
CHAPTER

14

Truck and Trailer
Refrigeration
Maintenance

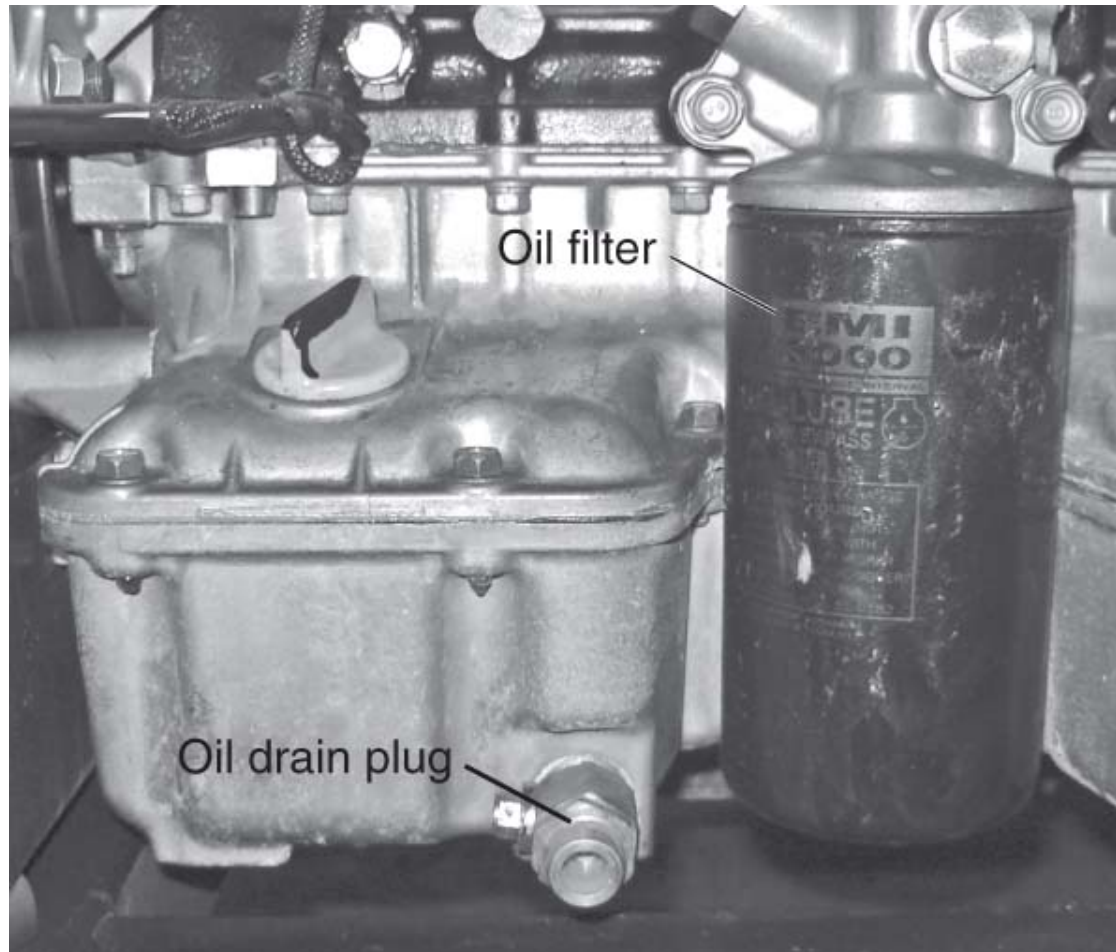
Instructor Name: (Your Name)

Objectives

Upon completion and review of this chapter, the student should be able to:

- List the various components that must be checked and maintained on a routine PM service on a refrigeration unit.
- Accurately check and adjust engine coolant strength.
- Describe refrigeration maintenance.
- Explain evacuation techniques.
- Explain a pre-trip inspection.
- Describe leak testing procedures.
- List structural items that should be checked on a PM.

