SERVICE MANUAL
BF75
BF8A
BF100

PREFACE

This manual covers service procedures for the HONDA BF75and BF100 Ouboard Motors, serial numbers 1000004 and subsequent.

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DISASSEMBLY AND SERVICE 4
CONSTRUCTION AND FUNCTION 5
SUPPLEMENT BF 75 · BF 100 6
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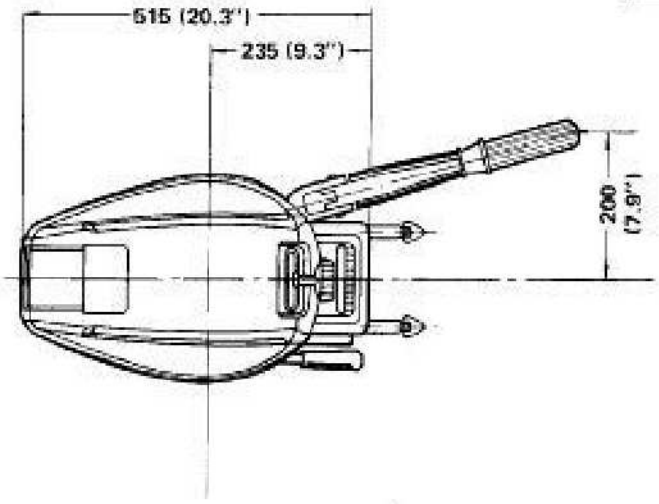
1. SPECIFICATIONS 2. DIMENSIONAL DRAWINGS

