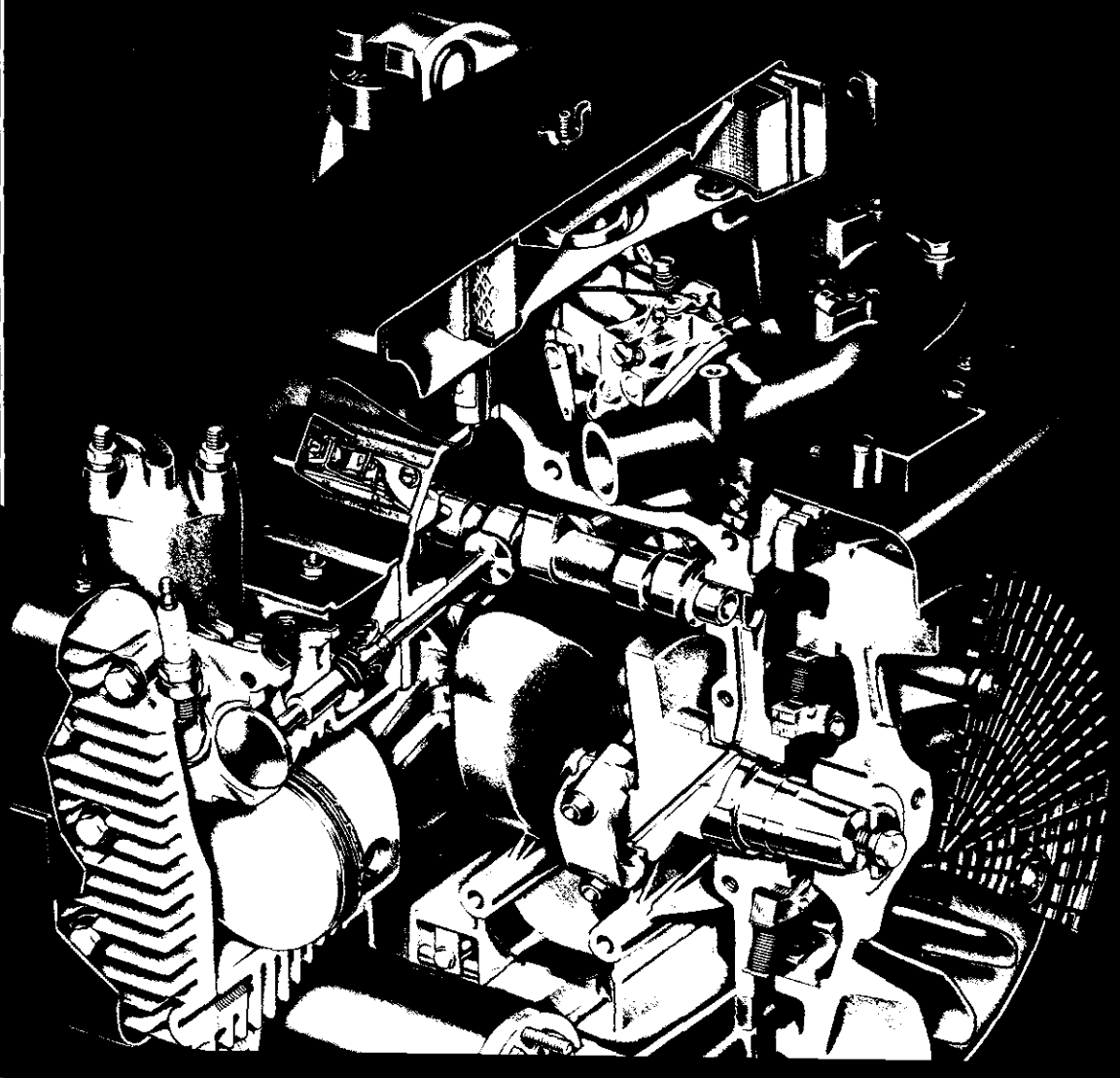
KOHLER engines

twin cylinder engine

SERVICE MANUAL

Models KT17 & KT19 SERIES II &
Models KT17, KT19, KT21



TP-2043-A

CLICK HERE TO DOWNLOAD THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: www.heydownloads.com by clicking the link below

- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO DOWNLOAD THE COMPLETE MANUAL

How to make a "U" Tube Manometer

(Used to measure Crankcase Vacuum. See Section 2 - Troubleshooting.)

