with desiccant plugs against condensation and corrosion. No oil or silicone shall be used.</p> <p><b><u>12-BIT ABSOLUTE ENCODER</u></b></p> <p>The aerial ladder shall be equipped with a 12-Bit Absolute Encoder which provides 4096 counts per shaft turn for position and direction reference.</p> <p>The 12-Bit Absolute Encoder shall provide a unique binary word to reference each position and direction for all 360 degrees of rotation.</p> <p>If the power is interrupted for any reason, the 12-Bit Absolute Encoder shall allow power to be returned to the system without having to re-zero the settings.</p> <p>The 12-Bit Absolute Encoder shall be an integral part of a micro-processor based control system.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>ELECTRICAL SYSTEM</u></b></p> <p>The aerial electrical system shall be designed and manufactured in such a way that the power and signal protection and control compartments shall contain circuit protection devices and power control devices. The power and signal protection and control components shall be protected against corrosion, excessive heat, excessive vibration, physical damage, and water spray.</p> <p>The aerial electrical system shall be designed and manufactured to allow the following:</p> <ul style="list-style-type: none"> <li>- All of the serviceable components shall be readily accessible.</li> <li>- Circuit protection devices shall be utilized to protect each circuit.</li> <li>- All circuit protection devices shall be sized to prevent wire and component damage when subjected to extreme current overload.</li> <li>- General protection circuit breakers shall be Type-I automatic reset (continuously resetting) or Type-II (manual resetting) and conform to SAE requirements. When required, automotive type fuses conforming to SAE requirements shall be utilized to protect electronic equipment.</li> <li>- Power control relays and solenoids, when utilized, shall have a direct current (dc) rating of 125% of the maximum current for which the circuit is protected.</li> </ul> <p>The aerial electrical system shall be designed and manufactured to allow the following:</p> <ul style="list-style-type: none"> <li>- Toggle switches shall be utilized that are certified for the outside conditions that fire apparatus experience. (no exception)</li> <li>- All wiring shall be protected through conduit or loom.</li> <li>- All wiring harnesses shall be properly supported to eliminate harness damage through rubbing.</li> <li>- An inductive proximity switch and illumination light shall be incorporated into the boom support.</li> <li>- The aerial master and aerial PTO can be engaged after the water pump has been engaged without having to bring the RPM back to idle.</li> <li>- Standard cabling to the tip of the aerial shall consist of one (1) 16/20 cable and one (1) 12/8 cable.</li> </ul> <p><b><u>DRIVER SIDE TORQUE BOX POWER DISTRIBUTION PANEL</u></b></p> <p>A fuse and relay panel, located behind the driver side stabilizer, shall include the following:</p> <ul style="list-style-type: none"> <li>- NEMA 4x rated weatherproof enclosure</li> </ul>		

	Bidder Complies	
	Yes	No
<p>- Relays, fuses, and circuit breakers for aerial and stabilizer interlocks and control switches</p> <p><b><u>TURNTABLE LIGHTING</u></b></p> <p>The turntable shall be lighted for nighttime operation with a minimum of two (2) work lights activated by the aerial master switch. A foot switch shall be located at the turntable console to allow hydraulic flow to the aerial device. The foot switch shall be protected by a cover to prevent accidental activation. Activation of the foot switch is necessary for aerial device operation.</p> <p><b><u>TURNTABLE CONSOLE</u></b></p> <p>The following switches and indicator lights shall be standard on the turntable console:</p> <ul style="list-style-type: none"> <li>- High idle on/off switch</li> <li>- Tip/Tracking light switch</li> <li>- Indicator and alarm test switch</li> <li>- Emergency hydraulic power switch</li> <li>- STABILIZERS NOT FULLY EXTENDED amber indicator light</li> <li>- Rung alignment green indicator light</li> </ul> <p>The turntable console shall be lighted for nighttime operation with one (1) work light activated by the aerial master switch. A fuse panel shall be located in the turntable console.</p> <p><b><u>TURNTABLE OVERRIDE CONTROLS</u></b></p> <p>The aerial manual override controls shall be located in the turntable control console.</p> <p><b><u>MASTER OVERRIDE CONTROLS</u></b></p> <p>An emergency power switch shall be located at the rear of the apparatus. The switch shall activate the emergency power unit and allow control of the aerial or stabilizers based on the direction the switch is toggled.</p> <p>A work light shall be provided to illuminate the master override controls when the battery switch is active and the master override door is open.</p> <p><b><u>BOOM SUPPORT</u></b></p> <p>A Turck inductive proximity switch shall be provided on the boom support to detect if the aerial device is fully stowed within the boom support.</p> <p><b><u>STABILIZER INDICATOR</u></b></p> <p>A "Stabilizers Not Stowed" indicator shall be provided in the driver's compartment. It shall illuminate automatically whenever the stabilizers are not fully stowed, to prevent damage to the</p>		

