SECTION 5 - ENGINE MECHANICAL

MERCURY
SNOWMOBILES

PART G - 340 S/R

MERCURY
MARINE

INDEX

340 S/R
GENERAL

Engine "Disassembly" and "Reassembly" instructions are printed in a sequence which should be followed to assure best results when removing or replacing engine components. If complete disassembly is not necessary, start reassembly at point disassembly was stopped. (Refer to "Index", preceding.)

If major engine repairs are to be performed, remove engine from snowmobile. It is not necessary to remove engine for minor repairs on components such as stator plate, fan housing and secondary ignition coils.

An engine repair bracket can be fabricated from angle iron with holes and dimensions, as shown in Figure 1. Install repair bracket to mounting plate holes of bottom crankcase half. Clamp repair bracket and engine in a vise or suitable holding fixture.

IMPORTANT: Refer to "Specifications" Section 8 for all torque valves.

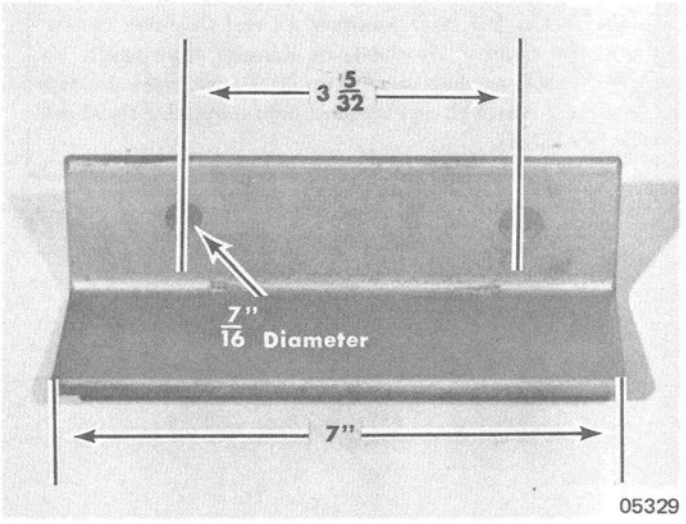

Figure 1. Engine Repair Bracket

ENGINE REMOVAL

1. Open top cowl.
2. Remove drive sheave shroud and drive belt.
3. Remove carburetor intake silencer.
4. Disconnect spark plug high tension wires from spark plugs.
5. Disconnect throttle and choke core wires from carburetor. Remove choke cable and throttle cable from mounting bracket.
6. Remove dash and windshield assembly by removing 8 screws. Disconnect wiring harness from ignition switch.
7. Disconnect pulse hose from carburetor.
8. Remove carburetor from intake manifold.
9. Unhook ball joint springs from exhaust ball joint.
10. Disconnect engine wiring harness from chassis wiring harness by separating connector (located by right front engine mount).

IMPORTANT: For ease of removal, flywheel should be removed at this time (if repairs being performed will require removal of flywheel). If flywheel removal is not necessary, refer to "Step 12", following, and remove engine.

Flywheel Removal

11. If flywheel removal will be necessary, remove flywheel as outlined following:
    a. Remove plastic guard from fan assembly. Remove rewind starter assembly from fan housing.
    b. Remove rewind starter cup, flywheel sheave plates and fan belt from flywheel.

NOTE: For ease of removal, an air or electric impact wrench may be used to remove flywheel nut.

WARNING: If an impact wrench is used, DO NOT use belt wrench to keep crankshaft from turning. If necessary, hold drive sheave by hand.

    c. Hold engine crankshaft from rotating by holding drive sheave with Belt Wrench (C-91-24937A1). Remove flywheel nut and washer.

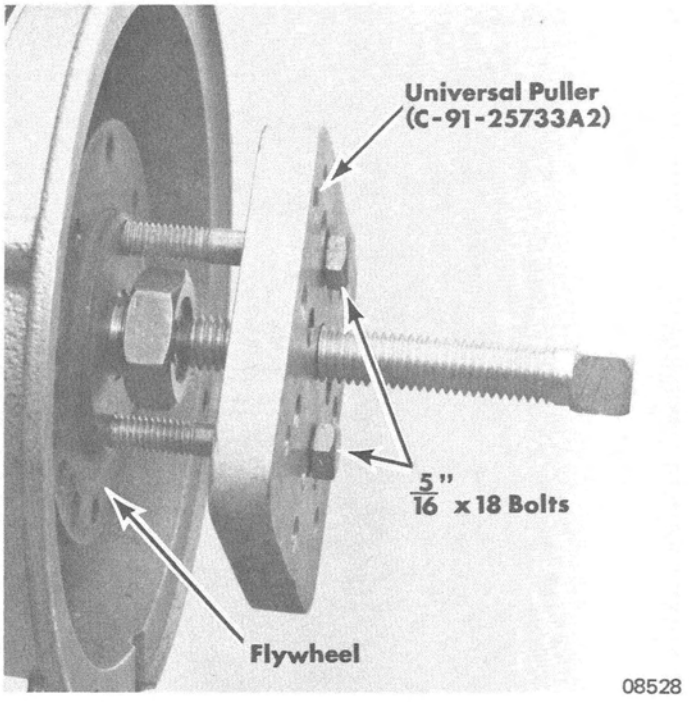

Figure 2. Flywheel Removal

    d. Install modified (refer to template, Section 9) Universal Puller (C-91-25733A2) on flywheel. (Figure 2) Use crankshaft protector or reinstall flywheel nut to protect crankshaft from damage.

CAUTION: Crankshaft damage may result if a protector cap is not used between crankshaft and puller.

e. Hold engine crankshaft from rotating by holding drive sheave with belt wrench. Tighten center bolt of puller to 50 ft. lbs. (7mkg) maximum.

CAUTION: DO NOT hammer on end of puller center bolt to remove flywheel, or damage may result to crankshaft or bearings. DO NOT use heat to aid flywheel removal, as excessive heat may seize flywheel to crankshaft.

f. Using a hammer and hardwood block, tap each side of flywheel alternately (while maintaining torque on center bolt) until flywheel is free. Remove flywheel from crankshaft and puller from flywheel.