1. Cut a piece of 1/2" plywood so it measures 10"x 30" as in Figure 1-5.
2. Fasten a six foot length of 1/2" O.D. clear plastic tubing to the plywood board as shown in Figure 1-5. Make a gradual rather than a sharp bend in the tube.
3. Inside the "U" formed by the tubing, measure off at least a 24" segment on the plywood board between the straight sides of the "U". Divide the segment into one inch increments and mark these increments on the board. Start with the middle increment as zero and number in both directions.
4. Drill a 1/2" hole in the center of a rubber stopper the size to be a snug fit in the engine oil fill hole. Insert long end of tube thru stopper hole.
5. Add a shut-off valve or clamp in front of the stopper to prevent engine from drawing water into crankcase under cranking conditions.
6. Pour colored water into the tube until the level reaches the halfway (0) mark of the scale marked on the plywood board.

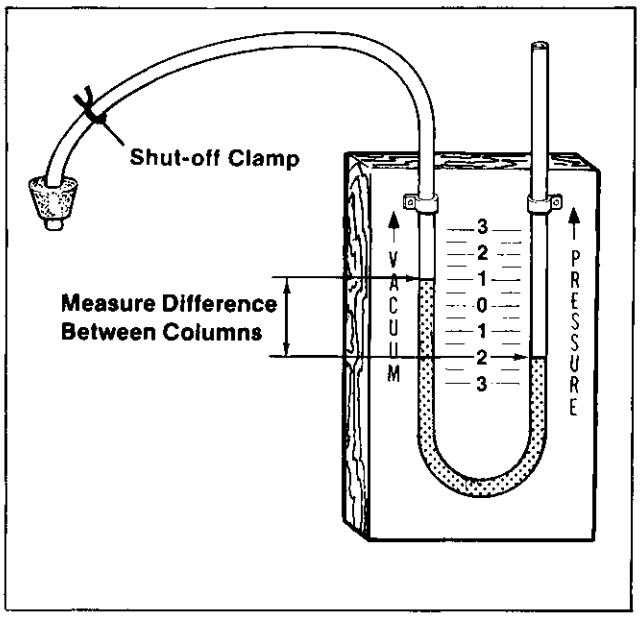
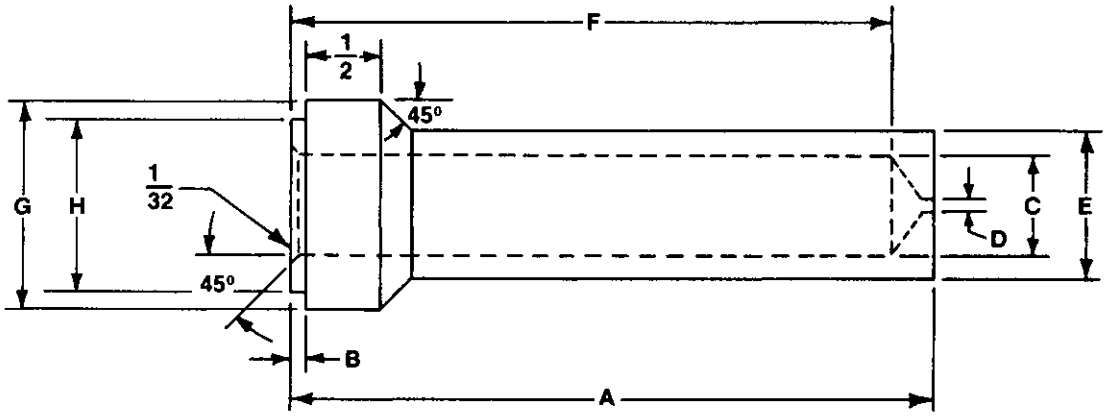


Figure 1-5. "U" Tube Manometer



PTO END DRIVER		FLYWHEEL END DRIVER	
Dimension	Size	Dimension	Size
A	8.5625	A	5.00
B	0.1563	B	0.0313
C	1.5605	C	1.385
D	0.125 DIA.	D	0.125 DIA.
E	1.875	E	1.6250
F	7.3125	F	4.500
G	3.00	G	2.00
H	2.370	H	1.75

Figure 1-6. Seal Driver (P.T.O.)—Seal Driver (Flywheel)

"A" to set float level (Step 2). Bend tab "B" to set float drop (Step 3). See Figure 4-3.

