

# Portage

Bidder Complies

One (1) CHASSIS===== CHASSIS ===== CHASSIS

Y\_\_N\_\_

One (1) MODEL TO BE BID  
00-01-01

Y\_\_N\_\_

**MODELS TO BE BID**

The model requested in the purchase description that follows is intended to be the "Top of the Line" model for the manufacturer. Sub-standard models that delete trim, functionality, service and safety items are not acceptable. A statement from the bidder shall be made in the bid proposal that states that the chassis offered is the "Top of the Line" model from the manufacturer.

One (1) CHASSIS VOCATION AND BASIC ATTRIBUTES  
00-90-00

Y\_\_N\_\_

CHASSIS VOCATION AND BASIC ATTRIBUTES

**BUILD CHASSIS TO NFPA 1996 STANDARDS**

When completed this chassis shall have the following attributes:

**Order Information:**

Apparatus Builder: \_\_\_\_\_  
P.O. Number: \_\_\_\_\_  
Selling Dealer: \_\_\_\_\_  
Apparatus Builder Shop Order Number: \_\_\_\_\_

**User Information:**

End User: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
City: \_\_\_\_\_  
State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
F.D. Contact: \_\_\_\_\_  
Phone Number: \_\_\_\_\_  
Fax Number: \_\_\_\_\_

**Vocation:**

- \_\_\_ - Pumper (With midship water pump)
- \_\_\_ - Rescue (No water pump)
- \_\_\_ - Aerial (No water pump)
- \_\_\_ - Aerial (With midship water pump)
- \_\_\_ - Aerial (Is HME supplying a Boom Support)

(When a water pump other than a conventional midship type is to be installed HME requires de-tails of the installation that would be necessary for interface with the chassis.)

(When an aerial device is installed over the cab, a dimension of the width of the ladder over the cab roof must be supplied for HME to insure clearance of all roof mounted devices. The ladder is \_\_\_\_\_ inches wide over the entire cab roof.

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## Bidder Complies

Also, when an aerial boom support is selected from HME a drawing indicating the boom support interface dimensions must be provided.)

### Chassis Frame Dimensions:

- \_\_\_ - Wheelbase (centerline of front axle to centerline of rear axle)
- \_\_\_ - Cab to Axle (rear edge of cab to centerline of rear axle does not include clearance for cab tilt.)
- \_\_\_ - Rear Frame Overhang (centerline of rear axle to the end of the frame)

### Bumper Layout Information:

- \_\_\_ - Extension length

### Speaker Quantity & Location:

Location of speakers:

- \_\_\_ - "SA" - Officer's side, extreme outside
- \_\_\_ - "SB" - Officer's side, next to frame rail
- \_\_\_ - "SF" - Driver's side, next to frame rail
- \_\_\_ - "SG" - Driver's side, extreme outside

Note: "SA" position cannot be used with a front suction option.

### Air Horns

There shall be \_\_\_ air horns mounted in the front bumper.

Location of air horns:

- \_\_\_ - "S1" - Officer's side, extreme outside
- \_\_\_ - "S2" - Officer's side, next to frame rail
- \_\_\_ - Between frame rails - 28.5 inches - Standard Location
- \_\_\_ - "S3" - Driver's side, next to frame rail
- \_\_\_ - "S4" - Driver's side, extreme outside

Note: S1 & S2 locations cannot be used with a front suction option.

### Dome Light Locations

- \_\_\_ - 1871P Standard locations
- \_\_\_ - 1871S Standard locations E & H
- \_\_\_ - Additional Clear Dome Lights
- \_\_\_ - Additional Red Dome Lights

### Hose well options:

Indicate the hose that shall be installed in the well.

Hosewell Location:

- \_\_\_ - Officer's
- \_\_\_ - Center
- \_\_\_ - Driver's

Hose Brand: \_\_\_\_\_

Hose Model: \_\_\_\_\_

Hose Size: \_\_\_\_\_ inch

Number of feet required: \_\_\_\_\_

If more than one hosewell is ordered indicate on a separate piece of paper the information for the other well.

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### Fuel Tank Inlet Position

- Fuel filler location: (50 gallon tank only)
- \_\_\_ - 28" behind the centerline of rear axle
- \_\_\_ - 29" behind the centerline of rear axle
- \_\_\_ - 30" behind the centerline of rear axle

Fuel filler location: (68 gallon tank only)  
 \_\_\_ - 30" behind the centerline of rear axle (Note: 42" minimum rear overhang required).

Is there is a dimension from the centerline of rear axle to the back edge of the fuel tank that is necessary for the body installation. If so what is the dimension \_\_\_ inches.

### Water Pump:

- \_\_\_ - Pump installed at HME
- \_\_\_ - Temporary driveline installed by HME for pump
- \_\_\_ - Installed at apparatus OEM
- \_\_\_ - None installed on finished apparatus

### Pump Data:

Manufacturer: \_\_\_\_\_  
 Model: \_\_\_\_\_  
 Ratio: \_\_\_\_\_  
 Location ahead of the C/L of Rear Axle: \_\_\_\_\_  
 If Hale Pump: Transfer Case Long \_\_\_ or Short \_\_\_  
 If Darley Pump: Transfer Case Forward \_\_\_ or Aft \_\_\_

### PTO installation:

- \_\_\_ - No PTO provisions shall be used
- \_\_\_ - A PTO shall be installed by the apparatus builder.
- \_\_\_ - A PTO shall be installed by HME.

(When a PTO is to be installed at the apparatus builder the following information is required with the order.)

Location: \_\_\_\_\_  
 Ratio: \_\_\_\_\_  
 Output: shaft direct mount  
 (Circle one)

### Estimated inservice weight including equipment, water and firefighters:

Front Axle - \_\_\_\_\_ lbs.  
 Rear axle(s) - \_\_\_\_\_ lbs.

### Does chassis have an overall height restriction? If so fill in the blank.

Overall height restriction - \_\_\_\_\_  
 \_\_\_ - Inches ground to the top of the frame at the centerline of the front axle when loaded to \_\_\_\_\_ lbs.





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## Bidder Complies

Paint Manufacturer: \_\_\_\_\_  
(Note: Insure you have selected 40-Q0-18 for paint other than Dupont Imron)

Single Color: 40-Q0-15  
Primary color: \_\_\_\_\_  
Primary paint code: \_\_\_\_\_

Two Tone Color: 40-Q0-16  
Upper paint color: \_\_\_\_\_  
Upper paint code: \_\_\_\_\_  
Lower paint color: \_\_\_\_\_  
Lower paint code: \_\_\_\_\_

Paint Break Line (Scheme #): \_\_\_\_\_  
(Note: If option 40-Q0-19 (Custom Two-Tone Paint) is selected a drawing, with dimensions, must be attached for order entry.)

Interior Paint Code: \* \_\_\_\_\_  
\*Required if option 40-QA-14 is selected

Color Painted Frame Code: \* \_\_\_\_\_  
\*Required if option 40-Q0-11 is selected

Color Painted Rims Code: \* \_\_\_\_\_  
\*Required if option 40-Q0-17 is selected

One (1)  
00-J0-11

### **HME 1871 SERIES TILT CAB & CHASSIS+**

Y\_\_N\_\_

#### CUSTOM FIRETRUCK CHASSIS

The chassis shall be designed and manufactured by a custom chassis manufacturer. The manufacturer shall demonstrate evidence of manufacturing similar custom vehicles for at least fifty (50) years. The chassis must be the apparatus manufacturer's top of the line custom chassis.

The chassis shall be designed and manufactured for heavy duty fire service with adequate strength and capacity for all components as detailed within these specifications.

