

Siddons-Martin

Emergency Group

Protecting the Southwest

3500 Shelby Lane
Denton, Texas 76207
GDN P115891
TXDOT MVD No. A115890
EIN 27-4333590

November 17, 2017

Shane Glaiser, Asst. Chief
Round Rock Fire Department
203 Commerce Blvd
Round Rock TX 78664

Proposal for Velocity PUC Pumper

Siddons-Martin Emergency Group, LLC is pleased to provide the following proposal to Round Rock Fire Department. Unit will comply with all specifications attached and made a part of this proposal. Total price includes delivery FOB Round Rock Fire Department and training on operation and use of the apparatus.

Description	Amount
EP804488, No. 614, 2108 Velocity PUC Pumper Pierce, Velocity, Pumper, PUC, DD13 470, 500 gal, PUC 1500 Price guaranteed for 30 days. Delivery within 9.5-10.5 months of order date. A warranty term of 12 months is included.	
	Vehicle Price \$ 749,836.00
	Performance Bond \$ 2,100.00
Full Prepay Discount (\$ 27,982.00). Total amount due with order. To receive full prepayment discounts, payment is due to Siddons-Martin within 14 days ARO.	Prepay Discount (\$ 27,982.00)
	SUB TOTAL \$ 723,954.00
	BuyBoard 491-15 \$ 1,500.00
	TOTAL \$ 725,454.00

Taxes. Tax is not included in this proposal. In the event that the purchasing organization is not exempt from sales tax or any other applicable taxes and/or the proposed apparatus does not qualify for exempt status, it is the duty of the purchasing organization to pay any and all taxes due. Balance of sale price is due upon acceptance of the apparatus at the factory.

Late Fee. A late fee of .033% of the sale price will be charged per day for overdue payments beginning ten (10) days after the payment is due for the first 30 days. The late fee increases to .044% per day until the payment is received. In the event a prepayment is received after the due date, the discount will be reduced by the same percentages above increasing the cost of the apparatus.

Cancellation. In the event this proposal is accepted and a purchase order is issued then cancelled or terminated by Customer before completion, Siddons-Martin Emergency Group may charge a cancellation fee. The following charge schedule based on costs incurred may be applied:

- (A) 10% of the Purchase Price after order is accepted and entered by Manufacturer;
- (B) 20% of the Purchase Price after completion of the approval drawings;
- (C) 30% of the Purchase Price upon any material requisition.

The cancellation fee will increase accordingly as costs are incurred as the order progresses through engineering and into manufacturing. Siddons-Martin Emergency Group endeavors to mitigate any such costs through the sale of such product to another purchaser; however, the customer shall remain liable for the difference between the purchase price and, if applicable, the sale price obtained by Siddons-Martin Emergency Group upon sale of the product to another purchaser, plus any costs incurred by Siddons-Martin to conduct such sale.

Acceptance. In an effort to ensure the above stated terms and conditions are understood and adhered to, Siddons-Martin Emergency Group, LLC requires an authorized individual from the purchasing organization sign and date this proposal and include it with any purchase order. Upon signing of this proposal, the terms and conditions stated herein will be considered binding and accepted by the Customer. The terms and acceptance of this proposal will be governed by the laws of the state of TX. No additional terms or conditions will be binding upon Siddons-Martin Emergency Group, LLC unless agreed to in writing and signed by a duly authorized officer of Siddons-Martin Emergency Group, LLC.

Sincerely,

Travis Walden

Siddons-Martin Emergency Group, LLC

I, _____, the authorized representative of Round Rock Fire Department, agree to purchase the proposed and agree to the terms of this proposal and the specifications attached hereto.

Signature & Date

Proposal for **Round Rock Fire Department**

Prepared by **Siddons-Martin Emergency Group**

11/16/2017



PERFORM. LIKE NO OTHER.™

CONTENTS

GENERAL DESIGN AND CONSTRUCTION.....	17
QUALITY AND WORKMANSHIP	17
DELIVERY.....	18
MANUAL AND SERVICE INFORMATION.....	18
SAFETY VIDEO	18
PERFORMANCE TESTS	18
SERVICE AND WARRANTY SUPPORT.....	19
COMMERCIAL GENERAL LIABILITY INSURANCE	19
SINGLE SOURCE MANUFACTURER	19
COMPARISON REPORT	20
SPECIAL INSTRUCTIONS	20
NFPA 2016 STANDARDS	20
NFPA COMPLIANCY	20
VEHICLE INSPECTION PROGRAM CERTIFICATION	20
PUMP TEST	21
GENERATOR TEST.....	21
BREATHING AIR TEST	21
BID BOND	21
PERFORMANCE BOND, 1 YEAR.....	21
APPROVAL DRAWING	22
ELECTRICAL WIRING DIAGRAMS	22
VELOCITY CHASSIS	22
WHEELBASE	22
GVW RATING.....	22
FRAME.....	22
FRONT NON DRIVE AXLE.....	23
FRONT SUSPENSION	23
FRONT SHOCK ABSORBERS	24
FRONT OIL SEALS.....	24
FRONT TIRES	24

REAR AXLE	24
TOP SPEED OF VEHICLE.....	24
REAR SUSPENSION.....	24
REAR OIL SEALS	25
REAR TIRES.....	25
TIRE BALANCE.....	25
TIRE PRESSURE MANAGEMENT	25
FRONT HUB COVERS	25
REAR HUB COVERS.....	25
CHROME LUG NUT COVERS	25
MUD FLAPS	25
WHEEL CHOCKS	26
WHEEL CHOCK BRACKETS.....	26
ELECTRONIC STABILITY CONTROL	26
ANTI-LOCK BRAKE SYSTEM	26
AUTOMATIC TRACTION CONTROL	26
BRAKES.....	27
AIR COMPRESSOR, BRAKE SYSTEM.....	27
BRAKE SYSTEM	27
BRAKE SYSTEM AIR DRYER.....	27
BRAKE LINES.....	27
AIR COMPRESSOR - BRAKE SYSTEM MAINTENANCE	28
ENGINEERING NOTE:.....	28
COMPRESSION FITTINGS ONLY.....	28
ENGINE.....	28
REPTO DRIVE.....	29
HIGH IDLE	29
ENGINE BRAKE	29
CLUTCH FAN.....	29
ENGINE AIR INTAKE.....	29
EXHAUST SYSTEM	29

RADIATOR	30
COOLANT LINES	30
FUEL TANK	31
DIESEL EXHAUST FLUID TANK	31
FUEL COOLER.....	31
TRANSMISSION	31
TRANSMISSION SHIFTER.....	32
TRANSMISSION PROGRAMMING	32
TRANSMISSION COOLER	32
DOWNSHIFT MODE (w/engine brake)	32
TRANSMISSION FLUID	32
DRIVELINE	32
STEERING	33
STEERING WHEEL	33
LOGO AND CUSTOMER DESIGNATION ON DASH	33
BUMPER	33
GRAVEL PAN	33
CENTER HOSE TRAY.....	34
CENTER HOSE TRAY COVER	34
LIFT AND TOW MOUNTS	34
TOW HOOKS.....	34
LICENSE PLATE BRACKET	34
LIGHT(S), AMDOR LUMABAR, BUMPER COVER.....	34
BUMPER COVER NOTCH.....	34
FRONT BUMPER NOTCH	35
ADJUSTABLE HOSE TRAY PARTITION.....	35
RHINO COATING - FRONT BUMPER	35
FRONT BUMPER LINE-X COATING.....	35
CAB	35
CAB PUMP ENCLOSURE.....	36
INTERIOR CAB INSULATION	36

FENDER LINERS	37
PANORAMIC WINDSHIELD	37
WINDSHIELD WIPERS	37
FAST SERVICE ACCESS FRONT TILT HOOD.....	37
ENGINE TUNNEL.....	37
CAB REAR WALL EXTERIOR COVERING.....	38
CAB LIFT	38
Cab Lift Interlock.....	39
GRILLE	39
DOOR JAMB SCUFFPLATES.....	39
FRONT CAB TRIM	39
SIDE OF CAB MOLDING	39
MIRRORS.....	39
CAB DOORS.....	39
CAB DOOR PANELS	40
RECESSED POCKET WITH ELASTIC COVER.....	40
ELECTRIC WINDOW CONTROLS	40
CAB STEPS.....	41
STEP LIGHTS	41
FENDER CROWNS.....	41
CREW CAB WINDOWS	41
WINDOW INTERIOR TRIM	41
Window Tint	41
Window Tint	41
Window Tint	41
Window Tint	42
Window Tint	42
INSULATION WITH EXPANDED METAL.....	42
CUP HOLDER.....	42
MOUNTING PLATE ON ENGINE TUNNEL.....	42
UNIVERSAL ADAPTER PLATE	42

CAB INTERIOR.....	42
CAB INTERIOR UPHOLSTERY	43
CAB INTERIOR PAINT	43
CAB FLOOR	43
CAB DEFROSTER	43
CAB/CREW CAB HEATER.....	44
AIR CONDITIONING	44
INTERIOR CAB INSULATION	45
SPECIAL DRAIN TUBES	45
SUN VISORS	45
GRAB HANDLE	45
ENGINE COMPARTMENT LIGHT	45
ACCESS TO ENGINE DIPSTICKS	46
CAB SAFETY SYSTEM	46
FRONTAL IMPACT PROTECTION	46
SIDE ROLL PROTECTION	47
SEATING CAPACITY	47
DRIVER SEAT.....	47
OFFICER SEAT	48
RADIO COMPARTMENT	48
REAR FACING LEFT SIDE CABINET	48
Cabinet Light	49
REAR FACING PASSENGER SIDE OUTBOARD SEAT	49
FORWARD FACING DRIVER SIDE OUTBOARD COMPARTMENT	50
FORWARD FACING CENTER SEATS	50
FORWARD FACING PASSENGER SIDE EMS COMPARTMENT	50
Compartment Light	51
TEMPERATURE CONTROLLED BOX	51
Compartment Light	51
SHELVING.....	51
SEAT UPHOLSTERY	51

AIR BOTTLE HOLDERS	51
SEAT BELTS	51
SHOULDER HARNESS HEIGHT ADJUSTMENT	52
HELMET STORAGE	52
CAB DOME LIGHTS	52
HAND HELD SPOTLIGHT	52
ADDITIONAL HAND HELD LIGHT	52
CAB INSTRUMENTATION	52
GAUGES	53
INDICATOR LAMPS	54
ALARMS	55
INDICATOR LAMP AND ALARM PROVE-OUT	56
CONTROL SWITCHES	56
CUSTOM SWITCH PANELS	57
DIAGNOSTIC PANEL	57
CAB LCD DISPLAY	58
AIR RESTRICTION INDICATOR	58
"DO NOT MOVE APPARATUS" INDICATOR	58
DO NOT MOVE TRUCK MESSAGES	58
SWITCH PANELS	59
WIPER CONTROL	60
SPARE CIRCUIT	60
SPARE CIRCUIT	60
SPARE CIRCUIT	60
SPARE CIRCUIT	61
OVERHEAD INSTRUMENT PANEL MODIFICATION	61
RECESS, DASH PANEL	61
INFORMATION CENTER	61
GENERAL SCREEN DESIGN	62
HOME/TRANSIT SCREEN	62
ON SCENE SCREEN	62

VIRTUAL BUTTONS.....	63
PAGE SCREEN.....	63
VEHICLE DATA RECORDER.....	65
Seat Belt Monitoring System.....	66
INTERCOM SYSTEM.....	66
RADIO / INTERCOM INTERFACE INCLUDED	66
UNDER THE HELMET HEADSET.....	67
HEADSET HANGERS	67
TWO WAY RADIO INSTALLATION	67
COMPLETE MDT INSTALLATION	67
TWO WAY RADIO SPEAKER INSTALLATION	67
RADIO ANTENNA MOUNT.....	68
VEHICLE CAMERA SYSTEM.....	68
RECESS REAR CAMERA	68
KNOX-BOX	68
KNOX-BOX MOUNTING BRACKET.....	68
ELECTRICAL POWER CONTROL SYSTEM	68
SOLID-STATE CONTROL SYSTEM	69
CIRCUIT PROTECTION AND CONTROL DIAGRAM.....	70
ON-BOARD ADVANCED/VISUAL ELECTRICAL SYSTEM DIAGNOSTICS	70
TECH MODULE WITH WIFI.....	70
PROGNOSTICS	71
ADVANCED DIAGNOSTICS	71
INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM.....	71
VOLTAGE MONITOR SYSTEM.....	71
DEDICATED RADIO EQUIPMENT CONNECTION POINTS	72
ENHANCED SOFTWARE.....	72
EMI/RFI PROTECTION	72
ELECTRICAL	73
BATTERY SYSTEM	74
ISOLATED BATTERY.....	74

BATTERY SYSTEM	74
MASTER BATTERY SWITCH.....	74
BATTERY COMPARTMENTS	74
JUMPER STUDS.....	74
BATTERY CHARGER	75
AUTO EJECT FOR SHORELINE.....	75
ALTERNATOR.....	75
ELECTRONIC LOAD MANAGER	75
SEQUENCER.....	76
HEADLIGHTS	77
DIRECTIONAL LIGHTS	77
INTERMEDIATE LIGHT.....	77
CAB CLEARANCE/MARKER/ID LIGHTS	77
REAR CLEARANCE/MARKER/ID LIGHTING	78
REAR FMVSS LIGHTING.....	78
LICENSE PLATE BRACKET.....	79
BACK-UP ALARM.....	79
CAB PERIMETER SCENE LIGHTS	79
PUMP HOUSE PERIMETER LIGHTS	79
BODY PERIMETER SCENE LIGHTS	79
ADDITIONAL PERIMETER LIGHTS	79
STEP LIGHTS	79
CUP HOLDER.....	80
12 VOLT LIGHTING.....	80
12 VOLT LIGHTING.....	80
12 VOLT LIGHTING.....	81
12 VOLT LIGHTING.....	81
12 VOLT LIGHTING.....	81
HOSE BED LIGHTS	82
REAR SCENE LIGHTS	82
WALKING SURFACE LIGHTS	82

WATER TANK	82
WATER TANK RESTRAINT	83
SIDE TANK FILL	83
BODY HEIGHT	83
HOSE BED	84
HOSE BED DIVIDER.....	84
HOSE RESTRAINT REAR	84
HOSE BED COVER.....	85
RUNNING BOARDS	85
TAILBOARD	85
REAR WALL, BODY MATERIAL, PUC.....	85
TOW BAR	85
COMPARTMENTATION	86
UNDERBODY SUPPORT SYSTEM	87
AGGRESSIVE WALKING SURFACE	87
LOUVERS	87
TESTING OF BODY DESIGN.....	87
COMPARTMENTATION, DRIVER'S SIDE.....	88
COMPARTMENTATION, PASSENGER'S SIDE.....	89
ROLLUP DOOR, SIDE COMPARTMENTS.....	90
COMPARTMENTATION, REAR.....	91
ROLLUP DOOR, REAR COMPARTMENT	92
COMPARTMENT LIGHTING.....	92
COMPARTMENT LIGHTING.....	92
MOUNTING TRACKS	92
ADJUSTABLE SHELVES.....	93
SLIDE-OUT/TILT-DOWN TRAY	93
SLIDE-OUT FLOOR MOUNTED TRAY.....	93
SLIDE-OUT TOOLBOARD	94
OIL DRY HOPPER	94
PARTITION, TRANSVERSE REAR COMPARTMENT	95

VERTICAL COMPARTMENT PARTITION	95
ALUMINUM PEGBOARD.....	95
ALUMINUM PEGBOARD.....	95
STRAP	95
RUB RAIL	95
BODY FENDER CROWNS.....	96
HARD SUCTION HOSE	96
HOSE TROUGH	96
HANDRAILS	96
AIR BOTTLE STORAGE (Double)	97
EXTENSION LADDER.....	97
ROOF LADDER.....	97
LADDER STORAGE.....	97
FOLDING LADDER.....	97
BACKBOARD STORAGE TROUGH	97
6' PIKE POLE.....	98
8' PIKE POLE	98
PIKE POLE STORAGE	98
PIKE POLE STORAGE	98
LADDER ZICO MODEL RL-2-3	98
PUMP.....	98
PUMP MOUNTING.....	100
MECHANICAL SEALS.....	100
PUMP GEAR CASE.....	100
CLUTCH.....	101
PUMPING MODE.....	101
PUMP SHIFT.....	101
TRANSMISSION LOCK UP	102
AUXILIARY COOLING SYSTEM.....	102
INTAKE RELIEF VALVE.....	102
PRESSURE CONTROLLER	102

PRIMING PUMP	103
PUMP MANUALS	103
PLUMBING, STAINLESS STEEL AND HOSE	104
PLUMBING, FOAM SYSTEM	104
MAIN PUMP INLETS	104
MAIN PUMP INLET CAP.....	104
INLET BUTTERFLY VALVE	104
INLET BUTTERFLY VALVE	105
VALVES.....	105
LEFT SIDE INLET.....	105
ANODE, INLET	105
INLET CONTROL	106
INLET BLEEDER VALVE	106
TANK TO PUMP	106
TANK REFILL	106
LEFT SIDE DISCHARGE OUTLETS	106
RIGHT SIDE DISCHARGE OUTLETS.....	106
LARGE DIAMETER DISCHARGE OUTLET	107
FRONT DISCHARGE OUTLET	107
REAR DISCHARGE OUTLET	107
DISCHARGE CAPS.....	107
OUTLET BLEEDER VALVE	107
REAR OUTLET ELBOWS	108
LARGE DIAMETER OUTLET CAP	108
REDUCER.....	108
DISCHARGE OUTLET CONTROLS	108
DELUGE RISER	108
TELESCOPIC PIPING	108
CROSSLAY HOSE BED	109
CROSSLAY/DEADLAY HOSE BED.....	109
CROSSLAY/DEADLAY HOSE RESTRAINT	110

FOAM PROPORTIONER.....	110
System Capacity.....	110
Control System.....	111
Low Level, Foam Tank.....	111
Hydraulic Drive System.....	111
Foam Concentrate Pump.....	111
External Foam Concentrate Connection	112
Panel Mounted Strainer/External Pick-Up Connection	112
Pick-Up Hose	112
Discharges	112
System Electrical Load	112
Foam Supply Valve.....	113
Maintenance Message.....	113
Flush System.....	113
FOAM GENERATING SYSTEM, CAF.....	113
DISCHARGES TO CAF CAPABLE	113
AIR COMPRESSOR, HYDRAULIC DRIVEN.....	113
AIR TOOL OUTLET	115
SINGLE FOAM TANK REFILL	115
CAF AIR INJECTION VALVE CONTROL.....	116
FOAM SYSTEM AND CAFS DEMONSTRATION	116
FOAM CELL	116
FOAM TANK DRAIN	116
PUMP CONTROL PANELS (Left Side Control).....	117
PUMP PANEL CONFIGURATION	117
PUMP AND GAUGE PANEL	118
PUMP AND PLUMBING ACCESS	118
PUMP COMPARTMENT LIGHT	119
PUMP PANEL GAUGES AND CONTROLS.....	119
AIR HORN SWITCH.....	119
VACUUM AND PRESSURE GAUGES	119

PRESSURE GAUGES.....	120
WATER LEVEL GAUGE.....	120
MINI SLAVE UNIT	120
FOAM LEVEL GAUGE	120
SIDE CONTROL PUMP OPERATOR'S/PUMP PANEL LIGHTING.....	121
AIR HORN SYSTEM.....	121
Air Horn Location.....	121
AIR HORN CONTROL	121
ELECTRONIC SIREN	121
SPEAKERS.....	121
AUXILIARY MECHANICAL SIREN	122
MECHANICAL SIREN CONTROL	122
FRONT ZONE UPPER WARNING LIGHTS.....	122
CAB FACE WARNING LIGHTS	123
HEADLIGHT FLASHER.....	123
SIDE ZONE LOWER LIGHTING.....	123
REAR ZONE LOWER LIGHTING.....	124
WARNING LIGHTS (Rear and Side upper zones).....	124
TRAFFIC DIRECTING LIGHT.....	124
ELECTRICAL SYSTEM GENERAL DESIGN for ALTERNATING CURRENT	125
General	125
Grounding	125
Operation.....	125
Overcurrent protection	126
Wiring Identification.....	127
Wet Locations	127
Dry Locations.....	127
Listing	127
Electrical System Testing	127
Operational Test per Current NFPA 1901 Standard.....	128
GENERATOR	128

Generator Instruments and Controls	128
GENERATOR LOCATION	128
GENERATOR START	128
CIRCUIT BREAKER PANEL	128
ELECTRIC CORD REEL	129
CORD	129
120 VOLT RECEPTACLE	129
LOOSE EQUIPMENT	129
NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT	130
SOFT SUCTION HOSE	131
DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT	131
WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT	131
FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT	131
PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT	131
PAINT	131
PAINT - ENVIRONMENTAL IMPACT	133
PAINT CHASSIS FRAME ASSEMBLY	133
PAINT, REAR WHEELS	134
TRANSIT COATING	134
COMPARTMENT INTERIOR PAINT	134
REFLECTIVE STRIPES	134
REAR CHEVRON STRIPING	135
"Z" JOG IN REFLECTIVE STRIPE	135
CHEVRON STRIPING ON THE FRONT BUMPER	135
REFLECTIVE STRIPE ON REAR FENDERS	135
INVERTED "V" CHEVRON STRIPING ON CAB AND CREW CAB DOORS	135
LETTERING	135
LETTERING	135
LETTERING	136
CAB GRILLE DESIGN	136
EMBLEM	136

EMBLEM	136
PRECONSTRUCTION & FINAL INSPECTION TRIP	136
FIRE APPARATUS PARTS CD MANUAL	137
SERVICE PARTS INTERNET SITE	138
MANUALS, CHASSIS SERVICE.....	138
CHASSIS OPERATION CD MANUALS	138
ONE (1) YEAR MATERIAL AND WORKMANSHIP	138
THREE (3) YEAR MATERIAL AND WORKMANSHIP.....	139
ENGINE WARRANTY.....	139
STEERING GEAR WARRANTY	139
FIFTY (50) YEAR STRUCTURAL INTEGRITY	139
FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY.....	139
REAR AXLE TWO (2) YEAR MATERIAL AND WORKMANSHIP WARRANTY	139
ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY	139
TEN (10) YEAR STRUCTURAL INTEGRITY	139
TEN (10) YEAR PRO-RATED PAINT AND CORROSION	139
FIVE (5) YEAR MATERIAL AND WORKMANSHIP.....	139
CAMERA SYSTEM WARRANTY.....	139
COMPARTMENT LIGHT WARRANTY	139
TRANSMISSION WARRANTY.....	139
TRANSMISSION COOLER WARRANTY	140
WATER TANK WARRANTY	140
TEN (10) YEAR STRUCTURAL INTEGRITY	140
ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY	140
SIX (6) YEAR PARTS, ONE (1) YEAR LABOR.....	140
TEN (10) YEAR PUMP PLUMBING WARRANTY	140
FOAM SYSTEM WARRANTY	140
SIX (6) YEAR GENERATOR MATERIAL AND WORKMANSHIP WARRANTY.....	140
TEN (10) YEAR PRO-RATED PAINT AND CORROSION	140
THREE (3) YEAR MATERIAL AND WORKMANSHIP.....	140
VEHICLE STABILITY CERTIFICATION.....	141

ENGINE INSTALLATION CERTIFICATION	141
POWER STEERING CERTIFICATION	141
CAB INTEGRITY CERTIFICATION.....	141
Roof Crush	141
Additional Roof Crush.....	141
Side Impact	141
Frontal Impact.....	141
Additional Frontal Impact.....	142
CAB DOOR DURABILITY CERTIFICATION	142
WINDSHIELD WIPER DURABILITY CERTIFICATION	142
ELECTRIC WINDOW DURABILITY CERTIFICATION	142
SEAT BELT ANCHOR STRENGTH.....	142
SEAT MOUNTING STRENGTH.....	142
CAB DEFROSTER CERTIFICATION	142
CAB HEATER CERTIFICATION	143
CAB AIR CONDITIONING PERFORMANCE CERTIFICATION	143
AMP DRAW REPORT	143

Siddons-Martin Emergency Group is pleased to submit a proposal to Round Rock Fire Department for a **Pierce® multi purpose response vehicle** per your request for quotation. The following paragraphs will describe in detail the apparatus, construction methods, and equipment proposed. This proposal will indicate size, type, model and make of components parts and equipment, providing proof of compliance with each and every item (except where noted) in the departments advertised specifications.

PIERCE MANUFACTURING was founded in 1913. Since then we have been building bodies with one philosophy, "BUILD THE FINEST". Our skilled craftsmen take pride in their work, which is reflected, in the final product. We have been building fire apparatus since the early "forties" giving Pierce Manufacturing over 60 years of experience in the fire apparatus market. Pierce Manufacturing has built and put into service more than 51,000 apparatus, including more than 27,000 on Pierce custom chassis designed and built specifically for fire and emergency applications. Our Appleton, Wisconsin facility has over 757,000 total square feet of floor space situated on approximately 97 acres of land. Our Bradenton, Florida facility has 300,000 square feet of floor space situated on approximately 38 acres of land.

Our beliefs in high ethical standards are carried through in all of our commitments and to everyone with whom we do business. Honesty, Integrity, Accountability and Citizenship are global tenets by which we all live and work. Consequently, we neither engage in, nor have we ever been convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

Pierce has only one brand of fire apparatus "Pierce", ensuring you are receiving top of the line product that meets your specification.

In accordance with the current edition of NFPA 1901 standards, this proposal will specify whether the fire department, manufacturer, or apparatus dealership will provide required loose equipment.

Images and illustrative material in this proposal are as accurate as known at the time of publication, but are subject to change without notice. Images and illustrative material is for reference only, and may include optional equipment and accessories and may not include all standard equipment.

GENERAL DESIGN AND CONSTRUCTION

To control quality, ensure compatibility, and provide a single source for service and warranty, the custom cab, chassis, pump module and body will be entirely designed, assembled/welded and painted in Pierce owned manufacturing facilities. This includes, but not limited to the cab weldment, the pumphouse module assembly, the chassis assembly, the body and the electrical system.

QUALITY AND WORKMANSHIP

Pierce has set the pace for quality and workmanship in the fire apparatus field. Our tradition of building the highest quality units with craftsmen second to none has been the rule right from the beginning and we demonstrate that ongoing commitment by: Ensuring all steel welding follows American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding follows American Welding society and ANSI D1.2-2003 requirements for structural welding of aluminum. All

sheet metal welding follows American welding Society B2.1-2000 requirements for structural welding of sheet metal. Our flux core arc welding uses alloy rods, type 7000 and is performed to American Welding Society standards A5.20-E70T1. Furthermore, all employees classified as welders are tested and certified to meet the American welding Society codes upon hire and every three (3) years thereafter. Pierce also employs an American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

Pierce Manufacturing operates a Quality Management System under the requirements of ISO 9001. These standards sponsored by the International Organization for Standardization (ISO) specify the quality systems that are established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance is included with this proposal.

In addition to the Quality Management system, we also employ a Quality Achievement Supplier program to insure the vendors and suppliers that we utilize meet the high standards we demand. That is just part of our overall "Quality at the Source" program at Pierce.

To demonstrate the quality of our products and services, a list of at least two (2) fire departments/municipalities that have purchased vehicles for a second time is provided.

DELIVERY

The apparatus will be delivered under its own power to insure proper break-in of all components while the apparatus is still under warranty. A qualified delivery representative shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in proper operation, care and maintenance of the equipment delivered.

MANUAL AND SERVICE INFORMATION

At time of delivery, complete operation and maintenance manuals covering the apparatus will be provided. A permanent plate will be mounted in the driver's compartment specifying the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

SAFETY VIDEO

At the time of delivery Pierce will also provide one (1) 39-minute, professionally produced apparatus safety video, in DVD format. This video will address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus, including the following: vehicle pre-trip inspection, chassis operation, pump operation, aerial operation, and safety during maintenance.

PERFORMANCE TESTS

A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus when fully loaded will not have less than 25 percent nor more than 50 percent on

the front axle, and not less than 50 percent nor more than 75 percent on the rear axle. The apparatus will meet NFPA 1901 acceleration and braking requirements.

SERVICE AND WARRANTY SUPPORT

Pierce dealership support will be provided by Siddons-Martin Emergency Group by operating a Pierce authorized service center. The service center will have factory-trained mechanics on staff versed in Pierce fire apparatus. The service facility will be located within ten (10) miles of the fire department.

In addition to the dealership, Pierce has service facilities located in both, Weyauwega, Wisconsin and Bradenton, Florida. Pierce also maintains a dedicated parts facility of over 100,000 square feet in Appleton, Wisconsin. The parts facility stocks in excess of \$5,000,000 in parts dedicated to service and replacement parts. The parts facility employs a staff dedicated solely for the distribution and shipment of service and replacement parts.

Service parts for the apparatus being proposed can be found via Pierceparts.com which, is an interactive online tool that delivers information regarding your specific apparatus as well as the opportunity to register for training classes.

As a Pierce customer you have the ability to view the complete bill of materials for your specific apparatus, including assembly drawings, piece part drawings, and beneficial parts notations. You will also have the ability to search the complete Pierce item master through a parts search function which offers all Pierce SKU's and descriptions offered on all Pierce apparatus. Published component catalogs, which include proprietary systems along with an extensive operators manual library is available for easy reference.

Pierce Manufacturing maintains a dedicated service and warranty staff of over 35 personnel, dedicated to customer support, which also maintains a 24 hour 7 day a week toll free hot line, four (4) on staff EVTs, and offers hands-on repair and maintenance training classes multiple times a year.

COMMERCIAL GENERAL LIABILITY INSURANCE

Certification of insurance coverage will be enclosed.

SINGLE SOURCE MANUFACTURER

Pierce Manufacturing, Inc. provides an integrated approach to the design and manufacture of our products that delivers superior apparatus and a dedicated support team. From our facilities, the chassis, cab weldment, cab, pumphouse (including the sheet metal enclosure, valve controls, piping and operators panel) and body will be entirely designed, tested, and hand assembled to the customer's exact specifications. The electrical system either hardwired or multiplexed, will be both designed and integrated by Pierce Manufacturing. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) will be provided by Pierce as a single source manufacturer. Pierce's single source solution adds value by providing a fully engineered product that offers durability, reliability, maintainability, performance, and a high level of quality.

Your apparatus will be manufactured in Appleton, Wisconsin.

COMPARISON REPORT

A report will be provided to allow the Sales Representative to compare the options to a previous job. The report will be provided for job 23643.

SPECIAL INSTRUCTIONS

The apparatus being proposed will be designed and built to match the previous job 27152. 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.

NFPA 2016 STANDARDS

This unit will comply with the NFPA standards effective January 1, 2016, except for fire department directed exceptions. These exceptions will be set forth in the Statement of Exceptions.

Certification of slip resistance of all stepping, standing and walking surfaces will be supplied with delivery of the apparatus.

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 will be identified on the customer approval print and are shown as approximate. Actual location(s) will 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.

A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating.

The manufacturer will have programs in place for training, proficiency testing and performance for any staff involved with certifications.

An official of the company will designate, in writing, who is qualified to witness and certify test results.

NFPA COMPLIANCY

Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA".

VEHICLE INSPECTION PROGRAM CERTIFICATION

To assure the vehicle is built to current NFPA standards, the apparatus, in its entirety, will be third-party, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition of NFPA 1901. The certification will include: all design, production,

operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus.

A placard will 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.

PUMP TEST

Underwriters Laboratory (UL) will test, approved, and certify the pump. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the pump manufacturer's record of pump construction details will be forwarded to the Fire Department.

GENERATOR TEST

If the unit has a generator, Underwriters Laboratory (UL) will test, approved, and certify the generator. The test results will be provided to the Fire Department at the time of delivery.

BREATHING AIR TEST

If the unit has breathing air, Pierce Manufacturing will draw an air sample from the air system and have the sample certified that the air quality meets the requirements of NFPA 1989, *Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection*.

BID BOND

A bid bond as security for the bid in the form of a 10% bid bond will be provided with the proposal. This bid bond will 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 will be issued by an authorized representative of the Surety Company and will be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond will include language which assures that the bidder/principal will 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.

Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will 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 will prevail.

PERFORMANCE BOND, 1 YEAR

The successful bidder will 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 will 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 Basic One (1) Year Limited Warranty period included within this proposal. Owner agrees that the penal amount of this bond will 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 will not exceed one (1) year from the date of such satisfactory acceptance and delivery, or the actual Basic One (1) Year Limited Warranty period, whichever is shorter.

APPROVAL DRAWING

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

A "revised" approval drawing of the apparatus will be prepared and submitted by Pierce 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, will be provided.

VELOCITY CHASSIS

The Pierce Velocity® is the custom chassis developed exclusively for the fire service. Chassis provided will be a new, tilt-type custom fire apparatus. The chassis will be manufactured in the apparatus body builder's facility eliminating any split responsibility. The chassis will 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. The chassis will be the manufacturer's first line tilt cab.

WHEELBASE

The wheelbase of the vehicle will be 209" .

GVW RATING

The gross vehicle weight rating will be 46,500 # .

FRAME

The chassis frame will be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails will 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. Each rail

will 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. The frame rails will be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.

FRONT NON DRIVE AXLE

The Oshkosh TAK-4® front axle will be of the independent suspension design with a ground rating of 22,800 lb.

Upper and lower control arms will be used on each side of the axle. Upper control arm castings will be made of 100,000-psi yield strength 8630 steel and the lower control arm casting will be made of 55,000-psi yield ductile iron.

The center cross members and side plates will be constructed out of 80,000-psi yield strength steel.

Each control arm will be mounted to the center section using elastomer bushings. These rubber bushings will rotate on low friction plain bearings and be lubricated for life. Each bushing will also have a flange end to absorb longitudinal impact loads, reducing noise and vibrations.

There will be nine (9) grease fittings supplied, one (1) on each control arm pivot and one (1) on the steering gear extension.

The upper control arm will be shorter than the lower arm so that wheel end geometry provides positive camber when deflected below rated load and negative camber above rated load.

Camber at load will be 0 degrees for optimum tire life.

The ball joint bearing will be of low friction design and be maintenance free.