	Bidder Complies	
	Yes	No
<p>apparatus if moved. The stabilizer system shall also be wired to the "Do Not Move" indicator light, which shall flash whenever the apparatus parking brake is not fully engaged and the stabilizers are not fully stowed.</p> <p><b><u>CRADLE INTERLOCK SYSTEM</u></b></p> <p>A cradle interlock system shall be provided to prevent the lifting of the aerial from the nested position until the operator has positioned all the stabilizers in a load supporting configuration. A switch shall be installed at the cradle to prevent operation of the stabilizers once the aerial has been elevated from the nested position.</p> <p><b><u>STABILIZER ALARM</u></b></p> <p>An electronic warning device shall be provided at each stabilizer to warn personnel that the stabilizers are being deployed. Each alarm shall produce a fast pulsing 90 DBA signal and shall cancel only when the stabilizer is put into a load bearing configuration.</p> <p><b><u>STABILIZER SCENE LIGHTS</u></b></p> <p>A 4.00" clear floodlight shall be provided on each stabilizer to illuminate the surrounding area. The light shall be actuated by the aerial master switch.</p> <p><b><u>SPOTLIGHTS</u></b></p> <p>There shall be four (4) bail mount 12 volt DC LED lights furnished.</p> <ul style="list-style-type: none"> <li>• One (1) shall be mounted on the driver's side of the base section of the ladder.</li> <li>• One (1) shall be mounted on the passenger's side of the base section of the ladder.</li> <li>• One (1) shall be mounted on the driver's side tip of aerial.</li> <li>• One (1) shall be mounted on the passenger's side tip of aerial.</li> </ul> <p>The painted parts of this light assembly to be white.</p> <p>Power to the "tracking lights" shall be controlled by an on/off switch at the turntable control operator's position.</p> <p>The lights at the platform shall be controlled by turntable only.</p> <p><b><u>LIGHTING ON AERIAL LADDER</u></b></p> <p>There shall be LED rung lighting provided on both sides of the aerial ladder base, lower and upper mid, and fly sections. The lighting shall be located adjacent to the ladder rungs along the lower rail of the ladder sections and shall run the length of the ladder section.</p> <p>The color of the sections shall be:</p> <ul style="list-style-type: none"> <li>• The base section of the ladder to be green.</li> <li>• The lower mid section of the ladder to be green.</li> </ul>		



	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• The upper mid section of the ladder to be amber.</li> <li>• The fly section of the ladder to be red.</li> </ul> <p>The LED rung lighting shall be activated when a switch at the turntable operator's panel is activated through the aerial master.</p> <p>The lights may be load managed when the parking brake is applied.</p> <p><b><u>STABILIZER WARNING LIGHTS</u></b></p> <p>There shall be four (4) LED flashing warning lights with chrome flanges installed, one (1) on each stabilizer cover panel.</p> <ul style="list-style-type: none"> <li>• The front stabilizer pan lights shall be red LED with a clear lens</li> <li>• The rear stabilizer pan lights shall be red LED with a clear lens</li> </ul> <p>These warning lights shall be activated by the same switch as the side warning lights.</p> <p><b><u>STABILIZER BEAM WARNING LIGHTS</u></b></p> <p>Two (2) 4.00" diameter red LED flashing lights shall be mounted on each stabilizer, one (1) facing forward and one (1) facing rearward.</p> <p>The lights shall be recessed in the horizontal beam of the stabilizer.</p> <p>These warning lights shall be activated with the aerial master switch.</p> <p><b><u>STABILIZER SCENE LIGHTS</u></b></p> <p>There shall be one (1) LED strip light installed under each stabilizer beam to illuminate the surrounding area. A total of four (4) lights shall be installed. The lights shall be activated by the aerial master switch.</p> <p><b><u>2-WAY AERIAL COMMUNICATION SYSTEM</u></b></p> <p>There shall be a two-way intercom system provided. The control module shall be located on the turntable operator console, provided there is room, and have an LED volume display and push-button volume control.</p> <p>A hands free module shall be located at the aerial tip or platform and constantly transmit to the other module unless the control module push-to-talk button is pressed.</p> <p>Each intercom unit shall be weatherproof.</p> <p><b><u>RAISED AERIAL PEDESTAL</u></b></p> <p>The aerial pedestal shall be raised to accommodate the height of the cab.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>LIFTING EYE ASSEMBLY - ROPE RESCUE ATTACHMENT</u></b></p> <p>A lifting eye assembly shall be provided that is designed to evenly distribute load at the tip of the aerial. The egress shall include attachment points for the lifting eye assembly. The lift eye assembly is retained by two (2) locking pins, one (1) at each end outboard side of the egress. Leveling is maintained by the lifting eye assembly rotating within the egress mounting.</p> <p><b><u>COLLISION AVOIDANCE</u></b></p> <p>The aerial device shall be supplied with a collision avoidance control system. The collision avoidance control system shall be calibrated so that the aerial device does not make contact with any part of the fire apparatus during normal operation. The collision avoidance system shall also prevent the aerial device from being lowered into the cradle if the aerial monitor is not in the stowed position. The collision avoidance control system shall consist of the following sensors:</p> <p>Single axis sensor to determine aerial device elevation.</p> <p>Angle sensors to determine turntable angle with reference to aerial device position.</p> <p>13-bit absolute encoder integral to the swivel to determine aerial device rotation.</p> <p>The aerial ladder shall be equipped with a 13-bit absolute encoder, which provides 8192 counts per shaft turn for position and direction reference.</p> <p>The 13-bit absolute encoder shall provide a unique binary word to reference each position and direction for all 360 degrees of rotation.</p> <p>If the power is interrupted for any reason, the 13-bit absolute encoder shall allow power to be returned to the system without having to re-zero the settings.</p> <p>The 13-bit absolute encoder shall be an integral part of a microprocessor based control system</p> <p>The collision avoidance control system shall be divided up to a maximum of nine (9) control zones. Each zone shall have its own independent rotation and elevation parameters.</p> <p>The collision avoidance control system shall be equipped with a warning system that alerts the operator when the aerial device has reached the limits of each control zone. The warning system shall sound when either the rotation or elevation movements reach the limits of the control zone.</p> <p>The warning system alarm and red light shall be active whenever the ladder is in a restricted area and shall then prevent aerial device movement.</p> <p>A green indicator light shall activate when the aerial is in a position to be safely stowed.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>CONTROL SYSTEM WARRANTY</u></b></p> <p>The control system components shall be warranted against defective materials or workmanship for a period of <b>five (5) years</b> from the date of delivery to the original purchaser. The warranty shall also include a standard repair time for covered components.</p> <p>A copy of the fire apparatus manufacturer's warranty shall be included with the bid.</p> <p><b><u>AERIAL TURNTABLE SAFETY BARS</u></b></p> <p>Safety bars shall be installed at the aerial turntable.</p> <p><b><u>WATER SYSTEM</u></b></p> <p>A waterway system shall be provided consisting of the following components and features:</p> <p>A 5.00" pipe connected to the water supply on one end and to a water swivel at the rotation point of the turntable. The water swivel shall allow the ladder to rotate 360 degrees continuously while flowing water.</p> <p>A 4.00" waterway swivel is to be routed through the rotation point swivel up to the heel pin swivel. The heel pin swivel shall allow the water to flow to the ladder pipe while elevating the aerial ladder from -5 degrees to 75 degrees. The heel pivot pin is not integral with the waterway swivel at any point. The design of the waterway shall allow complete servicing of the waterway swivel without disturbing the heel pivot pin.</p> <p>The integral telescopic water system shall consist of a 4.50" diameter tube in the base section, a 4.00" diameter tube in the inner mid-section, 3.50" diameter tube in the outer mid-section and a 3.00" diameter tube in the fly section. The telescopic water pipes shall be anodized aluminum.</p> <p>The rotational torque shall have adequate power to rotate the ladder into a full 1000 gallon per minute water stream directed at 90 degrees to the side while maintaining the fully rated tip load.</p> <p>The aerial shall be capable of discharging up to 1000 gallons per minute at 100 pounds per square inch parallel to the ladder and 90 degrees to each side of center while maintaining the fully rated tip load.</p> <p>An adjustable intake relief valve shall be furnished to protect the aerial waterway from a pressure surge.</p> <p>A 1.50" drain valve shall be located at the lowest point of the waterway system.</p> <p><b><u>WATERWAY SEALS</u></b></p> <p>The waterway seals shall be of type-B PolyPak design, composed of nitroxile seal and a nitrile wiper, which together offer maximum stability and extrusion resistance on the waterway. The seal shall be capable of withstanding pressures up to 2000 psi, temperatures in excess of 250</p>		

