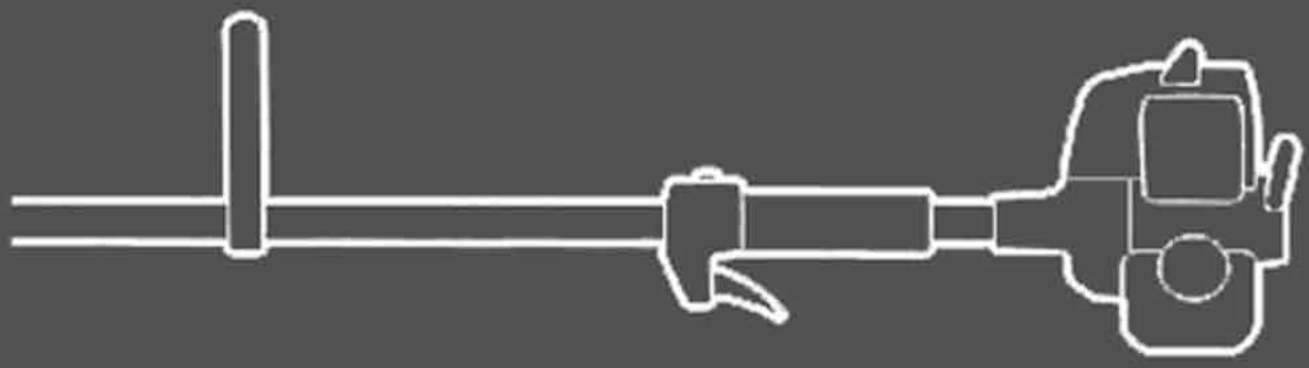
ECHO®



SERVICE MANUAL

GT-1100
GT-2010
GT-2101
GT-2102
SRM-1500
SRM-1501
SRM-2010
SRM-2300
SRM-2301

REVISED NOV. 1989
Ord. No. 402-18

INTRODUCTION

This service manual contains informations for service and maintenance on **ECHO WEED and GRASS TRIMMER/BRUSHCUTTER**, models **GT-1100, GT-2010, GT-2101, GT-2102, SRM-1500, SRM-1501, SRM-2010, SRM-2300, SRM-2301**, to help you understand how to locate defects, eliminate them and prevent their repetition. For systematic diagnosis and to avoid extra working and time loss, please refer to "Trouble-shooting guide" that describes troubles, checkings, remedies and references. We recommend you make use of Operator's Manual and Parts Catalogue together with this manual when servicing.

We are constantly working on technical improvement of our products. For this reason, technical data, equipment and design are subject to change without notice. All specifications, illustrations and directions in this manual are based on the latest products information available at the time of publication.

1 SERVICE INFORMATION

1-1 Specifications

Models			GT-1100	GT-2010	GT-2101	GT-2102
Dimensions	Length	mm(in)	1400(55.1)	1385(54.6)	1400(55.1)	1510(59.4)
	Width	mm(in)	330(13.0)	325(12.8)	330(13.0)	330(13.0)
	Height	mm(in)	360(14.2)	375(14.7)	360(14.2)	360(14.2)
Dry weight		kg(lb)	3.8(8.4)	4.4(9.7)	4.0(8.8)	4.2(9.3)
Drive shaft dia., type		mm(in)	6.4(1/4), flexible			
Cutter type			Nylon line cutter			
Handle type		Front	"D"-loop			
		Rear	Grip			

Models			SRM-1500	SRM-1501	SRM-2010
Dimensions	Length	mm(in)	1665(65.6)		1745(68.7)
	Width	mm(in)	330(13.0)		220(8.7)
	Height	mm(in)	300(11.8)		265(10.4)
Dry weight		kg(lb)	4.4(9.7)	4.5(9.9)	4.6(10.1)
Drive shaft dia., type		mm(in)	6.4(1/4), flexible		6(0.24), bar
Cutter type			Nylon line cutter		Nylon line cutter 8-Cutter blade Circular saw
	mount pilot dia.	mm(in)	- - -		20.0(0.79)
Handle type		Front	"D"-loop		
		Rear	Grip		

Models			SRM-2300			SRM-2301
Dimensions	Length	mm(in)	1770(69.7)	1770(69.7)	1770(69.7)	1770(69.7)
	Width	mm(in)	600(23.6)	330(13.2)	335(13.2)	330(13.0)
	Height	mm(in)	360(14.2)	300(11.8)	300(11.8)	300(11.8)
Dry weight		kg(lb)	5.0(11.0)	4.7(10.4)	5.0(11.0)	5.1(11.2)
Drive shaft dia., type		mm(in)	6(0.24), bar		6.4(1/4), flexible	
Cutter	type		Nylon line cutter 8-Cutter blade Circular saw			Nylon line cutter
	mount pilot dia.	mm(in)	20.0(0.79)			- - -
Handle type		Front	U-shaped	"D"-loop		
		Rear	- - -	Grip		

POWER HEAD

Models			GT-1100 GT-2010 GT-2101 GT-2101 SRM-1500 SRM-1501 SRM-2010 SRM-2300 SRM-2301
Engine	type		KIORITZ, air cooled, two-stroke, single cylinder
	rotation		Counter Clockwise rotation as viewed from the output end
	displacement	cm^3 (in^3)	21.2 (1.294)
	bore	mm(in)	32.2 (1.268)
	stroke	mm(in)	26.0 (1.024)
	compression ratio		6.5
Starter	type		Automatic rewind
	rope dia. × length	mm(in)	3.0 × 890 (0.12 × 35.0)
Ignition	type		CDI
	spark plug		CJ-7Y, BPM7A
Carburetor	type		Diaphragm
Fuel	mixture		Refer to Operator's manual
	tank capacity	ℓ (US.fl.oz)	0.4 (13.5)
Clutch type			2-shoe centrifugal

CDI: Capacitor Discharge Ignition System

1-2 Technical data

Models		GT-1100[a] GT-2010 GT-2101	GT-1100[b] GT-2102
Spark plug gap	mm(in)	0.6~0.7(0.024~0.028)	
Minimum secondary voltage	kV	15	
Secondary coil resistance	kΩ	1.0~2.0	
Pole shoe air gaps	mm(in)	0.3~0.4(0.012~0.016)	
Ignition timing	°BTDC	30	
Metering needle	turns in	12	
Idle adjusting screw*	turn open	6~7	
Idling speed	rpm	3000	
Operating speed	rpm	8000	
Compression pressure**	kgf/cm²(psi)	9(125)	7.5(110)

Models		SRM-1500 SRM-1501 SRM-2010 SRM-2300	SRM-2301
Spark plug gap	mm(in)	0.6~0.7(0.024~0.028)	
Minimum secondary voltage	kV	15	
Secondary coil resistance	kΩ	1.5~2.5	
Pole shoe air gaps	mm(in)	0.3~0.4(0.012~0.016)	
Ignition timing	°BTDC	30	
H needle*	turns back	1 1/8	1
L needle*	turns back	1 1/8	
Idle adjusting screw*	turn open	3~4	
Idling speed	rpm	3000	
Compression pressure**	kgf/cm²(psi)	8.5(120)	9(125)

[a]Serial Number 0050000 and before. [b]Serial Number 0050001 and after.
* Initial setting.
**Standard.

1-3 Torque limits

1. Special fasteners

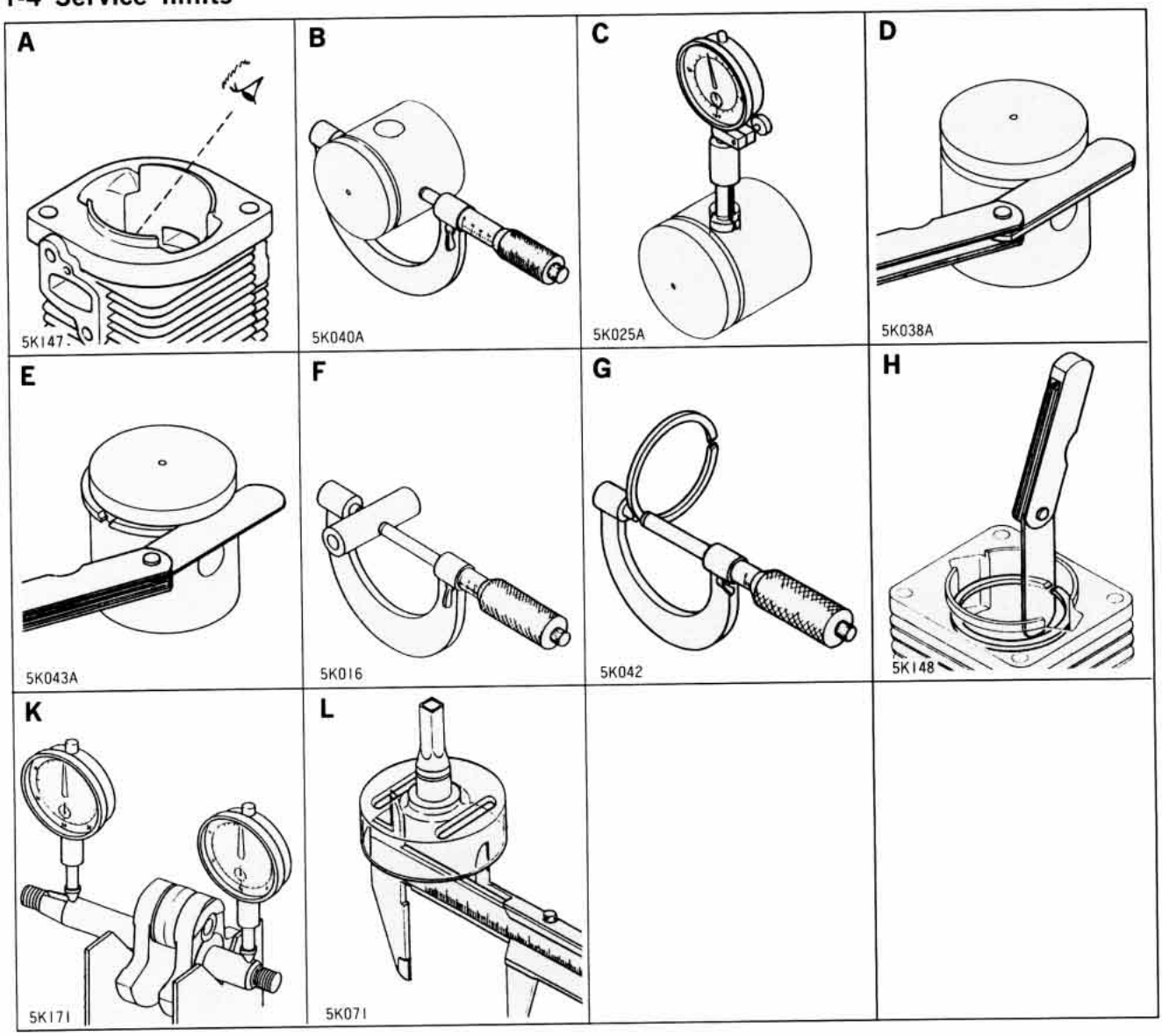
Models	GT-1100 GT-2010 GT-2101 GT-2102 SRM-1500 SRM-1501 SRM-2010 SRM-2300 SRM-2301		
Description	Size	kgf-cm	in-lbf
Crankcase	M5	35 ~ 45	30 ~ 40
Cylinder	M5	75 ~ 85	65 ~ 75
Carburetor	M5	35 ~ 45	30 ~ 40
Carb. insulator	M5	30 ~ 40	25 ~ 35
Clutch hub	M8	180 ~ 200	160 ~ 175
Iginition coil	M4	20 ~ 25	17 ~ 22
Spark plug	M14	150 ~ 170	130 ~ 150
Pawl carrier	M8	80 ~ 100	70 ~ 90
Pawl carrier nut	M8	160 ~ 200	140 ~ 175
Fan cover	M4	20 ~ 25	17 ~ 22
Muffler	M5	55 ~ 65	50 ~ 55
PTO shaft(GT-2010 only)	LM10	330 ~ 370	285 ~ 320

LM: Left hand thread

2. Standard fasteners

Description	Size	kgf-cm	in-lbf
Regular screws, bolts, or nuts	M3	6 ~ 9	5 ~ 8
	M4	13 ~ 18	11 ~ 16
	M5	27 ~ 32	23 ~ 28
	M6	45 ~ 65	40 ~ 55
	M8	110 ~ 150	95 ~ 130
	M10	260 ~ 310	225 ~ 270

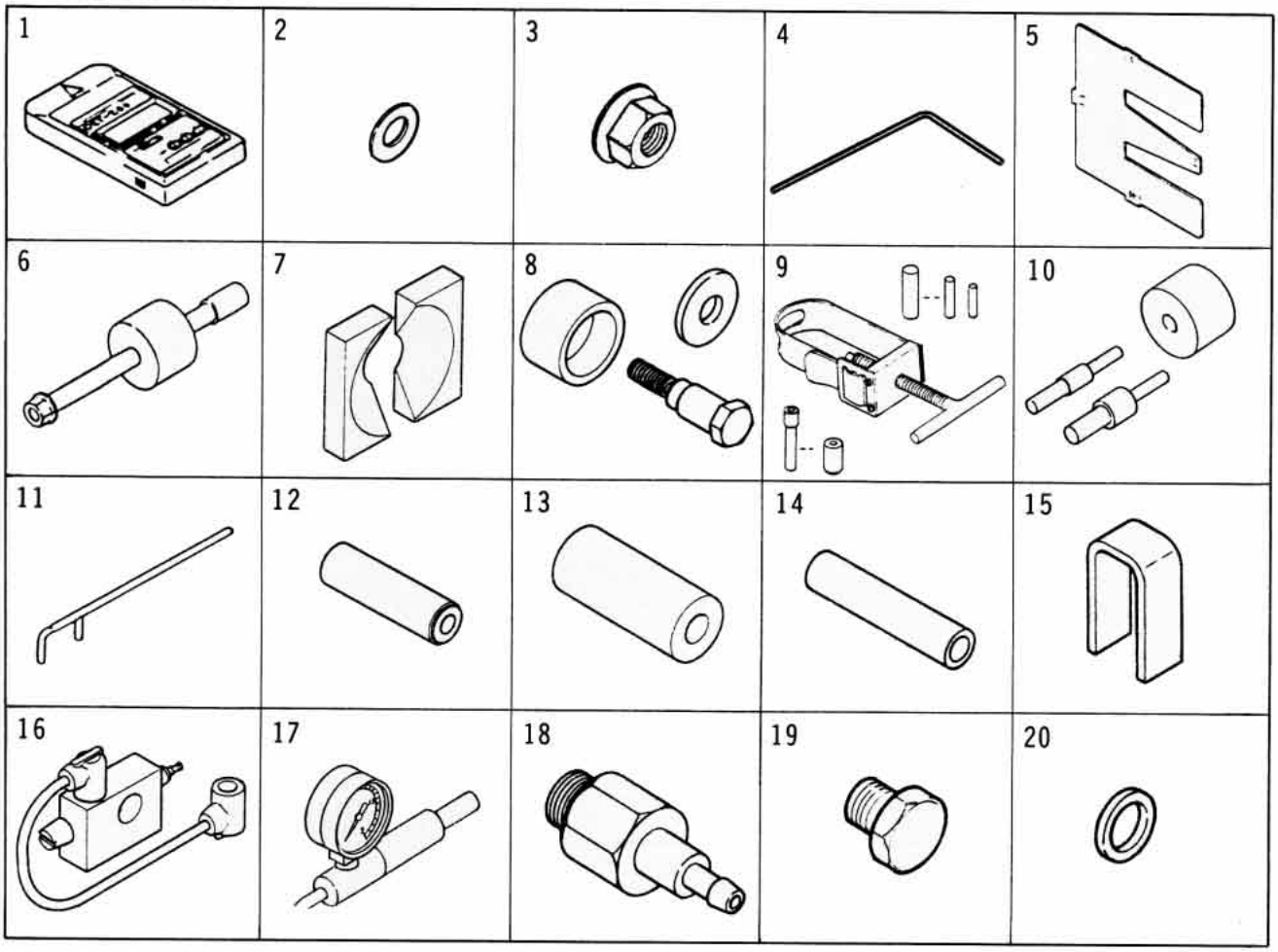
1-4 Service limits



Models				GT-1100[a] GT-2010 GT-2101 SRM-1500 SRM-1501 SRM-2010 SRM-2300 SRM-2301	GT-1100[b] GT-2102
A	Cylinder bore			When plating is worn and aluminum can be seen	
B	Piston outer diameter	mm(in)	Min.	32.10(1.2640)	
C	Piston pin bore	mm(in)	Max.	8.028(0.3161)	
D	Piston ring groove	mm(in)	Max.	1.6(0.063)	1.1(0.043)
E	Piston ring side clearance	mm(in)	Max.	0.1(0.004)	
F	Piston pin outer diameter	mm(in)	Min.	7.98(0.3142)	
G	Piston ring width	mm(in)	Min.	1.45(0.057)	0.95(0.037)
H	Piston ring end gap	mm(in)	Max.	0.5(0.02)	
K	Crankshaft runout	mm(in)	Max.	0.05(0.002)	
L	Clutch drum bore	mm(in)	Max.	51.5(2.03)	

[a]Serial Number 0050000 and before. [b]Serial Number 0050001 and after.

1-5 Special tools



Key	Part Number	Description	page	GT-1100 GT-2010 GT-2101 GT-2102	SRM-1500 SRM-1501 SRM-2010	SRM-2300 SRM-2301
1		Tachometer	22	×	×	×
2	363018-00310*	Washer	35	×	×	×
3	433019-12330*	Flange nut	17	×	×	×
4	895610-79920	L-hex wrench	34	×	×	×
5	897563-19830	Metering lever gauge	24	×		
6	897603-23030	PTO shaft puller	41		×	×
7	897701-06030	Bearing wedge	42		×	×
8	897701-12331	Bearing tool set	38	×	×	×
9	897702-30131	Piston pin tool	36,39	×	×	×
10	897705-11520	Needle bearing tool	37	×	×	×
11	897712-07930	2-pin wrench	8	×	×	×
12	897714-06031	Oil seal tool	42,43		×	×
13	897714-24330	Oil seal tool	35	×	×	×
14	897726-09130	Oil seal tool	31		×	×
15	897732-06030	Bearing remover	31		×	
16	897800-79930	Spark tester	13	×	×	×
17	897803-30130	Pressure tester	21,23,35	×	×	×
18	897835-16131	Pressure connector	35	×	×	×
19	900100-08008*	Bolt	17	×	×	×
20	900600-00012*	Washer	43		×	×

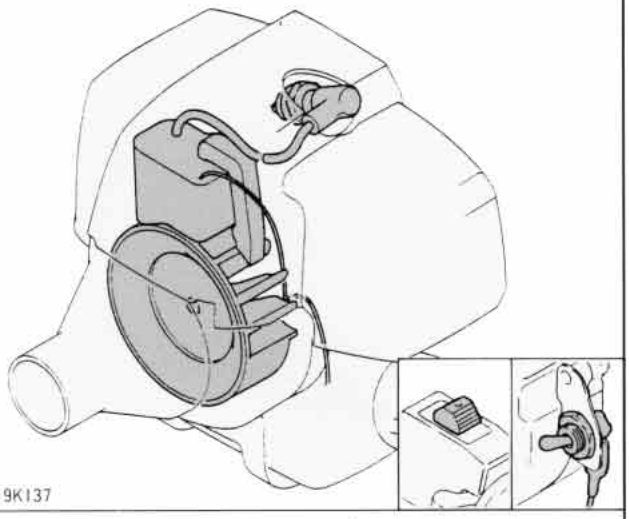
* Though not originally provided for tool, these are useful for assembling/disassembling.