One (1)  
01-H0-16

### **DOUBLE FRAME RAILS 3/4 LINER**

Y\_\_N\_\_

#### CHASSIS FRAME

The frame shall be designed to industry standards. The manufacturer shall provide a life time warranty to the original purchaser of the chassis. The frame rails shall be 10.5" X 3.5" X .375" heat treated steel.

A 3/4 length inner frame liner with dimensions of 9.687" x 3.125" x .3125" shall be provided for additional strength and reduce deflection. The frame liner shall extend from the centerline of the front axle and taper 45 degrees forward and shall extend to the rear of the main frame rail.

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## Bidder Complies

The rails shall be 110,000 psi minimum yield and shall have a minimum section modulus of 30.38 cu. in., in the frame liner area, calculated by using the square corner shape method. The resulting frame rail resistance to bending moment shall be 3,341,800 in. lb. per rail. The crossmembers shall be bolted in place using grade 8 bolts, hardened washers, and grade "C" distorted thread locknuts. Flanged head fasteners and nylon locking nuts are not acceptable. The top of the frame rails shall be free of bolt heads.

Frame engine cutouts shall be made with a plasma torch to minimize the heat affected zone of the cut. All cutouts shall have a minimum of 6 inch transitions between rail flange cut depths to reduce the stress concentrations throughout the cutout area. The root of all transition areas shall have a minimum of a 2 inch radius to reduce stress concentrations at the root.

One (1)  
01-V0-36

**FRONT EXTENSION: 24 INCHES**

Y\_\_N\_\_

BUMPER EXTENSION

The front frame extension shall be bolted directly to the main rail. The extension and main rail joint shall have a 3/8" thick side plate for reinforcement. The completed apparatus must be able to be lifted at the front bumper without structural damage to the front extension for towing of a disabled vehicle.

The front bumper face shall extend 24 inches ahead of the front face of the cab skin.

One (1)  
01-V0-42

**12 INCH HIGH TWO RIB FRONT BUMPER**

Y\_\_N\_\_

FRONT BUMPER

A 12" high heavy-duty 10 gauge, polished stainless steel, wrap around, 2-rib front bumper shall be provided the full width of the cab.

One (1)  
01-W0-07

**CHROMED TOW HOOKS MOUNTED UNDER BUMPER**

Y\_\_N\_\_

TOW HOOKS

Two (2) chromed tow hooks shall be provided and shall be attached directly to the front frame extension under the bumper. These tow hooks shall be attached with two Grade 8 bolts with hardened washers and Grade "C" distorted thread locknuts.

One (1)  
01-Z0-82

**HOSE WELL IN THE RIGHT SIDE OF THE GRAVELSHIELD**

Y\_\_N\_\_

RIGHT HOSEWELL

A hose well shall be installed in the center of the gravelshield. This hose well shall be constructed of .125" aluminum. The hose well shall be XX" wide x 12" deep x XX front to back. The well shall be mounted outboard of the right side extension rail.

One (1)  
1-Z0-83

**GRAVELSHIELD FOR BUMPER EXTENSION**

Y\_\_N\_\_

GRAVELSHIELD

# Portage

## Bidder Complies

A gravelshield shall be installed filling the area above the extension rails. This extension shall be constructed of .125" thick bright aluminum treadplate. The gravelshield shall be supported at the front by the bumper backing plate. At the rear, the gravelshield shall be supported by a steel substructure.

One (1)  
01-Z0-84

### HOSE WELL IN THE CENTER OF THE GRAVELSHIELD

Y\_\_N\_\_

#### CENTER HOSEWELL

A hose well shall be installed in the center of the gravelshield. This hose well shall be constructed of .125" aluminum. The hose well shall be 26-1/2" wide x 12" deep x (extension - 6") front to back. The well shall be mounted between the extension rails.

One (1)  
01-Z0-99

### VOGEL CENTRALIZED GREASE SYSTEM - SINGLE AXLE

Y\_\_N\_\_

#### CHASSIS GREASE SYSTEM

The chassis shall be equipped with a VOGEL Centralized Lubrication System. This system shall provide automatic grease application to the following wear points:

#### FRONT AXLE, SUSPENSION & STEERING

Kingpins (4), Tie Rods (2), S-Cams (2), Slack Adjusters (2), Spring Pins (6), Draglink (2), Cab Tilt Pivots (2)

#### REAR AXLE & SUSPENSION

S-Cams (2), Slack Adjusters (2), Spring Pins (2)

This grease system shall utilize NLGI000. The system shall be powered by an electrically driven gear pump, 12 volts, 192 watts. The gear pump shall be mounted to a reservoir with a capacity of 2.7 liters. The pump is to operate against a back pressure of 38 bar nominal, with an output of 160 cc/min.

Distribution to all lubrication points is by piston distributors. The distributors shall utilize metering nipples. Metering for the nipples shall be in the increments of 0.1, 0.2, 0.3, 0.4, 0.6, and 1.0 cc. The metering nipples shall be able to be field changed to provide a tailored grease application to the chassis points. The distributor shall dispense a metered volume of lubricant into the lube point after the electric motor gear pump has cycles to the off-time mode.

The cycle time of the system shall be determined by an electronic controller, which regulates the on and off time of the pump. The controller shall permit the feedback of the pressure switch to highlight the end of the lube cycle.

#### ACCESSORIES

A hand pump and container of grease shall be shipped loose with the chassis for initial maintenance by the department.

# Portage

## Bidder Complies

One (1)  
07-G0-10

**MERITOR/ROCKWELL FL-943 FRONT AXLE 21,500# GAWR**

Y\_\_N\_\_

### FRONT AXLE

The front axle shall be an MERITOR/ROCKWELL model "FL-943" with a 21,500 lb. capacity.

The front axle shall be equipped with oil bath type oil seals. The spindles shall be equipped with transparent covers for oil level inspection.

Front springs shall be a minimum of nine (9) leaf elliptical type, 53" x 3-1/2" x .5" forged steel. Capacity at ground of 21,500 lbs. The spring rate shall not exceed 3,300 lbs/in deflection. The front springs shall have a military wrapper for safe operation.

All front spring pins shall have grease fittings for lubrication.

Double acting hydraulic shock absorbers are to be installed. These shocks shall have an effective piston diameter of 1.48"

The entire front suspension shall be designed for heavy duty custom fire apparatus.

The steering shall be equipped with dual SHEPPARD M100/392 integral power steering gears.

One (1)  
07-X0-00

**S-CAM AIR OPERATED FRONT BRAKES**

Y\_\_N\_\_

### FRONT AXLE BRAKES

The front brakes shall be 16-1/2" X 6", S-Cam, air operated. The front axle shall be equipped with automatic slack adjusters.

One (1)  
07-X0-24

**NO FRONT AXLE BRAKE DUST SHIELDS**

Y\_\_N\_\_

One (1)  
07-Y0-35

**35 DEGREE TURNING CRAMP ANGLE**

Y\_\_N\_\_

### CRAMP ANGLE

The chassis shall have a turning cramp angle of 35 degrees.

One (1)  
07-Z0-52

**MERITOR/ROCKWELL AXLE WARRANTY**

Y\_\_N\_\_

### MERITOR/ROCKWELL STANDARD AXLE WARRANTY

The Meritor/Rockwell axle shall have a standard three (3) year parts and labor warranty. The axle shall also have an additional two (2) year parts only coverage. Meritor/Rockwell shall provide a one (1) year parts and labor warranty for wheel seals. The seal warranty shall apply to standard Meritor/Rockwell wheel seals and not to other specified seals. Customer specified seals shall have a parts only warranty.

# Portage

## Bidder Complies

One (1)  
08-F0-10

**MERITOR/ROCKWELL RS-30-185 REAR AXLE 31,000# GAWR**

Y\_\_N\_\_

REAR AXLE

The rear axle shall be a MERITOR/ROCKWELL model "RS-30-185" with a 31,000# capacity for the fire service.