	Bidder Complies	
	Yes	No
<p>degrees Fahrenheit and have resistance to all foam generating solutions. The seals shall be internally lubricated.</p> <p>The waterway seals shall have automatic centering guides constructed of synthetic thermalpolymer. The guides shall provide positive centering of the extendible sections within each other and the base section to insure longer service life and smoother operation.</p> <p><b><u>AERIAL MONITOR</u></b></p> <p>A monitor with stow and deploy shall be provided at the tip with a Akron 1250 gpm Model 5177.</p> <p>The monitor's functions shall be controlled electrically from two (2) separate locations. One (1) control shall be located at the control console and the other at the ladder tip.</p> <p>There shall be a courtesy light at the tip of the aerial to illuminate the controls.</p> <p>Vertical travel of this monitor shall be -45 degrees to 90 degrees. Horizontal rotation shall be 90 degrees to each side of the center line of the aerial device.</p> <p><b><u>AERIAL WATERWAY FLOW METER</u></b></p> <p>A digital flow indicator with a four (4) digit LED display shall be provided for the aerial waterway at the turntable control station.</p> <p>The display shall have a flow totalizer, programmable high and low flow warnings, and automatically adjust LED brightness for day/night viewing.</p> <p><b><u>REAR INLET</u></b></p> <p>A 5.00" NST inlet to the aerial waterway shall be provided at the rear of the apparatus. It shall be furnished with a 5.00" chrome plated adapter and a 5.00" chrome plated, long handle cap.</p> <p><b><u>WATERWAY LOCKING SYSTEM</u></b></p> <p>The aerial ladder waterway monitor shall be capable of being positioned at either the fly section or at the next lower section of the ladder.</p> <p>The monitor location shall be changeable by the use of a single handle, located at the side of the ladder.</p> <p>The handle, attached to a cam bracket, shall simply be moved forward to lock the monitor at the fly section and back to lock it to the previous section.</p> <p>There shall be no pins to remove and reinstall.</p> <p>The monitor shall be operational at all times, regardless of its position, without connecting or disconnecting electrical lines.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>TOOLS</u></b></p> <p>The following tools shall be provided for retorquing of all specified bolts as recommended by the manufacturer:</p> <p>Torque Wrench</p> <p>All Required Extensions, Sockets and Adapters</p> <p>4-to-1 Multiplier</p> <p><b><u>MANUALS</u></b></p> <p>Two (2) operator maintenance manuals and two (2) wiring diagrams pertaining to the aerial device shall be provided with the apparatus at time of pick-up.</p> <p><b><u>INITIAL INSTRUCTION</u></b></p> <p>On initial delivery of the fire apparatus, the contractor shall supply a qualified representative to demonstrate the apparatus and provide initial instruction to the fire department regarding the operation, care, and maintenance of the apparatus for a period of three (3) days.</p> <p><b><u>LOOSE EQUIPMENT</u></b></p> <p>The following equipment shall be furnished with the completed unit:</p> <p>- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit</p> <p>One (1) set of reflective emergency triangles shall be provided.</p> <p><b><u>NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT</u></b></p> <p>The following loose equipment as outlined in NFPA 1901, 2016 edition, section 9.9.3 and 9.9.4 shall be provided by the fire department.</p> <ul style="list-style-type: none"> <li>• 800 ft (240 m) of 2.50" (65 mm) or larger fire hose, in any combination.</li> <li>• 400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose, in any combination.</li> <li>• One (1) handline nozzle, 200 gpm (750 L/min) minimum.</li> <li>• Two (2) handline nozzles, 95 gpm (360 L/min) minimum.</li> <li>• One (1) playpipe with shutoff and 1.00" (25 mm), 1.125" (29 mm), and 1.25" (32 mm) tips.</li> <li>• One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than four (4), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer.</li> <li>• One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s).</li> </ul>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• One (1) first aid kit.</li> <li>• Four (4) salvage covers, each a minimum size of 12 ft × 14 ft (3.6 m × 5.5 m).</li> <li>• Four (4) combination spanner wrenches.</li> <li>• Two (2) hydrant wrenches.</li> <li>• One (1) double female 2.50" (65 mm) adapter with National Hose threads.</li> <li>• One (1) double male 2.50" (65 mm) adapter with National Hose threads.</li> <li>• One (1) rubber mallet, for use on suction hose connections.</li> <li>• Four (4) ladder belts meeting the requirements of NFPA 1983.</li> <li>• One (1) 150 ft (45 m) light-use life safety rope meeting the requirements of NFPA 1983.</li> <li>• One (1) 150 ft (45 m) general-use life safety rope meeting the requirements of NFPA 1983.</li> <li>• One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, <i>Standard for High Visibility Public Safety Vests</i>, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.</li> <li>• Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band.</li> <li>• Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.</li> <li>• One (1) automatic external defibrillator (AED).</li> <li>• If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, shall be carried mounted in brackets fastened to the apparatus.</li> <li>• If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side shall be carried. Any intake connection larger than 3.00" (75 mm) shall include a pressure relief device that meets the requirements of 16.6.6.</li> <li>• If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.</li> <li>• If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters shall be carried to allow feeding the supply hose from a 2.50" NH thread male discharge and to allow the hose to connect to a 2.50" NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.</li> </ul>		

