Navy 44 Fuel System

4

Injection Pump

5

1

Primary Filter

Bleed Screw

Bleed Screws

Secondary Filter

3

Lift Pump

2

Fuel
Problem Solving

Identify the Problem:

Engine running begins to change RPM.. May surge up and down with no change in throttle setting and may stop..

Possible Causes:

- Running out of fuel - Check fuel level.
- Water or dirt in fuel - Check warning light & Racore sight bowl.
- AIR in system – open one injector union, crank the engine and check for air in the system. Check for leaks and bleed the system.

Engine cranks normally but won't start:

- Run/Stop lever in stop position
- loss of fuel pressure – Bleed the system and check for leaks

Problem Solving the Propulsion System

Identify the Problem:

MECHANICAL

•**Stops quick** without warning; Most probable cause something has wrapped around propeller shaft.locking the drive train and stoping the engine.

- shift into neutral and try a re-start. If it starts you will need to clear the obstruction.

•**Slows down and looses power** with no change in throttle setting.

- May be overheating and beginning to seize

Check oil pressure and overboard discharge. Engine may be starting to seize due to overheating or lack of oil.

Primary Filter

Hand Pump

Bleed Screw

Upper Gasket Install with bevel facing up

Filter Element - caution hand tighten only

Bottom Gasket

Sediment Bowl With Water Sensor and Drain Plug

1 Changing Primary Filter

Always start with a warm engine if possible

1. Close fuel return shut-off valve located under sole with main bilge pump.
2. Remove sensor plug by squeezing the sides and pulling down.
3. Drain filter by opening bleed screw, place container under filter, open bottom drain to allow fuel to drain.
4. Unscrew filter and bowl from housing and separate.
5. Clean the bowl and discard the old filter element and gaskets
6. Re-assemble using new filter element note: the bevel in the upper gasket must face up. Coat the bevel surface and both sides of the bottom gasket with fuel. Screw the bowl onto the filter element.(hand tighten only)
7. Close bottom drain and fill the element assembly with clean fuel (if available)
8. Hold the assembly up into the filter housing screw it on. Hand tighten only.
DO NOT OVER TIGHTEN OR IT WILL LEAK!
9. Install the sensor plug

