

SECTION 03: FUEL SYSTEM

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1. FUEL SYSTEM

1.1 Description

A schematic of the fuel system is shown in figure 1. Fuel is drawn from the fuel tank through a manual shut-off valve, the primary fuel filter or water separator (optional) and enters the fuel pump. Leaving the pump under pressure, the fuel flows through the secondary fuel filter and a shut-off valve, then to cylinder head. The fuel flows to injectors in the cylinder head through passages integral with the head. Surplus fuel exits at the rear of the head just above the inlet, through a restrictive return fitting which maintains fuel pressure in the system. Finally, the fuel flows through, fuel cooler, check valve then returns to the fuel tank. Two preheaters are available: 40 000 BTU or 80 000 BTU. If the vehicle is equipped with the 40 000 BTU preheater, the fuel is drawn from the tank through the fuel pump to the preheater. If the vehicle is equipped with the 80 000 BTU preheater the fuel is drawn from the fuel tank through a fuel filter to the preheater. Excess fuel returns to the fuel tank. Moreover, the vehicle may be equipped with a priming system.

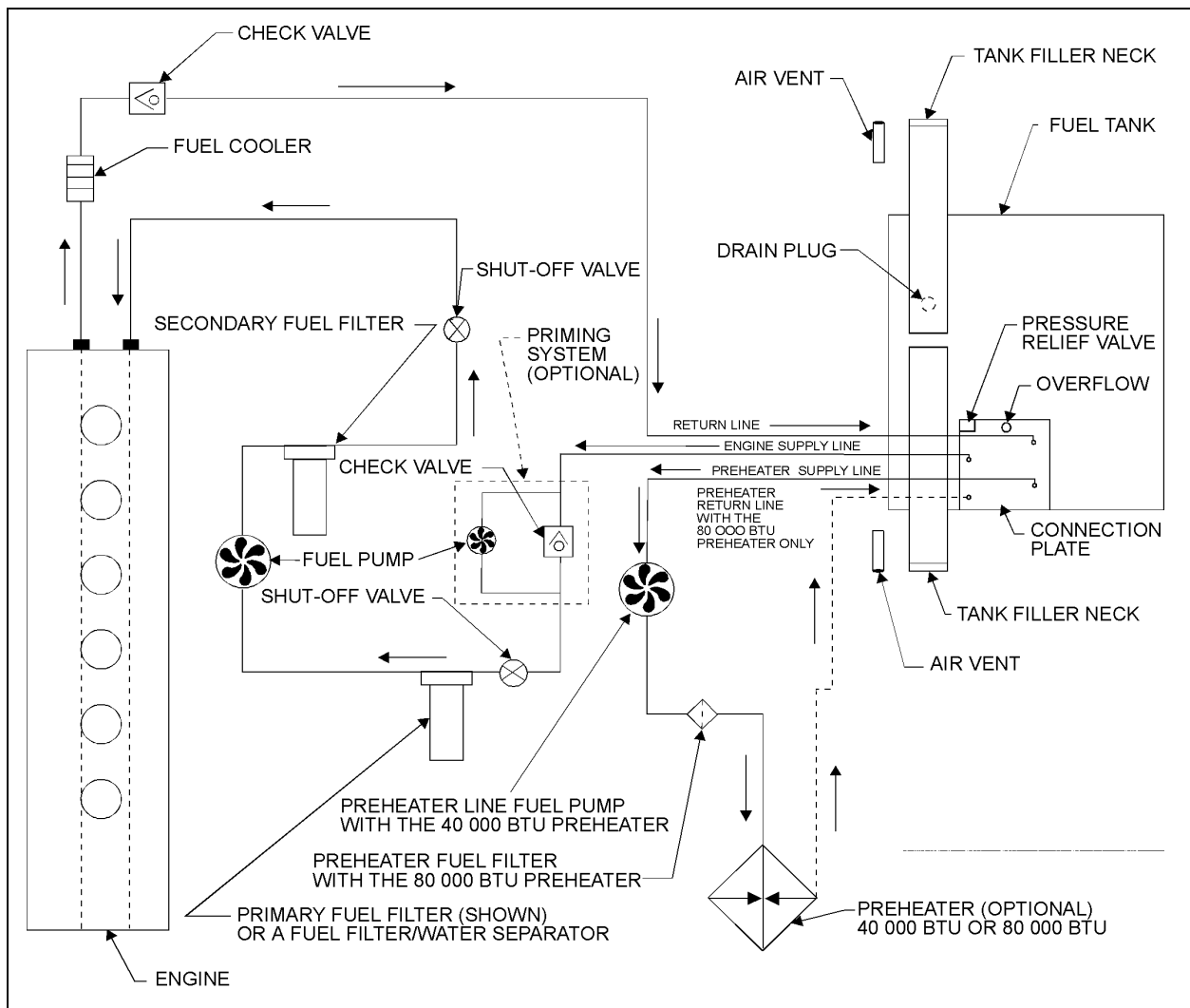


FIGURE 1: FUEL SYSTEM SCHEMATIC

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2. FUEL LINES AND FLEXIBLE HOSES

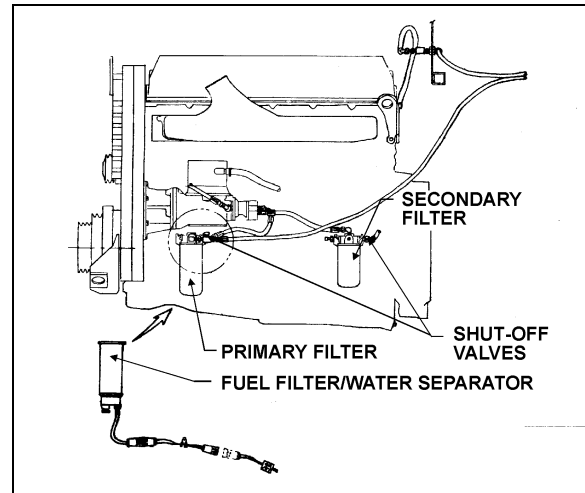
Make a visual check for fuel leaks at all engine-mounted fuel lines and connections and at the fuel tank suction and return lines. Since fuel tanks are susceptible to road hazards, leaks in this area may best be detected by checking for accumulation of fuel under the tanks. Engine performance and auxiliary equipment is greatly dependent on the ability of flexible hoses to transfer lubricating oil, air, coolant and fuel oil. Diligent maintenance of hoses is an important step in ensuring efficient, economical and safe operation of engine and related equipment.