	Bidder Complies	
	Yes	No
<p><b><u>SOFT SUCTION HOSE PROVIDED BY FIRE DEPARTMENT</u></b></p> <p>NFPA 1901, 2016 edition, section 9.8.2.1 requires a minimum of 20' of suction hose or 15' of supply hose shall be carried.</p> <p>Hose is not on the apparatus as manufactured. The fire department shall provide suction or supply hose.</p> <p><b><u>DRY CHEMICAL EXTINGUISHER</u></b></p> <p>There shall be One (1) extinguisher, 20 lb dry chemical extinguisher(s) provided.</p> <p><b><u>WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT</u></b></p> <p>NFPA 1901, 2016 edition, section 9.9.4 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus.</p> <p>The extinguisher is not on the apparatus as manufactured. The fire department shall provide and mount the extinguisher.</p> <p><b><u>FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT</u></b></p> <p>NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) flathead axe mounted in a bracket fastened to the apparatus.</p> <p>The axe is not on the apparatus as manufactured. The fire department shall provide and mount the axe.</p> <p><b><u>PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT</u></b></p> <p>NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) pickhead axe mounted in a bracket fastened to the apparatus.</p> <p>The axe is not on the apparatus as manufactured. The fire department shall provide and mount the axe.</p> <p><b><u>PAINT</u></b></p> <p>The exterior custom cab and body painting procedure shall consist of a seven (7) step finishing process as follows:</p> <ol style="list-style-type: none"> <li>1. <u>Manual Surface Preparation</u> - All exposed metal surfaces on the custom cab and body shall be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces shall be removed and sanded to a smooth finish. Exterior seams shall be sealed before painting. Exterior surfaces that shall not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.</li> <li>2. <u>Chemical Cleaning and Pretreatment</u> - All surfaces shall be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces shall be properly cleaned and treated using a high pressure, high</li> </ol>		