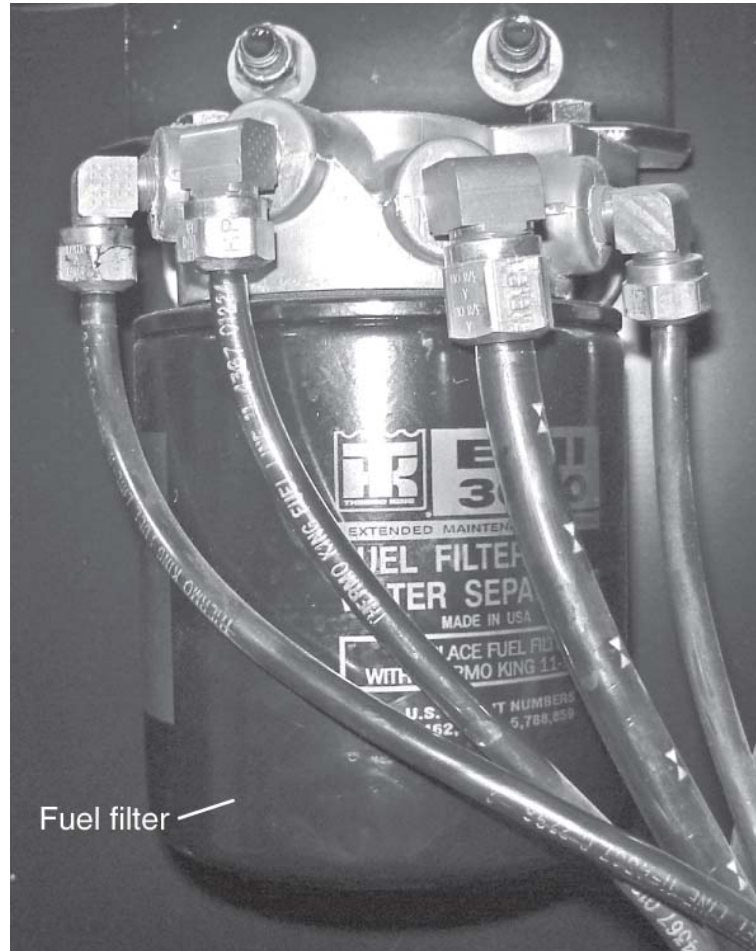
Oil Drain Plug and Filter



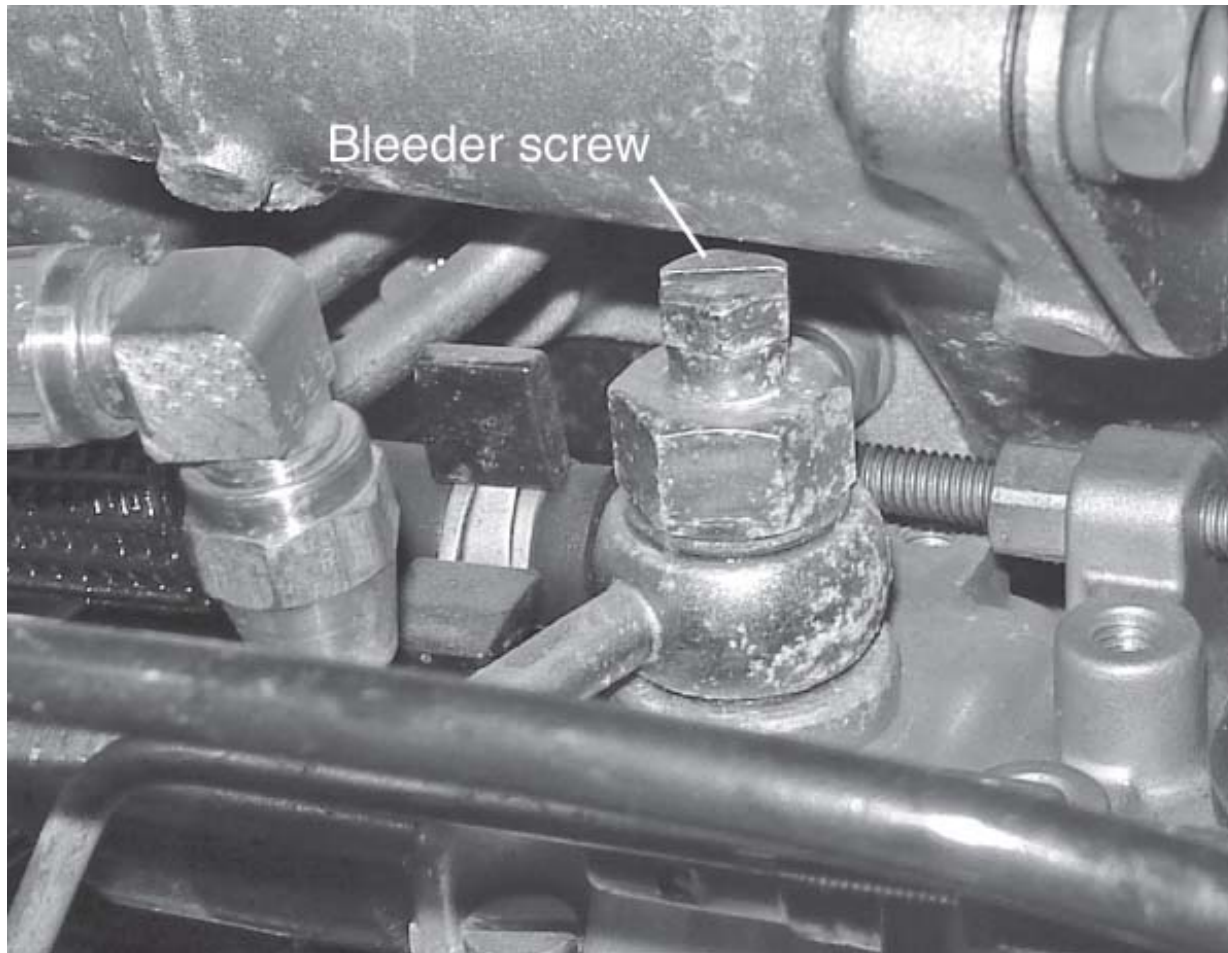
Shop Talk

Do not attempt to prime the fuel filters before installation, as unfiltered fuel can damage the injection pump.