3

Secondary Filter

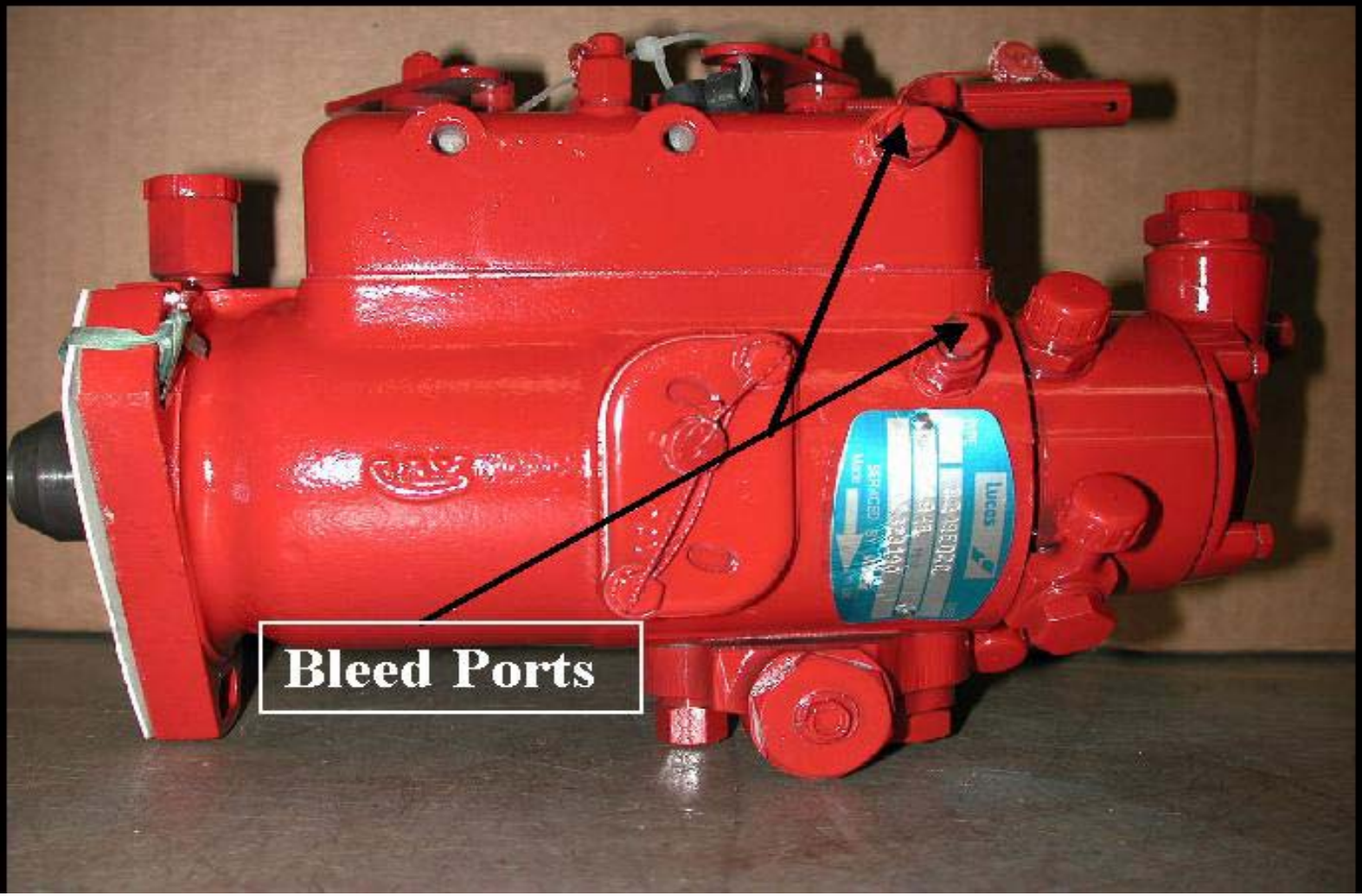
3

Changing Secondary Filter Element

- Place container or oilzorbs under filter to catch fuel
- Loosen center bolt on top and rotate bottom plate until it can be removed with filter element.
- Discard old element and old gaskets and “o” ring
- Coat new gaskets with clean fuel and install with “O” ring as shown
- Run you finger around the upper gasket to insure it seated.
- Put the new element in place and while holding the bolt head thread the bottom plate until it just makes contact then tighten the bolt until it’s snug while holding the bottom plate. **Do not over tighten**
- Open the upper bleed screw on the injection pump and operate the hand pump on the Racore until fuel flows freely (See injection pump on following page.)

4

Injection Pump



Bleeding Injection Pump

Use only the upper bleed point.
1.Using a small 5/16-box wrench, open the bleed screw about 3 turns or until air or fuel is expelled when the hand pump on the Racore filter is being operated.
2. Operate the hand pump until fuel flows freely without bubbles from the injection pump bleed port then close bleed Port**. Be patient if the filters have been serviced there will be lots of air to be expelled from the system. Don't be misled by the initial fuel that was already in the lines.**

DO NOT OVER TIGHTEN THE BLEED SCREWS

Fuel
Problem Solving

Identify the Problem:

Engine begins to change RPM. Surges up and down with no change in throttle setting.
Possible Causes:
-Running out of fuel - Check fuel level.
-Water or dirt in fuel - Check warning light & Racore sight bowl.
-AIR – open one injector union, crank the engine and check for air in the system. Check for leaks and bleed the system.

Problem Solving

Engine Running

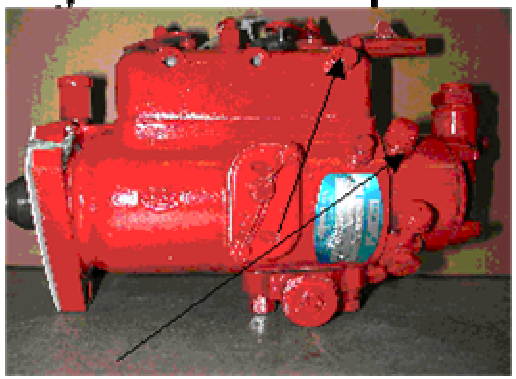
MECHANICAL

- Stops quick, without warning; Most probable cause something has wrapped around propeller shaft. – shift into neutral and try a re-start.
- Slows down and looses power with no change in throttle setting. Check oil pressure and overboard discharge. Engine may be starting to seize due to overheating or lack of oil.
- Gauges and/or Alarms should indicate oil pressure or coolant problems if they are working properly.