12. Refer to Section 2, Part C, and remove drive sheave from crankshaft taper.
13. Remove locknuts and flat washers which secure engine mount plate to mounting rails.
14. Lift engine from snowmobile.
15. Remove engine mounting plate from crankcase and install engine in suitable holding fixture.

ENGINE DISASSEMBLY

Fan Assembly

REMOVAL

1. Remove 3 allen screws which secure heat shield and coil cover to air shroud. Remove heat shield and coil cover from air shroud.
2. Loosen rewind side secondary ignition coil. Disconnect blue and blue/red stator plate wires from terminals of secondary ignition coils.
3. Remove 7 bolts and washers which secure fan housing assembly to air shroud and crankcase. Carefully pull fan housing assembly off crankshaft (to prevent damage to oil seal). Note positioning of shims (if any) between fan housing and crankshaft ball bearing. Shims control crankshaft end play, and engine must be reassembled with same shims.

NOTE: If stator plate attaching screws are loosened or removed, engine must be "timed" during reassembly.

DISASSEMBLY

1. Remove stator attaching screws and remove stator and wiring from fan housing.
2. Press oil seal from fan housing with a suitable mandrel.
3. Remove and discard "O" ring from back side of fan housing.

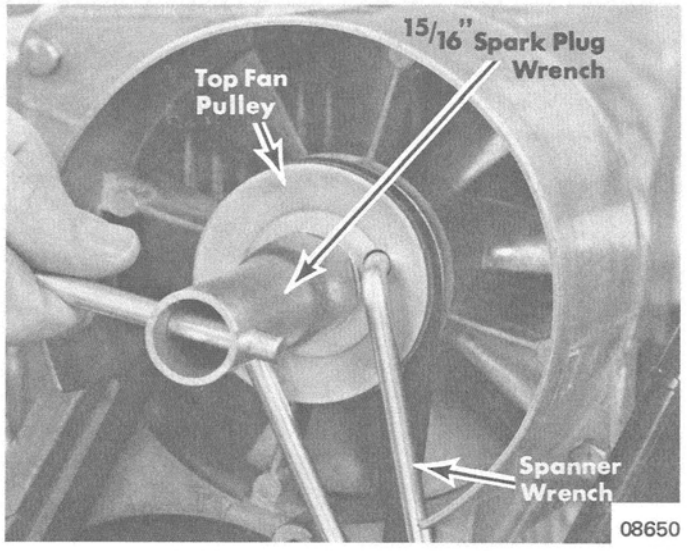

Figure 1. Fan Pulley Disassembly

4. Using spanner wrench (supplied with manufacturer's tool kit) and 15/16" wrench, remove top fan pulley retaining nut. (Figure 1)
5. Remove flat washer, outer fan pulley half, spacer(s) and inner fan pulley half from fan shaft.
6. Remove key from fan shaft keyway.
7. Drive out fan shaft with a leather mallet.
8. DO NOT remove fan bearings, unless bearing failure is evident. If replacement is necessary, press bearings from fan housing.

CAUTION: When pressing bearings from fan housing, BE SURE that fan housing is properly supported (to prevent damaging housing).

CLEANING and INSPECTION

1. Clean and inspect fan blades and fan shaft. Replace fan if blades are cracked or chipped. Replace fan if fan shaft is bent or threads are damaged.
2. Check fan bearings for roughness.

Cylinder Heads and Cylinders

REMOVAL

1. Remove exhaust "Y" pipe and retaining spring from engine.
2. Remove rubber spark plug protectors and spark plugs.
3. Remove air shroud attaching bolts and remove 2 halves of air shroud from engine.

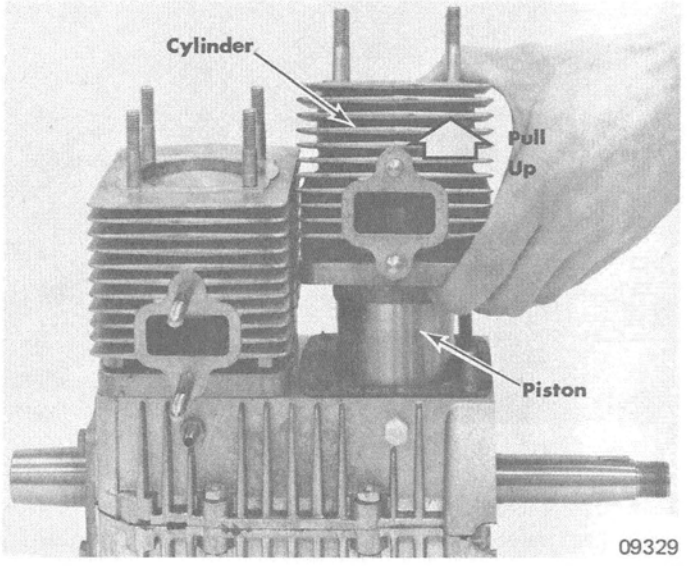

Figure 2. Removing Cylinder

4. Remove cylinder head attaching nuts, lockwashers and flat washers. Lift cylinder heads off cylinder studs. Note positioning of 2 long spacer nuts to which air shroud is attached.
5. Remove and discard cylinder head gaskets.
6. Remove halves of intake manifold from cylinders.
7. Remove nuts and washers from thru bolts which secure cylinders to crankcase.
8. Lift cylinders off crankcase and pistons. (Figure 2) Mark each cylinder to designate with which piston it is used.
9. Remove and discard cylinder base gaskets.

CLEANING and INSPECTION

1. Thoroughly clean cylinder heads and gasket surfaces. Remove carbon deposits and "varnish" from cylinder heads.

NOTE: Cylinder head(s) should be replaced if badly damaged or if carbon deposits cannot be removed.

2. Inspect cylinder heads. Check for deep grooves, cracks and distortion which could cause compression leakage.
3. Check spark plug holes for stripped or damaged threads.
4. Replace cylinder head(s) as necessary.
5. Thoroughly clean cylinders and gasket mating surfaces.