For floats with tab "A" only, set float level (Step 2) - omit Step 3.

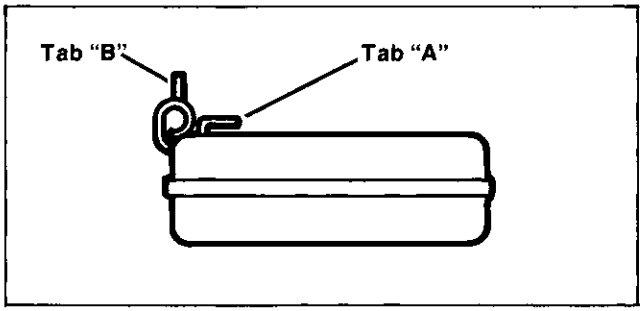


Figure 4-3. Float Tab Details

2. **Set float level.** Invert carburetor—with float resting lightly against inlet needle in its seat, there should be 11/64" (± 1/32") clearance between machined surface of casting and free end of float (side opposite needle seat). Adjust by bending float tab "A" with a small screwdriver. See Figure 4-4.

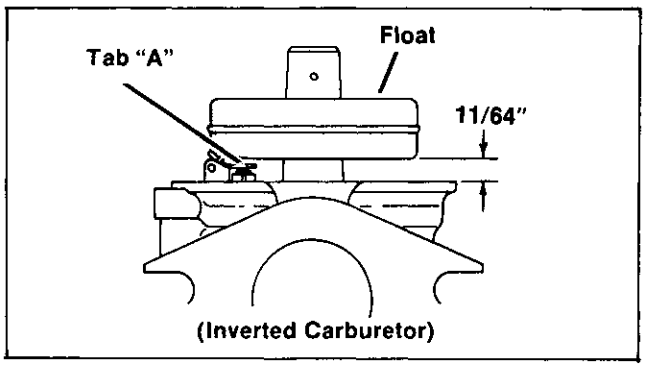


Figure 4-4. Setting Float Level

3. **Set float drop.** With carburetor in normal operating position, float drop should be limited to 1-1/32" between machined surface of casting and free end of float. Adjust by bending float tab "B." See Figure 4-5.

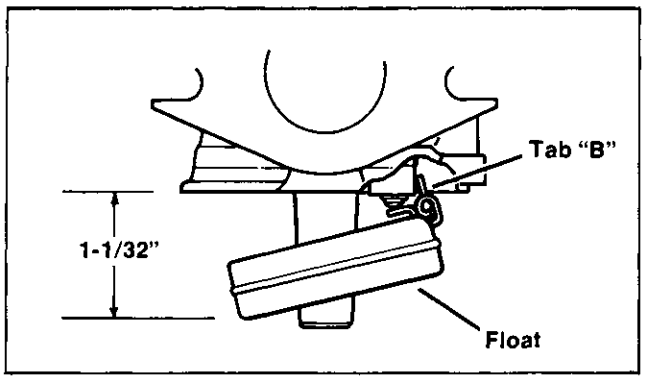


Figure 4-5. Setting Float Drop

4. **Check float clearance.** Invert carburetor—check clearance between float and float pin towers with a .010" feeler gauge. If feeler cannot be inserted or if there is interference between the float and towers, file the towers to achieve proper clearance. See Figure 4-6.