Intrepid Fuel System

4

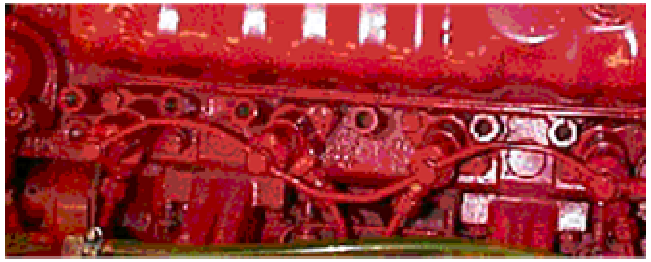
Injection Pump



Bleed Points

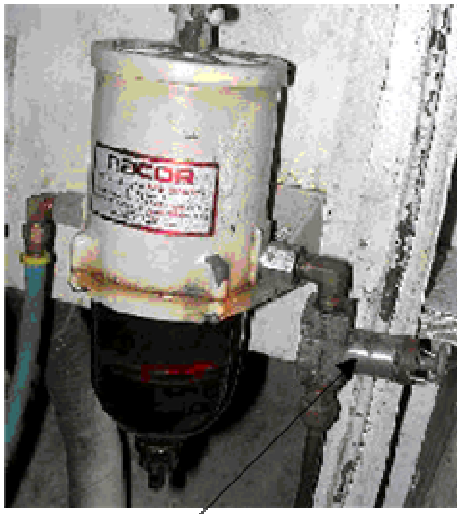
5

Injector Unions

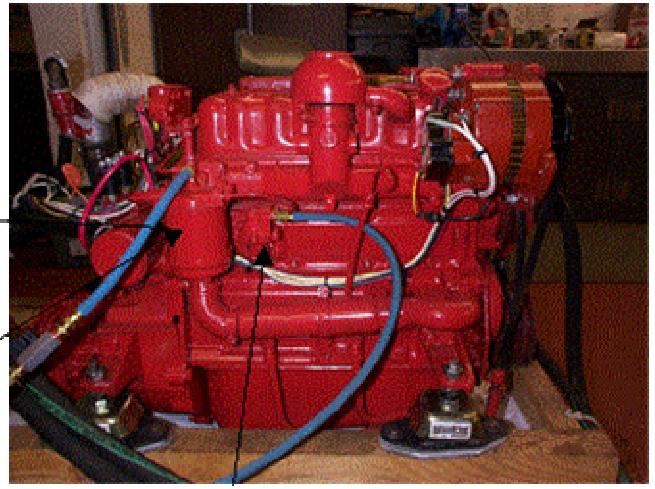


1

Primary
Racore Filter

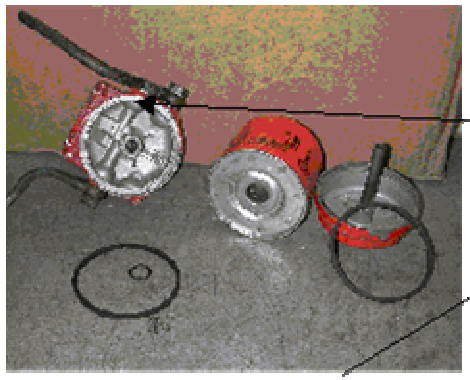


Hand Pump



Lift Pump

2



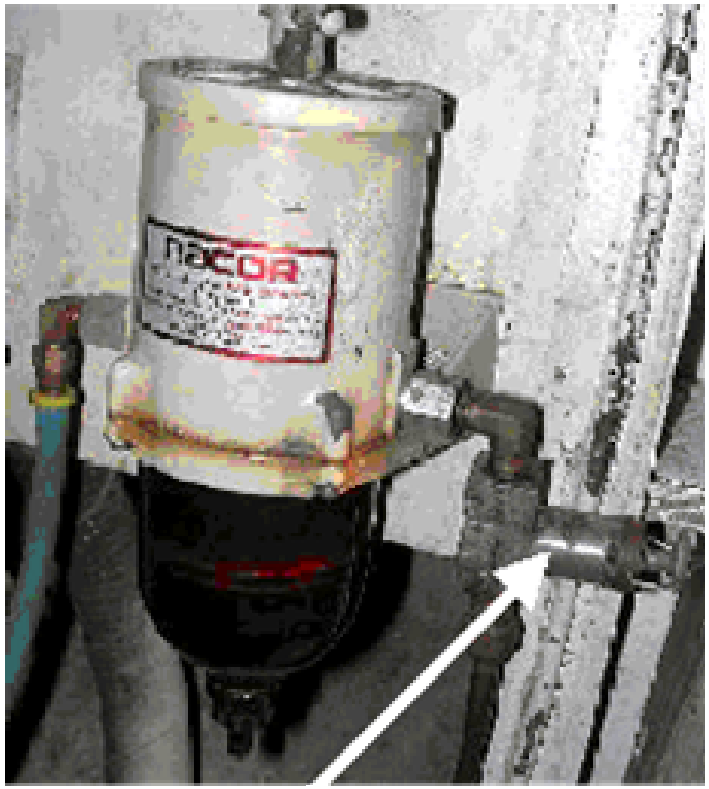
Secondary
Filter

3

Changing the Filter

1

Primary Racore Filter



Hand Pump

The filter element can easily be changed without having to bleed the entire system. You must follow these instructions exactly.