	Bidder Complies	
	Yes	No
<p>temperature 4 step Acid Etch process. The steel and stainless surfaces shall be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion. A final pure water rinse shall be applied to all metal surfaces.</p> <p>3. <u>Surfacer Primer</u> - The Surfacer Primer shall be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.</p> <p>4. <u>Finish Sanding</u> - The Surfacer Primer shall be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.</p> <p>5. <u>Sealer Primer</u> - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.</p> <p>6. <u>Basecoat Paint</u> - Two coats of a high performance, two component high solids polyurethane basecoat shall be applied. The Basecoat shall be applied to a thickness that shall achieve the proper color match. The Basecoat shall be used in conjunction with a urethane clear coat to provide protection from the environment.</p> <p>7. <u>Clear Coat</u> - Two (2) coats of Clear Coat shall be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors shall be Clear Coated to match the body. Paint warranty for the roll-up doors shall be provided by the roll-up door manufacture.</p> <p>Each batch of basecoat color shall be checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color shall verified again to make sure that it matches the color standard. Electronic color measuring equipment shall be used to compare the color sample to the color standard entered into the computer. Color specifications shall be used to determine the color match. A Delta E reading shall be used to determine a good color match within each family color.</p> <p>All removable items such as brackets, compartment doors, door hinges, and trim shall be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly shall be finish painted before assembly.</p> <p>The paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) are to meet or exceed Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels are to meet or exceed the #6</p>		



	Bidder Complies	
	Yes	No
<p>A.C.T.standard in critical areas. These requirements must be met in order for the exterior paint finish to be considered acceptable. The manufacture's written paint standards shall be available upon request.</p> <p>The cab shall be two-tone, with the upper section painted #10 white along with a shield design on the cab face and lower section of the cab and body painted #90 red.</p> <p><b><u>PAINT - ENVIRONMENTAL IMPACT</u></b></p> <p>Contractor shall meet or exceed all current State regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. Controls shall include the following conditions:</p> <ul style="list-style-type: none"> <li>• Topcoats and primers shall be chrome and lead free.</li> <li>• Metal treatment chemicals shall be chrome free. The wastewater generated in the metal treatment process shall be treated on-site to remove any other heavy metals.</li> <li>• Particulate emission collection from sanding operations shall have a 99.99% efficiency factor.</li> <li>• Particulate emissions from painting operations shall be collected by a dry filter or water wash process. If the dry filter is used, it shall have an efficiency rating of 98.00%. Water wash systems shall be 99.97% efficient</li> <li>• Water from water wash booths shall be reused. Solids shall be removed on a continual basis to keep the water clean.</li> <li>• Paint wastes are disposed of in an environmentally safe manner.</li> <li>• Empty metal paint containers shall be to recover the metal.</li> <li>• Solvents used in clean-up operations shall be recycled on-site or sent off-site for distillation and returned for reuse.</li> </ul> <p>Additionally, the finished apparatus shall not be manufactured with or contain products that have ozone depleting substances. Contractor shall, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his State EPA rules and regulations.</p> <p><b><u>PAINT CHASSIS FRAME ASSEMBLY</u></b></p> <p>The chassis frame assembly shall be painted black before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.</p> <p>Components that are included with the chassis frame assembly that shall be painted are:</p> <ul style="list-style-type: none"> <li>• Frame rails</li> <li>• Frame liners</li> </ul>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• Cross members</li> <li>• Axles</li> <li>• Suspensions</li> <li>• Steering gear</li> <li>• Battery boxes</li> <li>• Bumper extension weldment</li> <li>• Frame extensions</li> <li>• Body mounting angles</li> <li>• Rear Body support substructure (front and rear)</li> <li>• Pump house substructure</li> <li>• Air tanks</li> <li>• Fuel tank</li> <li>• Castings</li> <li>• Individual piece parts used in chassis and body assembly</li> </ul> <p>Components treated with epoxy E-coat protection prior to paint:</p> <ul style="list-style-type: none"> <li>• Two (2) C-channel frame rails</li> <li>• Two (2) frame liners</li> </ul> <p><b><u>PAINT, REAR WHEELS</u></b> All wheel surfaces, inside and outside of inboard steel wheels only, shall be provided with powder coat paint #90 red.</p> <p><b><u>COMPARTMENT INTERIOR PAINT</u></b> The interior of compartmentation shall be painted with a gray spatter type paint.</p> <p><b><u>AERIAL DEVICE PAINT COLOR</u></b> The aerial device paint procedure shall consist of a six (6) step finishing process as follows:</p> <ol style="list-style-type: none"> <li>1. <u>Manual Surface Preparation</u> - All exposed metal surfaces on the aerial device structural components above the rotation point shall be thoroughly cleaned and mechanically shot-blasted to remove metal impurities and prepare the aerial for painting.</li> <li>2. <u>Primer/Surfacer Coats</u> - A two (2) component urethane primer/surfacer shall be hand applied to the chemically treated metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface. All seams shall be caulked before painting.</li> <li>3. <u>Hand Sanding</u> - The primer/surfacer coat shall be lightly sanded to an ultra smooth finish.</li> <li>4. <u>Sealer Primer Coat</u> - A two (2) component sealer primer coat shall be applied over the sanded primer.</li> </ol>		