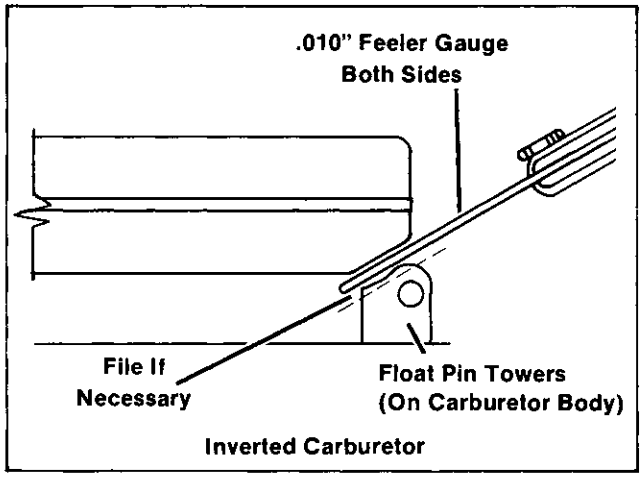
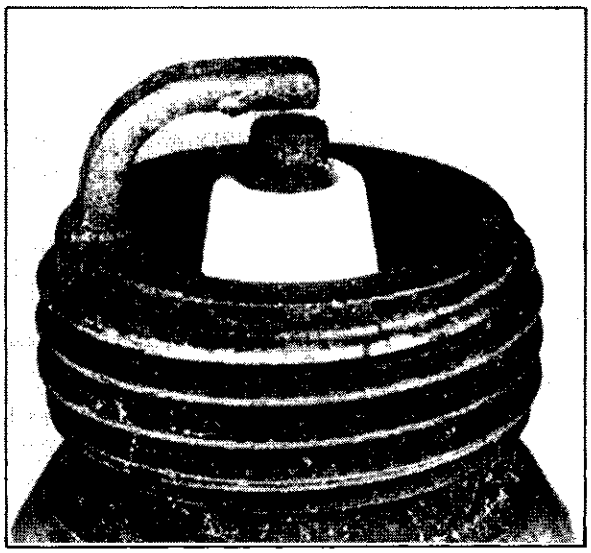


Figure 4-6. Checking Float Clearance

5. Install new bowl gasket and baffle gasket. Position baffle gasket so that the inner edge of gasket is against float pin towers.
6. Install fuel bowl—make sure it is centered on baffle gasket to form a good seal.

   Install bowl retaining screw and gasket. Torque screw to 50 in. lbs.
7. Install main fuel and idle fuel adjusting screws and springs. Turn in until needle bottoms **lightly**.

   Install idle speed adjusting screw and spring.
8. Connect carburetor to inlet elbow with three screws. Connect carburetor with inlet elbow to manifold with two nuts.
9. Connect fuel line, governor linkage and choke linkage to carburetor. (See Figure 4-7.)
10. Assemble air cleaner. (See Section 3.)
11. Connect breather hose to inlet elbow (early KT17 models only) or air cleaner base.
12. Turn fuel source back on.
13. Adjust carburetor as instructed under "To Adjust Carburetor."



White Chalky Deposits: Overheating will be indicated by chalk white colored deposits, not burned black as might be expected. This condition is also usually accompanied by excessive gap erosion. Overadvanced timing, lean carburetion, clogged air intake and blocked cooling fins are some of the causes of overheating.

If abnormal conditions are indicated, also check the number on the plug - it may be of the wrong heat range for the engine. If the center electrode is eroded round, don't try to square it with a file for reuse.

BREAKER POINTS

Engine operation is greatly affected by breaker point condition and adjustment. If points are burned or badly oxidized, little or no current will pass. As a result, the engine may not operate at all or if it does run, it is likely to misfire particularly at full throttle.

Breaker point gap affects the time that the contacts are opened and closed. If too wide, the ignition spark will be advanced and the engine may knock or kick back during starting. If too close, the ignition spark will be retarded and the engine will lose power and overheat.

When installing or servicing breaker points, extra care should be taken to keep contacts clean. To remove foreign materials or oil from new points, or to clean existing points after servicing or readjusting, insert a piece of heavy paper or light cardboard between the closed points and draw it between the points. To prevent lint or fibers from remaining on the points, open the breaker points to withdraw the paper.