Check hoses daily as part of the pre-start-up inspection. Examine hoses for leaks and check all fittings, clamps and ties carefully. Make sure that the hoses are not resting on or touching shafts, couplings, heated surfaces, including exhaust manifolds, any sharp edges or other obviously hazardous areas. Since all machinery vibrates and moves to a certain extent, clamps and ties can fatigue with age. To ensure continued proper support, inspect fasteners frequently and tighten or replace them as necessary. Refer to the schematic diagram of the fuel system (Fig. 1).

Caution: Oil level above the dipstick full mark or a decrease in lube oil consumption may indicate internal fuel leaks. Check oil level frequently.

3. FUEL VALVES

Manual shut-off valves on engine fuel supply line are located on the R.H. side of engine compartment (Fig. 2). A manual shut-off valve is located at the inlet side of the primary fuel filter (fuel filter/water separator, if vehicle is so equipped) under the air compressor. Another manual shut-off valve is located at the outlet side of the secondary fuel filter, under the starter. No manual valve is required on preheater fuel supply line, since the positive-displacement fuel pump (located close to the fuel tank) will shut off line when it is not activated.



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FIGURE 2: LOCATION OF MANUAL SHUT-OFF VALVES

4. FILTERS AND WATER SEPARATOR

The fuel system is equipped with primary and secondary fuel filters for additional protection of the injectors. A fuel filter/water separator may be installed in primary fuel filter location, to prevent water infiltration in engine fuel system (Fig. 2). It should be drained periodically, or when the water separator indicator lamp lights on dashboard. To drain, loosen self venting drain below separator, and tighten after water has been flushed out. Refer to "SPIN-ON FILTER WATER SEPARATORS" annexed at the end of this section.

Note: The service intervals of the filter/water separator element and the secondary fuel filter cartridge are determined by the operating conditions and cleanliness of type of fuel used.

4.1 Fuel Filter/Water Separator Servicing

The fuel filter/water separator is located on starter side of the engine, below the air compressor. The water separator must be drained periodically or when the indicator light on the central dashboard panel illuminates.

Section 03: FUEL SYSTEM

Replace the water separator element as follows :

1. Drain the fuel filter/water separator. Refer to paragraph "4. FILTERS AND WATER SEPARATOR" in this section.
2. With engine "OFF" and engine fuel supply line valves closed, remove the filter element from mounting head with bowl connected (For valve location, refer to paragraph "3. FUEL VALVES" in this section).
3. Remove bowl from filter element. Clean bowl and O-ring gland.

Note: *Bowl is reusable, do not discard.*

4. Lubricate O-ring with clean diesel fuel or motor oil and place it in bowl gland.

Caution: *Do not use tool to tighten bowl. Tighten by hand only.*

5. Spin bowl onto new filter element snugly by hand.
6. Lubricate filter to seal with clean diesel fuel or motor oil.
7. Fill filter element/bowl assembly with clean diesel fuel and attach onto mounting head. Hand tighten an additional 1/3 to 1/2 turn after full seal contact is made.
8. Open valves of the engine fuel supply line.
9. Run the engine and check for leaks.

Caution: *If the water separator continuously requires draining, it is possible that water or sediment is accumulated in the fuel tank. To correct this situation, open the drain plug under the tank when the fuel gauge indicates tank is 1/4 full in order to drain any contaminant.*

4.2 Fuel Filter Servicing (Primary and Secondary)

The primary and secondary fuel filters are located on the R.H. side of the engine compartment. The primary filter is installed on the engine below the air compressor, and the secondary fuel filter is below the starter. They are of a spin-on type and must be replaced every 12,000 miles (20 000 km) or once a year, whichever comes first.

A method of determining when filters are plugged to the extent that they should be changed is based on the fuel pressure at the cylinder head fuel inlet fitting and the inlet restriction at the fuel pump. In a clean system, the maximum pump inlet restriction should not exceed 6 inches of mercury (20.3 kPa) and must not exceed 12 inches of mercury (41 kPa) with a dirty system.

At normal operating speeds and with the standard 0.080" restriction fittings, the fuel pressure at the cylinder head inlet is 50-75 psi (345-577 kPa). Change the fuel filters whenever the inlet restriction at the fuel pump reaches 12 inches of mercury (42 kPa) at normal operating speeds and whenever the fuel pressure at the cylinder head inlet fitting falls to the minimum fuel pressure given above.

Change the filter cartridge(s) as follows :

Note: *Use a suitable band wrench or filter wrench, such as J22775, to remove the filters.*

1. Stop engine, shut off the engine fuel supply line valves (For valve location, refer to paragraph "3. FUEL VALVES" in this section). Unscrew and discard filters.
2. Fill new filter replacement cartridge(s) with clean fuel oil, about two thirds (2/3). Apply a thin coat of clean fuel oil on gasket.
3. Install new filters. Tighten until filter is snug against the gasket, with no side movement. Rotate an additional 1/2 turn by hand.

4. Open engine fuel supply line valves.

Caution: *Mechanical tightening of the fuel filters is not recommended and may result in seal and/or cartridge damage. Tighten the fuel filters by hand only.*

5. Start the engine and check for leaks.

Note: *There is a fuel system shut-off valve on the discharge side of the secondary fuel filter. This check valve is designed to prevent loss of fuel at time of filter replacement.*

4.3 Preheater Fuel Filter

The preheater fuel filter is installed on the vehicle only with the optional 80 00 BTU preheater. The filter is located in the rear electric compartment. Replace the filter every 50,000 miles (80 000 km) or once a year, whichever comes first.