1.Close the fuel feed and return valves at the tank.

2.Unscrew" and remove the "T handle from the top of the filter.

3.Tap the side of the cap to loosen the seal and remove the cap.

4.Lift out the old filter element and discard.

5.Insert new element and open the fuel valves at the tank.

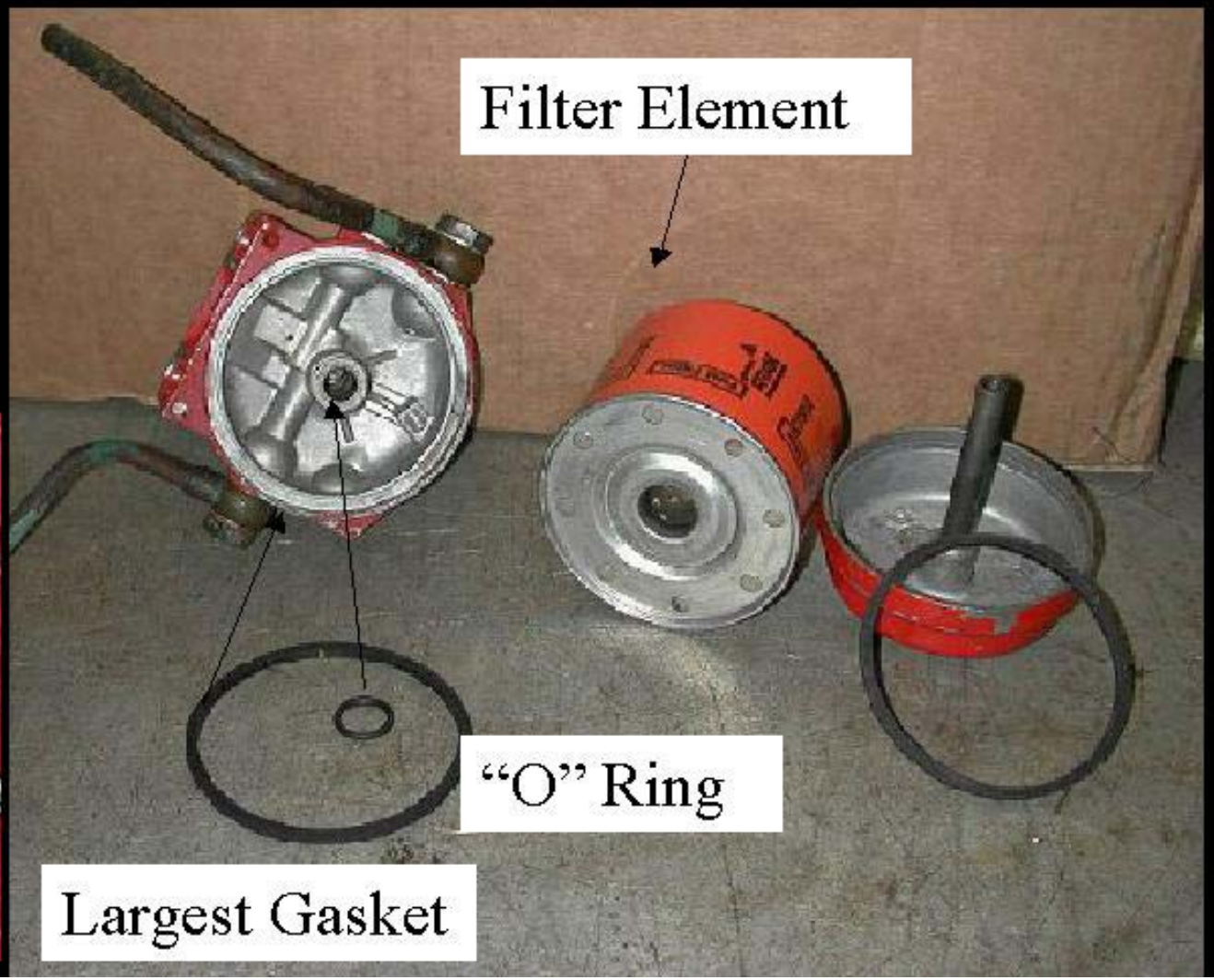
6.Before putting the cap on pump the hand pump until fuel level is to the very top of the filter casing. Wait until the element has completely filled. As fuel is absorbed into the element slowly operate the pump to raise the level back to the top.