Toe links that are adjustable for alignment of the wheel to the center of the chassis will be provided.

The wheel ends will have little to no bump steer when the chassis encounters a hole or obstacle.

The steering linkage will provide proper steering angles for the inside and outside wheel, based on the vehicle wheelbase.

The axle will have a third party certified turning angle of 45 degrees. Front discharge, front suction, or aluminum wheels will not infringe on this cramp angle.

FRONT SUSPENSION

Front Oshkosh TAK-4™ independent suspension will be provided with a minimum ground rating of 22,800 lb.

The independent suspension system will be designed to provide maximum ride comfort. The design will allow the vehicle to travel at highway speeds over improved road surfaces and at moderate speeds over rough terrain with minimal transfer of road shock and vibration to the vehicle's crew compartment.

Each wheel will have torsion bar type spring. In addition, each front wheel end will also have energy absorbing jounce bumpers to prevent bottoming of the suspension.

The suspension design will be such that there is at least 10.00" of total wheel travel and a minimum of 3.75" before suspension bottoms.

The torsion bar anchor lock system allows for simple lean adjustments, without the use of shims. One can adjust for a lean within 15 minutes per side. Anchor adjustment design is such that it allows for ride height adjustment on each side.

The independent suspension was put through a durability test that simulated 140,000 miles of inner city driving.

FRONT SHOCK ABSORBERS

KONI heavy-duty telescoping shock absorbers will be provided on the front suspension.

FRONT OIL SEALS

Oil seals with viewing window will be provided on the front axle.

FRONT TIRES

Front tires will be Goodyear® 425/65R22.50 radials, 20 ply G296 MSA tread, rated for 22,800 lb maximum axle load and 68 mph maximum speed.

The tires will be mounted on Alcoa® 22.50" x 12.25" Dura-Bright® polished aluminum disc type wheels with a ten (10) stud, 11.25" bolt circle.

REAR AXLE

The rear axle will be a Meritor™, Model RS-26-185, with a capacity of 27,000 lb.

TOP SPEED OF VEHICLE

A rear axle ratio will be furnished to allow the vehicle to reach a top speed of 68 mph.

REAR SUSPENSION

The rear suspension will be Standens, semi-elliptical, 3.00" wide x 53.00" long, 12-leaf pack with a ground rating of 27,000 lb. The spring hangers will be castings.

The two (2) top leaves will wrap the forward spring hanger pin, and the rear of the spring will be a slipper style end that will ride in a rear slipper hanger. To reduce bending stress due to acceleration and braking, the front eye will be a berlin eye that will place the front spring pin in the horizontal plane within the main leaf.

A steel encased rubber bushing will be used in the spring eye. The steel encased rubber bushing will be maintenance free and require no lubrication.

REAR OIL SEALS

Oil seals will be provided on the rear axle(s).

REAR TIRES

Rear tires will be four (4) Goodyear® 12R22.50 radials, 16 ply all season G622 RSD tread, rated for 27,120 lb maximum axle load and 75 mph maximum speed.

The outside tires will be mounted on Alcoa© 22.50" x 8.25" polished aluminum, with Dura-Bright® finish, disc wheels with a ten (10) stud, 11.25" bolt circle.

The inside tires will be mounted on 22.50" x 8.25" steel disc wheels with a ten (10) stud, 11.25" bolt circle.

An isolator will be provided between the steel and aluminum rims.

TIRE BALANCE

All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.

TIRE PRESSURE MANAGEMENT

There will be a RealWheels LED AirSecure™ tire alert pressure management system provided, that will monitor each tire's pressure. A sensor will be provided on the valve stem of each tire for a total of six (6) tires.

The sensor will calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor will activate an integral battery operated LED when the pressure of that tire drops 5 to 8 psi.

Removing the cap from the sensor will indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED will immediately start to flash.

FRONT HUB COVERS

Stainless steel hub covers will be provided on the front axle. An oil level viewing window will be provided.

REAR HUB COVERS

A pair of stainless steel high hat hub covers will be provided on rear axle hubs.

CHROME LUG NUT COVERS

Chrome lug nut covers will be supplied on front and rear wheels.

MUD FLAPS

Mud flaps with a Pierce logo will be installed behind the front and rear wheels.

WHEEL CHOCKS

There will be one (1) pair of folding Ziamatic, Model SAC-44-E, aluminum alloy, Quick-Choc wheel blocks, with easy-grip handle provided.

WHEEL CHOCK BRACKETS

There will be one (1) pair of Zico, Model SQCH-44-H, horizontal mounting wheel chock brackets provided for the Ziamatic, Model SAC-44-E, folding wheel chocks. The brackets will be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets will be mounted forward of the left side rear tire.

ELECTRONIC STABILITY CONTROL

A vehicle control system will be provided as an integral part of the ABS brake system from Meritor Wabco.

The system will monitor and update the lateral acceleration of the vehicle and compare it to a critical threshold where a side roll event may occur. If the critical threshold is met, the vehicle control system will automatically reduce engine RPM, engage the engine retarder (if equipped), and selectively apply brakes to the individual wheel ends of the front and rear axles to reduce the possibility of a side roll event.

The system will monitor directional stability through a lateral accelerometer, steer angle sensor and yaw rate sensor. If spinout or drift out is detected, the vehicle control system will selectively apply brakes to the individual wheel ends of the front and rear axles to bring the vehicle back to its intended direction.

ANTI-LOCK BRAKE SYSTEM

The vehicle will be equipped with a Wabco 4S4M, anti-lock braking system. The ABS will provide a four (4) channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology will control the anti-lock braking system. Each wheel will be monitored by the system. When any wheel begins to lockup, a signal will be sent to the control unit. This control unit will then reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

AUTOMATIC TRACTION CONTROL

An anti-slip feature will be included with the ABS. The Automatic Traction Control will be used for traction in poor road and weather conditions. The Automatic Traction Control will act as an electronic differential lock that will not allow a driving wheel to spin, thereby supplying traction at all times. The ABS electronic control unit (ECU) will work with the engine ECU, sharing information concerning wheel slip. Engine ECU will use information to control engine speed, allowing only as much throttle application as required for the available traction, regardless of how much the driver is asking for. A "mud/snow" switch will be provided on the instrument panel. Activation of the switch will allow additional tire slip to let the truck climb out and get on top of deep snow or mud.

BRAKES

The service brake system will be full air type.

The front brakes will be Knorr/Bendix disc type with a 17.00" ventilated rotor for improved stopping distance.

The brake system will be certified, third party inspected, for improved stopping distance.

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

AIR COMPRESSOR, BRAKE SYSTEM

The air compressor will be a Bendix®, Model BA-921, with 15.80 cubic feet per minute output at 1,250 rpm.

BRAKE SYSTEM

The brake system will include:

- Bendix® dual brake treadle valve
- Heated automatic moisture ejector on air dryer
- Total air system capacity of 4,362 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, with an automatic spring brake application at 40 psi
- A pressure protection valve 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 valve on each air tank

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

To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.

BRAKE SYSTEM AIR DRYER

The air dryer will be WABCO System Saver 1200 with spin-on coalescing filter cartridge and 100 watt heater.

BRAKE LINES

Color-coded nylon brake lines will be provided. The lines will be wrapped in a heat protective loom in the chassis areas that are subject to excessive heat.

AIR COMPRESSOR - BRAKE SYSTEM MAINTENANCE

A Gast, Model 5HCD-10-M550X, air compressor will be provided.

It will be driven by the 110-volt shoreline electrical system.

The compressor will maintain the air pressure in the chassis air brake system while the vehicle is not in use.

A Square-D, model #1-9013-GHG2J30, pressure switch will sense when the system pressure drops and automatically start the compressor, which then will run until pressure is restored.

A coalescing filter will be provided, and installed in the system.

It will be located in compartment TO BE DETERMINED.

ENGINEERING NOTE:

Due to the large size of this compressor, the [Location] that you choose, will be subject to Engineering Approval.

COMPRESSION FITTINGS ONLY

Any nylon tube on the apparatus that is pneumatic will be plumbed with compression type fittings where applicable.

ENGINE

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

Make:	Detroit™
Model:	DD13®
Power:	470 hp at 1625 rpm
Torque:	1650 lb-ft at 1075 rpm
Governed Speed:	Full Load - 1900 rpm Road/2080 rpm Parked PTO
Emissions Certification:	EPA 2016 (GHG17)
Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	781 cubic inches (12.8L)
Starter:	Delco Remy 39MT™
Fuel Filters:	Dual cartridge style with check valve, water separator, and water in fuel sensor

The engine will include On-board diagnostics (OBD), which provides self diagnostic and reporting. The system will give the owner or repair technician access to state of health information for various vehicle

sub systems. The system will monitor vehicle systems, engine and after treatment. The system will illuminate a malfunction indicator light on the dash console if a problem is detected.

REPTO DRIVE

A rear engine power take off will be provided to drive the water pump. A vibration dampener will be provided between the REPTO and water pump. Transmission PTO's used to drive the water pump will not be allowed due to their lower torque ratings. The rear engine power take off will be the same as used extensively throughout the construction industry. Rear engine PTO's allow for continuous 240 hp and 480 lb-ft torque ratings needed for large pump applications. The rear engine power take off will have the same warranty as the engine provided by the engine manufacturer.

HIGH IDLE

A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a preset engine rpm. A switch will be installed, at the cab instrument panel, for activation/deactivation.

The high idle will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided, adjacent to the switch. The light will illuminate when the above conditions are met. The light will be labeled "OK to Engage High Idle."

ENGINE BRAKE

A Jacobs® engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.

The driver will be able to turn the engine brake system on/off and have a high, medium and low setting.

The engine brake will be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.

The ABS system will automatically disengage the auxiliary braking device when required.

CLUTCH FAN

A Horton® fan clutch will be provided. The fan clutch will be automatic when the pump transmission is in "Road" position, and fully engaged in "Pump" position.

ENGINE AIR INTAKE

An air intake with an ember separator (to prevent road dirt, burning embers, and recirculating hot air from entering the engine) will be mounted at the front of the apparatus, on the passenger side of the engine. The ember separator will be mounted in the air intake with flame retardant, roto-molded polyethylene housing. It will be easily accessible by the hinged access panel at the front of the vehicle.

EXHAUST SYSTEM

The exhaust system will be stainless steel from the turbo to the inlet of the selective catalytic reduction (SCR) device, and will be 5.00" in diameter. The exhaust system will include a diesel particulate filter

(DPF) and an SCR device to meet current EPA standards. An insulation wrap will be provided on all exhaust pipes between the turbo and SCR to minimize the transfer of heat to the cab. The exhaust will terminate vertically ahead of the water tank to a point above the body. A tailpipe diffuser will be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.

RADIATOR

The radiator and the complete cooling system will meet or exceed NFPA and engine manufacturer cooling system standards.

For maximum corrosion resistance and cooling performance, the entire radiator core will be constructed using long life aluminum alloy. The core will be made of aluminum fins, having a serpentine design, brazed to aluminum tubes. The tubes will be brazed to aluminum headers. No solder joints or leaded material of any kind will be acceptable in the core assembly. The radiator core will 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 will be compatible with commercial antifreeze solutions.

There will be a full steel frame around the entire radiator core assembly. The radiator core assembly will be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability. The radiator will 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 will be isolated from the chassis frame rails with rubber isolators.

The radiator assembly will 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 will have a built-in sight glass. The radiator will be equipped with a 15 psi pressure relief cap.

A drain port will 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.

A heavy-duty fan will draw in fresh, cool air through the radiator. Shields or baffles will be provided to prevent recirculation of hot air to the inlet side of the radiator.

COOLANT LINES

Gates® silicone hoses will be used for all engine/heater coolant lines installed by the chassis manufacturer.

The chassis manufacturer will also use Gates brand hose on other heater, defroster and auxiliary coolant circuits. There will be some areas in which an appropriate Gates product is not available. In those instances, a comparable silicone hose from another manufacturer will be used.

Hose clamps will be stainless steel "constant torque type" to prevent coolant leakage. They will react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

FUEL TANK

A 65 gallon fuel tank will be provided and mounted at the rear of the chassis. The tank will be constructed of 12-gauge, hot rolled steel. It will be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank will be mounted with stainless steel straps.

A 0.75" drain plug will be located in a low point of the tank for drainage.

A fill inlet will be located on the left hand side of the body and is covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."

A 0.50" diameter vent will be installed from tank top to just below fuel fill inlet.

The fuel tank will meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.

All fuel lines will be provided as recommended by the engine manufacturer.

DIESEL EXHAUST FLUID TANK

A 4.5 gallon diesel exhaust fluid (DEF) tank will be provided and mounted in the driver's side body rearward of the rear axle.

A 0.50" drain plug will be provided in a low point of the tank for drainage.

A fill inlet will be provided and marked "Diesel Exhaust Fluid Only". The fill inlet will be located adjacent to the engine fuel inlet behind a common hinged, spring loaded, polished stainless steel door on the driver side of the vehicle.

The tank will meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing.

The tank will include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.

FUEL COOLER

An air to fuel cooler will be installed in the engine fuel return line.

TRANSMISSION

An Allison 5th generation, Model EVS 4000P, electronic, torque converting, automatic transmission will be provided.

The transmission will be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display will indicate when service is due.

Two (2) PTO openings will be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock).

A transmission temperature gauge with red light and buzzer will be installed on the cab instrument panel.

TRANSMISSION SHIFTER

A six (6)-speed push button shift module will be mounted to right of driver on console. Shift position indicator will be indirectly lit for after dark operation.

The transmission ratio will be:

1st	3.51 to 1.00
2nd	1.91 to 1.00
3rd	1.43 to 1.00
4th	1.00 to 1.00
5th	0.75 to 1.00
6th	0.64 to 1.00
R	4.80 to 1.00

TRANSMISSION PROGRAMMING

The transmission will be programmed to automatically shift the transmission to neutral when the parking brake is set to simplify operation and increase operational safety.

TRANSMISSION COOLER

A Modine plate and fin transmission oil cooler will be provided using engine coolant to control the transmission oil temperature.

DOWNSHIFT MODE (W/ENGINE BRAKE)

The transmission will be provided with an aggressive downshift mode.

This will provide earlier transmission downshifts to 3rd gear from 6th gear, resulting in improved engine braking performance.

TRANSMISSION FLUID

The transmission will be provided with TranSynd, or other Allison approved TES-295 heavy duty synthetic transmission fluid.

DRIVELINE

Drivelines will be a heavy-duty metal tube and be equipped with Spicer® 1810 universal joints.

The shafts will be dynamically balanced before installation.

A splined slip joint will be provided in each driveshaft. The slip joint will be coated with Glidecoat® or equivalent.

STEERING

Dual Sheppard, Model M110, steering gears, with integral heavy-duty power steering, will be provided. For reduced system temperatures, the power steering will incorporate an air to oil cooler and an Eaton, Model VN20, hydraulic pump with integral pressure and flow control. All power steering lines will have wire braded lines with crimped fittings.

A tilt and telescopic steering column will be provided to improve fit for a broader range of driver configurations.

STEERING WHEEL

The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design.

LOGO AND CUSTOMER DESIGNATION ON DASH

The dash panel will have an emblem containing the Pierce logo and customer name. The emblem will have three (3) rows of text for the customer's department name. There will be a maximum of eight (8) characters in the first row, 11 characters in the second row and 11 characters in the third row.

The first row of text will be: ROUND

The second row of text will be: ROCK

The third row of text will be: FIRE DEPT

BUMPER

A one (1) piece bumper manufactured from 0.25" formed steel with a 0.38" bend radius will be provided. The bumper will be a minimum of 10.00" high with a 1.50" top and bottom flange, and will extend 19.00" from the face of the cab. The bumper will be 102.00" wide with 45 degree corners and side plates. The bumper will be metal finished and painted job color.

To provide adequate support strength, the bumper will be mounted directly to the front of the C channel frame. The frame will be a bolted modular extension frame constructed of 50,000 psi tensile steel.

GRAVEL PAN

A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and the cab face. The pan will be properly supported from the underside to prevent flexing and vibration.

Documentation will be provided, upon request, to show that the options selected have been engineered for fit-up and approval for this modular bumper extension. A chart will be provided to indicate the option locations and will include, but not be limited to, the following options: air horns, mechanical sirens, speakers, hose trays (with hose capacities), winches, lights, discharge and suction connections.

CENTER HOSE TRAY

A hose tray, constructed of aluminum, will be placed in the center of the bumper extension. A smooth rolled edge will be provided on the top of the front and sides of the tray.

The tray will have a capacity of 125' of 1.75 double Jacket and 50' of 1" forestry hose.

Black rubber grating will be provided at the bottom of the tray. Drain holes are also provided.

CENTER HOSE TRAY COVER

A bright aluminum treadplate cover will be provided over the center hose tray.

The cover will be attached with a stainless steel hinge.

One (1) D-ring latch will secure the cover in the closed position and a pneumatic stay arm will hold the cover in the open position.

LIFT AND TOW MOUNTS

Mounted to the frame extension will be lift and tow mounts. The lift and tow mounts will be designed and positioned to adapt to certain tow truck lift systems.

The lift and tow mounts with eyes will be painted the same color as the frame.

TOW HOOKS

Two (2) chromed steel tow hooks will be installed under the bumper and attached to the front frame members. The tow hooks will be designed and positioned to allow up to a 6,000 lb straight horizontal pull in line with the centerline of the vehicle. The tow hooks will not be used for lifting of the apparatus.

LICENSE PLATE BRACKET

A non-illuminated license plate bracket will be mounted on the front bumper. The bracket will be formed from bright stainless steel.

LIGHT(S), AMDOR LUMABAR, BUMPER COVER

There will be one (1) 12.00" Amdor LumaBar H2O, Model AY-9500-012, LED strip light(s) provided on the front bumper cover.

Opening the bumper tray cover will automatically turn the light(s) on.

BUMPER COVER NOTCH

There will be two (2) hose trays notch(es) provided for the bumper tray cover(s) located one for the forestry hose and one for the 1.75" hose - both on the PS of the tray. Each notch will allow hose to be pre-connected to front outlets.

FRONT BUMPER NOTCH

The front bumper will be notched for recessing of the Q2B siren. The notch will be designed so that the bumper is one continuous piece. The notch will be welded in place for strength with a continuous top and bottom flange. All welds will be metal finished for appearance. The siren will be located DS - position 7 of the bumper.

ADJUSTABLE HOSE TRAY PARTITION

There will be one (1) adjustable aluminum partition(s) provided in the bumper hose tray located on the center hose tray.

RHINO COATING - FRONT BUMPER

Protective black Rhino Linings® coating will be provided on the outside exterior of the bottom front bumper flange. It will not be sprayed on the inside of the flange.

The lining will be properly installed by an authorized Rhino Linings® dealer.

FRONT BUMPER LINE-X COATING

Protective black Line-X® coating will be provided on the outside exterior of the top front bumper flange. It will not be sprayed on the underside of the flange.

The lining will be properly installed by an authorized Line-X dealer.

CAB

The Velocity cab will be designed specifically for the fire service and will be manufactured by Pierce Manufacturing.

To provide quality at the source and single source customer support, the cab will be built by the apparatus manufacturer in a facility located on the manufacturer's premises.

For reasons of structural integrity and enhanced occupant protection, the cab will be of heavy duty design, constructed to the following minimal standards.

The cab will 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 will be constructed of 0.25" heavy wall extrusions joined by a solid A356-T6 aluminum joint casting. The B-pillar and C-pillar will also be constructed from 0.25" heavy wall extrusions. The rear wall will 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 will 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.

The front of the cab will 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 will be welded to the A-pillar, 0.25" firewall, and engine tunnel, on the left and right sides.

The cab floors will 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 will also be supported with three (3) 0.50" plates bolted together that also provides the mounting point for the cab lift. This tubing will 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.

The cab will be a full-tilt style. A 3-point cab mount system with rubber isolators will improve ride quality by isolating chassis vibrations from the cab.

The crew cab will be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.

The forward cab section will have an overall height (from the cab roof to the ground) of approximately 102.00". The crew cab section will have a 10.00" raised roof, with an overall cab height of approximately 112.00". The raised portion will start at the most forward point of the B-pillar and continue rearward to the back of the cab. The overall height listed will 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 will increase the overall height listed.

The cab will have an interior width of not less than 93.50". The driver and passenger seating positions will have a minimum 24.00" clear width at knee level.

To reduce injuries to occupants in the seated positions, proper head clearance will be provided. The floor-to-ceiling height inside the forward cab will be no less than 60.25". The floor-to-ceiling height inside the crew cab will be no less than 62.95" in the center position and 68.75" in the outboard positions.

The crew cab will measure a minimum of 57.50" from the rear wall to the backside of the engine tunnel (knee level) for optimal occupant legroom.

CAB PUMP ENCLOSURE

The rear of the cab will be made to house the fire pump below the forward facing crew cab seats. The cab side panels will be notched to accommodate the pump panel.

INTERIOR CAB INSULATION

The cab walls, ceiling and engine tunnel will be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab will be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling.

FENDER LINERS

Full-circular, aluminum inner fender liners in the wheel wells will be provided.

PANORAMIC WINDSHIELD

A one (1)-piece, safety glass windshield with more than 2,802 square inches of clear viewing area will be provided. The windshield will be full width and will provide the occupants with a panoramic view. The windshield will consist of three (3) layers: the outer light, the middle safety laminate, and the inner light. The 0.114" thick outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage. The inner light will provide yet another chip resistant layer. The cab windshield will be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern will be applied on the outside perimeter of the windshield for a finished automotive appearance.

WINDSHIELD WIPERS

Three (3) electric windshield wipers with a washer, in conformance with FMVSS and SAE requirements, will be provided. The wiper blades will be 21.65" long and together will clear a minimum of 1,783 square inches of the windshield for maximum visibility in inclement weather.

The windshield washer fluid reservoir will be located at the front of the vehicle and be accessible through the access hood for simple maintenance.

FAST SERVICE ACCESS FRONT TILT HOOD

A full-width access hood will be provided for convenient access to engine coolant, steering fluid, wiper fluid, cab lift controls, headlight power modules, and ember separator. The hood will also provide complete access to the windshield wiper motor and components. The hood will be contoured to provide a sleek, automotive appearance. The hood will be constructed of two (2) fiberglass panels bonded together and will include reinforcing ribs for structural integrity. The hood will include air cylinders to hold the hood in open and closed positions, and a heavy duty latch system that will meet FMVSS 113 (Hood Latch System). The spring-loaded hood latch will be located at the center of the hood with a double-action release lever located behind the Pierce logo. 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).

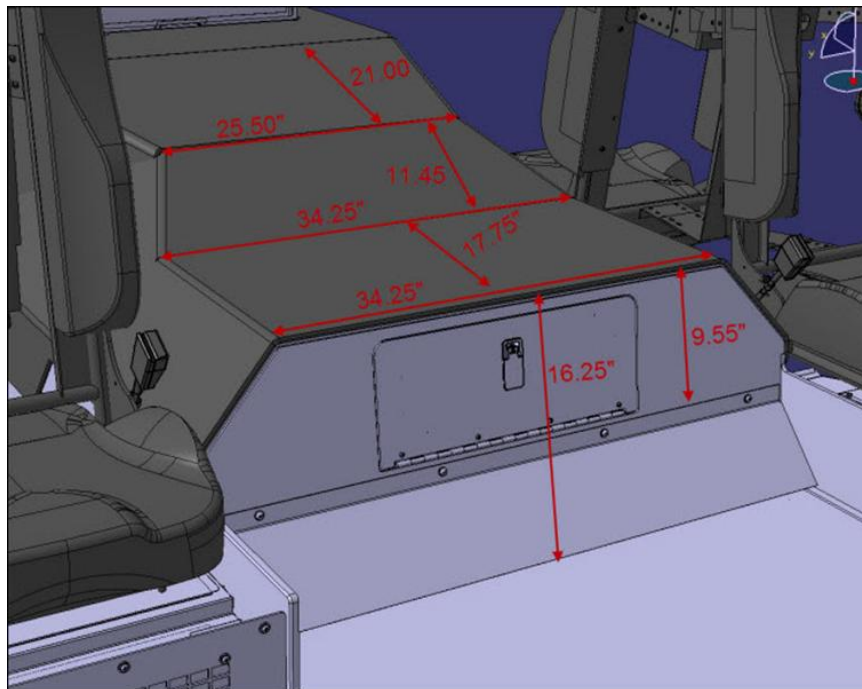
ENGINE TUNNEL

To provide structural strength, the engine tunnel sidewalls will be constructed of 0.50" aluminum plate that is welded to both the 0.25" firewall and 0.38" heavy wall extrusion under the crew cab floor. To maximize occupant space, the top edges will be tapered.

The back of the engine tunnel will be no higher than 16.25" off the crew cab floor.

The engine tunnel will be insulated on both sides for thermal and acoustic absorption. The underside of the tunnel will be covered with 1.00" thick polyether foam that is reinforced with an aluminized face. Thermal rating for this insulation will be -40 degrees Fahrenheit to 300 degrees Fahrenheit. The

insulation will keep noise (dBA) levels at or lower than the specifications in the current edition of the NFPA 1901 standards.



CAB REAR WALL EXTERIOR COVERING

The exterior surface of the rear wall of the cab will be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.

CAB LIFT

A hydraulic cab lift system will 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 will have a backup manual override, for use in the event of an electrical failure.

The cab lift controls will be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls will include a permanently mounted raise/lower switch. For enhanced visibility during cab tilt operations, a remote control tether with on/off switch will be supplied on a coiled cord that will extend from 2.00' (coiled) to 6.00' (extended).

The cab will be capable of tilting 42 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. The cab pivots will be located 46.00" apart to provide stability while tilting the cab.

The rear of the cab will 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 will be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.

For increased safety, a redundant mechanical stay arm will 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 will be manually stowed to its original position before the cab can be lowered.

Cab Lift Interlock

The cab lift safety system will be interlocked to the parking brake. The cab tilt mechanism will 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 will be disabled.

GRILLE

A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, will be provided on the front center of the cab, and will serve as an air intake to the radiator.

DOOR JAMB SCUFFPLATES

All cab door jambs will be furnished with a polished stainless steel scuffplate, mounted on the striker side of the jamb.

FRONT CAB TRIM

A 10.00" band of 22 gauge polished stainless steel trim will be installed across the front of the cab, from door hinge to door hinge. The trim band will be centered on the head lights and applied with two (2)-sided tape. A 0.625" self adhesive trim strip will be applied around the perimeter of the trim band.

There will be polished stainless steel corner covers provided over the painted cab corner where the cab turn signals are located.

SIDE OF CAB MOLDING

Chrome molding will be provided on both sides of cab.

MIRRORS

A Retractable, Model 613423, dual vision, motorized, west coast style mirror, with chrome finish, will be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass will be heated and adjustable with remote control within reach of the driver.

CAB DOORS

The forward cab and crew cab doors will be the half-height style door. To enhance entry and egress to the cab, the forward cab doors will be a minimum of 43.59" wide x 64.71" high. The crew cab doors will measure a minimum of 37.87" wide x 73.75" high.

The forward cab and crew cab doors will be constructed of extruded aluminum with a nominal material thickness of 0.125". The exterior door skins will be constructed from 0.090" aluminum.

The forward cab door windows will include a 7.50" high x 10.00" wide drop area at the front to enhance visibility.

A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The exterior handle will be designed specifically for the fire service to prevent accidental activation, and will provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands. Each door will also be provided with an interior flush, open style paddle handle that will be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles will provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.

The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys will be Model 751. The locks will be capable of activating when the doors are open or closed. The doors will remain locked if locks are activated when the doors are opened, then closed.

A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf will be provided on all cab doors. There will be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.

A chrome grab handle will be provided on the inside of each cab and crew cab door.

The cab steps at each cab door location will be located below the cab doors and will be exposed to the exterior of the cab.

CAB DOOR PANELS

The inner cab door panels will be constructed out of brushed stainless steel. The cab door panels will be removable.

RECESSED POCKET WITH ELASTIC COVER

To provide organized storage (clutter control) in the cab for miscellaneous equipment, the cab interior will be provided with recessed storage pockets. The pockets will be 5.63" wide x 2.00" high x 4.00" deep. The pockets will be provided with a perforated elastic material cover to secure the equipment in the pocket. The pockets will be installed in all available mounting locations of the overhead console.

ELECTRIC WINDOW CONTROLS

Each cab entry door will be equipped with an electrically operated tempered glass window. A window control panel will be located on the door panel within easy reach of the respective occupant. Each switch will allow intermittent or auto down operation for ease of use. Auto down operation will be actuated by holding the window down switch for approximately 1 second. The driver control panel will contain a control switch for each cab door's window. All other door control panels will contain a single switch to operate the window within that door.

The window switches will 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.

CAB STEPS

The forward cab and crew cab access steps will be a full size two-step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps will be designed with Grip Strut inserts to provide support, slip resistance, and drainage. The bottom steps will be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps will be a minimum 31.00" wide, and the crew cab steps will be 24.25" wide with an 8.00" minimum depth. The inside cab steps will not exceed 18.00" in height and be limited to two (2) steps. A slip-resistant handrail will be provided adjacent to each cab door opening to assist during cab ingress and egress.

STEP LIGHTS

For reduced overall maintenance costs compared to incandescent lighting, there will be four (4) white LED step lights provided. The lights will be installed at each cab and crew cab door, one (1) per step. The lights will be located in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep.

In order to ensure exceptional illumination, each light will 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.

The lights will be activated when the adjacent door is opened.

FENDER CROWNS

Stainless steel fender crowns will be installed at the cab wheel openings.

CREW CAB WINDOWS

One (1) fixed window will be provided on the passenger side of the cab, to the rear of the front cab door. The window will be sized to enhance light penetration into the cab interior. The passenger side window will measure 20.00" wide x 20.50" high. There will not be a window provided on the driver side of the cab.

WINDOW INTERIOR TRIM

For improved aesthetics, the passenger side cab window will include a vacuum formed ABS interior trim panel.

Window Tint

The rollup window in the right side crew cab door will be tinted privacy dark gray.

Window Tint

The window behind the right side front cab door will be tinted privacy dark gray.

Window Tint

The rollup window in the left side crew cab door will be tinted privacy dark gray.

Window Tint

The upper window in the right side crew cab door will be tinted privacy dark gray.

Window Tint

The upper window in the left side crew cab door will be tinted privacy dark gray.

INSULATION WITH EXPANDED METAL

All insulation in the cab engine tunnel and under the cab and crew cab floor will use expanded metal to hold the insulation in place.

CUP HOLDER

There will be two (2) cup holder(s) provided. Each cup holder will have self-adjusting fingers that automatically grip beverage containers of various sizes. A recess in the cup holder will allow it to hold beverage containers with handles.

The cup holder(s) will be located at customer pick-up.

MOUNTING PLATE ON ENGINE TUNNEL

Equipment installation provisions will be installed on the engine tunnel.

A .188" smooth aluminum plate will be bolted to the top surface of the engine tunnel. The plate will extend from behind the instrument panel console to the rear of the tunnel. The plate will cover the entire rear surface of the engine tunnel. The plate will be spaced off the engine tunnel .50" to allow for wire routing below the plate.

The mounting surface will be painted to match the cab interior.

UNIVERSAL ADAPTER PLATE

There will be one (1) Havis universal adapter mounting plate, part #C-ADP-101, provided. Each adapter will accommodate a docking station, and a computer mount, built by different manufacturers.

The bracket will be installed for docking station and computer ahead of officers seat.

CAB INTERIOR

With safety as the primary objective, the wrap-around style cab instrument panel will be designed with unobstructed visibility to instrumentation. The dash layout will provide the driver with a quick reference to gauges that allows more time to focus on the road.

The center console will be a high impact ABS polymer and will be easily removable for access to the defroster. The center console will include louvers strategically located for optimal air flow and defrost capability to the windshield.

The passenger side dashboard will be constructed of painted aluminum for durability and low maintenance. For enhanced versatility, the passenger side dash will include a flat working surface.

To provide optional (service friendly) control panels, switches and storage modules, a painted aluminum overhead console will also be provided.

To complete the cab front interior design, painted aluminum modesty panels will be provided under the dash on both sides of the cab. The driver side modesty panel will 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.

To provide a deluxe automotive interior, the engine tunnel will 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 will be painted aluminum.

The headliner will be installed in both forward and rear cab sections. The headliner panel will be a composition of an aluminum panel covered with a sound barrier and upholstery.

The cab structure will include designated raceways for electrical harness routing from the front of the cab to the rear upper portion of the cab. Raceways will 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 will be covered by aluminum extrusion, while the vertical and overhead raceways will be covered by painted aluminum covers. The raceways will 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 will be laid in place.

CAB INTERIOR UPHOLSTERY

The cab interior upholstery will be dark silver gray. All cab interior materials will meet FMVSS 302 (flammability of interior materials).

CAB INTERIOR PAINT

A rich looking interior will be provided by painting all the metal surfaces inside the cab gray, vinyl texture paint.

CAB FLOOR

The cab and crew cab floor areas will be covered with Polydamp™ acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.

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.

CAB DEFROSTER

To provide maximum defrost and heating performance, a 54,961 BTU heater-defroster unit with 558 SCFM of air flow will be provided inside the cab. The defroster unit will be strategically located under the center forward portion of the instrument panel. For easy access, a removable metal cover will be installed over the defroster unit. The defroster will 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 will be built into the design of the cab dash instrument panel and will be easily removable for maintenance. The defroster will 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 will meet or exceed SAE J382 requirements.

CAB/CREW CAB HEATER

Two (2) 36,702 BTU auxiliary heaters with 276 SCFM (each unit) of air flow will be provided inside the crew cab, one (1) in each outboard rear facing seat riser. The heaters will include high performance dual scroll blowers, one (1) for each unit. Outlets for the heaters will 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 will be incorporated in the cab structure that will transfer heat to the forward cab seating positions.

The heater/defroster and crew cab heaters will be controlled by an integral electronic control panel. The heater control panel will allow the driver to control heat flow to the front and rear independently. The control panel will include variable adjustment for temperature and fan control, and be conveniently located on the dash in clear view of the driver. The control panel will include highly visible, progressive LED indicators for both fan speed and temperature.