6. Check cylinders for stripped or damaged studs. Replace damaged studs and secure with Loctite Type A (C-92-32609).
7. Check gasket surfaces for nicks, deep grooves, cracks and distortion which could cause compression leakage.
8. Refer to "Cylinder Honing Procedure", following, and deglaze or hone cylinder bores.

   IMPORTANT: Always deglaze or hone cylinder bores before reassembly.

9. Carefully inspect cylinder bores for scratches or grooves which honing did not remove. Replace cylinder as necessary.

Cylinder Honing Procedure

IMPORTANT: Always deglaze or hone cylinder bores before reassembly.

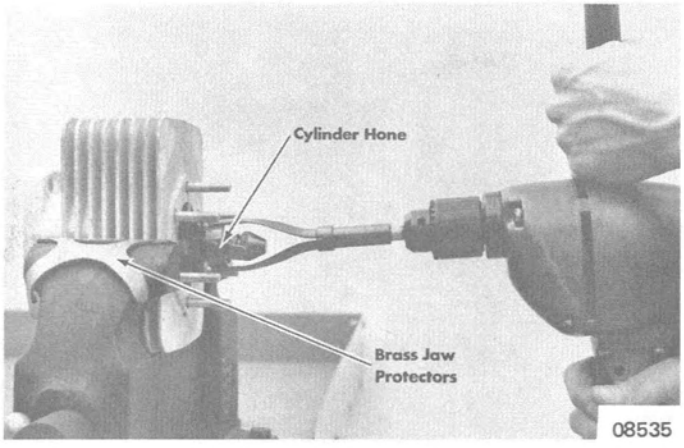

Figure 3. Honing Cylinder

1. Follow recommendations of the hone manufacturer (for correct usage of hone) and proper cleaning and lubrication during honing. (Figure 3)
2. Occasionally, during honing operation, cylinder bore should be cleaned thoroughly and cylinder and piston (selected for the individual cylinder) should be checked for correct fit, as outlined in "Checking Piston Skirt Clearance", following.
3. When finish-honing a cylinder bore, hone should be moved up-and-down at a sufficient speed to obtain very fine, uniform surface finish marks in a crosshatch pattern of approximately 45° to 65° included angle. Cylinder bore MUST BE free from embedded particles and torn or folded metal after honing.
4. Thoroughly clean cylinder bores with hot water and detergent. Scrub well with a stiff bristle brush and rinse thoroughly with hot water. It is absolutely essential that a good cleaning operation be performed. If any abrasive material is allowed to remain in cylinder bores, it will rapidly wear the new rings and cylinder bores, in addition to bearings which were lubricated by the contaminated oil. The bores should be swabbed several times with light engine oil and a clean cloth, then wiped with a clean dry cloth. DO NOT clean cylinders with kerosene or gasoline.

Checking Piston Skirt Clearance

1. Hone cylinder (as outlined, preceding) to clean up any score marks or scuffs in cylinder bore.

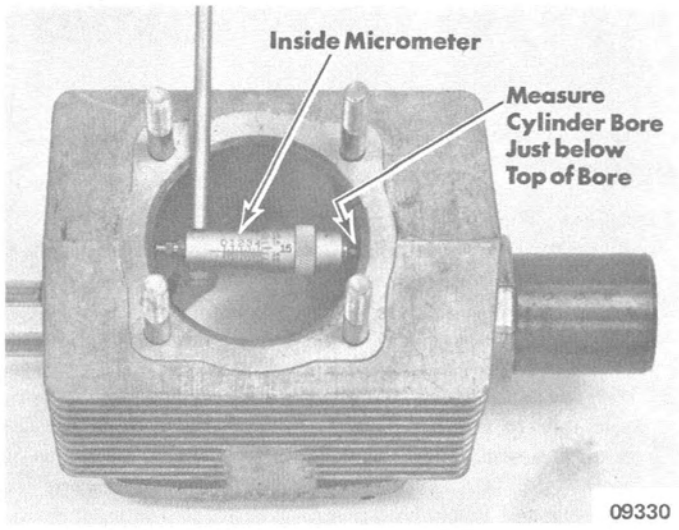

Figure 4. Measuring Cylinder

2. Measure cylinder bore diameter (with an inside micrometer) just below top of bore. (Figure 4) Perform measurements at right angles (90°) to each other and check for an out-of-round ("egg shaped") condition.
3. Measure piston at MIDDLE of piston skirt, just below piston pin, and at a right angle (90°) to piston pin. (Figure 5)

   IMPORTANT: When checking piston-to-cylinder clearance, be sure that No. 1 piston is mated with No. 1 cylinder and No. 2 piston with No. 2 cylinder.

4. Subtract piston skirt diameter from cylinder bore diameter to determine "Piston Skirt Clearance".
5. If clearance exceeds specifications (refer to "Specifications" Section 8) after honing, replace piston and/or cylinder as necessary.

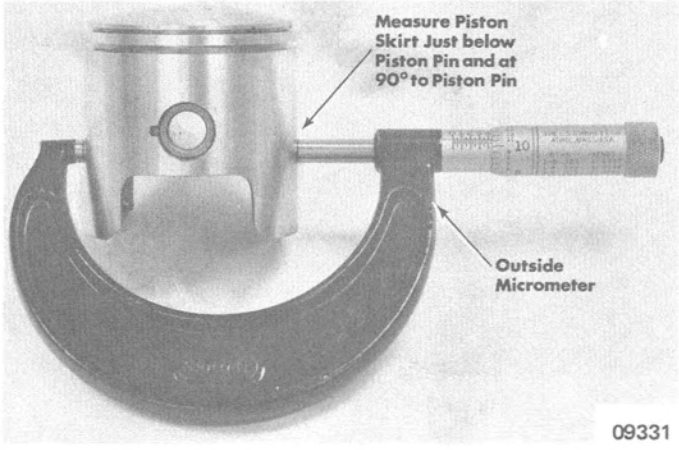

Figure 5. Measuring Piston Skirt

Piston and Piston Rings

REMOVAL

NOTE: It is necessary to remove the opposite cylinder prior to removal of either piston.