5. FUEL TANK

The vehicle is equipped with a high density cross link polyethylene fuel tank with a capacity of 230 US gal (871 liters). The tank is located next to the last baggage compartment, between condenser and HVAC unit compartments (Heating, Ventilation and Air Conditioning) (Fig. 3).

Dual filler necks are provided to refuel from either side of vehicle; the left side fuel filler neck is accessible through a fuel filling access door, while access to the right filler neck is possible through the refrigerant dryer access door (see "Operator's Manual" for details).

A pressure relief valve on the fuel tank connection panel relieves high pressure buildup, and an overflow tube allows offset air in the tank to escape during filling. For 95% of the tank volume, a safety 5% of tank inside space is kept filled with air with no exit opening. A drain plug, accessible from under the vehicle, is fitted at the bottom of the tank.

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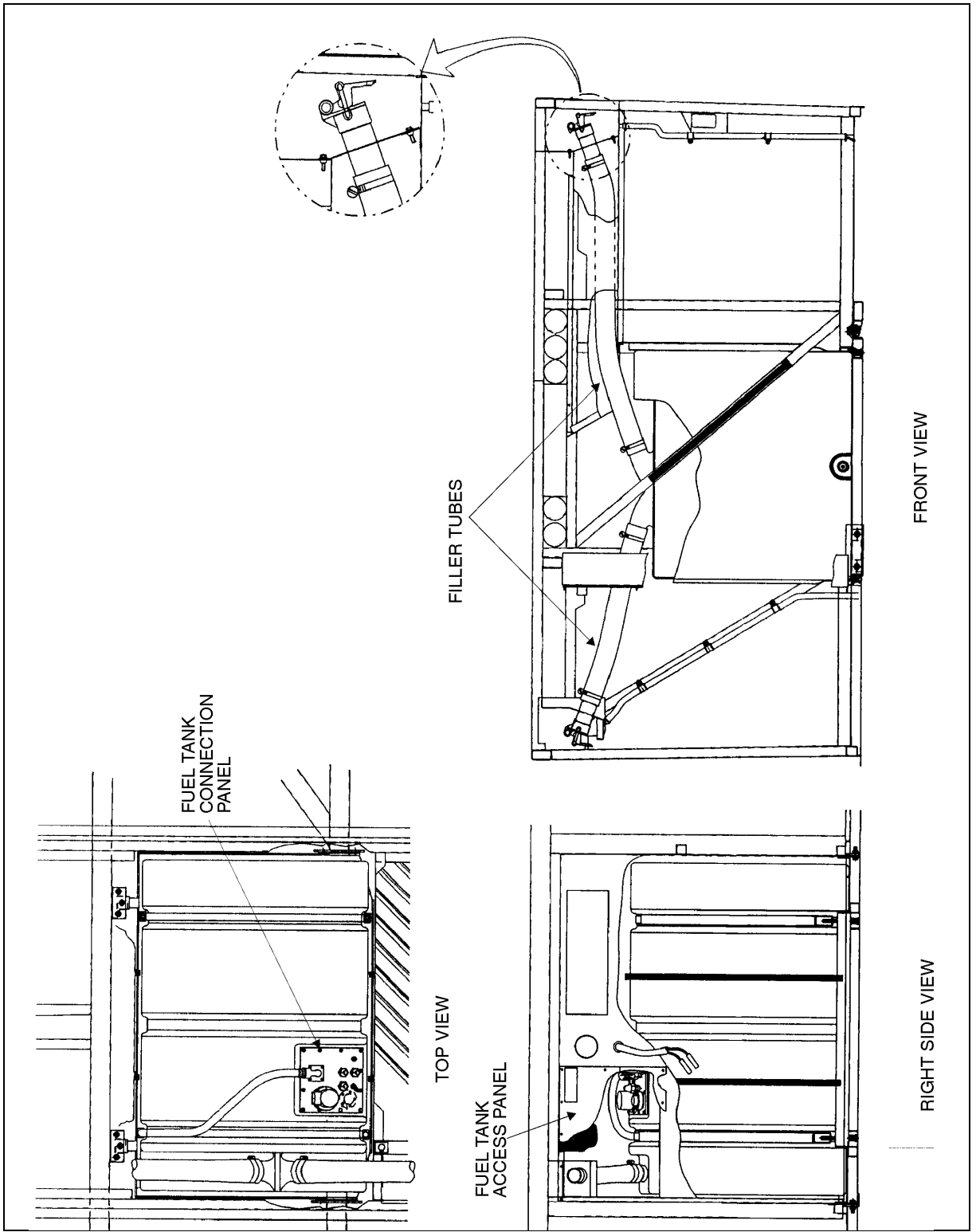


FIGURE 3: POLYETHYLENE FUEL TANK

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5.1 Fuel Tank Removal

Warning: Park vehicle safely, apply parking brake, stop engine and set battery master switch(es) to the OFF position prior to working on the vehicle.

Prior to working under a air-suspended vehicle, it is strongly recommended to support the body at the recommended jacking points.

Note: Prior to removal, the fuel tank should be completely drained by unscrewing the drain plug. Ensure that the container used has a capacity equal to the amount of fuel remaining in the tank (total capacity of the tank is 230 U.S. gallons or 871 liters).

1. Open the condenser door (refer to "Operator's Manual" for details). Remove the fuel access panel (Fig. 4).



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FIGURE 4: FUEL TANK ACCESS PANEL LOCATION

2. Unscrew clamp retaining L.H. side filler tube to the fuel tank, then disconnect tube and remove it.
3. Unscrew clamps retaining R.H. side filler tube to fuel tank and filler neck. Disconnect tube and remove it.
4. If applicable, Unscrew preheater supply line, preheater return line, auxiliary return line and/or auxiliary return line from fuel tank connection panel (Fig. 5).
5. Unscrew engine supply and return lines from fuel tank connection panel, identify them for reinstallation.