The rear axle shall be equipped with oil bath type wheel end seals.

One (1)  
08-PA-04

**REAR AXLE RATIO - TOP SPEED 68 - 70 MPH**

Y\_\_N\_\_

VEHICLE TOP SPEED

The rear axle shall be geared for a top speed of 68 to 70 mph at engine governed RPM.

One (1)  
08-R0-03

**SINGLE AXLE REAR SUSPENSION - 31,000#**

Y\_\_N\_\_

SINGLE AXLE REAR SUSPENSION

The rear springs shall be a minimum of seventeen (17) main including four (4) auxiliary leaves. The rear suspension shall have a rating of 31,000 lbs. Capacity. The rear suspension shall be a "self-leveling" slipper type with a main torque leaf that contains a military wrapper. The torque leaf shall contain a bronze bushing for long service life.

The rear hangers are to be of the slipper design. The rear suspension deflection rate shall not exceed 3,790 lbs. Per inch.

One (1) inch diameter rear suspension U-bolts are required.

Two (2) channel type crossmembers shall be mounted in the rear suspension area, bolted to the frame rail to form a rear suspension support member.

One (1)  
08-X0-00

**S-CAM AIR OPERATED REAR BRAKES**

Y\_\_N\_\_

REAR AXLE BRAKES

The rear brakes shall be 16-1/2" X 7", S-Cam, air operated. The rear brakes shall be equipped with automatic slack adjusters.

One (1)  
08-X0-27

**NO REAR AXLE BRAKE DUST SHIELDS**

Y\_\_N\_\_

One (1)  
08-Z0-52

**MERITOR/ROCKWELL AXLE WARRANTY**

Y\_\_N\_\_

MERITOR/ROCKWELL STANDARD AXLE WARRANTY

The Meritor/Rockwell axle shall have a standard three (3) year parts and labor warranty. The axle shall also have an additional two (2) year parts only coverage. Meritor/Rockwell shall provide a one (1) year parts and labor warranty for wheel seals. The seal warranty shall apply to standard Meritor/Rockwell wheel seals and not to other

# Portage

## Bidder Complies

specified seals. Customer specified seals shall have a parts only warranty.

One (1)  
08-ZZ-10

### LASER ALIGNMENT

Y\_\_N\_\_

#### LASER ALIGNMENT

The chassis shall have a laser alignment performed at the factory before delivery.

HME utilizes the newest generation of laser-assisted products. This system provides an accurate measuring system for wheels, axles and frames. The system is based on a laser technique using the vehicle's center line as a reference point. A play detector is used to ensure that all bushings and bearings are free from excess play. This system allows for exact and reliable system to measure and adjust wheel toe-in and camber, as well as measuring distorted and deformed axles.

**Tow In Front Axle** - The tow in on a vehicle is set to reduce tire wear and to insure that the vehicle shall steer in a straight line. Tow in measurements are set to a positive 2.5 millimeters total, giving the vehicle 1.25 millimeters from side to side.

**Tow In Rear Axle** - The tow in on the rear wheels is set up slightly different in that the axle and wheels are set to ride the "crown" of the road. This is achieved by adjusting the tow to a measurement of no less than 1 millimeter, but no more that 2 millimeters. The ideal measurement is 1.5 millimeters total for both sides.

**Cramp Angle** - Cramp angle is set to achieve the greatest turning radius possible with the selected components of the vehicle. Each front wheel is set to zero degrees. The wheel is then turned until it reaches the steering stops. This measurement is the cramp angle.

One (1)  
09-A0-10

### AIR SYSTEM - COLOR CODED NYLON AIR LINES

Y\_\_N\_\_

#### AIR SYSTEM

An air brake system meeting the requirements of the FMVSS - 121 shall be provided. The system shall consist of three (3) reservoirs with a 4,362 cu. in. volume. The air system shall consist of the following components:

Dual air system with a dual needle gauge, warning light and buzzer. A spring actuated parking brake built into the rear axle brakes with a manual control and warning light the in cab. These shall automatically apply in case of air system failure. A mechanical means of releasing the spring brake shall be provided in the event of total loss of air pressure.

A quick build up system shall be provided, capable of building enough air pressure to release the spring brake in less than thirty (30) seconds, when starting with the entire air system at zero pounds pressure.

The brake system shall be a split system. One (1) system serving the rear brakes and one (1) system serving the front brakes. The two (2) systems shall be connected with a double check valve that shall automatically shuttle air from the front system to the rear system should loss of air pressure occur. This system shall also modulate the amount

# Portage

## Bidder Complies

of air so the spring brakes shall apply in direct relationship to the amount of pressure applied to the treadle valve.

The spring brakes shall be piped in such a manner that if the treadle valve is depressed while the spring brakes are applied, the spring brakes shall release and remain released as long as the treadle valve is depressed. They shall reapply immediately when the treadle valve is released.

The piping in the air system shall be 2-ply nylon reinforced color coded tubing for all stationary lines.

One (1)  
09-A0-12

### **MERITOR/ROCKWELL / WABCO SYSTEM SAVER AIR DRYER**

Y\_\_N\_\_

#### AIR DRYER

The air system shall include a MERITOR/ROCKWELL / WABCO System Saver 1200 air dryer. The dryer shall have a capacity of 30 CFM of air flow.

The air dryer shall have a spin on dessicant cartridge for ease in servicing the dryer dessicant.

The air dryer shall incorporate an integral turbo cut-off valve. The turbo cut-off valve shall close the path between the air compressor and the air dryer purge valve during the compressor "unload" cycle. This shall allow the air dryer to purge the water and contaminates without any loss of turbo boost or engine horsepower.

A 12 volt, 100 watt heated moisture ejector shall be an integral part of the air dryer. This heater shall be thermostatically controlled. The electrical connection for the heater shall use a sealed electrical connector to protect against moisture and corrosion.

One (1)  
09-B0-02

### **ACCESSORY AIR RESERVOIR 2181 CU-IN**

Y\_\_N\_\_

#### ACCESSORY AIR RESERVOIR

One (1) 2181 cu. in. additional reservoir shall be connected to the chassis air system to provide an air supply for accessories such as air powered tools. This reservoir shall include a pressure protection valve on the inlet side to allow full use of this tank without draining air from the chassis air system.

One (1)  
09-B0-03

### **AIR HORN AIR RESERVOIR 2181 CU-IN**

Y\_\_N\_\_

#### AIR HORN ADDITIONAL AIR RESERVOIR

One (1) 2181 cu. in. additional reservoir shall be connected to the chassis air system to provide an air supply for the chassis air horns. This reservoir shall include a pressure protection valve on the inlet side to allow full use of this tank without draining air from the chassis air system.

Three (3)  
09-D0-00

### **MANUAL AIR TANK DRAINS**

Y\_\_N\_\_

#### MANUAL AIR TANK DRAINS

# Portage

## Bidder Complies

All air reservoirs shall have manual drain valves with rubber seats to reduce air valve leaks.

One (1)  
09-L0-09

**MERITOR/ROCKWELL/WABCO ABS BRAKE SYSTEM/NO ATC-4 WHL**

Y\_\_N\_\_

MERITOR/ROCKWELL/WABCO ABS BRAKE SYSTEM

A four channel, single rear axle model, MERITOR/ROCKWELL/WABCO ABS Braking System shall be supplied.

This electronic system shall monitor and control wheel speed during braking. This ABS system shall be divided in two circuits or **diagonals** to control specific areas of the vehicle. **Diagonal 1** shall control the right front and the left rear wheels. **Diagonal 2** shall control the left front and the right rear wheels.

If a fault occurs in one diagonal, the other diagonal shall continue to provide the ABS function. If the ABS system should fail completely, the brake control shall be returned to normal (non-ABS) braking.