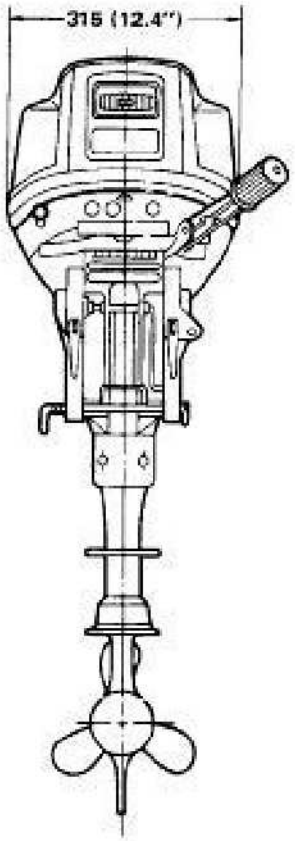
1. SPECIFICATIONS

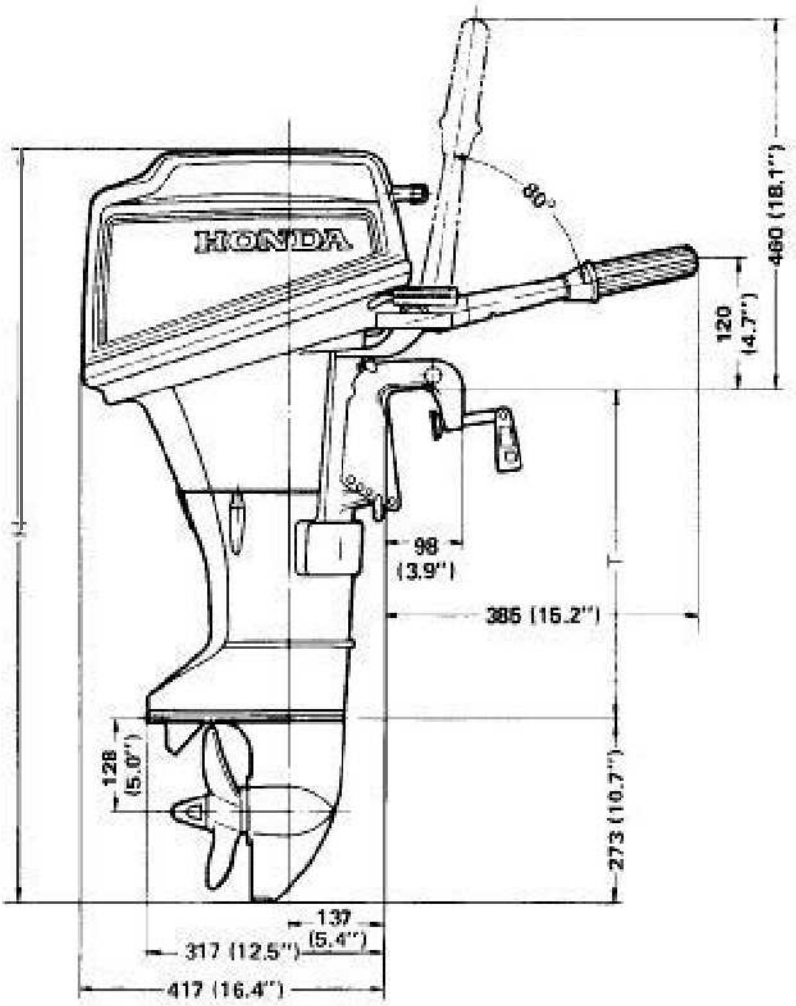
Dimensions · Weight				
	BF 75 Short	BF 75 Long	BF 100 Short	BF 100 Long
Overall length	515 mm (20.3 in)	←	←	←
Overall width	315 mm (12.4 in)	←	←	←
Overall height	1,010 mm (39.8 in)	1,160 mm (45.7 in)	1,010 mm (39.8 in)	1,160 mm (45.7 in)
Dry weight	34 kg (75.0 lb)	35 kg (77.2 lb)	34 kg (75.0 lb)	35 kg (77.2 lb)
Operating weight (incld. oil)	35 kg (77.2 lb)	36 kg (79.4 lb)	35 kg (77.2 lb)	36 kg (79.4 lb)
Transom height	422 mm (16.6 in)	572 mm (22.5 in)	422 mm (16.6 in)	572 mm (22.5 in)
Transom angle	4-stage (0° – 3° – 13° – 16°)			
Tilting	2-stage (22.5° – 72°)			
Swivel angle	R: 45°, L: 45°			
Engine				
Type	2 cylinder, in-line, 4 stroke, water-cooled, OHC			
Total piston displacement	197 cc (12.0 cu in)			
Bore x stroke	56 x 40 mm (2.20 x 1.57 in)			
Maximum horsepower	7.5 ps (7.4 hp)/5,200 rpm	←	8.9 ps (8.8 hp)/5,700 rpm	←
Maximum torque	110 kg-cm (7.96 ft-lb)	←	130 kg-cm (9.40 ft-lb)	←
Compression ratio	8.8 : 1			
Fuel consumption ratio	270 g/ps-h (0.60 lb/hp-h)			
Cooling system	Forced water circulation by impeller pump with thermostat			
Ignition system	Engine serial number 1000004–1199999: Flywheel magneto			
	Engine serial number 1200001 and subsequent: CDI			
Ignition timing	15° – 35° B.T.D.C.			
Spark plug	DR-5HS (NGK) (Standard)			
Carburetor	Horizontal type, butterfly valves			
Advance type	Centrifugal spark advance			
Lubrication system	Pressure lubrication by trochoid pump			
Lubricant capacity	0.82 (0.85 US qt, 0.70 Imp qt) (SAE 10W-40 Service Classification SE or SF)			
Starting system	Recoil starter			
Stopping system	Grounding of primary circuit			
Fuel	Regular automotive gasoline			
Fuel tank capacity	13ℓ (3.4 US gal, 2.9 Imp gal)			
Fuel pump	Diaphragm type			
Exhaust system	In-water type			
Lower Unit				
Clutch	Dog clutch (Forward – Neutral – Reverse)			
Gear ratio	12 : 29			
Gear case oil capacity	0.23ℓ (0.48 US pt)			
Propeller				
No. of blades-Dia. x Pitch	3 – 240 mm x 220 mm (3 – 9-1/2 x 8-3/4 in)			
Rotating direction	Clockwise (viewed from rear)			

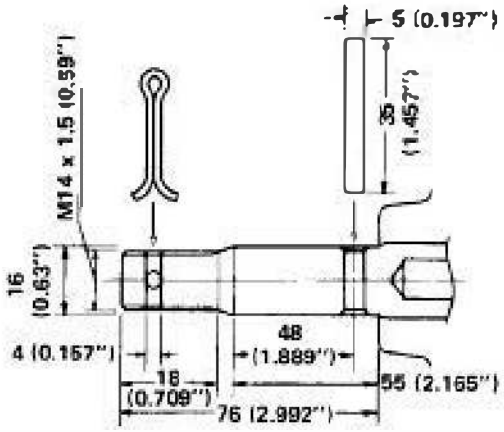
2. DIMENSIONAL DRAWINGS

	H: HEIGHT	T: TRANSOM HEIGHT
BF 75S BF 100S	1,010 mm (39.8 in)	422 mm (16.6 in)
BF 75L BF 100L	1,160 mm (45.7 in)	572 mm (22.5 in)









