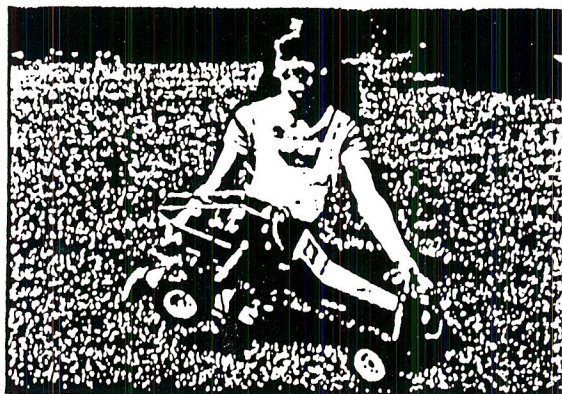
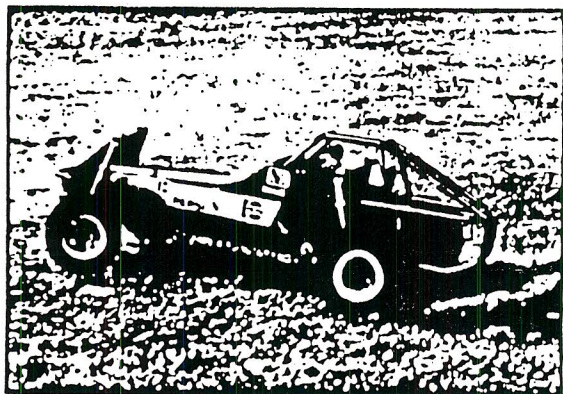


JQC-Rabbit

Radio Controlled Off-Road Racer

ENGINE REPAIR GUIDE



1840 S. Santa Fe #A Santa Ana CA 92705 (714) 546-2347

SPECIFICATIONS

TECHNICAL DATA

ENGINE

Displacement	22.5 cc (1.37 in. ³)
Bore & stroke	32 mm × 28 mm (1.28 in. × 1.12 in.)
Rotation	Counterclockwise
Lubricant	Two-cycle engine oil
Overall dimension (l × w × h)	151 mm × 222 mm × 236 mm (6.04 in. × 8.88 in.) × 9.44 in.)
Weight (dry)	2.52 kg (5.54 lbs)
Output	1.2 HP @ 7500 rpm
Torque	.12 kg @ 6500 rpm
Operating range	5250-8000 rpm
Idle speed	2800-3200 rpm
No load maximum limit	11,000 rpm

FUEL

Type	Gasoline/oil mixture
Mixture ratio	25 Gas:1 Oil
Tank capacity	.6 l (.16 gal)
Carburetor	Diaphragm, rotary valve type
Air cleaner	Dry type
Fuel consumption	480 grams/HP-h

ELECTRICAL

Ignition system	Solid-state magneto
Spark plug	NGK BMR7A
Starting system	Recoil starter
Stopping system	coil short-circuiting

CLUTCH

Type	Automatic centrifugal
Engage speed	3800-4300 rpm

ENGINE

		Standard	Limit
Compression	(kg/cm ²) (psi)	5 71	3 43
Crankshaft bearing section OD	(mm) (in.)	12 .4800	11.95 .4780
Crankshaft seal section OD	(mm) (in.)	12 .4800	11.8 .4720

FUEL

Carburetor metering level height	(mm) (in.)	1.35 .053
Carburetor idle limiter position		Center
Main jet number		48

ELECTRICAL

Spark plug air gap	(mm) (in.)	.6-.7 .024-.028
Ignition coil pole core gap	(mm) (in.)	.3 .012
Primary coil resistance	(ohm)	.68-.88
Secondary coil resistance	(ohm)	5525-7475
Secondary voltage	(V)	11,500

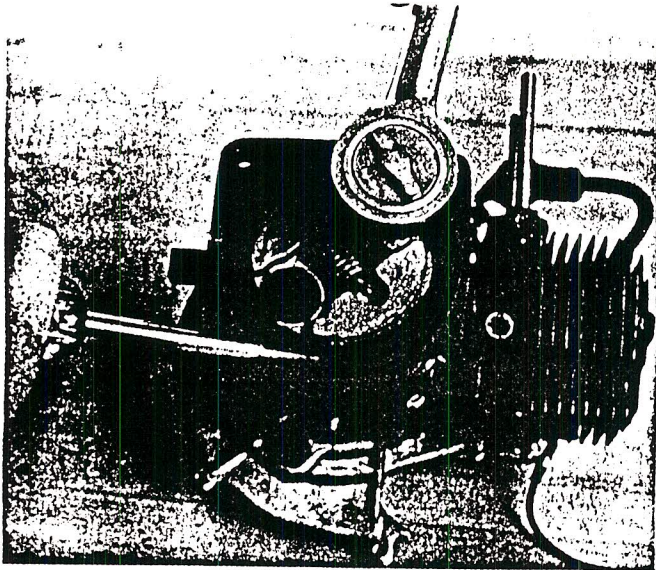
CLUTCH

Spring length	1.040-1.060
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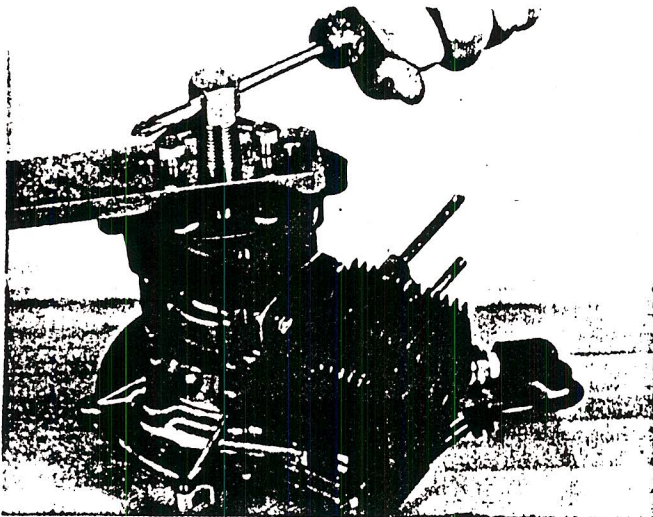
ENGINE

A. Disassembly

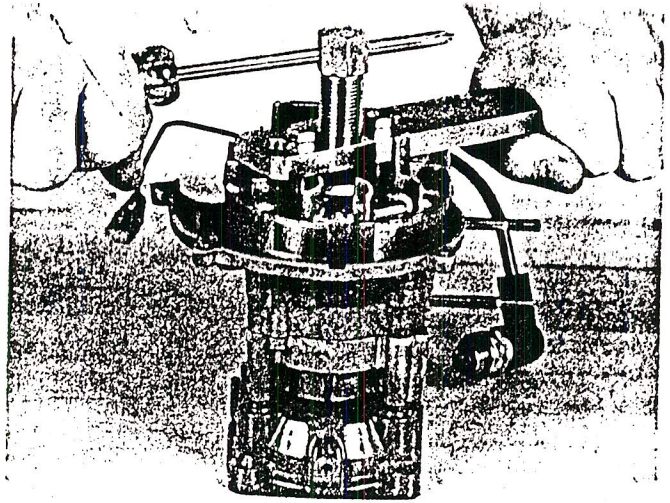
- Remove the fuel tank, spark plug, transistor unit, air cleaner, carburetor, muffler guard, muffler, cylinder cover, fan cover, and clutch shoe assembly.
- Unfasten the two bolts to remove the clutch shoes. The spring is removed with the shoes.