An ABS warning light shall be installed on the driver's dash. This warning light shall cycle through a test stage at the point of ignition turn on and remain illuminated until the vehicle reached approximately four (4) MPH. The light shall illuminate in other conditions to warn of an ABS system failure.

An ABS system blink code light shall be installed on the ABS power panel. This light shall illuminate when the diagnostic function is activated. This feature shall indicate what ABS failure is occurring.

One (1)  
09-X0-13

**KUSSMAUL 091-9-1200 AIR COMPRESSOR PUMP PLUS**

Y\_\_N\_\_

ON-BOARD ELECTRICAL AIR COMPRESSOR PUMP PLUS

A KUSSMAUL AUTO AIR model 091-9-1200 air compressor with an 40 amp automatic battery charger shall be supplied on the chassis. The compressor shall be located in the officer's side front step well with a bolt on style access panel.

A pressure switch shall be installed on the air compressor to sense the system pressure. This switch shall start the compressor which runs until pressure is restored.

One (1)  
10-GH-21

**GDYR 425/65R22.5-20PR(L) FRONT TIRES 22,000#**

Y\_\_N\_\_

FRONT TIRES

The front tires shall be 425/65R22.5-20PR (L) GOODYEAR G-286 all weather tread, tubeless radial tires. These tires shall be mounted on 22.5" x 13.00" rims.

The front axle GAWR shall be 22,000 lbs. @ 120 psi.

One (1)  
10-GT-33

**GDYR 315/80R22.5-20PR(L) REAR TIRES 31,000#**

Y\_\_N\_\_



# Portage

Bidder Complies

REAR TIRES

The rear tires shall be 315/80R22.5-20PR (L) GOODYEAR G-291 all weather tread, tubeless radial tires. These tires shall be mounted on 22.5" x 9.00" rims.

Single rear axle GAWR shall be 31,000 lbs. @ 120 psi with a speed restriction of 65 MPH.

One (1)  
10-W0-34

~~POLISHED ALUMINUM WHEELS 22.5 x 9.00~~

Y\_\_N\_\_

~~ALUMINUM RIMS~~

~~Four polished aluminum wheels shall be supplied. The 22.5" x 9.00" ALCOA wheels, shall be polished on one side only.~~

One (1)  
10-W0-52

~~POLISHED ALUMINUM WHEELS 22.5 x 13.00~~

Y\_\_N\_\_

~~ALUMINUM RIMS~~

~~Two polished aluminum wheels shall be supplied. The 22.5" x 13.00" ALCOA wheels, shall be polished on one side only.~~

One (1)  
3-A0-10

**1200 SQUARE INCH COOLANT RADIATOR**

Y\_\_N\_\_

ENGINE COOLANT RADIATOR

The engine coolant radiator shall have sufficient capacity to perform under the engine manufacturer installation requirements. The chassis manufacturer shall demonstrate the ability to meet this requirement with the submittal of an approved EPQ to the fire department for the apparatus.

This radiator shall have stainless steel top and bottom tanks. These tanks shall have a material thickness of 16 gauge. The top and bottom tanks shall be attached to the header assemblies with a minimum of forty-two (42) fasteners. These fasteners shall not exceed a center distance of 1-3/4 inches to reduce the possibility of tank leaks. These fasteners shall be torqued to a value of 10 to 12 ft-lbs.

The header plates shall be made of 16 gauge brass.

The radiator tubes shall be constructed of .0068 inch thick brass and have a dimensional size of .076 inch x .625 inch. These radiator tubes shall have welded tube seams.

The radiator shall contain four (4) rows of tubes arranged in an inline profile across the radiator core. The entire radiator shall contain (184) tubes. These tubes shall have a smooth bore to allow for radiator cleaning.

In the critically stressed area, where the radiator tubes are attached to the header plates, this joint shall be accomplished with a welding process on the coolant side. In addition to the welded joint a solder fillet joint shall occur on the air side of the core creating a continuous dual bond.

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The radiator shall have a louvered serpentine type core that contains fins constructed of .003 inch thick copper. These fins shall be spaced to a maximum density of 14 fins per inch of radiator tube. Each fin shall have a louvered surface for high cooling efficiency.

The radiator shall contain an integral coolant de-aeration tank. This tank shall be designed to remove entrapped air or gas from the coolant side of the radiator.

The radiator side rails shall have integrally designed support gussets for the transition to the header attachment.

The bottom tank of the radiator shall have a drain valve for coolant removal.

The coolant system shall contain an ethylene glycol and water mixture to keep the coolant from freezing to a temperature of -34 degrees F.

The bottom tank of the radiator shall have a transmission cooler with a plate-type design. The plates shall have internal turbulators to break up laminar oil flow across the surface. The cooler shall have 1175 square inches of surface area for water surface contact and heat transfer.

The radiator system shall be a pressurized with a cap rated per the cooling system requirements of the specific engine manufacturer.

The high efficiency engine fan shall be encompassed with a radiator shroud to provide the proper air flow from the fan blade to the radiator.

The perimeter of the radiator shall have recirculation baffles to eliminate the possibility of recirculation of "hot" air to the face of the radiator core. The bottom of the radiator shall have a recirculation baffle from the radiator to the frame rails.

One (1)  
13-A0-12

### **CHARGE AIR COOLING RADIATOR**

Y\_\_N\_\_

### CHARGE AIR COOLER RADIATOR

The engine charge-air cooler shall have sufficient capacity to perform under the engine manufacturer's installation requirements. The chassis manufacturer shall demonstrate the ability to meet this requirement with the submittal of an approved EPQ to the fire department for the apparatus.

This radiator shall have cast aluminum side tanks. These tanks shall have a material thickness of .200. These tanks shall be attached to the charge-air core with the ALBRAZE construction technique.

The external air fins shall be louvered serpentine and constructed of .006 inch thick aluminum.

The internal air fins shall be of the lance-and-offset design for greater air turbulence and higher efficiency. The internal fins are to be constructed of .010 inch thick aluminum.

The charge-air cooler shall be mounted directly in front of the engine coolant radiator. To reduce vibration rubber "iso" mounts shall be used for mounting of the charge-air

# Portage

## Bidder Complies

cooler to the engine radiator.

The charge air cooler shall contain (12) rows of internal fins within a .313 x 2.632 aluminum tube assembly. This tube assembly shall be constructed of .025 thick aluminum.

The charge-air cooler shall contain thermal expansion slots to allow the expansion and contraction of the charge-air core over the wide range of temperatures that are expected in operation.

The charge air piping between the engine and charge-air cooler shall be aluminum tubing with a wall thickness of .065 inch. The system shall utilize four (4) ply silicone rubber woven Nomex hoses with stainless steel pressure bands. These bands are designed to maintain the hose shape under the pressure of the turbocharger boost air. All clamps used on the charge air piping are to be stainless steel constant torque and shall be installed at each joint.

One (1)  
13-E0-11

**DETROIT DIESEL SERIES 60/DDEC-430 HP 1450 FT**

Y\_\_N\_\_

### DIESEL ENGINE

The chassis shall be powered by a DETROIT DIESEL engine as described below:

MODEL: Series 60 12.7L  
NUMBER OF CYLINDERS: Six  
BORE AND STROKE: 5.12" X 6.30"  
DISPLACEMENT: 774 cu. in.  
RATED BHP: 430 @ 2100 RPM  
TORQUE: 1450 @ 1200  
COMPRESSION RATIO: 15.0:1  
GOVERNED RPM: 2100

Standard Equipment on the engine to include the following:

GOVERNOR: Electronic Controls

TURBOCHARGER: Wastegate design for increased boost at lower engine speed.