1-6 Nomenclature

STARTER SYSTEM (Page 7)

9K136

IGNITION SYSTEM (Page 12)



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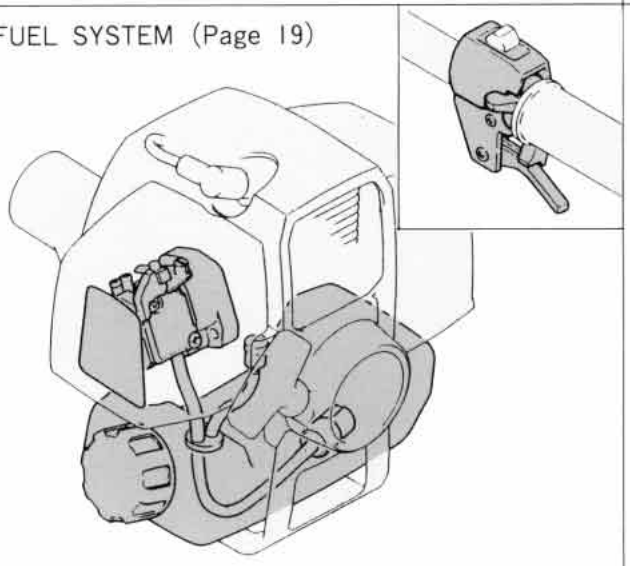
FUEL SYSTEM (Page 19)



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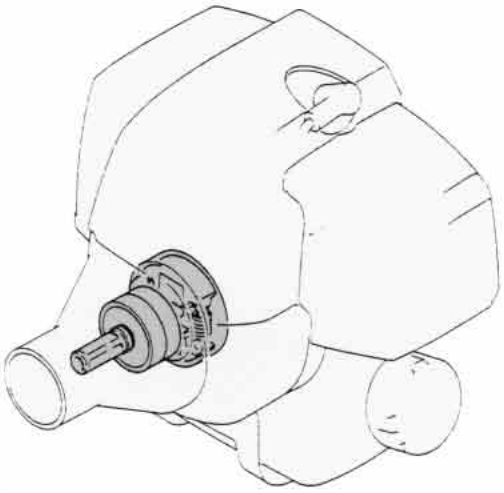
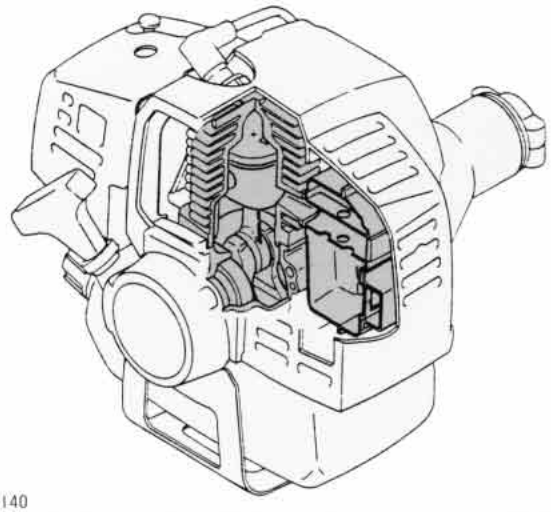
CLUTCH SYSTEM (Page 29)



9K139

ENGINE (Page 33)



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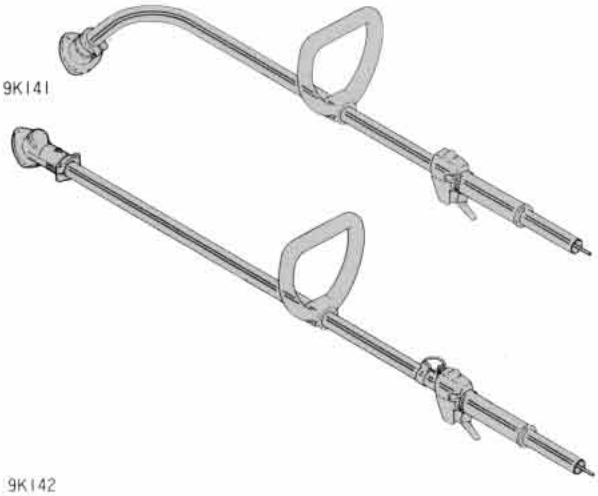
CUTTER DRIVE SYSTEM (Page 40)



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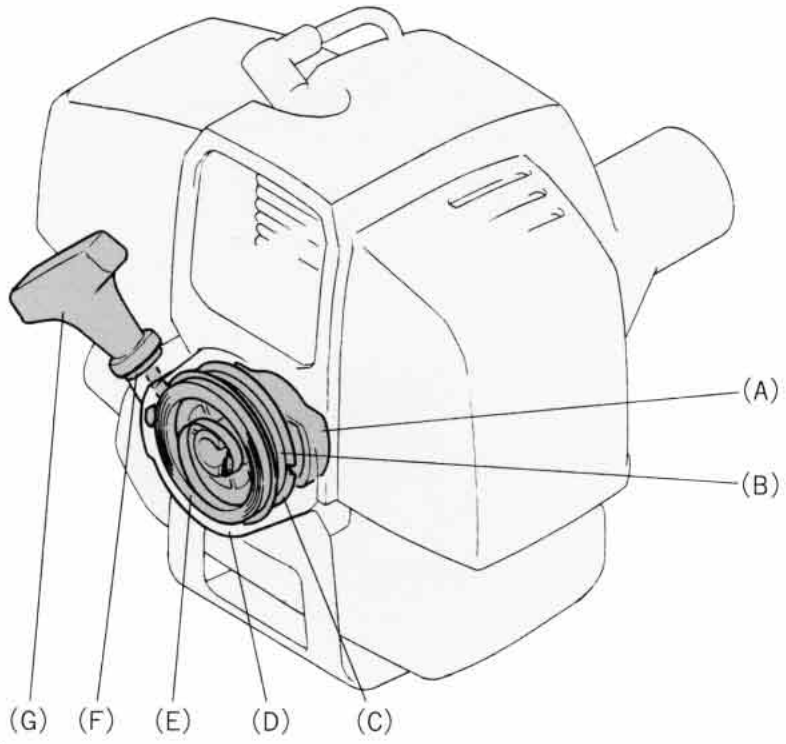
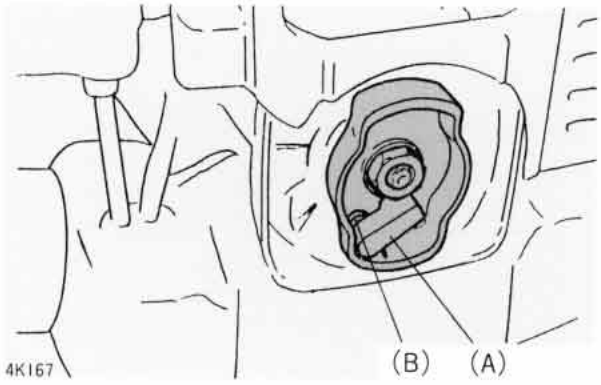
2 STARTER SYSTEM



(A) Pawl carrier
(B) Starter rope
(C) Starter drum
(D) Starter case
(E) Rewind spring
(F) Rope guide
(G) Starter grip

2-1 Replacing starter pawl



1. Loosen four screws securing starter case and remove starter assembly.

2. Check starter pawl (A) and pawl spring (B). Replace them if defective.

3. Clean dirt from around spark plug and remove spark plug.

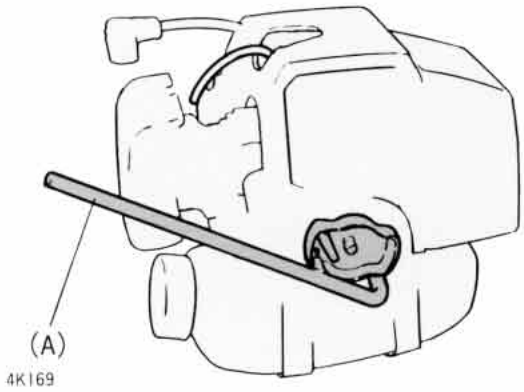
4. Look into cyinder through spark plug hole and rotate pawl carrier counterclockwise until piston closes exhaust port.

5. Pack combustion chamber with a stater rope (C) through spark plug hole to stop crankshaft rotation.

NOTE: Use clean rope to keep combustion chamber clean. Do not drop dust around spark plug into the hole.

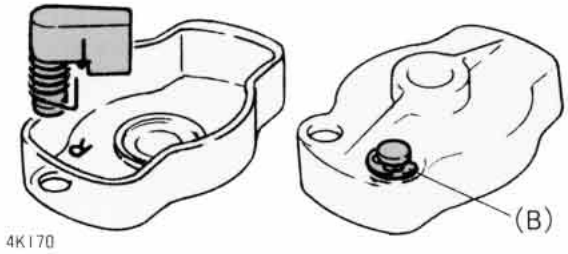
6. (Except GT-1100b, GT-2102, SRM-1501, and SRM-2301)
Remove nut securing pawl carrier.

(Continued)



4K169

7. Remove pawl carrier using 2-pin wrench 897712-07930 (A).

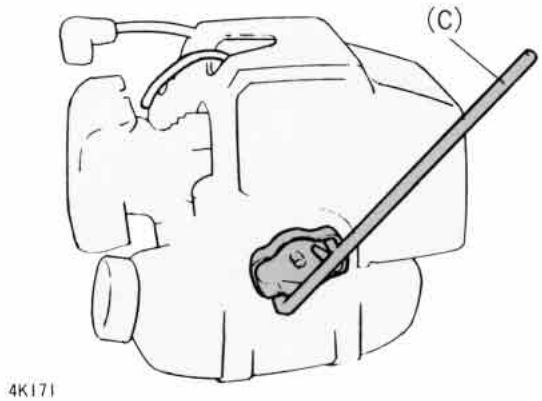


4K170

8. Remove E-ring (B) from pawl and replace pawl and/or return spring.

9. Install and secure the pawl and the spring with E-ring.

10. Install pawl carrier hand tight.



4K171

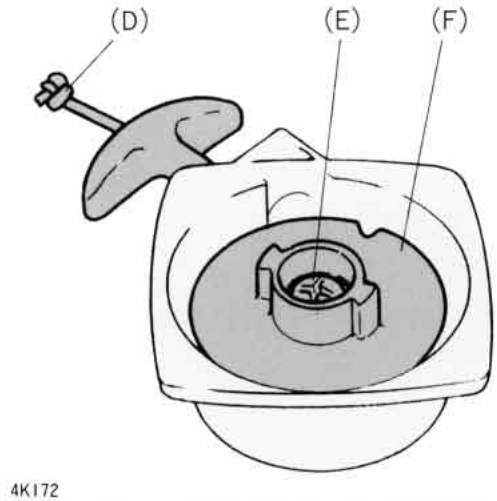
11. Install pawl carrier using 2-pin wrench (C) as shown.

12. (Except GT-1100[b], GT-2102, SRM-1501, and SRM-2301)
Install nut securing pawl carrier.

13. Remove rope from combustion chamber.

[b]Serial Number 0050001 and after.

2-2 Removing starter drum and rope



4K172

1. Cut off or untie knot (D) and allow the rope to slowly rewind by holding starter drum.

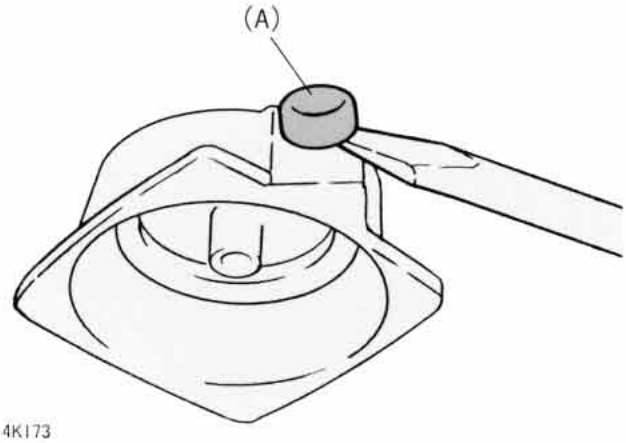
2. Remove screw (E) and washer holding starter drum to the case.

3. Turn starter drum (F) clockwise lightly and lift up the drum slowly.

CAUTION: BE CAREFUL WHEN REMOVING STARTER DRUM, REWIND SPRING MAY UNWIND UNEXPECTEDLY.

4. Unwind starter rope from starter drum, remove knot from end of rope, and remove rope from drum.

2-3 Replacing rope guide



4K173

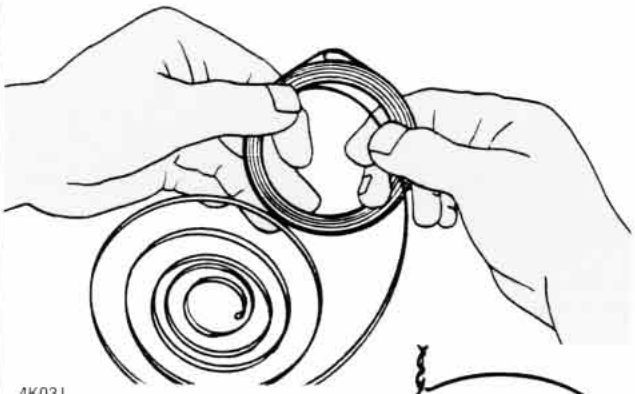
NOTE: Handle starter case carefully. Sudden jarring may cause rewind spring to jump from the case.

1. Remove rope guide (A) by prying from starter case with a screwdriver.

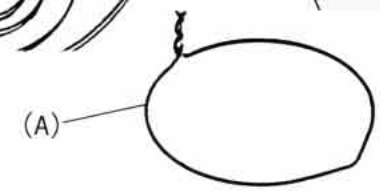
2. Push remaining guide from case.

3. Press a new rope guide into the starter case until it bottoms.

2-4 Installing rewind spring



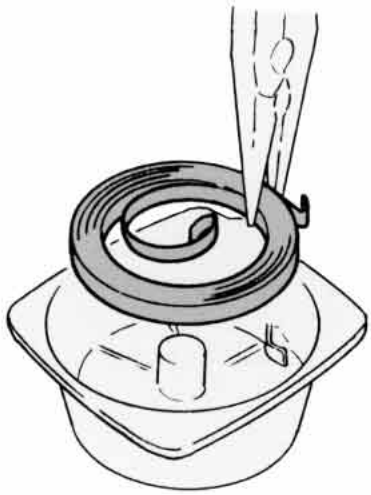
4K031



4K174

1. Wind the spring smaller than inner diameter of starter case.

NOTE: If it is hard to wind the spring, make a loop (Diameter: less than 50 mm or 2 in) of steel wire (A) as shown and wind the spring into the loop from outside end of the spring as shown.



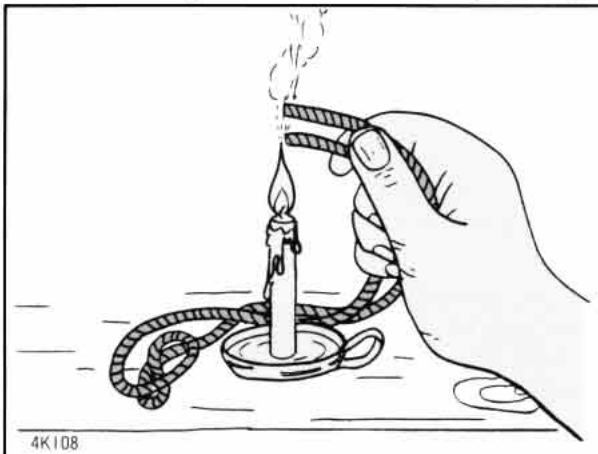
4K175

2. Hold the spring with long nose pliers and reinstall the spring into the bottom of starter case.

3. Remove wire loop carefully pressing rewind spring against the bottom of starter case.

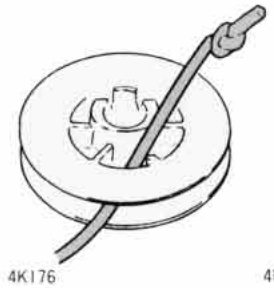
CAUTION: USE OF AN EYE PROTECTION, SAFETY GLOVES ARE STRONGLY RECOMMENDED WHILE WORKING ON THE REWIND SPRING.

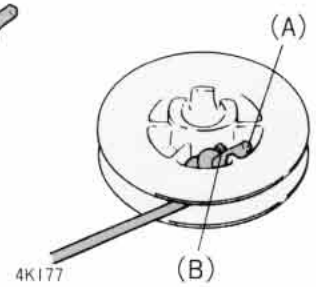
2-5 Installing starter drum and/or rope


4K108

1. **When** installing a new stater rope, heat both **ends** of the rope to prevent fraying.

CAUTION: DO NOT USE FLAME IN AN AREA WHERE GASOLINE IS SPILLED OR FLAMMABLE GASES MAY EXIST.


4K176

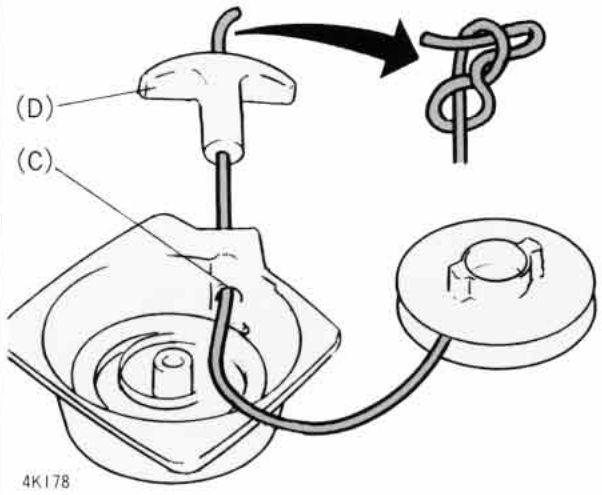


4K177

2. Pass one end of the rope through the opening on the starter drum and make a knot.

3. Pull another end of the rope to seat the knot in the drum.

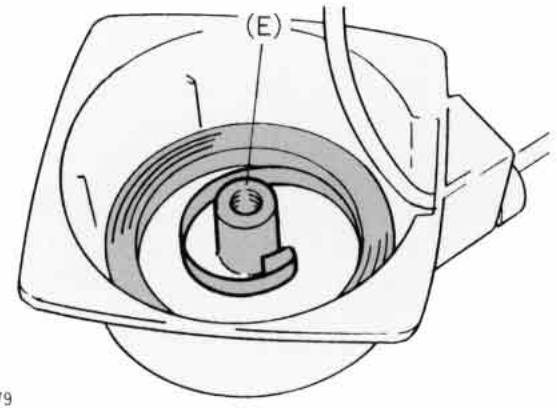
4. Push excess rope (A) in the recess (B) of the drum.



4K178

5. Pass another end through rope guide (C) and starter grip (D).

6. Make another knot at the end of starter grip side. Then press the knot into the recess of the grip.



4K179

7. Bend inner loop so that inner hook touches center post (E).

8. Lightly grease the upper surface of rewind spring.

9. Apply grease to inner wall of center hole on the drum.

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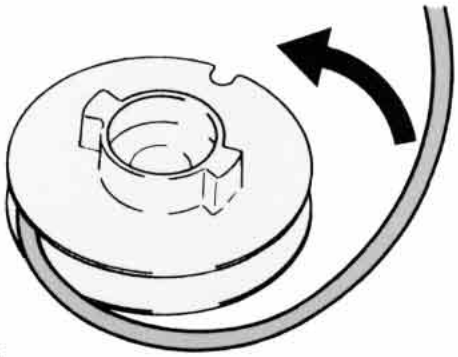
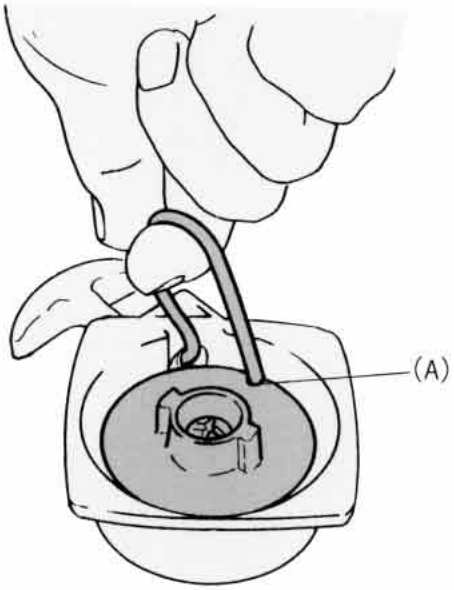

4K180

10. Wind the rope on the drum about four turns counterclockwise as viewed from starter pawl side.

11. Install the starter drum in the case. Make sure that starter drum engages with inner end of rewind spring.

12. Install washer and screw holding starter drum in the case.

2-6 Increasing rope tension



4K181

1. Rotate the drum counterclockwise several turns with rope hooked at notch (A).

2. Hold the drum to prevent it from rewinding and pull starter grip out to take up the rope slack.

3. Let the starter rewind slowly.

4. Pull starter several times to check the rewind spring tension.

5. If the starter is not rewinding fully, repeat step 1.

6. Pull the starter grip all the way out and check that the drum can be rotated more than half a turn counterclockwise.

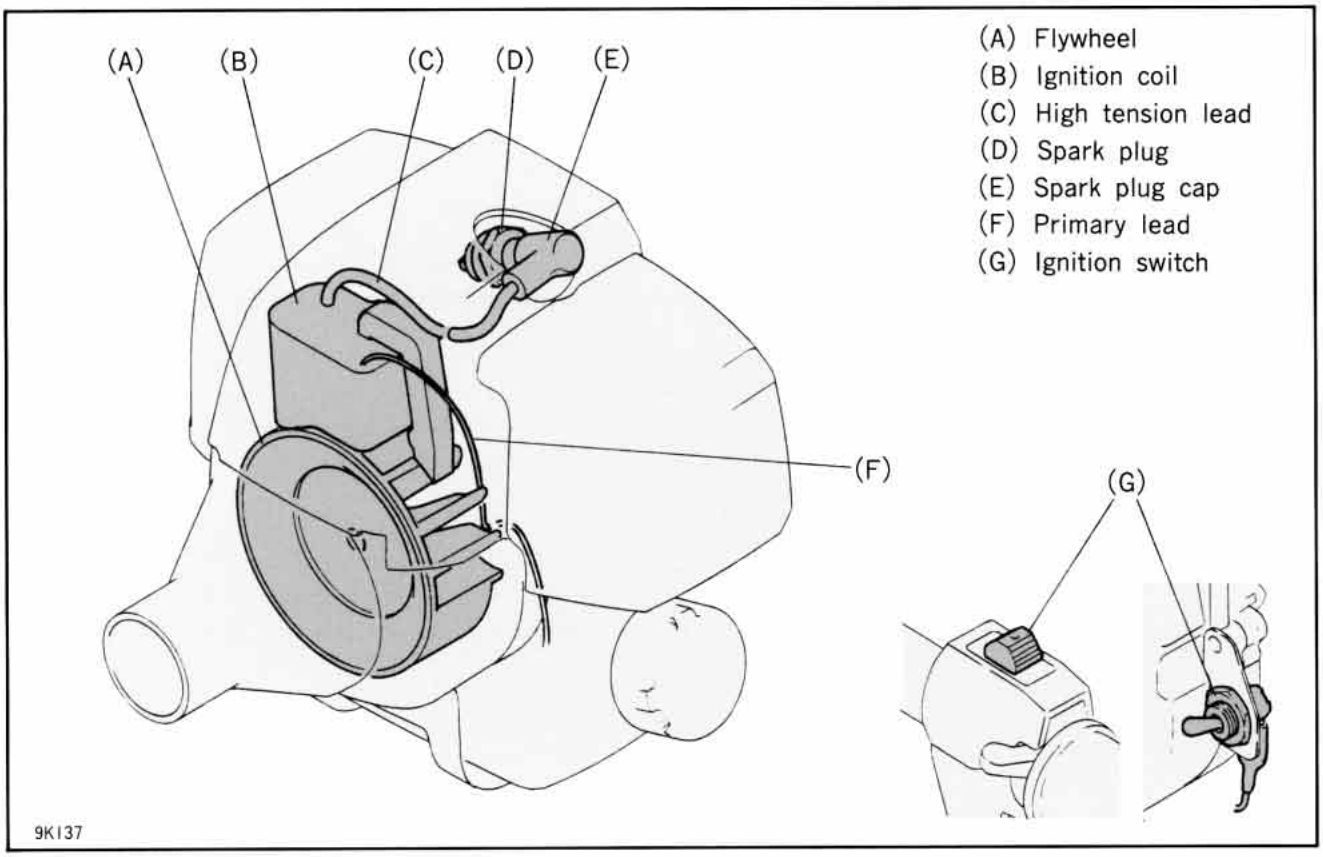
2-7 Installing starter case

1. Put upper flange of starter case between crankcase and cylinder cover, and lower flange between crankcase and stand (except for GT-1100).