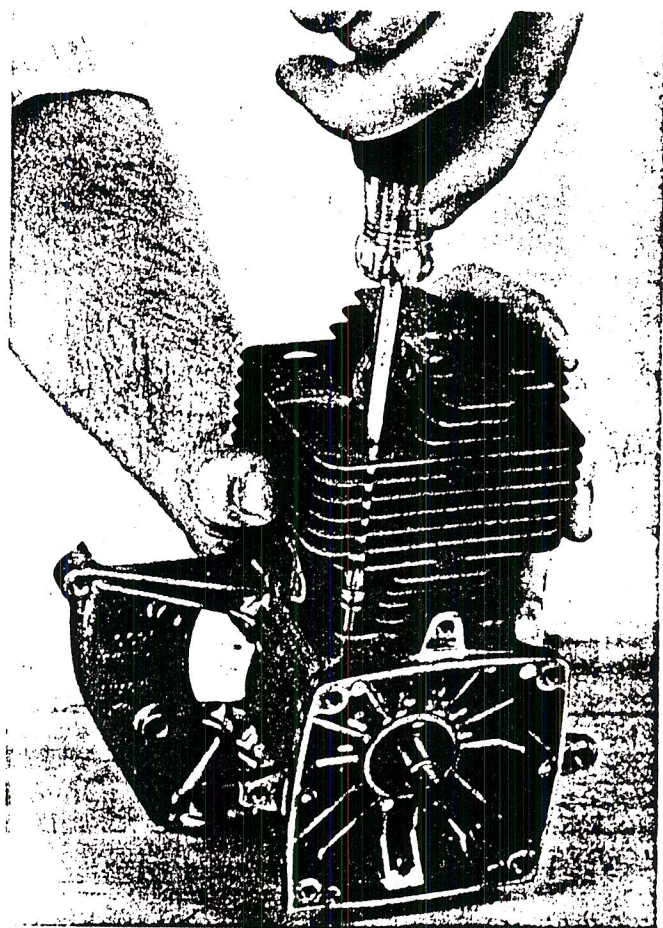
Unfasten the clutch plate securing bolt. Use the puller (special tool 257602) to remove the clutch plate. Unfasten the four screws to remove the clutch case.



Caution: Whenever a puller is used, be sure the side bolts are threaded in at least 10 mm (0.4 in.) deep equally to prevent damage to the threads.



- Unfasten the rotor retaining nut. Use the puller to remove the rotor.

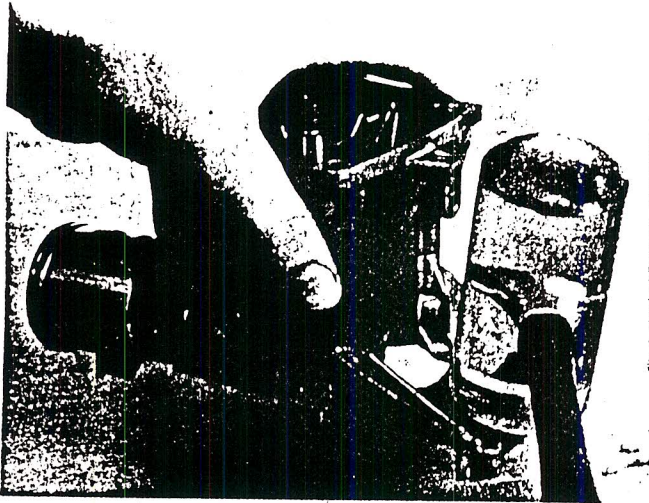


- Unfasten the four cylinder screws and pull the cylinder straight out; if it is twisted, the piston rings may be damaged.

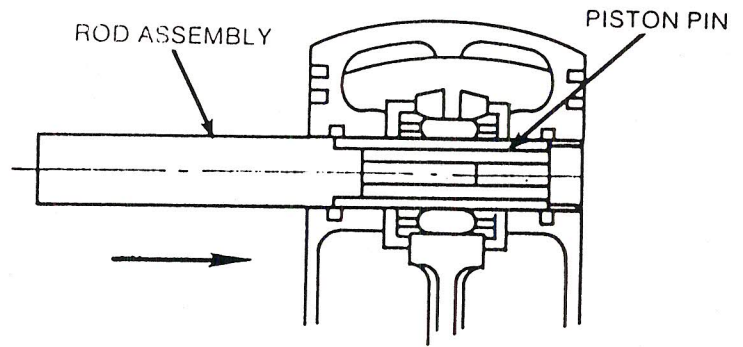
- Extend the piston ring end gap slightly and remove the top ring first, followed by the second ring. Be careful not to deform the rings by over-extending them.



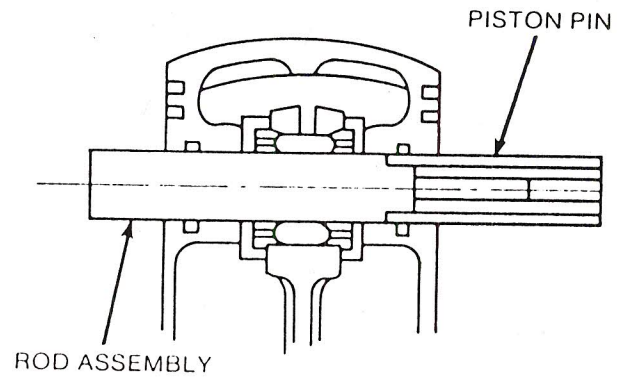
- Remove the woodruff key from the crankshaft. Unfasten the four crankcase screws and tap lightly on the crankcase fan with a hammer to separate the halves. Never pry the crankcase halves apart.



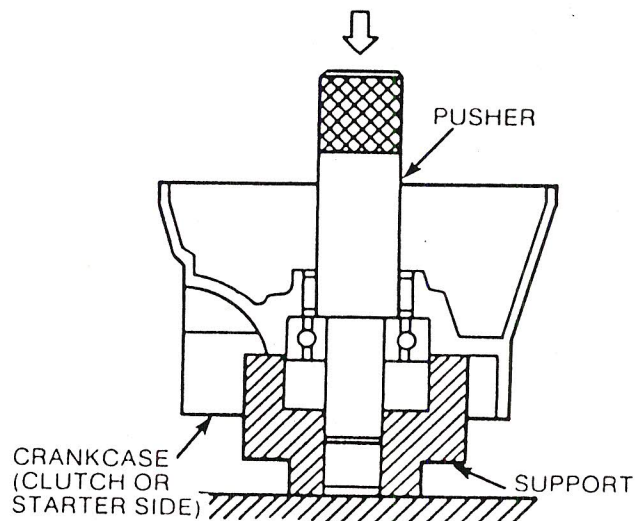
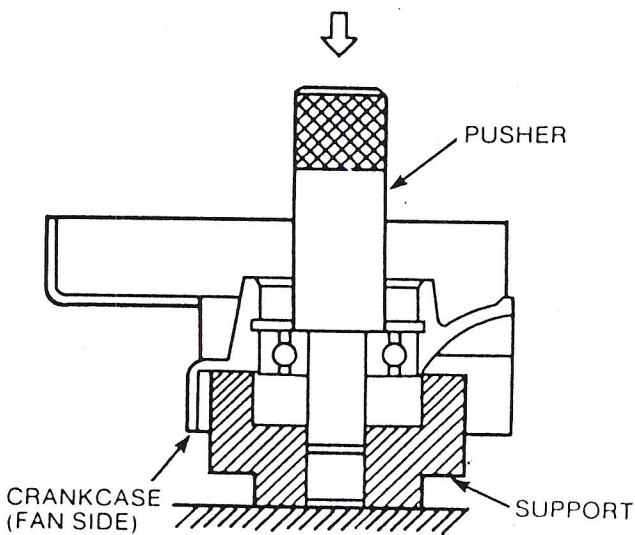
- Remove the circlips on both ends of the piston pin. Place the rod assembly against the piston pin.



- Strike the rod assembly lightly with a hammer to remove the piston pin. Be careful not to strike the connecting rod.

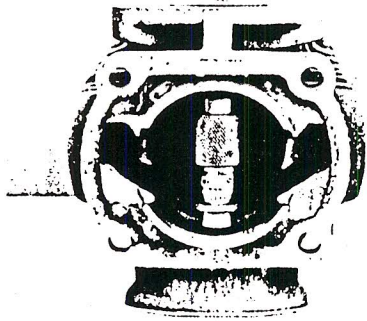


- Examine the oil seal for tears, cracks, deformations, or hardening. Check the ball bearings for signs of wear, particularly rough rotation. If replacement of the oil seal and/or bearings is necessary, pry off the seal. Warm the crankcase half to approximately 100° C (212° F) and slowly press off the bearings.

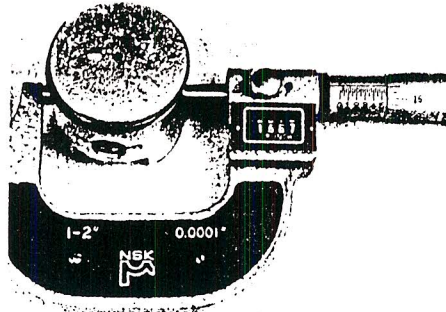


B. Inspection

— Take the following measurements. Replace any parts that do not meet the specifications.