INJECTORS: Electronically controlled unit type

AIR CLEANER: Donaldson or equal with fresh air intake

OIL FILTER: A full flow and by-pass

LUBE OIL FILTERS: Non-drainback, thermostatically controlled with full flow cooling

FUEL FILTERS: Two fuel filters providing 30 micron primary and 12 micron secondary absolute filtration with check valve

STARTER: A Delco, 12 volt, 42 MT type 400 starter motor

# Portage

Bidder Complies

AIR COMPRESSOR: A 16 cfm compressor shall be provided.

The chassis shall be equipped with electric controls for vernier throttle operation. The chassis shall be supplied with a vernier throttle wiring harness to the pump panel area. This system, when completed by the apparatus manufacturer, shall be in compliance with NFPA 1901.

ENGINE WARRANTY

The engine shall have the standard 5 year Detroit Warranty.

One (1)  
13-N0-03

**JACOBS ENGINE BRAKE FOR DETROIT SERIES 60**

Y\_\_N\_\_

ENGINE BRAKE

A JACOBS engine brake shall be supplied.

The Driver's dash shall include an ON/OFF and 3 position brake control switch.

Activation of the engine brake shall occur at zero throttle position. The transmission ECU shall be programmed to operate in the pre-select downshift mode to maximize the retarding power of the engine brake.

The brake lights shall illuminate when the Jacobs Brake is in operation.

The Jacobs Brake shall be inoperative when the chassis is in pump mode.

One (1)  
13-N0-50

**AMOT EMERGENCY ENGINE SHUTDOWN-ELECTRIC**

Y\_\_N\_\_

ENGINE EMERGENCY AIR SHUTDOWN

An emergency engine shutdown system shall be provided. The control shall be electrically operated by a trip solenoid with a push button on the driver's dash panel. When activated, the system shall close the engine air intake.

One (1)  
13-P0-23

**FAST IDLE FOR ELECTRONIC ENGINES**

Y\_\_N\_\_

ENGINE FAST IDLE

The chassis must be equipped with an Electronic Idle Control (EIC) for the electronic engine. Preset speed is factory adjustable.

The fast idle provision shall only function when the parking brake is set and the transmission is in neutral.

Control of the fast idle is by an overhead console mounted switch.

One (1)  
13-PM-21

**DDEC PSG SYSTEM W/ELECTRONIC FIRE COMMANDER**

Y\_\_N\_\_

DETROIT PRESSURE SENSITIVE GOVERNOR CONTROL SYSTEM

# Portage

## Bidder Complies

The chassis shall be equipped with DETROIT DIESEL Pressure Sensitive Governor (PSG) system. A pressure transducer is installed in the fire pump discharge chest. This transducer shall continuously monitor pump pressure and send a signal to the engine Electronic Control Module (ECM). The PSG system shall directly control engine rpm or pump discharge pressure. In the pump pressure mode the Fire Commander shall vary the engine RPM to maintain a constant pump discharge pressure.

The "Electronic Fire Commander" control unit shall be mounted on the apparatus pump panel that enables the operator to select either engine speed or pressure operation of the electronic pump control system.

The "Electronic Fire Commander" operates the PSG and displays all vital engine operating parameters such as engine temperature, oil temperature, engine RPM, voltage and fuel level.

One (1)  
13-S0-04

### NALCOOL CORROSION INHIBITOR

Y\_\_N\_\_

#### CORROSION INHIBITOR

Nalcool corrosion inhibitor shall be installed in the chassis cooling system.

One (1)  
13-V0-03

### COOLANT SYSTEM HOSES

Y\_\_N\_\_

#### COOLANT HOSES

The entire chassis cooling system shall have premium rubber hoses. All clamps to be stainless steel worm drive type clamps.

One (1)  
13-V0-09

### ONE (1) SENDURE AUXILIARY ENGINE COOLER

Y\_\_N\_\_

#### AUXILIARY ENGINE COOLER

The cooling system shall have one (1) SENDURE auxiliary engine cooler mounted in the upper radiator water pipe. The apparatus shall have the fire pump water circulated to the cooler from a valve located on the apparatus pump panel.

One (1)  
13-V0-10

### NALCOOL COOLANT ADDITIVE

Y\_\_N\_\_

#### COOLANT ADDITIVE

The cooling system shall have NALCOOL Coolant additive protection.

One (1)  
13-Y0-10

### HORIZONTAL EXHAUST SYSTEM

Y\_\_N\_\_

#### EXHAUST SYSTEM

A single exhaust pipe shall be provided for the engine. The aluminized muffler shall be located under the frame on the right side of the apparatus. The tail pipe shall terminate on the right side directly ahead of the rear wheels. The tube shall be cut on the end with a 45 degree cut.

# Portage

## Bidder Complies

One (1)  
13-ZA-52

### ENGINE INSTALLATION CERTIFICATION

Y\_\_N\_\_

#### ENGINE INSTALLATION CERTIFICATION

At the time of the bid, the chassis manufacturer shall provide an installation letter from the engine manufacturer. This letter shall indicate that the chassis manufacturer has meet the engine manufacturers requirements for proper engine installation.

The approval of the engine installation must be at full horsepower rating in a continuous duty application under all operating conditions.

One (1)  
14-E0-29

### ALLISON HD4060(P) 5 SPEED AUTOMATIC

Y\_\_N\_\_

#### TRANSMISSION

The transmission shall be an Allison HD4060(P) automatic transmission with electronic controls.

The transmission shall be equipped with a lock-up control circuit that shall automatically shift the transmission into 4th gear lock-up when the pump is shifted into gear.

#### TRANSMISSION COOLER

An automatic transmission cooler shall be provided as an integral part located in the bottom tank of the radiator. It shall be designed to withstand 165 psi working pressure and an intermittent pressure of 250 psi. The cooler shall be of sufficient size to maintain the operating temperature within the recommended limits of the transmission manufacturer. Due to the complex nature of today's engine cooling systems.

One (1)  
14-ER-55

### FIVE SPEED ALLISON HD TRANSMISSION

Y\_\_N\_\_

#### FIVE SPEED HD TRANSMISSION

The transmission shall programmed for five speeds. The transmission shall have the following gear ratios.

First - 3.51  
Second - 1.91  
Third - 1.43  
Fourth - 1.00  
Fifth - 0.74  
Reverse - 4.80

The chassis shall be geared for the top speed in 5th gear.

One (1)  
14-ES-02

### PUSH BUTTON TYPE TRANSMISSION SHIFTER

Y\_\_N\_\_

#### TRANSMISSION SHIFTER

The transmission shall be controlled by a push button type shift control. It shall be internally illuminated for night operation.

# Portage

## Bidder Complies

One (1)  
14-W0-12

### DANA 1810 SERIES DRIVELINES

Y\_\_N\_\_

#### DRIVELINES

Universal joints and driveshafts shall be SPICER 1810 series. The driveshaft tube shall be a minimum of 4.5" diameter with a .259" tube wall thickness. All drivelines shall be balanced to prevent driveline vibration.

One (1)  
14-Z0-51

### ALLISON STANDARD WARRANTY - HD TRANSMISSION

Y\_\_N\_\_

#### STANDARD TRANSMISSION WARRANTY

The chassis shall have a five (5) year unlimited mileage/Parts & Labor warranty for the Allison HD transmission.

One (1)  
25-A0-20

### 50 GALLON REAR MOUNTED FUEL TANK

Y\_\_N\_\_

#### FUEL TANK

The fuel tank shall have a capacity of 50 gallons (US) and be D.O.T. certified. It shall be mounted with straps bolted to the bottom frame flange to allow for easy removal. The tank construction shall be of 12 gauge steel. The baffled tank shall be vented to prevent low vacuum and facilitate rapid filling. A drain plug shall be provided in the bottom of the tank. The tank shall have a 2" NPT fill to the driver's side of the chassis.