7.Replace the cap only after the unit will hold no more fuel without overflowing. Gently operate the pump until fuel begins to come from the center hole then screw in the "T" handle and tighten.

8.Start the engine and allow to run for at least

Secondary Filter

3

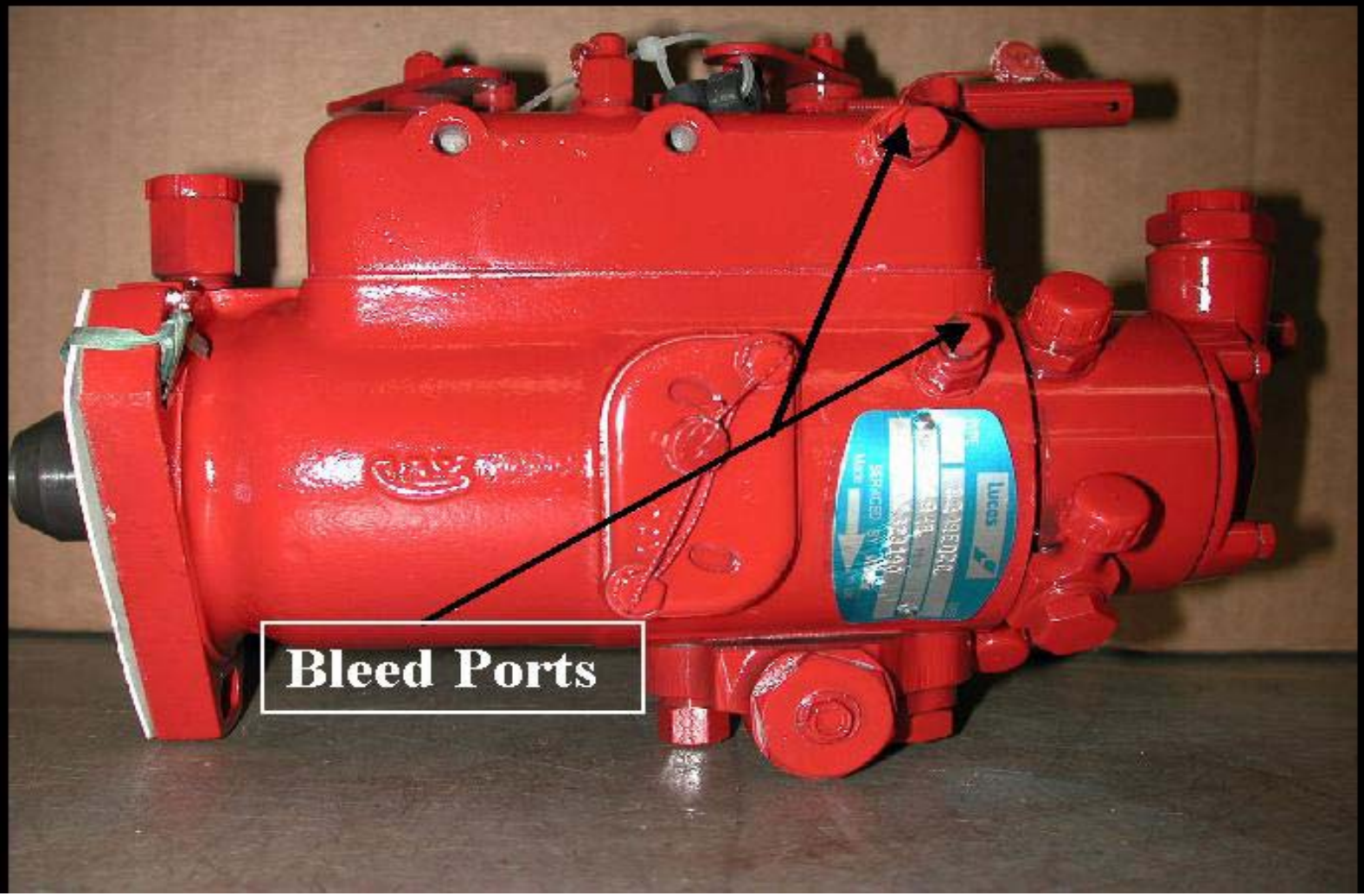


Changing Secondary Filter Element

- Place container or oilzorbs under filter to catch fuel
- Loosen center bolt on top and rotate bottom plate until it can be removed with filter element.
- Discard old element and old gaskets and “o” ring
- Coat new gaskets with clean fuel and install with “O” ring as shown
- Run you finger around the upper gasket to insure it seated.
- Put the new element in place and while holding the bolt head thread the bottom plate until it just makes contact then tighten the bolt until it’s snug while holding the bottom plate. Do not over tighten
- Open the upper bleed screw on the injection pump and operate the hand pump on the Racore until fuel flows freely. See injection pump on following page.

4

Injection Pump



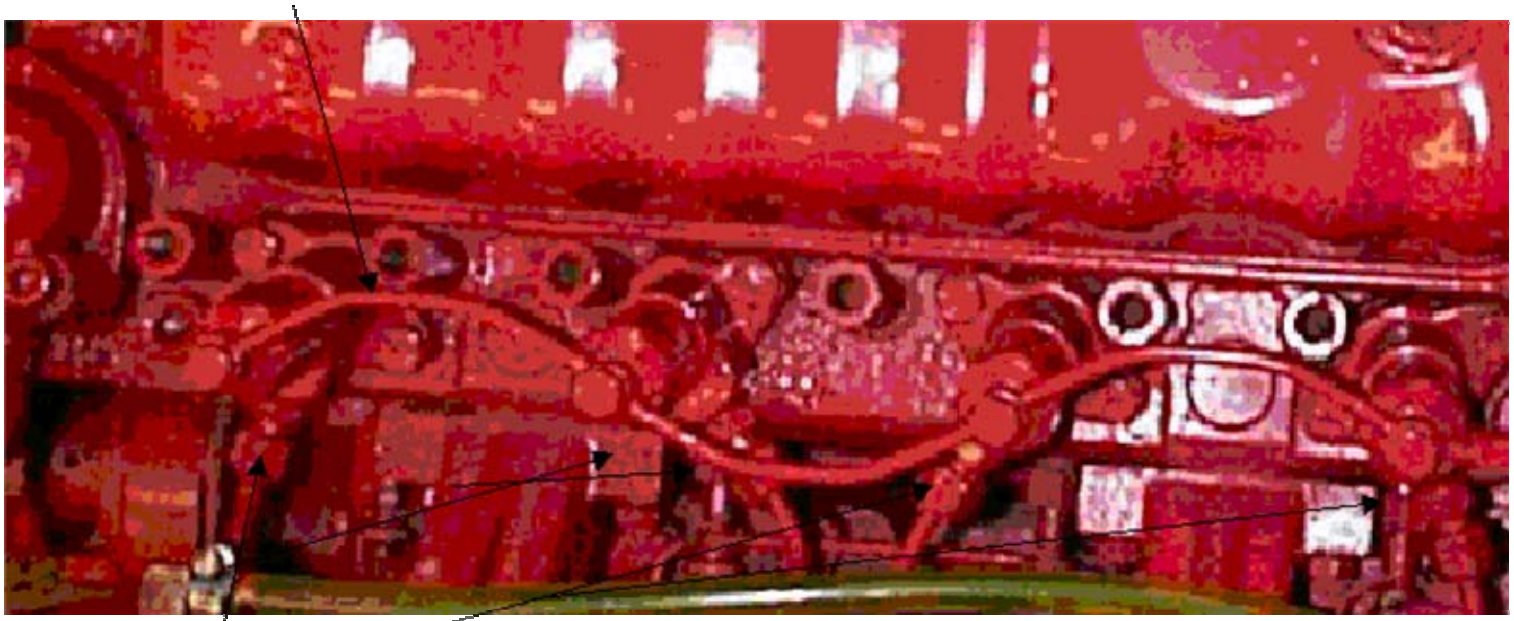
Bleeding Injection Pump

Use only the upper bleed point.
1.Using a small 5/16 box wrench open the bleed screw about 3 turns or until air or fuel is expelled when the hand pump is being operated.
2.Operate the hand pump on the Racore filter until fuel flows freely without bubbles from the injection pump bleed port then close bleed Port. Be patient if the filters have been serviced there will be lots of air to be expelled from the system. Don't be misled by the initial fuel that was already in the lines.

5

Injectors W/fuel Lines

Unused fuel return line.
Connects each Injector back to the filter Banjo fitting



Injector Unions Bleed Points Open 1 or more

Injector Unions the Last Step

1.Using a 5/8” open end wrench loosen 1 or more injector unions about 3 turns. If only 1 it should be last one back
2.With the engine checked and ready to start. Engage the starter until fuel squirts under pressure from the injector union and the engine begins to fire. If only 1 union was loosened the engine will start on three cylinders. While the engine is running tighten the union. The engine should now run normally. Be sure and wipe up all spilled fuel.
Run the engine for at least 15 minutes before getting underway to insure the fuel system is totally free of air and not leaking.