AIR CONDITIONING

Due to the large space inside the cab, a high-performance, customized air conditioning system will be furnished. A 19.10 cubic inch compressor will be installed on the engine.

The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 64 degrees Fahrenheit in the forward section of the cab, and 69 degrees Fahrenheit in the rear section of the cab, at 50 percent relative humidity within 30 minutes. The cooling performance test will be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.

A roof-mounted condenser with a 63,000 BTU output that meets and exceeds the performance specification will be installed on the cab roof. The condenser cover and mounting legs to be painted white as provided by manufacturer.

The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator will 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.

There will 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.

The evaporator unit will have a 49,000 BTU (4.08 tons) rating that meets and exceeds the performance specifications.

Adjustable air outlets will be strategically located on the evaporator cover per the following:

- Four (4) will be directed towards the drivers location
- Four (4) will be directed towards the officers location
- Eight (8) will be directed towards crew cab area

The air conditioner refrigerant will be R-134A and will be installed by a certified technician.

The air conditioner will be controlled by dual zone integral electronic control panels for the heater, defroster and air conditioner. The cab control panel will be located in the center console. For ease of operation, the control panels will include variable adjustment for temperature and fan control.

INTERIOR CAB INSULATION

The cab walls, ceiling and engine tunnel will be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab will 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 will be constructed from a 0.20" high density polyethylene corrugated material. Each headliner will be wrapped with a 0.25" thick foil faced poly damp low emissivity foam insulation barrier for acoustic and thermal control.

Designed for maximum sound absorption and thermal insulation, the rear cab wall will be insulated with a 1.50" thick open cell acoustical foam. The thermal protection of the foam will provide an R-value of 4 per 1.00" thickness.

SPECIAL DRAIN TUBES

Two (2) condensate drain tubes will be provided for the air conditioning evaporator. The drip pan will have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip pan.

SUN VISORS

Two (2) smoked Lexan™ sun visors provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab.

There will be no retention bracket provided to help secure each sun visor in the stowed position.

GRAB HANDLE

A black rubber covered grab handle will be mounted on the door post of the driver side and passenger side cab door to assist in entering the cab. The grab handle will be securely mounted to the post area between the door and windshield.

ENGINE COMPARTMENT LIGHT

An engine compartment light will be installed under the engine hood, of which the switch is an integral part. Light will have a .125" diameter hole in its lens to prevent moisture retention.

ACCESS TO ENGINE DIPSTICKS

For access to the engine oil and transmission fluid dipsticks, there will be a door on the engine tunnel, inside the crew cab. The door will be on the rear wall of the engine tunnel, on the vertical surface. The door will be 17.75" wide x 12.75" high and be flush with the wall of the engine tunnel.

The engine oil dipstick will allow for checking only. The transmission dipstick will allow for both checking and filling. An additional port will be provided for filling the engine oil.

The door will have a rubber seal for thermal and acoustic insulation. One (1) flush latch will be provided on the access door.

CAB SAFETY SYSTEM

The cab will be provided with a safety system designed to protect occupants in the event of a side roll or frontal impact, and will include the following:

- A supplemental restraint system (SRS) sensor will be installed on a structural cab member behind the instrument panel. The SRS sensor will perform real time diagnostics of all critical subsystems and will record sensory inputs immediately before and during a side roll or frontal impact event.
- A slave SRS sensor will be installed in the cab to provide capacity for eight (8) crew cab seating positions.
- A fault-indicating light will be provided on the vehicle's instrument panel allowing the driver to monitor the operational status of the SRS system.
- A driver side front air bag will be mounted in the steering wheel and will be designed to protect the head and upper torso of the occupant, when used in combination with the 3-point seat belt.
- A passenger side knee bolster air bag will be mounted in the modesty panel below the dash panel and will be designed to protect the legs of the occupant, when used in combination with the 3-point seat belt.
- Air curtains will be provided in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall.
- Suspension seats will be provided with devices to retract them to the lowest travel position during a side roll or frontal impact event.
- Seat belts will be provided with pre-tensioners to remove slack from the seat belt during a side roll or frontal impact event.

FRONTAL IMPACT PROTECTION

The SRS system will provide protection during a frontal or oblique impact event. The system will activate when the vehicle decelerates at a predetermined G force known to cause injury to the occupants. The cab and chassis will 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 will activate the pyrotechnic devices when the correct crash algorithm, wave form, is detected.

The SRS system will 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 will be retracted to the lowest travel position
- Seat belts will be pre-tensioned to firmly hold the occupant in place

SIDE ROLL PROTECTION

The SRS system will 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 will analyze the vehicle's angle and rate of roll to determine the optimal activation of the advanced occupant restraints.

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

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

SEATING CAPACITY

The seating capacity in the cab will be five (5).

DRIVER SEAT

A Pierce PS6® seat will be provided in the cab for the driver. The seat design will be a cam action type with air suspension. For increased convenience, the seat will include electric controls to adjust the rake (15 degrees), height (1.12" travel) and horizontal (7.75" travel) position. Electric controls will be located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat will have a reclining back, adjustable from 20 degrees back to 45 degrees forward. Providing for maximum comfort, the seat back will be a high back style with manual lumbar adjustment lever, for lower back support, and will include minimum 7.50" deep side bolster pads for maximum support. The lumbar adjustment lever will be easily located at the lower outboard position of the seat cushion. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control).

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.

- A suspension seat safety system will be included. When activated in the event of a side roll, this system will pretension the seat belt and retract the seat to its lowest travel position.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

OFFICER SEAT

A Pierce PS6® seat will be provided in the cab for the passenger. The seat will be a cam action type with air suspension. For increased convenience, the seat will include a manual control to adjust the horizontal position (6.00" travel). The manual horizontal control will be a towel-bar style located below the forward part of the seat cushion. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not belted.

The seat back will be an SCBA back style with 7.5 degree fixed recline angle, and will include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A suspension seat safety system will be included. When activated, this system will pretension the seat belt and then retract the seat to its lowest travel position.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

RADIO COMPARTMENT

A compartment for the radio amplifier will be located on the floor of the cab behind the front passenger seat. A lift-up door with a chrome plated lift and turn latch will be provided for access. The compartment will be constructed of smooth aluminum and painted to match the cab interior. Louvers will be provided to allow for ventilation.

REAR FACING LEFT SIDE CABINET

A rear facing cabinet will be provided in the crew cab at the left side outboard position.

The cabinet will be 24.00" wide x 40.00" high x 30.00" deep and divided into two (2) sections. The divider will be located 17.00" off the cabinet floor. The upper section will have web netting. The netting will be made with 1.00" wide nylon material with 2.00" openings. The nylon webbing will be permanently fastened at the bottom side of the cabinet and have spring clip and hook fasteners on the

opposite side to secure it. The interior clear door opening will be 19.50" wide x 21.75" high. A notch will be located in the interior door opening for the exterior rollup door. There will be no interior access to the lower section of the cabinet.

The cabinet will include no adjustable shelves or trays painted to match the cab interior.

The cabinet will include no louvers.

The cabinet will also provide access from outside the cab with one (1) Gortite rollup door painted to match the primary color of the cab exterior, non-locking. The frame to frame exterior door opening will be 21.25" wide x 36.00" high. The minimum clear door opening will be 18.50" wide x 30.12" high. The door will be located on the side of the cab over the wheelwell. There will be access to both sections of the cabinet from the exterior.

CLEAR DOOR OPENINGS (F-F = Frame to Frame)					
AMDOR		GORTITE		ROM	
HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL
Subtract 2.00" from F-F	Subtract 5.88" from F-F	Subtract 2.75" from F-F	Subtract 4.75" from F-F	Subtract 2.56" from F-F	Subtract 4.50" from F-F

The cabinet will be constructed of smooth aluminum and painted to match the cab interior.

Cabinet Light

There will be one (1) white Amdor LED strip light installed on the left side of the exterior cabinet door opening and one (1) white Amdor LED strip light installed on the right side of the exterior cabinet door opening. The lights will be controlled by an automatic door switch and a rocker switch on the front of the cabinet.

REAR FACING PASSENGER SIDE OUTBOARD SEAT

There will be one (1) rear facing, Pierce PS6® seat provided at the passenger side outboard position in the crew cab. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled. The seat back will be an SCBA back style with 7.5 degree fixed recline angle, and will include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity will be adjustable from front to rear in 1.00" increments to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.

- A seat safety system will be included. When activated, this system will pretension the seat belt and firmly hold the occupant in the event of a side roll.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

FORWARD FACING DRIVER SIDE OUTBOARD COMPARTMENT

There will be one (1) forward facing storage compartment provided at the driver side outboard position in the crew cab. The compartment will be mounted 17.00" above the cab floor.

The compartment will be used for storing a water cooler and have inside dimensions of 13.00" wide x 10.00" high x 13.00" deep. The compartment will have an open top with a half circle cutout on the bottom front so the water cooler spigot can be moved.

The compartment will be constructed of smooth aluminum, and painted to match the cab interior.

FORWARD FACING CENTER SEATS

There will be two (2) forward facing, Pierce PS6® seats provided at the center position in the crew cab. For optimal comfort, the seats will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seats will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled.

The seat backs will be an SCBA back style with 7.5 degree fixed recline angle, and will include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seats will include the following feature incorporated into the side roll protection system:

- A seat safety system will be included. When activated, this system will pretension the seat belts around the occupants to firmly hold them in place in the event of a side roll.

The seats will be furnished with 3-point, shoulder type seat belts. The seat belts will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

FORWARD FACING PASSENGER SIDE EMS COMPARTMENT

A forward facing EMS compartment will be provided in the crew cab at the passenger side position.

The compartment will be 21.00" wide x 54.00" high x 14.00" deep with one (1) Gortite roll up door, non-locking with anodized finish.

The compartment will be constructed of smooth aluminum, and painted to match the cab interior.

Compartment Light

There will be two (2) white Amdor LED strip lights installed, one (1) each side of the compartment opening. The lights will be controlled by an automatic door switch.

TEMPERATURE CONTROLLED BOX

A Medi-Kool Model MK Saline SS, cabinet will be provided on top of the rear facing EMS compartment located on top of the rear facing EMS compartment. The cabinet exterior will be approximately 22.25" wide x 20.50" deep x 11.75" high with the compressor on the right side. The door will be hinged on the left side. An enclosure will be provided to contain the cabinet and compressor. The enclosure will include adequate ventilation where applicable.

There will be a CompX, Model WS-ICKP-FRG-V, electronic lock provided on the Medi-Kool.

The compartment will be constructed of smooth aluminum and painted to match the cab interior.

Compartment Light

There will be no lighting installed in the compartment.

SHELVING

There will be one (1) shelf provided. Each shelf will be constructed of 0.090" aluminum with a 1.25" up-turned lip. Shelving will be infinitely adjustable by means of a threaded tightener sliding in a track.

The location will be one (1) shelf in the passenger side forward facing EMS cabinet.

SEAT UPHOLSTERY

All seat upholstery will be gray Turnout Tuff material.

AIR BOTTLE HOLDERS

All SCBA type seats in the cab will have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket will 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 will constrain the SCBA bottle in the seat and will exceed the NFPA standard of 9G.

There will be a quantity of four (4) SCBA brackets.

SEAT BELTS

All seating positions in the cab, crew cab and tiller cab (if applicable) will have red seat belts.

To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.

The 3-point shoulder type seat belts will also include the ReadyReach D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.

SHOULDER HARNESS HEIGHT ADJUSTMENT

All seating positions furnished with 3-point shoulder type seat belts will include a height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter.

A total of six (6) seating positions will have the adjustable shoulder harness.

HELMET STORAGE

Helmet storage will be located in a body compartment.

CAB DOME LIGHTS

There will be four (4) dual LED dome lights with black bezels provided. Two (2) lights will be mounted above the inside shoulder of the driver and officer and two (2) lights will be installed and located, one (1) on each side of the crew cab.

The color of the LED's will be red and white.

The white LED's will be controlled by the door switches and the lens switch.

The color LED's will be controlled by the lens switch.

In order to ensure exceptional illumination, each white LED dome light will 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.

HAND HELD SPOTLIGHT

There will be four (4) Streamlight, Model Survivor 90503, LED flashlights with chargers and AC/DC chords provided and installed TO BE DETERMINED AT PRECONSTRUCT.

ADDITIONAL HAND HELD LIGHT

There will be two (2) lights additional 12v Streamlight, Model #44315, Vulcan 180 LED light(s) will be provided and mounted TO BE DETERMINED AT PRECONSTRUCTION. Each light will be provided with a 12 volt direct wire vehicle mounting rack and quick release shoulder strap.

Each light housing will be orange in color.

CAB INSTRUMENTATION

The cab instrument panel will consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches will be identified by a label adjacent to each item. Actuation of the headlight switch will illuminate the labels in low light conditions. Telltale indicator lamps will not be illuminated unless necessary. The cab instruments and controls will be conveniently located within the forward cab section directly forward of the driver. Gauge and switch panels will be designed to be removable for ease of service and low cost of ownership.

GAUGES

The gauge panel will include the following ten (10) ivory gauges with chrome bezels to monitor vehicle performance:

- Voltmeter gauge (Volts)

- Low volts (11.8 VDC)

- Amber indicator on gauge assembly with alarm

- High volts (15 VDC)

- Amber indicator on gauge assembly with alarm

- Very low volts (11.3 VDC)

- Amber indicator on gauge assembly with alarm

- Very high volts (16 VDC)

- Amber indicator on gauge assembly with alarm

- Tachometer (RPM)

- Speedometer (Primary (outside) MPH, Secondary (inside) Km/H)

- Fuel level gauge (Empty - Full in fractions)

- Low fuel (1/8 full)

- Amber indicator on gauge assembly with alarm

- Very low fuel (1/32) fuel

- Amber indicator on gauge assembly with alarm

- Engine oil pressure gauge (PSI)

- Low oil pressure to activate engine warning lights and alarms

- Red indicator on gauge assembly with alarm

- Front air pressure gauge (PSI)

- Low air pressure to activate warning lights and alarm

- Red indicator on gauge assembly with alarm

- Rear air pressure gauge (PSI)

Low air pressure to activate warning lights and alarm

Red indicator on gauge assembly with alarm

- Transmission oil temperature gauge (Fahrenheit)

High transmission oil temperature activates warning lights and alarm

Amber indicator on gauge assembly with alarm

- Engine coolant temperature gauge (Fahrenheit)

High engine temperature activates an engine warning light and alarm

Red indicator on gauge assembly with alarm

- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions)

Low fluid (1/8 full)

Amber indicator on gauge assembly with alarm

All gauges and gauge indicators will perform prove out at initial power-up to ensure proper performance.

INDICATOR LAMPS

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

The following amber telltale lamps will 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 will be present:

- Warning (stop sign symbol)
- Seat belt
- Parking brake
- Stop engine
- Rack down

The following green telltale lamps will be provided:

- Left turn
- Right turn
- Battery on

The following blue telltale lamp will be provided:

- High beam

ALARMS

Audible steady tone warning alarm: A steady audible tone alarm will be provided whenever a warning message is present.

Audible pulsing tone caution alarm: A pulsing audible tone alarm (chime/chirp) will be provided whenever a caution message is present without a warning message being present.

Alarm silence: Any active audible alarm will 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 will intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp

will act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition will enable the steady or pulsing tones respectively.

INDICATOR LAMP AND ALARM PROVE-OUT

Telltale indicators and alarms will perform prove-out at initial power-up to ensure proper performance.

CONTROL SWITCHES

For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver.

Emergency master switch: A molded plastic push button switch with integral indicator lamp will be provided. Pressing the switch will 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.

Headlight / Parking light switch: A three (3)-position maintained rocker switch will be provided. The first switch position will deactivate all parking lights and the headlights. The second switch position will activate the parking lights. The third switch position will activate the headlights.

Panel backlighting intensity control switch: A three (3)-position momentary rocker switch will 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.

The following standard controls will be integral to the gauge assembly and are located below the right hand gauges. All switches have backlit labels for low light applications.

High idle engagement switch: A two (2)-position momentary rocker switch with integral indicator lamp will be provided. The first switch position is the default switch position. The second switch position will 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 will indicate when the high idle function is engaged.

"Ok To Engage High Idle" indicator lamp: A green indicator light will be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

The following standard controls will be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches will have backlit labels for low light applications.

Ignition switch: A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will deactivate vehicle ignition. The second switch position will activate vehicle ignition. The third momentary position will disable the Command Zone audible alarm if held for three (3) to five (5) seconds. A green indicator lamp will be activated with vehicle ignition.

Engine start switch: A two (2)-position momentary rocker switch will be provided. The first switch position is the default switch position. The second switch position will activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

4-way hazard switch: A two (2)-position maintained rocker switch will be provided. The first switch position will deactivate the 4-way hazard switch function. The second switch position will activate the 4-way hazard function. The switch actuator will be red and includes the international 4-way hazard symbol.

Heater, defroster, and optional air conditioning control panel: A control panel with membrane switches will be provided to control heater/defroster temperature and heater, defroster, and air conditioning fan speeds. A green LED status bar will indicate the relative temperature and fan speed settings.

Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls will be provided. The windshield wiper control will have high, low, and intermittent modes.

Parking brake control: An air actuated push/pull park brake control valve will be provided.

Chassis horn control: Activation of the chassis horn control will be provided through the center of the steering wheel.

CUSTOM SWITCH PANELS

The design of cab instrumentation will allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There will 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 will have backlit labels for low light applications.

DIAGNOSTIC PANEL

A diagnostic panel will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches will allow ABS systems to provide blink codes should a problem exist.

The diagnostic panel will include the following:

- Engine diagnostic port
- Transmission diagnostic port
- ABS diagnostic port
- SRS diagnostic port (where applicable)

- Command Zone USB diagnostic port
- ABS diagnostic switch (blink codes flashed on ABS telltale indicator)
- Diesel particulate filter regeneration switch (where applicable)
- Diesel particulate filter regeneration inhibit switch (where applicable)

CAB LCD DISPLAY

A digital four (4)-row by 20-character dot matrix display will be integral to the gauge panel. The display will be capable of showing simple graphical images as well as text. The display will be split into three (3) sections. Each section will have a dedicated function. The upper left section will display the outside ambient temperature.

The upper right section will display, along with other configuration specific information:

- Odometer
- Trip mileage
- PTO hours
- Fuel consumption
- Engine hours

The bottom section will display INFO, CAUTION, and WARNING messages. Text messages will automatically activate to describe the cause of an audible caution or warning alarm. The LCD will be capable of displaying multiple text messages should more than one caution or warning condition exist.

AIR RESTRICTION INDICATOR

A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm shall be provided.

"DO NOT MOVE APPARATUS" INDICATOR

A flashing red indicator light, located in the driving compartment, will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On."

The same circuit that activates the Do Not Move Apparatus indicator will activate a steady tone alarm when the parking brake is released.

DO NOT MOVE TRUCK MESSAGES

Messages will be displayed on the Command Zone™, color display located within sight of the driver whenever the Do Not Move Truck light is active. The messages will designate the item or items not in the stowed for vehicle travel position (parking brake disengaged).

The following messages will be displayed (where applicable):

- Do Not Move Truck
- DS Cab Door Open (Driver Side Cab Door Open)
- PS Cab Door Open (Passenger's Side Cab Door Open)
- DS Crew Cab Door Open (Driver Side Crew Cab Door Open)
- PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open)
- DS Body Door Open (Driver Side Body Door Open)
- PS Body Door Open (Passenger's Side Body Door Open)
- Rear Body Door Open
- DS Ladder Rack Down (Driver Side Ladder Rack Down)
- PS Ladder Rack Down (Passenger Side Ladder Rack Down)
- Deck Gun Not Stowed
- Lt Tower Not Stowed (Light Tower Not Stowed)
- Fold Tank Not Stowed (Fold-A-Tank Not Stowed)
- Aerial Not Stowed (Aerial Device Not Stowed)
- Stabilizer Not Stowed
- Steps Not Stowed
- Handrail Not Stowed

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 will be displayed as a caution message after the parking brake is disengaged.

SWITCH PANELS

The emergency light switch panel will have a master switch for ease of use plus individual switches for selective control. Each switch panel will contain eight (8) membrane-type switches each rated for one million (1,000,000) cycles. Panels containing less than eight (8) switch assignments will include non-functioning black appliques. Documentation will be provided by the manufacturer indicating the rated cycle life of the switches. The switch panel(s) will be located in the overhead position above the windshield on the driver side overhead to allow for easy access.

Additional switch panel(s) will be located in the overhead position(s) above the windshield or in designated locations on the lower instrument panel layout.

The switches will be membrane-type and also act as an integral indicator light. For quick, visual indication the entire surface of the switch will be illuminated white whenever back lighting is activated and illuminated green whenever the switch is active. An active illuminated switch will 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 Gravoply label indicating the use of each switch will be placed in

the center of the switch. The label will allow light to pass through the letters for ease of use in low light conditions.

WIPER CONTROL

For simple operation and easy reach, the windshield wiper control will be an integral part of the directional light lever located on the steering column. The wiper control will include high and low wiper speed settings, a one (1)-speed intermittent wiper control and windshield washer switch. The control will have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.

SPARE CIRCUIT

There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires will have the following features:

- The positive wire will be connected directly to the battery power.
- The negative wire will be connected to ground.
- Wires will be protected to 40 amps at 12 volts DC.
- Power and ground will terminate behind the officers seat.
- Termination will be to a Blue Sea System, Model 5025, 6 circuit with negative bus bar. The terminal block will include a cover with circuit labels.

Wires will be sized to 125% of the protection.

This circuit(s) may be load managed when the parking brake is set.

SPARE CIRCUIT

There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires will have the following features:

- The positive wire will be connected directly to the isolated battery
- The negative wire will be connected to ground
- Wires will be protected to 20 amps at 12 volts DC
- Power and ground will terminate TO BE DETERMINED
- Termination will be with heat shrinkable butt splicing
- Wires will be sized to 125% of the protection

This circuit(s) may be load managed when the parking brake is set.

SPARE CIRCUIT

There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires will have the following features:

The positive wire will be connected directly to the isolated battery.

The negative wire will be connected to ground.

Wires will be protected to 15 amps at 12 volts DC.

Power and ground will terminate under the EMS cabinet at the forward facing PS seat position.

Termination will be with heat shrinkable butt splicing.

Wires will be sized to 125% of the protection.

This circuit(s) may be load managed when the parking brake is set.

SPARE CIRCUIT

There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires will have the following features:

- The positive wire will be connected directly to the battery power
- The negative wire will be connected to ground
- Wires will be protected to 15 amps at 12 volts DC
- Power and ground will terminate officer side dash area
- Termination will be with 15 amp, power point plug with rubber cover
- Wires will be sized to 125 percent of the protection

The circuit(s) may be load managed when the parking brake is set.

OVERHEAD INSTRUMENT PANEL MODIFICATION

The top center overhead switch panel housing will be removed and the standard center switch panel housing will be supplied with the overlapping lips removed so that it can be dropped for service.

RECESS, DASH PANEL

The dash panel across from the officer will be recessed to accommodate the mounting of miscellaneous items. The recess will be 8.25" down x 7.81" back and 20.88" wide.

INFORMATION CENTER

An information center employing a 7.00" diagonal touch screen color LCD display will be encased in an ABS plastic housing.

The information center will have the following specifications:

- Operate in temperatures from -40 to 185 degrees Fahrenheit
- An Optical Gel will be placed between the LCD and protective lens
- Five weather resistant user interface switches

- Grey with black accents
- Sunlight Readable
- Linux operating system
- Minimum of 1000nits rated display
- Display can be changed to an available foreign language
- A LCD display integral to the cab gauge panel will be included as outlined in the cab instrumentation area.
- Programmed to read US Customary

GENERAL SCREEN DESIGN

Where possible, background colors will be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background will be used.

If a caution or warning situation arises the following will occur:

- An amber background/text color will indicate a caution condition
- A red background/text color will indicate a warning condition
- The information center will utilize an "Alert Center" to display text messages for audible alarm tones. The text messages will be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages will cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" will change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color will be shown for all alert center messages.
- A label for each button will exist. The label will indicate the function for each active button for each screen. Buttons that are not utilized on specific screens will have a button label with no text or symbol.

HOME/TRANSIT SCREEN

This screen will display the following:

- Vehicle Mitigation (if equipped)
- Water Level (if equipped)
- Foam Level (if equipped)
- Seat Belt Monitoring Screen
- Tire Pressure Monitoring (if equipped)
- Digital Speedometer
- Active Alarms

ON SCENE SCREEN

This screen will display the following and will be auto activated with pump engaged (if equipped):

- Battery Voltage

- Fuel
- Oil Pressure
- Coolant Temperature
- RPM
- Water Level (if equipped)
- Foam Level (if equipped)
- Foam Concentration (if equipped)
- Water Flow Rate (if equipped)
- Water Used (if equipped)
- Active Alarms

VIRTUAL BUTTONS

There will be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.

PAGE SCREEN

The page screen will display the following and allow the user to progress into other screens for further functionality:

- Diagnostics
 - Faults
 - Listed by order of occurrence
 - Allows to sort by system
 - Interlock
 - Throttle Interlocks
 - Pump Interlocks (if equipped)
 - Aerial Interlocks (if equipped)
 - PTO Interlocks (if equipped)
 - Load Manager
 - A list of items to be load managed will be provided. The list will provide a description of the load.
 - The lower the priority numbers the earlier the device will be shed should a low voltage condition occur.
 - The screen will indicate if a load has been shed (disabled) or not shed.
 - "At a glance" color features are utilized on this screen.
 - Systems
 - Command Zone
 - Module type and ID number
 - Module Version
 - Input or output number
 - Circuit number connected to that input or output

- Status of the input or output
 - Power and Constant Current module diagnostic information
 - Foam (if equipped)
 - Pressure Controller (if equipped)
 - Generator Frequency (if equipped)
 - Live Data
 - General Truck Data
- Maintenance
 - Engine oil and filter
 - Transmission oil and filter
 - Pump oil (if equipped)
 - Foam (if equipped)
 - Aerial (if equipped)
- Setup
 - Clock Setup
 - Date & Time
 - 12 or 24 hour format
 - Set time and date
 - Backlight
 - Daytime
 - Night time
 - Sensitivity
 - Unit Selection
 - Home Screen
 - Virtual Button Setup
 - On Scene Screen Setup
 - Configure Video Mode
 - Set Video Contrast
 - Set Video Color
 - Set Video Tint
- Do Not Move
 - The screen will indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices will be indicate
 - Driver Side Cab Door
 - Passenger's Side Cab Door
 - Driver Side Crew Cab Door
 - Passenger's Side Crew Cab Door
 - Driver Side Body Doors
 - Passenger's Side Body Doors
 - Rear Body Door(s)

- Ladder Rack (if applicable)
 - Deck Gun (if applicable)
 - Light Tower (if applicable)
 - Hatch Door (if applicable)
 - Stabilizers (if applicable)
 - Steps (if applicable)
- Notifications
 - View Active Alarms
 - Shows a list of all active alarms including date and time of the occurrence is shown with each alarm
 - Silence Alarms - All alarms are silenced
- Timer Screen
- HVAC (if equipped)
- Tire Information (if equipped)
- Ascendant Set Up Confirmation (if equipped)

Button functions and button labels may change with each screen.

VEHICLE DATA RECORDER

There will be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

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.

The vehicle data recorder will be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- 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) will be provided on the Command Zone™ color display and in the center overhead of the cab instrument panel. The SBMS will 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 will become active on the Command Zone 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 will be activated.

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

INTERCOM SYSTEM

A five (5) position David Clark, Model U3800, intercom system with single radio interface capability at the driver and officer positions will be provided. The driver will have a remote push-to-transmit momentary rocker switch, and the officer will have a remote push-to-transmit button located in the same location as job 27152. Three (3) outboard crew cab seating positions will have intercom only.

The following components will be supplied with this system:

- One (1) U3805 Radio Cord Junction Module
- Two (2) U3815 Radio Interface Modules (Driver, Officer)
- One (1) Momentary push-to-talk rocker switches (Driver)
- One (1) Remote PTT (Officer)
- One (1) U3800 Intercom Unit (1 Crew)
- One (1) U3802 Single Intercom Headset Stations (1 Crew)
- One (1) U3801 Single Intercom Headset Station (1 Crew)
- One (1) C3820 Power Cable
- All necessary interconnect cables and connectors

RADIO / INTERCOM INTERFACE INCLUDED

All radio interfaced stations will have universal radio interfaces installed. The interface wiring will be routed within the cab to TO BE DETERMINED .

UNDER THE HELMET HEADSET

There will be four (4) under the helmet, headset(s) provided for the driver, officer, and two forward facing crew seats.

Each David Clark, Model H3442, headset will feature:

- 5' Coiled cord
- Noise cancelling electric microphone
- Flexible microphone boom rotates 200 degrees for left or right dress
- Microphone on/off button
- Comfort Gel Earseals
- 23 dB noise reduction

**HEADSET HANGERS**

There will be five (5) headset hanger(s) installed driver's seat, officer's seat, driver's side inboard forward facing seat, passenger's side inboard forward facing seat and passenger's side outboard rear facing seat. The hanger(s) will meet NFPA 1901, Section 14.1.11, requirement for equipment mounting.

TWO WAY RADIO INSTALLATION

There will be one (1) customer supplied two way radio(s) sent to the apparatus manufacturers preferred radio installer to be installed TO BE DETERMINED per the shipping document.

No antenna mount or whip will be included in this option.

Specific radio shipping requirements will be followed.

COMPLETE MDT INSTALLATION

There will be one (1) customer supplied Mobile Data Terminal (MDT), Docking station, Mounting bracket, power supply, antenna, GPS, modem, and all cabling sent to the apparatus manufacturers preferred installer to be installed in front of the officer on the dash. The Trimble unit will be placed behind the officers seat.. Specific shipping requirements will be followed.

TWO WAY RADIO SPEAKER INSTALLATION

There will be one (1) customer supplied two way radio speakers sent to the apparatus manufacturers preferred third party installer to be installed forward of the door warning light between the sun visors.

Specific shipping requirements will be followed.

RADIO ANTENNA MOUNT

There will be one (1) standard 1.125", 18 thread antenna-mounting base(s) installed in front of the officer - overhead on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the overhead switch area. A weatherproof cap will be installed on the mount.

**VEHICLE CAMERA SYSTEM**

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

- One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse.
- One (1) camera located on the right side of the apparatus, pointing rearward, displayed automatically with the right side turn signal.

The camera images will be displayed on the driver's color touchscreen multiplex display. Audio from the microphone on the rear camera will be emitted by an amplified speaker with volume control in the blank panel to the left of the steering column.

The following components will be included:

- One (1) SV-CW134639CAI Camera
- One (1) CS134404CI Side camera
- One (1) Amplified speaker (if applicable)
- All necessary cables

RECESS REAR CAMERA

A rear camera recess will be provided in the center at the rear .

KNOX-BOX

There will be a Knox-Box® KeySecure® 4, Model 2660B*, with key pad access provided. The system will allow all administration functions to be performed via WiFi, Ethernet cable or USB port. It will have a blue strobe light to warn when the master key is in an unsecured position. The box will be surface mounted and installed match 26136 - in front of the officer to the left on an angled bracket. See photo at S:\FAE-SHARE\DEPT\Job E-Folders\27000-27999\27152\Stage 7 - Graphics & Photos, within the cab. The antenna will be located on the right side of the box.

KNOX-BOX MOUNTING BRACKET

A Knox-Box 60 degree mounting bracket, Model 2696, will be provided. The bracket will be mounted to the key storage located TO BE DETERMINED, within the cab.

ELECTRICAL POWER CONTROL SYSTEM

The primary power distribution will 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 will be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers will be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers will be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays will be easily accessible.

Distribution centers located throughout the vehicle will contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.

Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting). When required, automotive type fuses will be utilized to protect electronic equipment. Control relays and solenoid will have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.

SOLID-STATE CONTROL SYSTEM

A solid-state electronics based control system will be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network will consist of electronic modules located near their point of use to reduce harness lengths and improve reliability. The control system will comply with SAE J1939-11 recommended practices.

The control system will operate as a master-slave system whereas the main control module instructs all other system components. The system will contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system will utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership.

For increased reliability and simplified use the control system modules will include the following attributes:

- Green LED indicator light for module power
- Red LED indicator light for network communication stability status
- Control system self test at activation and continually throughout vehicle operation
- No moving parts due to transistor logic
- Software logic control for NFPA mandated safety interlocks and indicators
- Integrated electrical system load management without additional components
- Integrated electrical load sequencing system without additional components
- Customized control software to the vehicle's configuration
- Factory and field re programmable to accommodate changes to the vehicle's operating parameters
- Complete operating and troubleshooting manuals

- USB connection to the main control module for advanced troubleshooting

To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules will meet the following specifications:

- Module circuit board will meet SAE J771 specifications
- Operating temperature from -40C to +70C
- Storage temperature from -40C to +70C
- Vibration to 50g

IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)

Operating voltage from eight (8) volts to 16 volts DC

The main controller will activate status indicators and audible alarms designed to provide warning of problems before they become critical.

CIRCUIT PROTECTION AND CONTROL DIAGRAM

Copies of all job-specific, computer network input and output (I/O) connections will be provided with each chassis. The sheets will indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.

ON-BOARD ADVANCED/VISUAL ELECTRICAL SYSTEM DIAGNOSTICS

The on-board information center will include the following diagnostic information:

- Text description of active warning or caution alarms
- Simplified warning indicators
- Amber caution indication with intermittent alarm
- Red warning indication with steady tone alarm

All control system modules, with the exception of the main control module, will contain on-board visual diagnostic LEDs that assist in troubleshooting. The LEDs will be enclosed within the sealed, transparent module housing near the face of the module. One LED for each input or output will be provided and will illuminate whenever the respective input or output is active. Color-coded labels within the modules will encompass the LEDs for ease of identification. The LED indicator lights will provide point of use information for reduced troubleshooting time without the need for an additional computer.

TECH MODULE WITH WIFI

An in cab module will provide WiFi wireless interface and data logging capability. 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.

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 Command Zone™, control and information system.

The data logging capability will record faults from the engine, transmission, ABS and Command Zone™, 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.