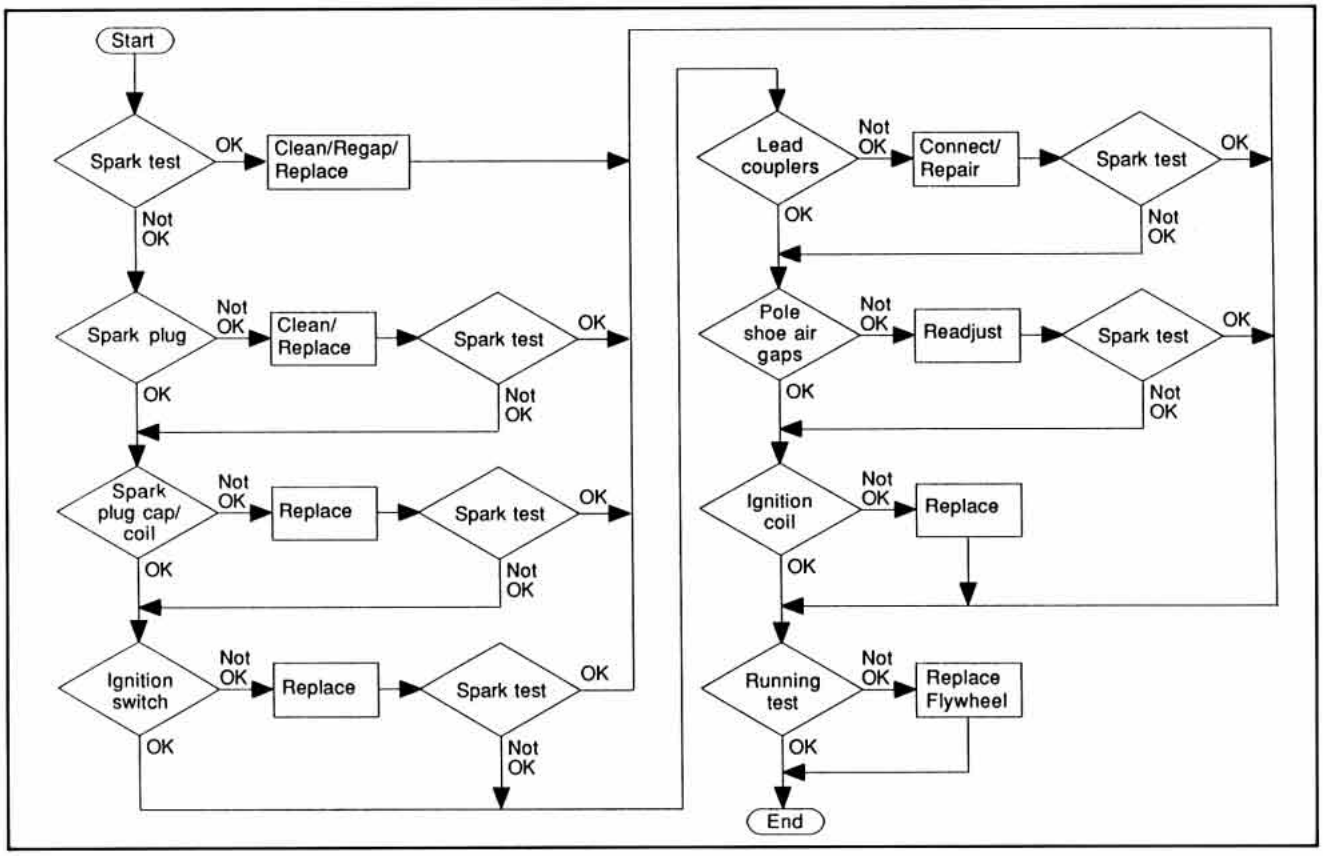
2. Install screws to secure starter assembly.

3. Pull starter to check if starter engages with crankshaft.

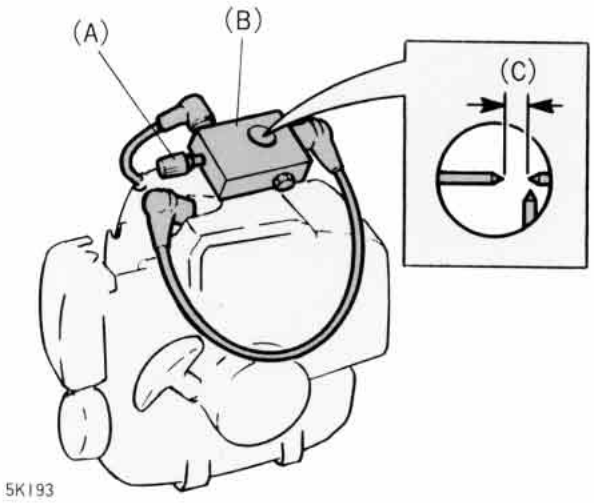
3 IGNITION SYSTEM



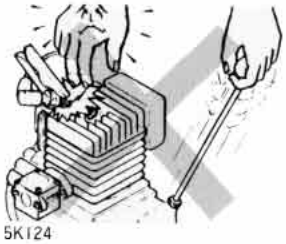
3-1 Troubleshooting chart

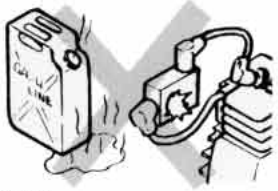


3-2 Testing spark



5K193


5K124


5K123

This is the fastest method to test the system.

1. Disconnect spark plug cap.

2. Connect spark tester 897800-79930 (B).

3. Screw in adjuster (A) until the tips contact together and turn back four turns to set the spark tester gap (C) to 4 mm (0.16 in).

4. Turn ignition switch to RUN position.

5. Pull starter handle several times.

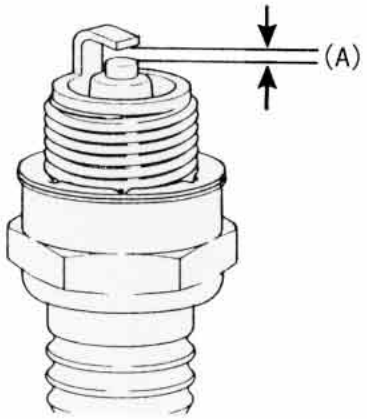
6. If spark is blue at the tester gap, the ignition system is considered good. Go to cheking spark plug.

7. If no spark exists or spark is weak, continue with further tests.

CAUTION: DO NOT TOUCH SPARK PLUG WHILE PERFORMING THE TEST TO AVOID RECEIVING ELECTRICAL SHOCK.

CAUTION: DO NOT CHECK SPARK IN AN AREA WHERE GASOLINE IS SPILLED OR FLAMMABLE GASES MAY EXIST.

3-3 Checking spark plug



3K069

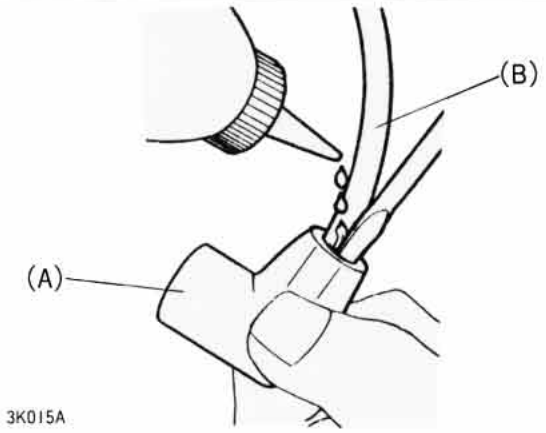
1. Remove spark plug and check for fouling, worn, and rounded center electrode.

2. Clean the plug electrodes and insulator of carbon deposits, or replace with a new plug.

3. Set spark plug gap (A) to 0.6 to 0.7mm (0.024 to 0.028 in) by bending outer electrode.

4. If engine does not start after cranking several times, check if spark plug is wet or dry. If it is excessively dry or wet, check fuel system.

3-4 Replacing spark cap / coil



1. Disconnect spark plug cap (A).

2. Pull the cap (A) away from high tension lead (B) and drip some oil in the cap to aid in removing the cap.

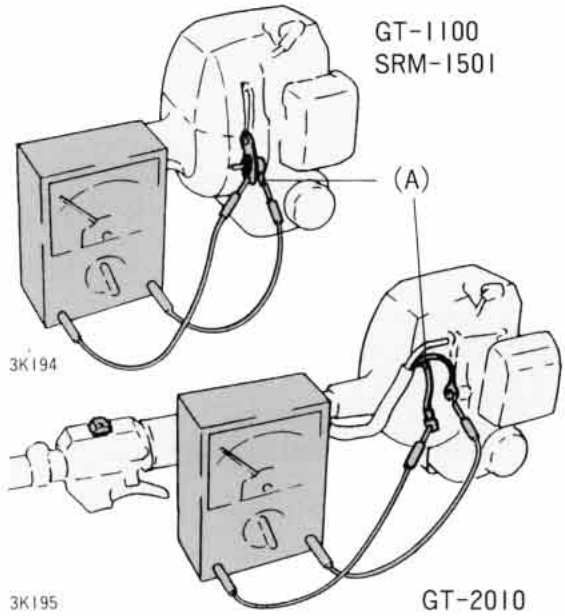
3. Use long nose pliers to pull coil and lead (B) from the cap.

4. Check the coil for correct connection and the cap for cracks. Replace as required.

NOTE: Make sure the coil contacts core of high tension lead when reinstalling.

5. Apply oil to cap and pull high tension lead as shown until coil is properly seated in the cap.

3-5 Checking ignition switch



1. Disconnect primary lead coupler (A).

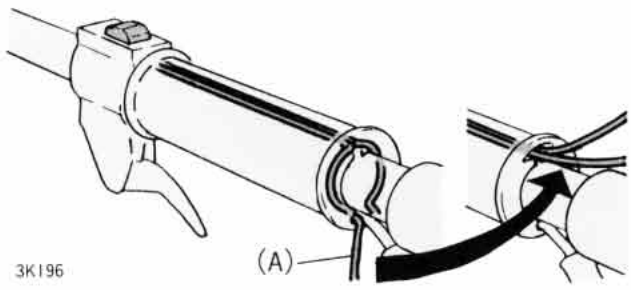
2. Connect an ohm-meter, a continuity tester, or a timing tester as shown.

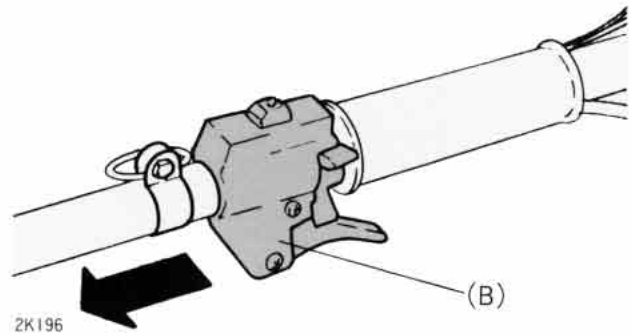
3. When ignition switch is RUN position, the tester should indicate infinite resistance or timing tester should buzz.

4. When ignition switch is STOP position, the tester should show that the circuit is in conduction state (close circuit), or the timing tester should not buzz.

5. If the switch is defective, replace with a new one.

3-6 Removing ignition switch





Except for GT-1100 and SRM-1501

1. Disconnect throttle wire from carburetor and cylinder cover.

2. Remove ground lead terminal from fan cover.

3. Pull primary and ground leads from tude.

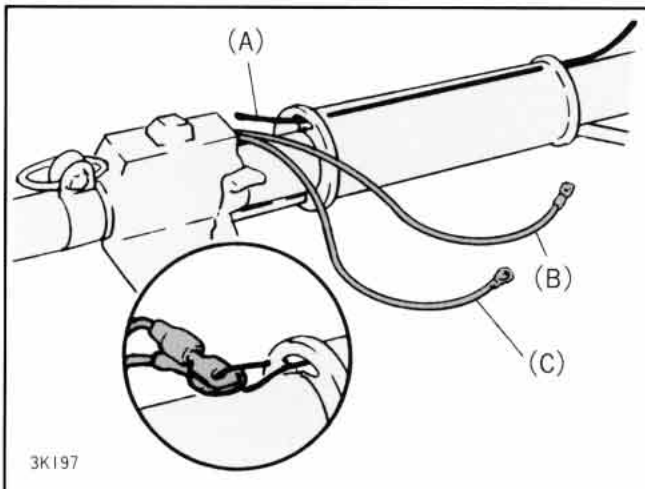
4. Pull primary and ground leads (A) from grooves inside grip.

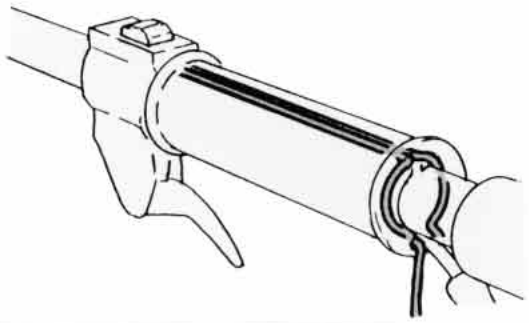
5. Loosen throttle bracket (B) (and hook on SRM-2010, SRM-2300).

6. Slide throttle bracket about 40 mm (1 and 1/2 in) toward gear case.

7. Remove ignition switch from throttle bracket and pull the leads through tube and rear handle grip.

3-7 Installing ignition switch





Except for GT-1100 and SRM-1501

1. Install ignition switch to throttle bracket.

2. Pass a steel wire (A) through the grip.

3. Pass the wire end through terminals of ground lead (C) and primary lead (B). Bend the wire end to hook the terminals as shown.

4. Pull the primary and ground leads through the grip.

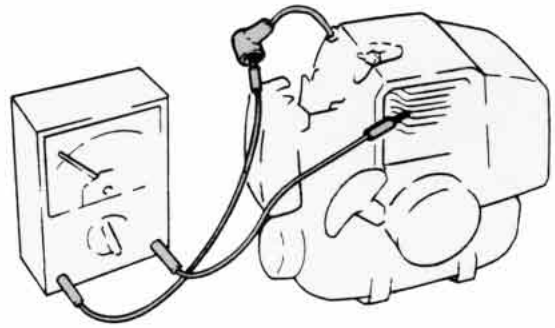
5. Slide throttle bracket untill it contacts the grip and secure throttle bracket (and hook).

6. Pull the leads to remove slack and seat primary and ground lead between drive shaft housing and the grip as shown.

7. Pass primary and ground leads through the tube using a steel wire.

8. Fasten ground lead terminal with fan cover screw. Connect primary lead coupler.

3-8 Testing ignition coil


3K198

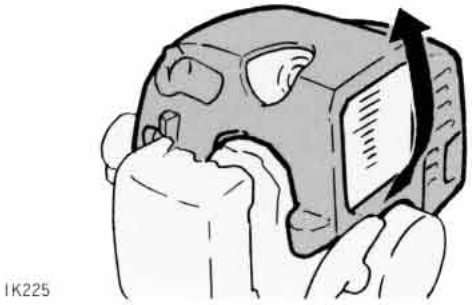
1. Connect an ohm-meter or a multimeter to ignition coil, and measure the secondary resistance as shown.

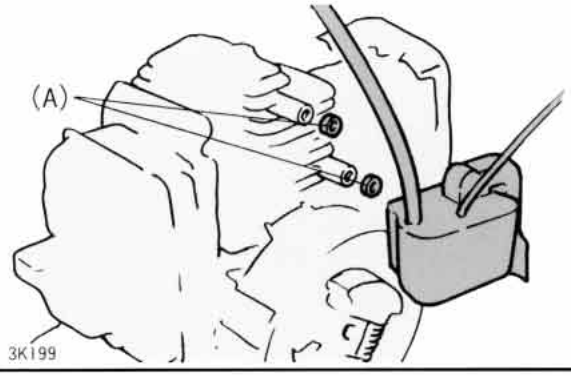
GT-1100, GT-2010, GT-2101, and GT-2102 : 1.0 ~ 2.0 KΩ
SRM-1500, SRM-1501, SRM-2010, SRM-2300 and SRM-2301: 1.5 ~ 2.5 KΩ

2. If the reading is not in the range, replace with a new ignition coil.

3. If there is no spark or sparks are weak even with the coil resistance in proper range, replace with a new ignition coil.

3-9 Replacing ignition coil


1K225



3K199

1. Disengage throttle cable from carburetor and cylinder cover, and remove cylinder cover (and top guard from cylinder cover on GT-1100[b], GT-2102, SRM-1501, and SRM-2301).

NOTE: To remove cylinder cover on GT-1100, GT-2010, and GT-2101, remove spark plug and screws securing cylinder cover. Then lift up starter side of cylinder cover.

2. Remove spark plug cap from high tension lead. Then pull the lead out from cylinder cover.

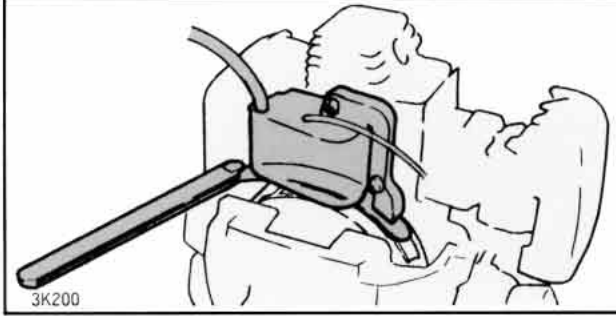
3. Remove iginition coil from cylinder.

4. Install a new iginition coil and set pole shoe air gaps.

NOTE: On GT-1100[a], GT-2010, GT-2101, SRM-1500, SRM-2010, and SRM-2300, install coil using two spacers (A).

[a]Serial Number 0050000 and before.
[b]Serial Number 0050001 and after.

3-10 Setting pole shoe air gaps

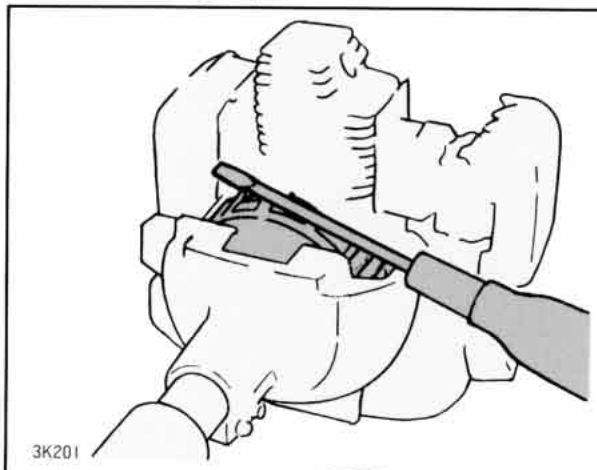

3K200

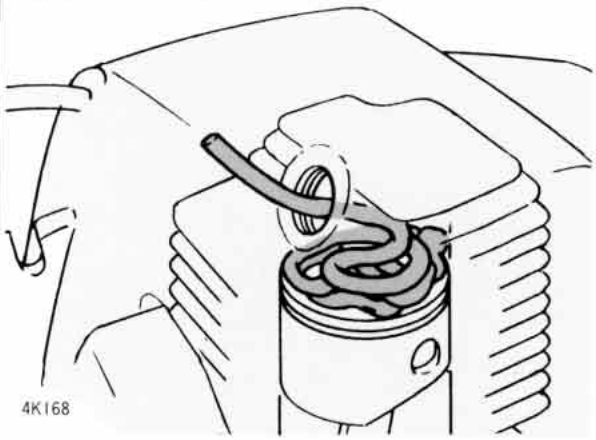
1. Rotate flywheel until the poles faces to ignition coil.