CONDENSER

If the condenser shorts out, the coil will be unable to produce output voltage. On the other hand, if it opens or decreases in capacitance, the ignition points will burn excessively. If badly burned breaker points occur too frequently, the condenser should be checked.

If capacitance of condenser is too low, metal will transfer from the stationary contact to the movable contact. If capacitance is too high, metal will build up on stationary contact. See Figure 6-2.

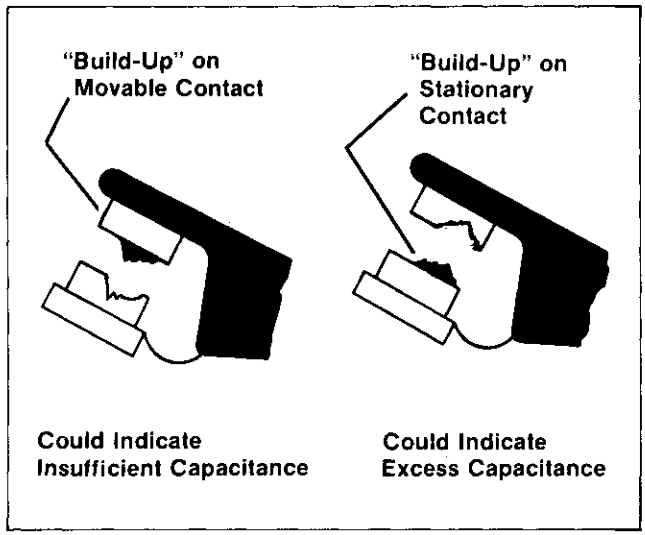


Figure 6-2. Metal Transfer On Points

Condenser Check

The condenser can also be tested with an ohmmeter as follows: Discharge the condenser by grounding the condenser lead, then set ohmmeter on the Rx10,000 scale and connect the meter leads between condenser lead and condenser case. On a good condenser the indicator on the meter should bounce up into the scale and then fall back to infinity. On a faulty condenser the needle will either not fall back to infinity (indicating a short) or will not move at all when the test is performed (indicating an open circuit). This test is not fool proof as the condenser could be intermittent and actually appear good when it is faulty. When using a commercial condenser tester, follow the instructions provided by the manufacturer.

SECTION 7 — DISASSEMBLY

WARNING: *Before working on engine, remove the spark plugs to prevent unintentional starting or compression kickback when rotating engine by hand. To prevent dirt and residue from falling into combustion chamber, clean area around plugs before removing.*

The following sequence is suggested for complete disassembly of an engine. The procedure may have to be varied slightly to accommodate special equipment.

All parts should be thoroughly cleaned — dirty parts cannot be accurately gauged or inspected properly for wear or damage. There are many commercially available cleaners that quickly remove grease, oil and grime accumulation from engine parts. If such a cleaner is used, *follow the manufacturers instructions carefully,* and make sure that all trace of the cleaner is removed before the engine is reassembled and placed in operation. Even small amounts of these cleaners quickly break down the lubricating properties of engine oils.

EXTERNAL COMPONENTS

Follow the steps below when removing external components. Refer to the appropriate sections in this manual when servicing these parts.

1. Remove air cleaner assembly.
2. Disconnect low tension wiring from coil and breaker point assembly, and high tension leads from spark plugs. Disconnect other wiring harnesses as necessary.
3. Remove the governor arm from governor clamp then disconnect the governor linkage.
4. Disconnect the fuel line from carburetor.
5. Disconnect the breather hose from the intake elbow (early KT17 models only).
6. Remove the intake manifold with carburetor and intake elbow intact.

   If necessary, the carburetor and intake elbow can be removed from the intake manifold at this time.

   NOTE: Some Series II engines may be equipped with a throttle and choke control mounted on the intake manifold. Disconnect these controls before removing carburetor. See Section 4, Figure 4-8.
7. Remove exhaust manifolds.
8. If so equipped, remove the grass deflector attached to the blower housing.
9. If so equipped, remove the grass screen from flywheel.
10. Remove the blower housing and other baffles and shrouds.

    If necessary, remove the rectifier-regulator from blower housing.

Flywheel

11. Use a Kohler strap wrench, part 52 455 03, to hold the flywheel when removing the flywheel retaining screw and washer.