1. Place a clean rag around crankcase openings to prevent entrance of foreign objects.
2. Remove piston pin lockrings from pistons with an awl or other suitable tool. (Figure 6) Use caution not to mar piston skirt during removal of lockrings.

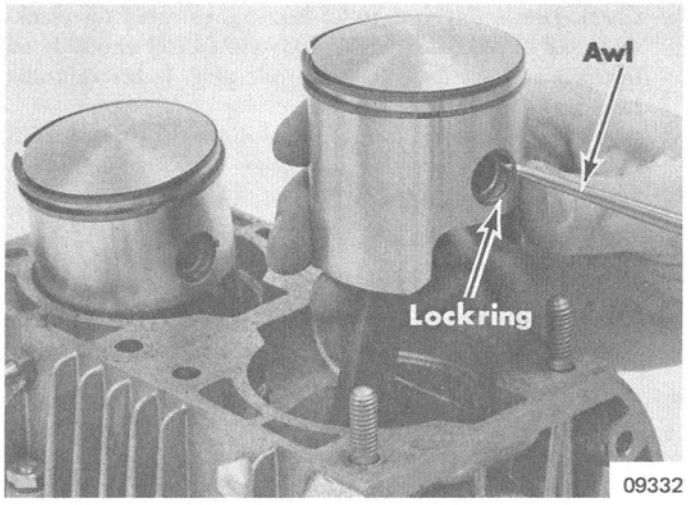

Figure 6. Removing Piston Pin Lockrings

IMPORTANT: If piston skirts are marred during removal of lockrings, BE SURE that skirts are smoothed-off with 320 grit carborundum cloth before installation of pistons in cylinders.

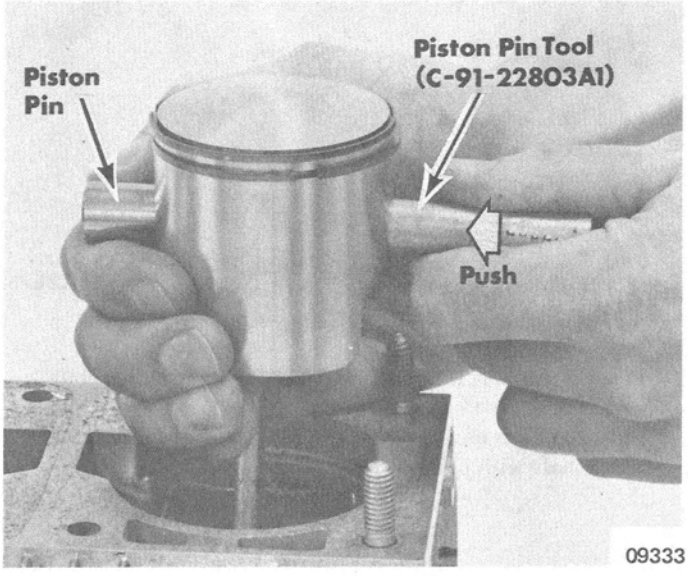

Figure 7. Piston Pin Removal

3. Remove piston pins with Piston Pin Tool (C-91-22803A1). (Figure 7) Remove pistons from connecting rods and reinsert piston pins into respective pistons. Mark each piston to designate with which cylinder it is used.
4. Remove piston pin bearings from connecting rods.