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.

PROGNOSTICS

A software based vehicle tool will be provided to predict remaining life of the vehicles critical fluid and events.

The system will send automatic indications to the Command Zone, color display and/or wireless enabled device to proactively alert of upcoming service intervals.

Prognostics will include:

- Engine oil and filter
- Transmission oil and filter
- Pump oil (if equipped)
- Foam oil (if equipped)
- Aerial oil and filter (if equipped)

ADVANCED DIAGNOSTICS

An advanced, Windows-based, diagnostic software program will be provided for this control system. The software will provide troubleshooting tools to service technicians equipped with a Windows-based computer or wireless enabled device.

The service and maintenance software will be easy to understand and use and have the ability to view system input/output (I/O) information.

INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM

A system will be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

VOLTAGE MONITOR SYSTEM

A voltage monitoring system will be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system will provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm will activate if the system falls below 11.8 volts DC for more than two (2) minutes.

DEDICATED RADIO EQUIPMENT CONNECTION POINTS

There will be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment.

- The studs will consist of the following:
- 12-volt 40-amp battery switched power
- 12-volt 60-amp ignition switched power
- 12-volt 60-amp direct battery power

There will also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.

ENHANCED SOFTWARE

The solid-state control system will include the following software enhancements:

All perimeter lights and scene lights (where applicable) will be deactivated when the parking brake is released.

Cab and crew cab dome lights will remain on for ten (10) seconds for improved visibility after the doors close. The dome lights will dim after ten (10) seconds or immediately if the vehicle is put into gear.

Cab and crew cab perimeter lights will remain on for ten (10) seconds for improved visibility after the doors close. The dome lights will dim after ten (10) seconds or immediately if the vehicle is put into gear.

EMI/RFI PROTECTION

To prevent erroneous signals from crosstalk contamination and interference, the electrical system will meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system will be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.

The apparatus will have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system will 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, will provide EMC testing reports from testing conducted on an entire apparatus and will 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.

EMI/RFI susceptibility will be controlled by applying appropriate circuit designs and shielding. The electrical system will be designed for full compatibility with low-level control signals and high-powered

two-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

ELECTRICAL

All 12-volt electrical equipment installed by the apparatus manufacturer will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers will be provided which conform to SAE Standards. Wiring will be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment will be installed utilizing the following guidelines:

1. All holes made in the roof will be caulked with silicon, rope caulk is not acceptable. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.
2. Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.
3. Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.
4. Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation (of the plug).
5. All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.
6. All electrical terminals in exposed areas will have silicon (1890) applied completely over the metal portion of the terminal.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests will be recorded and provided to the purchaser at time of delivery.

BATTERY SYSTEM

Five (5) 12 volt, Exide, Model 31S950X3W, group 31 batteries that include the following features will be provided:

- 950 CCA, cold cranking amps
- 190 amp reserve capacity
- High cycle
- Rating of 4750 CCA at 0 degrees Fahrenheit
- 950 minutes of reserve capacity
- Threaded stainless steel studs

Each battery case will be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover will be manifold vented with a central venting location to allow a 45 degree tilt capacity.

The inside of each battery will consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.

ISOLATED BATTERY

One (1) 12 volt, Exide, Model 31S950X3W, battery will be provided for voltage sensitive components. A battery isolator appropriately suited for the battery capacity will be supplied.

BATTERY SYSTEM

There will be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.

MASTER BATTERY SWITCH

There will be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.

An indicator light will be provided on the instrument panel to notify the driver of the status of the battery system.

BATTERY COMPARTMENTS

The batteries will be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments will 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 will include formed fit heavy-duty roto-molded polyethylene battery tray inserts with drains on each side of the frame rails. The batteries will be mounted inside of the roto-molded trays.

JUMPER STUDS

One (1) set of battery jumper studs with plastic color-coded covers will be installed on the battery box on the driver's side. This will allow enough room for easy jumper cable access.

BATTERY CHARGER

There will be a Xantrex TrueCharge2, Model 804-1240-02, 40 amp battery charger provided.

This charging system will include the Model 808-8040-01 remote panel.

The battery charger will be wired to the AC shoreline inlet to activate automatically when power is connected.

The battery charger will be located in the left body compartment mounted on the left wall as high as possible.

The battery charger indicator will be located near the driver's seat riser with special bracketry.

AUTO EJECT FOR SHORELINE

There will be one (1) Kussmaul™, Model 091-55-20-120, 20 amp 120 volt AC shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus.

The shoreline inlet(s) will include red weatherproof flip up cover(s).

There will be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.

The shoreline(s) will be connected to battery charger and air compressor.

There will be a mating connector body supplied with the loose equipment.

There will be a label installed near the inlet(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

The shoreline receptacle will be located on the driver side of cab, above wheel.

ALTERNATOR

A Delco Remy®, Model 55SI, alternator will be provided. It will have a rated output current of 430 amps, as measured by SAE method J56. The alternator will 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 will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

ELECTRONIC LOAD MANAGER

An electronic load management (ELM) system will 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.

For improved reliability and ease of use, the load manager system will 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 will not be allowed.

The system will include the following features:

- System voltage monitoring.
- A shed load will 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" will display on the information center.
 - Hi-Idle will 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 will be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation will 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 will 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 will not be allowed.

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

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

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

- Cab Heater and Air Conditioning
- Crew Cab Heater (if applicable)
- Crew Cab Air Conditioning (if applicable)
- Exhaust Fans (if applicable)
- Third Evaporator (if applicable)

HEADLIGHTS

There will be four (4) JW Speaker®, rectangular LED lights mounted in the front quad style, chrome housing on each side of the cab grille:

- the outside light on each side will contain a part number 055***1 low beam module
- the inside light on each side will contain a part number 055***1 high beam module
- the headlight to include chrome bezels

The low beam lights will be activated when the headlight switch is on.

The high beam and low beam lights will be activated when the headlight switch and the high beam switch is activated.

DIRECTIONAL LIGHTS

There will be two (2) Whelen 600® series, LED combination directional/marker lights provided. The lights will be located on the outside cab corners, next to the headlights.

The color of the lenses will be the same color as the LED's.

INTERMEDIATE LIGHT

There will be two (2) Weldon, Model 9186-8580-29, amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light will double as a turn signal and marker light.

CAB CLEARANCE/MARKER/ID LIGHTS

There will be seven (7) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:

- Three (3) amber LED identification lights will be installed in the center of the cab above the windshield.
- Two (2) amber LED clearance lights will be installed, one (1) on each outboard side of the cab above the windshield.
- Two (2) amber LED marker lights will be installed, one (1) on each side above the cab doors.

REAR CLEARANCE/MARKER/ID LIGHTING

There will be three (3) Truck-Lite®, Model 26250R, LED lights used as identification lights located at the rear of the apparatus per the following:

- As close as practical to the vertical centerline
- Centers spaced not less than 6.00" or more than 12.00" apart
- Red in color
- All at the same height

There will be two (2) Truck-Lite, Model 26250R, LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

- To indicate the overall width of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the rear
- All at the same height

There will be two (2) Truck-Lite, Model 26250R, LED lights installed on the side of the apparatus as marker lights as close to the rear as practical per the following:

- To indicate the overall length of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the side
- All at the same height

There will 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.

There will 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.

Per FMVSS 108 and CMVSS 108 requirements.

REAR FMVSS LIGHTING

There will be two (2) wrap around tri-cluster LED modules provided on the face of the rear body compartments.

Each tri-cluster will include the following:

- One (1) LED stop/tail light
- One (1) LED directional light
- One (1) LED backup light

LICENSE PLATE BRACKET

There will be one (1) license plate bracket mounted on the rear of the body.

A white LED light will illuminate the license plate. A polished stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.

BACK-UP ALARM

A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.

CAB PERIMETER SCENE LIGHTS

There will be four (4) Amdor LumaBar H2O, Model AY-9500-020, 20.00" white LED strip lights provided, one (1) for each cab door.

These lights will 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.

PUMP HOUSE PERIMETER LIGHTS

There will be two (2) Amdor LumaBar H2O, Model AY-9500-020, 20.00" LED weatherproof strip lights with brackets provided under the pump panel running boards, one (1) each side.

The lights will be controlled by the same means as the body perimeter lights.

BODY PERIMETER SCENE LIGHTS

There will be two (2) Amdor LumaBar H2O™, Model AY-9500-012, 12.00" 12 volt DC LED strip lights provided at the rear step area of the body, one (1) each side shining to the rear.

The perimeter scene lights will be activated when the parking brake is applied.

ADDITIONAL PERIMETER LIGHTS

There will be four (4) lights Amdor® Luma Bar® H2O, Model AY-9500-020, 20.00" LED perimeter light sticks provided one (1) light under compartment D1, one (1) light under compartment D3, one (1) light under compartment P1 and one (1) light under compartment P3.

The lights will be activated by the same means as the body perimeter lights.

STEP LIGHTS

There will be two (2) white LED step lights will be provided at the rear to illuminate the tailboard/step area.

In order to ensure exceptional illumination, each light will 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.

These step lights will be actuated with the perimeter scene lights.

All other steps on the apparatus will be illuminated per the current edition of NFPA 1901.

CUP HOLDER

A cup holder will be provided for the two (2) lights located on the back of the cab, one each side to securely hold the telescoping pole in place while in the lower position.

12 VOLT LIGHTING

There will be one (1) Fire Research Spectra, Model SPA530-Q20*, 12 volt DC LED scene light(s) provided on push up side mount pole(s), located on the PS rear cab wall.

The painted parts of this light assembly to be white with a white bezel.

The light(s) will be controlled in the following way:

- a switch at the driver's side switch panel
- a switch at the passenger's side switch panel
- no additional switch location
- no additional switch location

These light(s) may be load managed when the parking brake is applied.

These lights will be connected to the Do Not Move Truck Indicator circuit.

12 VOLT LIGHTING

There will be one (1) Fire Research Spectra, Model SPA530-Q20*, 12 volt DC LED scene light(s) provided on push up side mount pole(s), located on the DS rear cab wall.

The painted parts of this light assembly to be white with a white bezel.

The light(s) will be controlled in the following way:

- a switch at the driver's side switch panel
- a switch at the passenger's side switch panel
- no additional switch location
- no additional switch location

These light(s) may be load managed when the parking brake is applied.

These lights will be connected to the Do Not Move Truck Indicator circuit.

12 VOLT LIGHTING

There will be one (1) Fire Research Spectra Max, Model SPA260-Q20, 12 volt LED surface mounted scene light(s) with white bezel(s) provided above the PS crew cab window.

The light(s) will be controlled in the following way:

- a switch at the driver's side switch panel
- a switch at the passenger's side switch panel
- no additional switch location
- no additional switch location

The light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be one (1) Fire Research Spectra Max, Model SPA260-Q20, 12 volt LED surface mounted scene light(s) with white bezel(s) provided DS above at the cab transition.

The light(s) will be controlled in the following way:

- a switch at the driver's side switch panel
- a switch at the passenger's side switch panel
- no additional switch location
- no additional switch location

The light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be one (1) Fire Research Spectra Max, Model SPA100-Q28-*, 12 volt DC LED light(s) provided on the front visor, centered.

The painted parts of this light assembly to be white with a white bezel.

The light(s) will be steady burning with the selected switch features.

The light(s) will be controlled by the following:

- a switch at the driver's side switch panel
- a switch at the passenger's side switch panel
- no additional switch location
- no additional switch location

These light(s) may be load managed when the parking brake is applied.

HOSE BED LIGHTS

There will be white 12 volt DC LED light strips with stainless steel protective cover, provided to light the hose bed area. Hose Bed lights will meet the photometric levels listed in NFPA 1901 for Hose Bed lighting requirements.

- Light strip(s) will be installed along the upper edge of the left side of the hose bed.
- Light strip(s) will be installed along the upper edge of the right side of the hose bed.

The lights will be activated by a cup switch at the rear of the apparatus no more than 62.00" from the ground.

REAR SCENE LIGHTS

There will be two (2) Fire Research, Model SPA900-Q70, LED scene lights with 15 degree optics from vertical, installed at the rear of the apparatus, as high as possible on each rear bulkhead.

The lights will be controlled by a switch at the driver's side switch panel, by a switch at the passenger's side switch panel and by a cup switch at the driver's side rear bulkhead.

WALKING SURFACE LIGHTS

There will be Two (2) Amdor Model LumaBar, white 12 volt DC LED strip light provided in the cargo area to illuminate the interior surface of the cargo area. Light(s) will be located under the top flange of the cargo area.

The light will be activated when the body step lights are on.

WATER TANK

Booster tank will have a capacity of 500 gallons and be constructed of UV stabilized ultra high impact polypropylene plastic by a manufacturer with a minimum of 20 years experience building tanks, is ISO 9001:2000 certified in all its manufacturing facilities, and has over 50,000 tanks in service.

Tank joints and seams will be nitrogen welded inside and out.

Tank will be baffled in accordance with NFPA Bulletin 1901 requirements.

Baffles will have vent openings at both the top and bottom to permit movement of air and water between compartments.

Longitudinal partitions will be constructed of .38" polypropylene plastic and will extend from the bottom of the tank through the top cover to allow for positive welding.

Transverse partitions will extend from 4.00" off the bottom of the tank to the underside of the top cover.

All partitions will interlock and will be welded to the tank bottom and sides.

Tank top will be constructed of .50" polypropylene. It will be recessed .38" and will be welded to the tank sides and the longitudinal partitions.

Tank top will be sufficiently supported to keep it rigid during fast filling conditions.

Construction will include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two (2) of the dowels will be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes.

A sump that is 8.00" long x 8.00" wide x 6.00" deep will be provided at the bottom of the water tank.

Sump will include a drain plug and the tank outlet.

Tank will be installed in a fabricated cradle assembly constructed of structural steel.

Sufficient crossmembers will be provided to properly support bottom of tank. Crossmembers will be constructed of steel bar channel or rectangular tubing.

Tank will "float" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50" thick x 3.00" wide, will be placed on all horizontal surfaces that the tank rests on.

Stops or other provision will be provided to prevent an empty tank from bouncing excessively while moving vehicle.

Mounting system will be approved by the tank manufacturer.

Fill tower will be constructed of .50" polypropylene and will be a minimum of 8.00" wide x 14.00" long.

Fill tower will be furnished with a .25" thick polypropylene screen and a hinged cover.

An overflow pipe, constructed of 4.00" schedule 40 polypropylene, will be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.

One (1) sleeve will be provided in the water tank for a 3.00" pipe to the rear.

WATER TANK RESTRAINT

A heavy-duty water tank restraint will be provided.

SIDE TANK FILL

There will be two (2) 2.50" gated external tank fill(s) installed and integrated with one (1) on the driver's side and one (1) on the passenger's side main Intake valve.

The tank fill will have electrically actuated Akron ball valve connected to the water level indicator.

When the water level falls to the 3/4 full mark, the tank fill(s) will automatically open and return the tank to the full level. A switch to enable and disable the auto fill and the standard valve controller will be installed on the pump panel. The valve controls will be mounted on the pump operator's panel.

BODY HEIGHT

The height of the body will be 92.00" from the bottom of the body to the top of the body.

HOSE BED

The hose bed will be fabricated of .125"-5052 aluminum with a nominal 38,000 psi tensile strength.

Flooring of the hose bed will be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats will be a minimum of 0.50" x 4.50" with spacing between slats for hose ventilation.

A cross divider will be provided at the front of the hose bed before the tank transitions from the lower section to the upper section. The divider will run from the top of the side sheet down below the hose bed grating.



The hose bed will be directly above the rear compartment door. The dimension from the ground will be approximately 67.00" depending on the suspension and equipment load.

The hose bed will be at a minimum 85.00" long.

Hose bed will accommodate 400' of 3" / 1000' of 5" / 200' of 3" with 300' of 1.75 on top.

HOSE BED DIVIDER

Two (2) adjustable hosebed dividers will be furnished for separating hose.

Each divider will be constructed of a .125" brushed aluminum sheet fitted and fastened into a slotted, 1.50" diameter radiused extrusion along the top, bottom, and rear edge.

Divider will be fully adjustable by sliding in tracks, located at the front and rear of the hose bed.

Divider will be held in place by tightening bolts, at each end.

Acorn nuts will be installed on all bolts in the hose bed which have exposed threads.

HOSE RESTRAINT REAR

The hose in the hosebed will be restrained by 2.00" black nylon webbing with a 1.50" x 4.00" box pattern. The webbing will be attached to the top of the hosebed cover with seat belt buckles. The female end of the seat buckle will be permanently attached to the hosebed cover. A nylon strap will be attached to the seat belt buckle for releasing the buckle on the webbing. The webbing will be connected at the bottom with seat belt type quick release buckles.

The passenger side hose bed side sheet will be moved out to the inboard edge of the body compartment.

The driver side hose bed side sheet will be moved out to the inboard edge of the body compartment.

HOSE BED COVER

A two (2) section hose bed cover, constructed of .125" bright aluminum treadplate will be furnished. The cover will be hinged with full length stainless steel piano hinge. The sides will be slanted down.

The cover will be reinforced so that it can support the weight of a man walking on the cover.

The cover is designed with the left cover opening first.

If access to the water tank fill tower is blocked by the hose bed cover, then a hinged door will be provided in it so that the tank may be filled without raising cover doors.

Chrome grab handles and four (4) gas filled cylinders will be provided to assist in opening and closing the cover. A handrail is to be provided at the rear, in the center of the support, to assist in opening the cover.

RUNNING BOARDS

A running board will be provided on each side of the front body to allow access to the backboard/crosslay storage area. The running boards will be designed with a grip pattern punched into .125" bright aluminum treadplate material providing support, slip resistance, and drainage.

TAILBOARD

The tailboard will be constructed of .125" bright aluminum treadplate and spaced .50" from the body, as well as supported by a structural steel assembly.

The tailboard area will be 12.00" deep and full width of the body.

The exterior side will be flanged down and in for increased rigidity of tailboard structure.

REAR WALL, BODY MATERIAL, PUC

The rear wall will be smooth and the same material as the body.

The rear wall body material will be painted. Unpainted aluminum overlays will be provided to allow for chevron application and to provide continuously smooth rear wall panels.

The outboard edges of the rear wall will be trimmed in polished stainless steel.

TOW BAR

A tow bar will be installed under the tailboard at center of truck.

Tow bar will be fabricated of 1.00" CRS bar rolled into a 3.00" radius.

Tow bar assembly will be constructed of .38" structural angle. When force is applied to the bar, it will be transmitted to the frame rail.



Tow bar assembly will be designed and positioned to allow up to a 30-degree upward angled pull of 17,000 lb, or a 20,000 lb straight horizontal pull in line with the centerline of the vehicle.

Tow bar design will have been fully tested and evaluated using strain gauge testing and finite element analysis techniques.

COMPARTMENTATION

The apparatus body will be built of aluminum construction using a minimum of .125" thick, 5052-H32 aluminum.

The body panel assembly will be constructed in a fixture and consist of formed sheet metal for the front and rear bulkheads, door frames, floors, ceilings, and back walls. These parts will be welded together to ensure greatest longevity with no visible welds in compartment interior.

Welded construction will consist of 1.00" x .38" engineered plug weld holes that control the size, location, and the amount of weld required. The bodies will be assembled and welded from engineered prints that call out the size, location, and type of weld required.

In structural areas the sheet metal components will have flanges for welding. No butt joints will be allowed. Gussets and support posts will be provided for additional strength where needed.

The fender panel will be an integral part of the complete welded body assembly. All light and compartment holes are pre punched prior to construction to provide accuracy and rounded corners to prevent stress risers in the material.

Circular fender liners will be provided. For prevention of paint chips and ease of suspension maintenance the fender liners will be formed from brush finished 304L stainless steel, be unpainted, and removable for suspension maintenance.

Compartment flooring will be of the sweep out design with the floor minimum of 1.00" higher than the compartment door lip.

Drip protection will be provided above the doors by means of aluminum extrusion, or formed bright aluminum treadplate.

The top of the compartment will be sheet metal and covered with bright aluminum treadplate rolled over the edges on the front, and rear. These covers will have the corners welded.

The aluminum treadplate covers will not make up the ceiling of the compartment.

All screws and bolts, which are not Grade 8, will be stainless steel and where they protrude into a compartment will have acorn nuts on the ends to prevent injury.

UNDERBODY SUPPORT SYSTEM

Due to the severe loading requirements of this pumper a method of body and compartment support suitable for the intended load will be provided.

The backbone of the body support system will begin with the chassis frame rails which is the strongest component of the chassis and is designed for sustaining maximum loads. The support system will include lateral frame rail extensions that are formed from .375" 80k high strength steel and bolted to the chassis frame rails with .625" diameter Grade 8 bolts.

The vertical and horizontal members of the frame rail extensions are to be reinforced with welded gussets and extend to the outside edge of the body. The lateral frame extensions will be electro-coated for superior corrosion resistance.

The floating substructure will be separated from the lateral frame extensions with neoprene elastomer isolators. These isolators will reduce the natural flex stress of the chassis from being transmitted to the body, and absorb road shock and vibration.

The isolators will have a broad load range, proven viability in vehicular applications, be of a fail safe design and allow for all necessary movement in three (3) transitional and rotational modes.

The neoprene isolators will be installed in a modified V three (3)-point mounting pattern to reduce the natural flex of the chassis being transmitted to the body. Two (2) 3.50" diameter isolators are provided at the front of the body near the centerline of the vehicle above the chassis frame. A minimum of eight (8) - 2.55" diameter isolators will be provided, two (2) under each front compartment and two (2) under each rear side compartment. A minimum of four (4) 3.50" diameter isolators will be provided under the rear compartment.

AGGRESSIVE WALKING SURFACE

All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards. Documentation of the material meeting the standard will be provided at time of delivery.

LOUVERS

All body compartments will have a minimum of one (1) set of automotive style, dust resistant louvers pressed into a wall. The louvers will incorporate a one (1)-way rubber valve that provides airflow out of the compartment and prevents water and dirt from gaining access to the compartment. Compartments over the wheel will not have louvers.

TESTING OF BODY DESIGN

Body structural analysis will be fully tested. Proven engineering and test techniques such as finite element analysis and strain gauging have been performed with special attention given to fatigue life and structural integrity of the body and substructure.

The body will be tested while loaded to its greatest in-service weight.

The criteria used during the testing procedure will include:

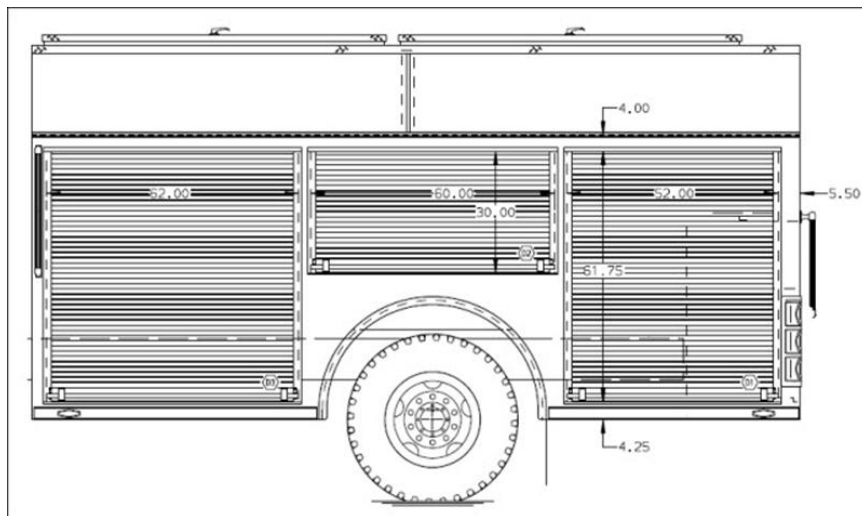
- Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb.
- Making a 90 degree turn, while driving at 20 mph to simulate aggressive driving conditions.
- Driving the vehicle on at 35 mph on a washboard road.
- Driving the vehicle at 55 mph on a smooth road.
- Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement.

Evidence of the actual testing techniques will be made available upon request.

FEA will have been performed on all substructure components.

COMPARTMENTATION, DRIVER'S SIDE

A full height, roll-up door compartment ahead of the rear wheels will be provided. The pump operator's panel will be located in this compartment. The interior dimensions of this compartment will be 62.00" wide x 53.50" high x 25.88" deep. The area behind the roll up door spool will be notched for exterior storage or larger capacity water tank tee. The depth of the compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment will be 59.00" wide x 53.50" high.



Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

A roll-up door compartment over the rear wheels will be provided. The interior dimensions of this compartment will be 60.00" wide x 22.75" high x 25.88" deep. The area behind the roll up door spool

will be notched for exterior storage or larger capacity water tank tee. The depth of the compartment will be calculated with the compartment door closed. The clear door opening of this compartment will be 57.00" wide x 22.75" high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

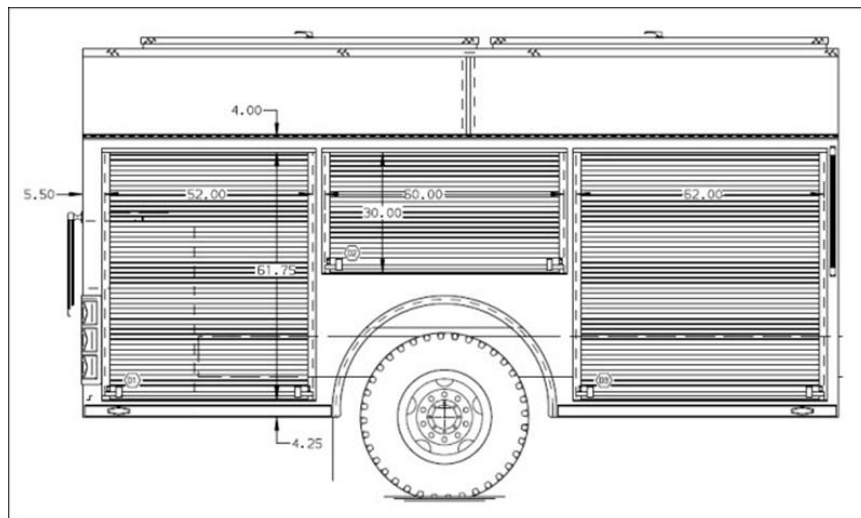
A full height, roll-up door compartment behind the rear wheels will be provided. The interior dimensions of this compartment will be 52.00" wide x 54.50" high x 25.88" deep. The area behind the roll up door spool will be notched for exterior storage or larger capacity water tank tee. The depth of the compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment will be 49.00" wide x 54.50" high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

All compartments will include a drip pan below the roll of the door.

COMPARTMENTATION, PASSENGER'S SIDE

A full height, jump off compartment with a roll-up door ahead of the rear wheels will be provided, as convenient large storage compartment for often used items for the crew. The interior dimensions of this compartment will be 62.00" wide x 54.50" high x 25.88" deep. The area behind the roll up door spool will be notched for exterior storage or larger capacity water tank tee. The depth of the compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment will be 59.00" wide x 54.50 high.



Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

A roll-up door compartment over the rear wheels will be provided. The interior dimensions of this compartment will be 60.00" wide x 23.00" high x 25.88" deep. The area behind the roll up door spool will be notched for exterior storage or larger capacity water tank tee. The depth of the compartment will be calculated with the compartment door closed. The clear door opening of this compartment will be 57.00" wide x 23.00" high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

A full height, roll-up door compartment behind the rear wheels will be provided. The interior dimensions of this compartment will be 52.00" wide x 54.50" high x 25.88" deep. The area behind the roll up door spool will be notched for exterior storage or larger capacity water tank tee. The depth of the compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment will be 49.00" wide x 54.50" high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

All compartments will include a drip pan below the roll of the door.

ROLLUP DOOR, SIDE COMPARTMENTS

There will be six (6) compartment doors installed on the side compartments. The doors will be double faced aluminum construction, an anodized satin finish and manufactured by Gortite®.

Lath sections will be an interlocking rib design and will be individually replaceable without complete disassembly of door.

Between each slat at the pivoting joint will be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals will allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals will be provided to resist ingress of dirt and weather and be made of Santoprene.

All hinges, barrel clips and end pieces will be nylon 66. All nylon components will withstand temperatures from 300 to -40 degrees Fahrenheit.

A polished stainless steel lift bar to be provided for each roll-up door. Lift bar will be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge will be supplied over lift bar for additional area to aid in closing the door.

Doors will be constructed from an aluminum box section. The exterior surface of each slat will be flat. The interior surfaces will be concave to provide strength and prevent loose equipment from jamming the door from inside.

To conserve space in the compartments, the spring roller assembly will not exceed 3.00" in diameter.

The header for the rollup door assembly will not exceed 4.00".

A heavy-duty magnetic switch will be used for control of open compartment door warning lights.

COMPARTMENTATION, REAR

A roll-up door compartment above the rear tailboard will be provided.

Interior dimensions of this compartment will be approximately 36.75" wide x 36.38" high x 25.88" deep in the lower 28.00" of the compartment and 15.75" deep in the remaining upper portion. Depth of the compartment will be calculated with the compartment door closed.

A removable access panel will be furnished on the back wall of the compartment.



Rear compartment will be open into the rear side compartments. The transverse opening will be a minimum of approximately 22.00" wide x 27.75" high.

Clear door opening of this compartment will be 33.50" wide x 27.38" high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

ROLLUP DOOR, REAR COMPARTMENT

The rear compartment will have a rollup door. The door will be double faced aluminum construction, an anodized satin finish and manufactured by Gortite®.

Lath sections will be an interlocking rib design and will be individually replaceable without complete disassembly of door.

Between each slat at the pivoting joint will be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals will allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals will be provided to resist ingress of dirt and weather and be made of Santoprene.

All hinges, barrel clips and end pieces will be nylon 66. All nylon components will withstand temperatures from 300 to -40 degrees Fahrenheit.

A polished stainless steel lift bar to be provided for each roll-up door. Lift bar will be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge will be supplied over lift bar for additional area to aid in closing the door.

Door will be constructed from an aluminum box section. The exterior surface of each slat will be flat. The interior surface will be concave to provide strength and prevent loose equipment from jamming the door from inside.

To conserve space in the compartments, the spring roller assembly will not exceed 3.00" in diameter.

The header for the rollup door assembly will not exceed 4.00".

A heavy-duty magnetic switch will be used for control of open compartment door warning lights.

COMPARTMENT LIGHTING

There will be nine (9) compartments with Amdor, Model AY-9220, white 12 volt DC LED compartment light strips. The lights will be mounted with mechanical fasteners.

There will be two (2) strip lights installed vertically in each compartment opening per the latest NFPA requirements.

The lights will be activated when the battery switch is on and the respective compartment door is opened.

COMPARTMENT LIGHTING

Metal clamps will be used to retain the strip lighting in all body compartments.

MOUNTING TRACKS

There will be recessed tracks installed vertically to support the adjustable shelf(s).

Tracks will not protrude into any compartment in order to provide the greatest compartment space and widest shelves possible.

The tracks will be provided in each compartment except for the one that contains the pump operator's panel.

ADJUSTABLE SHELVES

There will be three (3) shelves with a capacity of 500 lb provided.

The shelf construction will consist of .188" aluminum painted spatter gray with 2.00" sides.

Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves will be held in place by .12" thick stamped plated brackets and bolts.

The location(s) will be in D1 centered between the floor and ceiling to the left of the partition, in P1 at the transition point and in P3 at the transition point.

SLIDE-OUT/TILT-DOWN TRAY

There will be three (3) slide-out trays provided.

The bottom of each tray will be constructed of 0.188" thick aluminum painted spatter gray while special aluminum extrusions will be utilized for the tray sides, ends, and tracks. The corners will be welded to form a rigid unit.

A spring loaded lock will be provided on each side at the front of the tray. Releasing the locks will 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 will be equipped with ball bearing rollers for smooth operation.

Rubber padded stops will be provided for the tray in the extended position.

The capacity rating of the tray will be a minimum of 215 lb in the extended position.

The vertical position of the tray within the compartment will be adjustable.

The location(s) will be in D1 in the upper third, in D2 in the upper third and in D3 in the upper third.

SLIDE-OUT FLOOR MOUNTED TRAY

There will be four (4) floor mounted slide-out tray(s) provided.

Each tray will have 2.00" high sides and a minimum capacity rating of 500 lb in the extended position.

Each tray will be constructed of aluminum painted spatter gray

There will be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides will have a safety factor rating of 2.

To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slides will 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 will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

The location(s) will be D1, P1, D3 and R1.

SLIDE-OUT TOOLBOARD

There will be one (1) slide-out toolboard(s) provided.

The toolboard will be a minimum of 0.188" thick with .203" diameter holes in a pegboard pattern with 1.00" centers between holes.

A 1.00" x 1.00" aluminum tube frame will be welded to the edge of the pegboard.

The board will be mounted on an under-mount roller bearing type slide rated at 250 lb with a factor of safety of 2.

To ensure years of dependable service the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slides will require no more than a 50 pound 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 will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

The slide will be mounted stationary within the compartment.

The board will have positive lock in the stowed and extended position.

The toolboard(s) will be spatter gray painted and installed determined at a later date and in D1, 44.00" from the forward door frame.

OIL DRY HOPPER

There will be a slide-out floor mounted oil dry hopper installed in the P1 forward compartment. A door will be provided on the top of the oil dry bin to allow refilling of the bin. The bin will be sized for

storage of 150 lbs or 25.3 gallons (5850 cu in.) of clay-based oil dry absorbent material. The hopper will include a hand valve located beneath the bin to control the release of the material.

PARTITION, TRANSVERSE REAR COMPARTMENT

Two (2) partitions will be bolted in place to separate driver and passenger side rear compartments from the rear tailboard compartment.

VERTICAL COMPARTMENT PARTITION

One (1) partition will be provided.

The partition construction will consist of .125" aluminum painted spatter gray. Each partition will be the full vertical height of the compartment.

The location(s) will be in D1, 44.00" from the forward door frame.

ALUMINUM PEGBOARD

Two (2) horizontally installed tracks, with .19" aluminum pegboard will be installed on the side wall of four (4) compartments. The holes will be .203" diameter, punched 1.00" on center. The pegboard will be spatter gray painted. The locations are both side walls of P2 and P3 (upper portion).