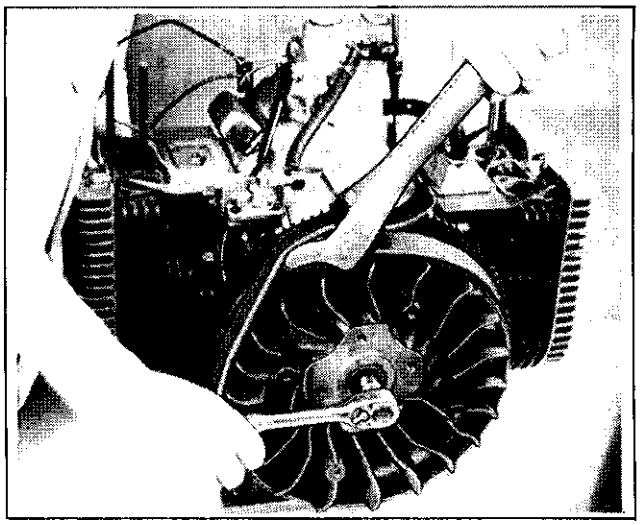


Figure 7-1. Using Strap Wrench

WARNING: *Improper procedures for removal of the flywheel can lead to a cracked flywheel and broken crankshaft. This not only results in extensive engine damage, but presents a serious threat to the safety of persons close by, since broken fragments may possibly be thrown from the engine.*

When removing the flywheel:

DO NOT use a flywheel puller that

Posi-Lock Connecting Rods

The rod caps on Posi-Lock connecting rods have a slight press fit when assembled. If difficulty in disassembling a Posi-Lock rod from the crankshaft is experienced, use the following procedure.

1. Loosen and unthread the connecting rod nuts until the ends of the studs are slightly below the top of the nuts. See Figure 7-17.
2. Using a plastic tipped hammer, lightly tap the nuts until the rod and rod cap are separated.

   Remove the nuts and disassemble connecting rod from crankshaft.

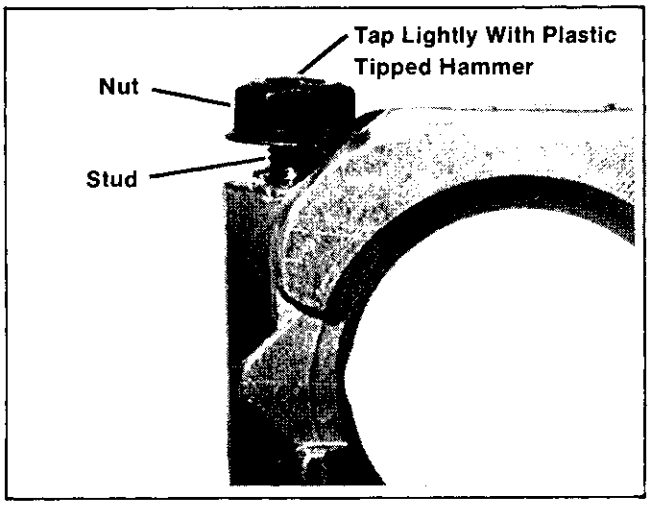


Figure 7-17. Removing Posi-Lock Connecting Rods

Camshaft And Crankshaft - Inspection And Service

Inspect the gear teeth on both the crankshaft and camshaft. If the teeth are badly worn, chipped or some are missing, replacement of the damaged components will be necessary.

Also inspect the crankshaft bearings. Do not replace bearings unless they show signs of damage. If crankshaft turns easily and noiselessly and there is no evidence of scoring or grooving on the races or bearing surfaces, the bearings can be reused.

Check crankshaft keyways. If worn or chipped, replacement of the crankshaft may be necessary. Also inspect the crankpin for score marks or metallic pickup. Slight score marks can be cleaned with crocus cloth soaked in oil. If wear limits, as stated in Section 1 - "Specifications" and "Tolerances" are exceeded by more than .002" it will be necessary to either replace the crankshaft or regrind the crankpin to .010" undersize. If reground, a .010" undersize connecting rod (big end) must then be used to achieve proper running clearance.