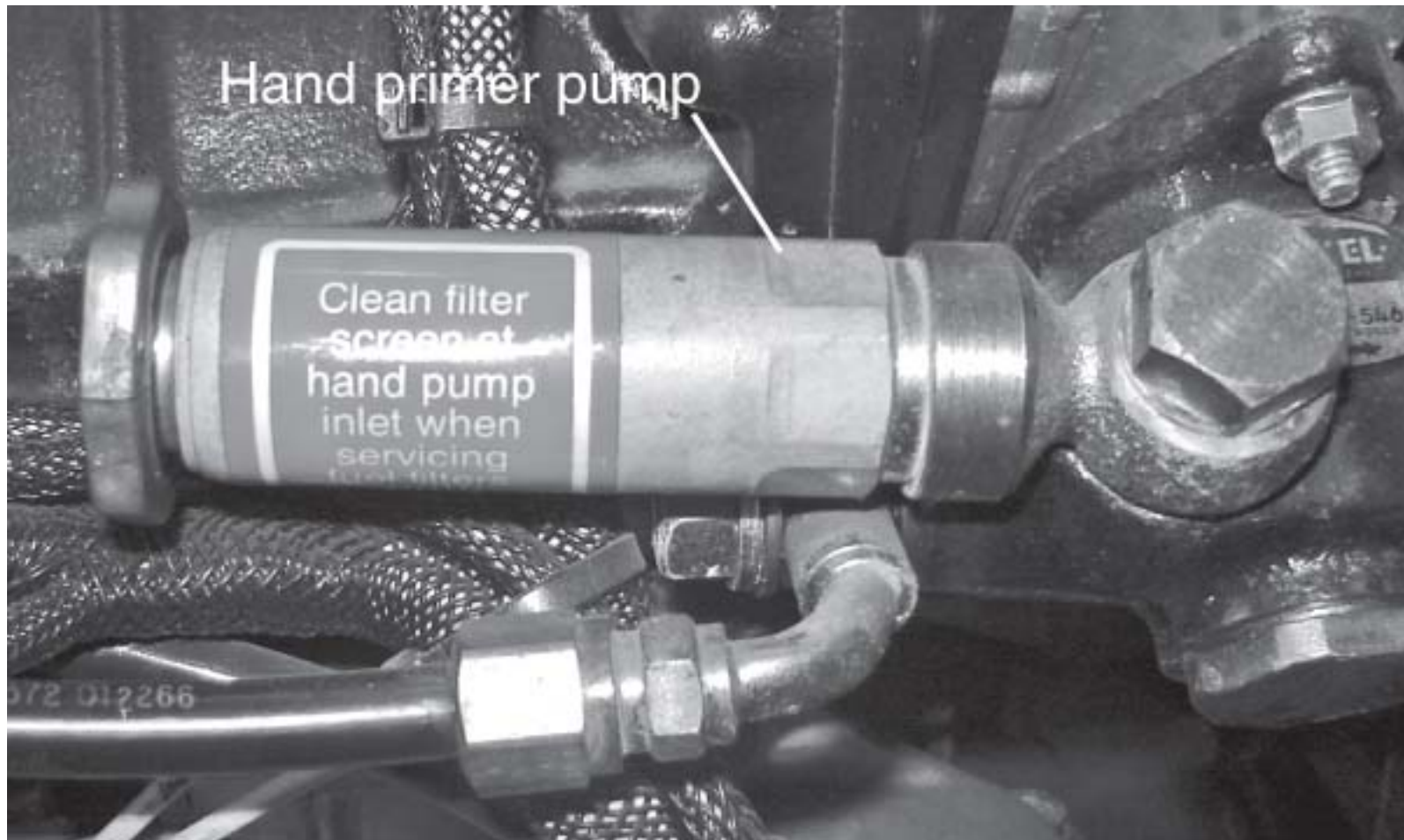
Typical Spin-On Fuel Filter



Fuel Bleeder Screw



Fuel Primer Pump



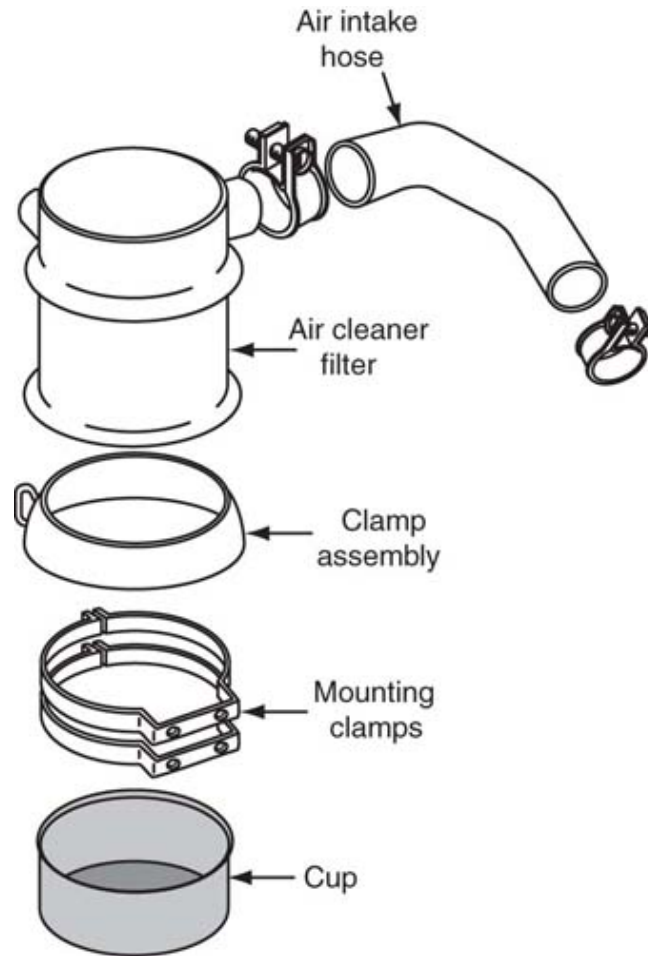
Typical Battery Charger With Boost



Note

The battery is usually discharged almost completely from operators' trying to unsuccessfully start the unit, so the battery should be checked and charged as necessary, especially in cold ambient conditions.