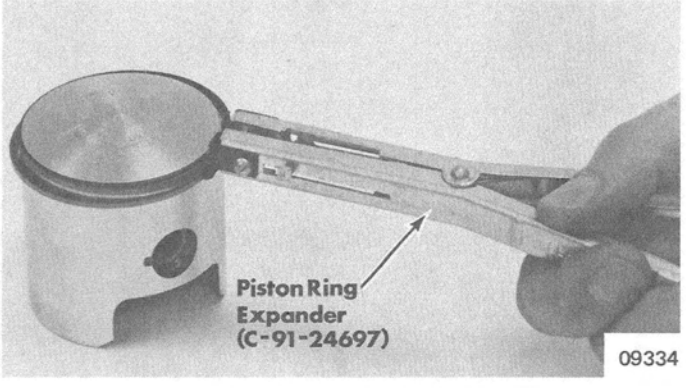

Figure 8. Piston Ring Replacement

5. Use Piston Ring Expander (C-91-24697) to remove piston rings from each piston. (Figure 8) Discard piston rings.

CLEANING and INSPECTION

1. Replace piston(s) if scoring, pitting or metal damage is present.

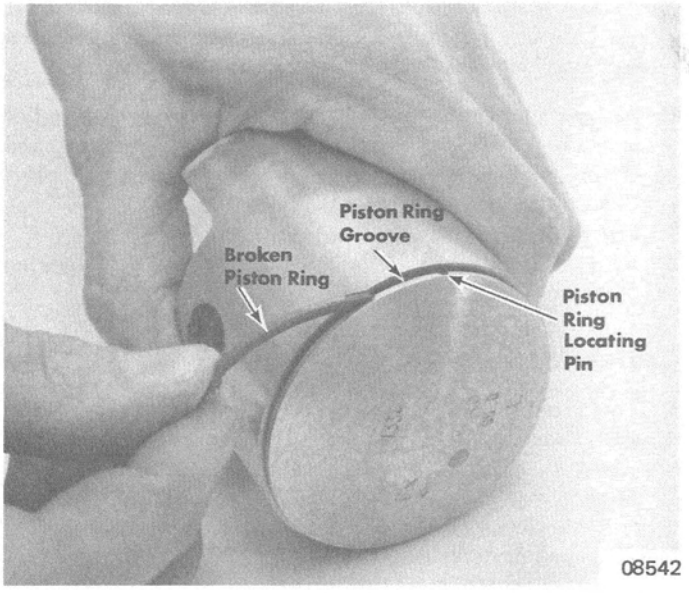

Figure 9. Cleaning Piston Ring Grooves

2. Thoroughly clean pistons. Remove carbon deposits and "varnish" from pistons with a soft wire brush or carbon remover solution. Clean ring grooves with recessed end of a broken ring. (Figure 9) Do not burr or round machined edges.
3. Inspect piston ring grooves for wear, burn and distortion. Piston ring locating pins (located in ring grooves - Figure 9) prevent rings from rotating. Locating pins must be tight in ring grooves.
4. Check piston pin "fit". Piston pins are not sold separately. Each piston pin is mated to only one piston. The piston and pin must be replaced as an assembly if pin is loose.
5. Refer to "Checking Piston Skirt Clearance", preceding, and check clearance between pistons and cylinders. If "Piston Skirt Clearance" exceeds specifications, piston and/or cylinder may be worn and replacement will be necessary.
6. Check outer connecting rod bearings (piston pin end). Bearings must be smooth and should not bind. Replace bearings as necessary.
7. Inspect piston pin end of connecting rod for pitting or rust. Clean (if necessary) with 320 grit carborundum cloth.

Crankcase and Crankshaft Assembly

GENERAL

Crankcase halves are a matched set and MUST NOT be interchanged.

Crankshaft is sold as a complete assembly with connecting rods, centermain bearings and distance ring. Components, which are included in the crankshaft assembly, cannot be purchased separately. If an internal crankshaft component fails, the entire crankshaft assembly must be replaced. Outer crankshaft ball bearings and "O" ring can be replaced without replacing crankshaft assembly.

REMOVAL

1. Remove 4 end cap attaching bolts from PTO side end cap.
2. Remove nuts and washers from bolts which secure crankcase halves together. Remove bolts from crankcase.
3. Separate crankcase halves. Be careful not to damage crankcase sealing surfaces or crankshaft.

   NOTE: A sealant is used between the crankcase halves. It may be necessary to GENTLY TAP on crankshaft with a soft lead hammer until crankcase halves separate.

4. Remove end cap (with gasket) and shims from PTO end of crankshaft. Note positioning of shims between end cap and crankshaft ball bearing. Shims control crankshaft end play.
5. Remove and discard oil seal from end cap.
6. Lift crankshaft assembly from crankcase half.
7. Remove and discard "O" ring from crankshaft end bearing (PTO side).

CLEANING and INSPECTION

1. Thoroughly clean all surfaces of crankcase halves. Be sure that crankcase sealer is removed from crankcase mating surfaces.
2. Inspect crankcase mating surfaces for cracks, scratches or grooves. Check crankcase halves for stripped threads.
3. Clean and dry crankshaft assembly.

WARNING: DO NOT spin-dry ball bearings with compressed air.

4. Grasp outer race of each ball bearing firmly and attempt to work race back-and-forth (there should not be excessive play).
5. Lubricate bearings with light oil. Rotate outer race of each ball bearing. Bearings should have smooth action and no rust stains. If outside bearing(s) sound or feel "rough", replace bearing(s). If an inside bearing is "rough", replace crankshaft assembly.
6. Check connecting rod roller bearings (located on crankshaft end of rod). Connecting rods should roll smoothly on bearings and not have excessive side play. Lubricate roller bearings with light oil.
7. Inspect oil seal surfaces of crankshaft. If crankshaft is grooved, pitted or scratched, replace crankshaft assembly.
8. Check crankshaft assembly for straightness.

DISASSEMBLY

1. Install Puller Plate (C-91-37241) between end bearing and crankshaft counterweight. (Figure 10)

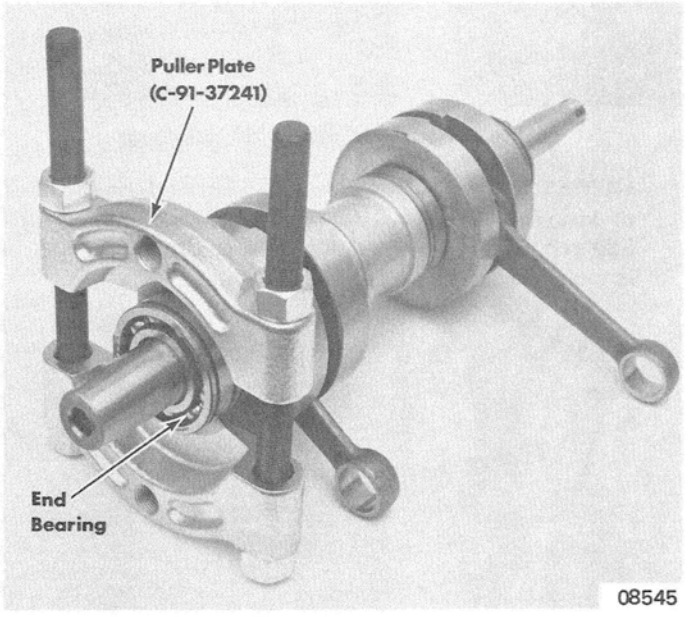

Figure 10. End Bearing Removal

2. Place crankshaft in press and support under puller plate.
3. Press crankshaft out of bearing.
4. If desired, remove end bearing from opposite end of crankshaft with puller plate and press.

ENGINE REASSEMBLY

NOTICE: Refer to "Specifications" Section 8 for All Torque Values.

Crankshaft Assembly and Crankcase

REASSEMBLY

1. Support crankshaft in press between counterweights and directly under crankshaft end (where end bearing is being installed).

   NOTE: Install PTO end bearing with "lettered side" up and "O" ring groove away from counterweight.

2. Using tubing as a mandrel, press end bearing onto crankshaft. Press only on inner race of bearing. Be sure that bearing is seated firmly against counterweight.
3. If removed, reinstall end bearing on opposite end of crankshaft with mandrel and press.
4. Remove crankshaft assembly from press.