Disconnect electric wiring from tank (wires 0, 76 and 76C from terminals G, S and L, on connection plate (Fig. 5).

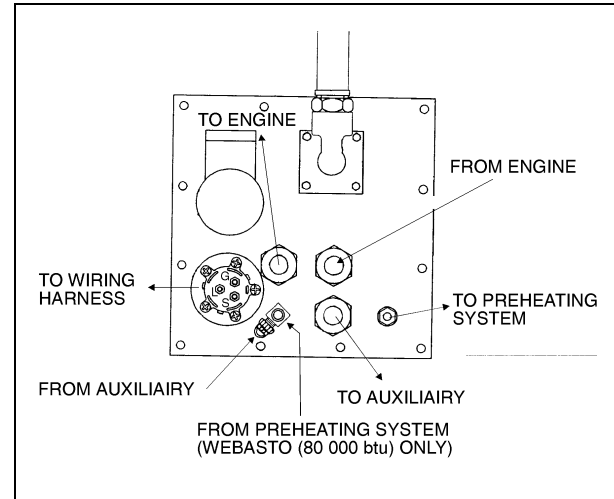
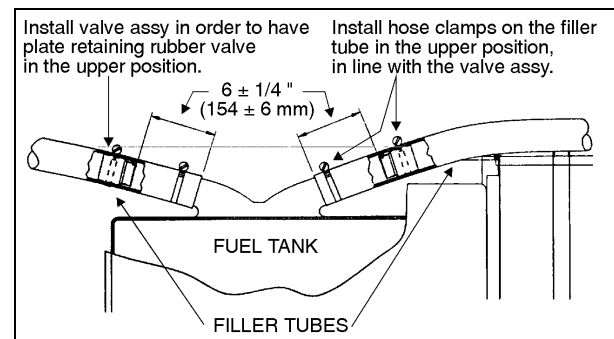


FIGURE 5: FUEL TANK CONNECTION PLATE

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FIGURE 6: FUEL TANK AND FILLER TUBES

Warning: Before removing the bolts securing the tank to the frame, make sure the tank is supported adequately. Failure to do so could result in injury as well as damage to the tank.

7. From under the vehicle, on R.H. side, unscrew the 4 bolts (2 in front, 2 in back) retaining the tank support to the frame bracket.
8. From under the vehicle, on the L.H. side, unscrew the 6 bolts (3 in front, 3 in back) retaining the tank support to the frame bracket. Remove the 2 mounting plates located between the tank support and the frame brackets.
9. Carefully remove tank from under the vehicle.

5.2 Fuel Tank Installation

Installation is the reverse of removal.

Note: Fastening of rubber flap must always be on top, in line with clamp screw (Fig. 6).

Note: Insert check valve assembly in right side filler hose (Fig. 6), use hose clamp to fix it. Repeat with left side filler hose.

Note: When reinstalling lines used Loctite 567™ type thread sealant on line fittings.

Note: Under vehicle, locate fuel tank and the four nuts retaining the two fuel tank retaining straps.

For each of the four nuts (Fig. 7) :

1. Clean nut and stud threads.
2. Apply a Loctite 242™ type removable threadlocker on stud threads.
3. For installation of an old fuel tank, screw nut back again up to coils to touch themselves.

For installation of a new fuel tank, screw nut back again up to coils to touch themselves and unscrew nut 3,5 of a turn.

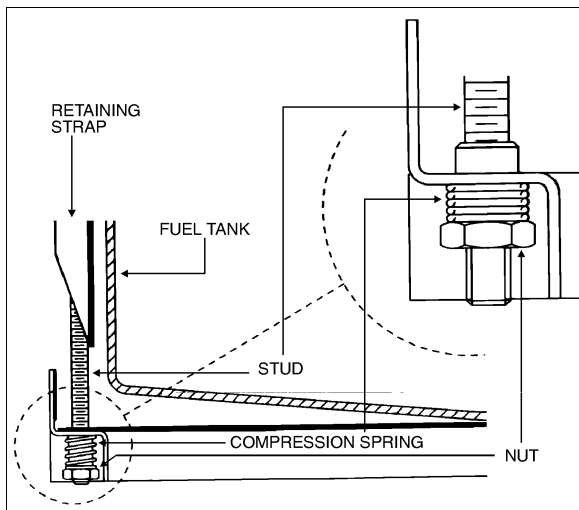


FIGURE 7: NUTS FOR FUEL TANK RETAINING STRAP

5.3 Fuel Tank Verification

Warning: Park vehicle safely, apply parking brake, stop engine and set battery master switches to the OFF position prior to working on the vehicle.

Prior to working under a air-suspended vehicle, it is strongly recommended to support the body at the recommended jacking points.

Inspect fuel tank from under vehicle for leak or fuel trace. If leak is detected, proceed with the following procedure otherwise, don't perform it.

5.4 Polyethylene Fuel Tank Reparation

Note: Before beginning this procedure, make sure that fuel level is less than half.

Warning: Park vehicle safely, apply parking brake, stop engine and set battery master switches to the OFF position prior to working on the vehicle.