The fuel tank sending unit is to be mounted to the Driver's side of the fuel tank for easy replacement.

One (1)  
25-V0-00

### REINFORCED FUEL LINES

Y\_\_N\_\_

#### FUEL LINES

NYLON reinforced rubber fuel lines with push-on fittings shall be used.

One (1)  
25-X0-10

### STANDARD DETROIT ENGINE FUEL FILTER

Y\_\_N\_\_

#### FUEL FILTER

The standard Detroit Diesel primary fuel filter shall be installed on the engine. This filter shall provide 30 microns of filtration. This filter does not contain a fuel/water separator.

One (1)  
40-D0-02

### 3/16" MFD TILT CAB (4 SIDE DOORS) - FLAT ROOF

Y\_\_N\_\_

#### CUSTOM FIRETRUCK CAB

The cab shall be capable of seating up to six (6) fire-fighters and be of a one-piece tilting, contoured front, fully enclosed design. It shall have four (4) side doors and be a 96" wide custom aluminum cabover engine forward style. The cab shall have an "Open Space" design, free of interior walls or obstructions.

# Portage

## Bidder Complies

### CAB MATERIALS

The cab construction shall have the following material gauges as a minimum:

Cab floor - 3/16" (.190") aluminum  
 Front skin - 3/16" (.190") aluminum  
 Cab side panels - 3/16" (.190") aluminum  
 Cab rear wall - 3/16" (.190") aluminum  
 Cab roof - 3/16" (.190") aluminum  
 Cab doors - 3/16" (.190") aluminum

Roof Panel Rails - The roof panel assembly shall have extruded hat section supports bonded to the roof skin. These roof hat sections shall be joined to the Cab Roof Rail Section to complete the upper cab skeletal structure. These completed Roof Panel Rails shall provide a grid for maximum roof strength. The roof shall support a minimum weight of 250 lbs. / sq. Ft. Without permanent roof deformation.

Rear Wall Rails - The rear wall assembly shall have extruded hat section supports bonded to the wall skin. These sections shall be joined to provide a rear wall grid structure for maximum strength.

Cab Front Wall - The front wall of the cab shall be designed with a double wall construction to reduce the effects of exterior noise in the crew and operator compartment. Engine Enclosure - The engine doghouse shall be constructed of welded aluminum and shall be welded into the cab as an integral part of the cab.

### CAB DIMENSIONS

The cab shall have the following overall dimensional requirements:

Overall Width - 96 inches  
 Center of front axle to back of cab - 54 inches  
 Center of front axle to front of cab - 74 inches  
 Windshield area - 3624 sq. Inches minimum  
 Front Grille Opening - 478 sq. Inches minimum  
 Side Grille Opening - 63 sq. Inches each min.  
 Cab full tilt angle - 45 degrees minimum  
 Cab full tilt height - 169 inches maximum

Cab interior dimensions shall be provided as a minimum in the following chart:

Driver's Lower Step Size - 10-1/2" deep minimum  
 Driver's Lower Step Size - 30" front to back  
 Officer's Lower Step Size - 10-1/2" deep minimum  
 Officer's Lower Step Size - 30" front to back

### FRONT CAB DOORS

The forward cab doors shall be 74" high x 37" wide and shall have roll down windows and fixed front corner windows. The front door windows shall have a minimum of 702 square inch area of viewing glass per door. Each window shall have an exterior glass



# Portage

## Bidder Complies

weatherseal to prevent the influx of exterior air. The doors shall have exterior and interior paddle latches for ease of opening with a gloved hand. The paddle latches are to have a rubber gasket, on the outside, separating the handle from the finished painted surface. Each door shall be of the flush mounted design having exposed, polished, one-piece, 12 gauge stainless steel piano hinges with 1/4" hinge pins.

The cab doors shall be covered with an automotive styled ABS panel that is covered with vinyl to match the interior trim color. The front door panels shall have map pockets in each door. The lower section of each door panel is to have a diamond plate insert providing a "kick plate" for the firefighter.

### REAR CAB DOORS

The rear cab doors shall be similar to the forward doors and shall be located directly behind the front wheel well area. These doors shall be 74" high x 30" wide and shall be a flush type door with exposed, polished, full length 12 gauge stainless steel piano hinges with 1/4" hinge pins. Each door shall have roll down rear windows. The rear doors shall have a minimum of 546 square inches of viewing area per door. Each window shall have an exterior glass weatherseal to prevent the influx of exterior air. The doors shall have interior and exterior paddle latches, and shall be mounted in an easy to reach location. Interior latch shall not be blocked by the seat occupant. The paddle latches are to have a rubber gasket, on the outside, separating the handle from the finished painted surface.

### INTERIOR DOOR LOCKS

All doors shall have interior door locks and exterior keyed door lock controls. The door locks and the finished door assemblies shall be in conformance with FMVSS 206, with specific adherence to 49 CFR 571.206 Section 4.1.3 requiring that "Each door shall be equipped with a locking mechanism with an operating means in the interior of the vehicle". All doors shall be keyed alike. The doors shall be equipped with appropriate safety interlocks to prevent accidental locking of the doors when closed.

### WHEEL WELL LINERS

To reduce road splash underneath the cab and allow for easy cleaning, bolt in ABS front wheel well liners are to be installed in the wheel wells. The wheel well liners are to be a minimum of 22 inches in width.

### STAINLESS CAB FENDERETTES

To reduce road splash on the cab sides, polished stainless steel fenderettes shall be installed across the top of the wheel openings. An extruded rubber gasket is to be installed between the fenderette and the cab to reduce the possibility of electrolysis between the dissimilar materials.

### INTERIOR CAB STEP TRIM

The cab steps shall be completely enclosed behind each door. The toe kick surface and the horizontal step area shall be covered with aluminum treadplate trim.

# Portage

## Bidder Complies

### INTERIOR CAB TRIM

The cab front interior shall have a one-piece, removable, sound absorbing headliner to cover all wiring and tubing used for lights and antenna leads. The rear headliner shall be a two-piece design similar to the front.

The rear interior wall of the cab shall have a one-piece, removable, wall covering to finish the interior trim and cover all wiring and tubing used for lights and antenna leads.

The cab dash shall be an ABS automotive styled housing with vinyl covering. A locking ABS automotive styled glovebox with an 18" long grab handle for the Officer shall be furnished on the right hand side of the cab. The instrument and glovebox housings shall be symmetrical in design for a pleasant appearance. The glovebox shall be equipped with a cigar lighter socket with sufficient wiring to handle a 1,000,000 candlepower hand held spotlight. The glovebox shall also include an interior mounted, individually switched light.

### CAB GLASS

AS-1 safety laminate glass shall be used in a two piece, wrap around design with a minimum 3624 square inches of windshield area for maximum visibility.

The windshield shall be a type which is readily available from a nationally recognized automotive glass manufacturer that maintains local distribution outlets.

All glass shall be tinted.

All fixed glass shall be installed with a one-piece triple locked rubber lacing material. Due to long term appearance two-piece chrome trim lock lacing is not desired.

### SUNVISORS

Two (2) 17-1/2" by 9" black padded sunvisors shall be supplied, one on each side of the windshield. Vertical adjustment shall be a minimum of 15" to allow maximum coverage.

### RADIO / STORAGE COMPARTMENT

Beneath the officer's seat there shall be a storage/radio compartment approximately 19-1/2" wide x 17" long x 7" high. The compartment shall have a diamond plate door mounted on a piano hinge to prevent stored materials from spilling out. Access through this door shall be from the side of the seat box. An identical compartment shall be provided beneath the driver's seat with a bolt on louvered aluminum diamond plate cover on the front of the seat box.