CHECKING CRANKSHAFT END PLAY

1. Place crankshaft assembly (without end bearing "O" ring) in position on lower crankcase half.
2. Place shim(s), end cap gasket and end cap around PTO end of crankshaft. Secure end cap to lower crankcase half with 2 bolts. Tighten bolts securely.
3. Lubricate new fan housing "O" ring with Multipurpose Lubricant (C-92-63250). Place "O" ring in position on fan housing.
4. Position shim(s) (if any) around rewind end of crankshaft and temporarily install fan housing. Secure fan housing with 2 bolts to lower crankcase half. Tighten bolts securely.

   NOTE: Shims should be reinstalled on crankshaft in same quantity and location as noted during disassembly.

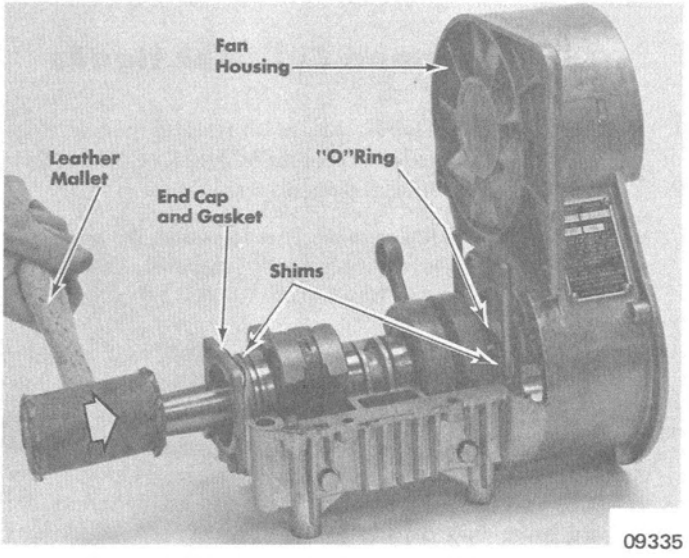

Figure 1. Seating Crankshaft

5. Tap on PTO end of crankshaft (with a leather mallet) until crankshaft bearing is firmly seated against fan housing. (Figure 1)

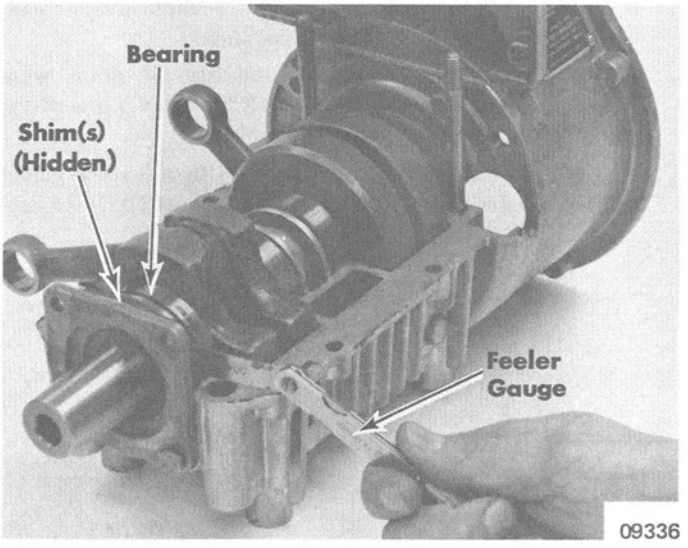

Figure 2. Checking Crankshaft End Play

6. Use feeler gauge to measure crankshaft end play. Measure end play between outer crankshaft bearing (PTO end) and shims. (Figure 2) Crankshaft end play of .006" to .012" (.15mm-.30mm) is permissible. Add shim(s) to decrease amount of end play or remove shim(s) to increase amount of end play.

   IMPORTANT: Position an equal number of shims at each end of crankshaft so that counterweights are "centered" in lower crankcase openings. Some engines may have crankshaft shims only on PTO end; these engines should be re-shimmed so that an equal number of shims are at each end of crankshaft.

7. Recheck crankshaft end play (as outlined, preceding), if shim(s) were added or removed from crankshaft.
8. Remove fan housing and shim(s) from rewind side of crankcase. (Figure 2)

   IMPORTANT: Keep rewind side shims together to assure proper crankshaft end play during reassembly.

9. Remove end cap, end cap gasket and shim(s) from PTO side of crankcase. (Figure 2)

   IMPORTANT: Keep PTO side shims together to assure proper crankshaft end play during reassembly.

10. Lift crankshaft assembly from lower crankcase half.

INSTALLATION

1. Lubricate new crankshaft bearing "O" ring with Multipurpose Lubricant (C-92-63250).
2. Install "O" ring in groove of crankshaft end bearing (PTO side).
3. Place crankshaft assembly in position on lower crankcase half.
4. For ease of installation, lubricate outer surface and inner lip of new end cap oil seal with Multipurpose.

5. Press oil seal into end cap with an arbor press and a suitable mandrel. Oil seal must be installed flush with inside edge of end cap and with lip toward crankcase (inward).
6. Place shim(s), end cap gasket and end cap around PTO end of crankshaft. Secure end cap to lower crankcase half with 2 bolts. Do not tighten bolts at this time.

   IMPORTANT: Thickness and quantity of shims were determined in "Checking Crankshaft End Play", preceding. Reinstall shims as previously determined.
7. Tap on rewind end of crankshaft with a leather mallet until crankshaft is LIGHTLY seated against PTO end cap.

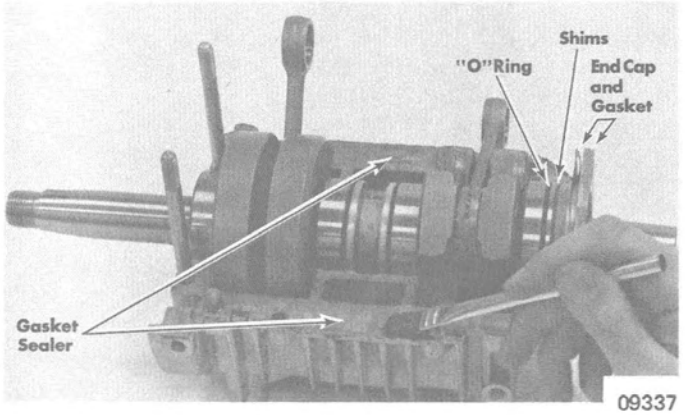

Figure 3. Applying Crankcase Sealer

8. Apply a THIN coat of Gasket Sealer (C-92-72592-1) to crankcase halves. (Figure 3)
9. Place crankcase halves together and secure with attaching thru bolts, washers and nuts. Tighten nuts evenly until specified torque is reached.
10. Secure end cap (PTO side) to upper crankcase half with 2 bolts. Tighten 4 end cap bolts evenly until specified torque is reached.