Injector Unions the Last Step

1.Using a 5/8” open end wrench loosen 1 or more injector unions about 3 turns. If only 1 it should be last one back
2.With the engine checked and ready to start. Engage the starter until fuel squirts under pressure from the injector union and the engine begins to fire. If only 1 union was loosened the engine will start on three cylinders. While the engine is running tighten the union. The engine should now run normally. Be sure and wipe up all spilled fuel.
Run the engine for at least 15 minutes before getting underway to insure the fuel system is totally free of air and not leaking.

STAY WELL CLEAR OF BELTS & PULLYS WHILE THE ENGINE IS RUNNING

Propulsion Systems

All Require Similar Service

- Electrical Power
- Instrumentation
- Clean Fuel
- Lubricating Oil
- Cooling Water

Check-Out Procedures a Must

Navy 44 Drive Train

Damper Plate

The Damper Plate is actually two plates joined together having heavy duty springs to limit the rotation of one plate without the other. The larger of the plates is bolted directly to the engine flywheel. Then the bell hosing is installed.
The transmission is moved forward inserting the input shaft into the mating hole in the smaller plate containing the spring assembly. The transmission is then bolted to the bell hosing.
The springs in the damper plate absorb the initial shock generated when forward or reverse gear is engaged.

ALWAYS PAUSE IN NEUTRAL WHEN SHIFTING
EMERGENCIES THE ONLY EXCEPTION

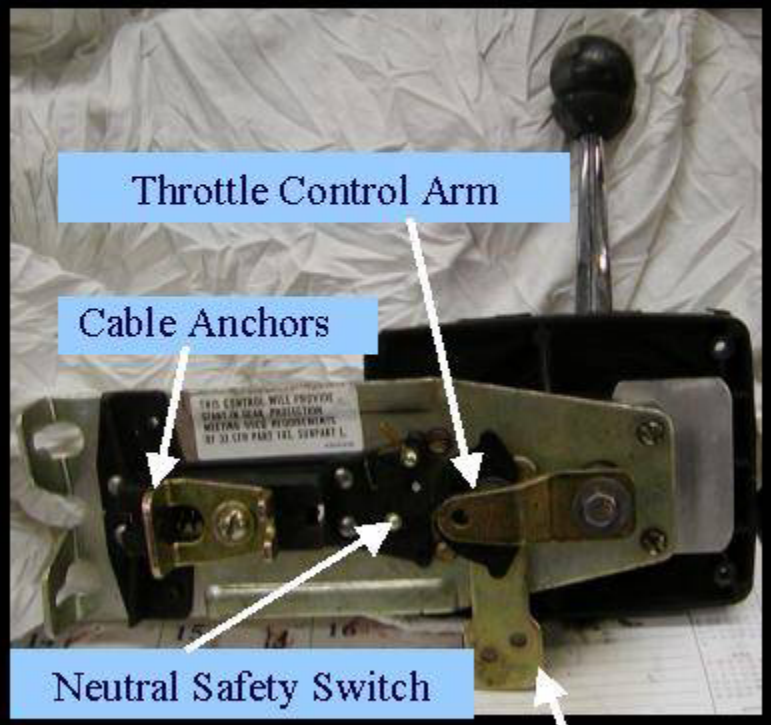
Drive Train
as installed

Drive Train Detail

Shown here are the common parts in most inboard engine installations.
The Transmission is connected to the engine with the Damper Plate shown as item 2
The Propeller shaft (not shown) is attached to the Transmission with the flange coupling (4)
The shaft exits the boat through the Packing Gland.that is attached to the stern tube by a heavy duty rubber hose and hose clamps. The Packing Gland serves to keep water from entering past the propeller shaft by compressing three or more rings of packing material. Each ring is cut to the diameter of the shaft and rapped around the shaft and inserted into the gland nut so the joints are spaced 90 – 120 degrees apart. The gland nut is tightened hand tight. When the boat is in the water with engine running in forward gear the gland nut is adjusted to obtain 5 or fewer drops of water per minute. The gland nut should never be tightened to a point where the gland gets very warm or it will cause the propeller shaft to ware.