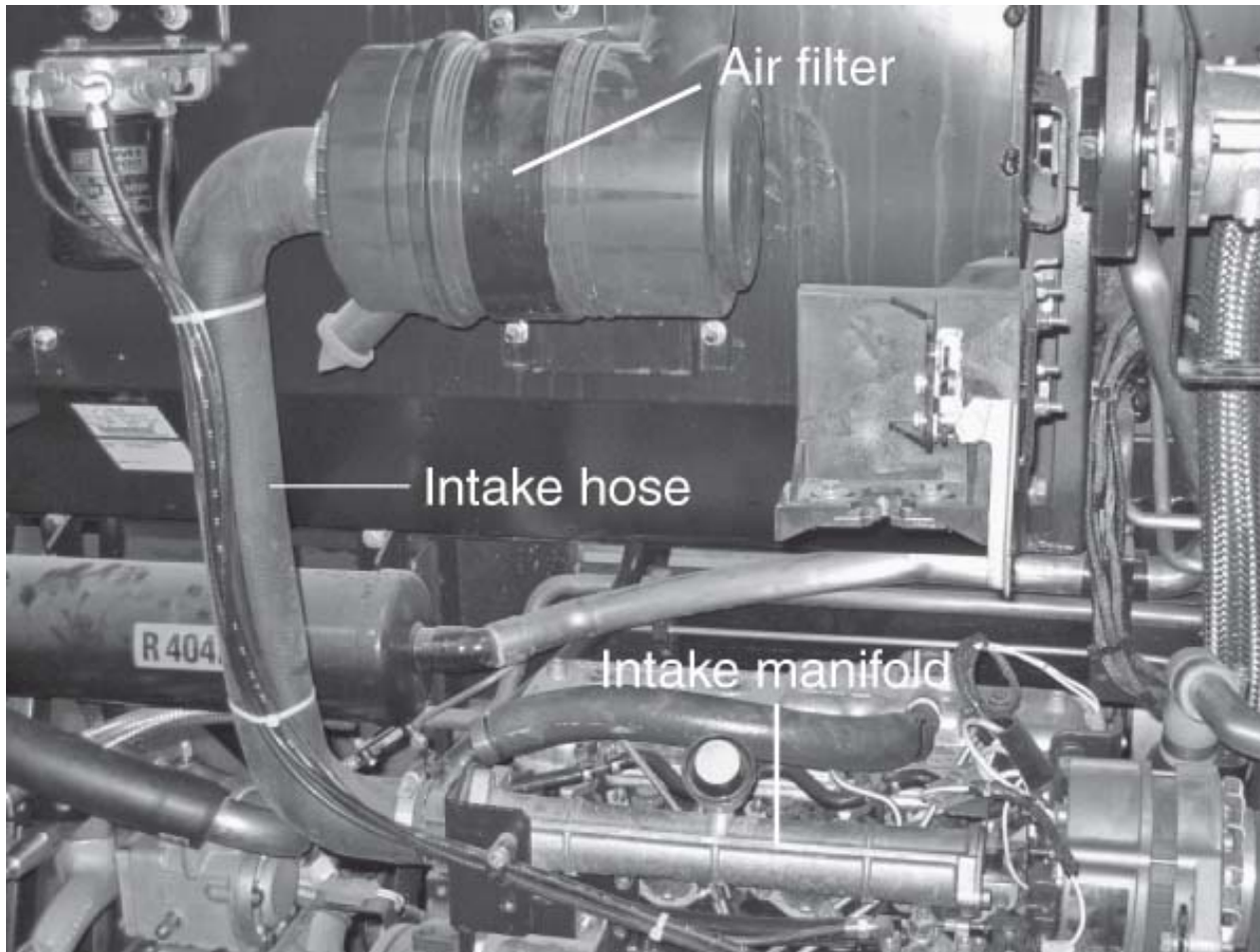
Oil Bath Air Cleaner



Air Filter Restriction Indicator



Dry Element Air Filter



Tech Tip

Always loosen belt adjustments before installing or removing a belt. Trying to pry a belt over a pulley will result in shortened belt life due to internal belt cord damage.

CAUTION

Never try to make any belt adjustments with the unit running. Due to the fact that many units today have an automatic stop-start feature, the best way to service belts on a refrigeration unit is to first disconnect the negative battery terminal. This will prevent accidental starting of the unit and serious personal injury or even death.