II. SERVICE INFORMATION

1. GENERAL SAFETY
2. SERVICE RULES
3. SERIAL NUMBER LOCATION
4. MAINTENANCE STANDARD
5. TORQUE VALUES
6. SPECIAL TOOLS
7. WIRING DIAGRAM
8. TUBING LAYOUT
9. TROUBLESHOOTING
10. MAINTENANCE SCHEDULE
11. RECOMMENDED SERVICE MATERIALS
12. ALTERNATE PROPELLERS
13. LUBRICATION CHART

1. GENERAL SAFETY

Pay attention to these symbols and their meaning:

WARNING Indicates a strong possibility of severe personal injury or loss of life if instructions are not followed.

CAUTION: Indicates a possibility of personal injury or equipment damage if instructions are not followed.

WARNING

If the motor must be running to do some work, make sure the area is well ventilated. Never run the engine in a closed area. The exhaust contains poisonous carbon monoxide gas.

WARNING

Gasoline is extremely flammable and is explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.

CAUTION:
Keep away from rotating or hot parts and high tension wires when the engine is run with the cover off.

CAUTION:
Make sure the water level is above the anti-cavitation plate when testing the unit in a tank. Otherwise the pump will be destroyed and the engine will overheat.

2. SERVICE RULES

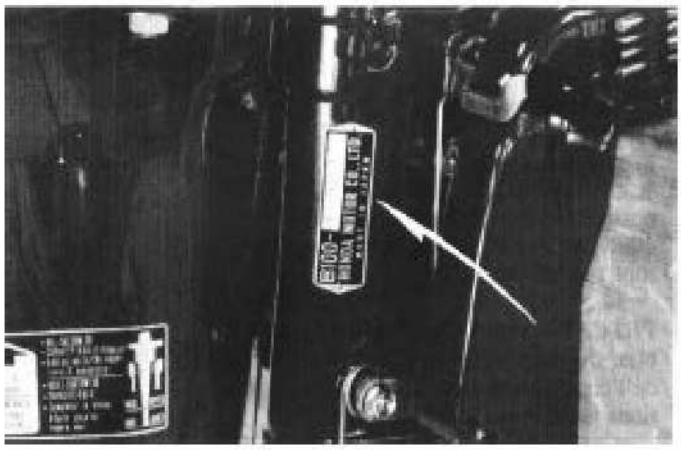
1. Use genuine Honda or Honda-recommended parts and lubricants or their equivalents. Parts that do not meet Honda's design specifications may damage the unit.
2. Use the special tools designed for the product.
3. Install new gaskets, O-rings, etc. when reassembling.
4. When torquing bolts or nuts, begin with larger-diameter or inner bolt first and tighten to the specified torque diagonally, unless a particular sequence is specified.
5. Clean parts in cleaning solvent upon disassembly. Lubricate any sliding surfaces before reassembly.
6. After reassembly, check all parts for proper installation and operation.
7. Follow the instructions represented by these symbols when they are used:

: Apply grease.

: Apply oil.

3. SERIAL NUMBER LOCATION

The serial number is stamped on the name plate attached to the swivel case. Always specify this number when inquiring or ordering parts in order to get correct parts for the unit being serviced.