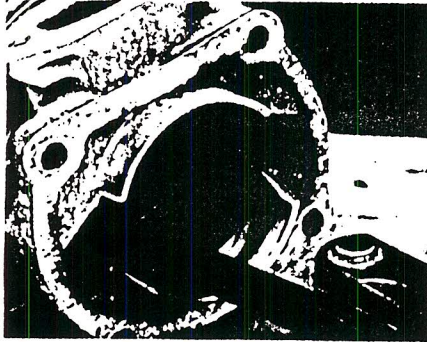
A



B



C



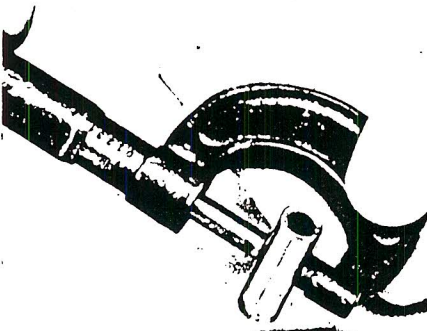
D



E



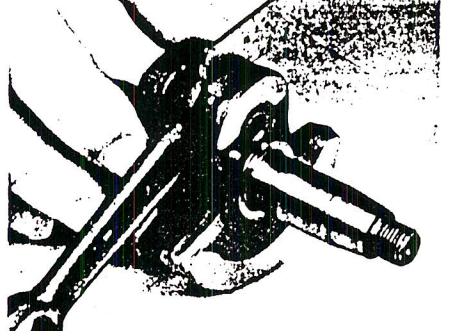
F



G



H



I

SPECIFICATIONS		Standard	Limit
A. Cylinder bore	(mm) (in.)	32 1.280	32.6 1.304
B. Piston skirt OD	(mm) (in.)	32 1.280	31.9 1.276
C. Piston ring groove clearance	(mm) (in.)	.02-.06 .0008-.0024	.15 .0060
D. Piston ring end gap	(mm) (in.)	.1-.3 .004-.012	.5 .020
E. Piston ring groove width	(mm) (in.)	1.5 .060	1.6 .064

F. Piston ring width	(mm) (in.)	1.5 .060	1.4 .056
G. Piston pin OD	(mm) (in.)	8 .3200	7.98 .3140
H. Piston pin hole ID	(mm) (in.)	8 .320	8.04 .322
I. Connecting rod small end ID	(mm) (in.)	11 .4400	11.3 4420

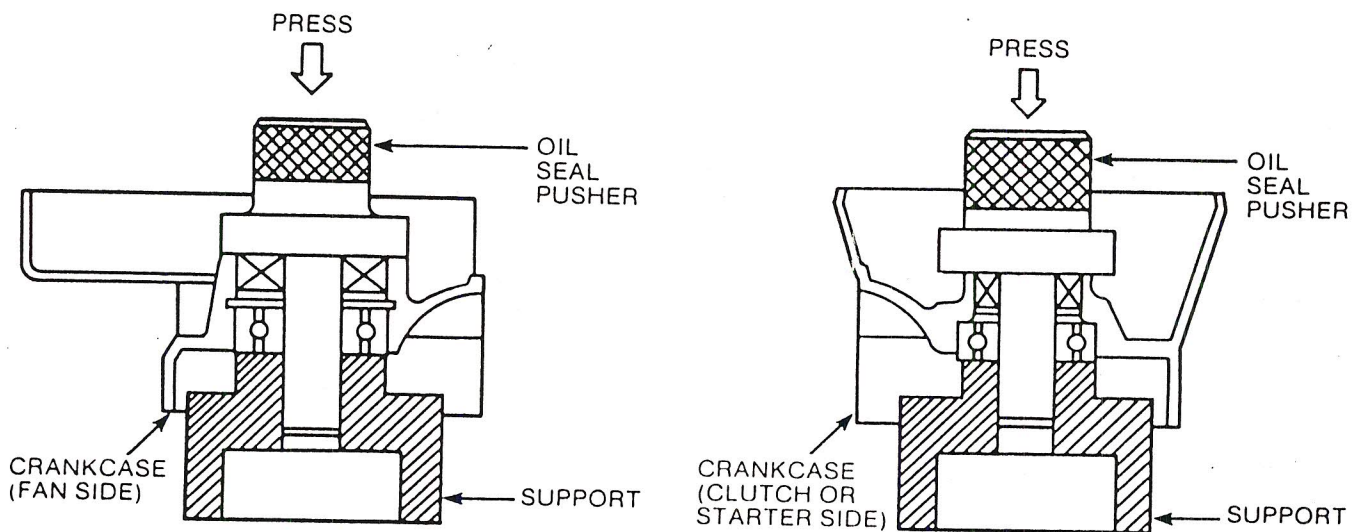
C. Reassembly

Before beginning reassembly, clean any oil, dust, etc., from the components. Also, be prepared to replace all of the gaskets that were removed during disassembly.

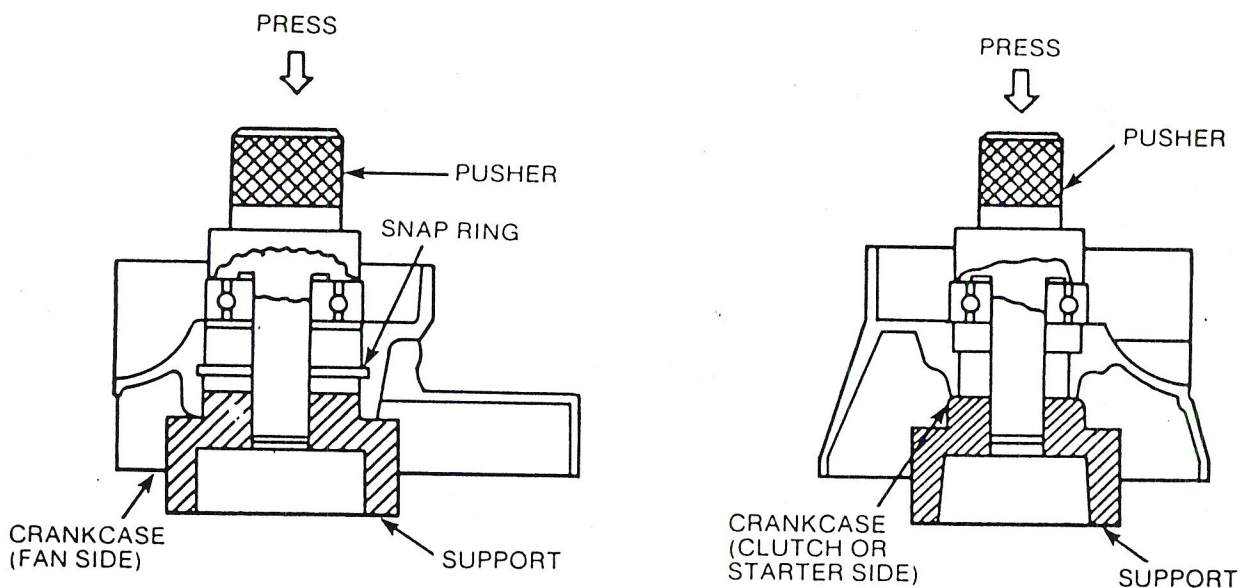
- Apply grease to the lip of each oil seal and two-cycle engine oil to the ball bearings. Fit one seal into each crankcase half. Insert the circlip into the ring groove of the crankcase fan side. Firmly hold each crankcase half and slowly press the main bearing straight down into the crankcase. Repeat for the other crankcase half.

Note: If the circlips are deformed in any way, replace them with new ones.

Pressing an Oil Seal



Pressing a Ball Bearing



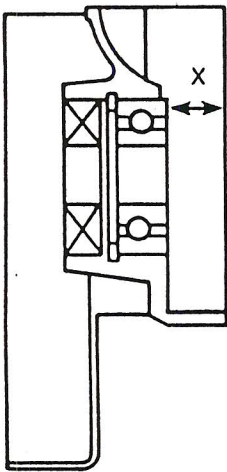
Note: Never reuse a removed oil seal or ball bearing. Always replace it with a new one.