### HEATER / DEFROSTER

A 57,600 BTU heater with a three speed fan shall be mounted in the front of the cab, centered over the windshield. This heater shall have six (6) adjustable vents to assure windshield defogging.

### WINDSHIELD WIPERS

# Portage

## Bidder Complies

Two speed electric pantograph wipers shall be installed. These wipers shall have minimum 24" blades and have 28 1/2" wet arm electric pump washers. A 70 oz. Minimum windshield washer reservoir shall be furnished. The reservoir shall be mounted inside the cab to eliminate the need to tilt the cab to fill it.

### STEERING WHEEL AND COLUMN

The steering column shall be a DOUGLAS tilt / telescopic type with an integral high beam / turn signal control switch. The column shall have self cancelling design for the turn signal switch. A 4-way warning "Hazard" light switch shall be mounted on the column. For safety, a rubber boot shall be installed to cover the steering shaft from the dash to the floor.

The steering wheel shall be a minimum of 18 inch diameter, covered with a padded absorbite finish. The telescopic feature of the steering column shall be controlled by a lever on the left side of the steering column.

### EXTERIOR GRAB HANDLES

The cab shall have a bright anodized extruded aluminum 24" grab handle with extruded rubber inserts at each door position. The aluminum shall be bright anodized for long service. Molded rubber gaskets shall be installed under the grab handles to protect the painted surface of the cab.

### FASTENERS

All cab exterior fasteners shall be stainless steel type fastened to the cab with nutserts.

### BATTERY ACCESS

The rear cab steps shall have a removeable kick panel, providing access to the batteries for routine maintenance and inspection.

### CAB CORROSION TREATMENT

The cab shall have a corrosion preventative material conforming with Mil Spec C-16173-C, Grade 1, applied during and after construction. A 10 year warranty against perforation due to rust or corrosion shall be furnished for the cab.

One (1)  
40-DY-90

### ENGINE DOGHOUSE

Y\_\_N\_\_

### ENGINE DOGHOUSE

The doghouse door shall open 90 degrees from the rear and swing to the front of the cab. This door, shall be assisted by high temperature gas springs. The door shall be latched by a positive locking mechanism located on each side of the doghouse door. The doghouse door shall be seal-ed with the same sealing method as the exterior doors of the cab.

The engine doghouse inside the cab shall be padded with a layer of sound and heat

# Portage

## Bidder Complies

absorbing foam and covered with heavy duty vinyl trim upholstery to match or accent the interior of the cab.

The under side of the engine enclosure shall be covered with a sandwiched material for interior cab noise and heat rejection. This sandwiched acoustical material shall have one layer of 1/8" foam, a 3/16" single barrier septum and a 7/8" layer of foam to provide on overall thickness of 1-3/16". The sandwich material shall be chemically bonded to prevent layer separation. A finished surface treatment of metalized film shall be provided on the engine side of the barrier. The acoustical barrier shall be held in place with mechanical fasteners in addition to adhesive.

### TRANSMISSION OIL LEVEL SENSOR

The transmission shall be equipped with the oil level sensor (OLS). This sensor shall allow the operator to obtain an indication of the fluid level from the shift selector. The sensor display shall provide the following checks, correct fluid level, low fluid level and high fluid level. Access to the power steering fluid maybe limited.

### COOLANT RECOVERY SYSTEM

A coolant recovery system shall be installed on the chassis. This tank is designed to capture coolant overflow when the engine coolant warms and expands. As the engine cools the overflow is then pulled out of the tank and back into the radiator, thus maintaining proper coolant levels.

One (1)  
40-DZ-01

### **STAINLESS STEEL CAB GRILLE**

Y\_\_N\_\_

### CAB GRILLE

All cab exterior grilles shall be bright finished stainless steel. The front grille shall have a radiator rock guard to assist in preventing damage to the radiator core.

The cab shall have one (1) engine "hot" air exhaust and one (1) engine air cleaner intake, on each side of the cab. These openings shall be covered with a bright polished stainless steel grille.

One (1)  
40-G0-11

### **CAB GROUND LIGHTS**

Y\_\_N\_\_

### CAB GROUND LIGHTING

One light shall be mounted beneath each door. These lights shall be designed to provide illumination on areas under the driver and crew riding area exits. All cab ground lights shall automatically activate when any cab door is opened.

One (1)  
40-H0-10

### **ELECTRONIC BACK-UP ALARM**

Y\_\_N\_\_

### BACK-UP ALARM

An electronic Backup Alarm shall be installed on the rear of the apparatus and wired to the back-up light circuit. Minimum decibel rating of 97 dba is required.

# Portage

## Bidder Complies

One (1) **LANYARD CONTROL FOR AIR HORNS** Y\_\_N\_\_  
40-H0-15

AIR HORN LANYARD

The air horns shall be controlled by a "Y-chain" lanyard mounted from the overhead console to the cab center.

One (1) **ELECTRIC HORN/AIR HORN SELECTOR SWITCH** Y\_\_N\_\_  
40-H0-17

ELECTRIC HORN/AIR HORN SELECTOR SWITCH

An overhead panel mounted switch shall be supplied to control air or electric horn from the steering wheel horn button shall be provided and clearly labeled with a back-lit legend.

One (1) **SIREN/AIR HORN SELECTOR SWITCH** Y\_\_N\_\_  
40-H0-18

HORN / SIREN SELECTOR SWITCH

An overhead console mounted switch to control air horn or siren from the floor mounted foot switch(es) shall be provided. This switch shall be clearly labeled with a back-lit legend.

One (1) **^EQ2B SIREN MOUNTED RECESSED IN THE GRILLE** Y\_\_N\_\_  
40-H0-56

ELECTRONIC SIREN

A FEDERAL EQ2B siren shall be mounted recessed in the grille. Includes overhead console mounted brake switch. The control of the EQ2B shall be thru the master switch.

One (1) **DUAL GROVER AIR HORNS RECESSED 28.5"** Y\_\_N\_\_  
40-HA-07

AIR HORNS

Dual Grover Stuttertone air horns shall be recessed into the front bumper, (1) each side, inboard of the frame rails located 28.5" apart. The air horns shall be mounted with the Grover supplied mounting brackets.

One (1) **DRIVERS SIDE FOOT SWITCH FOR SIREN** Y\_\_N\_\_  
40-HA-11

FLOOR SWITCH

One (1) foot switch for siren shall be provided on drivers cab floor. This foot switch shall be wired to control the apparatus siren.

One (1) **OFFICER SIDE DASH SWITCH FOR SIREN** Y\_\_N\_\_  
40-HA-14

PUSH BUTTON SWITCH

One (1) dash mounted push button switch for the siren shall be provided on Officer's side. This push button switch shall be wired to control the apparatus siren.

# Portage

## Bidder Complies

One (1)  
40-J0-12

### HEATED WEST COAST MIRRORS

Y\_\_N\_\_

#### MIRRORS

Heated 16-1/2"x 7.0" Stainless steel West Coast Mirrors with 5.5" x 8.5" rectangular convex mirrors heads shall be provided, mounted on retractable spring loaded arms.

One (1)  
40-K0-11

### SLIDING SIDE WINDOWS (2) FOR MFD/LFD

Y\_\_N\_\_

#### CAB SIDE WINDOWS

Sliding side windows, (2) for standard tilt cab shall be provided in lieu of fixed windows. Window area shall be 26 1/2" high X 16" wide. All glass shall be tinted. The window frame shall be finished in a matte black color.

One (1)  
40-K0-30

### GRAY-LITE WINDOW TINT

Y\_\_N\_\_

#### WINDOW TINTING

The window shall have GRAY-LITE 14 tint to provide privacy and to assist in reducing the amount of heating inside the cab due to direct sunlight and unwanted glare.