Piston and Piston Rings

1. Insert piston pin bearings in connecting rods.

   IMPORTANT: Pistons and cylinders were marked (during removal) to designate which parts are used together. Install No. 1 piston and cylinder on PTO side and No. 2 piston and cylinder on rewind side.
2. **Position each piston on its connecting rod with arrow on dome of piston toward exhaust port side of engine.**

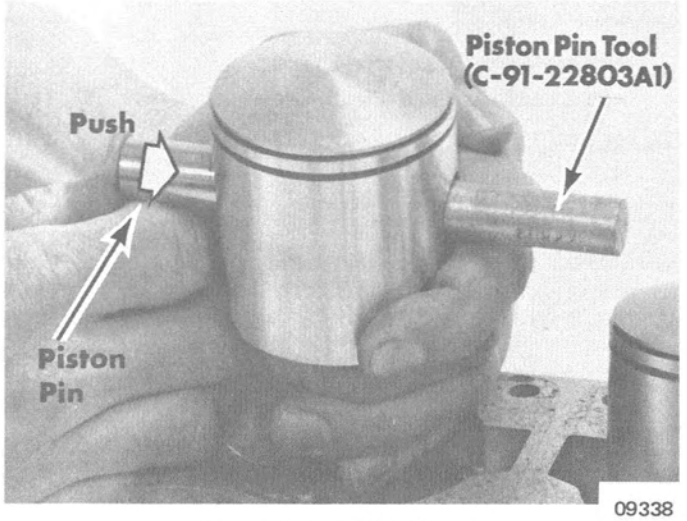

Figure 4. Installing Pistons

3. Install each piston pin, using Piston Pin Tool (C-91-22803A1) as a guide. (Figure 4)

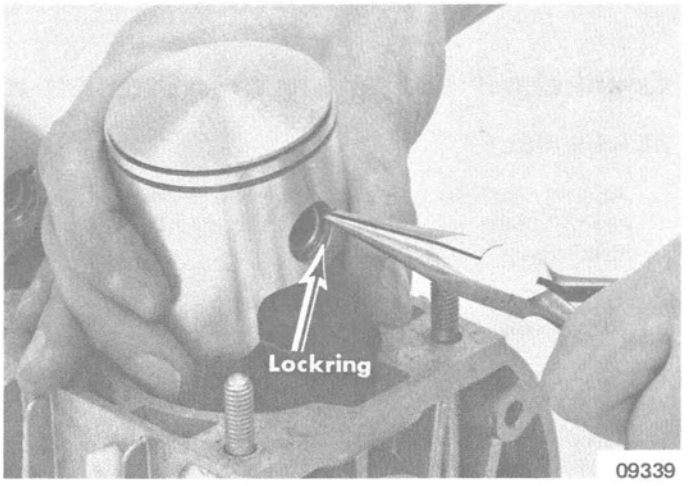

Figure 5. Installing Lockrings

4. Install new piston pin lockrings (2 on each piston). (Figure 5)

> **CAUTION: DO NOT re-use lockrings. Use only new lockrings and make sure that they are completely seated in grooves. DO NOT "mar" piston skirts.**

5. Using Piston Ring Expander (C-91-24697), install a new "rectangular" piston ring in lower ring groove, and a new "L" piston ring in upper ring groove of each piston. (Figure 8 in "Engine Disassembly", preceding.)

> **CAUTION: Piston rings must be properly installed with piston locating pins between ring gaps. Top piston ring must be installed with edge of "L" ring "up".**

Cylinders and Cylinder Heads

1. Lubricate cylinder bores, piston skirts and piston rings with CLEAN Quicksilver Formula 50-D Oil (C-92-65193).
2. Place new cylinder base gaskets on crankcase.

   IMPORTANT: Cylinder base gaskets must be correctly installed. If gaskets are incorrectly installed, gasket will restrict fuel passages to transfer ports.
3. Install No. 1 cylinder over No. 1 piston and No. 2 cylinder over No. 2 piston. Compress piston rings with fingers while installing each cylinder over its respective piston. (Figure 6) Piston rings must be properly positioned with piston ring locating pins at piston ring gaps. Cylinders are properly positioned when intake ports of cylinders are toward pulse hose fitting in crankcase. Rotate crankshaft until piston rings can be viewed thru exhaust port. Depress each ring with a small punch or screwdriver (it will not "spring back" if broken).
4. Insert cylinder attaching bolts (with washers) thru crankcase and cylinder flanges. Secure bolts with lockwashers and nuts. Do not tighten nuts at this time.
5. Temporarily install exhaust "Y" pipe in position on cylinder exhaust pipes.

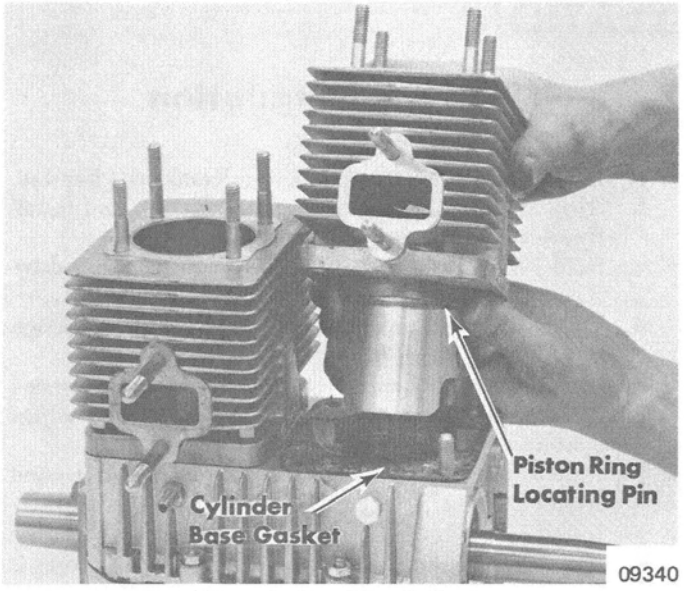

Figure 6. Installing Cylinder

6. Install new intake manifold gaskets and halves of intake manifold in position on cylinder studs. Secure with lockwashers and nuts. Tighten nuts evenly until specified torque is reached.