- If the crankshaft or crankcase were replaced, the side clearance of the crankshaft must be adjusted. Make measurements X, Y, and Z (as shown in illustration). The clearance (C) is calculated by the following formula:

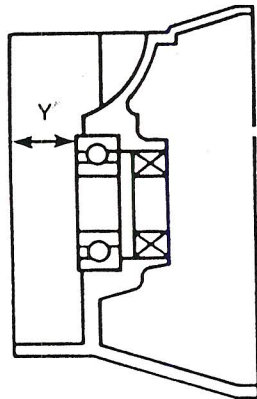
$$C = (X + Y + 0.3 \text{ mm}) - Z$$

If the clearance calculates to less than 0.3 mm (0.012 in.) no shims are needed. If it is between 0.3 mm (0.012 in.) and 0.5 mm (0.020 in.), one shim is needed. If it is between 0.5 mm (0.020 in.) and 0.7 mm (0.028 in.) two shims must be used. To adjust the clearance, set the shims on the starter side of the crankshaft.

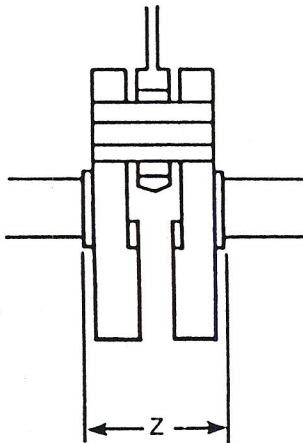
- Install the needle bearing and thrust washers onto the connecting rod. Insert the piston pin into the piston hole using the rod assembly (the same tool used to remove the piston pin). The rod assembly properly centers the pin in the piston; therefore, when the circlips are installed, the pin isn't pushing against them.
- Set the circlips into the grooves on each end of the piston pin. Set the piston rings into the groove on the piston by extending the end gaps with both thumbs. The scooped edge of the ring should face upward toward the crown.
- Put the crankshaft assembly and crankcase halves together.



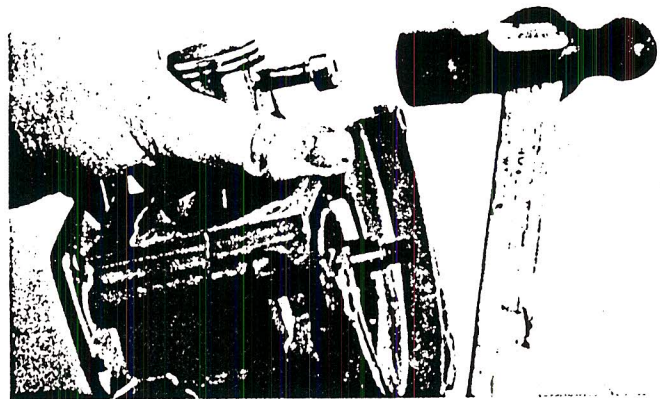
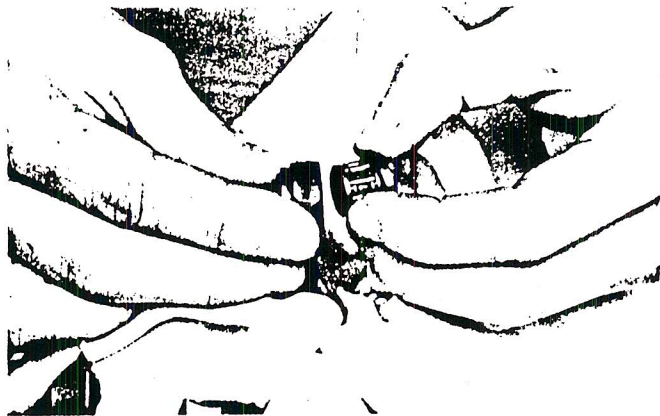
CRANKCASE
(FAN SIDE)



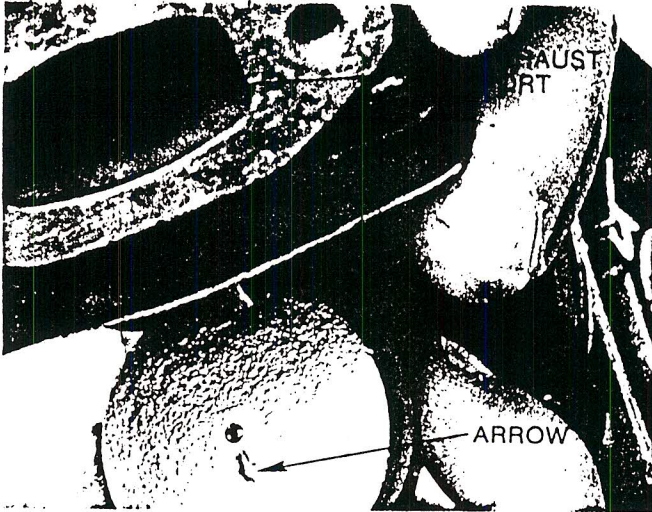
CRANKCASE
(CLUTCH OR
STARTER SIDE)



CRANKSHAFT COMPLETE

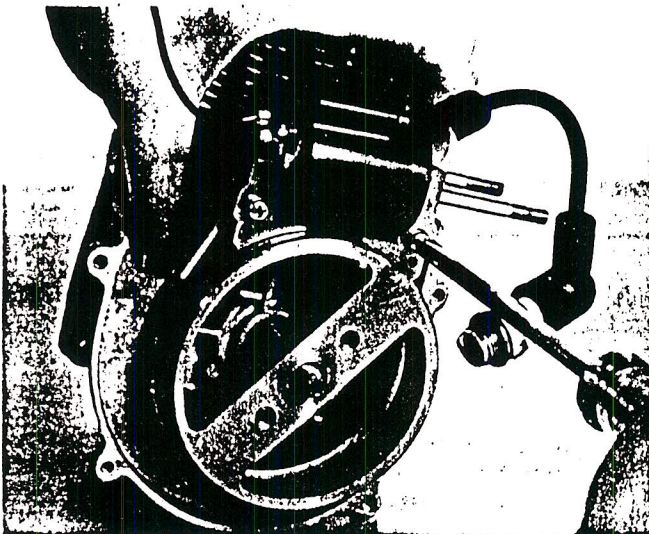


- Apply two-cycle engine oil to the piston ring and the inside of the cylinder wall. Install the piston in the cylinder bore, making sure that the arrow on the piston crown points toward the exhaust side.

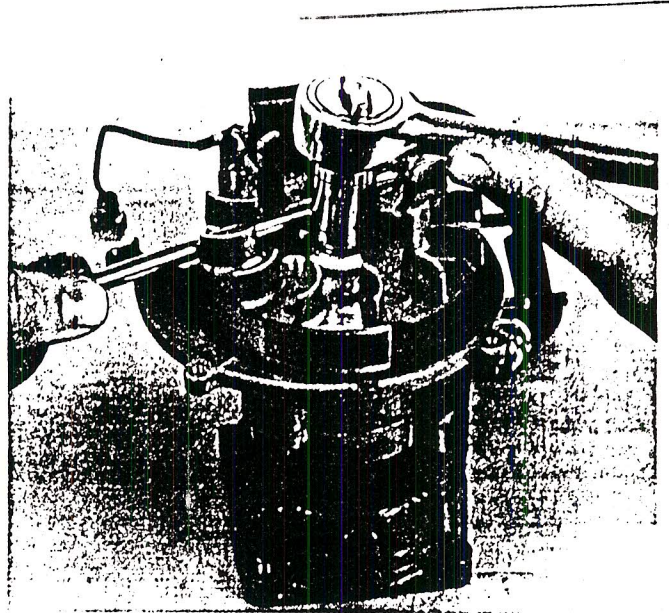


- Attach the cylinder to the crankcase.
- Insert the woodruff key in the crankshaft. The face of the key should be parallel to the centerline of the crankshaft.

Use the set block (special tool 257603) to install the ignition coil. Fit the set block to the crankshaft and fasten the coil while pressing it against the block.