	Bidder Complies	
	Yes	No
<p>5. <u>Topcoat Paint</u> - Urethane base coat shall be applied to opacity for correct color matching.</p> <p>6. <u>Clearcoat</u> - Two (2) coats of an automotive grade two (2) component urethane shall be applied.</p> <p>Surfaces that shall not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate.</p> <p>All buy out components, such as monitor, nozzle, gauges, etc. shall be supplied as received from the vendor.</p> <p>Removable items such as brackets shall be removed and painted separately to ensure paint coverage behind all mounted items.</p> <p>The aerial device (turntable and ladder sections) shall be painted white 10 using the six (6) step finishing process. The support structure, rotation motor, components below the rotation point and the stabilizers shall be cleaned, caulked, primed and painted high gloss black.</p> <p>The tip of the ladder shall be painted a contrasting color for high visibility.</p> <p><b><u>REFLECTIVE STRIPES</u></b></p> <p>Three (3) reflective stripes shall be provided across the front of the vehicle and along the sides of the body. The reflective band shall consist of a 1.00" white stripe at the top with a 1.00" gap then a 6.00" white stripe with a 1.00" gap and a 1.00" white stripe on the bottom.</p> <p>The reflective band provided on the cab face shall be below the headlights on the fiberglass.</p> <p><b><u>REAR CHEVRON STRIPING</u></b></p> <p>There shall be alternating chevron striping located on the rear-facing vertical surface of the apparatus. Covered surfaces shall include the rear wall and aluminum doors. Rear compartment doors, stainless steel access doors, and the rear bumper shall not be covered.</p> <p>The colors shall be red and fluorescent yellow green diamond grade.</p> <p>Each stripe shall be 6.00" in width.</p> <p>This shall meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface shall be covered with chevron striping.</p> <p><b><u>REFLECTIVE STRIPE ON STABILIZERS</u></b></p> <p>There shall be a 4.00" wide fluorescent yellow green diamond grade reflective stripe provided on the forward and rear facing side of all aerial stabilizers.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>"Z" JOG IN REFLECTIVE STRIPE</u></b></p> <p>There shall be one (1) "Z"-shaped jog(s) provided in the reflective stripe design.</p> <p><b><u>REFLECTIVE STRIPE OUTLINE</u></b></p> <p>A black outline shall be applied on the top and the bottom of the reflective band. There shall be three (3) set of outline stripes required.</p> <p><b><u>CAB DOOR REFLECTIVE STRIPE</u></b></p> <p>A 6.00" x 16.00" fluorescent yellow green diamond grade reflective stripe shall be provided across the interior of each cab door. The stripe shall be located approximately 1.00" up from the bottom, on the door panel.</p> <p>This stripe shall meet the NFPA 1901 requirement.</p> <p><b><u>UNDERCOATING, CAB &amp; BODY</u></b></p> <p>The apparatus shall be properly treated by an authorized dealer.</p> <p>The underside of the apparatus shall be undercoated with an asphalt petroleum based material, dark in color.</p> <p>The undercoating material utilized on the apparatus shall be formulated to resist corrosion and deaden unwanted sound or road noise.</p> <p>Coating texture shall appear firm, flexible, and resistant to abrasion. Minimum dry film thickness shall be in the range of 8.00 to 12.00 mils.</p> <p>The material shall be applied to the following areas:</p> <ul style="list-style-type: none"> <li>-Body and cab wheel well fender liners, on the back side only.</li> <li>-Underside of body and cab sheet metal, and structural components.</li> <li>-Underside and vertical sides of all sheet metal compartmentation, including support angles.</li> <li>-Structural support members under running boards, rear platforms, battery boxes, walkways, etc.</li> <li>-Inside surfaces of the pump heat enclosure. (when installed)</li> <li>-Suspension mounts.</li> <li>-Transmission cooler fittings.</li> </ul>		

	Bidder Complies	
	Yes	No
<p>-Engine mounts.</p> <p>-Bottom of torque boxes</p> <p>-Bottom and outside of framerails behind the forward edge of the water pump.</p> <p>Exclusions shall be:</p> <p>-Engine</p> <p>-Transmission</p> <p>-Drive lines</p> <p>-PTO's</p> <p>-Stabilizer controls (Aerials)</p> <p>-Proximity Switches (Aerials)</p> <p>-Schroeder valves and tank drains</p> <p>-Intake valves</p> <p>-Air Horns, sirens and back-up alarms</p> <p>-Framerails forward of the forward edge of the water pump.</p> <p><b><u>FIRE APPARATUS PARTS CD MANUAL</u></b></p> <p>There shall be two (2) custom parts manuals for the complete fire apparatus provided in CD format with the completed unit.</p> <p>The manuals shall contain the following:</p> <ul style="list-style-type: none"> <li>• Job number</li> <li>• Part numbers with full descriptions</li> <li>• Table of contents</li> <li>• Parts section sorted in functional groups reflecting a major system, component, or assembly</li> <li>• Parts section sorted in alphabetical order</li> <li>• Instructions on how to locate parts</li> </ul> <p>The manuals shall be specifically written for the chassis and body model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.</p>		

Bidder Complies	
Yes	No

**SERVICE PARTS INTERNET SITE**

The service parts information included in these manuals are also available on the factory website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.

**CHASSIS SERVICE CD MANUALS**

There shall be two (2) CD format chassis service manuals containing parts and service information on major components provided with the completed unit.