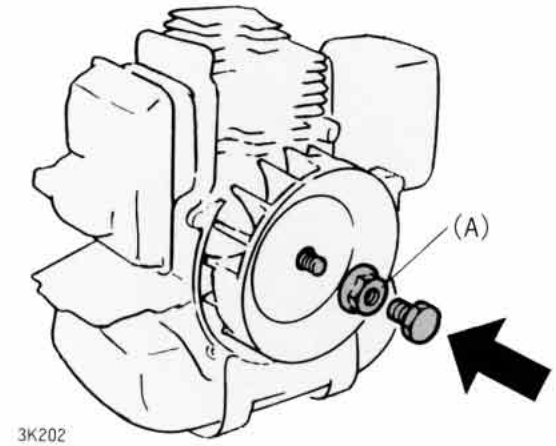
2. Loosen ignition coil screws and insert a 0.35 mm (0.014 in) feeler gauge between flywheel and ignition coil.

3. Hold the coil against the feeler gauge and tighten screws.

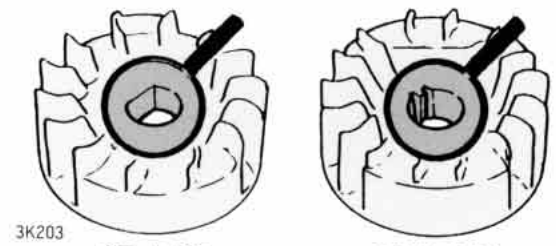
3-11 Checking flywheel


3K201


4K168



3K202


3K203

GT-1100
GT-2010
GT-2101
GT-2102

SRM-1500
SRM-1501
SRM-2010
SRM-2300
SRM-2301

1. Remove ignition coil.

2. Rotate flywheel until the poles faces up.

3. Check magnetic force of flywheel using flux meter or bridging with a screwdriver and comparing with a good one.

4. Separate drive shaft assembly from engine and remove fan cover.

NOTE: If starter is installed, pull starter out 20 cm (8 in) and make a temporary knot at rope guide before packing combustion chamber.

5. Look into cylinder and rotate flywheel counter-clockwise until piston closes exhaust port.

6. Pack combustion chamber with a starter rope through spark plug hole to stop crankshaft rotation.

NOTE: Use clean rope to keep combustion chamber clean. Do not drop dust around spark plug into the hole.

7. Remove clutch assembly using 14 mm (9/16 in) hex. wrench.

8. Remove flywheel. Follow steps 9 to 11 if flywheel cannot be lifted off.

9. Thread flange nut (A) (use 433019-12330, guide bar flange nut on some ECHO chain saws) on crankshaft 3 turns.

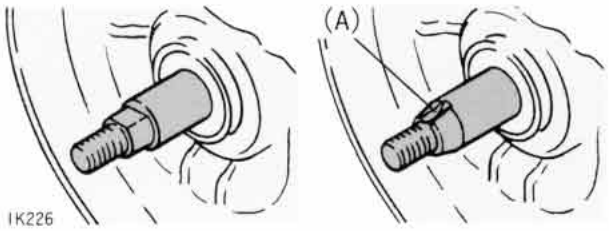
10. Screw bolt (900100-08008: bolt size M8X8) in the nut until it bottoms.

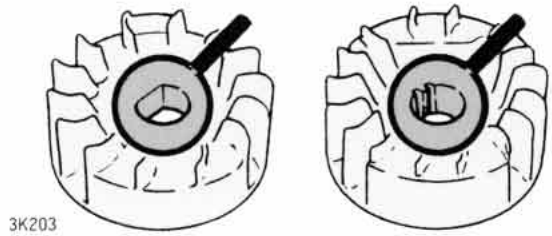
11. Hold flywheel and tap the bolt head (axially) to remove flywheel.

NOTE: Do not pry flywheel from crankshaft, damage to engine will result.

12. Check center hole of flywheel for deformation. Rreplace with a new one if deformed.

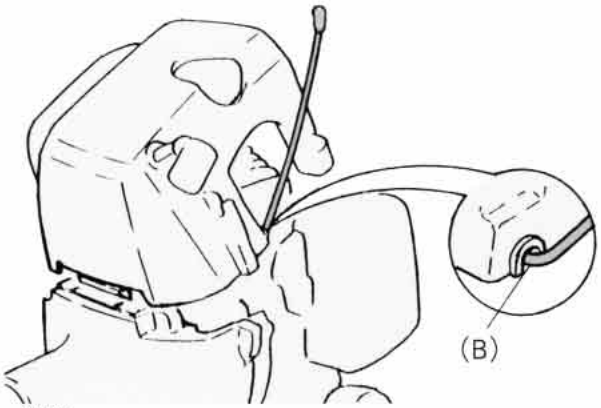
3-12 Installing electrical parts

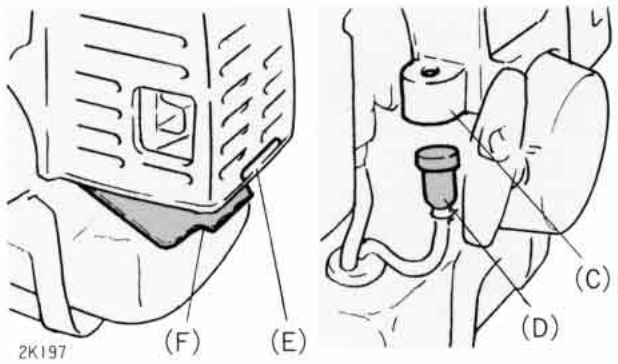




GT-1100
GT-2010
GT-2101
GT-2102

SRM-1500
SRM-1501
SRM-2010
SRM-2300
SRM-2301





1. On GT-1100, GT-2010, and GT-2101, install flywheel on crankshaft so flats of crankshaft and center hole of flywheel match.

- On SRM-1500, SRM-2010, and SRM-2300, install flywheel on crankshaft so protrusion on flywheel center hole matches the keyway (A).

3. Remove temporary knot from starter rope and hold starter.

4. Rotate flywheel clockwise.

5. Hold starter while installing clutch assembly hand tight.

6. Tighten clutch assembly using 14 mm (9/16 in) hex wrench. While tightening the clutch, allows starter rope to return slowly.

7. Install ignition coil and set pole shoe air gaps.

8. Install fan cover and cylinder cover.

NOTE: To install cylinder cover on GT-1100[a], GT-2010, and GT-2101, join magneto side corner of cylinder cover to fan cover and push down starter side holding primary lead through notch (B) as shown.

NOTE: Take care not to pinch primary lead between cylinder cover and crankcase.

9. Install grommet, spark plug cap, and the coil (and top guard to cylinder cover on GT-1100[b], GT-2102, SRM-1501, and SRM-2301).

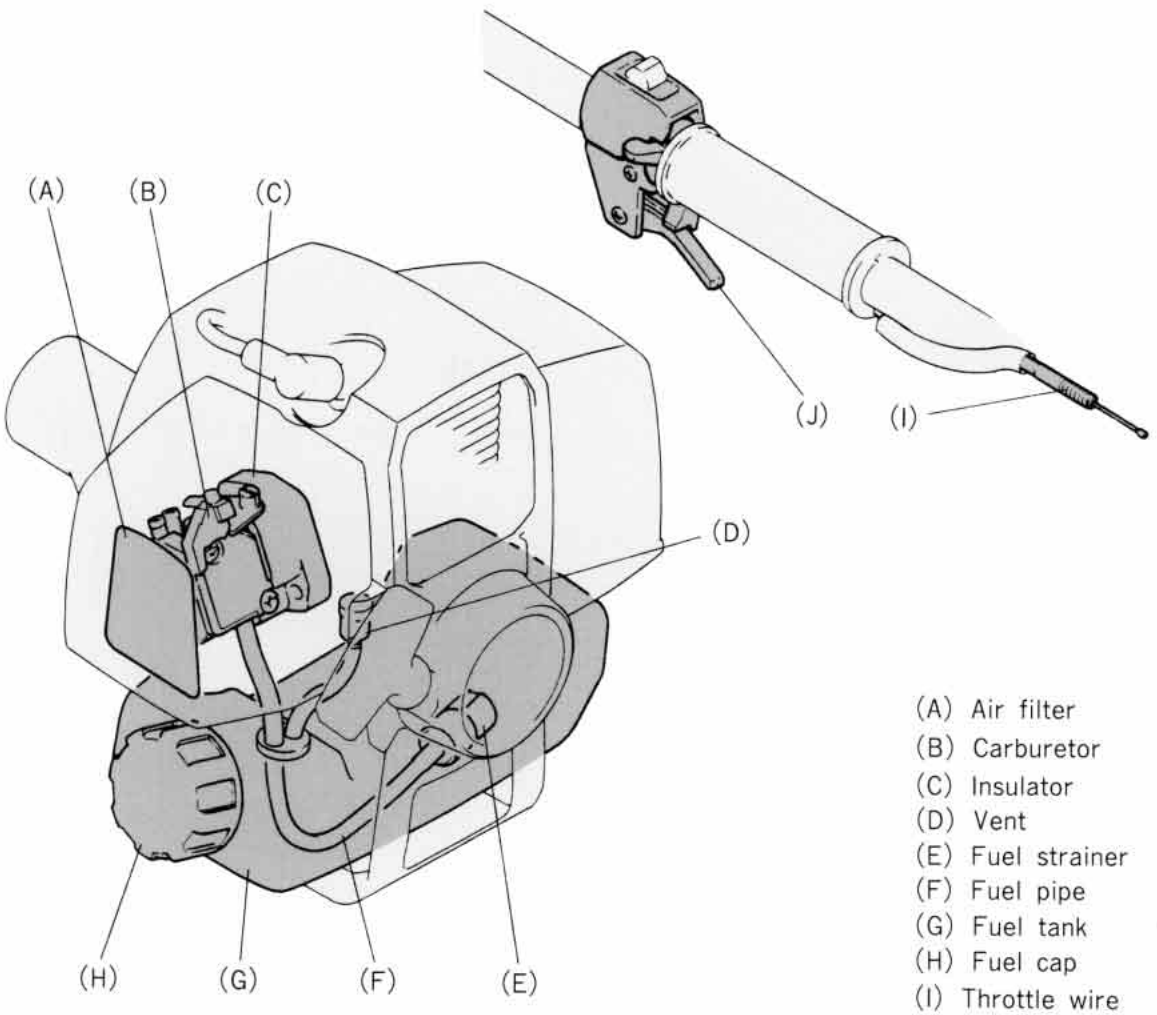
10. Insert lower end tab (F) of muffler gasket to slot (E) of cylinder cover.

11. Insert vent (D) to the holder (C) .

12. Remove the rope packed in combustion chamber and install spark plug.

[a]Serial Number 0050000 and before.
[b]Serial Number 0050001 and after.

4 FUEL SYSTEM



(A) Air filter
(B) Carburetor
(C) Insulator
(D) Vent
(E) Fuel strainer
(F) Fuel pipe
(G) Fuel tank
(H) Fuel cap
(I) Throttle wire
(J) Throttle trigger

9K138

5K119

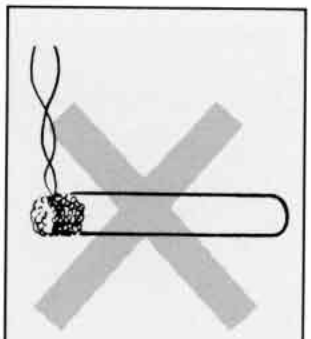
CAUTION: AVOID SPILLING AND OVER-FILLING FUEL.

5K120

CAUTION: WIPE ANY SPILLED FUEL AFTER REFUELING.

5K121

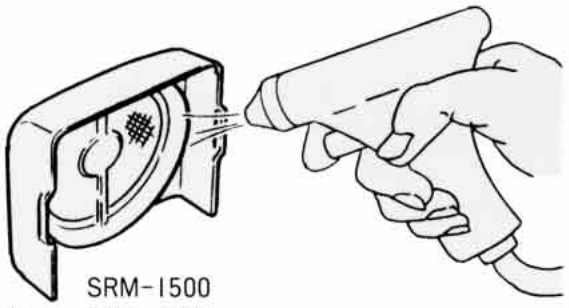
CAUTION: HANDLE FUEL SAFETY. MIX FUEL AND OIL OUT-DOORS.



5K122

CAUTION: DO NOT SMOKE WHEN HAN-DLING FUEL.

4-1 Cleaning air filter



2K198

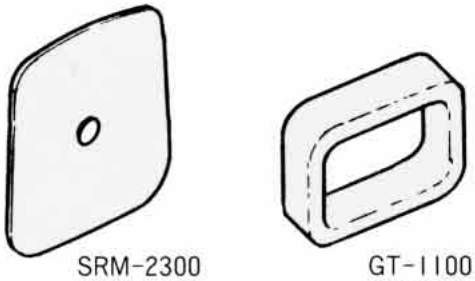
SRM-1500
SRM-1501
SRM-2101

1. Close choke shutter, and remove air cleaner case and air filter.

2. Clean air filter and the cover with compressed air or wash the filter in a suitable fluid solvent. The filter should be dried completely after washing.

CAUTION: WEAR EYE PROTECTION WHEN WORKING WITH COMPRESSED AIR. EYE DAMAGE CAN OCCUR FROM FLYING PARTICLES.

3. Replace air filter if heavily soiled or defective.

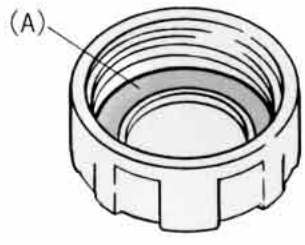


2K199

SRM-2300
SRM-2301

GT-1100
GT-2010
GT-2101
GT-2102

4-2 Checking fuel cap and strainer



2K201

1. Remove fuel cap.

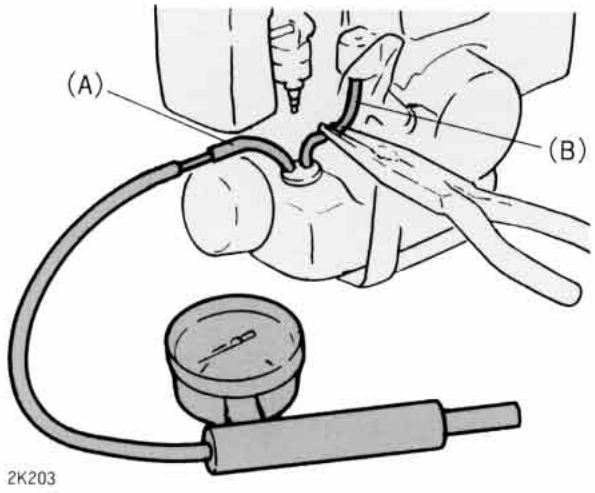
2. Check fuel cap for cracks and gasket (A) for cuts or damage. Replace defective parts as required.

2K202

3. Pull fuel strainer (B) from fuel tank using a wire hook and replace with a new one if it is blocked with dirt.

4. Reinstall fuel cap.

4-3 Checking fuel tank and vent



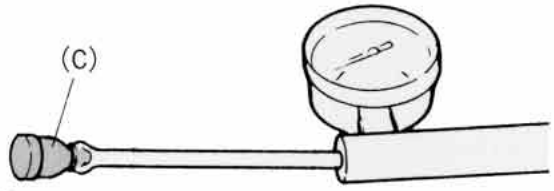
2K203

1. Disconnect fuel pipe (A) from carburetor and connect pressure tester 897803-30130 to the pipe.

2. Pinch vent pipe (B) to block the air passage.

3. Apply more than 0.1 kgf/cm² (1.5 psi).

4. The pressure should not drop. If the pressure drops, leakage may occur from fuel cap, fuel cap gasket, fuel tank, fuel pipe, or vent pipe. Check them and replace defective parts with new ones.



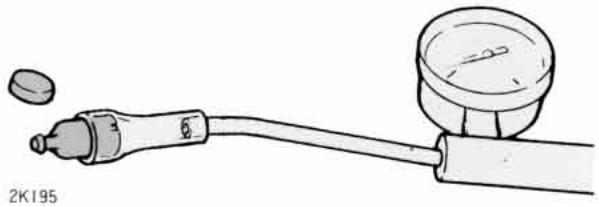
2K194

5. Remove vent (C) and connect pressure tester as shown.

6. Apply more than 0.4 kgf/cm² (5.5 psi) and check if the pressure stays between 0.1 to 0.4 kgf/cm² (1.5 psi).

7. If the pressure is out of range, clean the vent with compressed air or replace with a new vent assembly.

NOTE: Do not disassemble the vent. Damage to the vent will occur.


2K195

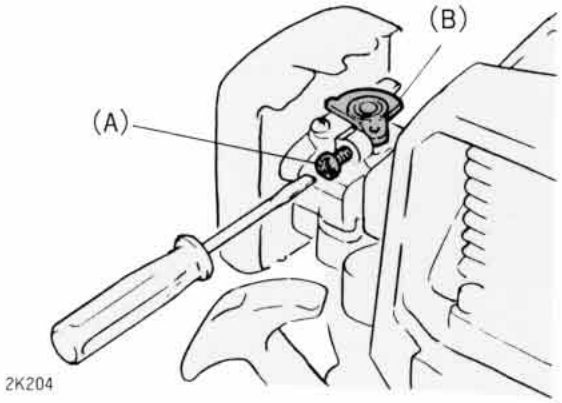
8. Remove vent cap and connect pressure tester to the vent as illustrated, and apply pressure.

9. The vent should pass air freely without holding any pressure.

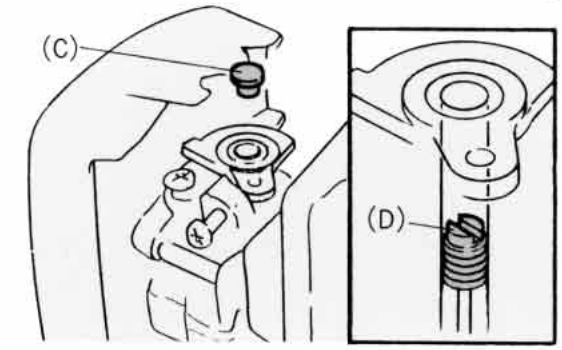
10. If it does not, clean with compressed air. Replace if damaged.

11. Reinstall vent and connect fuel pipe to carburetor.

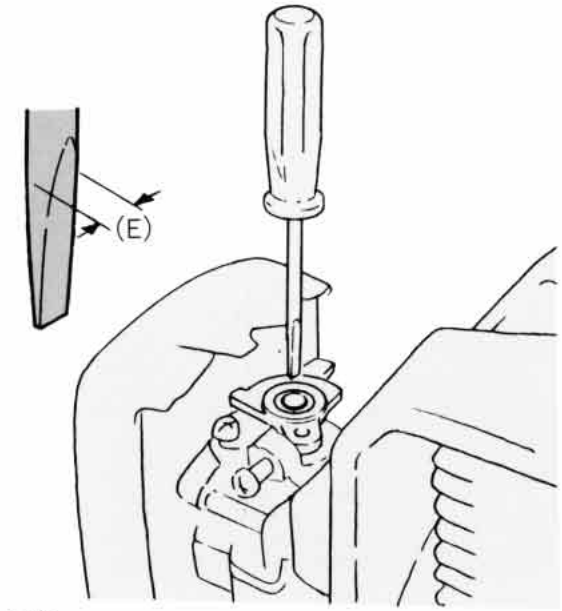
4-4 Adjusting carburetor



2K204



2K205



2K206

For GT-1100, GT-2010, GT-2101, and GT-2102.

1. Turn idle speed screw (A) counterclockwise several turns and back in until it contacts the throttle lever (B). Then turn it clockwise 6 to 7 additional turns.

2. Run engine for a few minutes to warm it up.

3. Adjust idle speed screw to obtain a fast idle below clutch engagement.

NOTE: Metering needle (D) is factory set and should not need adjustment. If adjustment is required, follow steps 4 to 10.

4. Remove plug (C).

5. Stop engine and turn metering needle (D) counterclockwise until the needle threads disengage completely. Use small screwdriver. (E: Max. 2.8 mm or 0.11 in)

6. Turn metering needle clockwise 12 turns from initial thread engagement.

NOTE: To locate the initial thread engagement, turn the needle slowly counterclockwise pressing the needle against the internal threads lightly until the needle drops slightly with a ticking sound. This needle dropping means the point of the initial thread engagement.

7. Proceed as steps 2 to 3 above.

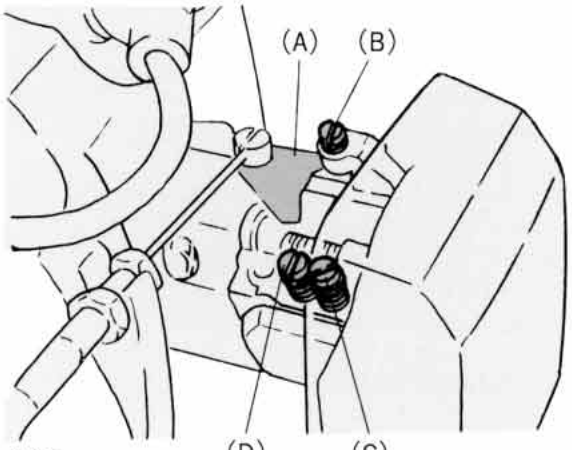
NOTE: When engine is hard to start, turn idle speed screw clockwise 1 turn and metering needle counterclockwise 1 turn.