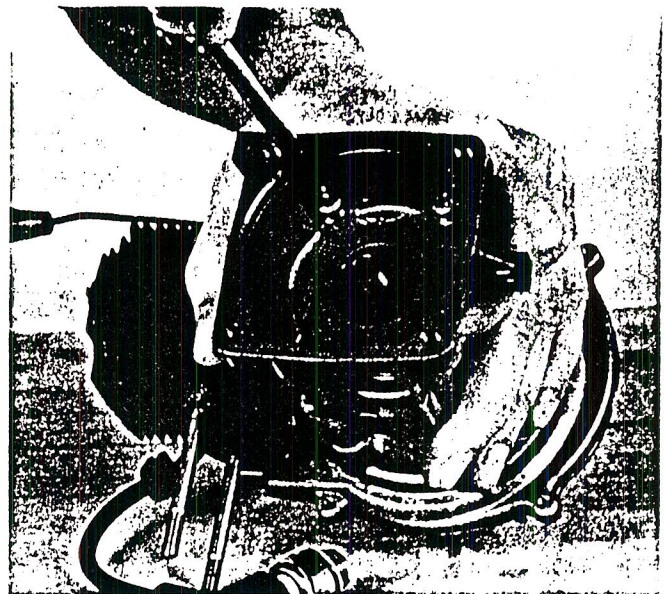


- Place the rotor onto the crankshaft and secure with rotor retaining nut.



Using the four washer and screw assemblies, attach the clutch case to the crankshaft. Fasten the clutch plate to the crankshaft with the securing bolt and washer.

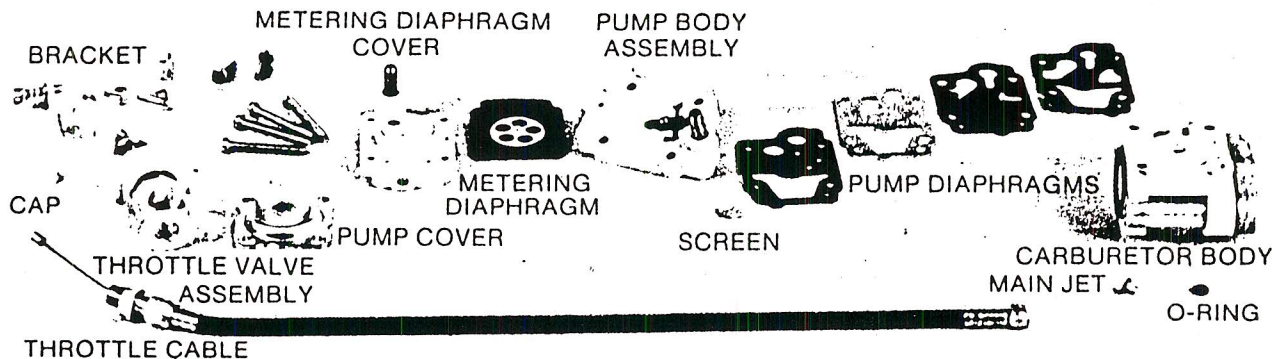
- Install the clutch shoe assembly and the remaining exterior parts.



FUEL SYSTEM

A. Disassembly

Carburetor



- Remove the cap securing the throttle cable end. Disconnect the cable.
- Unfasten the two bracket screws. Pull out the throttle valve assembly.
- Unfasten the four pump screws. Remove the pump cover, metering diaphragm cover, metering diaphragm, pump body assembly, and pump diaphragms in this order.
- Remove the main jet from the carburetor body.
- Remove the screen from the pump body assembly.

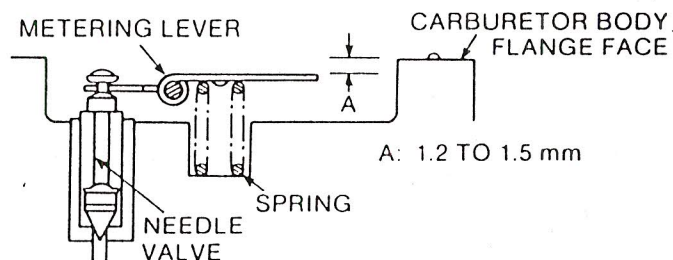
- Note:**
1. Inlet needles can be disassembled by unhooking both ends of the metering lever pin. Because frequent disassembly will loosen the hooks, disassemble only when components need replacement; then, replace the entire assembly.
 2. Do not remove the plug in the top of the throttle shaft. It is needed to prevent operators from turning the inner screw.

B. Inspection

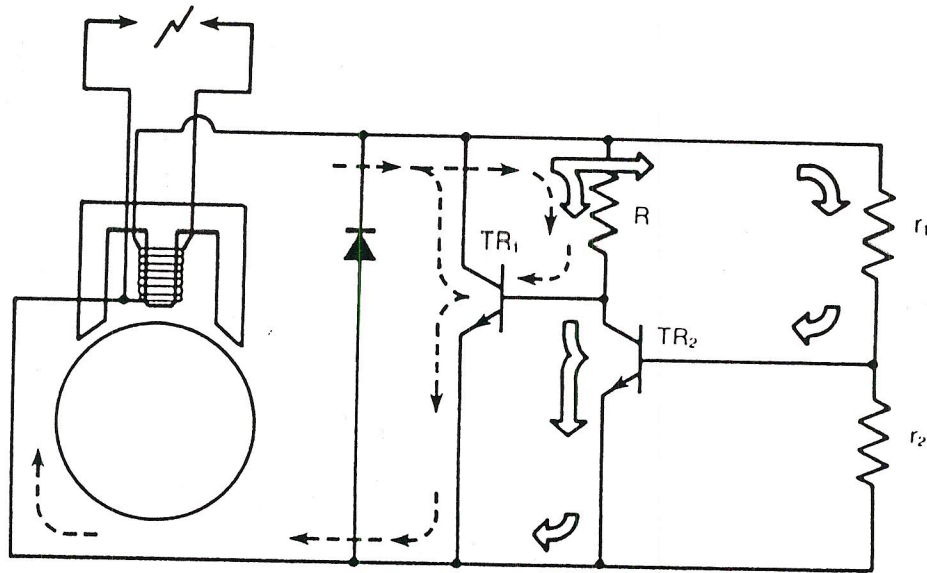
1. Carburetor

- Replace the diaphragm if it has become stiff or crumpled.
- Examine the needle valve and clean any dust from it. The needle valve should be replaced when the surface contacting the needle seat is abnormally worn.
- Examine the fuel passage hole for clogging. Inspect the inside of the sensing chamber of the needle jet and main jet. To remove dust, clean first with compressed air (maximum 40 psi), then with cleaning solvent.

- Measure the hinge height (A) and adjust it if necessary. Make sure that the metering lever moves smoothly.



ELECTRICAL SYSTEM

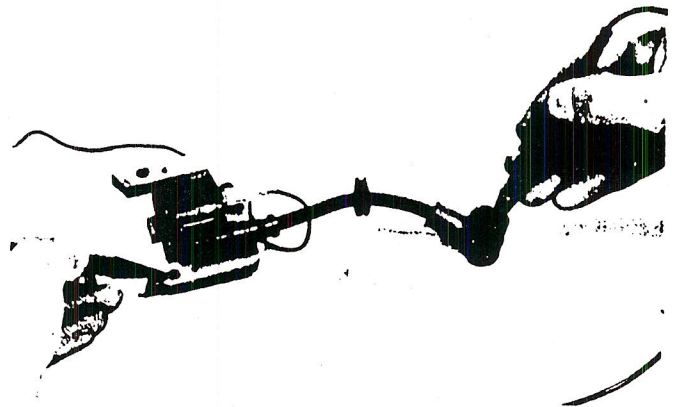
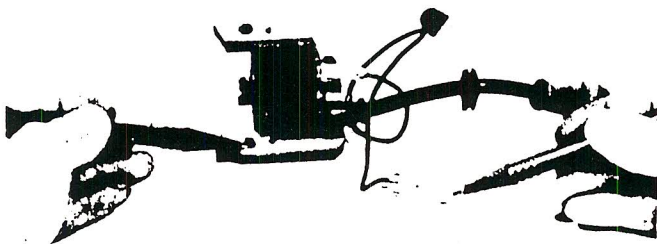


A. Disassembly

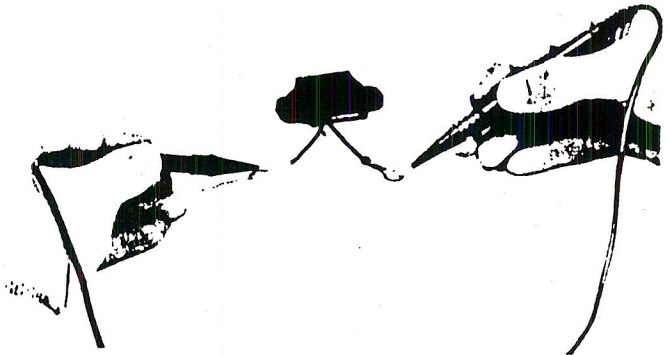
- Unfasten the three screws to remove the ignition coil.