Morse Control (single lever)
Throttle and Transmission

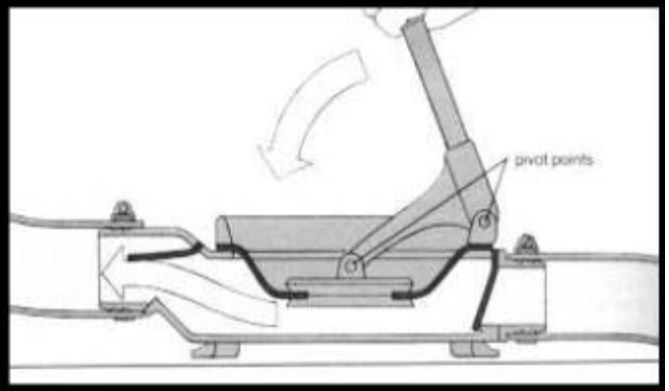
Font View



Back View

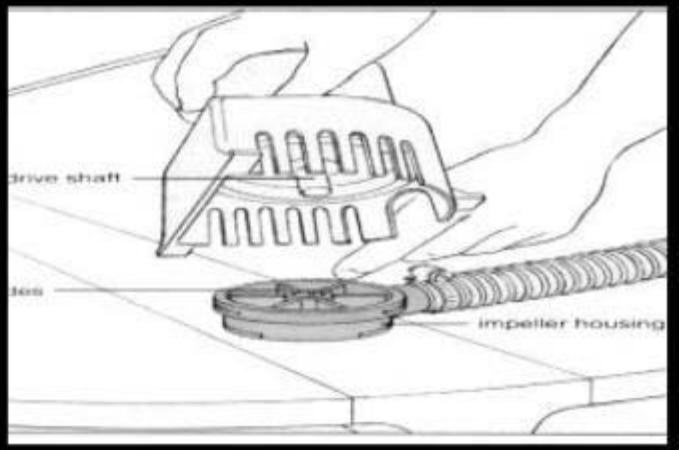
The Bilge Pump

Manual Pump - Only
Manpower Required



12 Volt Electric

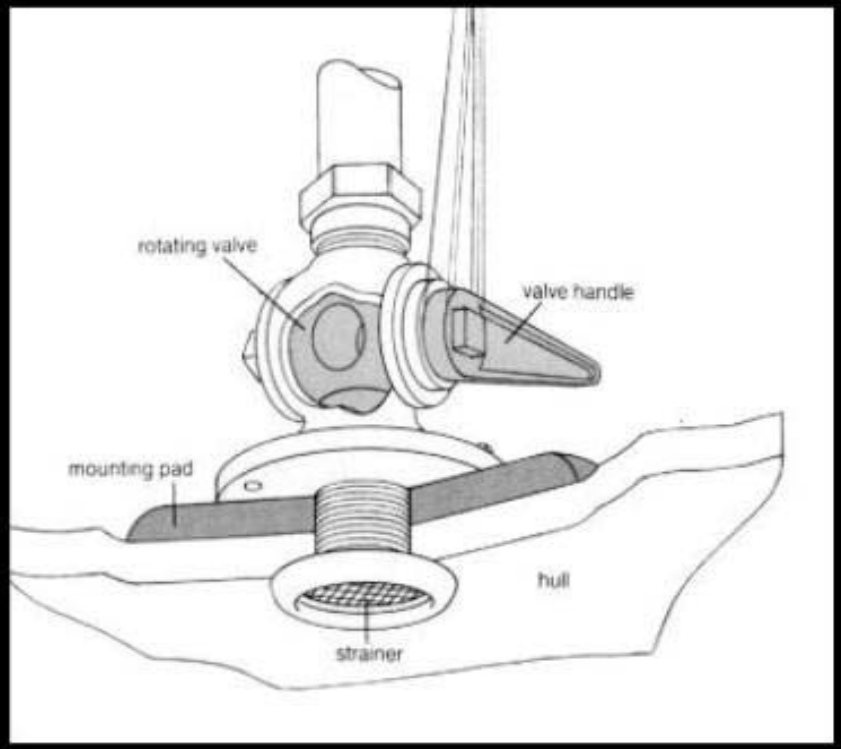
May be wired as Manual or
Automatic using float switch



Both Require Filter to Prevent Overboard Discharge of Oil

THRU – HULL FITTINGS

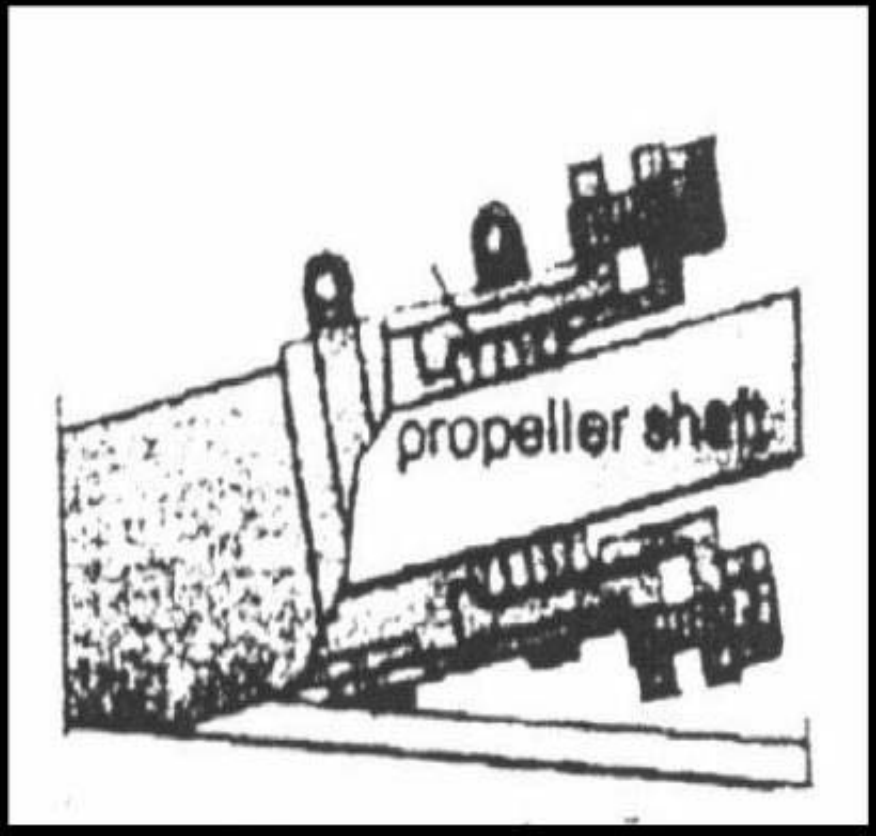
- Many Types
  - Seacox
  - Ball Valve
  - Gate Valve
  - Packing Gland
  - Stuffing Box