8. Adjust metering needle to obtain maximum idle and screw out the needle about 1/4 turns.

9. Readjust idle speed screw to obtain proper idle speed.

10. Check for smooth idle and acceleration. Repeat step 8 to 9 as required.

(See next page for other models.)



2K207

For SRM-1500, SRM-1501, SRM-2010, SRM-2300 and SRM-2301.

1. Turn L (D) and H (C) needle clockwise until lightly seated. Back both needle out 1 and 1/8 turns. (H needle on SRM-2301 only: 1 turn)

2. Set idle speed screw (B) to just contact throttle plate (A). Then screw it in another 3 to 4 turns clockwise.

3. Start engine and turn idle speed screw counterclockwise until clutch disengages, and idle engine for a few minutes to warm it up.

4. Adjust L needle to obtain maximum idle with throttle trigger in released position, then back screw out 1/8 turn.

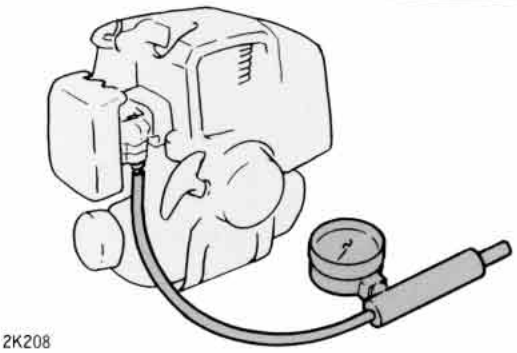
5. Readjust idle speed screw until clutch disengages.

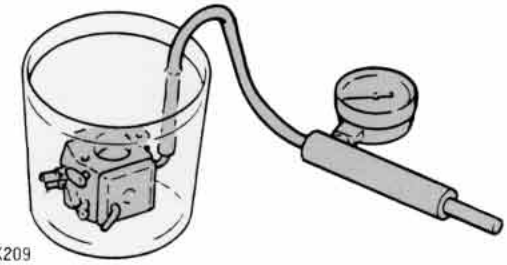
6. Adjust H needle to maximum speed at full throttle, then back screw out 1/8 turn.

NOTE: Do not run engine with metal blade or without cutting head at maximum speed longer than 4 seconds to avoid engine damage.

7. Check for smooth idle and acceleration and readjust L needle slightly as required.

4-5 Testing carburetor


2K208


2K209

1. Connect pressure tester to fuel inlet on carburator.

2. Apply pressure to 0.5 kgf/cm² (7 psi).

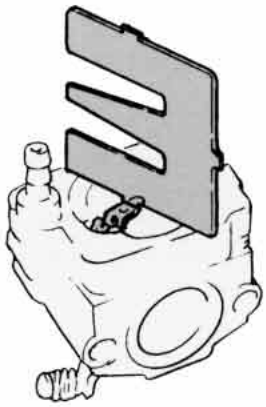
3. The pressure should remain steady.

4. If it drops, remove the carburetor with the tester and submerge in a suitable solvent to locate the leaking point. Disassemble carburetor and replace faulty parts.

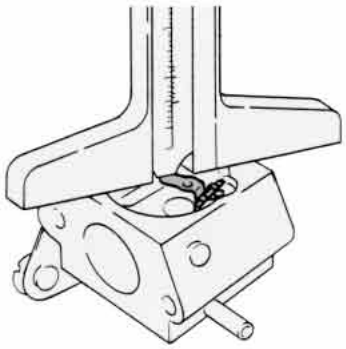
5. If it remains steady, pull starter grip several times and check for dropping of pressure tester reading.

6. If the reading does not drop, check inlet needle valve for sticking and metering lever height for too low of a setting.

4-6 Checking metering lever



2K210



2K231

1. Disconnect throttle wire from carburetor, and remove air filter and carburetor.

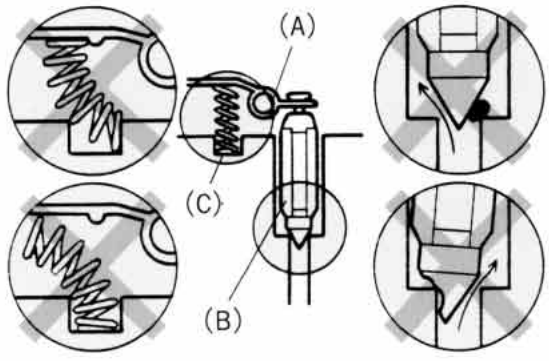
2. Remove metering diaphragm cover, metering diaphragm, and the gasket.

3. Check the metering lever height. If necessary, gently bend the lever up or down to set metering lever at correct position.

NOTE: When the metering lever is:
Too high → Fuel flooding
Too low → Fuel starvation / overheating

Model	Metering lever height
GT-1100 GT-2010 GT-2101 GT-2102	1.5 mm (0.06 in) lower than diaphragm seat
SRM-1500 SRM-1501 SRM-2010 SRM-2300 SRM-2301	0.1 to 0.25 mm (0.004 to 0.010 in) lower than diaphragm seat

4-7 Checking inlet needle valve



2K005B

1. Remove metering lever pin with the lever (A), spring (C), and inlet needle valve (B).

2. Inspect inlet needle valve if worn or sticky. Clean or replace as required.

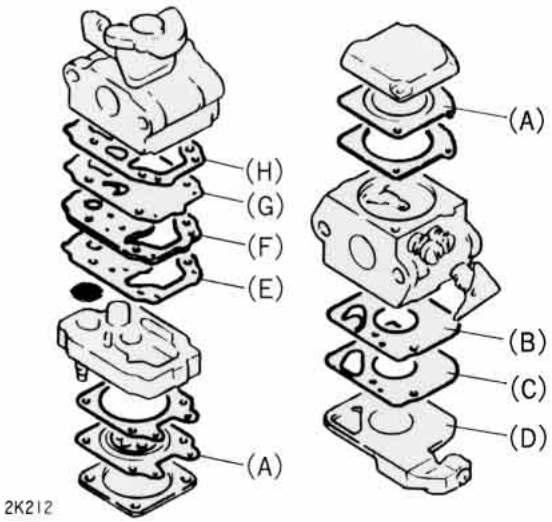
NOTE: Causes of fuel flooding from carburetor to cylinder are as follows.
- Improper assembling of metering lever and spring.
- Dirt or dust between inlet needle valve and the seat.
- Worn inlet needle valve tip.

3. Clean the valve seat.

4. Assemble inlet needle valve, pin, and spring.

NOTE: Make sure that metering lever spring is seated in its hole at chamber floor under dimple of metering lever and that metering lever is holding inlet needle valve.

4-8 Checking diaphragms and screen



GT-1100
GT-2010
GT-2101
GT-2102

SRM-1500
SRM-1501
SRM-2010
SRM-2300
SRM-2301

1. Checking metering diaphragm (A) for hardening, distortion, or pin hole. Replace it as required.

2. On GT-1100, GT-2010, GT-2101, and GT-2102, remove plate gasket (E), pump plate (F), pump diaphragm (G), and pump gasket (H). On SRM-1500, SRM-1500, SRM-2010, SRM-2300, and SRM-2301, remove pump cover (D), gasket (B), and pump diaphragm (C).

3. Check pump diaphragm and replace it if hardened or curled at the valve tabs.

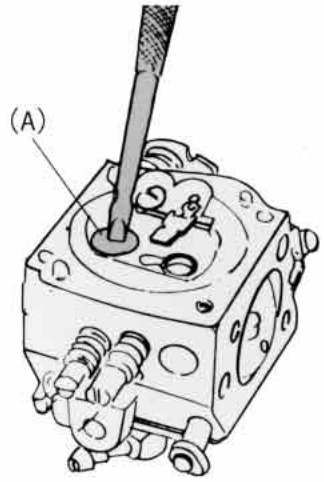
4. Check metering and pump gaskets, and replace if defective.

5. Check inlet screen if blocked with dust. Remove and clean it, or replace it if defective.

6. On SRM-1500, SRM-1501, SRM-2010, SRM-2300, and SRM-2301, remove H and L needles, and check for distortion or wearing of the tip. Replace the needle(s) as required.

7. Clean fuel passages in carburetor body with compressed air.

4-9 Replacing Welch plug



For SRM-1500, SRM-1501, SRM-2010, SRM-2300, and SRM-2301.

If engine will not run smoothly even after readjustment of H and L needles, check the idle ports as follows.

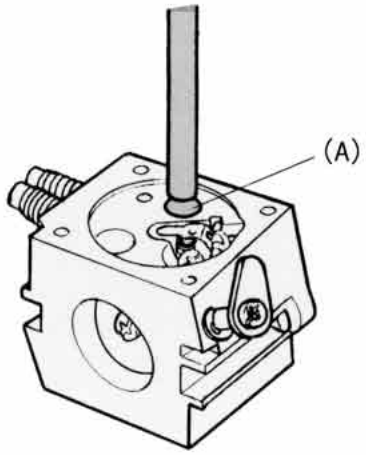
1. Remove metering lever and the relative parts to prevent them from damage.

2. Remove Welch plug (A) with a remover as shown. Punch the remover through the Welch plug at an low angle and pry it out.

3. Clean idle ports with a compressed air.

4. Place a new Welch plug over the opening and gently push it in until flush.

4-10 Replacing main fuel orifice



2K026

For SRM-1500, SRM-1501, SRM-2010, SRM-2300, and SRM-2301.

If main fuel orifice (A) is defective or clogged with dust or dirt, fuel starvation may be caused. Replace as follows if necessary.

1. Remove H needle.

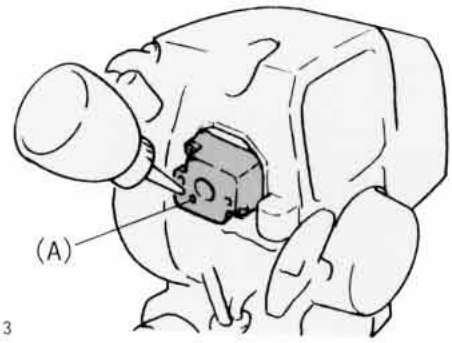
2. Place an about 4 mm (0.16 in) diameter steel bar on main fuel orifice as shown and push it out.

NOTE: If the orifice sticks in carburetor bore, push lightly the side of the orifice.

3. Place a new orifice on carburetor body and the steel bar on the new orifice.

4. Push in the new orifice flush with carburetor body.

4-11 Checking crankcase pulse passage



2K213

1. Drop a little oil to pulse hole (A) on insulator.

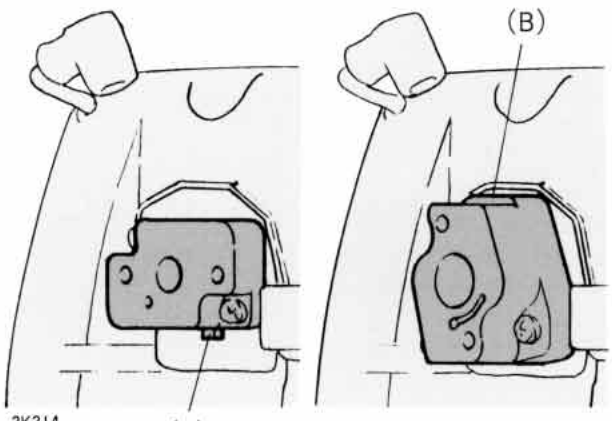
2. Remove spark plug.

3. Pull starter grip several times.

4. Oil should spit back from the hole.

5. If not, remove insulator and gasket.

6. Check pulse holes of insulator and cylinder for oil residue. Clean the passage as required.



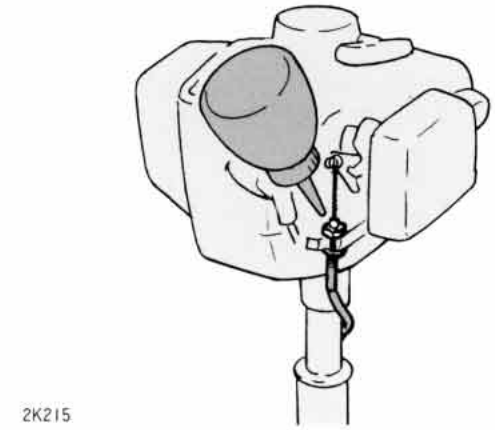
2K214

7. Install gasket and insulator in correct position. Do not plug pulse passage.

NOTE: On GT-1100, GT-2010, GT-2101, and GT-2102, protrusion (C) on insulator should face downward.

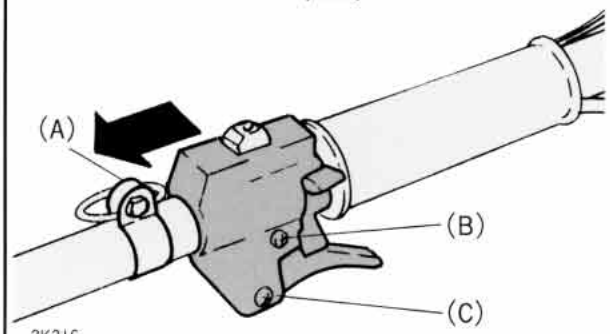
For SRM-1500, SRM-1501, SRM-2010, SRM-2300, and SRM-2301, stepped surface (B) on insulator should face upward.

4-12 Replacing throttle wire and trigger



2K215

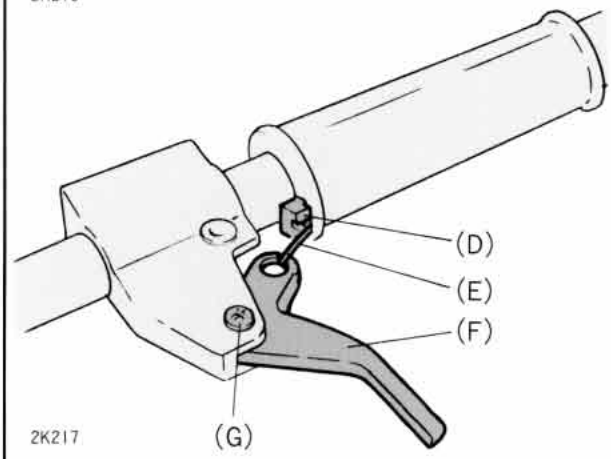
1. When throttle wire does not move smoothly, apply mixed fuel to the wire to lubricate. Replace the wire as follows if defective.



2K216

2. Remove screw (B) on throttle bracket (C) (and hook (A) on SRM-2010 and SRM-2300 only).

3. (Except GT-1100) Slide throttle bracket (and hook) toward gear case about 25 mm (1 in).



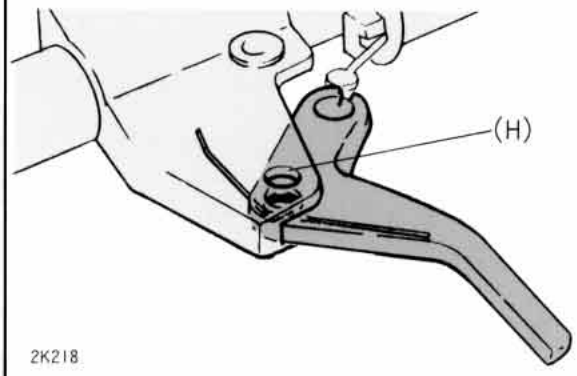
2K217

4. Disconnect throttle wire end (E) from throttle trigger (F).

5. Pull out wire holder (D) (except GT-1100) and remove defective wire. Lubricate a new throttle wire and pass it through the grip.

6. To replace throttle trigger, remove screw (G) and remove the trigger with the return spring. Replace the trigger and/or the return spring, and tighten screw (G).

NOTE: To install throttle trigger and return spring, align holes (H) on throttle trigger, center circle of return spring, and holes on throttle bracket as shown. Then insert screw to the hole aligned them and fasten with nut.



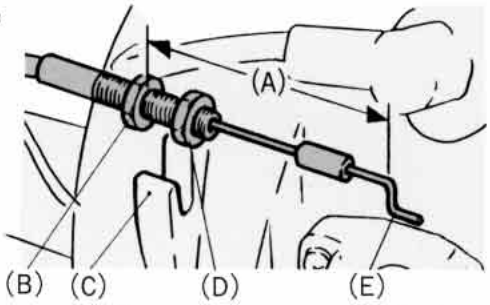
2K218

7. Insert wire holder into grip and connect throttle wire end to the trigger.

8. Slide throttle bracket until it contacts the grip and secure throttle bracket (and hook in the position).

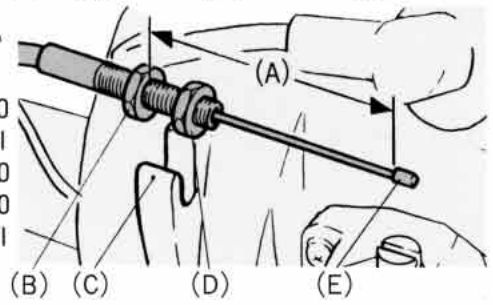
4-13 Adjusting throttle wire

GT-1100[a]
GT-2010
GT-2101

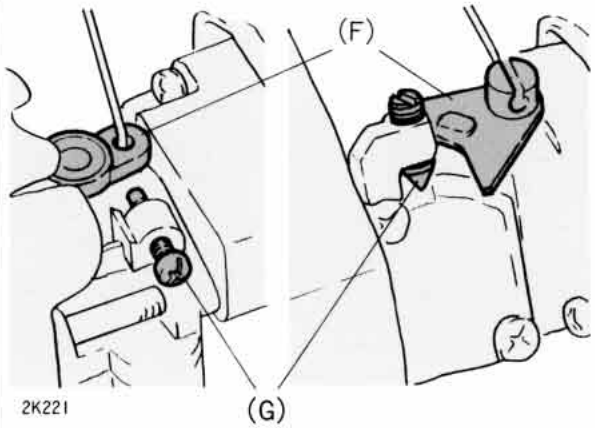


2K219

GT-1100[b]
GT-2102
SRM-1500
SRM-1501
SRM-2010
SRM-2300
SRM-2301



2K220



2K221

GT-1100[a]
GT-2010
GT-2101

GT-1100[b]
GT-2102
SRM-1500
SRM-1501
SRM-2010
SRM-2300
SRM-2301

1. Install drive shaft assembly to fan cover.

2. Move nut (B) as shown.

   (A): 55 mm or 2.2 in

3. Hold nut (B) and push throttle wire housing in the holder (C) of cylinder cover pressing nut (B) against the holder.

4. Tighten nut (D).

5. Connect throttle wire end (E) to carburetor throttle plate (F).

NOTE: If carburetor adjustment is not completed, alternate carburetor adjustment and following steps to make proper throttle control.

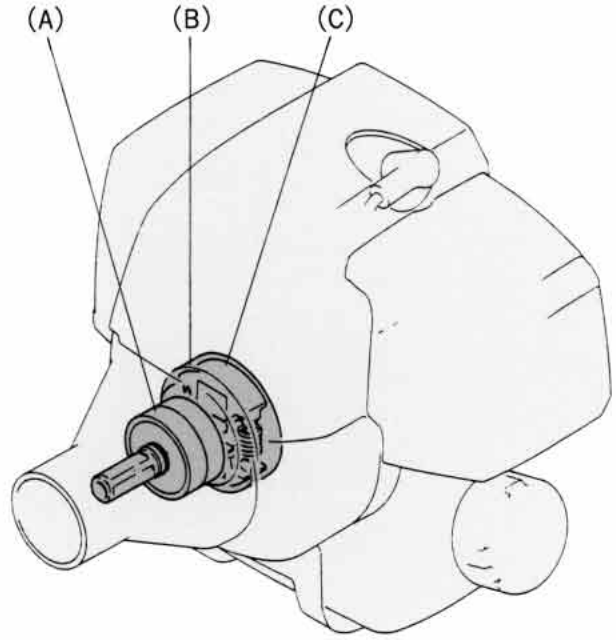
6. If throttle plate (F) does not contact idle adjusting screw (G), loosen and move nut (B). Then remove wire housing from the holder and repeat above steps 3 to 5 until throttle plate just contacts idle adjusting screw.

7. Move throttle trigger lightly.

8. If throttle trigger moves without moving throttle plate, loosen and move nut (D). Then reinstall wire housing pressing nut (D) against throttle holder and tighten nut (B). Recheck and repeat that procedure until throttle trigger feels tight.

[a]Serial Number 0050000 and before.
[b]Serial Number 0050001 and after.