   NOTE: Intake manifold is properly installed when carburetor mounting studs point slightly upward.

7. Tighten cylinder attaching nuts evenly until specified torque is reached.
8. Remove exhaust "Y" pipe from cylinder exhaust pipes.
9. Place new cylinder head gaskets on cylinders.
10. Set cylinder heads on studs and secure with flat washers, lockwashers and nuts. Tighten nuts evenly until specified torque is reached.

    NOTE: Cylinder heads are correctly installed when there is no "overhang" of cylinder heads at intake side of cylinder. Be sure that 2 long spacer nuts are installed on correct studs of PTO side cylinder. Spacer nuts are used to secure air shroud to engine.

11. Install 2 halves of engine air shroud and secure with attaching screws.
12. Install spark plugs and rubber spark plug protectors.
13. Reinstall exhaust "Y" pipe on cylinder exhaust pipes. Secure "Y" pipe with spring attached to air shroud.

Fan Assembly

REASSEMBLY

1. If removed, reinstall fan shaft bearings and spacer into fan housing. Press bearings into housing until they are flush with housing. Be sure that spacer is installed between bearings.
2. Install fan shaft (with a leather mallet) in position.
3. Reinstall key in fan shaft keyway.
4. Place inner fan pulley half, spacer(s), outer fan pulley half and flat washer in position on fan shaft.
5. Install top fan pulley retaining nut. Hold fan pulley with spanner wrench (supplied with manufacturer's tool kit) and torque nut to specification. (Figure 1 in "Engine Disassembly", preceding.)
6. For ease of installation, lubricate outer surface and inner lip of new fan housing oil seal with Multipurpose Lubricant (C-92-63250).
7. Press oil seal into fan housing with an arbor press and a suitable mandrel. Oil seal must be installed flush with inside edge of fan housing (at that point where fan housing starts to taper outward) and with lip toward crankcase (inward).
8. Insert stator wires thru hole in fan housing and place stator assembly in position on fan housing. Secure stator to housing with washers and screws.

   NOTE: Engine timing must be adjusted during "Engine Installation", following.

INSTALLATION

1. Place shim(s) in position around rewind end of crankshaft and against crankshaft end bearing.

   IMPORTANT: Thickness and quantity of shims were determined in "Checking Crankshaft End Play", preceding. Reinstall shims as previously determined.

2. Check fan housing to be sure that "O" ring is still in position on crankcase side of housing.
3. Place fan housing in position around crankshaft and against crankcase. Install grommet (with stator wires) in position in notch of crankcase.
4. Secure fan housing assembly to air shroud and crankcase with washers and bolts. Tighten bolts evenly until specified torque is reached.
5. Connect blue/red stator wire to terminal of No. 1 secondary ignition coil (PTO side).
6. Connect blue stator wire to terminal of No. 2 secondary ignition coil (rewind side).
7. Tighten screws which secure secondary ignition coil (rewind side) to air shroud.
8. Place secondary ignition coil cover and heat shield in position on air shroud. Secure with 3 allen screws.

ENGINE INSTALLATION

IMPORTANT: "O" stamped on engine mount plate must be positioned up and forward (below exhaust "Y" pipe) when engine is installed in snowmobile.

1. Remove engine holding fixture (if used) and reinstall engine mounting plate. Secure mounting plate to engine with washers and bolts. Torque bolts to specification shown in Section 8.
2. Set engine assembly on engine mounting rails and align exhaust ball joint.
3. Place clip (with engine harness) around right front engine mount plate bolt.
4. Secure engine to front and rear mounting rails with flat washers and locknuts. Torque nuts to specification.
5. Refer to Section 2, Part C, and install drive sheave on crankshaft.
6. Reconnect exhaust ball joint springs.
7. Secure insulator block and carburetor to intake manifold with new gaskets.
8. Connect pulse hose to carburetor and clamp securely.

   NOTE: If fuel hose or fuel return hose was disconnected from carburetor, reconnect at this time and clamp securely.

9. Reinstall dash and windshield assembly. Secure with 8 screws.
10. Connect wiring harness to ignition switch.
11. Reinstall choke and throttle cables in mounting bracket. Connect core wires to carburetor linkage. (Refer to Section 7A for adjustment.)

Flywheel Installation

12. Install flywheel as outlined, following:
    a. If removed, place flywheel key in crankshaft keyway.
    b. Align flywheel keyway and crankshaft key and install flywheel. Secure with washer and nut.
    c. Hold engine crankshaft from rotating by holding drive sheave with Belt Wrench (C-91-24937A1).
    d. Torque flywheel nut to specification shown in Section 8.
    e. If stator assembly and/or breaker points were loosened or removed, refer to Section 3, Part C, and adjust ignition timing.
    f. Install fan belt, flywheel sheave plates and rewind starter cup.
    g. Install rewind starter assembly on fan housing. Be sure that black ground wire (from right cowl support) is attached to one of the rewind starter attaching bolts.
13. Install plastic guard over fan assembly.
14. Install drive belt and drive belt shroud.
15. Connect engine wiring harness to chassis wiring harness by connecting connectors (located by right front engine mount).
16. Connect spark plug high tension wires to respective spark plugs.
17. Refer to Section 4, Part A, and check carburetor adjustments.
18. Install carburetor intake silencer and close dashboard cover.
19. Close top cowl.