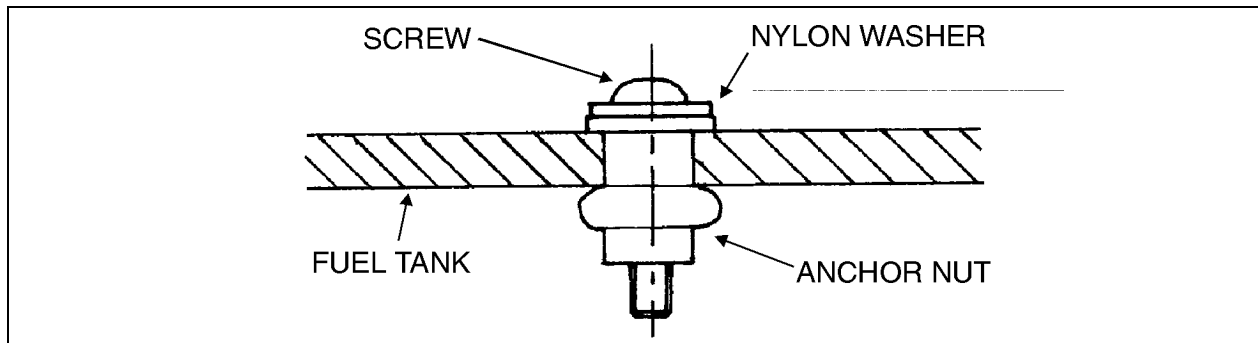


FIGURE 8: POLYETHYLENE FUEL TANK REPAIRATION

03014

1. In the condenser compartment, locate hole of former retaining clip's screw.
2. Locate perforation on the fuel tank, and with a $\frac{23}{64}$ " bit, drill perforation on fuel tank to have a perfect round hole.
3. Insert screw (Prévost #500196) in washer (Prévost #5001244) and anchor nut (Prévost #500331) without deforming anchor nut.
4. Insert assembly in the hole on the fuel tank, and tighten by doing 10 complete turns of screw (Fig. 8).
5. Apply sealant on head plug (Prévost #507300) and seal hole with the head plug.

6. PRIMING FUEL SYSTEM

The problem with restarting an engine that has run out of fuel, is that after the fuel is exhausted from the tank, it is pumped from the primary fuel filter or the fuel filter/water separator, if vehicle is so equipped, and sometimes partially removed from the secondary filter resulting in an insufficient fuel supply to sustain engine firing. The primary fuel filter or fuel filter/water separator and secondary filter must be free of air in order for the systems to provide adequate fuel for the injectors. When the engine runs out of fuel, the following operations must be performed before restarting.

Fill fuel tank with the recommended fuel oil. If only partial filling is possible, add a minimum of 10 gallons (38 liters) of fuel.

Vehicle equipped with optional priming pump (Fig. 1)

Start the priming pump. The switch is located in the engine compartment and mounted on a small box above the engine (between the starter button and the starter selector switch). Start the engine and check for leaks.

Vehicle not equipped with priming pump

1. Unscrew the cap on the priming valve located on the secondary filter.
2. Direct fuel under pressure 25 psi (172 kPa) to the priming valve using a quick coupling.
3. Start the engine and check for leaks.

7. FUEL PUMP INSTALLATION

The fuel pump is attached to a drive assembly mounted on the rear side of the gear case.

1. If removed, install inlet and outlet fittings in the cover of the fuel pump.

Note: New fittings have sealant already applied. If reusing fittings, coat the threads lightly with Loctite Pipe Sealant, Detroit Diesel number J 26558-92, or equivalent, before installing. To prevent sealant from entering fuel system, do not apply it to the first two (2) threads of the fitting. Do not use teflon tape or paste on the fittings.

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2. Install drive coupling in drive hub of the fuel pump. Install a new gasket to the mounting flange of the pump.
3. Align the drive coupling with the coupling on the fuel pump drive assembly pump mounting bolt holes with those in the fuel pump drive assembly.
4. Seat the pump squarely against the drive assembly. Install three (3) fuel pump mounting bolts and tighten them to 22-28 lb•ft (30-38 N•m).
5. Connect the fuel inlet and outlet lines to the fuel pump and tighten.
6. Prime engine fuel system before starting engine to ensure pump seal lubrication and prompt engine starting.

8. FUEL OIL SPECIFICATIONS

The quality of fuel oil used for high speed diesel engine operation is a very important factor in obtaining satisfactory engine performance, long engine life and acceptable exhaust emission levels. The fuel oil should meet ASTM designation D 975. Grade 1-D is recommended, but grade 2-D is also acceptable.

Note: *These fuel grades are very similar to grade DF-1 or DF-2 of Federal Specifications VV-F-800. For detailed fuel recommendations, refer to publication "Engine Requirements-Lubricating Oil, Fuel, and Filters" #7SE270 available from Detroit Diesel Distributors.*

9. AIR CLEANER (dry type)

H3 vehicles are equipped with a two-stage, dry-type, replaceable element air cleaner, located in the engine compartment. To service the air cleaner, open the R.H. side engine compartment door. Engine air enters the air cleaner through an intake duct integrated to the R.H. side of the rear cap, next to the last window of vehicle, then flows through a pre-cleaner and finally through the air cleaner.

The pre-cleaner removes dust and moisture from air and drains dust and moisture by means of a discharge tube at the bottom of the pre-cleaner. The pre-cleaner is in series with a replaceable impregnated paper filter element (air cleaner) (Fig. 9).

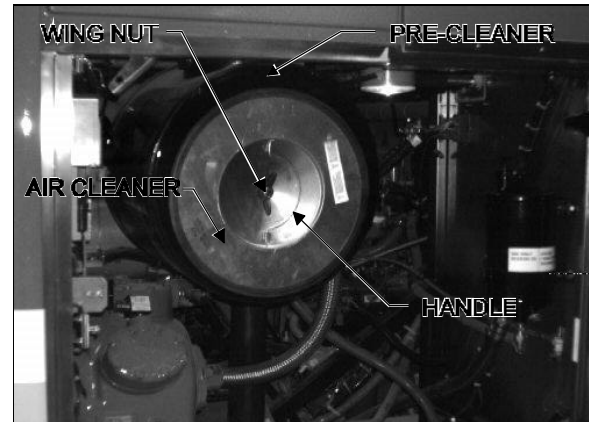


FIGURE 9: AIR CLEANER LOCATION

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9.1 Pre-Cleaner Servicing

The pre-cleaner is designed to be self-cleaning; however, it should be inspected and any accumulated foreign material removed during the periodic replacement of the impregnated paper filter element.

9.2 Air Cleaner Servicing

Stop the engine, open the R.H. side engine compartment door, and loosen the wing nut retaining the air cleaner element to the air cleaner. Remove the element by pulling on the handle in the center of the air cleaner element.