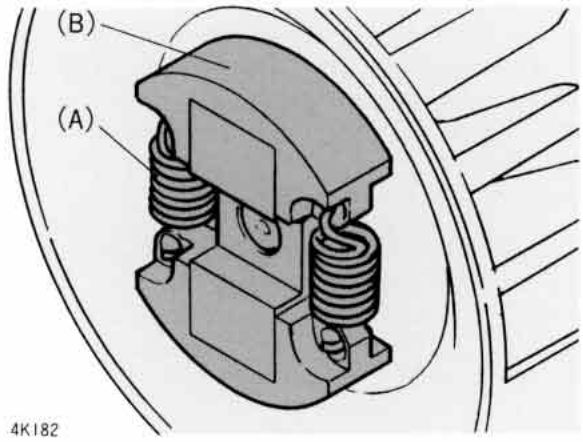
5 CLUTCH SYSTEM



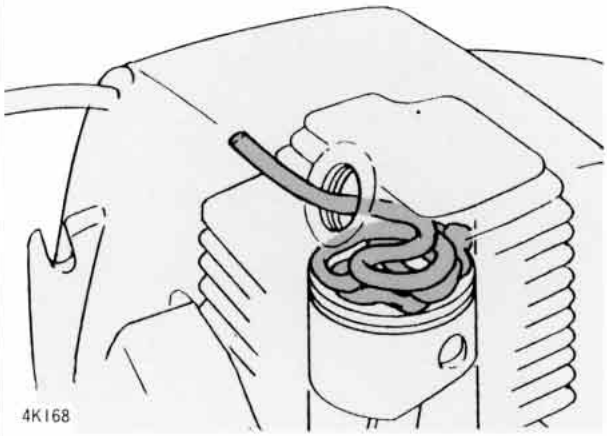
9K139

(A) Ball bearing
(B) Clutch drum
(C) Clutch assembly

5-1 Replacing clutch aseembly



4K182



4K168

1. Remove cylinder cover and fan cover (and top guard from cylinder cover on GT-1100b, GT-2102, SRM-1501, and SRM-2301.)

NOTE: When checking clutch system only, do not remove ignition coil from cylinder and remain connecting high tension lead of ignition coil to cylinder cover to avoid extra work.

2. Check clutch shoe (B) for wear and clutch spring (A) for weakness or damage. Replace clutch assembly as required.

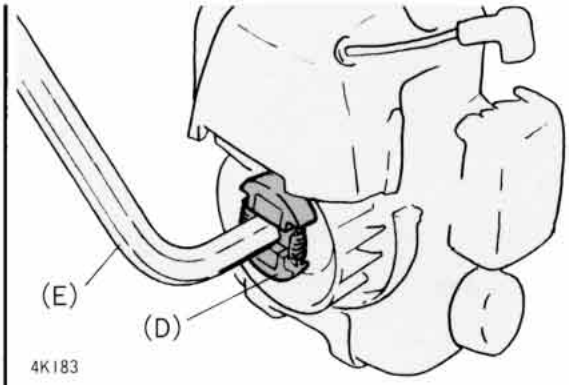
NOTE: If starter is installed, pull starter out 20 cm (8 in) and make a temporary knot before packing combustion chamber.

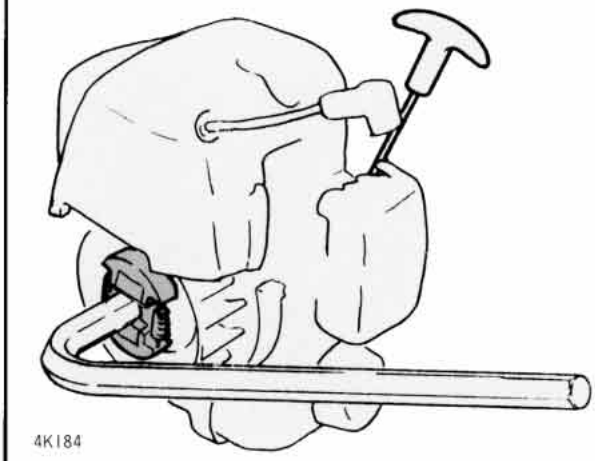
3. Look into cylinder and rotate flywheel counter-clockwise until piston closes exhaust port.

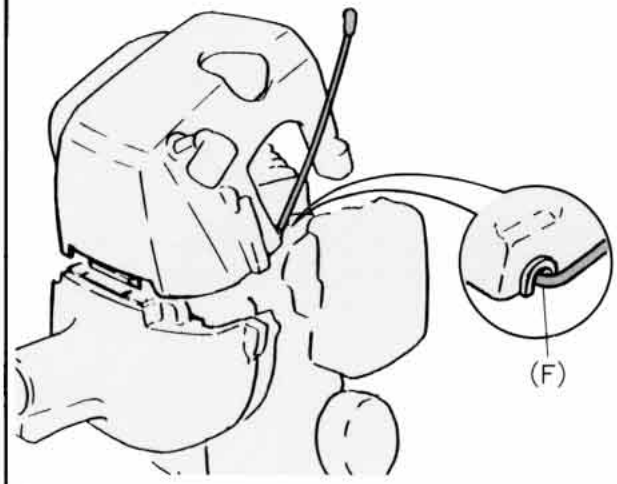
4. Pack combustion chamber with a starter rope through spark plug hole to stop crankshaft rotation.

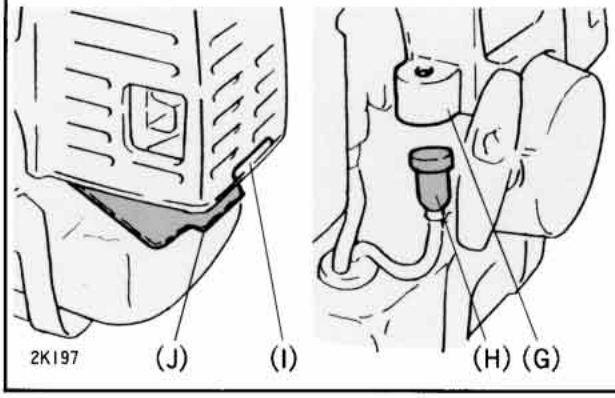
NOTE: Use clean rope to keep combustion chamber clean. Do not drop dust around spark plug into the hole.

(Continued)









5. Remove clutch assembly (D) using 14 mm (9/16 in) hex wrech (E) or a like.

6. Remove temporary knot from starter rope and hold starter.

7. Rotate flywheel clockwise.

8. Hold starter while installing clutch assembly hand tight.

9. Tighten clutch assembly using 14 mm (9/16 in) hex wrench. While tightening the clutch, allows starter rope to return slowly.

10. Remove rope from combustion chamber.

11. Install fan cover and cylinder cover.

NOTE: To install cylinder cover on GT-1100[a], GT-2010, and GT-2101, join magneto side corner of cylinder cover to fan cover and push down starter side holding primary lead through notch (F) as shown.

NOTE: Take care not to pinch primary lead between cylinder cover and crankcase.

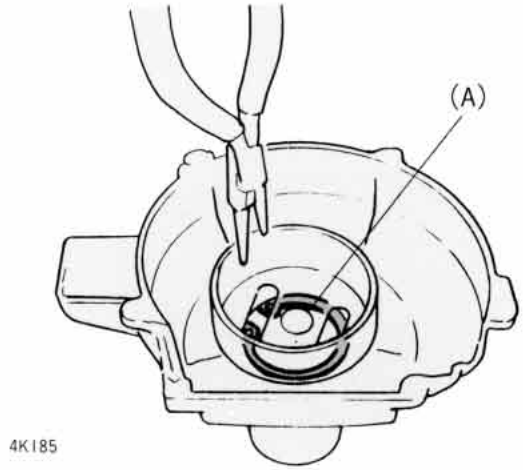
12. Insert lower end tab (J) of muffler gasket to slot (I) of cylinder cover.

13. Insert vent (H) to the holder (G) on cylinder cover.

14. Remove the rope packed in combustion chamber and install spark plug and the cap.

[a]Serial Number 0050000 and before.
[b]Serial Number 0050001 and after.

5-2 Replacing clutch drum and bearing



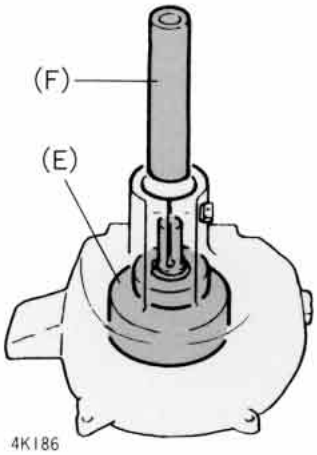
4K185

NOTE: On GT-1100, GT-2010, GT-2101, and GT-2102, clutch drum and bearing can not be removed from fan cover. Replace fan cover assembly if the drum and bearing are defective.

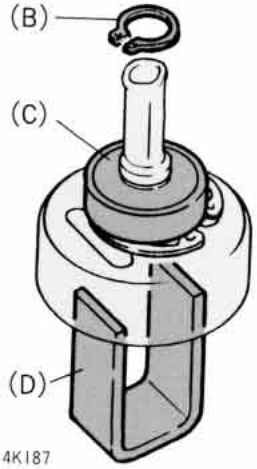
For SRM-1500 and SRM-2010

1. Remove cylinder cover and fan cover.

2. Remove circlip (A) from fan cover.



4K186



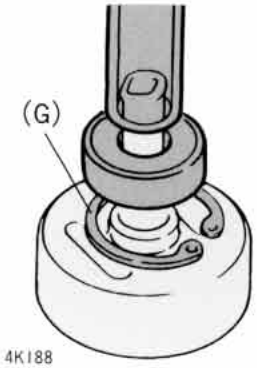
4K187

3. Push out clutch drum (E) using 15 to 25 mm (1/2 to 1 in) diameter brass or steel bar.

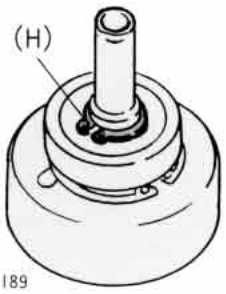
NOTE: Oil seal tool 897726-09130 (F) can be used as the pusher to remove clutch drum.

4. Remove circlip (B) from the shaft of clutch drum.

5. Push ball bearing (C) from clutch drum using bearing remover 897732-06030 (D).



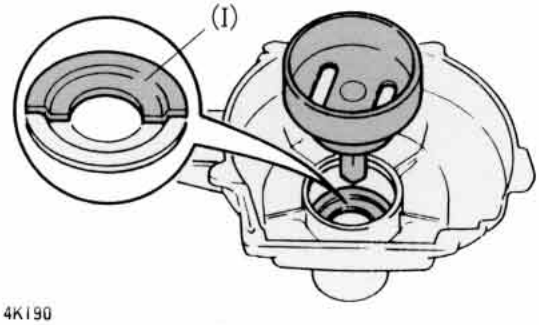
4K188



4K189

6. Before reassembling, put circlip (G) on a new clutch drum. Then install a new ball bearing to clutch drum using the tool 897726-09130.

7. Install circlip (H) to the groove on clutch drum shaft.



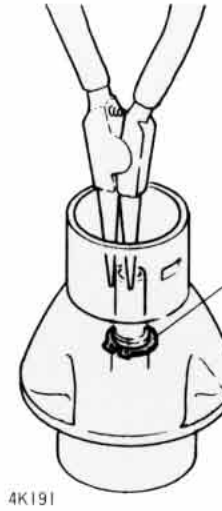
4K190

8. Put washer (I) into fan cover.

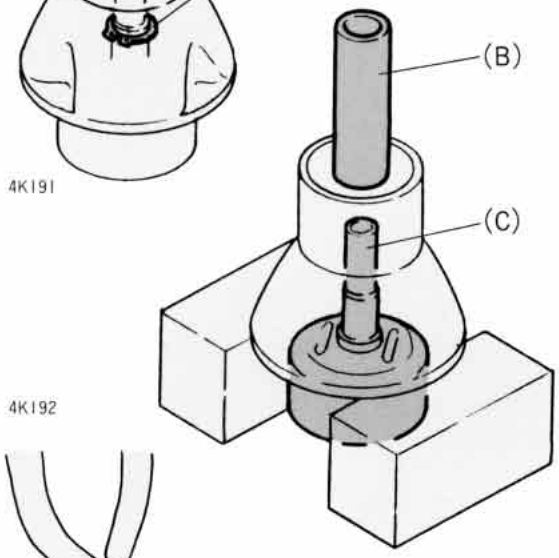
9. After lightly lubricating the bore of fan cover with oil, push clutch drum with ball bearing into the bore of fan cover to the bottom.

10. Check for free rotation of clutch drum and reinstall the removed parts.

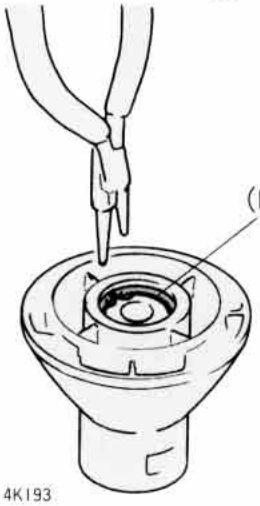
(See next page for other models.)



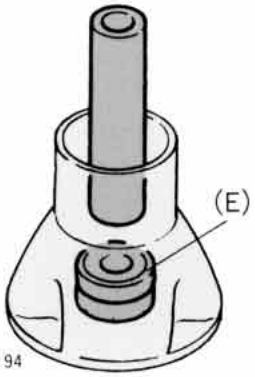
4K191



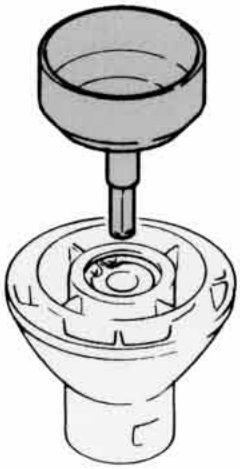
4K192



4K193



4K194


4K195

For SRM-1501, SRM-2300, and SRM-2301.

1. Remove clutch case.

2. Remove circlip (A) from clutch drum shaft.

NOTE: If working space for circlip pliers is too small, remove two holders and rubber cushion from clutch case.

3. Push out clutch drum (C) using 15 to 25 mm (1/2 to 1 in) diameter brass or steel bar.

NOTE: Oil seal tool 897726-09130 (B) can be used as the pusher to remove clutch drum.

4. If the bearings are defective, remove circlip (D) from clutch case and push out ball bearings using the same tool as above.

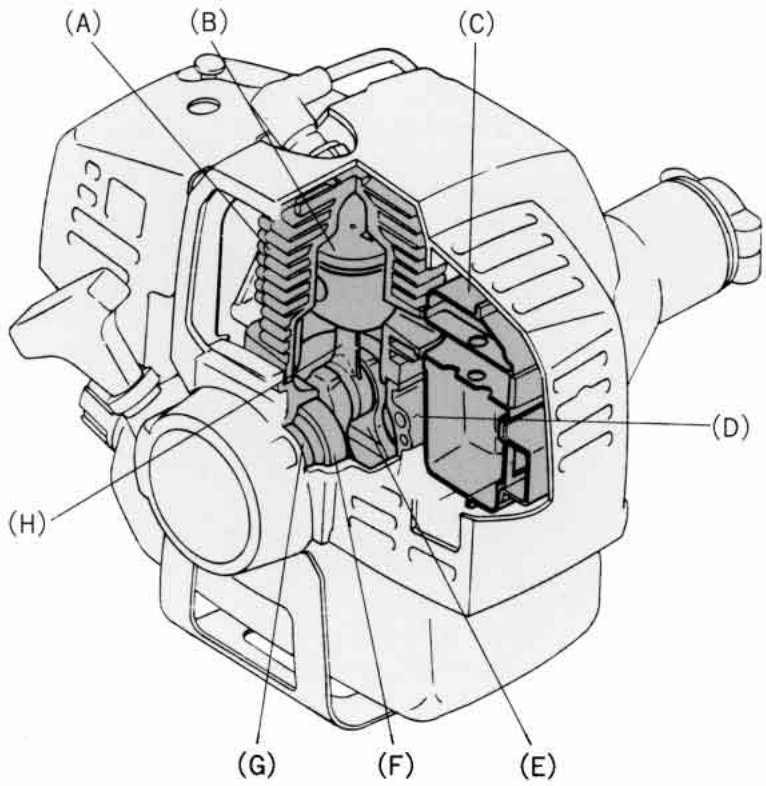
5. When installing new ball bearings (E), lubricate the bore of clutch case with oil. Then push new ball bearings into the case to the bottom using the same tool as above and reinstall circlip (D) in the groove.

6. Insert the shaft of clutch drum into the ball bearings and install circlip to the groove of clutch drum shaft.

7. Make sure of free rotation of clutch drum.

8. Reinstall clutch case and the other removed parts.

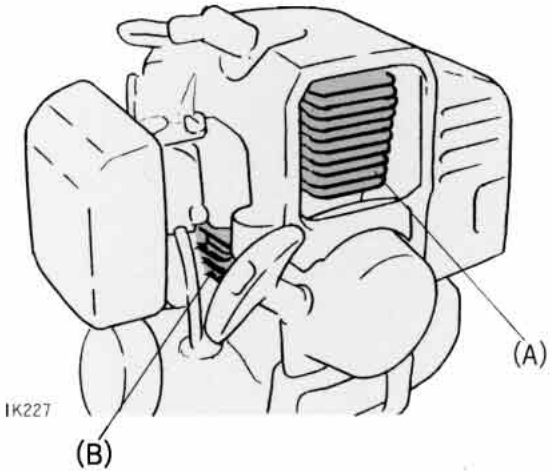
6 ENGINE



(A) Cylinder
(B) Piston
(C) Muffler
(D) Crankcase
(E) Crankshaft
(F) Ball bearing
(G) Oil seal
(H) Connecting rod

NOTE: See "8-3 Disassembly chart" to remove necessary parts for disassembling engine.

6-1 Cleaning cooling air passage



1. Inspect cylinder cooling fins (A) for blockage with dirt or dust.

2. Inspect grid (B) around crankcase if blocked with leaves or other obstructions. Remove the obstructions as required.

3. Disengage throttle cable from carburetor and cylinder cover, and remove cylinder cover (and top guard from cylinder cover on GT-1100[b], GT-2102, SRM-1501, and SRM-2301).

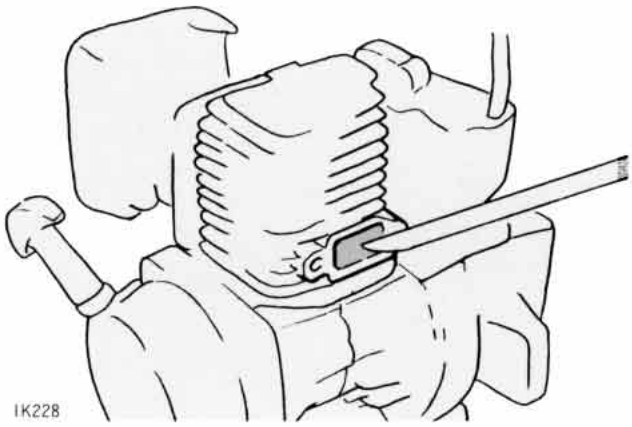
NOTE: On GT-1100[a], GT-2010, and GT-2101, remove spark plug and screws to remove cylinder cover. Then lift up starter side of the cover. Remain connecting high tension lead of ignition coil to cylinder cover to avoid extra work.

4. Clean the air passages with a wooden stick or compressed air as required.

CAUTION: ALWAYS WEAR EYE PROTECTION WHEN USING A COMPRESSED AIR.

[a]Serial Number 0050000 and before.
[b]Serial Number 0050001 and after.

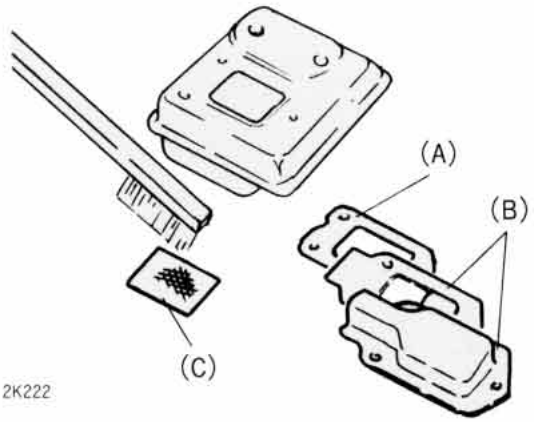
6-2 Checking muffler and exhaust port



1. Remove muffler using L-hex wrench.

2. Inspect cylinder exhaust port and clean the port using a wooden stick or the like if carbon is deposited.

NOTE: When cleaning the port, always position piston at Top Dead Center (TDC) to prevent carbon from entering cylinder. Do not use a metal tool and be careful not to scratch piston or cylinder.

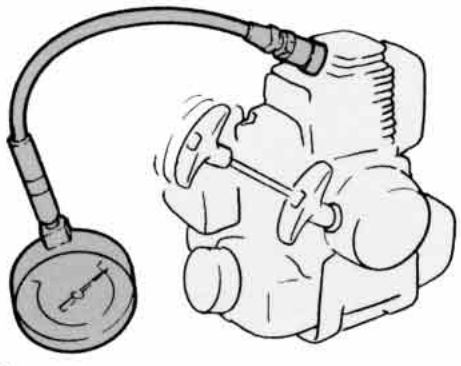


3. Remove holder (B), gasket (A), and screen (C) from muffler. (In some markets, screen is not installed.)

4. Remove carbon deposits from the screen, muffler, and other component parts. If heavily deposited, replace with new parts as required.

5. Reinstall muffler and the other removed parts.

6-3 Testing cylinder compression



NOTE: Test the cylinder compression when engine is cold.

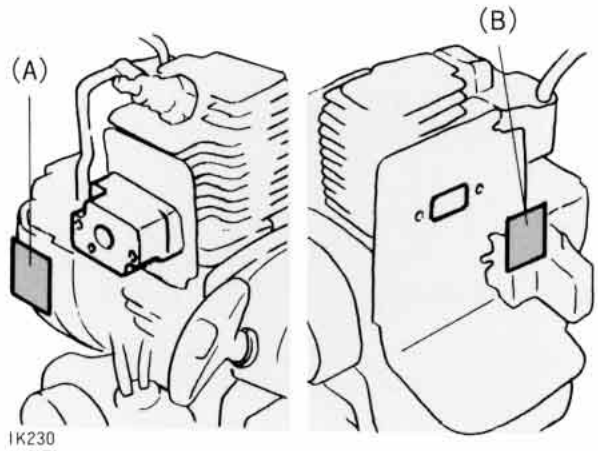
1. Move ignition switch to STOP position.