Retainers will be used to mount the pegboard to the tracks.

ALUMINUM PEGBOARD

Two (2) horizontally installed tracks, with 0.19" aluminum pegboard will be installed on the back wall of two (2) compartments. The holes will be .203" diameter, punched 1.00" on center. The pegboard will be spatter gray painted. The pegboard(s) will be located in P3 and P2.

Retainers will be used to mount the pegboard to the tracks.

STRAP

There will be one (1) black 2.00" wide nylon straps provided in the ladder storage compartment from side to side (hold backboard from moving forward) - Customer supplied and installed backboard, so we will locate at pick up. The strap will have a Velcro fastener.

RUB RAIL

Bottom edge of the side compartments will be trimmed with a bright aluminum extruded rub rail.

Trim will be 3.12" high with 1.50" flanges turned outward for rigidity.

The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.

Rub rails will be attached with bolts and spaced from the body with isolators that will help to absorb any moderate impact without damaging the body.

BODY FENDER CROWNS

Polished stainless steel fender crowns will be provided around the rear wheel openings.

A brushed stainless steel unpainted fender liner will be provided to avoid paint chipping. The liners will be removable to aid in the maintenance of rear suspension components.

A dielectric barrier will be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.

The fender crowns will be held in place with stainless steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion.

HARD SUCTION HOSE

Hard suction hose will not be required.

HOSE TROUGH

A quantity of two (2) hard suction hose trough(s) will be compartment top mounted on a bracket, located one (1) on the driver side and one (1) on the passenger side.

Trough(s) will be constructed of aluminum painted job color.

The hose(s) will be held in place by hook and loop straps.

HANDRAILS

The handrails will be 1.25" diameter anodized aluminum extrusion, with a ribbed design, to provide a positive gripping surface.

Chrome plated end stanchions will support the handrail. Plastic gaskets will be used between end stanchions and any painted surfaces.

Drain holes will be provided in the bottom of all vertically mounted handrails..

Handrails will be located on the front of the body in positions needed to meet NFPA requirements.

- Two (2) vertical handrails will be located at the rear, one on each side of the rear compartment .

One (1) horizontal black rubber-covered handrail will be provided above the hose bed at the rear of the apparatus. The hose bed dividers shall be tied to the upper handrail or cross bar in order to provide sufficient reinforcement.

- One (1) handrail will be provided mounted on the DS pump panel for accessing the top speedlays - mounted vertically.

- One (1) handrail will be provided mounted 22" below hosebed.

AIR BOTTLE STORAGE (DOUBLE)

A quantity of three (3) air bottle compartments, 15.25" wide x 7.75" tall x 26.00" deep, will be provided on the driver side forward of the rear wheels, on the passenger side forward of the rear wheels and on the passenger side rearward of the rear wheels. A polished stainless steel door with a chrome plated flush lift & turn latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment, black rubber matting will be provided.

EXTENSION LADDER

There will be a 24' two-section aluminum Duo-Safety Series 900-A extension ladder provided.

ROOF LADDER

There will be a 14' aluminum Duo-Safety Series 775-A roof ladder provided.

LADDER STORAGE

The ladders will be stored inside the upper section of the passenger's side compartments. This ladder rack will reduce the depth of the upper section in the side compartments.

A partition will be installed inside the compartment on the side of the rack to allow for equipment storage and to conceal the ladders.

The ladders will be banked in separate storage troughs.

The ladder storage assembly will be fabricated of stainless steel track channels to aid in loading and removal of ladders.



Rear of the ladder storage area will have a vertically hinged smooth aluminum door with a D-handle latch to contain the ladders.

FOLDING LADDER

One (1) 10.00' aluminum, Series 585-A, Duo-Safety folding ladder will be installed in a U-shaped trough inside the ladder storage compartment.

BACKBOARD STORAGE TROUGH

A trough will be provided for storage of two (2) backboards. The trough will be constructed of stainless steel with a stop at the front of the truck. The trough will be located behind the ladders on the passenger's side of the truck. The interior size of the trough will be 3.00" wide X 17.00" high X 12' 2" long. The sides will extend down and up, on the outer portion, 3.00" to allow the movement of the front

backboard to the rear. A Velcro® strap will be provided at the rear to retain the backboards in the trough.

6' PIKE POLE

One (1) pike pole, Fire Hooks Unlimited, Model GBH-6, 6' long Gator Back hook with a D handle will be provided and located in the ladder storage compartment.

8' PIKE POLE

There will be one (1) Fire Hooks Unlimited, New York Hook , 8' long roof hook with steel shaft and chisel (pry) end provided. The poles will be located in the ladder storage compartment.

PIKE POLE STORAGE

Stainless steel U-shaped trough be used for the storage of two (2) pike poles, with D-handle style grip, will be provided and installed in the ladder compartment.

PIKE POLE STORAGE

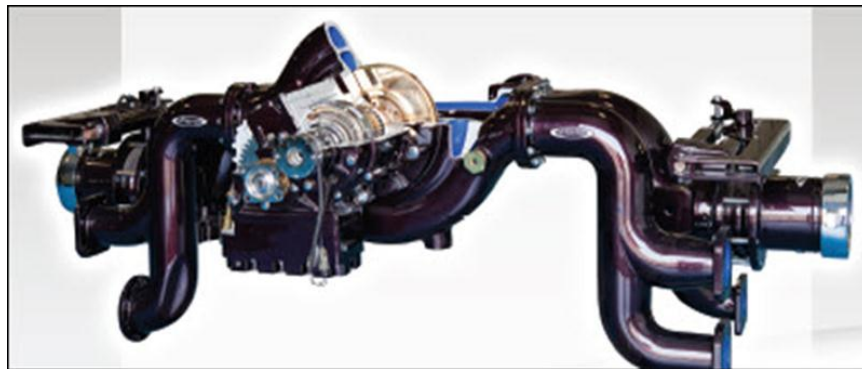
Aluminum tubing will be used for the storage of two (2) pike poles and will be located in ladder storage compartment. If the head of a pike pole can come in contact with a painted surface, a stainless steel scuffplate will be provided.

LADDER ZICO MODEL RL-2-3

A Zico model RL-2-3 Quic-Ladder will be provided at the rear of the body on the on the PS side. The ladder handrails will be constructed out of 1.25" heavy-walled aluminum tubing that is covered with a black, heat-resistant, powder coated finish. Each step will have a flat non-skid surface that is 3" deep x 15.5" wide. A swing-out and down extension section at the bottom of the ladder will be provided

PUMP

Pump will be a Pierce, low profile, 1500 gpm single stage midship mounted centrifugal type, mounted below the cab. The pump will have a 15 percent reserve capacity to allow for extended time between pump rebuild. To ensure efficient pump/vehicle design the capacity to weight ratio will not be less than 1.5:1.



The pump casing will consist of three (3) discharge outlets, one (1) to each side in line with the impeller and one (1) to the rear. The pump casing will incorporate two (2) water strippers to maintain radial balance.

Pump will be the Class A type.

Pump will be certified to deliver the percentage of rated discharge from draft at pressure indicated below:

- 100 percent of rated capacity at 150 psi net pump pressure
- 70 percent of rated capacity at 200 psi net pump pressure
- 50 percent of rated capacity at 250 psi net pump pressure

The pump will have the capacity to deliver the percentage of rated discharge from a pressurized source as indicated below:

- 135 percent of rated capacity at 100 psi net pump pressure from a 5 psi source

Pump body will be fine-grained gray iron. Pump will incorporate a heater/cooling jacket integral to the pump housing.

The impeller will be high strength vacuum cast bronze alloy accurately machine balanced and splined to a 10 spline stainless steel pump shaft for precision fit, exceptional durability, and efficiency. Double replaceable reverse flow labyrinth type bronze wear ring design will help to minimize end thrust. The impeller will be a twisted vane design to create higher lift.

The pump will include o-ring gaskets throughout the pump.

Deep groove radial type oversize ball bearings will be provided. The bearings will be protected at the openings from road dirt and water with an oil seal and a water slinger.

The pump will have a flat, patterned area on the top of the pump intake wye to allow standing for plumbing maintenance. The main inlet manifold will be 6.00" in diameter and will have a low profile design to facilitate low crosslays and high flows.

For ease of service, the pump housing, intake wye, impeller, mechanical seal, and gear case will be accessible from above the chassis frame by tilting the cab. The intake wyes will be removable without having to remove the main intake casting. Removal of the main inlet wyes will provide access to the impeller, mechanical seal, and wear ring.

The tank to pump line and the primary discharge line will be the only piping required to be removed for overhaul.

For ease of service and overhaul there will be no piping or manifolding located directly over the pump.

PUMP MOUNTING

Pump will be mounted to the chassis frame rails directly below the crew cab, to minimize wheelbase and facilitate service, using rubber isolators in a modified V pattern that include two (2) central mounted isolators located between the frame rails, and one (1) on each side outside the frame rails. The mounting will allow chassis frame rails to flex independently without damage to the fire pump. Each isolator will be 2.55" in total outside diameter and will be rated at 490 lb. The pump will be completely accessible by tilting the cab with no piping located directly above the pump.

MECHANICAL SEALS

Silicon carbide mechanical seals will be provided. The seals will be spring loaded and self-adjusting. The seals will have a minimum thermal conductivity of 126 W/m*K to run cooler. Seals will have a minimum hardness of 2800 kg/mm² to be more resistant to wear, and have thermal expansion characteristics of no more than 4.0 X10⁻⁶mm/mm*K to be more resistant to thermal shock.

PUMP GEAR CASE

The pump gear case will be a pressure-lubricated to cool, lubricate, and filter the oil. The gear case will include an auxiliary PTO opening. The gear case will be constructed of lightweight aluminum, and impregnated with resin in accordance to MIL Spec MIL-I-17563. A dipstick, accessible by tilting the cab, will be provided for easy fluid level checks. A filter screen will be provided for long life.

The gear case will consist of two (2) gears to drive the pump impeller and one (1) for the auxiliary PTO.

The auxiliary PTO opening will provide for the addition of PTO driven accessories.

The pump will be driven through the rear engine power take-off and clutch. The rear engine power take-off drive will be live at all times to allow for pump and roll applications. Rear engine power take-off's allow for high horsepower and torque ratings needed for large pump applications, and is a proven drive system throughout the rugged construction industry.

CLUTCH

There will be a heavy-duty electric clutch mounted directly to the front of the pump to engage and disengage the pump without gear clash. The clutch will be a multiple disc design for maximum torque. The clutch will be fully self-adjusting to provide automatic wear compensation, and consistent torque throughout the life of the clutch. Positive engagement and disengagement will be provided through a high efficient and dependable magnetic system to assure superior performance. The clutch will have a 500 lb-ft rating. Clutch will be of a time-tested design used in critical military applications.

PUMPING MODE

Pump will provide for both pump and roll mode and stationary pumping mode.

Stationary pumping mode will be accomplished by stopping the vehicle, setting the parking brake and engaging the water pump switch on the cab switch panel. The transmission will shift to "Neutral" range automatically when the parking brake is set. The "OK to Stationary Pump" indicator will also illuminate when the parking brake is set. If the vehicle is equipped with a foam system or CAFS system, these systems will be engaged from the cab switch panel as well.

Pump and roll mode will be accomplished by the use of the main pump and will not require the use of a secondary pump. Pump and roll mode will use the same operation sequence as stationary pumping mode with a few additional steps. After the vehicle is setup for stationary pumping, the operator will leave the cab and set-up the pump panel to discharge at the desired outlet(s). Upon returning to the cab, the operator will disengage the parking brake. An "OK to Pump & Roll" indicator will illuminate on the cab switch panel. First gear on the transmission gear selector will be selected by the operator for pump and roll operations. The operator as needed will apply the foot throttle. Pump and roll mode will be maintained unless the transmission shifts out of first gear.

Stopping either stationary pumping mode or pump and roll mode will be accomplished by pressing the "Water Pump" switch down to disengage the pump.

PUMP SHIFT

Pump will be engaged in not more than two steps, by simply setting the parking brake, which will automatically put the transmission into neutral, and activating a rocker switch in the cab. Switches in the cab will also allow for water, foam, or CAFS if equipped, and activate the appropriate system to preset parameters. The engagement will provide simple two-step operation, enhance reliability, and completely eliminate gear clash. The shift will include the indicator lights as mandated by NFPA. A direct override switch will be located behind a door in the lower pump operator's panel. The switch will automatically disengage when the door is closed.

As the parking brake is applied, the pump panel throttle will be activated and deactivate the chassis foot throttle for stationary operation.

Pump and roll operation will be available by releasing the parking brake with the pump in the pumping mode. Releasing the parking brake will activate the chassis foot throttle, and deactivate the pump panel

throttle. To protect from accidental pump overheating, the pump will automatically disengage when the truck transmission shifts into second gear.

TRANSMISSION LOCK UP

Transmission lock up is not required as transmission will automatically shift to neutral as soon as the parking brake is set.

AUXILIARY COOLING SYSTEM

A supplementary heat exchange cooling system will be provided to allow the use of water from the discharge side of the pump for cooling the engine water. A water-to-coolant heat exchanger will be used.

INTAKE RELIEF VALVE

A Trident Air Max intake relief valve will be installed on the suction side of the pump preset at 125 # PSI.

The relief valve will have a working range of 50 PSI to 350 PSI.

The outlet will terminate below the frame rails with a 2.50" National Standard hose thread adapter and will have a "do not cap" warning tag.

An adjustable air regulator and pressure indicating gauge will be located at the pump operator's panel on a common bezel.

PRESSURE CONTROLLER

A Pierce Pressure Governor will be provided. An electric pressure governor will be provided which is capable of automatically maintaining a desired preset discharge pressure in the water pump. When operating in the pressure control mode, the system will automatically maintain the discharge pressure set by the operator (within the discharge capabilities of the pump and water supply) regardless of flow, within the discharge capacities of the water pump and water supply.

A pressure transducer will be installed in the water discharge of the pump. The transducer continuously monitors pump pressure sending a signal to the Electronic Control Module (ECM).

The governor can be used in two (2) modes of operation, RPM mode and pressure modes.

In the RPM mode, the governor can be activated after vehicle parking brake has been set. When in this mode, the governor will maintain the set engine speed, regardless of engine load (within engine operation capabilities).

In the pressure mode, the governor system can only operate after the fire pump has been engaged and the vehicle parking brake has been set. When in the pressure mode, the pressure controller monitors the pump pressure and varies engine speed to maintain a precise pump pressure. The pressure controller will use a quicker reacting J1939 database for engine control.

A preset feature allows a predetermined pressure or rpm to be set.

A pump cavitation protection feature is also provided which will return the engine to idle should the pump cavitate. Cavitation is sensed by the combination of pump pressure below 30 psi and engine speed above 2000 rpm for more than five (5) seconds.

The throttle will be a vernier style control, with a large control knob for use with a gloved hand. A throttle ready light will be provided adjacent to the throttle control. A large 0.75" RPM display will be provided to be visible at a glance.

Check engine, and stop engine indicator lights will be provided for easy viewing.

Large 0.75" push buttons will be provided for menu, mode, preset, and silence selections.

The water tank level indicator will be incorporated in the pressure governor.

A fuel level indicator will be incorporated in the pressure controller.

A pump hour meter will be incorporated in the pressure controller.

The pressure controller will incorporate monitoring for engine temperature, oil pressure, fuel level alarm, and voltage. Pump monitoring will include, pump gearcase temperature, error codes, diagnostic data, pump service reminders, and time stamped data logging, to allow for fast accurate trouble shooting. It will also notify the driver/engineer of any problems with the engine and the apparatus. Complete understandable messages will be provided in a 20-character display, providing for fewer abbreviations in the messages. An automatic dim feature will be included for night operations.

The pressure controller will include a USB port for easy software upgrades, which can be downloaded through a USB memory stick, eliminating the need for a laptop for software installations.

A complete interactive manual will be provided with the pressure controller.

PRIMING PUMP

The priming pump will be a Trident Emergency Products compressed air powered, high efficiency, multistage venturi based AirPrime System, conforming to standards outlined in the current edition of NFPA 1901.

All wetted metallic parts of the priming system are to be of brass and stainless steel construction.

One (1) priming control will open the priming valve and start the pump primer.

PUMP MANUALS

There will be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals will be provided by the pump manufacturer in the form of two (2) electronic copies. Each manual will cover pump operation, maintenance, and parts.

PLUMBING, STAINLESS STEEL AND HOSE

All inlet and outlet lines will be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's will be equipped with brass or stainless steel couplings. All stainless steel hard plumbing will be a minimum of a schedule 10 wall thickness.

Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping will be equipped with victaulic or rubber couplings.

Plumbing manifold bodies will be ductile cast iron or stainless steel.

All piping lines are to be drained through a master drain valve or will be equipped with individual drain valves. All drain lines will be extended with a hose to drain below the chassis frame.

All water carrying gauge lines will be of flexible polypropylene tubing.

All piping, hose and fittings will have a minimum of a 500 PSI hydrodynamic pressure rating.

PLUMBING, FOAM SYSTEM

All piping that is in contact with the foam concentrate or foam/water solution will be stainless steel. The fittings will be stainless steel or brass. Cast iron pump manifolds will be allowed.

MAIN PUMP INLETS

A 6.00" pump manifold inlet will be provided on each side of the vehicle. The suction inlets will include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.

Main pump inlets will not be located on the main operator's panel and will maintain a low connection height by terminating below the top of the chassis frame rail.

MAIN PUMP INLET CAP

The main pump inlets will have National Standard Threads with a long handle chrome cap.

The cap will be the Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

**INLET BUTTERFLY VALVE**

There will be one (1) butterfly valve provided on the passenger's side main pump inlet.

The 6.00" inlet valve will be recessed behind the pump panel.

A built-in, adjustable pressure relief valve and a 3/4" bleeder valve will be provided on the inlet side of the valve. The bleeder valve controls will be located at the threaded connection and at the pump operator's panel.

An Akron 9323 electric valve controller out will be provided.

The controller unit will be of true position feedback design, requiring no clutches in the motor or current limiting. The controller will be completely sealed with two (2) button open and close valve position capability and a full color LCD display with backlight.

The electric actuator will be furnished with a manual over ride, extended to the pump panel. A wrench will be provide to manually open or close the valve.

INLET BUTTERFLY VALVE

There will be one (1) butterfly valve provided on the driver's side main pump inlet.

The 6.00" inlet valve will be recessed behind the pump panel.

A built-in, adjustable pressure relief valve and a 3/4" bleeder valve will be provided on the inlet side of the valve. The bleeder valve controls will be located at the threaded connection and at the pump operator's panel.

An Akron 9323 electric valve controller will be provided.

The controller unit will be of true position feedback design, requiring no clutches in the motor or current limiting. The controller will be completely sealed with two (2) button open and close valve position capability and a full color LCD display with backlight.

The electric actuator will be furnished with a manual over ride, extended to the pump panel. A wrench will be provide to manually open or close the valve.

VALVES

All ball valves will be Akron® Brass. The Akron valves will be the 8000 series heavy-duty style with a stainless steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.

Valves will have a **ten (10) year** warranty.

LEFT SIDE INLET

There will 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.

The auxiliary inlet will be provided with a strainer, chrome swivel and plug.

The location of the valve for the one (1) inlet will be recessed behind the pump panel.

ANODE, INLET

A pair of sacrificial zinc anodes will be provided in the water pump inlets to protect the pump from corrosion.

INLET CONTROL

The side auxiliary inlet(s) will incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism will indicate the position of the valve.

INLET BLEEDER VALVE

A 0.75" bleeder valve will be provided for each side gated inlet. The valves will be located behind the panel with a swing style handle control extended to the outside of the panel. The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders will be routed below the chassis frame rails.

TANK TO PUMP

The booster tank will be connected to the intake side of the pump with heavy duty 4.00" piping and a quarter turn 3.00" full flow line valve with the control located at the operator's panel. A rubber coupling will be included in this line to prevent damage from vibration or chassis flexing.

A check valve will be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.

TANK REFILL

A 1.50" combination tank refill and pump re-circulation line will be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.

LEFT SIDE DISCHARGE OUTLETS

There will be two (2) discharges with a 2.50" valves on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter. Discharges will be located below the cab, and will be no higher than the top of the chassis frame rail. Discharges will not be located on the pump operator's panel. Lever controls will be provided at the valve.

RIGHT SIDE DISCHARGE OUTLETS

There will be one (1) discharge outlet with a 2.50" valve on the right side of the apparatus, terminating with a male 2.50" National Standard hose thread adapter. The discharge will be located below the crew cab, and will be no higher than the top of the chassis frame rail.

There will be an Akron® 9325 Navigator Pro electric valve controller provided at the pump panel. The controller unit will be of true position feedback design, requiring no clutches in the motor or current limiting. The controller will be completely sealed with two (2) button open and close valve position capability and a full color LCD display with backlight. In addition to valve position, each controller will include a pressure display.

LARGE DIAMETER DISCHARGE OUTLET

There will be a 4.00" discharge outlet with a 4.00" Akron valve body installed on the right side of the apparatus, terminating with a 4.00" (M) National Standard hose thread. The discharge will be located below the crew cab, and will be no higher than the top of the chassis frame rail.

There will be an Akron 9325 Navigator Pro electric valve controller provided at the pump panel. The controller unit will be of true position feedback design, requiring no clutches in the motor or current limiting. The controller will be completely sealed with two (2) button open and close valve position capability and a full color LCD display with backlight. In addition to valve position, each controller will include a pressure display.

FRONT DISCHARGE OUTLET

There will be one (1) 2.50" discharge outlet piped to the front of the apparatus and located on the top of the right side of the front bumper.

Plumbing will consist of 2.50" piping and flexible hose with a 2.50" full flow valve with control at the pump operator's panel. A fabricated weldment made of stainless steel pipe will be used in the plumbing where appropriate. The piping will terminate with a 2.50" NST with 90 degree stainless steel swivel.

There will be automatic drains provided at all low points of the piping.

REAR DISCHARGE OUTLET

There will be one (1) discharge outlet piped to the rear of the hose bed on driver's side, installed so proper clearance is provided for spanner wrenches or adapters. Plumbing will consist of 2.50" piping along with a 2.50" full flow ball valve with the control from the pump operator's panel. Discharge will terminate with 2.50" NST thread. Discharge piping will be schedule 10 304L welded or formed stainless steel and routed through the water tank.

DISCHARGE CAPS

Chrome plated, rocker lug, caps with chains will be furnished for all side discharge outlets.

The caps will be the Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

OUTLET BLEEDER VALVE

A 0.75" bleeder valve will be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.

The valves will be located behind the panel with a swing style handle control extended to the outside of the side pump panel. The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders will be located at the bottom of the pump panel. They will be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders will be routed below the chassis frame rails.

REAR OUTLET ELBOWS

The 2.50" discharge outlets located at the rear of the apparatus will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.

The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.

LARGE DIAMETER OUTLET CAP

The large diameter outlet will have a National Standard hose thread adapter with a 4.00" rocker lug chrome plated cap and chain.

The cap will be the Pierce VLH, which incorporates a patent pending thread design to automatically relieve stored pressure in the line when disconnected.

REDUCER

There will be one (1) adapter with 2.50" FNST x 1.50" MNST threads and a 1.50" chrome plated cap installed on on the front bumper 2.5" discharge.

DISCHARGE OUTLET CONTROLS

The discharge outlets will incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism will indicate the position of the valve or an indicator will be provided to show when the valve is closed.

The passenger side discharges will be controlled by an Akron 9325 Navigator Pro electric valve controllers with the manual override located on the passenger side pump panel. The controller unit will be of true position feedback design, requiring no clutches in the motor or current limiting. The controller will be completely sealed with two (2) button open and close valve position capability and a full color LCD display with backlight. In addition to valve position, each controller will include a pressure display.

All other outlets will have manual swing handles that operate in a vertical up and down motion. These handles will be able to lock in place to prevent valve creep under pressure.

DELUGE RISER

A 3.00" deluge riser will be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping will be installed securely so no movement develops when the line is charged. The riser will be gated and controlled at the pump operator's panel. A 2.50" valve will be provided. The deluge riser will allow flow for 1000 GPM.

TELESCOPIC PIPING

The deluge riser piping will include a 18.00" Task Force Model XG18 Extend-A-Gun extension.

This extension will be telescopic to allow the deluge gun to be raised 18.00" increasing the range of operation.

A triangular bracing structure will be installed to support the piping. Aluminum tread plate will be placed on the forward side of the bracing structure.

A position sensor will be provided on the telescopic piping that will activate the "do not move vehicle" light inside the cab when the monitor is in the raised position.

The deluge riser will have male National Pipe Threads for mounting the monitor.

CROSSLAY HOSE BED

Two (2) crosslays will be provided. One (1) bed to be capable of carrying 200 feet of 1.75" double jacketed hose. The other bed will be capable of carrying 200 feet of 2.50" double jacketed hose.

The 2.50" outlet will be plumbed with 2.50" i.d. pipe and gated with a 2.50" quarter turn ball valve. The 1.75" outlet will be plumbed with 2.00" pipe and gated with a 2.00" quarter turn ball valve.

Crosslays will be located below the upper deadlay.

One (1) outlet to be equipped with a 1.50" National Standard hose thread 90 degree swivel located in the hose bed so that 1.75" hose may be removed from either side of apparatus.

One (1) outlet to be equipped with a 2.50" National Standard hose thread 90 degree swivel located in the hose bed so that 2.50" hose may be removed from either side of apparatus.

The crosslay controls will be at the pump operator's panel.

Removable trays will be provided for each crosslay hosebed. The crosslay trays will be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes will be in the floor and additional hand holes will be provided in the sides for easy removal and installation from the compartment. The floor of the trays will be perforated to allow for drainage and hose drying. Trays will be held in place by a mechanical spring loaded stainless steel latch that automatically deploys upon loading the tray to hold the tray in place during transit.

CROSSLAY/DEADLAY HOSE BED

One (1) crosslay with a 1.50" outlet will be provided. The crosslay bed will be capable of carrying 200' of 1.75" and will be plumbed with 1.50" i.d. schedule 10 304L welded or formed stainless steel pipe. The 1.50" crosslay will be gated with a 1.50" quarter turn ball valve.

The outlet will be equipped with a 1.50" National Standard hose thread 90 degree swivel located above the hose bed so that hose may be removed from either side of apparatus.

The crosslay will be mounted above the lower 1.50" crosslays. The crosslay controls will be at the pump operator's panel.

One (1) deadlay will be provided to the rear of the 1.50" crosslay. The deadlay will have a capacity of 200' of 2.50" hose.

A total of two (2) removable trays will be provided one (1) for the 1.50" and one (1) one for the deadlay hosebed. The crosslay trays will be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes will be in the floor and additional hand holes will be provided in the sides for easy removal and installation from the compartment. The floor of the trays will be perforated to allow for drainage and hose drying. Trays will be held in place by a mechanical spring loaded stainless steel latch that automatically deploys upon loading the trays to hold the trays in place during transit.

CROSSLAY/DEADLAY HOSE RESTRAINT

A black 1.00" nylon webbing design with 2.00" box pattern will be provided across each end of three (3) crosslay/deadlay(s) to secure the hose during travel. The webbing will be permanently attached at the front of the crosslay/deadlay bed. Two (2) vertical metal bars the height of the crosslay/deadlay bed will hook onto footman loops at the top of the bed and 1.00" web straps will loop through footman loops located at the bottom of the crosslay/deadlay bed. The straps will attach to the bottom of the bar with a spring clip and hook fastener.

FOAM PROPORTIONER

A foam proportioning system will 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 will be based on direct measurement of water flow, and remain consistent within the specified flows and pressures. The system will automatically balance and proportion foam solution at rates from .1 percent to 9.9 percent regardless of variations in water pressure and flow, up to the maximum rated capacity of the foam concentrate pump.

The design of the system will allow operation from draft, hydrant, or relay operation. This will provide a versatile system to meet the demands at a fire scene.

SYSTEM CAPACITY

The system will have the ability to deliver the following minimum foam solution flow rates that meet or exceed NFPA requirements at a pump rating of 250 psi.

200 gpm @ 6 percent

400 gpm @ 3 percent

1200 gpm @ 1 percent

The foam concentrate setting may be adjusted in .1 percent increments from .1 percent to 9.9 percent. Typical settings are .3 percent, .5 percent and 1.0 percent (The maximum capacity will be limited to the plumbing and water pump capacity).

CONTROL SYSTEM

The system will be equipped with a digital electronic control display located on the pump operators panel. Push button controls will be integrated into the panel to turn the system on/off, control the foam percentage, direct which foam to use on a multi-tank system, and to set the operation modes (automatic, manual, draft, calibration, or flush).

The percent of injection will have presets for Class A or Class B foam. These presets can be changed at the fire department as desired. The percent of injection will be able to be easily changed at the scene to adjust to changing demands.

In order to minimize the use of abbreviations and interpretations, system information will be displayed on the panel by way of .50 tall LEDs that total 14 characters (two (2) lines of seven (7) each). System on and foam pump on indicator lights will also be included. Information displayed will include mode of operation (automatic, manual, draft, calibration, or flush), foam supply selected (Class A or Class B), water total, foam total, foam percentage, remaining gallons, and time remaining.

The control display will direct a microprocessor, which receives input from the systems water flow meter while also monitoring the position of the foam concentrate pump. The microprocessor will 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 will be installed in the plumbing to prevent foam from contaminating the water pump.

LOW LEVEL, FOAM TANK

The control head will display a warning message when the foam tank in use is below a quarter tank.

HYDRAULIC DRIVE SYSTEM

The foam concentrate pump will be powered by a hydraulic drive system, which is automatically activated, whenever the vehicle water pump is engaged. A system that drives the foam pump via an electric motor will not be acceptable. A large parasitic electric load used to power the foam pump can cause an overload of the chassis electrical system.

Hydraulic oil cooler will be provided to automatically prevent overheating of the hydraulic oil, which is detrimental to system components. The oil/water cooler will be designed to allow continuous system operation without allowing hydraulic oil temperature to exceed the oil specifications.

The hydraulic oil reservoir will be of four (4) gallons minimum capacity and will also be of sufficient size to minimize foaming and be located to facilitate checking oil level or adding oil without spillage or the need to remove access panels.

FOAM CONCENTRATE PUMP

The foam concentrate pump will be of positive displacement, self-priming; linear actuated design, driven by the hydraulic motor. The pump will be constructed of brass body; chrome plated stainless

steel shaft, with a stainless steel piston. In order to increase longevity of the pump, no aluminum will be present in its construction.

A relief system will be provided which is designed to protect the drive system components and prevent over pressuring the foam concentrate pump.

The foam concentrate pump will have minimum capacity for 12 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 will 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 will be self-priming and have the ability to draw foam concentrate from external supplies such as drums or pails.

EXTERNAL FOAM CONCENTRATE CONNECTION

An external foam pick-up will be provided to enable use of a foam agent that is not stored on the vehicle. The external foam pick-up will be designed to allow continued operation after the on-board foam tank is empty. The external foam pick-up will be designed to allow use with training foam or colored water for training purposes.

PANEL MOUNTED STRAINER/EXTERNAL PICK-UP CONNECTION

A bronze body strainer/connector unit will be provided. The unit will be mounted to the pump panel. The external foam pick-up will be one (1) 1.00" male connection with chrome-plated cap integrated to a 2.00" strainer cleanout cap. A check valve will be installed in the pick-up portion of the cleanout cap. A basket style stainless steel screen will be installed in the body of the strainer/connector unit. Removal of the 2.00" cleanout cap will be all that is required to gain access to and remove the stainless steel basket screen. The strainer/connector unit will be ahead of the foam concentrate pump inlet port to insure that all agent reaching the foam pump has been strained.

PICK-UP HOSE

A 1.00" flexible hose with an end for insertion into foam containers will be provided. The hose will be supplied with a 1.00" female swivel NST thread swivel connector. The hose will be shipped loose.

DISCHARGES

The foam system will be plumbed to the lower rear crosslay, lower front crosslay, upper rear crosslay, right side of front bumper and left rear outlet.

SYSTEM ELECTRICAL LOAD

The foam proportioning will not impose an electrical load on the vehicle electrical system any greater than five (5) amps at 12VDC.

FOAM SUPPLY VALVE

An electric valve will be used for the foam supply valve. The foam supply valve will be controlled at the foam system control head for ease of operation. The supply valve will be electric, remote controlled, to eliminate air pockets in the foam tank supply hose.

MAINTENANCE MESSAGE

A message will be displayed on the control head to advise when system maintenance needs to be performed. The message will display interval for cleaning the foam strainer, cleaning for the water strainers, and changing the hydraulic oil.

FLUSH SYSTEM

The system will be designed such that a flush mode will be provided to allow the system to flush all foam concentrate with clear water. The flush circuit control logic will ensure the foam tank supply valve is closed prior to opening the flush valve. The flush valve will be operated at the foam system control head for ease of operation. The valve will be electrically controlled and located as close to the foam tank supply valve as possible. A manual flush drain valve will be labeled and conveniently located.

FOAM GENERATING SYSTEM, CAF

A Hercules 140 cfm capacity compressed air foam, will be provided. The system will supply five (5) discharges with compressed air foam. It will be capable of providing foam solution or compressed air foam from any of the specified CAFS discharges simultaneously. In addition, the consistency of the compressed air foam (wet to dry) from each discharge will be adjustable. All CAF capable discharges will have the discharge valve control, air injection control, and discharge pressure gauge mounted in a group on the operator's panel. Each CAF capable discharge will feature a check valve to prevent reverse flows of compressed air foam that is integrated into the discharge valve. The wafer check valve will be a type and design approved by the manufacturer of the discharge valve.

DISCHARGES TO CAF CAPABLE

The all speedlays, front bumper, and rear discharge discharges will be capable of discharging compressed air foam. There is no second pump on the vehicle

AIR COMPRESSOR, HYDRAULIC DRIVEN

An oil flooded rotary screw compressor rated for at least 140cfm @ 150psig will be provided. The compressor will be mounted in an area that allows for proper service and maintenance of the components. The compressor will be driven by a hydraulic drive system. The hydraulic drive system will be driven by the vehicle transmission through a PTO. All components of the system will be sized and rated for the system to deliver compressed air, uninterrupted, for up to two (2) hours at a time without undue stresses, vibrations, or overheating. The air compressor will be capable of delivering the rated capacity of the compressor when the fire pump is delivering 250gpm @ 120psi from tank or draft.

