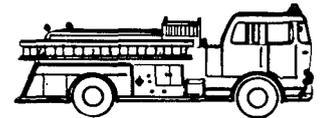
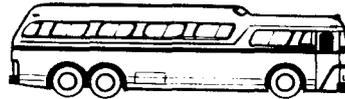




## CROWN TIP SHEET



"YOUR CROWN COACH DESERVES THE BEST POSSIBLE CARE  
**MAY WE HELP YOU?"**

## ENGINE LUBRICATING OIL RECOMMENDATIONS

### **WHAT BRAND TO USE**

You can use any brand of oil you wish. The only requirement is that the oil must meet United States Military Specification MIL-L-2104B. Contact your local petroleum supplier for the oil which he sells that meets this specification.

### **BREAK-IN OIL**

Oil which is best for general operation is also best for the break-in period. No change in oil viscosity or type is needed for new or newly rebuilt engines.

### **WHAT VISCOSITY TO USE**

The viscosity of oil to use depends on the ambient or surrounding air temperature in which the

vehicle operates. You can use single or multi-viscosity oils as long as they meet the MIL-L-2104B specification. The viscosity requirements for various ambient temperatures are.

Consistently:

Below 0°F. . . . . SAE 5W  
Between -10°F. & +30°F. . . . . SAE 10W  
Between +20°F. & +90°F. . . . . SAE 20W or 10W-20W  
Above +90°F. . . . . SAE 30W or 10W-30W

### **MIXING OILS**

Do not mix brands or weights of lubricating oils in the engine. Choose carefully the best oil available for the operating needs of the engine and continue to use that brand in the proper viscosity.

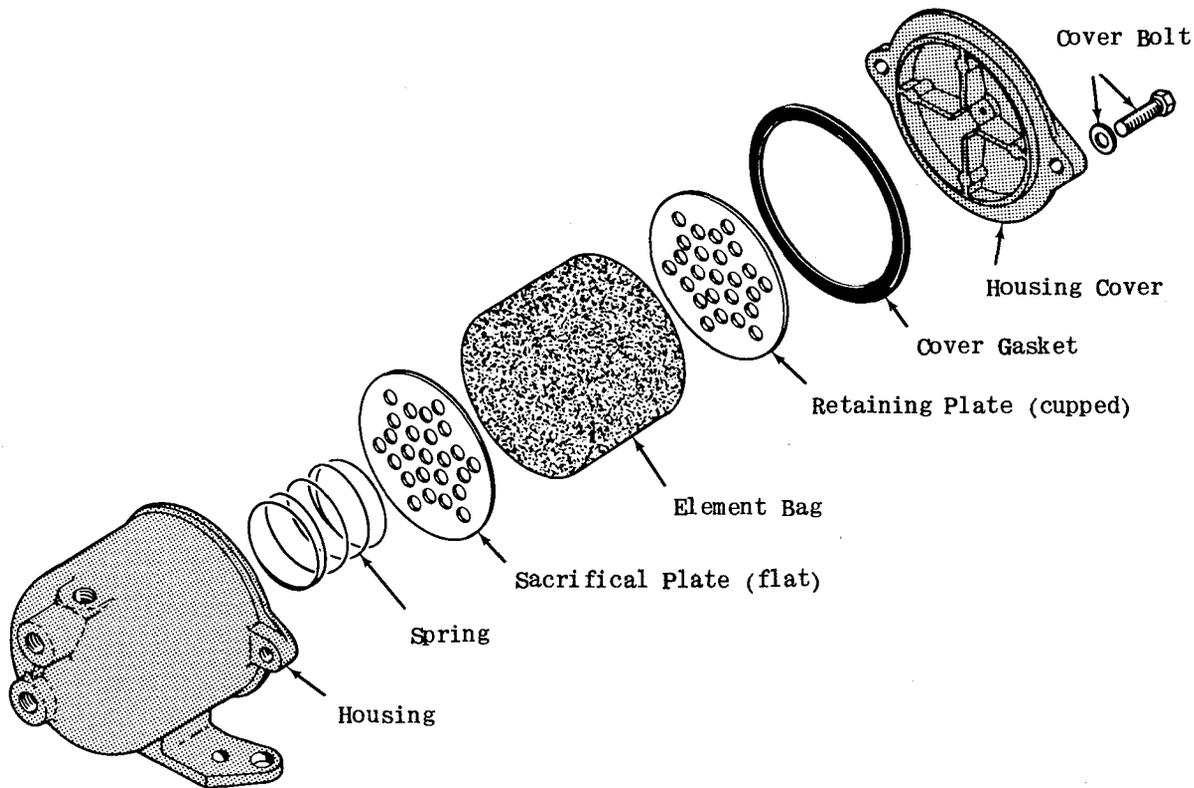
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## WATER FILTER SERVICE

The service interval for the water filter is from 8000 to 10,000 miles of vehicle operation or once a year.