2. Remove spark plug.

3. Install a compression gauge into spark plug hole and pull starter handle several times to stabilize reading.

4. If the pressure is low (Below about 6 kgf/cm² or 90 psi), check cylinder, piston, and piston ring.

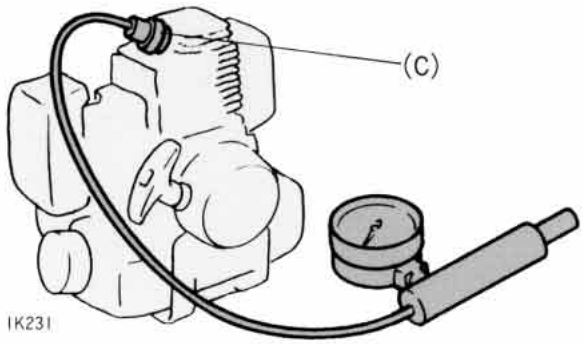
6-4 Testing crankcase and cylinder sealings



1. Remove cylinder cover, muffler, and carburetor.

2. Close intake port with a duct tape (A) or a like, and install carburetor with air cleaner case.

3. Close exhaust port with a duct tape (B) or a like, and install muffler.



4. Remove spark plug and install pressure connector 897833-16131 (C).

5. Connect pressure tester to the connector and apply pressure approx. 0.2 kgf/cm² (3 psi) by hand pumping.

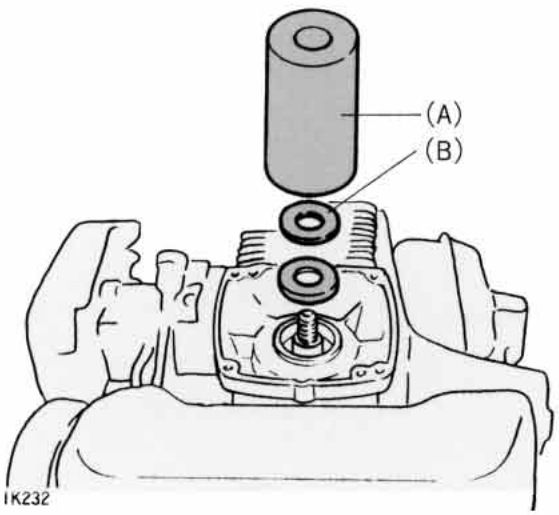
NOTE: Do not exceed 0.5 kgf/cm² (7 psi), damage to seals will result.

6. Gauge should indicate constant pressure.
(A little leakage is permitted.)

7. If the reading drops, use soapy water to locate leakage. Leakage may occur from cylinder base, crankcase seam, and oil seal.

NOTE: Remove the tapes from exhaust port and intake port after this test.

6-5 Replacing oil seal



1. Pry defective oil seal out from engine.

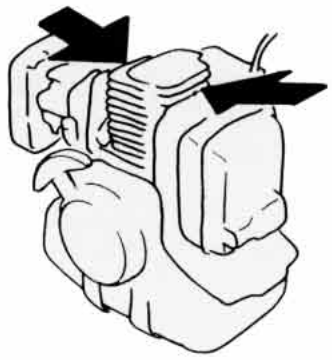
2. Lubricate a new oil seal on its circumference with high melting point grease and push it in using oil seal tool 897714-24330 (A).

NOTE: Since oil seal on starter side should be located at 1 to 1.5 mm (0.04 to 0.06 in) deeper than crankcase surface, always use washer 363018-00310 (B) or following size of washer together with the oil seal tool.

Inner dia. : 12 mm (0.48 in)
Outer dia. : 19 mm ~ 22 mm (0.75 ~ 0.85 in)
Thickness : 1 ~ 1.5 mm (0.04 ~ 0.06 in)

NOTE: When installing oil seal, place it level to avoid being cocked in bore.

6-6 Removing and checking cylinder



1K233

1. Remove cylinder from engine.

NOTE: When removing cylinder except for the purpose of replacing cylinder, leave ignition coil, carburetor, and/or muffler assembled to avoid extra work.

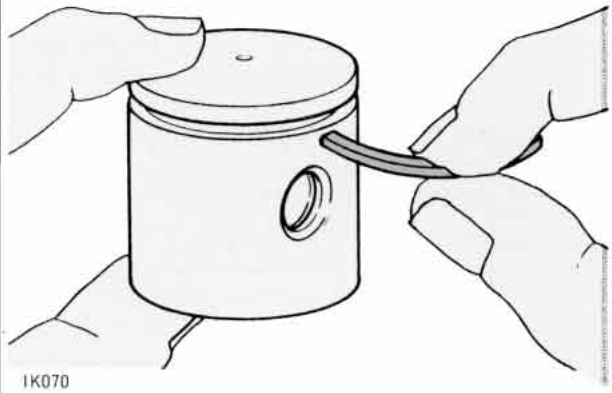
NOTE: Gently tap cylinder with a plastic mallet at carburetor and/or muffler sides of cylinder head if it is difficult to remove.

2. Inspect cylinder combustion chamber. Clean with wooden scraper if carbon is deposited.

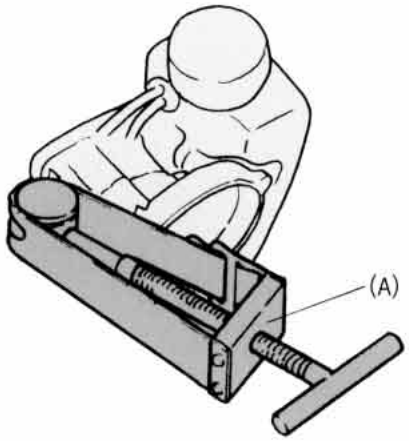
NOTE: Never use a metal scraper in cylinder combustion chamber to avoid damage.

3. Replace cylinder with a new one if plating is worn exposing cylinder base metal, peeled away, or scored.

6-7 Checking piston and piston ring



1K070



1K234

1. Clean piston head with a fine sandpaper or wooden scraper as required.

2. Remove piston ring.

3. Clean ring groove using ring groove cleaning tool or squared end of broken piston ring.

4. Check piston and piston ring for wear or heavy discoloration. Replace as required.

5. Remove circlips from piston.

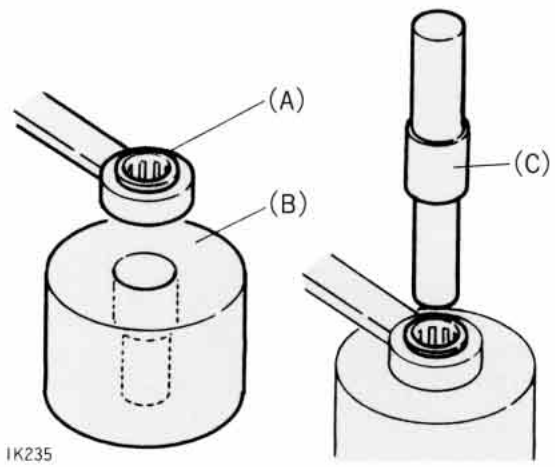
6. Push piston pin out from piston.

NOTE: If piston pin is tight, use piston pin tool 897702-30131 (A) with adapter stamped "8" on an end.

NOTE: Set the engine as shown to prevent two washers from inside of piston to fall into crankcase.

7. Check piston pin and needle bearing for wear or discoloration. Replace as required.

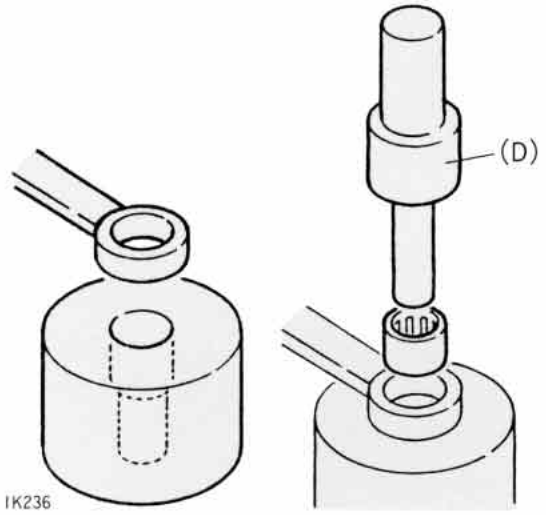
6-8 Replacing needle bearing



NOTE: Always use needle bearing tool 897705-11520 to replace needle bearing on small end of connecting rod.

1. Put the small end on base (B) of needle bearing tool and fit needle bearing (A) into the hole of the base.

2. Push the bearing out from the small end using smaller pusher (C).



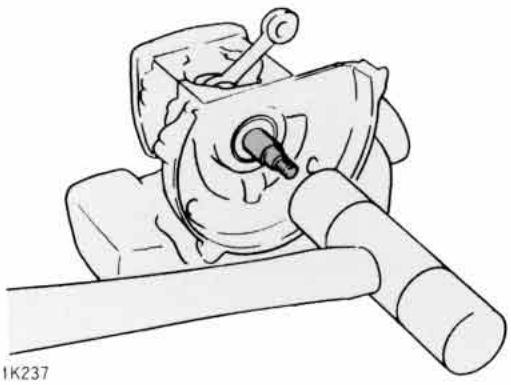
3. Put the small end of the connecting rod on the base aligning both holes of the small end and the base.

4. Put a new needle bearing on the small end.

NOTE: The side stamped with identification of needle bearing should face up.

5. Push the needle bearing in to the bottom using larger pusher (D).

6-9 Disassembling crankcase



1. Remove three screws securing crankcase.

2. Hold crankcase half and tap crankshaft end using a plastic mallet to separate crankcase halves.

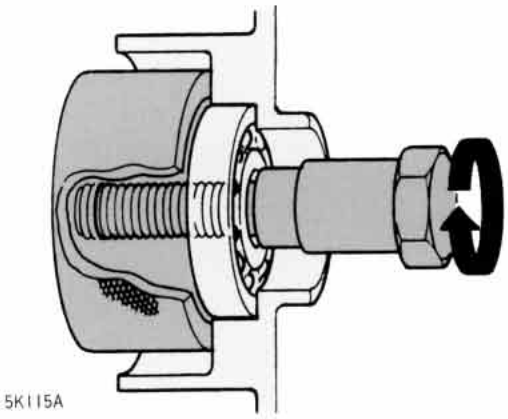
NOTE: To avoid crankshaft damage, use a 0.5 kg (1 lb) plastic mallet and minimum force to drive it out.

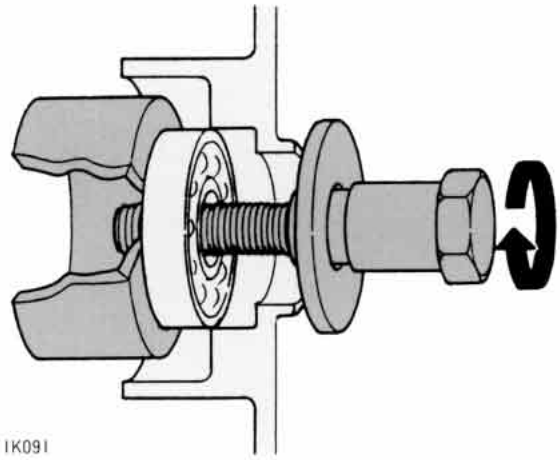
3. Repeat step 2 to remove another crankcase half.

4. Clean insides of crankcase halves if dirty. Replace as a set if damaged.

5. Inspect crankshaft for roughness, discoloration or other damage. Replace it with a new one as required.

6-10 Replacing ball bearing


5K115A


1K091

1. Check ball bearings for smooth rotation. If bad, replace it (them).

2. Pry oil seal from crankcase.

3. Remove ball bearing from crankcase half using bearing tool set 897701-12331 as shown.

4. Coat bearing housing in crankcase with heat resistant grease.

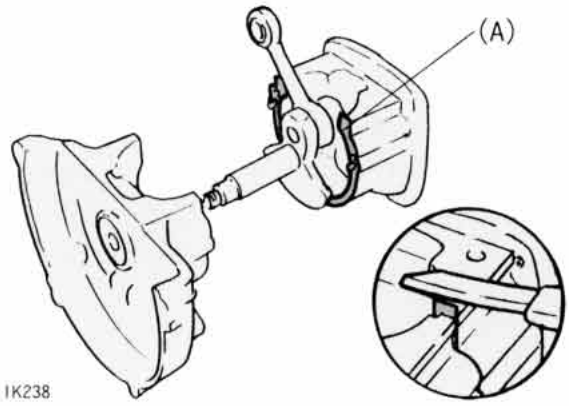
5. Press ball bearing into the crankcase half using the ball bearing tool as shown.

NOTE: Preheat area around bearing housing of crankcase using a floodlight or a suitable heater for easier installation.

6. Check that bearing is seated and rotates smoothly.

7. Install oil seal.

6-11 Assembling crankshaft and crankcase



1K238

1. Clean the mating surface of each crankcase half.

2. Insert crankshaft starter end into starter side of crankcase half until properly seated. If hard to insert, gently tap at other end with a plastic mallet.

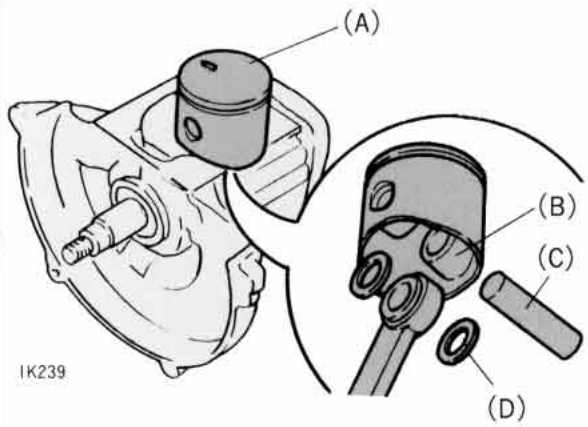
3. Put a new crankcase gasket (A) on starter side crankcase half.

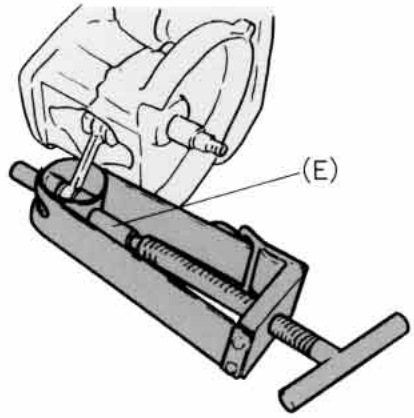
4. Reassemble both crankcase halves together ensuring that dowel pins on crankcase half are properly seated in holes on other half.

5. Tighten three bolts to secure crankcase halves together and check crankshaft rotation.

6. Remove protruding crankcase gasket with a sharp knife.

6-12 Installing piston





1. Lubricate needle bearing of connecting rod small end.

2. Oil washers (D) and stick the washers to bosses (B) in piston.

3. Place the piston (A) over small end of connecting rod so that the arrow mark on piston head points left as viewed from fan side.

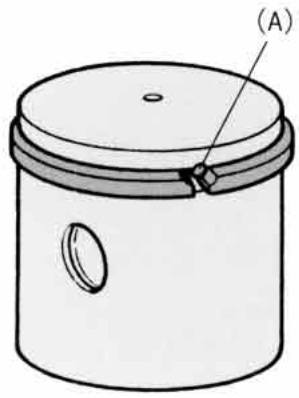
4. Insert pin guide (C), stamped "8" on the end, through piston, washers, and small end of connecting rod.

5. Insert piston pin (E) in piston pushing out pin guide.

NOTE: If piston pin is tight, use piston pin tool 897702-30131.

6. Install new circlips to piston and be sure that they are properly seated in grooves.

6-13 Installing piston ring and cylinder



1. Stick a new cylinder gasket on cylinder base with a little glue for easier installation of cylinder.

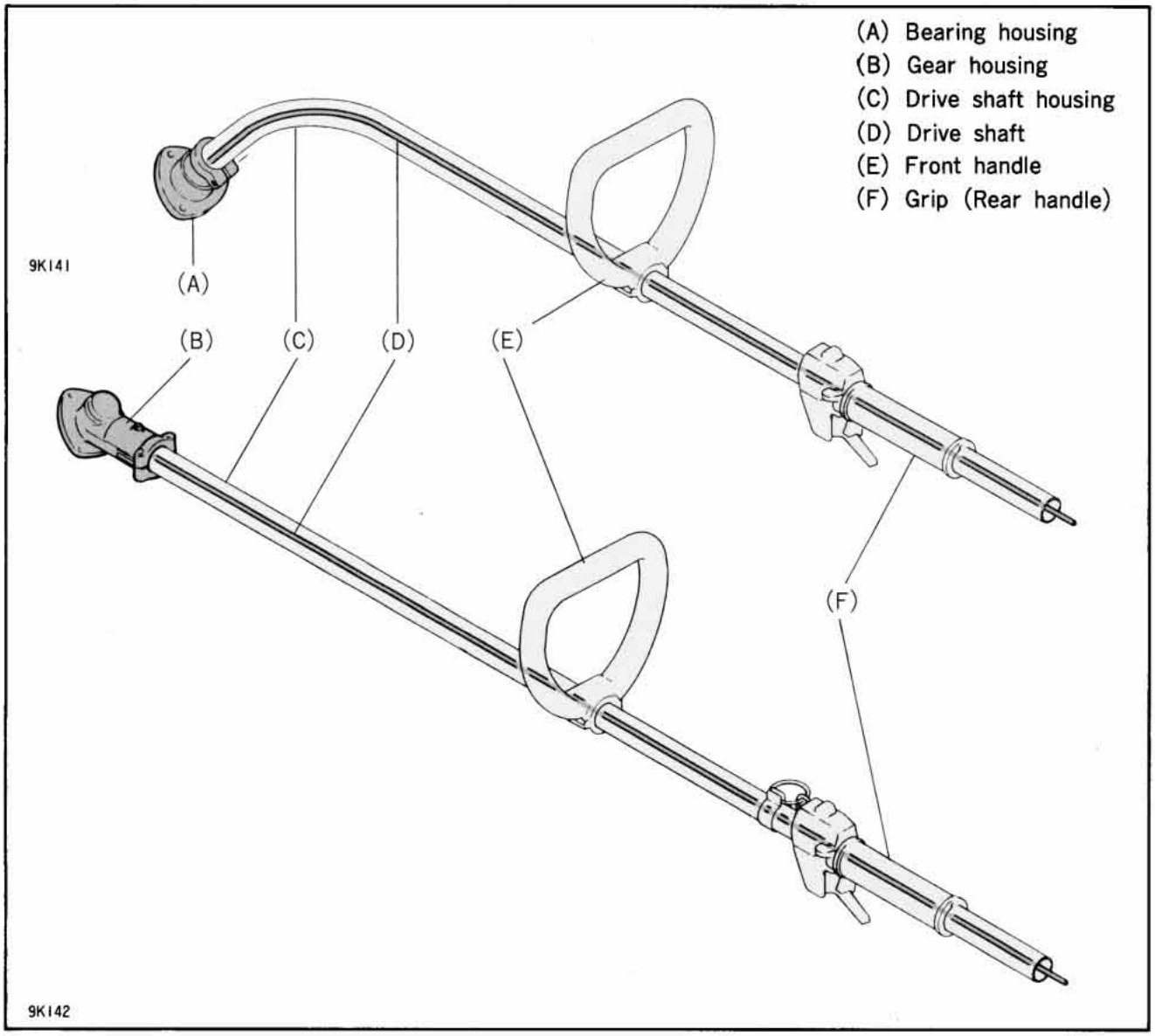
2. Install piston ring on piston ensuring that the locating pin (A) is positioned between ring ends.

3. Apply oil to piston ring and cylinder internal wall.

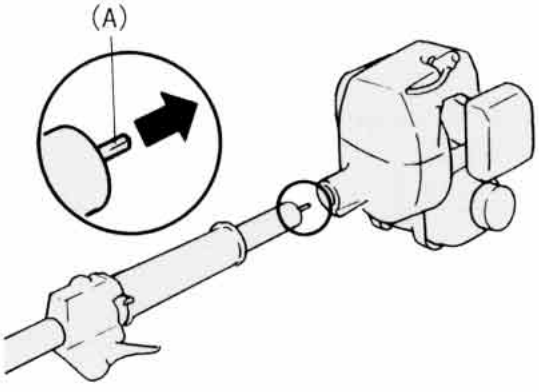
4. Install cylinder over piston ensuring that exhaust side of cylinder is at arrow side of piston.

NOTE: Do not rotate cylinder while installing. Otherwise piston ring and/or cylinder wall might be damaged.

7 CUTTER DRIVE SYSTEM



7-1 Replacing drive shaft



1. Remove drive shaft housing.

2. Pull out drive shaft (A).

3. Inspect drive shaft for damage, cracks, and torsion.

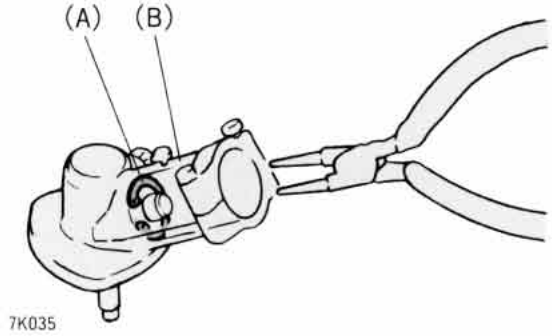
4. Apply lithium based grease on drive shaft and insert it into drive shaft housing.