4. MAINTENANCE STANDARDS

Item			Standard	Service Limit
Engine	Idle speed		1,200 ± 100 rpm (in neutral)	
	Cylinder compression	BF75	10.0 kg/cm² (142 lb/in²)/600 rpm	
		BF100	10.6 kg/cm² (151 lb/in²)/600 rpm	
Carburetor	Main jet		#88	
	Pilot screw opening		2-1/4 turns [1-3/4 turns]	
	Float height		10.0 mm (0.39 in)	
Thermostat	Opens		60°–70°C (140°–158°F)	
			[70°–80°C (158°–176°F)]	
	Valve lift		3–4 mm (0.12–0.16 in)	
Spark plug	Gap		0.6–0.7 mm (0.024–0.028 in)	
Valve	Valve tappet clearance (IN/EX)		0.06–0.1 mm (0.02–0.004 in)	
	Valve stem O.D.	IN	5.5 mm (0.22 in)	5.08 mm (0.2 in)
		EX	5.5 mm (0.22 in)	4.75 mm (0.187 in)
	Valve guide I.D.		5.5 mm (0.22 in)	5.54 mm (0.218 in)
	Valve seat width		0.7 mm (0.03 in)	2.0 mm (0.079 in)
	Valve spring free length		28.9 mm (1.138 in)	27.4 mm (1.079 in)
Rocker arm	Rocker arm I.D.		13.0 mm (0.51 in)	13.06 mm (0.514 in)
	Rocker arm shaft O.D.		13.0 mm (0.51 in)	12.92 mm (0.509 in)
Camshaft	Cam height	IN BF75	26.6mm (1.04 in) [23.0 mm (0.91 in)]	26.25 mm (1.033 in) [22.75 mm (0.896 in)]
		BF100	25.2 mm (0.99 in) [25.0 mm (0.98 in)]	24.95 mm (0.982 in) [24.75 mm (0.974 in)]
		EX BF75	23.2 mm (0.91 in) [23.0 mm (0.91 in)]	22.95 mm (0.904 in) [22.75 mm (0.896 in)]
		BF100	26.2 mm (0.99 in) [25.0 mm (0.98 in)]	24.95 mm (0.982 in) [24.75 mm (0.974 in)]
	O.D. (at oil pump)		16.0 mm (0.63 in)	15.916 mm (0.627 in)
Oil pump	Body I.D.		23.0 mm (0.91 in)	23.23 mm (0.915 in)
	Inner rotor-to-outer rotor clearance		0.15 mm (0.006 in)	0.20 mm (0.008 in)
	Outer rotor-to-body clearance		0.15 mm (0.006 in)	0.26 mm (0.010 in)
Piston	O.D. (at skirt)		56.0 mm (2.2 in)	55.880 mm (2.2 in)
	Piston pin hole I.D.		14.0 mm (0.55 in)	14.048 mm (0.553 in)
	Piston pin O.D.		13.0 mm (0.55 in)	13.964 mm (0.549 in)
	Piston ring width	Top	1.6 mm (0.06 in)	1.36 mm (0.054 in)
		Second	1.5 mm (0.06 in)	1.37 mm (0.054 in)
		Oil	2.5 mm (0.10 in)	2.37 mm (0.093 in)
	Piston ring side clearance			
		Top	0.025 mm (0.001 in)	0.10 mm (0.004 in)
		Second	0.025 mm (0.001 in)	0.10 mm (0.004 in)
		Oil	0.015 mm (0.0006 in)	0.10 mm (0.004 in)
	Ring end gap	Top	0.15 mm (0.006 in)	1.0 mm (0.039 in)
		Second	0.15 mm (0.006 in)	1.0 mm (0.039 in)
		Oil	0.15 mm (0.006 in)	1.0 mm (0.039 in)
Cylinder	Sleeve I.D.		56.0 mm (2.2 in)	56.105 mm (2.211 in)
	Piston-to-cylinder clearance		0.010–0.055 mm (0.0004–0.0022 in)	
Connecting rod	Small end I.D.		14.0 mm (0.55 in)	14.070 mm (0.554 in)
	Big end radial clearance		0.04 mm (0.002 in)	0.083 mm (0.003 in)
	Big end axial clearance		0.6 mm (0.02 in)	1.3 mm (0.051 in)
Crankshaft	Crankpin O.D.		28.0 mm (1.10 in)	27.952 mm (1.100 in)
Propeller shaft	O.D. (at bevel gear)		17.0 mm (0.67 in)	16.930 mm (0.667 in)
	Bevel gear I.D.		17.0 mm (0.67 in)	17.06 mm (0.672 in)