To service the filter, shut off the inlet and outlet valves. Remove the housing cover and all

interior parts. Clean the interior of the housing. Inspect the lower (flat) element retaining plate, which is the sacrificial plate. If this plate is thin or eroded away through electrolytic action, it is to be replaced. Polish, with a wire brush,



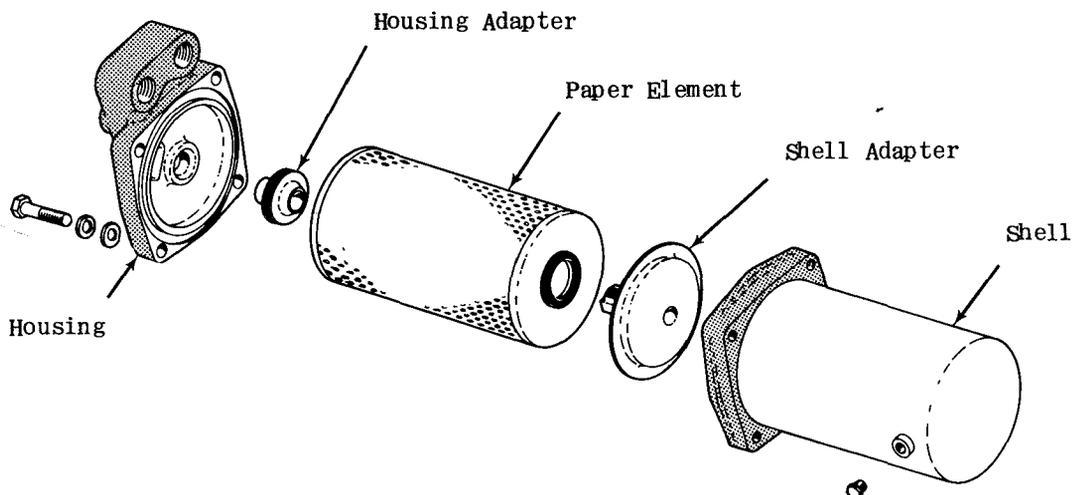
any sacrificial plates which do not have to be replaced.

Assemble the filter parts in the proper sequence using a new element bag. Replace the housing cover and open the inlet and outlet valves. Check all

hoses and connections for leaks, repair if necessary.

Do not change any more of the coolant liquid than is necessary to make the filter service procedure.

## CUMMINS OIL FILTER CONVERSION



Cummins Engine Co. now offers a conversion kit which changes the bag type full flow oil filter on older engines to a replaceable paper element type filter. As you can see the newer type filter element does away with the cleaning of the cloth bag in the older style filter. You merely remove and replace the paper cartridge element in the newer

style filter. All necessary parts to make the conversion can be purchased, in kit form, from our parts department.

Newer engines have the newer style paper element type filters as a standard feature. They can be identified by a single thru-bolt which retains the filter shell.

# CUMMINS WATER PUMP LUBRICATION

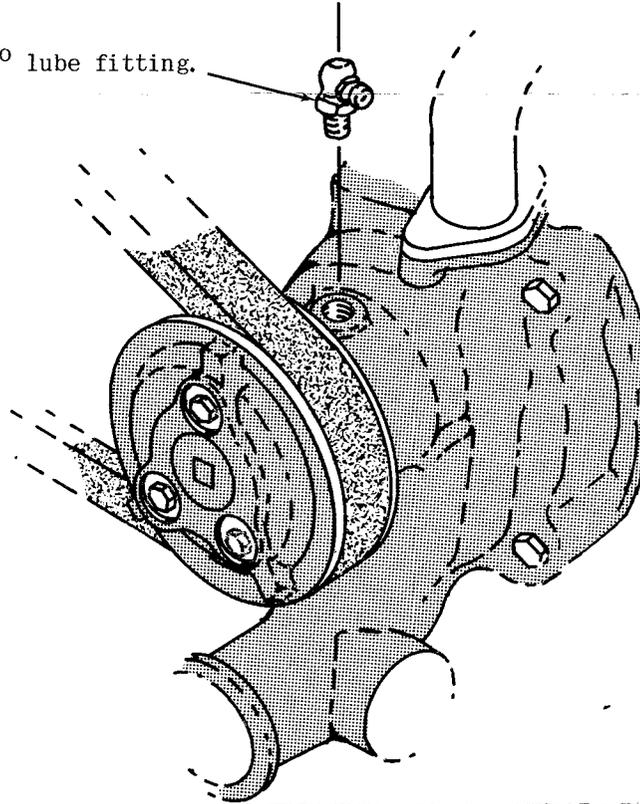
In a bus application, where the miles accumulated are low while the number of hours operated is high, it is recommended that the Cummins horizontal engine water pump be lubricated every 24,000 miles or one year, whichever ever occurs first.