The hydraulic compressor drive system will be comprised of a variable displacement piston type hydraulic pump supplying a fixed displacement piston hydraulic motor. The displacement of the

hydraulic pump will be controlled by a fixed orifice type, load sensing, hydraulic circuit. The hydraulic system will have a properly sized reservoir, cooler, filter(s) and accessory components. The components will be mounted in the vehicle body to facilitate routine maintenance operations. The hydraulic drive design will be certified by manufacturer of the primary components as suitable for the intended use and duty cycle.

All components of the air compressor and drive system will be readily available on the domestic air compressor / hydraulic market (USA). The compressor will be designed and assembled by the apparatus manufacturer, using standard components available to air compressor OEM's. The hydraulic drive system will be assembled by the apparatus manufacturer using standard mobile hydraulic components.

The PTO will be a 10 bolt SAE type mounted to the PTO opening of the vehicle's Allison transmission. The PTO will be rated for at least 20 percent more torque throughput than the air compressor drive system will demand.

The air/oil separator for the compressor system will be easily serviced. The separator will be inside a cast iron compressor base, receiver combination. The separator will consist of two stages. The first stage being a centrifuge arrangement engineered into the compressor base. The second stage will be a cartridge arrangement inside an enclosure featuring an "inside to outside" flow of the air through the cartridge. The cartridge will be serviceable by the removal of the compressor system minimum pressure valve. The separation system will be capable of at least 140 SCFM flow at 40 psi tank pressure. The allowable oil carry over will be no more than 10 parts per million oil in air.

A cast iron air/oil receiver tank will be provided. The tank will be constructed and tested to the applicable standards as addressed by NFPA 1901 for CAF system air compressor tanks. The tank will be mounted in a manner that allows easy access to the fill opening and the level sight gauges. The tank will be of the vertical type with the minimum pressure valve of the compressor system integrated into the top of the tank. The minimum pressure valve will be rotatable to facilitate different discharge arrangements from the tank.

The compressor lubricant will be filtered by spin on type filter. The filter will have a 25 Micron rating and a safety bypass valve. The filter assembly will be mounted and located in a manner that allows easy service. A thermostat valve will be integrated into the oil filter and compressor base housing. The thermostat will route lubricant to the oil cooler to maintain the compressor's temperature between minimum and maximum limits.

A water/oil cooler will be provided to cool the compressor. The cooler will be sized to meet the duty cycle requirements as specified.

A heavy duty, automotive type, dry element air cleaner will be provided. The air cleaner will be mounted in such a manner as to be easily serviced. The air cleaner will be mounted, or the inlet of the filter routed, in such a manner that the air cleaner intakes fresh air from outside the vehicle body. In addition, the compressor air intake will be screened to prevent debris from entering the filter housing.

The system will have the following safety or monitoring devices.

Minimum pressure valve

Compressor lube temperature gauge

Compressor system pressure gauge

Air flow meter

Compressor lube temperature warnings, audible and visible

High pressure relief valve on receiver tank

Applicable warning and information decals

The air compressor will be controlled by a modulating inlet valve mounted on the air compressors inlet port. A controller will be provided that senses air pressure and controls the delivery volume of the air compressor while maintaining a constant pressure. The controller will feature an automatic balancing system to maintain the air pressure within plus or minus 5% of the discharge pressure of the fire pump, throughout a pressure range of 60psi to 150psi.

The compressor system will have operators controls at the pump panel for the following functions.

Automatic pressure regulation, to match the compressor discharge pressure to the pump discharge pressure.

Fixed pressure regulation, to set the air pressure at on pressure for the use of air tools, etc.

PTO engagement switch

PTO engaged indicator light

AIR TOOL OUTLET

A 1.00" air outlet supplied by the CAFS compressor shall be provided on the pump operators panel for a side mount pumphouse and on the left pump panel for a top mount pumphouse. This outlet will have a chrome plated 1.0" FNST swivel fitting at the panel and a valve behind the pump panel. The outlet will be capable of supplying the capacity of the compressor. A mating 1.0" MNST x 1.0" NPT fitting will be supplied with loose equipment.

SINGLE FOAM TANK REFILL

The foam system's proportioning pump will be used to fill the Class A foam tank. This will 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 will be installed in the fill dome of the tank to shut the system down when the tank is full. The fill operation will be controlled by a mode in the foam system controller stating TANK FILL. While the proportioner pump is filling the tank, the controller will display FILL TANK. When

the tank is full, as determined by the float switch in the tank dome, the pump will stop and the controller will display TANK FULL.

CAF AIR INJECTION VALVE CONTROL

The CAF air injection valve will be controlled by a rocker switch. The switch will be a momentary switch, interlocked to the CAFS compressor control, to return the air injection valve to closed when the air compressor switch is turned off.

The switches will be located as close as possible to the corresponding discharge valve control. The tag will be color coded to match the discharge valve control.

FOAM SYSTEM AND CAFS DEMONSTRATION

The fire department will order the fire apparatus with a foam system and CAFS. A demonstration will be provided at the manufacturer, on the operation of the foam system and CAFS.

This demonstration will include:

- A hands on foam system and CAFS start-up and discharge session.
- The demonstration will be done with foam to simulate real conditions.

FOAM CELL

The foam cell will be an integral portion of the polypropylene water tank. The cell will have a capacity of 30 gallons of foam with the intended use of Class A foam. The brand of foam stored in this tank will be Phoschek. The foam cell will not reduce the capacity of the water tank. The foam cell will have a screen in the fill dome and a breather in the lid.

FOAM TANK DRAIN

A system of 1.00" foam tank drains will 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 panel mounted strainer will 1.00" diameter. The foam system controller will 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 will be usable as a tank drain mode.

An adaptor will 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 will be attached to the screen assembly by way of the adapter. The drain mode will 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.

PUMP CONTROL PANELS (LEFT SIDE CONTROL)

Pump controls and gauges will be located midship at the left (driver's) side of the apparatus and properly identified.

The main pump operator's control panel will be completely enclosed and located in the forward section of the body compartment, to protect against road debris and weather elements. The pump operator's panels will be no more than 31.00" wide, and made in four (4) sections with the center section easily removable with simple hand tools. For the safety of the pump operator, there will be no discharge outlets or pump inlets located on the main pump operators panel.



Layout of the pump control panel will be ergonomically efficient and systematically organized. The upper section will contain the master gauges. This section will be angled down for easy visibility. The center section will contain the pump controls aligned in two horizontal rows. The pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable) will be located on or adjacent to the center panel, on the side walls for easy operation and visibility. The lower section will contain the outlet drains.

Manual controls will be easy moving 8" long lever style controls that operate in a vertical, up and down swing motion. These handles will have a 2.25" diameter knob and be able to lock in place to prevent valve creep under any pressure. Bright finish bezels will encompass the opening, be securely mounted to the pump operator's panel, and will incorporate the discharge gauge bezel. Bezels will be bolted to the panel for easy removal and gauge service. The driver's side discharges will be controlled directly at the valve. There will be no push-pull style control handles.

Identification tags for the discharge controls will be recessed within the same bezel. The discharge identification tags will be color coded, with each discharge having its own unique color.

All remaining identification tags will be mounted on the pump panel in chrome-plated bezels.

All discharge outlets will be color coded and labeled to correspond with the discharge identification tag.

The pump panels for the midship discharge and intake ports will be located ahead of the body compartments with no side discharge or intake higher than the frame rail. The pump panels will be easily removable with simple hand tools.

A recessed cargo area will be provided at the front of the body, ahead of the water tank above the plumbing.

PUMP PANEL CONFIGURATION

The pump panel configuration will be arranged and installed in an organized manner that will provide user-friendly operation.

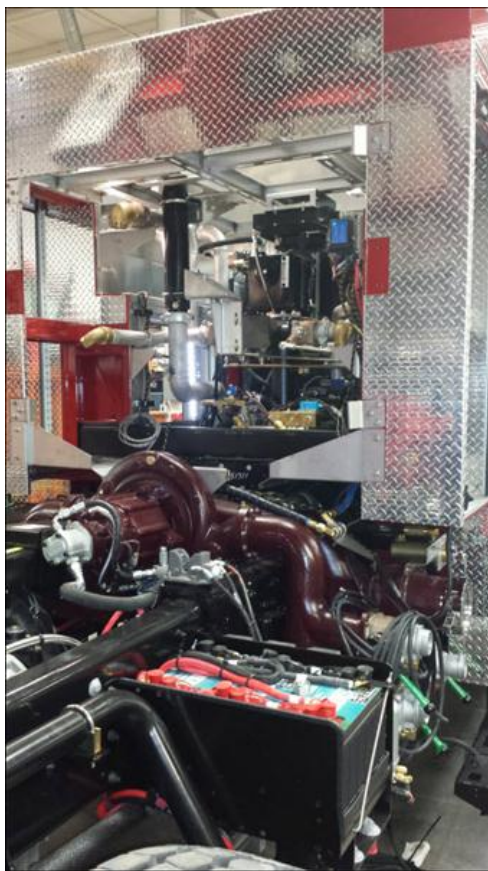
PUMP AND GAUGE PANEL

The pump operator's panel and gauge panels will be constructed of stainless steel with a brushed finish.

The side control panels will be constructed of stainless steel with a brushed finish for durability and ease of maintenance.

PUMP AND PLUMBING ACCESS

Simple access to the plumbing will be provided through the front of the body area by raising the cab for complete plumbing service and valve maintenance. Access to valves will not require removal of operator panels or pump panels. Access for rebuilding of the pump will not require removal of more than the tank to pump line and a single discharge line. This access will allow for fast, easy valve or pump rebuilding, making for reduced out of service times. Steps will be provided for access to the top of the pump.



Access to the pump will be provided by raising the cab. The pump will be positioned such that all maintenance and overhaul work can be performed above the frame and under the tilted cab. The service and overhaul work on the pump will not require the removal of operator panels or pump panels. Complete pump casing and gear case removal will require no more than removal of the intake and discharge manifolds, driveline, coolers and a single discharge line. The pump case and gear case will be

able to be removed by lifting upward without interference from piping and be removable in less than 3 hours.

PUMP COMPARTMENT LIGHT

There will be one (1) Whelen®, Model 3SC0CDCR, 3.00" white 12 volt DC LED light(s) with Whelen, Model 3FLANGEC, flange(s) installed in the plumbing area.

The light(s) will be activated by a toggle switch located in the pump compartment area.

PUMP PANEL GAUGES AND CONTROLS

The following will be provided on the pump panels in the FRC IN Control Pressure Governor system

- Engine Oil Pressure Gauge: LED bar graph display
- Engine Water Temperature Gauge: LED bar graph display
- Tachometer: over 1/2" high LED digits
- Master Pump Drain Control
- Voltmeter: LED bar graph display

AIR HORN SWITCH

An air horn control switch will be provided at the pump operator's control panel. This switch will be red and properly labeled. The button will be located within easy reach of the operator in the electrical switch panel.

VACUUM AND PRESSURE GAUGES

The pump vacuum and pressure gauges will be liquid filled and manufactured by Class 1 Incorporated ©.

The gauges will be a minimum of 4.00" in diameter and will have white faces with black lettering, with a pressure range of 30.00"-0-600#.

Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.

The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel.

Test port connections will be provided at the pump operator's panel. One will be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They will have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They will be marked with a label.

This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.

PRESSURE GAUGES

The individual "line" pressure gauges for the discharges will be Class 1© interlube filled.

They will be a minimum of 2.00" in diameter and have white faces with black lettering.

Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.

Gauges will have a pressure range of 30"-0-400#.

The individual pressure gauge will be installed as close to the outlet control as practical.

This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.

WATER LEVEL GAUGE

An electric water level gauge will be incorporated in the pressure controller that registers water level by means of nine (9) LEDs. They will be at 1/8 level increments with a tank empty LED. The LEDs will be a bright type that is readable in sunlight, and have a full 180-degree of clear viewing.

To further alert the pump operator, the gauge will have a warning flash when the tank volume is less than 25 percent. The gauge will have down chasing LEDs when the tank is almost empty.

The level measurement will be ascertained by sensing the head pressure of the fluid in the tank or cell.

MINI SLAVE UNIT

An electric water level gauge will be provided in the cab that registers water level by means of five (5) LEDs. They will be at 1/4 level increments with a tank empty LED. The LEDs will be a bright type that are readable in sunlight and have a full 180-degree of clear viewing.

The water level gauge in the cab will be activated when the parking brake is applied.

FOAM LEVEL GAUGE

A Pierce electric foam level gauge will be provided on the operator's panel, that registers foam level by means of nine (9) LEDs. There will also be a mini foam level gauge with five (5) LEDs in the cab. They will be at 1/8 level increments with a tank empty LED. The LEDs will be a bright type that is readable in sunlight, and have a full 180 degree of clear viewing. The gauge will match the water level gauge in the pressure controller.

To further alert the pump operator, will have a warning flash when the tank volume is less than 25 percent, and will have Down Chasing LEDs when the tank is almost empty.

The level measurement will be ascertained by sensing the head pressure of the fluid in the tank or cell. This method provides accuracy with an array of multi-viscosity foams.

The foam level gauge in the cab will be activated by parking brake is set.

SIDE CONTROL PUMP OPERATOR'S/PUMP PANEL LIGHTING

Illumination will be provided for controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus and the equipment provided on it. External illumination will be a minimum of five (5) foot-candles on the face of the device. Internal illumination will be a minimum of four (4) footlamberts.

The pump panels will be illuminated by four (4) Truck-Lite, Model 6060C white LED lights installed on the back of the cab, two (2) on the driver's side and two (2) on the passenger's side.

The pump operator's panel will utilize the same LED strip lighting at the forward doorframe as all other compartment lighting.

There will be a small white LED pump engaged indicator light installed overhead.

AIR HORN SYSTEM

Two (2) Grover, Stutter Tone, air horns will be recessed in the front bumper. The horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed in-line to prevent loss of air in the air brake system.

Air Horn Location

The air horns will be located on each side of the bumper, just outside of the frame rails.

AIR HORN CONTROL

The air horns will be actuated by a push button located on officer side instrument panel and by the horn button in the steering wheel. The driver will 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.

ELECTRONIC SIREN

A Whelen®, Model 295SLSA1, electronic siren with noise canceling microphone will be provided.

This siren to be active when the battery switch is on and that emergency master switch is on.

Electronic siren head will be recessed in the driver side inside switch panel.

The electronic siren will be controlled on the siren head only. No horn button or foot switches will be provided.

SPEAKERS

There will be two (2) Whelen®, Model SA315P, black nylon composite, 100-watt, speakers with through bumper mounting brackets and polished stainless steel grille provided. Each speaker will be connected to the siren amplifier.

There will be one (1) speaker recessed in the passenger side and one (1) speaker recessed in the driver side of the front bumper. The speakers will be located in the angled corner area of the bumper.

AUXILIARY MECHANICAL SIREN

A Federal Q2B® siren will be furnished. A siren brake button will be installed on the switch panel.

The control solenoid will be powered up after the emergency master switch is activated.

The mechanical siren will be recessed in the front bumper on the left side. The siren will be properly supported using the bumper framework.

MECHANICAL SIREN CONTROL

The mechanical siren Will be actuated by a push button located on the officer's side instrument panel and by a foot switch on the driver's side.

A second siren brake switch will be installed on the passenger side.

FRONT ZONE UPPER WARNING LIGHTS

There will be one (1) 72.00" Whelen Freedom IV LED lightbar mounted on the cab roof.

The lightbar will include the following:

- One (1) red flashing LED module in the driver's side end position.
- One (1) red flashing LED module in the driver's side front corner position.
- One (1) red flashing LED module in the driver's side first front position.
- One (1) white flashing LED module in the driver's side second front position.
- One (1) blue flashing LED module in the driver's side third front position.
- One (1) red flashing LED module in the driver's side fourth front position.
- Open in the driver's side fifth front position.
- One (1) 795 LED traffic light controller sent to national standard high priority in the center positions.
- Open in the passenger's side fifth front position.
- One (1) red flashing LED module in the passenger's side fourth front position.
- One (1) blue flashing LED module in the passenger's side third front position.
- One (1) white flashing LED module in the passenger's side second front position.
- One (1) red flashing LED module in the passenger's side first front position.
- One (1) red flashing LED module in the passenger's side front corner position.
- One (1) red flashing LED module in the passenger's side end position.

There will be clear lenses included on the lightbar.

The following switches may be installed in the cab on the switch panel to control the lightbar:

- a switch to control the flashing LED modules.
- the traffic light controller will be activated with the roof light switch,
- and there will no momentary switch to activate the traffic light controller.

The two (2) white flashing LED modules and the traffic light controller will be disabled when the parking brake is applied.

The two (2) red and two (2) blue flashing LED modules in the front positions may be load managed when the parking brake is applied.

CAB FACE WARNING LIGHTS

There will be two (2) Whelen, Model 6RB**, LED warning lights and two (2) Whelen, Model M6*, LED warning lights installed on the cab face above the headlights in a quad bezel.

The Whelen, Model 6RB**, LED warning lights will be installed in the outer position:

- The driver's side front outside warning light to be red.
- The passenger's side front outside warning light to be red.

The Whelen, M6*, LED warning lights will be installed in the inner position as additional lights.

- The driver's side front inside warning light to be blue.
- The passenger's side front inside warning light to be blue.

The color of the lenses for all lights will be clear.

There will be one (1) switch, located in the cab on the switch panel, to control the lights.

The inner LED lights may be load managed if colored and any white LEDs will be disabled when the parking brake is applied.

HEADLIGHT FLASHER

The high beam headlights will flash alternately between the left and right side.

There will be a switch installed in the cab on the switch panel to control the high beam flash. This switch will be live when the battery switch and the emergency master switches are on.

The flashing will automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.

SIDE ZONE LOWER LIGHTING

There will be six (6) Whelen®, Model M6# split color flashing LED warning lights with Whelen, Model M6FC chrome flanges installed per the following:

- Two (2) lights, one (1) each side on the bumper extension. The side front lights to be blue to the front and red to the rear.
- Two (2) lights, behind the crew cab doors. The side middle lights to be blue to the front and red to the rear.

- Two (2) lights, in the rear fender panel area. The side rear lights to be blue to the front and red to the rear.
- The lights will include a clear lenses.

There will be a switch in the cab on the switch panel to control the lights.

White LEDs will be disabled when the parking brake is applied.

REAR ZONE LOWER LIGHTING

There will be two (2) Whelen®, Model M6*C, LED flashing warning lights with Model M6FC, chrome flanges located at the rear of the apparatus.

- The driver's side rear light to be red
- The passenger's side rear light to be red

Both lights will include a lens that is clear.

There will be a switch located in the cab on the switch panel to control the lights.

WARNING LIGHTS (REAR AND SIDE UPPER ZONES)

Four (4) Whelen, model M6*C LED flashing warning lights will be provided at the rear of the apparatus.

The side rear upper light(s) on the driver's side to be red.

The rear upper light(s) on the driver's side to be red.

The rear upper light(s) on the passenger's side to be red.

The side rear upper light(s) on the passenger's side to be red.

These lights will include a lens that is clear.

There will be a switch located in the cab on the switch panel to control the lights.

TRAFFIC DIRECTING LIGHT

There will be one (1) Whelen®, Model TAL65, 36.00" long x 2.87" high x 2.25" deep, amber LED traffic directing light installed at the rear of the apparatus.

The Whelen, Model TACTL5, control head will be included with this installation.

The controller will be energized when the battery switch is on.

The auxiliary flash to be activated when the parking brake is applied.

This traffic directing light will be recessed with a stainless steel trim plate at the rear of the apparatus as high as practical.

The traffic directing light control head will be located in the driver side overhead switch panel in the right panel position.

ELECTRICAL SYSTEM GENERAL DESIGN FOR ALTERNATING CURRENT

The following guidelines will apply to the 120/240 VAC system installation:

General

Any fixed line voltage power source producing alternating current (ac) line voltage will produce electric power at 60 cycles plus or minus 3 cycles.

Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures will conform to NFPA 70, National Electrical Code (herein referred to as the NEC).

Line voltage electrical system equipment and materials included on the apparatus will be listed and installed in accordance with the manufacturer's instructions. All products will be used only in the manner for which they have been listed.

Grounding

Grounding will be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems will not be used. Only stranded or braided copper conductors will be used for grounding and bonding.

An equipment grounding means will be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.

The grounded current carrying conductor (neutral) will be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor will be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.

In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure will be bonded to the vehicle frame by a copper conductor. This conductor will 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 will be permitted to be used.

All power source system mechanical and electrical components will be sized to support the continuous duty nameplate rating of the power source.

Operation

Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, will be permanently attached to the apparatus at any point where such operations can take place.

Provisions will be made for quickly and easily placing the power source into operation. The control will be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train will be equipped with a means to prevent the unintentional movement of the control device from its set position.

A power source specification label will be permanently attached to the apparatus near the operator's control station. The label will provide the operator with the following information:

- Rated voltage(s) and type (ac or dc)
- Phase
- Rated frequency
- Rated amperage
- Continuous rated watts
- Power source engine speed

Direct drive (PTO) and portable generator installations will comply with Article 445 (Generators) of the NEC.

Overcurrent protection

The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device will not exceed 144.00" (3658 mm) in length.

For fixed power supplies, all conductors in the power supply assembly will 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).

For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device will be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).

Wiring Methods

Fixed wiring systems will be limited to the following:

- Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius)
- or
- Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius)

Electrical cord or conduit will 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 will be run as follows.

- Separated by a minimum of 12.00" (305 mm), or properly shielded, from exhaust piping

- Separated from fuel lines by a minimum of 6.00" (152 mm) distance

Electrical cord or conduit will 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 will be made of nonmetallic materials or corrosion protected metal. All supports will be of a design that does not cut or abrade the conduit or cable and will be mechanically fastened to the vehicle.

Wiring Identification

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

Wet Locations

All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, will 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.

All receptacles located in a wet location will be not less than 24.00" (610 mm) from the ground. Receptacles on off-road vehicles will be a minimum of 30.00" (762 mm) from the ground.

The face of any wet location receptacle will be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle will be installed in a face up position.

Dry Locations

All receptacles located in a dry location will be of the grounding type. Receptacles will be not less than 30.00" (762 mm) above the interior floor height.

All receptacles will 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 will be so marked.

Listing

All receptacles and electrical inlet devices will be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages will be rated for the appropriate service.

Electrical System Testing

The wiring and associated equipment will be tested by the apparatus manufacturer or the installer of the line voltage system.

The wiring and permanently connected devices and equipment will be subjected to a dielectric voltage withstand test of 900-volts for one (1) minute. The test will 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 will be conducted after all body work has been completed.

Electrical polarity verification will be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

Operational Test per Current NFPA 1901 Standard

The apparatus manufacturer will 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 will be witnessed and the results certified by an independent third-party certification organization.

The prime mover will be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.

The power source will 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.

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 will be applied to the low voltage electrical system during the operational test.

GENERATOR

The apparatus will be equipped with a complete AC (alternating current) electrical power system. The generator will be a Harrison, Model MSV, 6,000 watt hydraulic driven unit with vertical exhaust.

The generator will be driven by a transmission power take off unit, through a hydraulic pump and motor.

The hydraulic engagement supply will be operational at any time (no interlocks).

An electric/hydraulic valve will supply hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.

Generator Instruments and Controls

To properly monitor the generator performance, a voltmeter will be furnished near the breaker box.

GENERATOR LOCATION

The generator will be mounted in the cargo area at the front of the body in the best location possible. The flooring in this area will be either reinforced or constructed, in such a manner, that it will handle the additional weight of the generator.

GENERATOR START

There will be a switch provided on the cab instrument panel to engage the generator.

CIRCUIT BREAKER PANEL

The circuit breaker panel will be located TO BE DETERMINED in the drivers side forward brass compartment.

ELECTRIC CORD REEL

Furnished with the 120 volt AC electrical system will be a Hannay, Series 1600, cord reel. The reel will be provided with a 12-volt electric rewind switch, that is guarded to prevent accidental operation and labeled for its intended use. The switch will be protected with a fuse and installed at a height not to exceed 72.00" above the operators standing position.

The exterior finish of the reel(s) will be painted #269 gray from the reel manufacturer.

A captive roller assembly to be provided to aid in the payout and loading of the reel. A ball stop will be provided to prevent the cord from being wound on the reel.

A label will be provided in a readily visible location adjacent to the reel. The label will indicate current rating, current type, phase, voltage and total cable length.

A total of one (1) cord reel will be provided one (1) in compartment R1 high and centered.

The cord reel will be configured with three (3) conductors.

CORD

Provided for electric distribution will be one (1) length installed on the reel of 200 feet of Carol Super Vu-Tron II yellow 12/3 electrical cord. No connector, terminate each conductor with butt splice will be installed on the end of the cord.

120 VOLT RECEPTACLE

There will be two (2), 20 amp 120 volt AC three (3) wire straight blade duplex GFCI receptacle(s) with waterproof flip up cover(s) installed. One receptacle will be located in the lower portion of the interior EMS cabinet towards the exterior wall as low as possible and one will be located in P3 - back wall in the full depth portion as high as possible - forwards.. The NEMA configuration for the receptacles will be 5-20R.

The receptacle(s) will be powered from the generator.

There will be a label installed near the receptacle(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency
- Power Source

LOOSE EQUIPMENT

The following equipment will be furnished with the completed unit:

- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.

NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT

The following loose equipment as outlined in NFPA 1901, 2016 edition, section 5.9.3 and 5.9.4 will be provided by the fire department.

- 800 ft (60 m) of 2.50" (65 mm) or larger fire hose.
- 400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose.
- One (1) handline nozzle, 200 gpm (750 L/min) minimum.
- Two (2) handline nozzles, 95 gpm (360 L/min) minimum.
- One (1) smoothbore or combination nozzle with 2.50" shutoff that flows a minimum of 250 gpm.
- 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.
- 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).
- One (1) first aid kit.
- Four (4) combination spanner wrenches.
- Two (2) hydrant wrenches.
- One (1) double female 2.50" (65 mm) adapter with National Hose threads.
- One (1) double male 2.50" (65 mm) adapter with National Hose threads.
- One (1) rubber mallet, for use on suction hose connections.
- Two (2) salvage covers each a minimum size of 12 ft x 14 ft (3.7 m x 4.3 m).
- One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High Visibility Public Safety Vests*, 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.
- 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" (102 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.
- Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.
- One (1) automatic external defibrillator (AED).
- Four (4) ladder belts meeting the requirements of NFPA 1983, *Standard on Fire Service Life Safety Rope and System Components* (if equipped with an aerial device).
- 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, will be carried mounted in brackets fastened to the apparatus.
- 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 will be carried. Any intake

connection larger than 3.00" (75 mm) will include a pressure relief device that meets the requirements of 16.6.6.

- If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH female to a pump intake will be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.
- If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters will 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.

SOFT SUCTION HOSE

There will be a 15' length of 6.00" soft suction hose provided with a 6.00" long handle swivel coupling on one (1) end and a 4.50" long handle swivel coupling on the other.

DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 5.9.4 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 5.9.4 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) flathead axe mounted in a bracket fastened to the apparatus.

The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.

PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) pickhead axe mounted in a bracket fastened to the apparatus.

The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.

PAINT

The exterior custom cab and body painting procedure will consist of a seven (7) step finishing process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the custom cab and body will be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces will be removed and sanded to a smooth finish. Exterior seams will be sealed before painting. Exterior surfaces that will not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.
2. Chemical Cleaning and Pretreatment - All surfaces will be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces will be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces will 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 will be applied to all metal surfaces.
3. Surfacer Primer - The Surfacer Primer will 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.
4. Finish Sanding - The Surfacer Primer will 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.
5. Sealer Primer - 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.
6. Basecoat Paint - Two coats of a high performance, two component high solids polyurethane basecoat will be applied. The Basecoat will be applied to a thickness that will achieve the proper color match. The Basecoat will be used in conjunction with a urethane clear coat to provide protection from the environment.
7. Clear Coat - Two (2) coats of Clear Coat will 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 will be Clear Coated to match the body. Paint warranty for the roll-up doors will be provided by the roll-up door manufacture.

Each batch of basecoat color is checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color is verified again to make sure that it matches the color standard. Electronic color measuring equipment is used to compare the color sample to the color standard entered into the computer. Color specifications are used to determine the color match. A Delta E reading is used to determine a good color match within each family color.

All removable items such as brackets, compartment doors, door hinges, and trim will be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly.

Pierce Manufacturing paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) meet or exceed the Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels meet or exceed the #6 A.C.T. standard in critical areas. These requirements are met in order for the exterior paint finish to be considered acceptable. The Pierce Manufacturing written paint standards will be available upon request.

The cab will 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.

PAINT - ENVIRONMENTAL IMPACT

Contractor will meet or exceed all current State regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions:

- Topcoats and primers will be chrome and lead free.
- Metal treatment chemicals will be chrome free. The wastewater generated in the metal treatment process will be treated on-site to remove any other heavy metals.
- Particulate emission collection from sanding operations will have a 99.99% efficiency factor.
- Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter is used, it will have an efficiency rating of 98.00%. Water wash systems will be 99.97% efficient
- Water from water wash booths will be reused. Solids will be removed on a continual basis to keep the water clean.
- Paint wastes are disposed of in an environmentally safe manner.
- Empty metal paint containers will be to recover the metal.
- Solvents used in clean-up operations will be recycled on-site or sent off-site for distillation and returned for reuse.

Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Contractor will, 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.

PAINT CHASSIS FRAME ASSEMBLY

The chassis frame assembly will be painted to match the lower job color before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.

Components treated with epoxy E-coat protection prior to paint:

- Two (2) C-channel frame rails

Components that are included with the chassis frame assembly that will be painted not e-coated are:

- Cross members
- Axles
- Suspensions
- Steering gear
- Battery boxes
- Bumper extension weldment
- Frame extensions
- Body mounting angles
- Rear Body support substructure (front and rear)
- Pump house substructure
- Air tanks
- Fuel tank
- Castings
- Individual piece parts used in chassis and body assembly

FILM TECHNICAL PROPERTIES		
PROPERTY	TEST METHOD	PERFORMANCE
Color	—	Black
Film Thickness	—	0.5 - 1.5 Mills
Gloss - 60 Degree	ASTM D523	65 - 85
Pencil Hardness	ASTM D3363	2H Minimum
Direct Impact	ASTM D2794	100 in. - lbs. Minimum
Reverse Impact	ASTM D2794	60 in. - lbs. Minimum
Crosshatch Adhesion	ASTM D3359	4B - 5B
Humidity	ASTM D1735	1000 Hours Minimum
Water Immersion	ASTM D870	250 Hours Minimum
Gravelometer	GM9508P	6 Minimum
Throwpower	GM9535P	12 - 15 in.
Cold rolled steel lab panels, Zinc Phosphate pretreatment, 0.6 mils average film thickness, cured 20 minutes @ 350°F.		
PROPERTY	SUBSTRATE PRETREATMENT	SALT SPRAY* 1000 HOURS
Corrosion Resistance	CRS / Zinc Phos / Non-Chrome	1 - 2 mm
*Salt Spray - ASTM B117, cold rolled steel lab panels cured 20 minutes @ 350°F. (Average Total Scribe Creep)		

The E-coat process will meet the technical properties shown.

PAINT, REAR WHEELS

All wheel surfaces, inside and outside of inboard steel wheels only, will be provided with powder coat paint #101 black.

TRANSIT COATING

All non-painted metal surfaces on the exterior of the vehicle will be sprayed with a corrosion protective coating provided by Carwell. The coating can be removed with soap and water. The coating is made of a linseed oil base and is biodegradable.

The underside non-painted metal surfaces will also be coated with a corrosion protective coating.

COMPARTMENT INTERIOR PAINT

The compartment interior will be painted with a gray spatter finish for ease of cleaning and to make it easier to touch up scratches and nicks.

REFLECTIVE STRIPES

Three (3) reflective stripes will be provided along the sides of the cab and body. The reflective band will consist of a 1.00"-6.00"-1.00" white stripe on the cab and body, with a 1.00"-6.00"-1.00" ruby red stripe on the roll-up doors. All striping will include a 1.00" gap between stripes.

The reflective band provided on the cab face will be below the headlights on the fiberglass.

REAR CHEVRON STRIPING

There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The rear surface, excluding the rear roll up door, will be covered.

The colors will be red and fluorescent yellow green diamond grade.

Each stripe will be 6.00" in width.

This will meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface will be covered with chevron striping.

"Z" JOG IN REFLECTIVE STRIPE

There will be one (1) "Z"-shaped jog(s) provided in the reflective stripe design.

CHEVRON STRIPING ON THE FRONT BUMPER

There will be alternating chevron striping located on the front bumper.

The colors will be fluorescent yellow green and red diamond grade.

The size of the striping will be 4.00".

REFLECTIVE STRIPE ON REAR FENDERS

There will be a red diamond grade and a fluorescent yellow green Diamond Grade reflective stripe provided on the rear body fender panels. The striping will consist of a series of 4.00" rearward slanted stripes on each side fender panel. There will be no striping installed on any air bottle or fuel fill doors.

INVERTED "V" CHEVRON STRIPING ON CAB AND CREW CAB DOORS

There will be alternating chevron striping located on the inside of each cab and crew cab door.

The striping will consist of the following colors:

The first color will be red diamond grade

The second color will be fluorescent yellow diamond grade

The size of the striping will be 4.00".

LETTERING

The lettering will be totally encapsulated between two (2) layers of clear vinyl.

LETTERING

Forty-one (41) to sixty (60) genuine gold leaf lettering, 3.00" high, with outline and shade will be provided.

LETTERING

There will be reflective lettering, 18.00" high, with outline and shade provided. There will be two (2) letters provided.

CAB GRILLE DESIGN

A Texas flag design will be painted on the cab grille.

EMBLEM

A reflective emblem of the Customer patch shall be installed on the rear compartment roll up door.

EMBLEM

There will be two (2) emblem(s), approximately 9.00" - 11.00" wide in size, installed upper side of crew cab rearward of door, one each side. The emblem will feature a "Flying American Flag" and an "Eagle Head".