B. Inspection

- Examine the rotor for damage or wear, particularly in the keyway. Replace if necessary.
- Use an ohmmeter to measure the inner circuit of the ignition coil. If the resistance falls short of or exceeds the accepted range (see specifications), or if any damage or wear is present, replace the coil.

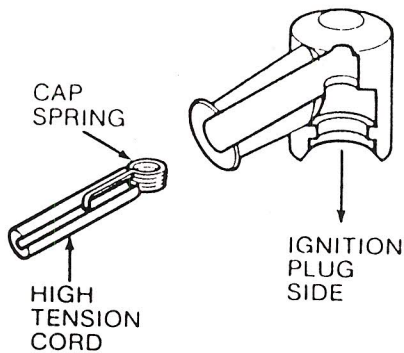
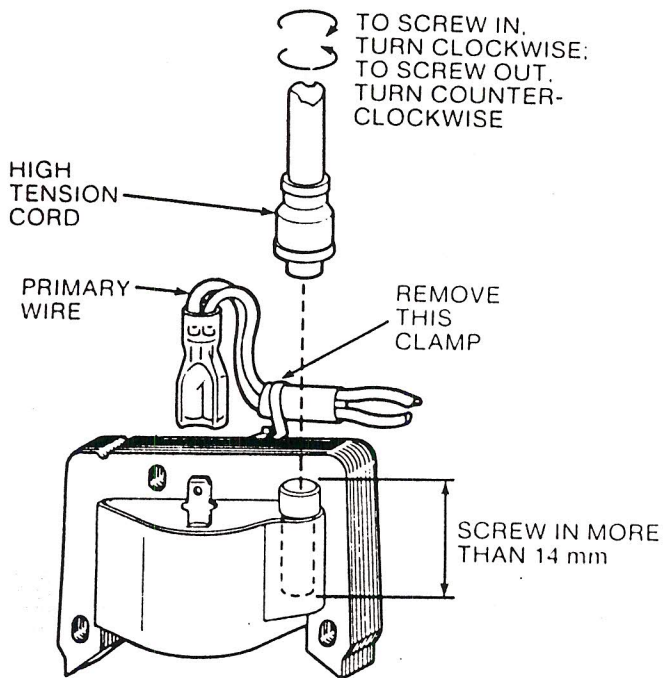


- The ohmmeter is also used to measure the inner circuit of the transistor unit. If the resistance falls short of or exceeds the accepted range (see specifications), replace the unit.



CLUTCH

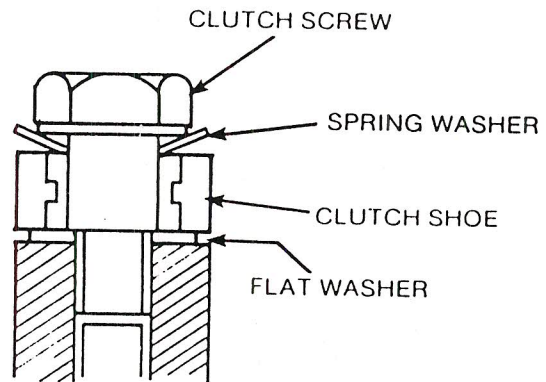
- Examine the high tension cord and lead wire for damage and/or improper insulation and replace if necessary.
- Examine the spark plug and spark plug cap; replace either or both if necessary. When replacing a cap, disconnect the high tension cord by pressing down while turning clockwise. Lightly apply oil to the cap and set it on the cord with the spring; correct the direction of the spring with a screwdriver. Be sure that the legged side of the spring is always placed above the cap.



A. Disassembly

1. Clutch Shoes

- Unscrew the two clutch screws and remove the clutch shoes, clutch spring, flat washer, and spring washer.



B. Inspection

- Check for excessive wear on the face of the clutch shoes. Replace the clutch shoes if the linings have been peeled off, if the boss is cracked, or if the holes where the spring is hooked are worn.
- Measure the clutch spring. If it falls short of or exceeds the accepted range (see specifications), replace it.



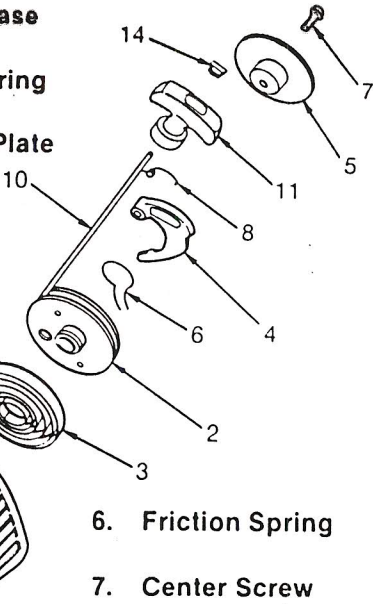
C. Reassembly

- Assemble the clutch shoes and spring. The spring can easily be set by hooking the spring to the shoes; then, push the shoes together from both sides.
- Fasten the flat washers, clutch shoes, and spring washers (in this order) on the boss of the rotor, using the two clutch screws.

STARTER

A. Disassembly

1. Starter Case
2. Reel
3. Spiral Spring
4. Ratchet
5. Friction Plate



- Pull out the rope and make a temporary knot to keep the rope extended.



- Remove the tape or cap from the starter knob, untie the knot on the rope end, and remove the knob.
- Untie the temporary knot and slowly let the rope wind back into the reel.
- Turn the reel a few turns clockwise to disengage it from the inner end of the spiral spring.
- Unfasten the center screw and slowly lift it off the reel.

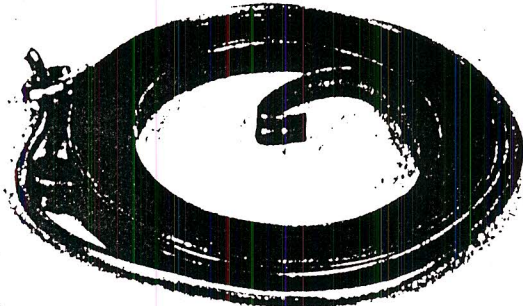
Note: Be careful not to allow the spiral spring to spring out.

B. Inspection

Part	Check	Repair
Spiral spring	Fatigue, partial wear, or distortion	Replace.
Rope	Fluffing or damage	Replace.
Reel	Cracking or distortion	Replace.
Ratchet	Excessive wear	Replace.
Return spring or friction spring	Fatigue, partial wear, or distortion	Replace.