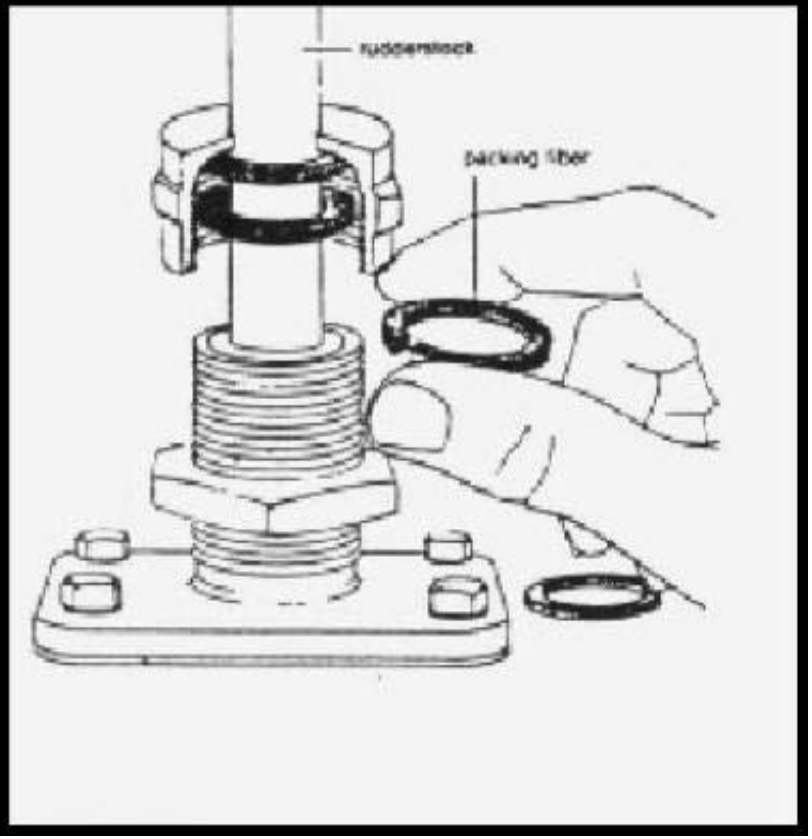
Control the flow of water in and out of the boat

More Thru-Hulls

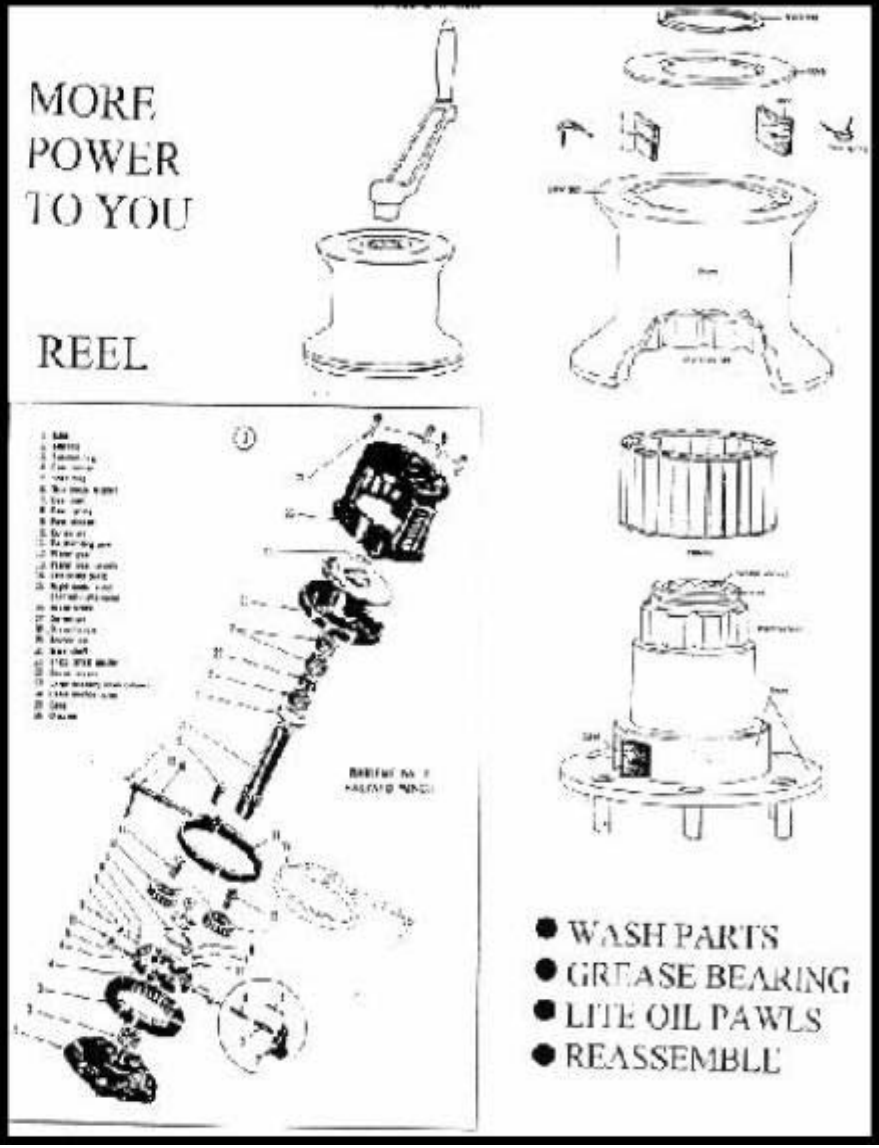
Propeller Shaft Stuffing Box



Rudder Shaft Gland



Winches


MORE
POWER
TO YOU
REEL
WASH PARTS
GREASE BEARING
LITE OIL PAWLS
REASSEMBLE