Install cleaner element as follows:

1. Inspect the gasket sealing surface inside the air cleaner. It must be smooth, flat and clean.
2. Install the air cleaner element.
3. Make sure that the element seals securely.

Inspect element cover gasket and replace if necessary.

Whenever it becomes necessary to remove the air cleaner assembly (dry type) for maintenance or other repair in this area, great care should be taken when installing air cleaner assembly.

The pre-filter should be installed snugly in the air duct and clamped tightly to the air cleaner inlet to prevent any dust infiltration into the air cleaner.

9.3 General Recommendations

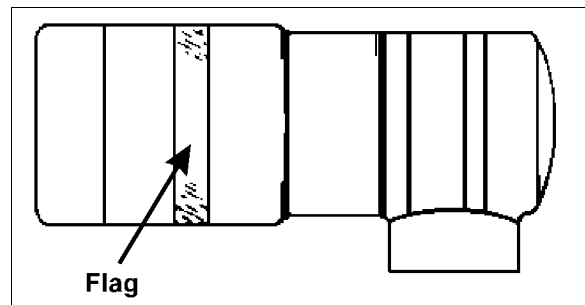
The following maintenance procedures will ensure efficient air cleaner operation:

1. Keep the air cleaner housing tight on the air intake pipe.
2. Make sure the correct filters are used for replacement.
3. Keep the air cleaner properly assembled so the joints are air-tight.
4. Immediately repair any damage to the air cleaner or related parts.
5. Inspect, clean or replace the air cleaner or elements as operating conditions warrant. Whenever an element has been removed from the air cleaner housing the inside surface of the housing must be cleaned with a soft clean cloth.
6. Periodically inspect the entire system. Dust-laden air can pass through an almost invisible crack or opening which may eventually cause damage to an engine.
7. Never operate the engine without an element in the air cleaner assembly.
8. Do not ignore the warning given by the air restriction indicator. This could result in serious engine damage.
9. Store new elements in a closed area free from dust and possible damage.

9.4 Air Cleaner Restriction Indicator

A resettable restriction indicator is installed on the engine air intake duct near the turbocharger in the engine compartment, to constantly monitor the level of vacuum between the air cleaner and engine in order to detect and indicate an abnormal increase in vacuum due to a dirt-laden and therefore restricted air cleaner element.

When the red signal flag locks in full view, the air cleaner element must be inspected and replaced if necessary. The indicator flag must be reset by pressing on its extremity (Fig. 10).



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FIGURE 10: AIR CLEANER RESTRICTION INDICATOR

10. FUEL PEDAL

The EFPA (Electronic Foot Pedal Assembly) connects the accelerator pedal to a potentiometer (a device that sends an electrical signal to the ECM which varies in voltage, depending on how far down the pedal is depressed). The EFPA is installed in the space normally occupied by a mechanical foot pedal. It has maximum and minimum stops that are built into the unit during manufacture.

10.1 Fuel Pedal Adjustment

The EFPA contains a throttle position sensor that varies the electrical signal sent to the ECM. The sensor must be adjusted whenever an EFPA is serviced. In addition, the sensor should be adjusted any time codes 21 and 22 are flashed.

With the ignition "ON" and the proper diagnostic tool (DDR) (for information regarding the DDR, refer to section 01 "ENGINE"), check the throttle counts at idle and full throttle positions. Proper pedal output should be 20/30 counts at idle and 200/235 at full throttle. If adjustment is necessary remove the potentiometer cover, loosen the retaining screw and rotate the potentiometer clockwise to increase counts or counterclockwise to decrease. When correct output is confirmed, tighten retaining screws and reinstall the potentiometer cover.

10.2 Potentiometer Replacement

1. Remove the electronic foot pedal assembly from the vehicle.

Caution: Note the routing and clamping locations of the cable before disassembly. Proper cable routing and fastening is critical to the operation of this system. Marking the foot pedal assembly to record cable routing is recommended.

2. Discard screws (1, Fig. 11) and cable clamps (2, Fig. 11) securing wire.
3. Loosen the three (3, Fig. 11) screws and remove potentiometer cover. Retain for reassembly.
4. Discard potentiometer (3, Fig. 11), screws (4, Fig. 11), washers (5, Fig. 11) and grommet (6, Fig. 11).

5. Position new potentiometer (3, Fig. 11) with flat side towards you. Press potentiometer onto the potentiometer shaft (7, Fig. 11), matching cutouts in shaft to drive tangs of potentiometer. Apply hand pressure until potentiometer has bottomed out in housing. Install new screws and washers (4 & 5, Fig. 11) and tighten just enough to lightly secure potentiometer. Rotate potentiometer counterclockwise as far as possible. Tighten screws to 10-20 lbf•in (1.1-2.2 N•m).
7. Install new cable clamps and screws (1 & 2, Fig. 11), making sure new potentiometer's wire harness is routed in the same manner as the original harness. Tighten screws to 34-45 lbf•in (3.7-5 N•m).
8. Connect electronic foot pedal assembly's cable harness to the ECM connector. Then, Potentiometer calibration is now necessary (Refer to paragraph "11.1 FUEL PEDAL ADJUSTMENT" in this section). When correct output is confirmed, install the pedal assembly in its proper location.

Caution: Make sure the cable harness is routed correctly, and securely installed so that it does not become pinched, stretched, or otherwise damaged during vehicle operation.