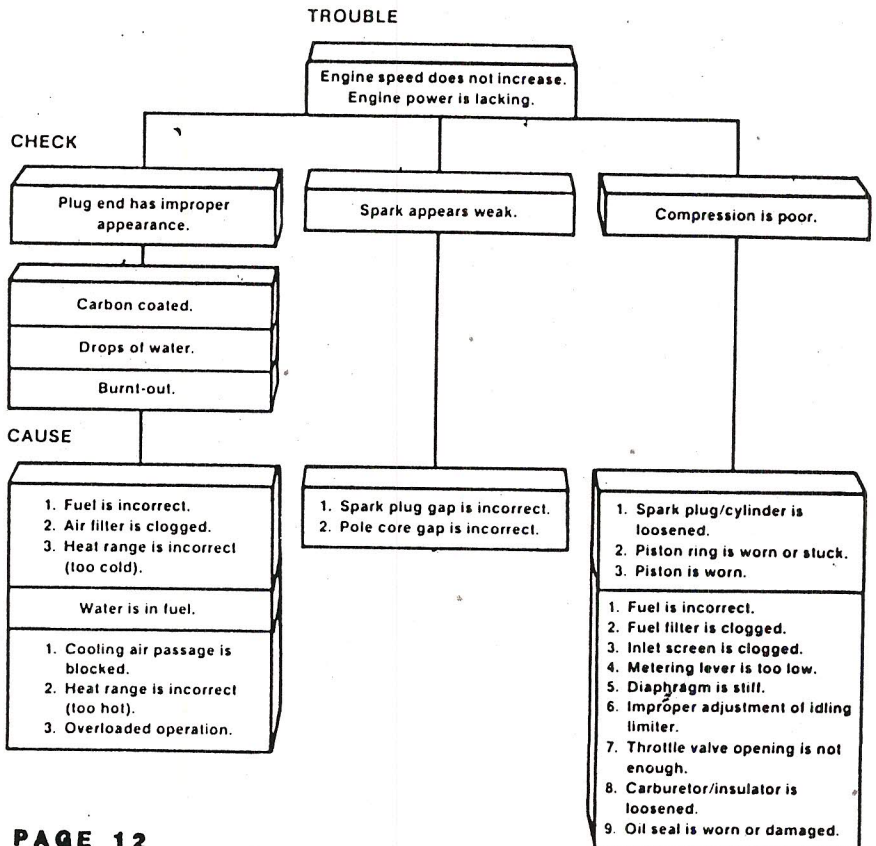
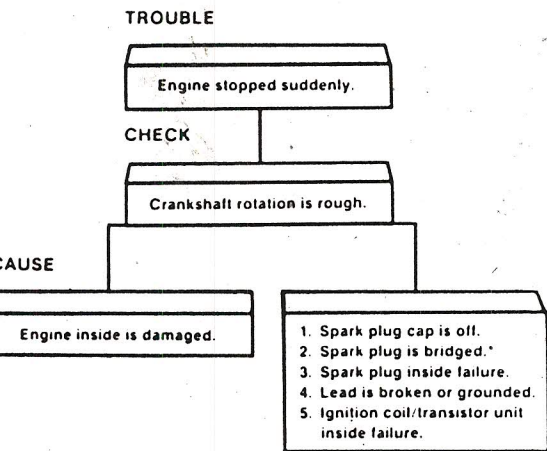
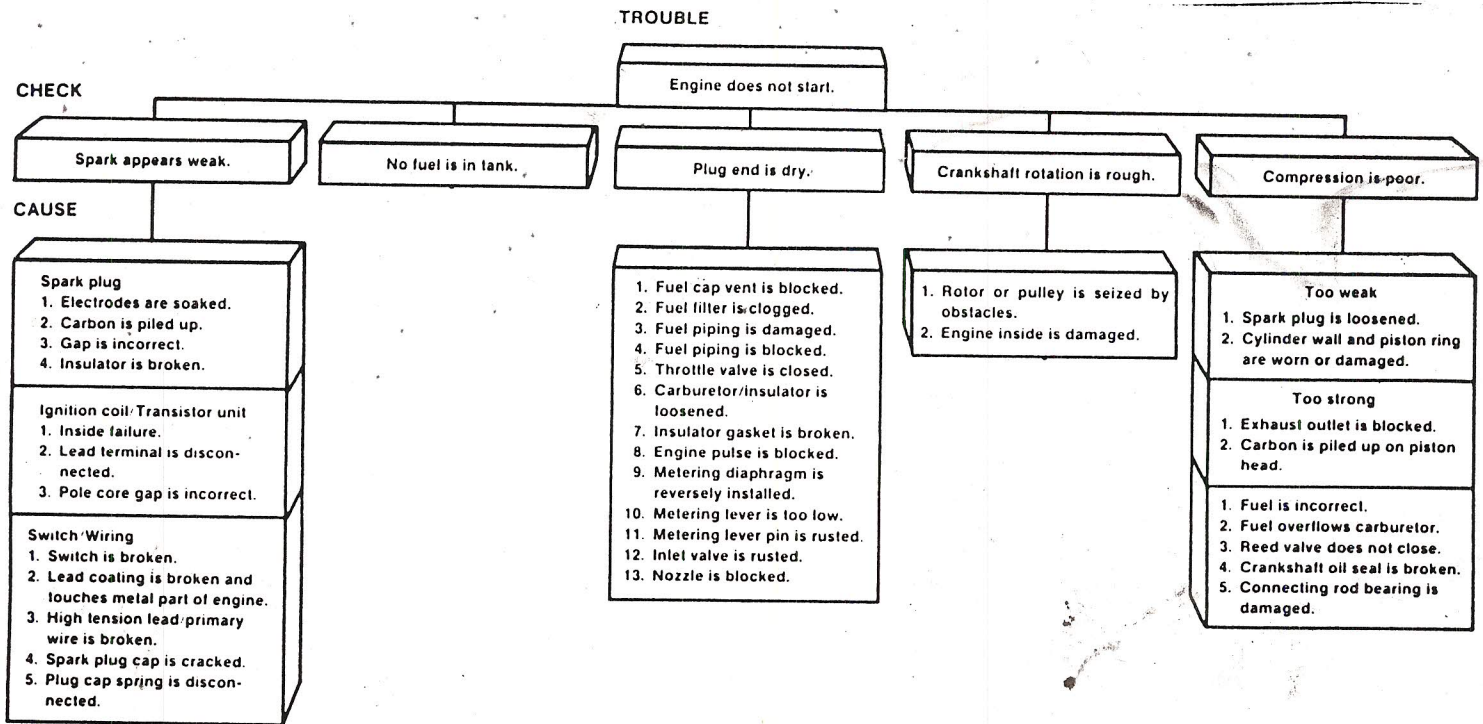
C. Reassembly

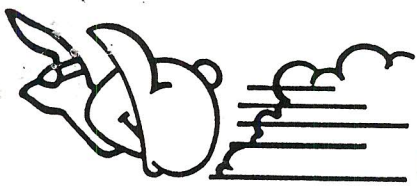
- Prior to assembly, make sure that all parts are free of grease and oil. This will aid in the rewinding of the spring.
- Using a piece of wire or rope, make a loop having a circumference slightly smaller than the inside of the starter case.
- Set the outer hook of the spiral spring on the inner side of the loop, and wind the spring in the loop (as shown).



- Wind the rope around the reel, and pull the remaining end of the rope through the chipped part of the reel rim.
- Set the reel with the wound rope into the case, and turn the reel while lightly pressing on it. This will set the reel on the inner hook of the spiral spring.
- Thread the end of the rope through the rope guide while pressing down on the reel. Pull the rope end outward, pass the rope through the knob, and tie a knot at the rope's end.