The proper lubricating grease should meet United States Military Specification MIL-G-3545B. All the lubricant manufacturers can supply a grease which

meets or exceeds this specification, two of these are Chevron BRB-2 or Aeroshell number 5.

Due to the design of the water pump certain precautions must be observed during the lubrication of the water pump. It is, therefore, recommended that the following procedure be closely adhered to obtain maximum bearing and seal life.

Non-relief type 90° lube fitting.



1. Remove the pipe plug or relief type lube fitting in the water pump housing, on the upper side just behind the drive pulley.

2. Install a non-relief type 90° lube fitting, with the tip pointing toward the cooling fan.

3. With a hand grease gun apply one shot or approximately one tablespoon full of grease into the water pump. Do not use an air pressure or high pressure hand grease gun.

3. The water pump is to be disassembled, cleaned, inspected, defective parts replaced, bearings repacked with grease, housing bearing cavity filled 1/2 to 2/3 full of grease and reassembled every 96,000 miles or four years, whichever ever occurs first.

*Note: A non-relief type lube fitting is used to overcome the force of the air that is trapped in the cavity and is compressed by the incoming grease. When the trapped air can not escape, the compressed air will force grease out the relief opening, if a relief type fitting were used, before the cavity is filled with the needed quantity of grease.*

*If excessive pressure is used, with a non-relief type lube fitting, to inject the grease into the cavity the compressed air will blow out the seals. The seals can also be blown out if an excessive quantity of grease is forced into the cavity with this type lube fitting. In both cases the seal is the only point at which pressure can be relieved.*

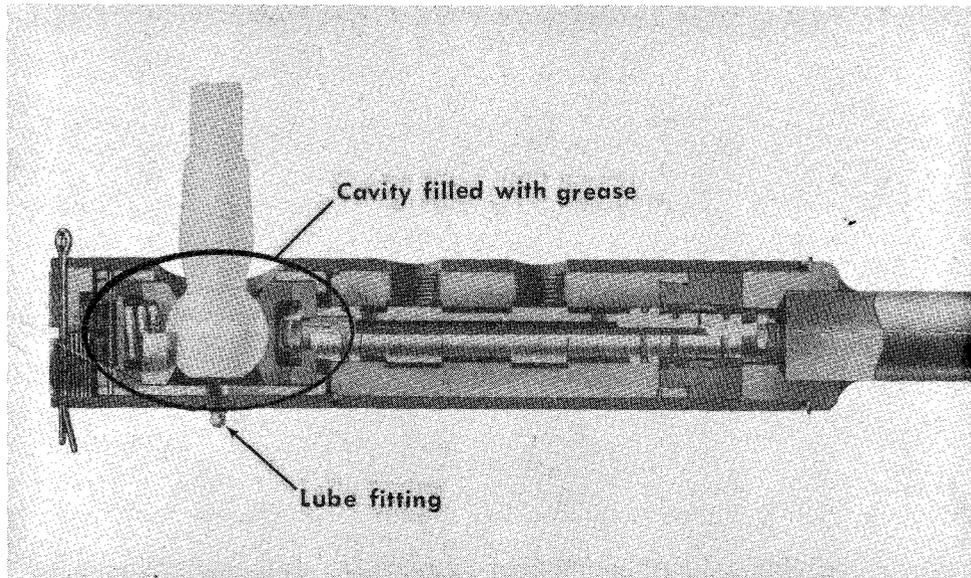
# GARRISON POWER STEERING VALVE LUBRICATION

Very little preventive maintenance is required to keep the Garrison power steering valve operating properly. The most important thing is to keep the ball socket properly lubricated. The actual operation of the valve will be explained in subsequent Tip Sheets. At the present time we will be concerned with the lubrication only.

The grease to be used should meet United States Military Specification VV-G-632 Type A Grade 1. This grease is to be applied with a high pressure hand or air pressure grease gun through the lube fitting on the lower side of the valve, just below the point where the valve and steering arm ball stud connect.

The grease should be applied in sufficient amounts so that a large portion of the grease present in the cavity from previous lubrication will flow out through the ball stud opening and inspection hole, thus purging any dirt which has entered at these points. The grease, therefore, has a twofold purpose, first, to lubricate the moving parts and, secondly, to remove any dirt that has entered the ball joint that might stop the valve from functioning properly.

Wipe away excessive grease after lubrication has been completed. This prevents a dirt build-up on exposed grease.



Garrison G-21 power steering control valve cut-away.