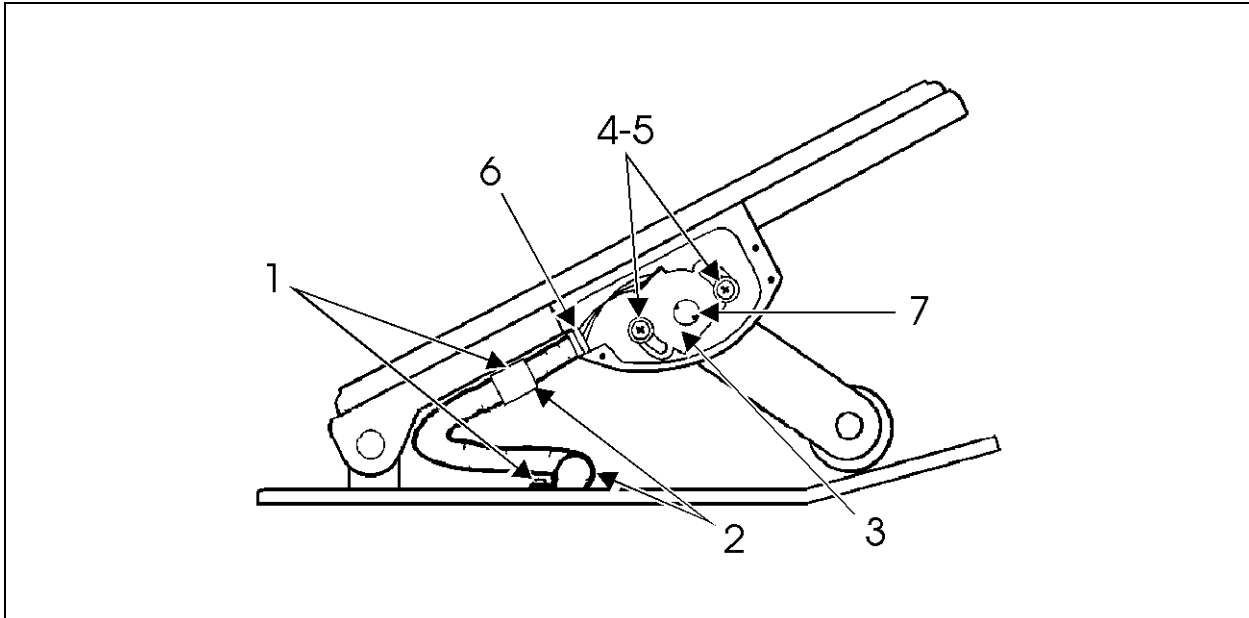


FIGURE 11: ELECTRONIC FOOT PEDAL ASSEMBLY

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11. FUEL COOLER

The fuel cooler serves to cool the surplus diesel fuel after it has exited the cylinder head, on its way back to fuel tank. It is accessible through engine L.H. side door and is located just in front of radiator.

12. SPECIFICATIONS

Primary/Water Separator (optional)

(May be used instead of the primary filter (never use with a primary filter))

Make Racor
Type..... Spin-on

ELEMENT

Supplier number..... S 3202
Prevost number..... 531390

BOWL

Supplier number.....RK30051
Prevost number..... 531389

DRAIN VALVE AND SEAL

Supplier number.....RK30058
Prevost number..... 531397

O-RING

Supplier number.....RK30076
Prevost number..... 531398

PROBE/WATER SENSOR

Supplier number.....RK21069
Prevost number..... 531391

Primary Fuel Filter (Standard)

MakeAC
Type..... Spin-on
Service Part No
(Type with water separator) 23512317
Prevost number..... 531407
Element torque..... 1/2 turn after gasket contact

Secondary Fuel Filter

MakeAC
Type..... Spin-on
Filter No.T-916D
Service Part No..... 25014342
Fuel filter Prevost number..... 510128
Element torque..... 1/2 turn after gasket contact

Fuel tank

Capacity.....230 US gal (871 liters)

Air Cleaner

Make Nelson
Prevost Number 530206
Element cartridge supplier number 70337-N
Element cartridge Prevost number..... 530197

Pre-Cleaner

Make.....Donaldson
Model.....PVH001220
Prevost number 530207

Air Restriction Indicator

Make.....Donaldson
Model.....RAX00-2320
Indicates..... at 20" (508 mm) of water
Prevost number 530161

Preheater Fuel Filter (80 000 BTU)

Make.....Webasto
Supplier number 603.359
Prevost number 871037

Preheater Line Fuel Pump

Supplier number 25-1571-45-0000
Prevost number 870973

Material For Polyethylene Fuel Tank Reparation

| Part No | Description | Qty |
|---------|-----------------------|-----|
| 5001096 | Screw | 1 |
| 500331 | Anchor nut (neoprene) | 1 |
| 5001244 | Nylon washer | 1 |
| 507300 | Nylon domed head plug | 1 |

SPIN-ON FILTER/SEPARATORS

THE RACOR 20 SERIES SPIN-ON FUEL FILTER WATER SEPARATORS CAN SOLVE DIESEL FUEL PROBLEMS UNDER ANY OPERATING CONDITIONS IN THE WORLD

Advanced Filtration/ Separation Technology

The unique design of the 20 Series directs the fuel flow to the expanded center core of the unit. The reduced velocity causes heavy liquid and solid contaminants to accumulate in the inner chamber of the filter/separator bowl. Then they are drained off through a positive seal drain valve. This primary separation or pre-cleaning stage gives extended element life.

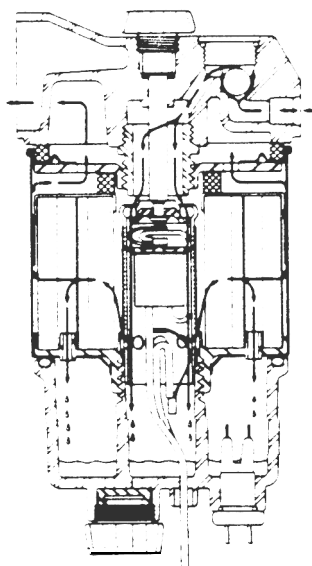
The 20 Series Filter/Separator units are compact and easy to service.