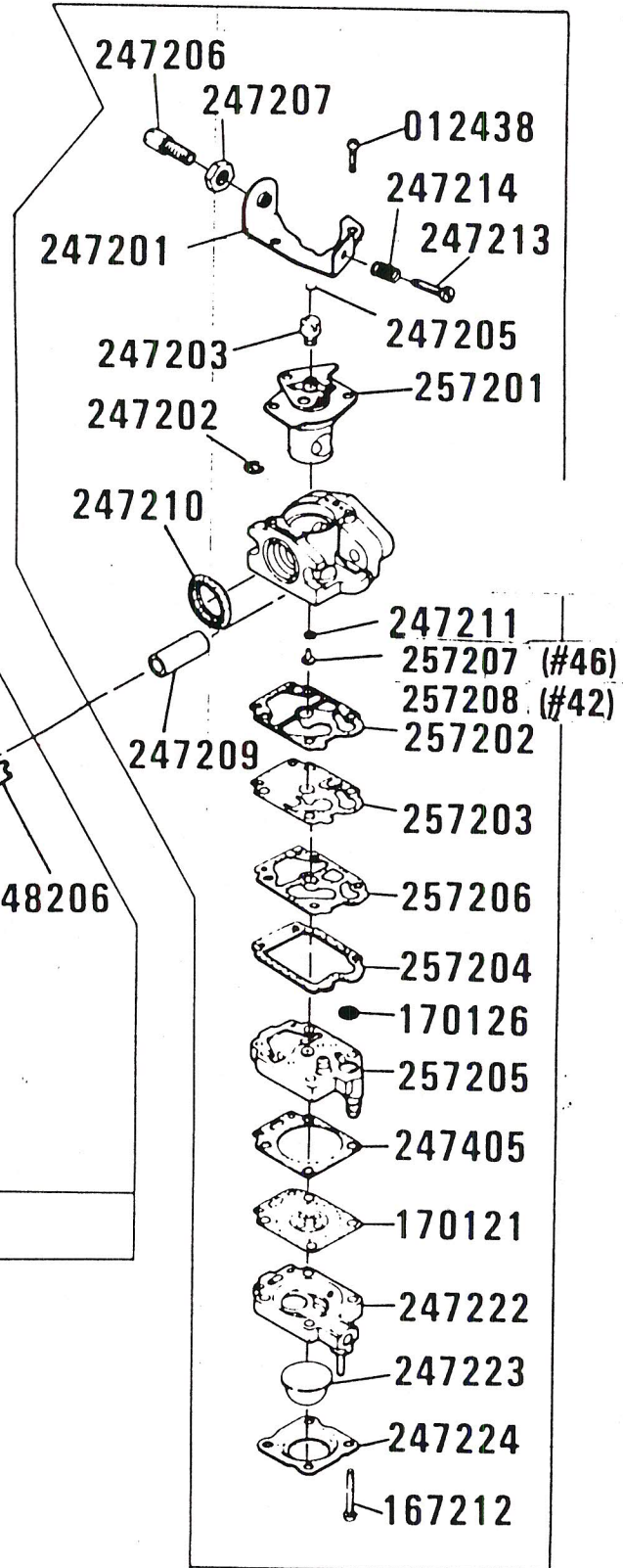
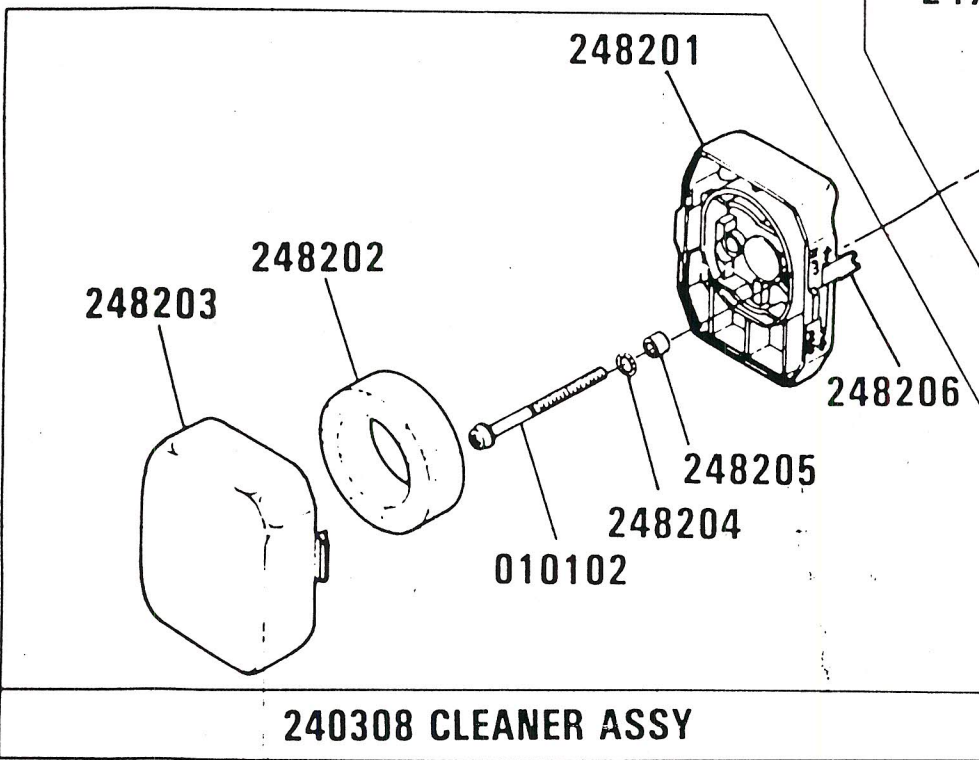
TROUBLESHOOTING





JQC-Rabbit

Radio Controlled Off-Road Racer

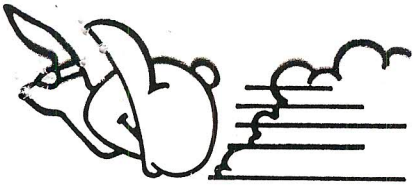


**240315
CARB ASSY**



21 east saint andrews place, santa ana, cal. 92705

**240604
CARB KIT**



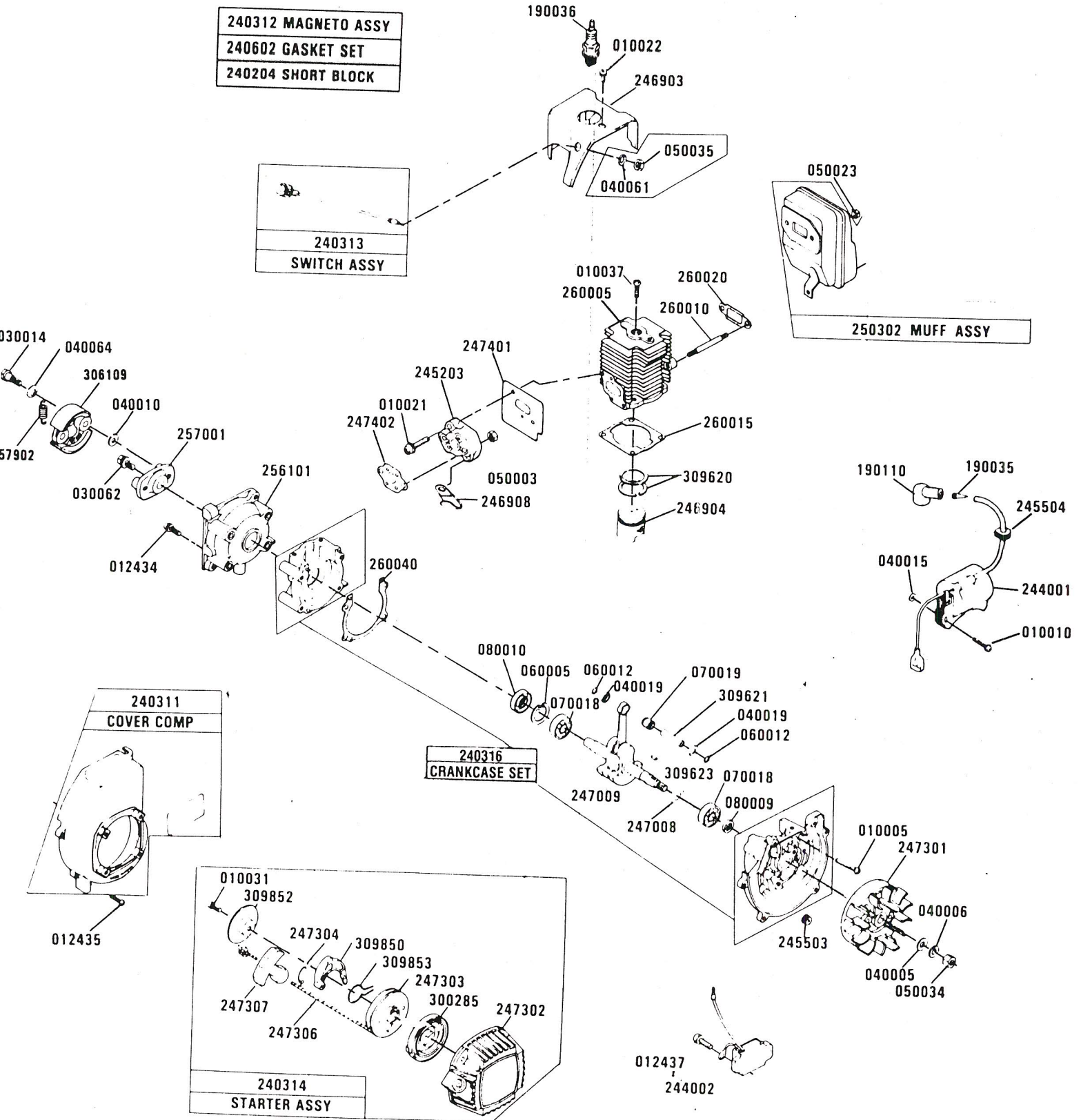
JQC-Rabbit

Radio Controlled Off-Road Racer

240312 MAGNETO ASSY
240602 GASKET SET
240204 SHORT BLOCK

240313
SWITCH ASSY

050023
250302 MUFF ASSY



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