The manual shall contain the following sections:

- Job number
- Table of contents
- Troubleshooting
- Front Axle/Suspension
- Brakes
- Engine/Tires
- Wheels
- Cab
- Electrical, DC
- Air Systems
- Plumbing
- Appendix

The manual shall be specifically written for the chassis model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.

**CHASSIS OPERATION CD MANUALS**

There shall be two (2) CD format chassis operation manuals provided.

**ONE (1) YEAR MATERIAL AND WORKMANSHIP**

Each new piece of apparatus shall be provided with a minimum **one (1) year** basic apparatus material and workmanship limited warranty. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

**THREE (3) YEAR MATERIAL AND WORKMANSHIP**

The new chassis shall be provided with a three (3) year material and workmanship limited warranty. The warranty shall cover such portions of the chassis built by the manufacturer as

	Bidder Complies	
	Yes	No
<p>being free from structural failures caused by defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>ENGINE WARRANTY</u></b></p> <p>A <b>five (5) year</b> limited engine warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.</p> <p><b><u>STEERING GEAR WARRANTY</u></b></p> <p>A <b>three (3) year</b> limited steering gear warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.</p> <p><b><u>FIFTY (50) YEAR STRUCTURAL INTEGRITY</u></b></p> <p>The chassis frame and crossmembers shall be provided with a fifty (50) year material and workmanship limited warranty. The warranty shall cover the chassis frame and crossmembers as being free from defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</u></b></p> <p>Independent front suspension shall be provided with a <b>three (3) year</b> material and workmanship limited warranty. The manufacturer's warranty shall provide that the independent front suspension and steering gears be free from any defect related to material and workmanship on the portion of the apparatus built by the manufacturer that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>REAR AXLE TWO (2) YEAR MATERIAL AND WORKMANSHIP WARRANTY</u></b></p> <p>A <b>two (2) year</b> axle limited warranty shall be provided.</p> <p><b><u>BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</u></b></p> <p>A <b>three (3) year</b> brake system limited warranty shall be provided.</p> <p><b><u>TEN (10) YEAR STRUCTURAL INTEGRITY</u></b></p> <p>The new cab shall be provided with a <b>ten (10) year</b> material and workmanship limited warranty. The warranty shall cover such portions of the cab built by the manufacturer as being free from structural failures caused by defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p>		

	Bidder Complies	
	Yes	No
<p><b><u>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</u></b></p> <p>Each new piece of apparatus shall be provided with a <b>ten (10) year</b> pro-rated paint and corrosion limited warranty on the apparatus cab. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>FIVE (5) YEAR MATERIAL AND WORKMANSHIP</u></b></p> <p>The electronic modules and display(s) shall be provided with a five (5) year material and workmanship limited warranty. The warranty shall cover electronic modules to be free from failures caused by defects in material and workmanship.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>CAMERA SYSTEM WARRANTY</u></b></p> <p>A fifty four (54) month warranty shall be provided for the camera system.</p> <p><b><u>COMPARTMENT LIGHT WARRANTY</u></b></p> <p>A ten (10) year material and workmanship limited warranty shall be provided for the Pierce 12 volt DC LED strip lights. The warranty shall cover the LED strip lights to be free from defects in material and workmanship that would arise under normal use.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>TRANSMISSION WARRANTY</u></b></p> <p>The transmission shall have a <b>five (5) year/unlimited mileage</b> warranty covering 100 percent parts and labor. The warranty is to be provided by transmission supplier and not the apparatus builder.</p> <p><b><u>TRANSMISSION COOLER WARRANTY</u></b></p> <p>The transmission cooler shall carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty shall also be in effect for the first three (3) years of the warranty coverage and shall not exceed \$10,000 per occurrence. A copy of the warranty certificate shall be submitted with the bid package.</p> <p><b><u>WATER TANK WARRANTY</u></b></p> <p>The poly water tank shall be provided with a lifetime material and workmanship limited warranty.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p>		



	Bidder Complies	
	Yes	No
<p><b><u>TEN (10) YEAR STRUCTURAL INTEGRITY</u></b></p> <p>Each new piece of apparatus shall be provided with a <b>ten (10) year</b> material and workmanship limited warranty on the apparatus body. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY</u></b></p> <p>A roll-up door limited warranty shall be provided. The mechanical components of the roll-up door shall be warranted against defects in material and workmanship for the lifetime of the vehicle. A <b>six (6) year</b> limited warranty shall be provided on painted and satin roll up doors.</p> <p>A copy of the warranty certificate shall be submitted with the bid package.</p> <p><b><u>PUMP WARRANTY</u></b></p> <p>The pump shall be provided with a <b>five (5) year</b> material and workmanship limited warranty.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>TEN (10) YEAR PUMP PLUMBING WARRANTY</u></b></p> <p>The stainless steel plumbing components and ancillary brass fittings used in the construction of the water/foam plumbing system shall be warranted for a period of <b>ten (10) years or 100,000 miles</b>. This covers structural failures caused by defective design or workmanship, or perforation caused by corrosion, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser for a period of ten years from the date of delivery.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>FOAM SYSTEM WARRANTY</u></b></p> <p>A <b>one (1) year</b> material and workmanship limited warranty shall be provided on the foam system. A <b>five (5) year</b> material and workmanship limited warranty shall be provided on the foam system control head.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>TWENTY (20) YEAR AERIAL DEVICE STRUCTURAL INTEGRITY WARRANTY</u></b></p> <p>The aerial device shall be provided with a twenty (20) year material and workmanship limited warranty. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service. This warranty shall be limited to the torque box, turntable, aerial sections and other structural components.</p>		