MOBILE RADIO

one (1) Trimble Unit Model TM3000N with 15' Serial Cable and Antenna will be provided by Siddons-Martin Emergency Group as loose equipment and sent to the manufacture for installation.

PRECONSTRUCTION & FINAL INSPECTION TRIP

Siddons Fire Apparatus shall provided one (1) factory preconstruction and one (1) final inspection trip for five (5) customer representative(s). The inspection trips shall be scheduled at times mutually agreed upon between the manufacturer's representative and the customer. All costs such as travel, lodging and meals shall be the responsibility of Siddons Fire Apparatus.

4	Hose - 1.75 x 50 Double Jacket Blue	Key	DP17-800-ECO
4	Hose - 1.75 x 50 Double Jacket Red	Key	DP17-800-ECO
2	Hose - 1.75 x 50 Double Jacket White	Key	DP17-800-ECO
3	Hose - 1.75 x 50 Double Jacket Orange	Key	DP17-800-ECO
3	Hose - 1.75 x 50 Double Jacket Yellow	Key	DP17-800-ECO
4	Hose 2.5" x 50 Double Jacket Green	Key	DP25-800-ECO

12	Hose 3" x 50 Double Jacket w/ 2.5" NST Couplings White	Key	DP30-800-ECO
10	Hose 5" x 100 Rubber w/ 5" Storz Yellow	Key	
2	Hose 5" x 25 w/ 5" Storz Yellow	Key	
1	Hose 3" x 20 Double Jacket White w/ 2.5" Couplings	Key	DP30-800-ECO
5	1 1/2" x 1 1/2" Shutoff with Pistol Grip (1 Red, 1 White, 1 Blue, 1 Orange, and 1 Yellow Handles)	Akron	2127
1	1" Turbojet Nozzle with Pistol Grip	Akron	1702
5	Mid-Range Turbo Jet Tip, 1.5"	Akron	1737
2	Tripod Lights, Nomad 360, Rechargeable	Fox Fury	Nomad 360

FIRE APPARATUS PARTS CD MANUAL

There will be two (2) custom parts manuals for the complete fire apparatus provided in CD format with the completed unit.

The manuals will contain the following:

- Job number
- Part numbers with full descriptions
- Table of contents
- Parts section sorted in functional groups reflecting a major system, component, or assembly
- Parts section sorted in alphabetical order
- Instructions on how to locate parts

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

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.

MANUALS, CHASSIS SERVICE

One (1) chassis service manuals containing parts and service information on major components will be provided with the completed unit.

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

CHASSIS OPERATION CD MANUALS

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

ONE (1) YEAR MATERIAL AND WORKMANSHIP

A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal.

THREE (3) YEAR MATERIAL AND WORKMANSHIP

The Pierce custom chassis limited warranty certificate, WA0284, is included with this proposal.

ENGINE WARRANTY

A Detroit Diesel **five (5) year** limited engine warranty will be provided. A limited warranty certificate, WA0180, is included with this proposal.

STEERING GEAR WARRANTY

A Sheppard **three (3) year** limited steering gear warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.

FIFTY (50) YEAR STRUCTURAL INTEGRITY

The Pierce custom chassis frame and crossmembers limited warranty certificate, WA0038, is included with this proposal.

FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY

The Pierce TAK-4 suspension limited warranty certificate, WA0050, is included with this proposal.

REAR AXLE TWO (2) YEAR MATERIAL AND WORKMANSHIP WARRANTY

A Meritor axle limited warranty certificate, WA0046, is included with this proposal.

ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY

A Meritor Wabco™ ABS brake system limited warranty certificate, WA0232, is included with this proposal.

TEN (10) YEAR STRUCTURAL INTEGRITY

The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal.

TEN (10) YEAR PRO-RATED PAINT AND CORROSION

A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.

FIVE (5) YEAR MATERIAL AND WORKMANSHIP

The Pierce Command Zone electronics limited warranty certificate, WA0014, is included with this proposal.

CAMERA SYSTEM WARRANTY

A Pierce fifty four (54) month warranty will be provided for the camera system.

COMPARTMENT LIGHT WARRANTY

The compartment lights will not offer an extended warranty.

TRANSMISSION WARRANTY

The transmission will have a **five (5) year/unlimited mileage** warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission.

Note: The transmission cooler is not covered under any extended warranty you may be getting on your Allison Transmission. Please review your Allison Transmission warranty for coverage limitations.

TRANSMISSION COOLER WARRANTY

The transmission cooler will carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty will also be in effect for the first three (3) years of the warranty coverage and will not exceed \$10,000 per occurrence. A copy of the warranty certificate will be submitted with the bid package.

WATER TANK WARRANTY

A UPF poly water tank limited warranty certificate, WA0195, is included with this proposal.

TEN (10) YEAR STRUCTURAL INTEGRITY

The Pierce apparatus body limited warranty certificate, WA0009, is included with this proposal.

ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY

A Gortite roll-up door limited warranty will be provided. The mechanical components of the roll-up door will be warranted against defects in material and workmanship for the lifetime of the vehicle. A **six (6) year** limited warranty will be provided on painted and satin roll up doors.

The limited warranty certificate, WA0190, is included with this proposal.

SIX (6) YEAR PARTS, ONE (1) YEAR LABOR

The pump and its components will be provided with a six (6) year parts and one (1) year labor limited warranty. The manufacturer's warranty will provide that the pump and its components will be free from failures caused by defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate will be submitted with the bid package.

TEN (10) YEAR PUMP PLUMBING WARRANTY

The Pierce apparatus plumbing limited warranty certificate, WA0035, is included with this proposal.

FOAM SYSTEM WARRANTY

The Husky 12 foam system limited warranty certificate, WA0231, is included with this proposal.

SIX (6) YEAR GENERATOR MATERIAL AND WORKMANSHIP WARRANTY

A Harrison Hydra-Gen limited warranty certificate, WA0285, is included with this proposal.

TEN (10) YEAR PRO-RATED PAINT AND CORROSION

A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.

THREE (3) YEAR MATERIAL AND WORKMANSHIP

The Pierce Goldstar gold leaf lamination limited warranty limited warranty certificate, WA0018, is included with this proposal.

VEHICLE STABILITY CERTIFICATION

The fire apparatus manufacturer will provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification will be provided at the time of bid.

ENGINE INSTALLATION CERTIFICATION

The fire apparatus manufacturer will 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 will be provided at the time of bid.

POWER STEERING CERTIFICATION

The fire apparatus manufacturer will provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification will be provided at the time of bid.

CAB INTEGRITY CERTIFICATION

The fire apparatus manufacturer will provide a cab integrity certification with this proposal. The certification will state that the cab has been tested and certified by an independent third-party test facility. Testing events will be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap. The fire apparatus manufacturer will provide a state-licensed professional engineer to witness and certify all testing events. Testing will meet or exceed the requirements below:

- European Occupant Protection Standard ECE Regulation No.29.
- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.
- SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.

Roof Crush

The cab will be subjected to a roof crush force of 22,050 lb. This value meets the ECE 29 criteria and is equivalent to the front axle rating up to a maximum of 10 metric tons.

Additional Roof Crush

The same cab will be subjected to a roof crush force of 100,000 lbs. This value exceeds the ECE 29 criteria by nearly 4.5 times.

Side Impact

The same cab will be subjected to dynamic preload where a 13,275 lb moving barrier slams into the side of the cab at 5.5 mph at a force of 13,000 ft-lbs. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a rollover incident.

Frontal Impact

The same cab will withstand a frontal impact of 32,600 ft-lbs of force using a moving barrier in accordance with SAE J2420.

Additional Frontal Impact

The same cab will withstand a frontal impact of 65,200 ft-lbs of force using a moving barrier, (twice the force required by SAE J2420).

The same cab will withstand all tests without any measurable intrusion into the survival space of the occupant area.

CAB DOOR DURABILITY CERTIFICATION

Robust cab doors help protect occupants. Cab doors will survive a 200,000 cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder will 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.

WINDSHIELD WIPER DURABILITY CERTIFICATION

Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers will survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 *Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles*. The bidder will certify that the wiper system design has been tested and that the wiper system has met these criteria.

ELECTRIC WINDOW DURABILITY CERTIFICATION

Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design will complete 30,000 complete up-down cycles and still function normally when finished. The bidder will certify that sample doors and windows similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.

SEAT BELT ANCHOR STRENGTH

Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design will withstand 3000 lb of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder will certify that each anchor design was pull tested to the required force and met the appropriate criteria.

SEAT MOUNTING STRENGTH

Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design will be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder will certify that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.

CAB DEFROSTER CERTIFICATION

Visibility during inclement weather is essential to safe apparatus performance. The defroster system will 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 will certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.

CAB HEATER CERTIFICATION

Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. The cab heaters will 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 will certify that a substantially similar cab has been tested and has met these criteria.

CAB AIR CONDITIONING PERFORMANCE CERTIFICATION

Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system will cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 67 degrees Fahrenheit in 30 minutes. The bidder will certify that a substantially similar air conditioning system has been tested and has met these criteria. The certification will be available at the time of delivery.

AMP DRAW REPORT

The bidder will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus will provide the following:

- Documentation of the electrical system performance tests.
- A written load analysis, which will include the following:
 - The nameplate rating of the alternator.
 - The alternator rating under the conditions specified per:
 - Applicable NFPA 1901 or 1906 (Current Edition).
 - The minimum continuous load of each component that is specified per:
 - Applicable NFPA 1901 or 1906 (Current Edition).
 - Additional loads that, when added to the minimum continuous load, determine the total connected load.
 - Each individual intermittent load.

All of the above listed items will be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).



Proposal Option List

11/16/2017

Customer: Round Rock Fire Department
Representative Walden, Travis
Organization: Siddons-Martin Emergency Group
Requirements Manager: ,
Description: Round Rock 2018 Velocity PUC Pumper
Body: Pumper, PUC, Aluminum
Chassis: Velocity Chassis, PUC (Big Block), 2010

Bid Number: 614
Job Number:
Number of Units: 1
Bid Date: 07-31-2017
Stock Number:
Price Level: 36 (Current: 36)

Line	Option	Type	Option Description	Qty
1	0659545		PUC Pumper Boiler Plates Fire Department/Customer - Round Rock Fire Department Operating/In conjunction W-Service Center - Operating Miles - 10 Miles Number of Fire Dept/Municipalities - 2 Bidder/Sales Organization - Siddons-Martin Emergency Group Delivery - Delivery representative Dealership/Sales Organization, Service - Siddons-Martin Emergency Group	1
2	0661794		Single Source Compliance	1
3	0584456		Manufacture Location: Appleton, Wisconsin	1
4	0584452		RFP Location: Appleton, Wisconsin	1
5	0588609		Vehicle Destination, US	1
6	0520877		Comparison Report Required Fill in Blank - 23643	1
7	0670275		Unit to be Similar in some Aspects, Excluding Pump Panel Fill in Blank - previous job 27152	1
8	0610784		Comply NFPA 1901 Changes Effective Jan 1, 2016, With Exceptions	1
9	0533347		Pumper/Pumper with Aerial Device Fire Apparatus	1
10	0588611		Vehicle Certification, Pumper	1
11	0661778		Agency, Apparatus Certification, Pumper/Tanker, U.L.	1
12	0000000	STF	Delivery Charge - Pumper	1
12	0000000	STF	BuyBoard Fee	1
13	0537375		Unit of Measure, US Gallons	1
14	0529326		Bid Bond, 10%, Pierce Built Chassis	1
15	0582800		Performance Bond, 100 Percent w/25 Percent Warranty Bond, 1 Yr, and Payment Bond	1
16	0000007		Approval Drawing	1
17	0002928		Electrical Diagrams	1
18	0564230		Velocity Chassis, PUC (Big Block), 2010	1
19	0000110		Wheelbase Wheelbase - 209"	1
20	0000070		GVW Rating GVW rating - 46,500 #	1
21	0000203		Frame Rails, 13.38 x 3.50 x .375, Qtm/AXT/Imp/Vel/DCF	1
22	0020018		Frame Liner Not Req'd	1
23	0508849		Axle, Front, Oshkosh TAK-4, Non Drive, 22,800 lb, Imp/Vel	1
24	0010427		Suspension, Front TAK-4, 22,800 lb, Qtm/AXT/Imp/Vel/DCF/Enf	1
25	0087572		Shock Absorbers, KONI, TAK-4, Qtm/AXT/Imp/Vel/DCF/Enf	1
26	0000322		Oil Seals, Front Axle	1
27	0594821		Tires, Front, Goodyear, G296 MSA, 425/65R22.50, 20 ply	1
28	0052887		Wheels, Front, Alcoa, 22.50" x 12.25", Aluminum, Dura-Bright, Hub Pilot	1
29	0530466		Axle, Rear, Meritor RS26-185, 27,000 lb, Imp/Vel/Dash CF	1
30	0544253		Top Speed of Vehicle, 68 MPH	1
31	0122075		Suspen, Rear, Standens, Spring, 27,000 lb, Imp/Vel/Dash CF	1
32	0000485		Oil Seals, Rear Axle	1
33	0587216		Tires, Rear, Goodyear, G622 RSD, 12R22.50, 16 ply, Single	1
34	0095532		Wheels, Rear, Alcoa, 22.50" x 8.25", Alum-Stl, Dura-Bright, Hub Pilot, Single	1
35	0568081		Tire Balancing, Counteract Beads	1
36	0620570		Tire Pressure Monitoring, RealWheels, AirSecure, Valve Cap, Single Axle Qty, Tire Pressure Ind - 6	1

Line	Option	Type	Option Description	Qty
37	0003245		Axle Hub Covers w/center hole, S/S, Front Axle	1
38	0001960		Axle Hub Covers, Rear, S/S, High Hat (Pair)	1
39	0057936		Covers, Lug Nut, Chrome	1
40	0002045		Mud Flaps, w/logo front & rear	1
41	0544802		Chocks, Wheel, SAC-44-E, Folding	1
			Qty, Pair - 01	
42	0544806		Mounting Brackets, Chocks, SAC-44-E, Folding, Horizontal	1
			Qty, Pair - 01	
			Location, Wheel Chocks - Left Side Rear Tire, Forward	
43	0593760		ESC/ABS/ATC Wabco Brake System, Single Rear Axle, 2010	1
44	0030185		Brakes, Knorr/Bendix 17", Disc, Front, TAK-4	1
45	0000730		Brakes, Meritor, Cam, Rear, 16.50 x 7.00"	1
46	0058463		Air Compressor, Brake, Bendix 15.8 CFM	1
47	0000785		Brake Reservoirs, Three	1
48	0568012		Air Dryer, Wabco System Saver 1200, Heater, 2010	1
49	0000790		Brake Lines, Nylon	1
50	0020851		Not Required, Air Inlet	1
51	0014773		Compressor, Air, Gast 5HCD-10-M550X, 120V Brake Sys	1
			Location - TO BE DETERMINED	
52	0615609		Fittings, Compression Type, Entire Apparatus, Single Rear Axle	1
53	0610847		Engine, DDC DD13, 470 hp, 1650 lb-ft, W/OBD, EPA 2016, REPTO, Velocity	1
54	0001244		High Idle w/Electronic Engine, Custom	1
55	0590300		Engine Brake, Jacobs Compression Brake, DD13	1
			Switch, Engine Brake - f) DD13	
56	0552334		Clutch, Fan, Air Actuated, Horton Drive Master	1
57	0123135		Air Intake, w/Ember separator, Imp/Vel	1
58	0565967		Exhaust System, 5", 2010 DD13, ISX engine, Vertical, PUC	1
59	0787999		Radiator, Impel/Velocity	1
60	0616439		Cooling Hoses, Gates Silicone	1
61	0001125		Fuel Tank, 65 Gallon, Left Side Fill	1
62	0001129		Lines, Fuel	1
63	0582182		DEF Tank, 4.5 Gallon, DS Fill, Rear of Rear Axle, Common Door	1
			Door, Material & Finish, DEF Tank - Polished Stainless	
64	0552793		Not Required, Fuel Priming Pump	1
65	0552712		Not Required, Shutoff Valve, Fuel Line	1
66	0553019		Cooler, Engine Fuel, Imp/Vel, AXT/Qtm/Sab/DCF/SFR/Enf	1
67	0690880		No Selection Required From This Category	1
68	0642582		Trans, Allison 5th Gen, 4000 EVS P, w/Prognostics, Imp/Vel/DCF/SFR/Enf	1
69	0625331		Transmission, Shifter, 6-Spd, Push Button, 4000 EVS	1
70	0517604		Transmission Programming, Park to Neutral, PUC	1
71	0684459		Transmission Oil Cooler, Modine, External	1
72	0522824		Mode, Downshift, Aggressive downshift to 3rd, w/engine brake, 6 speed	1
73	0027844		Fluid, 4000 Series Trans, Allison Approved TES-295 Synthetic, IPOS, Custom	1
74	0001375		Driveline, Spicer 1810	1
75	0669988		Steering, Sheppard M110 w/Tilt, TAK-4, Eaton Pump, w/Cooler	1
76	0001544		Not Required, Steering Assist Cylinder on Front Axle	1
77	0509230		Steering Wheel, 4 Spoke without Controls	1
78	0690274		Logo/Emblem, on Dash	1
			Text, Row (1) One - ROUND	
			Text, Row (2) Two - ROCK	
			Text, Row (3) Three - FIRE DEPT	
79	0536235		Bumper, 19" Extended, Steel Painted, Imp/Vel	1
80	0616491		Tray, Hose, Center, 19" Bumper, Outside Air Horns, Rolled Edge, Imp/Vel	1
			Grating, Bumper extension - Grating, Rubber	
			Capacity, Bumper Tray - 84) 125' of 1.75 & 50' of 1" Forestry	
81	0630813		Cover, Aluminum Treadplate, One (1) D-Ring Latch, Hose Tray	1
			Stay arm, Tray Cover - b) Pneumatic Stay Arm	
82	0510226		Lift & Tow Package, Imp/Vel, AXT, Dash CF	1
83	0002270		Tow Hooks, Chrome	1
84	0012300		Bracket, License Plate, Frt Bumper Non-Illuminated	1

Line	Option	Type	Option Description	Qty
85	0593056		Lights, Amdor, (1) 12" LumaBar H2O Light, Front Bumper Cover Qty, - 01	1
86	0566676		Notch, Bumper Tray Cover, Each Fill in Blank - one for the forestry hose and one for the 1.75" hose - both on the PS of the tray Qty, Hose Tray Covers - 2	2
87	0558109		Notch, Front For Recessing Of Q2B, Painted Bumper Location - DS - position 7	1
88	0516238		Partition, Adjustable, Aluminum in Hose Tray, Qty, Location Location - on the center hose tray Qty, - 01	1
89	0698960		Coating, Top Flange, Front Bumper, Outside Exterior, Line-X Coating, Black	1
90	0638793		Coating, Bottom Flange, Front Bumper, Outside Exterior, Rhino Lining, Black	1
91	0668310		Cab, Velocity FR, 7010 Raised Roof, PUC	1
92	0668309		Engine Tunnel, ISL and DD13, Impel/Velocity FR	1
93	0677478		Rear Wall, Exterior, Cab, Aluminum Treadplate	1
94	0122466		Cab Lift, Elec/Hyd, w/Manual Override, Imp/Vel	1
95	0123176		Grille, Bright Finished, Front of Cab, Impel/Velocity	1
96	0002224		Scuffplates, S/S At Cab Door Jambs, 4-Door Cab Material Trim/Scuffplate - c) S/S, Polished	1
97	0527032		Trim, S/S Band, Across Cab Face, Rect Lights, Velocity Material Trim/Scuffplate - c) S/S, Polished Turnsignal Covers - Polished S/S Covers	1
98	0087357		Molding, Chrome on Side of Cab	1
99	0521669		Mirrors, Retractable, West Coast Style, Htd/Rmt, w/Htd/Rmt Convex	1
100	0667921		Door, Half-Height, Velocity FR 4-Door Cab, Raised Roof Key Model, Cab Doors - 751	1
101	0655511		Door Panel, Brushed Stainless Steel, Impel/Velocity 4-Door Cab	1
102	0667905		Storage Pockets w/ Elastic Cover, Recessed, Impel/Velocity FR	1
103	0667902		Controls, Electric Windows, All Cab Doors, Impel/Velocity FR	1
104	0565651		Steps, 4-Door Full Tilt Cab, Std, Grip Strut Inserts, Imp/Vel	1
105	0509649		Lights, Cab and Crew Cab Access Steps, P25, LED w/Bezel, 1Lt Per Step	1
106	0002140		Fenders, S/S on Cab	1
107	0199227		Window, Side of C/C, PS Fixed/DS None, Imp/Vel	1
108	0552936		Trim, Cab Side Window, PS, Velocity	1
109	0012090		Not Required, Windows, Front/Side of raised roof	1
110	0509286		Not Required, Windows Rear of Crew Cab, Imp/Vel	1
111	0558334		Not Required, Trim, Cab Rear Windows, No Rear Windows	1
112	0786294		Window Tint, Upper Crew Cab Door, Left Side, Privacy Dark Gray	1
113	0786284		Window Tint, Behind Cab Door, Right Side, Privacy Dark Gray	1
114	0786286		Window Tint, Upper Crew Cab Door, Right Side, Privacy Dark Gray	1
115	0786290		Window Tint, Crew Cab Door, Left Side, Privacy Dark Gray	1
116	0786279		Window Tint, Crew Cab Door, Right Side, Privacy Dark Gray	1
117	0708738	SP	Expanded Metal, Insulation. Eng Tunnel and Cab and Crew Floor	1
118	0553057		Holder, Cup, Cab/Crewcab, Each Qty, - 02	2
119	0663399		Mounting Provisions, 3/16" Alum, Rear Engine Tunnel, Vel/Imp Mounting Provision Spacing - .50" Material Finish, Cab Interior - Painted	1
120	0635858		Plate, Universal Adapter for Docking Station & Computer Mount, Each Location - for docking station and computer ahead of officers seat Qty, - 01	1
121	0667960		Cab Interior, Vinyl, Painted Walls, Imp/Vel FR Color, Cab Interior Vinyl/Fabric - a) Silver/Gray	1
122	0667943		Cab Interior, Paint Color, Impel/Velocity FR Color, Cab Interior Paint - a) gray	1
123	0509532		Floor, Rubber Padded Cab & Crew Cab, Imp/Vel, Dash CF	1
124	0667936		Heater/defroster, Dual Zone Control, Impel/Velocity FR	1
125	0603346		Air Conditioning, Dual Zone Control, Hinge Acc Panel, Impel/Velocity FR Paint Color, A/C Condenser - Painted by OEM	1
126	0640814		Dual Condensate Drain Tubes for A/C Drip Pan, Imp/Vel FR	1

Line	Option	Type	Option Description	Qty
127	0639675		Sun Visor, Smoked Lexan, AXT, Dash CF, Imp/Vel, Saber FR/Enforcer	1
			Sun Visor Retention - No Retention	
128	0548173		Grab Handles, Driver and Passenger Door Post, Imp/Vel	1
129	0002526		Light, Engine Compt, All Custom Chassis	1
130	0122516		Fluid Check Access, Imp/Vel	1
131	0583042		Side Roll and Frontal Impact Protection	1
132	0622618		Seating Capacity, 5 Seats	1
133	0697005		Seat, Driver, Pierce PS6, Premium, Air Ride, High Back, Safety	1
134	0696994		Seat, Officer, Pierce PS6, Premium, Air Ride, SCBA, Safety	1
135	0540561		Radio Compartment, Behind Officer Seat, Vented, Imp/Vel	1
136	0774140	SP	Cabinet, Rear Facing, LS, 24 W x 40 H x 30 D, 2 Sec, Web, Roll Ext Acc, Imp/Vel	1
			Type of fastener - spring clip and hook	
			Restraint Location - Bottom (towards the ground)	
			Light, Short Cabinet - Amdor, Exterior, White, Left Side and Amdor, Exterior, White, Right Side	
			Material Finish, Shelf - Painted - Cab Interior	
			Shelf/Tray, Cabinet - (0) None	
			Door, Cab Exterior Cabinet - Rollup, Gortite, Painted, Non-Locking	
			Louvers, Cabinet - 0-No Louvers	
137	0102783		Not Required, Seat, Rr Facing C/C, Center	1
138	0122186		Seat, Rear Facing C/C, PS Outboard, Pierce PS6, Premium, SCBA, Safety	1
139	0641518	SP	Cabinet, Storage, Forward Facing, DS, 13 W x 10 H x 13 D, Cooler, Cutout, Sp Mtg	1
140	0122744		Seat, Forward Facing C/C, Center, (2) Pierce PS6, Premium, SCBA, Safety	1
141	0555628		Cabinet, EMS, Forward Facing, PS, 21 W x 54 H x 14 D, Imp/Vel	1
			Door, EMS Cabinet - Gortite Roll Up Dr, Anod	
			Light, Tall EMS Compt - Amdor, Both Sides	
142	0774012	SP	Compt, Storage, Box, Medical, Medi-Kool Saline, Electric Lock	1
			Location - on top of the rear facing EMS compartment	
			Hinge, Location - Left Side	
143	0042264		Shelf, Adjustable, EMS Compt, 1.25" Lip	1
			Qty, Shelf - 01	
			Location, Shelf, EMS - (1) PS Fwd Fcng Cabinet	
144	0566653		Upholstery, Seats In Cab, Turnout Tuff	1
			Color, Cab Interior Vinyl/Fabric - m) Gray	
145	0543991		Bracket, Air Bottle, Hands-Free II, Cab Seats	4
			Qty, - 04	
146	0603867		Seat Belt, ReadyReach	1
			Seat Belt Color - Red	
147	0604863		Seat Belt Height Adjustment, 6 Seats, Imp/Vel, Dash CF	1
148	0543914		Helmet Storage, In Body Compartment	1
149	0647647		Lights, Dome, FRP Dual LED 4 Lts	1
			Color, Dome Lt - Red & White	
			Color, Dome Lt Bzl - Black	
			Control, Dome Lt White - Door Switches and Lens Switch	
			Control, Dome Lt Color - Lens Switch	
150	0631776		Not Required, Overhead Map Lights	1
151	0556186		Handlts, (4) Streamlight, Survivor C4 LED, 12v, Orange, 90503 Steady Charge	1
			Location, Lights - TO BE DETERMINED AT PRECONSTRUCT	
152	0774457	SP	Handlight, Streamlight, Vulcan, 44315, Vulcan 180, 12v, Orange	2
			Qty, Lights - 02	
			Location, Lights - TO BE DETERMINED AT PRECONSTRUCTION	
153	0568369		Cab Instruments, Ivory Gauges, Chrome Bezels, Impel/Velocity 2010, Dash CF	1
154	0509511		Air Restriction Indicator, Imp/Vel, AXT, Dash CF, Enf MUX	1
155	0543751		Light, Do Not Move Apparatus	1
			Alarm, Do Not Move Truck - Steady Alarm	
156	0509042		Messages, Open Door/Do Not Move Truck, MUX w/Color Display	1
157	0611681		Switching, Cab, Membrane, Impel/Velocity/Quantum, Dash CF, AXT WiFi MUX	1
			Location, Emerg Sw Pnls - Driver's Side Overhead	
158	0555915		Wiper Control, 2-Speed with Intermittent, MUX, Impel/Velocity	1
159	0699928		Wiring, Spare, 40 A 12V DC, 6 Circuit Fuse Block, Blue Sea 5025 1st	1
			Qty, - 01	
			12vdc power from - Battery direct	

Line	Option	Type	Option Description	Qty
159			Location - behind the officers seat	
160	0548009		Wiring, Spare, 20 A 12V DC 1st	1
			Qty, - 01	
			12vdc power from - Isolated battery	
			Wire termination - Butt Splice	
			Location, Spare Wiring - TO BE DETERMINED	
161	0548006		Wiring, Spare, 15 A 12V DC 2nd	1
			Qty, - 01	
			12vdc power from - Isolated battery	
			Wire termination - Butt Splice	
			Location - under the EMS cabinet at the forward facing PS seat position	
162	0548004		Wiring, Spare, 15 A 12V DC 1st	2
			Qty, - 02	
			12vdc power from - Battery direct	
			Wire termination - 15 amp power point plug	
			Location, Spare Wiring - Officer Dash	
163	0634120	SP	Overhead Center Instrument Panel Modification	1
			Fill in Blank - PS overhead area - The CTF radio will go into panel #5, switches in #5 will move into panel #6 and a "blank" will be moved into panel #4.	
164	0566101		Recess, Dash Panel, Officer Side, Vel/Imp	1
165	0615386		Vehicle Information Center, 7" Color Display, Touchscreen, MUX	1
			System Of Measurement - US Customary	
166	0606249		Vehicle Data Recorder w/CZ and Overhead Display Seat Belt Monitor	1
167	0777828	SP	Intercom, David Clark, 5-Pos, 2-Radio, (D,O,RPTT),3obC (D, Rocker)	1
			Location - in the same location as job 27152	
168	0637058		David Clark Universal Radio Interfaces Included with Single/Dual System	1
			Location, Radio Interface - TO BE DETERMINED	
169	0597914		Headset, David Clark, H3442 Under Helmet, Flex Mic	4
			Qty, - 04	
			Location - for the driver, officer, and two forward facing crew seats	
170	0681408		Hangers For Headsets, NFPA, Each	5
			Qty, - 05	
			Location, Headset Hangers - Driver Seat, Officer Seat, DS Inbrd, Fwrd Fcng Seat, PS Inbrd, Fwrd Fcng Seat and PS Outbrd, Rear Fcng Seat	
171	0559156		Install Customer Provided Two-Way Radio(s)	1
			Location - TO BE DETERMINED	
			Qty, - 01	
172	0559512		Install Customer Provided MDT, Complete (Qty)	1
			Location - in front of the officer on the dash. The Trimble unit will be placed behind the officers seat.	
			Qty, - 01	
173	0597940		Install Customer Provided Two-Way Radio Speaker(s)	1
			Location - forward of the door warning light between the sun visors	
			Qty, - 01	
174	0696443		Antenna Mount, Custom Chassis, Cable Routed to Overhead Switch Area	1
			Location - in front of the officer - overhead	
			Qty, - 01	
175	0653520		Camera, Pierce, Mux, R, RS Cameras	1
			Camera System Audio - Speaker Near Drivers Left Knee	
176	0523921		Recess, Rear Vision Camera	1
			Location, Camera, Recessed - Center Rear	
177	0672544		Key Storage, Knox-Box, KeySecure 4, P/N 2660B*, WiFi, Blue Strobe,Cab Surface Mt	1
			Location - match 26136 - in front of the officer to the left on an angled bracket. See photo at S:\FAE-SHARE\DEPT\Job E-Folders\27000-27999\27152\Stage 7 - Graphics & Photos	
			Location, Antenna Mount - Right Side	
178	0671648		Bracket, Mounting, 60 Degree, Knox 2696	1
			Location - TO BE DETERMINED	
179	0615100		Pierce Command Zone, Advanced Electronics & Control System, Diag LEDs, Vel, WiFi	1
180	0624254		Electrical System, Velocity	1
181	0079205		Batteries, (5) Exide Grp 31, 950 CCA each, (1) Iso Bat, Threaded Stud	1
182	0008621		Battery System, Single Start, All Custom Chassis	1

Line	Option	Type	Option Description	Qty
183	0123174		Battery Compartment, Imp/Vel	1
184	0777735	SP	Charger, Sngl Sys, Xantrex TRUECharge2 804-1240-02, 40A, Rmt Chg Ind	1
185	0012782		Location, Charger, Front Left Side Body Compartment	1
			Location, Battery Chrgr/Cmpr - High On Left Wall	
186	0531403		Location, Battery Charger Indicator, Driver's Seat with Bracket	1
187	0016857		Shoreline, 20A 120V, Kussmaul Auto Eject, 091-55-20-120, Super	1
			Qty, - 01	
			Color, Kussmaul Cover - b) red	
			Shoreline Connection - battery charger and air compressor	
188	0026800		Shoreline Location	1
			Location, Shoreline(s) - DS Cab Side	
189	0647728		Alternator, 430 amp, Delco Remy 55SI	1
190	0032764		No Auxiliary Power Supply Req'd, Alternator System	1
191	0092582		Load Manager/Sequencer, MUX	1
			Enable/Disable Hi-Idle - e)High Idle enable	
192	0783153		Headlights, Rect LED, JW Speaker Evolution 2, AXT/DCF/Enf/Imp/Sab/Vel	1
			Color, Headlight Bez - Chrome Bezel	
193	0648425		Light, Directional, Wln 600 LED Cmb, Cab Crn, Imp/Vel/AXT/Qtm/DCF	1
			Color, Lens, LED's - m)match LED's	
194	0620054		Light, Directional/Marker, Intermediate, Weldon 9186-8580-29 LED 2lts	1
195	0648074		Lights, Clearance/Marker/ID, Front, P25 LED 7 Lts	1
196	0088869		Lights, Clearance/Marker/ID, Rear, Truck-Lite 26250R LED 7Lts	1
197	0517025		Lights, Tail, Wrap-around, Stop/Tail, Turn & Backup LED, Tri-Cluster	1
198	0085910		Lights, Backup Included in Signal Cluster	1
199	0664481		Bracket, License Plate & Light, P25 LED	1
200	0589905		Alarm, Back-up Warning, PRECO 1040	1
201	0666455		Lights, Perimeter Cab, Amdor AY-9500-020 LED 4Dr	1
202	0617921		Lights, Perimeter Pump House, Amdor AY-9500-020 LED 2lts	1
203	0653901		Lights, Perimeter Body, Amdor AY-9500-012 LED 2lts, Rear Step	1
			Control, Perimeter Lts - Parking Brake Applied	
204	0545689		Lights, Perimeter, Amdor AY-9500-020 LED, Brkt	4
			Qty, Lights - 04	
			Location, Additional Perimeter Lights - Under Compt D1, 1lt, Under Compt	
			D3, 1lt, Under Compt P1, 1lt and Under Compt P3, 1lt	
205	0556337		Lights, Step, P25 LED at Rear Tailboard, 2lts Perm Lts	1
206	0696791		Cup Holder for Telescopic Light Pole	2
			Location - on the back of the cab, one each side	
			Qty, Lights - 02	
207	0629191		Light, FRC, 12V SPA260-Q20* LED MAX, Surface Mount 2nd	1
			Location, Lights - above the PS crew cab window	
			Qty, - 01	
			Switch, Lt Control 1 DC,1 - a) DS Switch Panel	
			Switch, Lt Control 2 DC,2 - g) PS Switch Panel	
			Switch, Lt Control 3 DC,3 - d) No Control	
			Switch, Lt Control 4 DC,4 - d) No Control	
			Color, FRC/Rom Lt Housing - FRC, White Bezel	
208	0692056		Light, FRC, 12V SPA530-Q20* LED, Push Up, Side Mount 1st	1
			Location, Lights - on the DS rear cab wall	
			Qty, - 01	
			To Do Not Move Truck Lt - c) Connected to Lt	
			Switch, Lt Control 1 DC,1 - a) DS Switch Panel	
			Switch, Lt Control 2 DC,2 - g) PS Switch Panel	
			Switch, Lt Control 3 DC,3 - d) No Control	
			Switch, Lt Control 4 DC,4 - d) No Control	
			Color, FRC/Rom Lt Housing - FRC, White	
209	0629192		Light, FRC, 12V SPA260-Q20* LED MAX, Surface Mount 1st	1
			Location, Lights - DS above at the cab transition	
			Qty, - 01	
			Switch, Lt Control 1 DC,1 - a) DS Switch Panel	
			Switch, Lt Control 2 DC,2 - g) PS Switch Panel	
			Switch, Lt Control 3 DC,3 - d) No Control	
			Switch, Lt Control 4 DC,4 - d) No Control	
			Color, FRC/Rom Lt Housing - FRC, White Bezel	