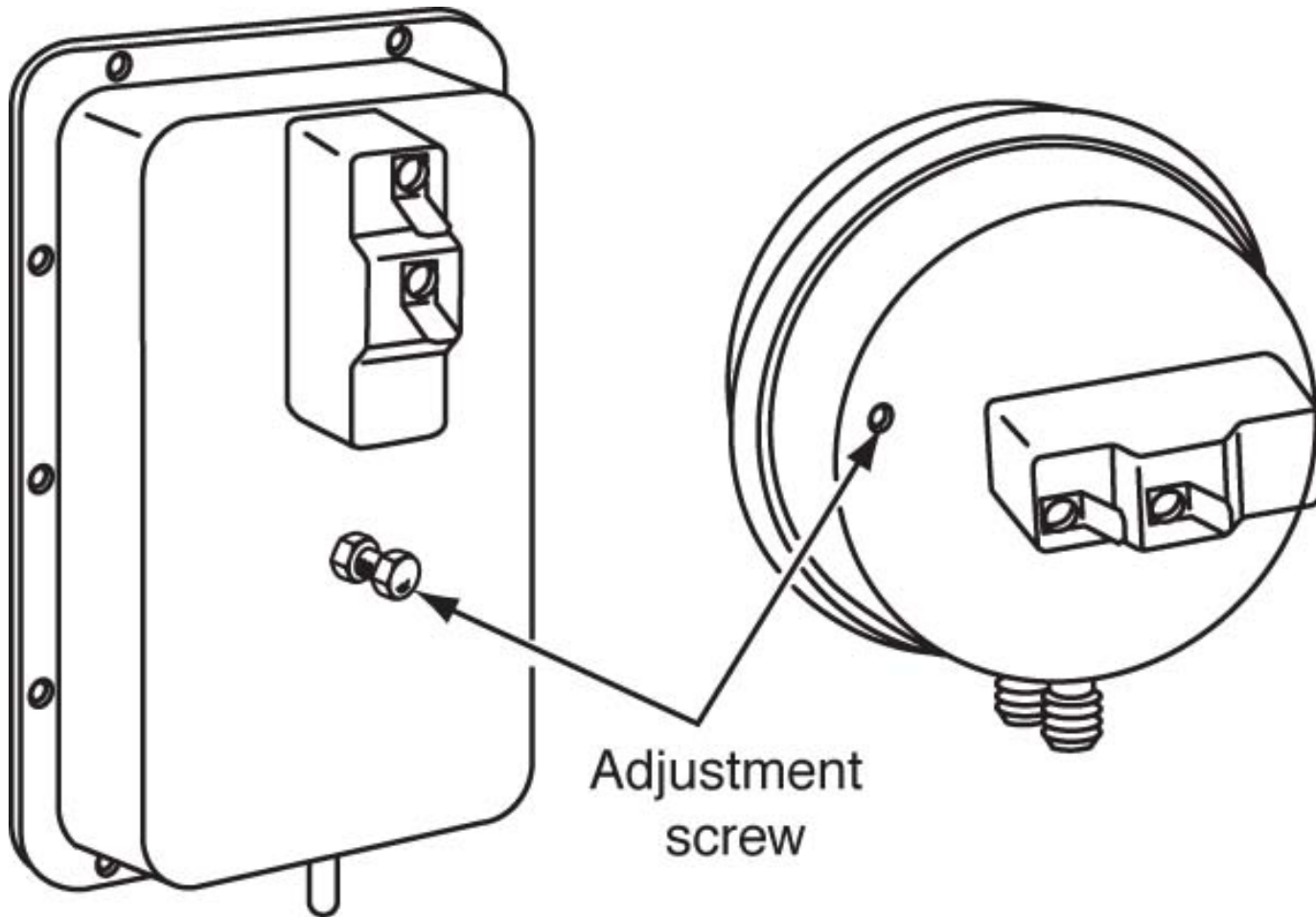
Coolant Expansion Tank and Pressure Cap



Shop Talk

If the engine has already developed an overheating problem caused by scaling, the flushing agent will have little effect on the cooling system. In this case, the engine would have to be disassembled and the cylinder block and heads boiled in a soak tank.

Defrost Cycle Air Switches



Compressor Sight Glass



CAUTION

High-pressure washers should never be used to clean a condenser, as the high pressure water can damage the delicate fins and can impede air flow through the condenser.

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Summary

- A PM on a reefer unit includes engine service, fuel system service, compressor service, drive belt service, refrigeration system checks, glow plug system checks, and structural maintenance checks.
- Engine oil and filters should be changed at regular intervals according to the manufacturer's recommended intervals.
- Fuel filters are another item that should be changed while servicing the engine.

Summary Continued

- The bleeding process removes unwanted air from the fuel system.
- Air cleaners filter all air entering the engine for the combustion process.
- Belt tension and condition should always be checked during every PM.
- Glow plugs preheat the combustion chamber to aid in quick engine starting.

Summary Continued

- The condition of engine coolant should be checked periodically. Coolant not capable of performing can damage the engine as well as the cooling system.
- The cooling system should be flushed when it appears to be very dirty.
- The purpose of the defrost system is to remove accumulated ice from the evaporator coil.

Summary Continued

- The defrost air switch is responsible for initiating a defrost cycle. (Electronic timers as well as a microprocessor can also initiate a defrost cycle.)
- The defrost termination switch is responsible for ending the defrost cycle.
- Refrigerant level should be checked during every PM. Follow instructions in the unit service manual for proper procedures for checking the level for that particular unit.

Summary Continued

- The compressor oil level should be checked whenever a refrigerant leak is suspected or when the unit has had refrigeration components serviced or replaced.
- The evacuation process removes air and moisture that is able to enter the refrigeration system when it has been opened for service.
- The structural integrity of the unit should be examined on a PM. This would include unit engine and fuel tank mounting, a visual inspection of the unit, cleanliness of the coils, evaporator drainage, and the defrost damper door system.