Vacuum (Suction) Applications

The *Dual Media Replacement Filter Element* uses a new Racer two-stage process of Dual Phase Repelling Action and Dual Phase Filtration to remove virtually 100% of the remaining free water and damaging solid particulate contaminants from diesel fuel. Primer pump, vent cap and check valve are standard.

pressure Applications

The *Multi-Media Coalescer Replacement Filter Element* is for pressure side installations where the fuel has passed through a transfer pump and a coalescing filtration action is necessary for a high degree of water removal effectiveness. With the coalescer replacement filter element, 99+% of free and emulsified water and damaging solid particulate contaminants are removed. Vent cap is standard



Options

- Electrical in-filter heater
- Metal Bowl
- Service Indicator Package (water sensor and element change monitor)



220

Height 8" (203 mm)
Width 4" (102 mm)
Depth 4" (102 mm)
Max Flow Rate 30 gph (114 lph)
Weight 1.75 lbs (79 kgs)

| Element Model No | R24 | C25 |
|---------------------------|-----------------------------|----------------------------|
| | Dual Media | Coalescer |
| Dirt Capacity (Soft C-2A) | 80 gms | 75 gms |
| Dirt Removal Rating | 96% at 2 micron w/A C F T D | |
| Water Removal Efficiency | less than 10ppm free water | less than 30ppm free water |
| Effluent: | water | |

225

Height 9.5" [241 mm]
Width 4"(102 mm)
Depth 4"(102 mm)
Max Flow Rate 45 gph(170 lph)
Weight 2 lbs (90 kgs)

| Element Model No | R26 | C27 |
|---------------------------|-----------------------------|----------------------------|
| | Dual Media | Coalescer |
| Dirt Capacity (Soft C-2A) | 117gms | 107 gms |
| Dirt Removal Rating | 96% at 2 micron w/A C F T D | |
| Water Removal Efficiency | less than 10ppm free water | less than 30ppm free water |
| Effluent | water | |

FUEL ADDITIVES

Racer additives are specially formulated to be completely compatible with engines, fuel filters and water separators. They contain no damaging alcohol and keep fuel in the best possible condition for all diesel engine applications.

SUPER CONCENTRATED. COMPARE TREATMENT COST PER GALLON OF FUEL.

Racer RX-100 Cold Weather Diesel Additive

- Contains a pour point depressant fuel conditioner
- Keeps fuel flowing down to -40°F (-40°C).
- Improves engine performance reduces engine wear
- Eases starting, aids combustion, prevents corrosion
- Eliminates waxing and clogged filters

Z Cleans fuel lines, pumps and Injectors

| Part No. | Typo | Size | Treatment |
|----------|--------|----------|-----------------|
| 11-1179 | Rx-100 | 10 oz | 15-30 Gallons |
| 11-1180 | RX-100 | 32 oz | 150-200 Gallons |
| 11-1181 | RX-100 | 1 gal. | 1,000 Gallons |
| 11-1264 | RX-100 | 2.5 gal. | 5,000 Gallons |
| 11-1265 | RX-100 | 20 gal. | 55,000 Gallons |

(Continued on Page 16)

Racer RX-200

Diesel Treatment

- Improves engine performance
- Cleans fuel lines pumps and injectors
- Eases starting and prevents corrosion

| Part No. | Typo | Size | Treatment |
|----------|--------|--------|---------------------------|
| 11-1270 | RX-200 | 10 oz. | One 10 oz Can Per Tankful |
| 11-1274 | RX-200 | 32 oz. | 150,200 Gallons |

Racer RX-300

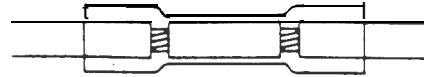
Marine Diesel Treatment

Formulated for diesel fuel in a marine environment, RX-300—

- * Contains a biocide and fuel conditioner
- Prevents fungi, bacteria and algae growth
- Cleans fuel lines, pumps and injectors
- Improves engine performance
- Provides rust protection and lubrication throughout the entire system

| Part No. | Typo | Size | Treatment |
|----------|--------|---------|-----------------|
| 11.1266 | RX-300 | 10 oz | 50 Gallons |
| 11.1267 | RX-300 | 32 oz | 500 Gallons |
| 11.1268 | RX-300 | 1 gal. | 5,000 Gallons |
| 11-1269 | Rx-300 | 20 gal. | 100,000 Gallons |

**BUTT SPLICE
Installation Instructions**



1. Select splice of appropriate size Strip wires O 3". Insert into crimp barrel



2. Crimp using crimp tool for preinsulated crimps.



3. Heat splice with heat gun until tubing recovers and adhesive flows.

RACOR LIMITED WARRANTIES STATEMENT

All products manufactured or distributed by Racer are subject to the following, and only the following, LIMITED EXPRESS WARRANTIES and no others:

For a period of one (1) year from and after the date of purchase of a new Racer product, Racer warrants and guarantees only to the original purchaser-user that such a product shall be free from defects of materials and workmanship in the manufacturing process. The warranty period for pumps and motors is specifically limited to ninety (90) days from date of purchase. A product claimed to be defective must be returned to the place of purchase. Racor, at its sole option, shall replace the defective product with a comparable new product or repair the defective product. This express warranty shall be inapplicable to any product not properly installed and properly used by the purchaser-user or to any product damaged or impaired by external forces. THIS IS THE EXTENT OF WARRANTIES AVAILABLE ON THIS PRODUCT. RACOR SHALL HAVE NO LIABILITY WHATSOEVER FOR CONSEQUENTIAL DAMAGES FLOWING FROM THE USE OF ANY DEFECTIVE PRODUCT OR BY REASON OF THE FAILURE OF ANY PRODUCT. RACOR SPECIFICALLY DISAVOWS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ALL WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE (EXCEPT FOR THOSE WHICH APPLY TO PRODUCT OR PART THEREOF THAT IS USED OR SOUGHT FOR USE PRIMARILY FOR PERSONAL, FAMILY, OR HOUSEHOLD PURPOSES), WARRANTIES OF DESCRIPTION, WARRANTIES OF MERCHANTABILITY, TRADE USAGE OR WARRANTIES OF TRADE USAGE.

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 In Alaska California and Hawaii, call 1-209-521-7860

INSTALLATION INSTRUCTIONS
 Racor Part No 7091FG
 9-90/24M