Line	Option	Type	Option Description	Qty
210	0692054		Light, FRC, 12V SPA530-Q20* LED, Push Up, Side Mount 2nd Location, Lights - on the PS rear cab wall Qty, - 01 To Do Not Move Truck Lt - c) Connected to Lt Switch, Lt Control 1 DC,1 - a) DS Switch Panel Switch, Lt Control 2 DC,2 - g) PS Switch Panel Switch, Lt Control 3 DC,3 - d) No Control Switch, Lt Control 4 DC,4 - d) No Control Color, FRC/Rom Lt Housing - FRC, White	1
211	0618265		Light, Visor, FRC, 12V SPA851-Q28-*, LED MAX Qty, - 01 Location, driver's/passenger's/center - centered Switch, Lt Control 1 DC,1 - a) DS Switch Panel Switch, Lt Control 2 DC,2 - g) PS Switch Panel Switch, Lt Control 3 DC,3 - d) No Control Switch, Lt Control 4 DC,4 - d) No Control Light, Visor, Flash - Steady Burning Color, FRC/Rom Lt Housing - FRC, White	1
212	0532358		Not Required, Deck Lights, Other Hose Bed & Rear Lighting	1
213	0645877		Lights, Hose Bed, Sides, Dual LED Light Strips Control, Hose Bed Lts - Cup Switch At Rear	1
214	0645864		Lights, Rear Scene, FRC, SPA900-Q70, 15 Deg from Vertical Location, Lights - as high as possible on each rear bulkhead Control, Rear Scene Lts - Cab Switch Panel DS, Cab Switch Panel PS and Body Switch, DS Rear Bulkhead	1
215	0799246		Light(s), Walking Surf, Amdor LumaBar H2O, LED, Cargo Areas Qty, Cargo Lts - 2	2
216	0518282		Pumper, PUC, Aluminum	1
217	0554271		Body Skirt Height, 20"	1
218	0682618		Tank, Water, 500 Gallon, Poly, 67 LHB, PUC	1
219	0003405		Overflow, 4.00" Water Tank, Poly	1
220	0028104		Foam Cell Required	1
221	0633066		Sleeve through Tank Qty, Sleeve - 1 Water Tank Sleeve - Plumbing/Hydraulic Diameter - 3" Plumbing	1
222	0553725		Restraint, Water Tank, Heavy Duty, Special Type Tank, 4x4, or Export	1
223	0540989		Tank Fill, Direct, On Main Intake Valve, 2.50", Automatic, PUC, Akron Qty, - 02 Location, driver's/passenger's/center - 1DS & 1PS	2
224	0003424		Not Required, Dump Valve	1
225	0048710		Not Required, Jet Assist	1
226	0030007		Not Required, Dump Valve Chute	1
227	0514778		Not Required, Switch, Tank Dump Master	1
228	0597043		Body Height, PUC Body Height - 92.00"	1
229	0683290		Hose Bed, Aluminum, Pumper, PUC, 67 LHB	1
230	0003481		Hose Bed Capacity, Special Capacity, Hosebed - 400' of 3" / 1000' of 5" / 200' of 3" with 300' of 1.75 on top	1
231	0003488		Divider, Hose Bed, Unpainted Qty, Hosebed Dividers - 2	2
232	0658603		Hose Restraint, 2" Heavy Nylon Web, w/Buckles, Rear Only, Tether, w/Alum Hose Bed Cver	1
233	0655072		Side Sheet, Driver Side, Moved Inboard	1
234	0655075		Side Sheet, Passenger Side, Moved Inboard	1
235	0530804		Cover, Hose Bed, Alum Treadplate	1
236	0525658		Running Boards, PUC	1
237	0685334		Tailboard, 12" Deep, Full Width, PUC	1
238	0690029		Wall, Rear, Body Material, PUC, PUC Tanker, PRM	1
239	0003531		Tow Bar, Under Tailboard	1
240	0656764		Construction, Compt, Alum, Pumper, PUC	1
241	0503804		DS 189" Rollup, (1) 62" Fwd, (1) 52" Rr, Full Height & Depth Front & Rear, PUC	1

Line	Option	Type	Option Description	Qty
242	0503803		PS 189" Rollup, (1) 62" Fwd, (1) 52" Rr, Full Height & Depth Front & Rear, PUC	1
243	0692733		Doors, Rollup, Gortite, Side Compartments	6
			Qty, Door Accessory - 06	
			Color, Roll-up Door, Gortite - Satin finish	
			Latch, Roll-up Door, Gortite - Non-Locking Liftbar	
244	0599445		Rear - Rollup Dr/33.50" FF, w/Tailboard, PUC	1
245	0692743		Door, Gortite, Rollup, Rear Compartment, PUC	1
			Color, Roll-up Door, Gortite - Satin finish	
			Latch, Roll-up Door, Gortite - Non-Locking Liftbar	
246	0659353		Lights, Compt, Amdor AY-9220 LED, Dual Light Strip	9
			Qty, - 09	
247	0562348		Fasteners, Mechanical, Strip Lighting In Compartments	1
248	0515676		No Hatch Compartments Required, PUC	1
249	0522640		No Hatch Compartments or Lights	1
250	0687145		Shelf Tracks, Recessed, PUC/3rd Generation	1
251	0600350		Shelves, Adj, 500 lb Capacity, Full Width/Depth, Predefined Locations	3
			Qty, Shelf - 03	
			Material Finish, Shelf - Painted - Spatter Gray	
			Location, Shelves/Trays, Predefined - D1-Centered Floor to Ceiling Left of Partition, P1-At Transition Point and P3-At Transition Point	
252	0709692		Tray, 215 lb, Tilt/Slide-Out, 30 Deg, Adj, Predefined Locations	3
			Qty, Tray (slide-out) - 03	
			Location, Shelves/Trays, Predefined - D1-Upper Third, D2-Upper Third and D3-Upper Third	
			Material Finish, Tray - Painted - Spatter Gray	
253	0647091		Tray, Floor Mounted, Slide-Out, 500lb, 2.00" Sides	4
			Qty, - 04	
			Location, Tray Slide-Out, Floor Mounted - D1, P1, D3 and R1	
			Material Finish, Tray - Painted - Spatter Gray	
254	0709346		Toolboard, Slide-out, Alum, .188", Peg Board, Predefined Locations	1
			Qty, - 01	
			Mounting, Toolboard - Stationary	
			Hole Diameter, Pegboard/Toolboard - .203" diameter	
			Finish, Pegboard/Toolboard - Painted - Spatter Gray	
			Location, Partition/Toolboard, Predefined - .Location To Be Determined and D1- 44.00" From Forward Door Frame	
255	0641617		Hopper, Oil Dry, Compartment, Slide-Out	1
			Location - P1 forward	
			Hopper Discharge - Flip Down	
			Hopper Capacity - 150 lbs - 25.3 gallons	
			Hopper Fill Door Location - Top	
256	0524973		Partition, Trans Rear Compt, PUC	2
			Qty, Partition - 02	
			Location, Partition - c) both sides	
257	0600281		Partition, Vertical Compartment, Predefined Locations	1
			Qty, Partition - 01	
			Location, Partition/Toolboard, Predefined - D1- 44.00" From Forward Door Frame	
			Material Finish, Partition - Painted - Spatter Gray	
258	0062238		Pegboard, 3/16" Alum, Side Wall Compt, w/Track	4
			Location - both side walls of P2 and P3 (upper portion)	
			Qty, Comp. Accessory - 04	
			Hole Diameter, Pegboard/Toolboard - .203" diameter	
			Finish, Pegboard/Toolboard - Painted - Spatter Gray	
259	0659095		Pegboard, 3/16" Alum, Back Wall Compt, w/Track	2
			Qty, Comp. Accessory - 02	
			Hole Diameter, Pegboard/Toolboard - .203" diameter	
			Finish, Pegboard/Toolboard - Painted - Spatter Gray	
			Location, Pegboard Rear Compt Wall - P3 and P2	
260	0013202		Strap, Nylon w/Velcro	1
			Location - in the ladder storage compartment from side to side (hold backboard from moving forward) - Customer supplied and installed backboard, so we will locate at pick up	
			Qty, - 01	

Line	Option	Type	Option Description	Qty
261	0063064		Rub Rail, Aluminum Extruded, Side of Body, 3rd Gen Body	1
262	0515441		Fender Crowns, Rear, S/S, W/Removable Fender Liner, Pumper, 3rd Gen	1
263	0519849		Not Required, Hose, Hard Suction	1
264	0795545	SP	Trough, HSH, (1), Compartment Top Mount, PUC	2
			Qty, - 02	
			Location, Hose Trough - I) one each side	
			Trough, Material - Alum - Painted	
			Trough, Latch Type - velcro	
265	0527021		Handrails Located @ Front Body	1
266	0664688		Handrails, Rear, PUC	1
267	0610196		Handrail, Rear, Above Hose Bed, New York Style/Low Hose Bed	1
			Handrail Finish - Black Rubber Covered	
			Reinforcement, Hose Bed Divider - Tied to Upper Handrail/Crossbar	
268	0004150		Handrail, Extra - 15-20" Long	1
			Qty, Handrails - 01	
			Location, Handrail Additional - on the DS pump panel for accessing the top speedlays - mounted vertically	
269	0064150		Handrail, Extra - 20-30" Long	1
			Location, Handrails - 22" below hosebed	
			Qty, Handrails - 01	
270	0657651		Compt, Air Bottle, Double, Full Width Door, Fender Panel	3
			Qty, Air Bottle Comp - 3	
			Door Finish, Fender Compt - Polished	
			Location, Fender Compt - Double - DS Fwd, Double - PS Fwd and Double - PS Rear	
			Latch, Air Bottle Compt - Flush Lift & Turn	
			Insert, Air Bottle Compt - Rubber Matting	
271	0004225		Ladder, 24' Duo-Safety 900A 2-Section	1
272	0004230		Ladder, 14' Duo-Safety 775A Roof	1
273	0638384		Rack, Ladders, in PS Full Depth Body, PUC	1
			Door, Material & Finish, Ladder Storage - c) smooth aluminum	
			Latch, Door Ladder Storage - D-Handle latch	
274	0014245		Ladder, 10' Duo-Safety Folding 585A, w/Mounting	1
			Location, Folding Ladder - Ladder Compartment	
275	0055949		Trough, S/S, Backboard Storage, Behind Ladder Storage	1
276	0774175	SP	Pike Pole, 6' Fire Hooks Unlimited, Gator-Back, GBH-6 w/D Handle	1
			Location - in the ladder storage compartment	
			Qty, Pike Poles - 1	
277	0567897		Pike Pole, 8' Fire Hooks Unlimited, New York Roof Hook, Steel, Pry End, RH-8	1
			Qty, - 01	
			Location - in the ladder storage compartment	
278	0549137		Not Required, Pike Pole, 6'	1
279	0087631		Trough for D-Handled Pike Pole	2
			Location - in the ladder compartment	
			Qty, Pike Pole Tubes - 02	
280	0004361		Tubes, Alum, Pike Pole Storage	2
			Qty, Pike Pole Tubes - 02	
			Location, Pike Pole Tube - Ladder Storage	
281	0521734		No Steps Required, Front Of Body, PUC	1
282	0654928	SP	Ladder, Zico Quic-Ladder, Model RL-2-3, PUC	1
			Location - on the PS	
283	0515695		Pump, Pierce, 1500 GPM, Single Stage, PUC	1
284	0515822		Seal, Mechanical, Silicon Carbide	1
285	0091446		Pump Setup Charges N/A	1
286	0515705		Gear Case, Pierce Pump, REPTO-Clutch Drive	1
287	0521309		Pumping Mode, Pump and Roll/Stationary, Basic, PUC	1
288	0515829		Pump Shift, Sure-Shift	1
289	0515833		Transmission Lock-up, Not Req'd, Park to Neutral, Pump, PUC	1
290	0515835		Auxiliary Cooling System, PUC	1
291	0014486		Not Required, Transfer Valve, Stage Pump	1
292	0783096		Valve, Relief Intake, Trident Air Max, Control at Operator Panel	1
			Fill in Blank - 125 #	

Line	Option	Type	Option Description	Qty
293	0515838		Controller, Pressure, Pierce, PUC	1
294	0072153		Primer, Trident, Air Prime, Air Operated	1
295	0780359		Manuals, Pump, (2) Total, Electronic Copies, Pierce PUC Pump	1
296	0602496		Plumbing, Stainless Steel and Hose, Single Stage Pump, PUC	1
297	0795135		Plumbing, Stainless Steel, w/Foam System	1
298	0517852		Inlets, 6.00" - 1500 GPM, Pierce PUC Pump	1
299	0004646		Cap, Main Pump Inlet, Long Handle, NST, VLH	1
300	0646853		Valve, w/Relief, PS Inlet, 6", Akron Elec 9323 Controller, Manual Override, PUC	1
301	0646854		Valve, w/Relief, DS Inlet, 6", Akron Elec 9323 Controller, Manual Override, PUC	1
302	0084610		Valves, Akron 8000 series- All	1
303	0004660		Inlet, Left Side, 2.50"	1
304	0029147		Not Required, Inlet, Right Side	1
305	0520002		Valve, Inlet(s) Recessed, Side Cntrl, PUC	1
			Qty, Inlets - 1	
306	0521137		Anode, Zinc, Pair, Pump Inlets, PUC	1
307	0004700		Control, Inlet, at Valve	1
308	0092569		No Rear Inlet (Large Dia) Requested	1
309	0092696		Not Required, Cap, Rear Inlet	1
310	0064116		No Rear Inlet Actuation Required	1
311	0009648		No Rear Intake Relief Valve Required on Rear Inlet	1
312	0092568		No Rear Auxiliary Inlet Requested	1
313	0563738		Valve, .75" Bleeder, Aux. Side Inlet, Swing Handle	1
314	0520277		Tank to Pump, (1) 3.00" Valve, 4.00" Plumbing, PUC	1
315	0595508		Outlet, Tank Fill, 1.50", PUC	1
316	0516755		Outlet, Left Side, 2.50" (2), PUC	1
317	0651266		Outlet, Right Side, 2.50", (1), Electric Akron 9325 Controller, PUC	1
			Qty, Discharges - 01	
318	0651265		Outlet, Right Side, 4.00" w/4.00" Valve, Akron 9325 Controller, PUC	1
319	0648906		Outlet, Front, 2.50" w/2.50" Plumbing	1
			Fitting, Outlet - 2.50" NST with 90 degree swivel	
			Drain, Front Outlet - Automatic	
			Location, Front, Single - top of right bumper	
320	0516777		Outlet, Rear, 2.50", (1), Thru Tank, PUC	1
			Qty, Discharges - 01	
			Location, Outlet - b) driver's side	
321	0537394		Not Required, Outlet, Rear, Additional, PUC	1
322	0085076		Caps for 1.50" to 3.00" Discharge, VLH	1
323	0563739		Valve, 0.75" Bleeder, Discharges, Swing Handle	1
324	0055095		Not Required, Elbow, Left Side Outlets, 2.50"	1
325	0021134		Not Required, Elbow, Right Side Outlets	1
326	0045091		Elbow, Rear Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH	1
327	0537395		Not Required, Elbow, Rear Outlets, Additional	1
328	0527969		Cap, Large Dia Outlet, 4.00", IPO Elbow	1
329	0005080		Reducer, 2.50" FNST x 1.50" MNST, w/Cap	1
			Qty, Adapter for Outlets - 01	
			Location, Adapter(s) - on the front bumper 2.5" discharge	
330	0653960		Control, Outlets, Swing Handle, Elect PS Outlets Akron 9325 w/Press Disp, PUC	1
331	0516280		Outlet, 3.00" Deluge w/2.50" Valve, w/TFT Extend-a-Gun XG18, PUC	1
332	0029302		No Monitor Requested	1
333	0029304		No Nozzle Req'd	1
334	0005070		Deluge Mount, NPT	1
335	0563377		Crosslays, Low Mount, (1) 1.50", (1) 2.50", Std. Cap, W/Poly Trays, PUC	1
336	0774465	SP	Crosslay/Deadlay, High, (1) 1.50" Std Cap, (1) Deadlay, (2) Poly Trays, PUC	1
337	0588430		Hose Restraint, Crosslay/Deadlay, Bar and Hook, Heavy Nylon Web, Each Side, PUC	3
			Qty, - 03	
			Type of fastener - spring clip and hook	
			Nylon Web Color - Black	
338	0693973		Foam Sys, Husky 12, Single Agent, PUC, Multi Select Feature	1
			Discharge, Foam Locations - Crosslay Lower Rear, Crosslay Lower Front, Crosslay Upper Rear, Front Bumper Right Side and Rear Outlet Left Side	

Line	Option	Type	Option Description	Qty
338			Discharge, Foam Locations - Crosslay Lower Rear, Crosslay Lower Front, Crosslay Upper Rear, Front Bumper Right Side and Rear Outlet Left Side	
339	0535281		Hercules CAFS, 140 CFM, Hydraulic Drive, PUC	1
			Fill in Blank - all speedlays, front bumper, and rear discharge	
			Amount of Disc. W/ CAFS - 5	
			CAF with a second pump - No second pump	
340	0552481		Refill, Foam Tank, Single Tank, Husky 12, Class A Foam	1
341	0526587		CAFS, Air Injection Switch, Return to Off with Compressor Switch, IPOS	1
342	0615571		Demonstration, Foam System and CAFS, At Pierce, w/Foam, No Training	1
343	0530519		Foam Cell, 30 Gallon, Not Reducing, PUC	1
			Type of Foam - Class "A"	
			Foam, Brand Name - Phoschek	
344	0505016		Drain, 1.00", Foam Tank #1, Husky 12 Foam System	1
345	0091079		Not Required, Foam Tank #2	1
346	0091112		Not Required, Foam Tank Drain	1
347	0515692		Pump Operators Panel, 31", Control Zone, PUC	1
348	0032479		Pump Panel Configuration, Control Zone	1
349	0516975		Material, Pump Panels, Operators Brushed Stainless, Sides Brushed Stainless, PUC	1
350	0516978		Pump and Plumbing Access, Simple Tilt Service, PUC	1
351	0520016		Not Required, Pumphouse Structure, PUC	1
352	0618458		Light, Pump Compt, WIn 3SC0CDCR LED White, PUC	1
			Qty, - 01	
353	0505599		Gauges, Engine - Pump Panel, Included with FRC Pump Boss Control	1
354	0005601		Throttle Included w/ Pressure Controller	1
355	0549333		Indicators, Engine, Included with Pressure Controller	1
356	0553643		Control, Air Horn at Pump Panel w/Red Switch	1
357	0511078		Gauges, 4.00" Master, Class 1, 30"-0-600psi	1
358	0511100		Gauge, 2.00" Pressure, Class 1, 30"-0-400psi	1
359	0517009		Gauge, Water Level, Pierce, In pressure Controller, w/Mini Slave, PUC	1
			Activation, Water Level G - pb) parking brake is applied	
360	0517012		Gauge, Foam Level, Pierce, PUC, PP and Mini in Cab	1
			Activation, Foam Level Gauge - parking brake	
361	0695170		Light, Pump Operator & Panel, Side Ctrl, PUC, Dual 6060C Cab & LED OH	1
362	0606696		Air Horns, (2) Grover, Stutter Tone, In Bumper	1
363	0606834		Location, Air Horns, Bumper, Each Side, Outside Frame, Inboard (Pos #2 & #6)	1
364	0016064		Control, Air Horn, Horn Ring, PS Push Button	1
365	0525667		Siren, WIn 295SLSA1, 100 or 200 Watt	1
366	0510206		Location, Elect Siren, Recessed Overhead In Console	1
			Location, Elec Siren - Overhead, DS Inside Sw Pnl	
367	0076156		Control, Elec Siren, Head Only	1
368	0601304		Speaker, (2) Whelen, SA315P, w/Pierce Polished Stainless Steel Grille, 100 watt	1
			Connection, Speaker - siren head	
369	0678617		Location, Speaker, Frt Bumper, Recessed, Right and Left Side Corners	1
370	0016080		Siren, Federal Q2B	1
371	0006097		Location of Siren, Recessed in Bumper	1
			Location, Siren, Mech - a) Left	
372	0026170		Control, Mech Siren, DS Foot Sw, PS Push Button	1
373	0006086		Switch, Second Siren Brake	1
374	0605191		Lightbar, WIn, Freedom IV-Q, 72", RRRWBR_Opt_RBWRRR	1
			Opticom Priority - b) High	
			Opticom Activation - Roof Light	
			Momentary Opticom Activation - No Activation	
			Filter, Whl Freedom Ltbrs - No Filters	
375	0632499		Light, Front Zone, WIn 6RB** Out, M6** In, Q-Bezel 4lts	1
			Color, Lens, LED's - c)clear	
			Color, Lt DS Frnt Outside - DS Front Outside Red	
			Color, Lt PS Frnt Outside - PS Front Outside Red	
			Color, Lt DS Frnt Inside - b) DS Front Inside Blue	
			Color, Lt PS Frnt Inside - b) PS Front Inside Blue	
376	0653937		Flasher, Headlight Alternating	1
			Headlt flash deactivation - a)w/high beam	

Line	Option	Type	Option Description	Qty
377	0556802		Lights, Side Zone Lower, WIn M6# LED, Split Color 3pr, Ovr 25 Location, Lights Mid - behind the crew cab doors Location, Lights Rear - in the rear fender panel area Location, Lights Front Side - b)each side bumper Color, Lt Side Frnt Split - Blue and Red Color, Lt Side Mid Split - Blue and Red Color, Lt Side Rear Split - Blue and Red	1
378	0540783		Lights, Rear Zone Lower, WIn M6*C LED, Clear Lens Color, Lt DS Rear - r) DS Rear Lt Red Color, Lt PS Rear - r) PS Rear Lt Red	1
379	0541152		Lights, Rear/Side Up Zone, WIn M6*C LED, Clear Lens 4lts Color, Lt, Side Rear Upper DS - Side Rear Upper Red Color, Lt, Side Rear Upper PS - Side Rear Upper Red Color, Lt, Rear Upper DS - r) DS Rear Upper Red Color, Lt, Rear Upper PS - r) PS Upper Rear Red	1
380	0006551		Not Required, Lights, Rear Upper Zone Blocking	1
381	0590000		No Hose Bed Warn Light Brackets Req'd, Lights Mtd on Hatch/Body Compts, PUC	1
382	0791528		Light, Traffic Directing, WIn TAL65, 36.00" Long, TACTL5 Activation, Traffic Dir L - Aux Flash with Park Brake	1
383	0551728		Location, Traf Dir Lt, Recessed with S/S Trim	1
384	0530282		Location, Traf Dir Lt Controller, Overhead Switch Panel DS Right End	1
385	0006646		Electrical System, 120/240VAC, General Design	1
386	0563275		Generator, Harrison 6kW MSV, Hydraulic, Hotshift PTO, Volt Meter Only Generator Interlocks - No Interlocks	1
387	0517171		Location, Hydraulic Generator, Cargo Area, Front of Body, PRM/PUC Location, Generator - in the best location possible	1
388	0016752		Starting Sw, Truck Engine Powered Gen, Cab Sw Pnl	1
389	0016757		Not Required, Remote Start, Generator	1
390	0016740		Not Required, Fuel System	1
391	0016767		Not Required, Oil Drain Extension, Generator	1
392	0016771		Not Required, Routing Exhaust, Generator	1
393	0520107		Circuit Breaker Panel, Included With PTO Generator, PUC Location, CB Panel - TO BE DETERMINED	1
394	0006825		Reel, Elect Cable, Hannay, 1600, (3) Wire Qty, Cord Reels - 1 Reel Guide - b) Captive roller Finish, Reel - Painted Gray Location, Electric Cord Reel - R1, High & Center, 1 Reel	1
395	0006827		Cord, Electric, 12/3 Yellow, 3 Wire Lengths of Elect Cord - 1 Feet of Yellow Cord - e)200 Connection, Cord - No Connection	1
396	0036622		Receptacle, 20A 120V 3-Pr 3-Wr SB Dup, GFCI, Wtrprf Location, Receptacles - One receptacle will be located in the lower portion of the interior EMS cabinet towards the exterior wall as low as possible and one will be located in P3 - back wall in the full depth portion as high as possible - forwards. Qty, - 02	2
397	0519934		Not Required, Brand, Hydraulic Tool System	1
398	0649753		Not Required, PTO Driven Hydraulic Tool System	1
399	0649750		Not Required, Hydraulic Reels	1
400	0007150		Bag of Nuts and Bolts Qty, Bag Nuts and Bolts - 1	1
401	0602516		NFPA Required Loose Equipment, Pumper, NFPA 2016, Provided by Fire Department	1
402	0067022		Hose, 6.00" Soft Suction - 15 Ft. Long	1
403	0027023		No Strainer Required	1
404	0602538		Extinguisher, Dry Chemical, Pumper NFPA 2016 Class, Provided by Fire Department	1
405	0602360		Extinguisher, 2.5 Gal. Pressurized Water, Pumper NFPA 2016, Provided by Fire Dept	1
406	0602679		Axe, Flathead, Pumper NFPA 2016 Classification, Provided by Fire Department	1
407	0602667		Axe, Pickhead, Pumper NFPA 2016 Classification, Provided by Fire Department	1
408	0559682		Paint, Two Tone, Cab, w/Shield, Custom Cab Paint Color, Predefined - #90 Red	1

Line	Option	Type	Option Description	Qty
408			Paint Color, Upper Area, Predefined - #10 White	
409	0646897		Paint Chassis Frame Assy, E-Coat, Standard	1
			Paint Color, Frame Assembly, Predefined - Job Color, Lower	
410	0693797		No Paint Required, Aluminum Front Wheels	1
411	0687653		Paint, Rear Wheels, Single Axle, Alum-Stl	1
			Paint, Wheels - Black #101	
412	0581434		Transit Coating, Carwell, Corrosion Protection, Including Underside	1
413	0007230		Compartment, Painted, Spatter Gray	1
414	0544131		Reflective Band, 1"-6"-1", Separate Color Roll-Up Door & Cab/Body	1
			Color, Reflect Band - A - a) white	
			Color, Reflect Band - B - n) ruby red	
415	0510041		Reflective across Cab Face, Imp/Vel	1
416	0593732		Stripe, Chevron, Rear, Diamond Grade, Pumper, PUC	1
			Color, Rear Chevron DG - fluorescent yellow green	
417	0087342		Jog, "Z"-Shaped, In Reflective Stripe	1
			Qty, - 1	
418	0545179		Stripe, Diamond Grade, Chevron, Front Bumper	1
			Size, Chevron Striping - 04	
			Color, Chevron DG - Yellow Green, Fluorescent	
			Color, Chevron DG - B - Red	
419	0520951	SP	Stripe, Slanted, on Rear Body Fenders, 4" 2 colors, Spcl Color (diamond grade)	1
			Color, Reflect Band - A - n) red diamond grade	
420	0552453		Stripe, Reflective, Chevron, Cab and Crew Cab Doors Interior, Diamond Grade	1
			Color, Reflect Band - A - o) fluorescent yellow diamond grade	
			Size, Chevron Striping - 04	
			Color, Reflect Chev - A - r) red diamond grade	
421	0027372		Lettering Specifications, (GOLD STAR Process)	1
422	0686428		Lettering, Gold Leaf, 3.00", (41-60)	1
			Outline, Lettering - Outline and Shade	
423	0685978		Lettering, Reflective, 18.00", Each	2
			Qty, Lettering - 02	
			Outline, Lettering - Outline and Shade	
424	0516710		Emblem, Texas Flag Painted on Cab Grille, All Custom Chassis	1
425	0566549	SP	Emblem, Customer Patch, 22", Reflective, Per Quote, Round Rock 22613	1
426	0666414		Emblem, Freedom Flag, Each	2
			Qty, - 02	
			Location, Emblem - upper side of crew cab rearward of door, one each side	
			Size, Flag - 9" - 11"	
426	0000000	STF	Gamber Johnson Docking Station - Round Rock 2018 RMAP	1
426	0000000	STF	Radio, Motorola APX 7500, Georgetown 2017 Units	1
426	0000000	STF	Trimble Unit TM3000N, Round Rock	1
			Qty, - 01	
426	0000000	STF	Delivery Training - per day	3
			Qty, - 03	
426	0000000	STF	Preconstruct and Final Inspection Trips - Rep	1
			Qty, - 01	
426	0000000	STF	Loose Equipment List - Round Rock 2015 Aerial	1
426	0000000	STF	Preconstruct and Final Inspection Trips	5
			Qty, - 05	
426	0000000	STF	Make Ready Cost - Pumper	1
427	0529225		Manuals, Two (2) CD, Fire Apparatus Parts, Custom Chassis	1
428	0777740	SP	Manuals, One (1) Chassis Service, Custom	1
429	0531638		Manual, Two (2) CD, Chassis Operation, Custom	1
430	0030008		Warranty, Basic, 1 Year, Apparatus, WA0008	1
431	0611136		Warranty, Chassis, 3 Year, Velocity/Impel, WA0284	1
432	0696696		Warranty, Engine, Detroit DD13, 5 Year, WA0180	1
433	0684953		Warranty, Steering Gear, Sheppard M110, 3 Year WA0201	1
434	0595767		Warranty, Frame, 50 Year, Velocity/Impel, Dash CF, WA0038	1
435	0595698		Warranty, Axle, 3 Year, TAK-4, WA0050	1
436	0777368		Warranty, Axle, 2 Year, Meritor, General Service, WA0328	1
437	0652758		Warranty, ABS Brake System, 3 Year, Meritor Wabco, WA0232	1

Line	Option	Type	Option Description	Qty
438	0019914		Warranty, Structure, 10 Year, Custom Cab, WA0012	1
439	0595813		Warranty, Paint, 10 Year, Cab, Pro-Rate, WA0055	1
440	0524627		Warranty, Electronics, 5 Year, MUX, WA0014	1
441	0695416		Warranty, Pierce Camera System, WA0188	1
442	0708760		Warranty, Not Applicable, LED Strip Lights	1
443	0046369		Warranty, 5-year EVS Transmission, Standard Custom, WA0187	1
444	0685945		Warranty, Transmission Cooler, WA0216	1
445	0688798		Warranty, Water Tank, Lifetime, UPF, Poly Tank, WA0195	1
446	0596025		Warranty, Structure, 10 Year, Body, WA0009	1
447	0693127		Warranty, Gortite, Roll-up Door, 6 Year, WA0190	1
448	0516693		Warranty, Pump, Pierce, PUC, 6 Year Parts, 1 Year Labor, WA0039	1
449	0648675		Warranty, 10 Year S/S Pumbing, WA0035	1
450	0657846		Warranty, Foam System, Husky 12, WA0231	1
451	0609981		Warranty, Harrison Generator, 6 Year, WA0285	1
452	0595820		Warranty, Paint, 10 Year, Body, Pro-Rate, WA0057	1
453	0595421		Warranty, Goldstar, 3 Year, Apparatus, WA0018	1
454	0683627		Certification, Vehicle Stability, CD0156	1
455	0610837		Certification, Engine Installation, Velocity, Detroit DD13, 2016, CD0148	1
456	0686786		Certification, Power Steering, CD0098	1
457	0667417		Certification, Cab Integrity, Velocity FR, CD0009	1
458	0548950		Certification, Cab Door Durability, Velocity/Impel, CD0001	1
459	0548967		Certification, Windshield Wiper Durability, Impel/Veloccity, CD0005	1
460	0667411		Certification, Electric Window Durability, Velocity/Impel FR, CD0004	1
461	0549273		Certification, Seat Belt Anchors and Mounting, Imp/Vel/Vel SLT, CD0018	1
462	0667416		Certification, Cab Heater and Defroster, Velocity/Impel FR, CD0015	1
463	0667415		Certification, Cab Air Conditioning Performance, Velocity/Impel FR, CD0016	1
464	0545073		Amp Draw Report, NFPA Current Edition	1
465	0002758		Amp Draw, NFPA/ULC Radio Allowance	1
466	0799248		Appleton/Florida BTO	1
467	0000048		Engineering Attribute - PUMPER/TANKER, 3rd Gen	1
468	0000012		PIERCE CHASSIS	1
469	0562778		DD13 ENGINE	1
470	0046396		EVS 4000 Series TRANSMISSION	1
471	0520324		PIERCE PUMP, PUC	1
472	0020009		POLY TANK	1
473	0028048		FOAM SYSTEM	1
474	0020006		SIDE CONTROL	1
475	0020007		AKRON VALVES	1
476	0020015		ABS SYSTEM	1
477	0658751		Manufacturing Attribute	1