NOTE: Periodically reverse drive shaft in the housing to extend a service life.

7-2 Disassembling gear housing

For SRM-1500, SRM-1501, SRM-2010, SRM-2300, and SRM-2301.

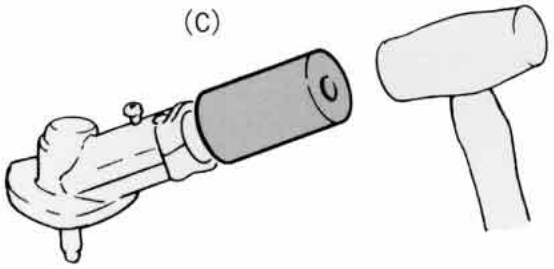
1. Check gear housing for crack and smooth rotation. Disassemble gear housing as follows if defective.



7K035

2. Remove cutter and fitting plate, and gear housing (B) from drive shaft housing.

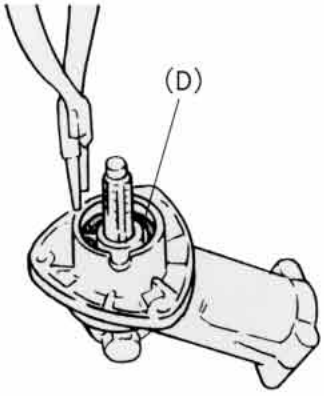
3. Remove circlip (A) from groove of drive gear shaft using a circlip pliers.



7K036

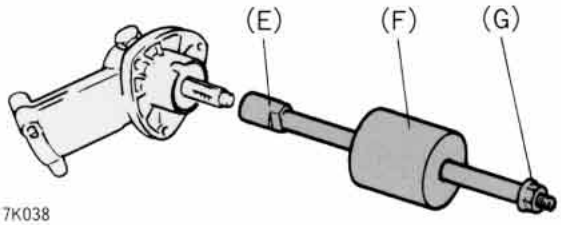
4. Tap gear housing with hammer and a steel block as shown until drive gear with two ball bearings coming off.

NOTE: Oil seal tool 897714-24330 (C) can be used for the steel block.



7K037

5. Remove circlip (D) from groove of gear housing using circlip pliers.



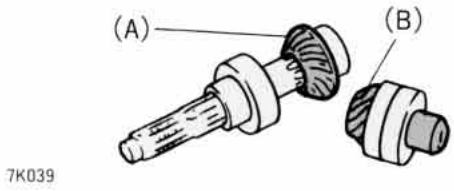
7K038

6. Connect PTO shaft puller 897603-23030 (E) to PTO shaft and strike weight (F) to nut (G) to pull out PTO shaft together with the relative parts.

NOTE: Do not let go of weight (F) while using. The puller and PTO shaft could fly out, and may be damaged.

7. Check gears, PTO shaft, and ball bearings. If worn or do not rotate smoothly, replace defective parts as required.

7-3 Replacing gears and PTO shaft

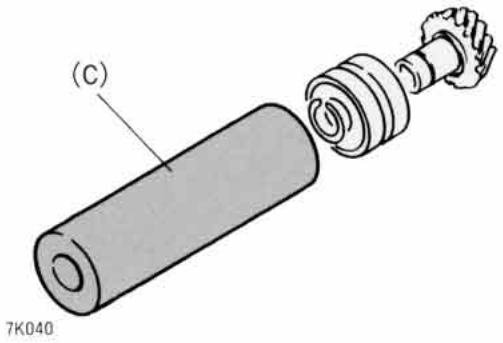


7K039

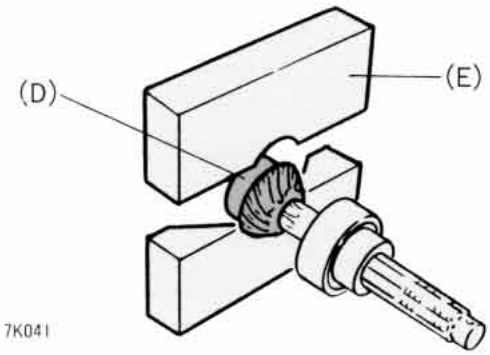
For SRM-1500, SRM-1501, SRM-2010, SRM-2300, SRM-2301.

NOTE: Replace drive (B) and driven gear (A), and ball bearings as a set.

1. To install new ball bearings on new drive gear, use oil seal tool 897714-06031 (C).

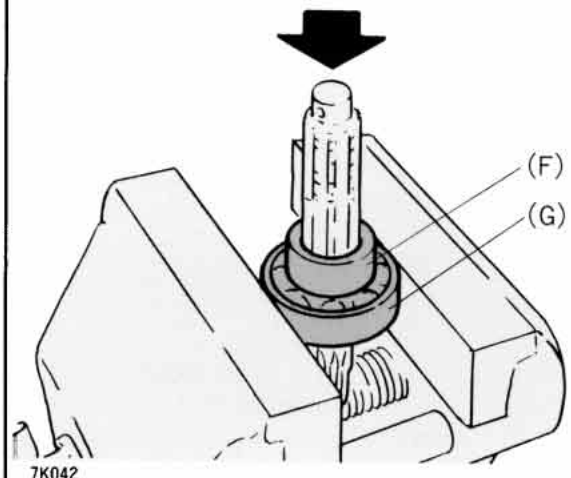


7K040



7K041

2. To remove driven gear and ball bearing (D), remove the bearing from PTO shaft using bearing wedge 897701-06030 (E) or two screwdrivers, and remove driven gear from PTO shaft.



7K042

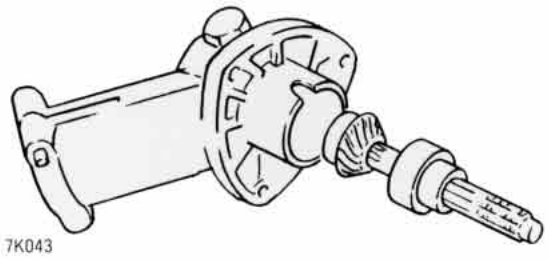
3. If PTO shaft or the ball bearing (G) is damaged, clamp the bearing (G) with a vise and push out PTO shaft to remove the bearing and spacer (F).

4. Install a new ball bearing and spacer respectively to PTO shaft using oil seal tool 897714-06031 (C).

5. Install driven gear to PTO shaft.

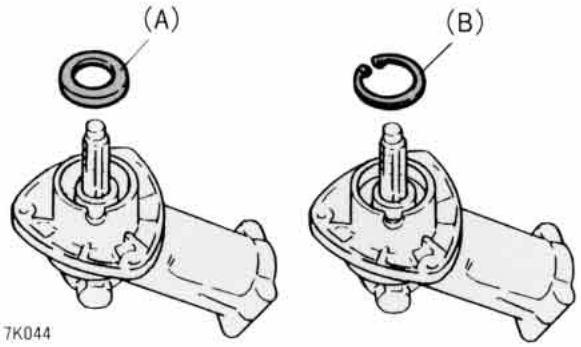
6. Insert PTO shaft in ball bearing until the end of the shaft is flush with the bearing.

7-4 Assembling gear housing


7K043

For SRM-1500, SRM-1501, SRM-2010, SRM-2300, SRM-2301.

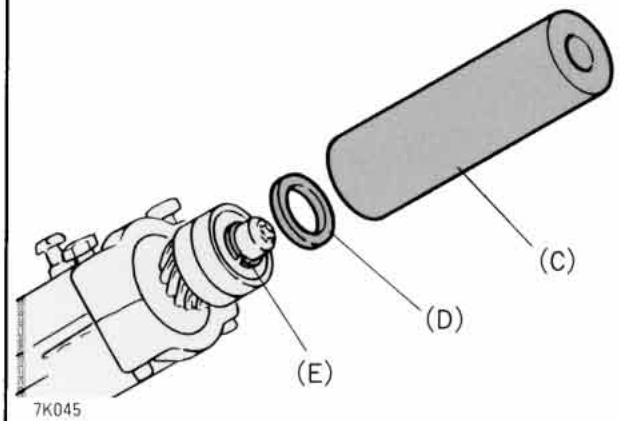
1. Insert assembled PTO shaft into gear housing until it bottoms.



7K044

2. Install oil seal (A) in gear housing until it bottoms.

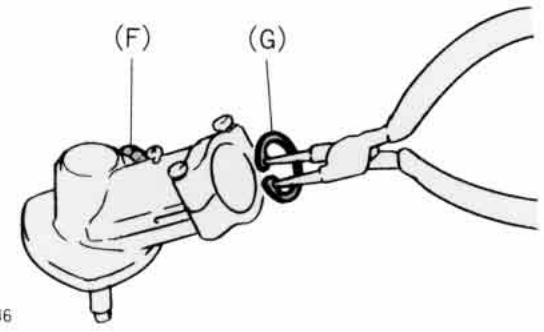
3. Install circlip (B) to the groove of gear housing using circlip pliers.



7K045

4. Insert drive gear assembly (with two ball bearing and shim) into gear housing using washer 900600-00012 (D) and oil seal tool 897714-06031 (C).

NOTE: Put washer (D) around clip (E) on drive gear. Then put drive gear with bearings and the washer in the gear housing and press the gear into the housing until it bottoms using the oil seal tool. Do not forget to remove the washer from drive gear.

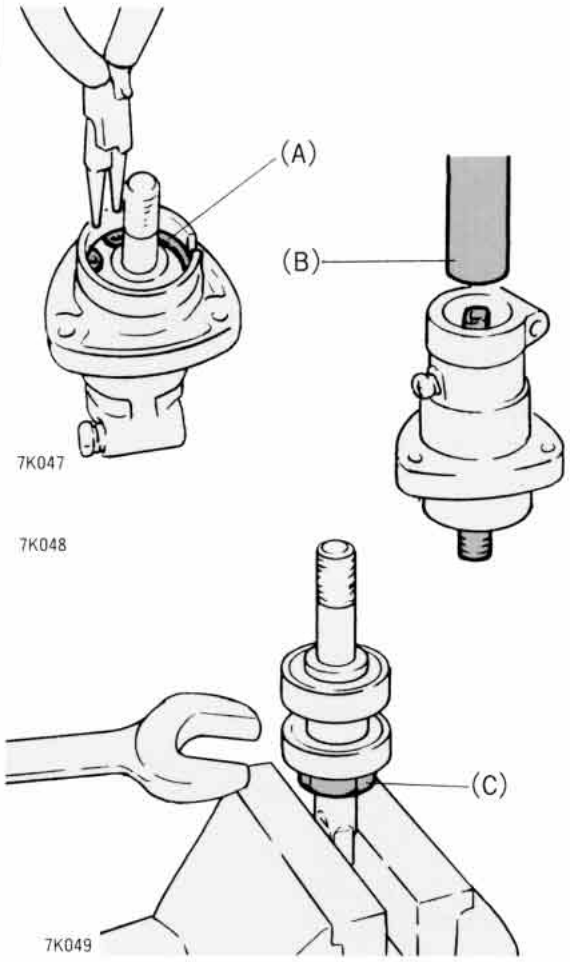


7K046

5. Install circlip (G) to the groove of gear housing using circlip pliers.

6. Loosen bolt (F) and fill gear housing with about 20 grams (0.7 oz) of grease (all purpose lithium based grease).

7-5 Checking bearing housing



For GT-1100, GT-2101, and GT-2102.

1. Check bearing housing and PTO shaft if cracked or does not rotate smoothly, replace as bearing housing assembly.

For GT-2010

1. Check bearing housing and PTO shaft if cracked or does not rotate smoothly. Disassemble bearing housing and replace defective parts as follows.

2. Remove cutter and fitting plate, and bearing housing from drive shaft housing.

3. Remove circlip (A) using circlip pliers.

4. Push PTO shaft out from gear housing using following size of pusher (B).

Diameter: 10 ~ 20 mm (2/4 ~ 3/4 in)
Length: more than 30 mm (1 and 1/4 in)

5. Hold PTO shaft firmly with vise and remove nut (C) (left hand thread) from the shaft.

NOTE: Do not pinch the shaft overtightly to avoid deformation of the shaft.

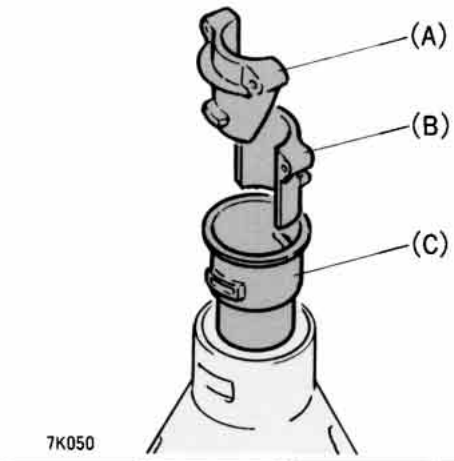
6. Remove ball bearings and spacer.

7. Check and replace ball bearings or the shaft if defective.

8. Install ball berings, spacer, and nut.

9. Install PTO shaft into gear housing.

7-6 Replacing rubber cushion



For SRM-1501, SRM-2300, and SRM-2301.

1. Remove clutch case from engine, and remove two holders and rubber cushion.

2. Install a new rubber cushion (C). If it is tight, apply soapy water to the cushion.

3. Reinstall large holder (B) first and small holder (A).

8 MAINTENANCE GUIDE

8-1 Service intervals

Check point	Service	Reference	Intervals		
			Daily	Weekly	Monthly
Screws, bolts, and Nuts	Inspect and tighten		○		
Fuel line	Inspect		○		
Lead connections	Inspect		○		
Air filter	Clean	4-1, p.20	○		
Fuel cap/strainer	Clean	4-2, p.20	○		
Cooling air passage	Clean	6-1, p.33	○		
Cutter	Inspect and sharpen		○		
Starter rope	Inspect	2-2, p.8		○	
Spark plug	Check	3-3, p.13		○	
Carburetor adjustment	Readjust	4-4, p.22			○
Clutch	Inspect	5-1, p.29			○
Clutch drum	Clean	5-2, p.31			○
Muffler	Check	6-2, p.34			○
Cylinder compression	Test	6-3, p.34			○
Gear/Bearing housing	Grease		Every 50 hours of use		

8-2 Troubleshooting guide

TROUBLE	
Engine does not crank.	01
Engine does not start.	02
Fuel leaks.	03
Idling is not stable.	04
Acceleration is poor.	05
Engine stalls at high speed.	06
Engine lacks power.	07
Engine overheats.	08
Engine misfires.	09
Engine is extremely noisy.	10
Fuel consumption is excessive.	11
Vibration is excessive.	12
Cutter does not rotate.	13
Cutter does not cut well.	14
Engine does not stop.	15

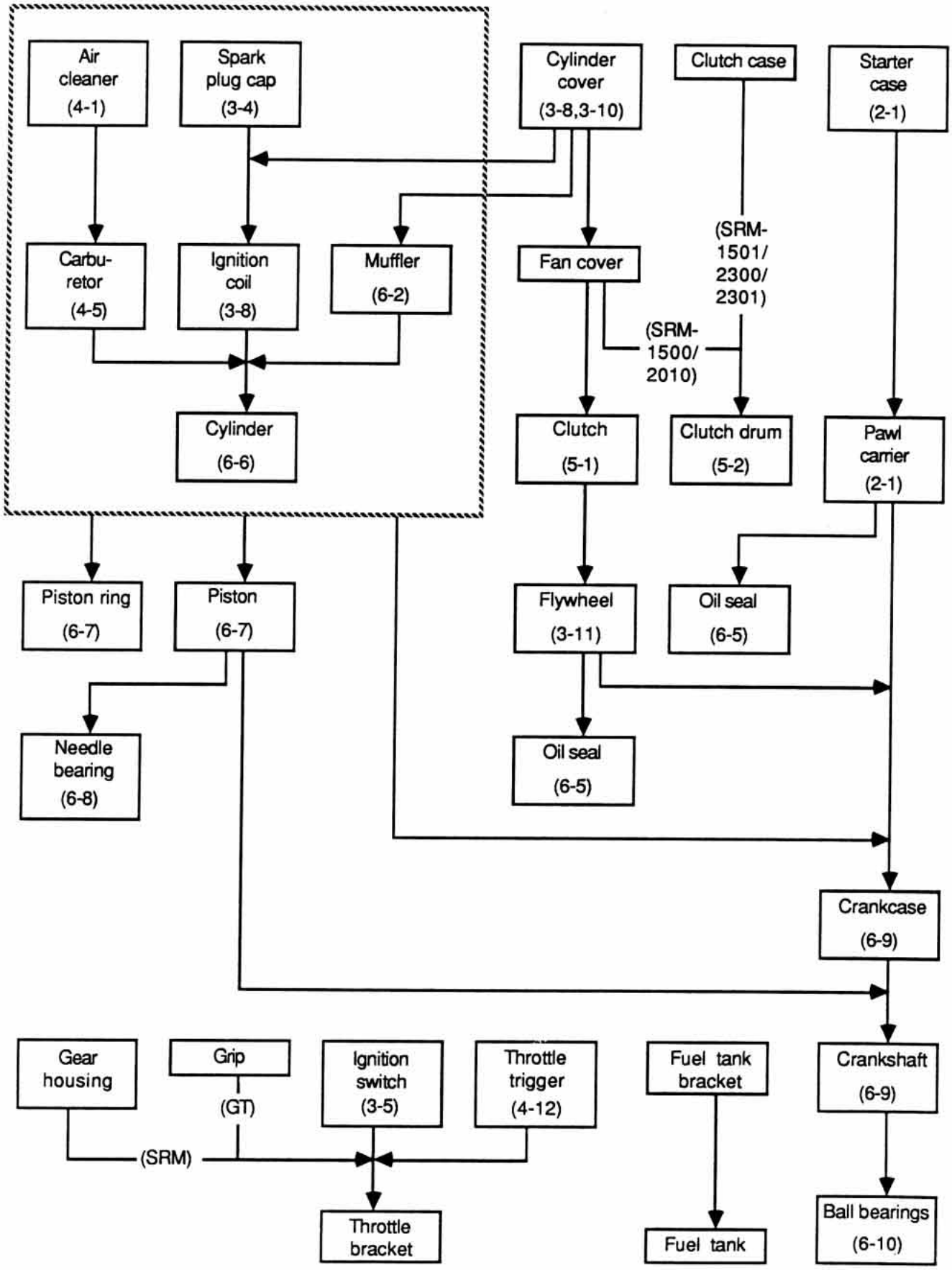
CHECKING	REFERENCE		Check ◎ first												
Starter system			15	14	13	12	11	10	09	08	07	06	05	04	03	02	01
Starter pawl/spring	2-1	p.7															◎
Rewind spring	2-4	p.9															○
Ignition system			15	14	13	12	11	10	09	08	07	06	05	04	03	02	01
Sparks	3-2	p.13							◎			○	○	○		◎	
Spark plug	3-3	p.13	○						○			○	○	○		○	
Spark plug cap/coil	3-4	p.14							○							○	
Ignition switch	3-5	p.14	◎						○							○	
Ignition coil	3-8	p.16							○			○	○	○		○	
Pole shoe air gaps	3-10	p.16							○					○			○
Flywheel	3-11	p.17							○		○			○			

(Continued)

(Continued)

CHECKING	REFERENCES		Check ◎ first.													
Fuel system/Carburetor			15	14	13	12	11	10	09	08	07	06	05	04	03	02	01
Air filter	4-1	p.20					○				○	○	○	○			
Fuel cap/strainer	4-2	p.20								○	○	○	○	○			
Fuel tank/vent	4-3	p.21									○	○	○	○	○		
Carburetor adjustment	4-4	p.22					◎			○	◎	◎	◎	◎		○	
Carburetor pressure	4-5	p.23					○				○	○	○	○	○	○	
Carburetor metering lever	4-6	p.24					○				○	○	○	○	○	○	
Carburetor inlet needle valve	4-7	p.24					○					○	○	○	◎	○	
Welch plug	4-9	p.25								○			○	○	○		
Throttle trigger/wire	4-12	p.27											○	○			
Compression/Exhaust system			15	14	13	12	11	10	09	08	07	06	05	04	03	02	01
Muffler/Exhaust port	6-2	p.34						◎			○	○	○				
Cylinder compression	6-3	p.34	○					○		○	○			○		○	
Crankcase sealings	6-4	p.35								○	○	○		○		○	
Cylinder	6-6	p.36	○					○		○	○			○			
Piston/ring	6-7	p.36	○					○		○	○			○		○	○
Crankshaft	6-9	p.37				○			○					○		○	
Crankcase ball bearings	6-10	p.38									○			○		○	○
Clutch/Cutter drive system			15	14	13	12	11	10	09	08	07	06	05	04	03	02	01
Clutch shoes/springs	5-1	p.29		○		○		○						○			
Clutch drum	5-2	p.31		○		○		○						○			
Drive shaft	7-1	p.40		○	◎	○											
Gears/bearings	7-3	p.41		○	○	○											
Cushion rubber	7-6	p.44				○											
Others			15	14	13	12	11	10	09	08	07	06	05	04	03	02	01
Cooling air passage	6-1	p.33								◎	○						
Cutter	Replace			◎		○											
Cutter mounting	Retighten					◎											

8-3 Disassembly chart



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