	Bidder Complies	
	Yes	No
<p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>AERIAL SWIVEL WARRANTY</u></b></p> <p>A five (5) year limited swivel warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>HYDRAULIC SYSTEM COMPONENTS WARRANTY</u></b></p> <p>Aerial hydraulic system components shall be provided with a five (5) year material and workmanship limited warranty.</p> <p><b><u>HYDRAULIC SEAL WARRANTY</u></b></p> <p>Aerial hydraulic seals shall be provided with a three (3) year material and workmanship limited warranty.</p> <p>A copy of the warranty certificates shall be submitted with the bid package (no exception).</p> <p><b><u>AERIAL WATERWAY WARRANTY</u></b></p> <p>A ten (10) year limited waterway warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>FOUR (4) YEAR PRO-RATED PAINT AND CORROSION</u></b></p> <p>The aerial device shall be provided with a four (4) year pro-rated paint and corrosion limited warranty. The warranty shall cover exterior painted surfaces of the aerial device to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>SIX (6) YEAR GENERATOR MATERIAL AND WORKMANSHIP WARRANTY</u></b></p> <p>A six (6) year generator limited warranty shall be provided.</p> <p><b><u>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</u></b></p> <p>Each new piece of apparatus shall be provided with a <b>ten (10) year</b> pro-rated paint and corrosion limited warranty on the apparatus body. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p>		

	Bidder Complies	
	Yes	No
<p><b><u>VEHICLE STABILITY CERTIFICATION</u></b></p> <p>The fire apparatus manufacturer shall provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification shall be provided at the time of bid.</p> <p><b><u>ENGINE INSTALLATION CERTIFICATION</u></b></p> <p>The fire apparatus manufacturer shall provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification shall be provided at the time of delivery.</p> <p><b><u>POWER STEERING CERTIFICATION</u></b></p> <p>The fire apparatus manufacturer shall provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification shall be provided at the time of bid.</p> <p><b><u>CAB INTEGRITY CERTIFICATION</u></b></p> <p>The fire apparatus manufacturer shall provide, at the time of bid, a cab integrity certification. Testing shall meet or exceed the requirements below:</p> <ul style="list-style-type: none"> <li>• European Occupant Protection Standard ECE Regulation No.29.</li> <li>• SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.</li> <li>• SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.</li> </ul> <p>There shall be no exception to any portion of the cab integrity certification. Nonconformance shall lead to immediate rejection of bid.</p> <p><b><u>CAB DOOR DURABILITY CERTIFICATION</u></b></p> <p>Robust cab doors help protect occupants. Cab doors shall survive a 200,000 cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder shall certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.</p> <p><b><u>WINDSHIELD WIPER DURABILITY CERTIFICATION</u></b></p> <p>Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers shall survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 <i>Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles</i>. The bidder shall certify that the wiper system design has been tested and that the wiper system has met these criteria.</p> <p><b><u>ELECTRIC WINDOW DURABILITY CERTIFICATION</u></b></p> <p>Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design shall complete 30,000 complete up-down cycles and still function normally when finished. The bidder shall certify that sample doors and windows</p>		

	Bidder Complies	
	Yes	No
<p>similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.</p> <p><b><u>SEAT BELT ANCHOR STRENGTH</u></b></p> <p>Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design shall withstand 3000 lb of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder shall certify that each anchor design was pull tested to the required force and met the appropriate criteria.</p> <p><b><u>SEAT MOUNTING STRENGTH</u></b></p> <p>Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design shall be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder shall certify that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.</p> <p><b><u>CAB DEFROSTER CERTIFICATION</u></b></p> <p>Visibility during inclement weather is essential to safe apparatus performance. The defroster system shall clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure And Performance Requirements - Trucks, Buses, And Multipurpose Vehicles. The bidder shall certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.</p> <p><b><u>CAB HEATER CERTIFICATION</u></b></p> <p>Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. The cab heaters shall warm the cab 75 F from a cold-soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder shall certify that a substantially similar cab has been tested and has met these criteria.</p> <p><b><u>AMP DRAW REPORT</u></b></p> <p>The bidder shall provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.</p> <p>The manufacturer of the apparatus shall provide the following:</p> <ul style="list-style-type: none"> <li>• Documentation of the electrical system performance tests.</li> <li>• A written load analysis, which shall include the following: <ul style="list-style-type: none"> <li>○ The nameplate rating of the alternator.</li> <li>○ The alternator rating under the conditions specified per: <ul style="list-style-type: none"> <li>▪ Applicable NFPA 1901 or 1906 (Current Edition).</li> </ul> </li> <li>○ The minimum continuous load of each component that is specified per:</li> </ul> </li> </ul>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>▪ Applicable NFPA 1901 or 1906 (Current Edition). <ul style="list-style-type: none"> <li>○ Additional loads that, when added to the minimum continuous load, determine the total connected load.</li> <li>○ Each individual intermittent load.</li> </ul> </li> </ul> <p>All of the above listed items shall be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).</p>		