Connecting Rods - Inspection And Service

Check bearing area (big end) for excessive wear, score marks, running and side clearances (see Section 1 - "Specifications" and "Tolerances"). Replace rod and cap if scored or excessively worn. Connecting rods with bearing diameter area .010" undersize are available for use with reground crankpin.

GOVERNOR GEAR AND CROSS SHAFT

1. Unscrew and remove governor stop pin and washer from crankcase.
2. Loosen the governor arm nut and slide the governor arm off the governor cross shaft.
3. Remove the retaining ring and washer from the end of the cross shaft and pull the shaft out of the case.
4. Slide the governor gear off stub shaft and out of crankcase.

Cross Shaft—Generator Applications

Engines on generator applications are equipped with a governor cross shaft that rotates inside of caged needle bearings (see Figure 7-18).

1. Remove the screws, lockwashers, and "L" bracket. Pull the cross shaft out of bearings.
2. The upper and lower bushings and needle bearings are pressed into the crankcase. If replacement is necessary—replace all 4 components at the same time.

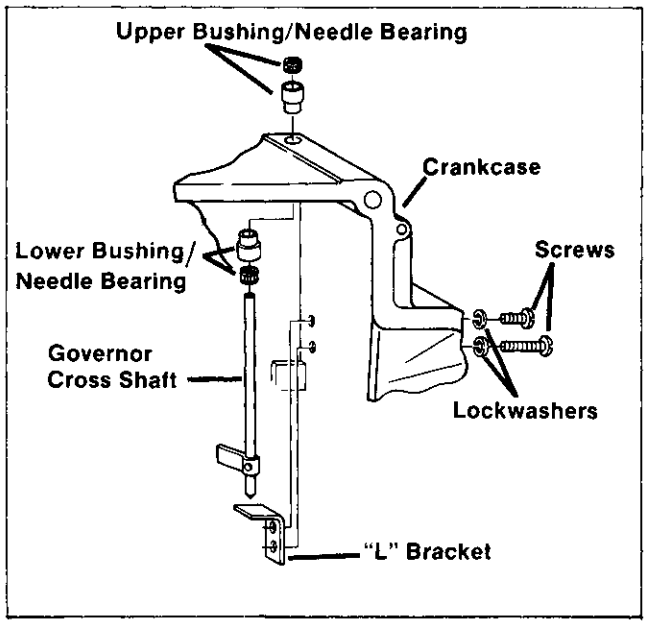


Figure 7-18. Removing Governor Cross Shaft—Generator Applications

Front Oil Seal

1. Apply a 1/16" (1.5mm) diameter sealant bead around the outside edge of the front oil seal. Lubricate inside diameter of oil seal lip and slide the seal onto flywheel end of crankshaft (open end of seal toward case).
2. Use a driver to insert oil seal to a depth of .0313" (see Section 1 - "Special Tools"). Clean all lubricant off crankshaft after installing oil seal.
3. Wipe off all crankcase sealing compound that may have been forced out around the oil seal, camshaft bore plug, and mating edges of crankcase.
4. Remove governor spring or tape securing tappets.

STATOR

1. Position the stator on the crankcase (flywheel end) so that the clip holding the leads together on the stator frame is approximately between the eight and ten o'clock positions.
2. Secure the stator to the case using four #10-24 x 3/4" hex washer head screws. See Figure 8-21.

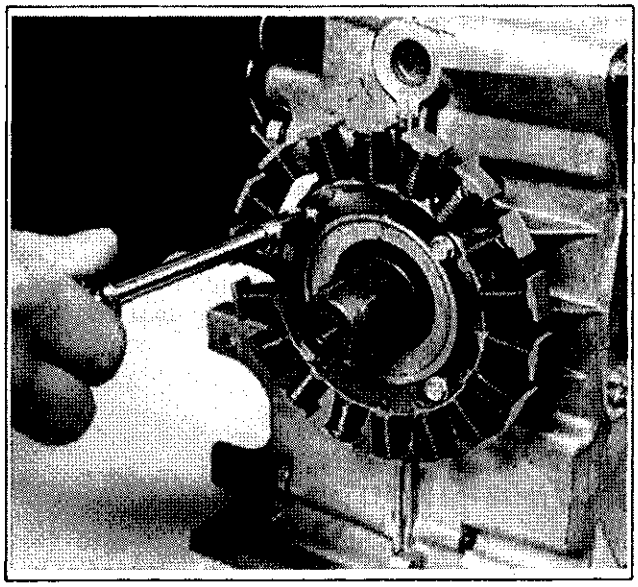


Figure 8-21. Installing Stator.