One (1)  
40-LC-11

### RED FLASHING OPEN COMPARTMENT LIGHT

Y\_\_N\_\_

#### COMPARTMENT OPEN LIGHT

A Red Open Compartment Flashing Light, WELDON 1-2030-7120, shall be mounted on the face of the overhead panel.

This compartment open door light is wired with a flasher to the power panel for bodybuilder completion to the compartment door open circuit on the body.

The compartment open light circuit shall be wired so that the light circuit is deactivated when the parking brakes of the apparatus are applied.

One (1)  
40-LD-10

### STANDARD INTERIOR LIGHTING GROUP

Y\_\_N\_\_

#### INTERIOR CAB LIGHTING

Four (4) step well lights shall be supplied. These lights, one in each step well, shall have a light hood to direct the light downward toward the step and ground. All step well lights shall be illuminated when any door is opened and the battery selector switch is on.

Two (2) seven inch clear dome lights shall be supplied. One light shall be installed in the front of the cab centered over the "Widemouth Doghouse". One light shall be installed centered over the rear crew area. These lights shall be illuminated when any door is open or individually operated with a switch mounted on the light and the battery switch is in the on position.

One (1)

### THREE (3) ADDITIONAL 7" RED DOME LIGHTS

Y\_\_N\_\_

# Portage

Bidder Complies

40-LD-23

ADDITIONAL DOME LIGHTS

Three (3) additional seven inch red dome lights shall be supplied. These lights shall be operated individual switches mounted on each light.

One (1)  
40-LE-10

ENGINE MAINTENANCE LIGHTS

Y\_\_N\_\_

UNDER CAB ENGINE MAINTENANCE LIGHTS

Two (2) engine maintenance lights shall be supplied beneath the cab. These lights shall illuminate automatically when the cab is tilted to the full tilt position.

One (1)  
40-LF-01

FRONT WARNING LIGHT PACKAGE

Y\_\_N\_\_

One (1)  
40-LF-03

LED CAB FRONT FACE MOUNTED CLEARANCE LIGHTS

Y\_\_N\_\_

ICC MARKER LIGHTS

Five (5) LED cab face mounted clearance lights shall be supplied, mounted above the windshield, in conformance with FMVSS 108.

One (1)  
40-LF-25

80% HEAD LAMPS "ON" IGNITION CONTROL

Y\_\_N\_\_

HEAD LAMPS "ON" IGNITION CONTROL

When the ignition switch is in "on" the head lamps shall be illuminated to 80% brilliance.

One (1)  
40-LF-41

POWER ARC 210 FRONT WARNING LIGHTS

Y\_\_N\_\_

ICC MARKER LIGHTS

Two (2) side combination clearance / turn signal lights shall be supplied, one (1) each side mounted ahead of the front door.

HEADLIGHTS

Four (4) rectangular halogen headlights shall be supplied mounted in a chrome plated bezel. These headlights shall be mounted in the lower position on the front of the cab.

TURN SIGNALS

Two (2) amber CODE 3 41TA turn arrow signal lamps shall be mounted above the red warning lights.

WARNING LIGHTS

Two (2) POWER ARC 210 series warning lights shall be supplied mounted above the headlights in a chrome plated trim ring.

# Portage

## Bidder Complies

### CAB FRONT WARNING LIGHT CONTROL

Control of the Power Arc warning lights shall be by the Emergency Warning Light Switch for both "Calling of Right of Way" and "Blocking Right of Way" modes.

One (1) **HIGH BEAM "WIG-WAG" WARNING FLASHER** Y\_\_N\_\_  
40-LH-20

### HIGH BEAM HEADLIGHT WIG-WAG FLASHER

A high beam headlight flasher shall be wired into the headlight system and shall include an override system if the high beam headlights are required.

One (1) **NO INTERSECTION LIGHTS** Y\_\_N\_\_  
40-LI-99

One (1) **FEDERAL SIGNAL LF12ER MAPLIGHT** Y\_\_N\_\_  
40-LM-11

### OFFICER MAPLIGHT

A Federal Signal LF12ER maplight shall be mounted on the A pillar on the Officer's side of the cab.

One (1) **COLLINS DYNAMICS 1,250,000 CANDLEPOWER** Y\_\_N\_\_  
40-LS-22

### HANDHELD SPOTLIGHT

A COLLINS DYNAMICS MAGNUM 1,250,000 candlepower hand held spotlight shall be hard wired into cab electrical system and mounted on top of the front door of the engine doghouse. This spotlight shall include a momentary switch, with a 9 foot 16 gauge Neoprene rubber coiled cord.

A DMB-CL Heavy duty black plastic coated steel wire basket for mounting the light shall be provided.

One (1) **NO LIGHT BAR** Y\_\_N\_\_  
40-LW-99

One (1) **ALUMINUM DIAMOND PLATE EXTERIOR REAR WALL** Y\_\_N\_\_  
40-N0-05

### EXTERIOR WALL DIAMOND PLATE

The cab exterior rear wall shall be covered with a single sheet of bright aluminum treadplate to protect the back of the cab from scratches.

One (1) **CAB TILT/ELECT CAB LIFT PUMP W/MANUAL BACK UP** Y\_\_N\_\_  
40-P0-02

### CAB TILT SYSTEM



# Portage

## Bidder Complies

The cab shall tilt a minimum of 45 degrees for ease of serving. Tilting shall be accomplished by means of a tilt pump connected to two (2) heavy duty lift cylinders. It shall be equipped with a positive locking mechanism (service lock) to hold the cab in the full tilt position. Release of the service lock shall be by means of a pull type cable assembly. The cylinders shall have a velocity fuse at the base to prevent the cab from falling in the event of a hydraulic hose failure. The cab shall be capable of tilting 90 degrees for major engine service, if necessary. The 90 degree cab tilt shall be accomplished by removing the cab cylinder pins, removing one bolt in the steering shaft, and removing the front bumper and treadplate.

The cab shall have a three (3) point cab locking system. To prevent undue stresses in the cab, the cab mounting shall incorporate a five (5) point load mounting system.

The front cab pivot/lock assemblies shall utilize four (4) radially loaded, bonded rubber, axial mounts. These mounts shall have a maximum radial load rating of 925 pounds each and a torsional rating of 25 lbs-in/deg. Two one (1) inch diameter cab pivot pins shall be installed at the front of the cab. Each pivot pin shall have a grease fitting to allow for lubrication to the pivot area.

The rear cab lock shall be centerpoint mounted to prevent normal twist of the chassis from affecting the cab mounting, cab structure and windshield areas of the cab. This rear cab lock shall be mounted on a chassis crossmember to provide a stable platform for the locking system. This locking system shall automatically open prior to the cab tilting and automatically relatch when the cab is lowered completely into the travel position.

Two (2) outboard frame mounted urethane "V" blocks shall be provided at the rear of the cab. These dual purpose mounts shall align the cab upon lowering as well as provide non-latching support for the cab in the down position. With this system, extreme chassis twist shall allow the cab to move independently of the rear cab supports, reducing the structural stress damage often caused by outboard dual cab locking systems.

An electric-over-hydraulic cab tilt pump shall be supplied. This pump shall have a remote control for cab tilting operation. The control shall be "safety-yellow" in color.

A manual backup shall be provided for use in the event of electrical failure.

One (1)  
40-Q0-02

### **ACRYLIC URETHANE 7 YEAR PAINT WARRANTY**

Y\_\_N\_\_

#### ACRYLIC URETHANE FINISHES

The manufacturer shall warrant the Acrylic Urethane finishes on a fire and emergency vehicle for a period of seven years from its date of delivery.

This warranty shall apply only to the finished areas for the following defects:

- A. Cracking or Checking.
- B. A total loss of gloss caused by chalking or fading.
- C. Peeling of the top coat or all layers included in the process from the substrate.
- D. Spot or, random discoloration in the overall finish.