PISTONS, CYLINDER BARRELS AND CLOSURE PLATE

1. Position barrel gaskets on crankcase barrel studs.
2. Using a piston ring compressor push pistons into cylinder barrels (from cylinder head end) until piston pin bore is completely exposed on the crankcase end of the barrel-but make sure oil ring is not exposed.

IMPORTANT: Make sure locating mark on top of both pistons is toward PTO (exhaust port) side of barrel as shown in Figure 8-22.

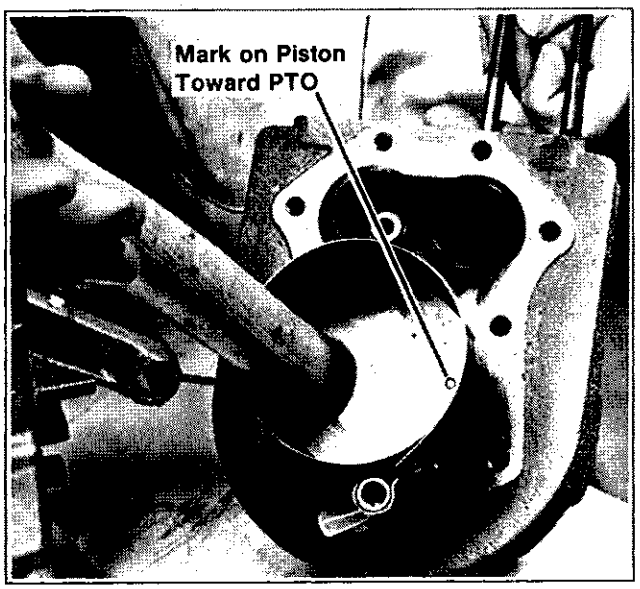


Figure 8-22. Installing Pistons In Cylinder Barrels

3. Install piston pin retainer in one side of the piston pin bore.
4. Assemble piston to connecting rod by sliding piston pin into pin bore and through connecting rod journal as in Figure 8-23. Secure piston pin with retainer.

   NOTE: Barrel must be supported at all times so connecting rod does not contact edges of opening in crankcase.

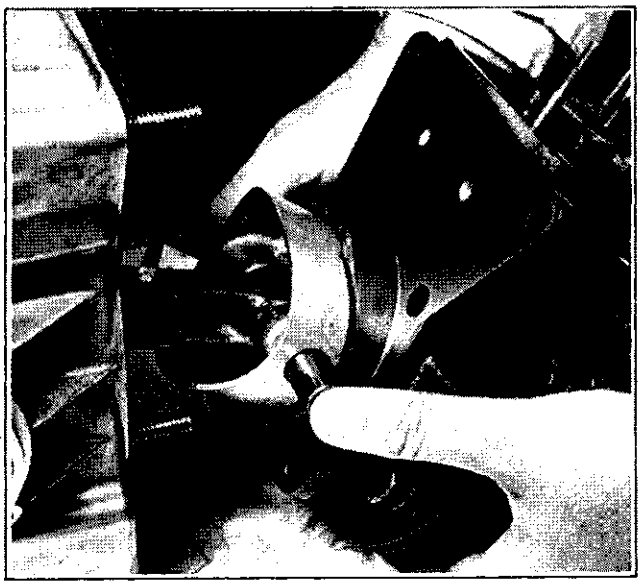


Figure 8-23. Assembling Piston to Connecting Rod

CLICK HERE TO DOWNLOAD THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: www.heydownloads.com by clicking the link below

- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO DOWNLOAD THE COMPLETE MANUAL