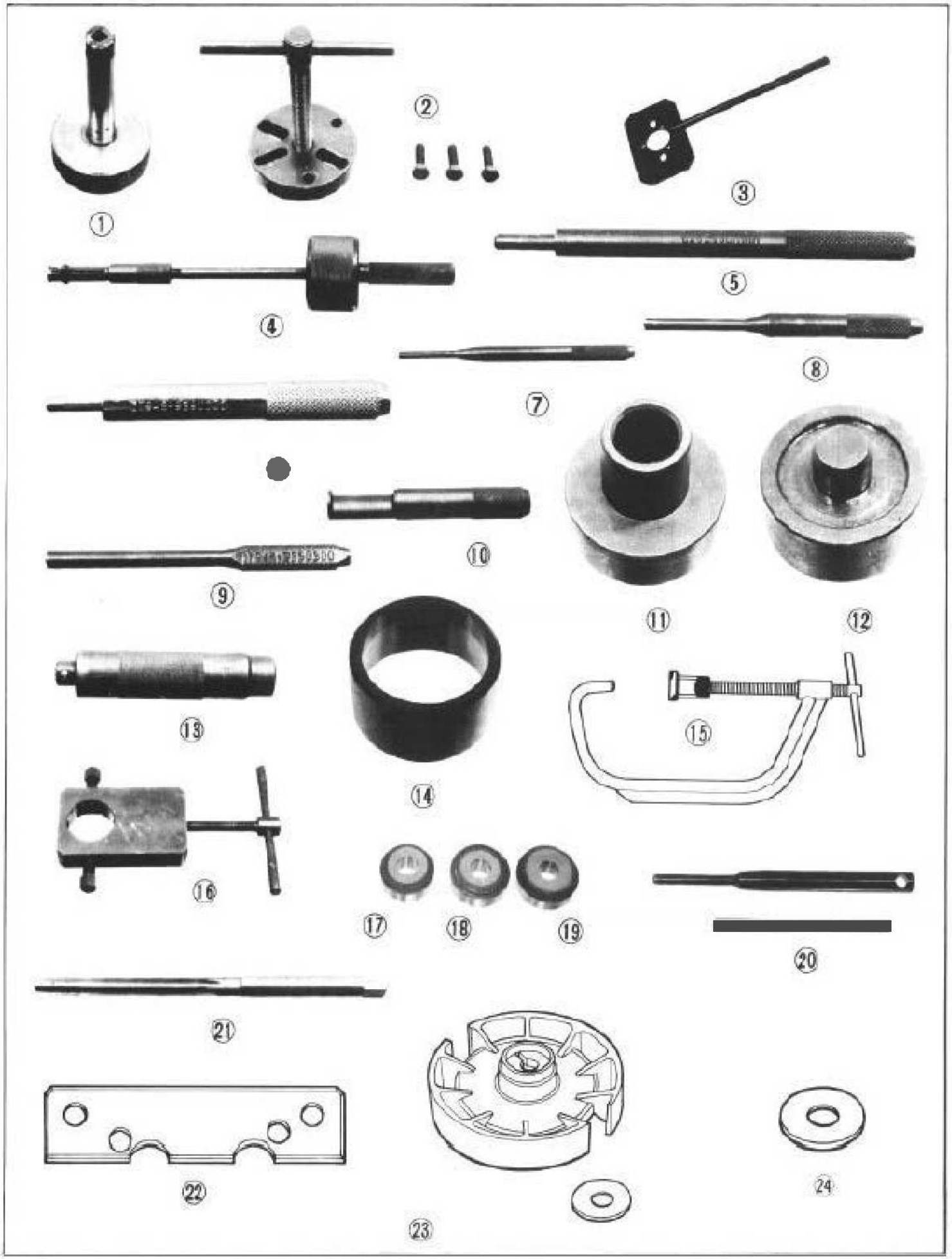
[ ] : Engine serial number range 1000004–1199999

5. TORQUE VALUES

Part	Fasteners	Torque (kg-m) (ft-lb)
Flywheel	14 mm nut	6.0–7.0 (43.4–50.6)
Timing pulley	24 mm nut	2.0–2.6 (14.5–18.8)
Cam pulley	6 mm bolt	0.8–1.2 (5.8–8.7)
Cylinder head	8 mm bolt	2.0–2.5 (14.5–18.1)
Crankcase	8 mm bolt	2.0–2.4 (14.5–17.4)
	6 mm bolt	0.9–1.2 (6.5–8.7)
Connecting rod	6 mm special bolt	0.9–1.1 (6.5–8.0)
Engine mounting	6 mm bolt	0.8–1.2 (5.8–8.7)
Pressure switch		0.7–1.0 (5.1–7.2)
Steering handlebar	Handlebar pivot screw	2.0–2.8 (14.5–20.2)
Standard torques	5 mm bolt and nut	0.4–0.7 (2.9–5.1)
	6 mm bolt and nut	0.8–1.2 (5.8–8.7)
	8 mm bolt and nut	2.0–2.8 (14.5–20.2)
	10 mm bolt and nut	3.5–4.0 (25.3–28.9)

6. SPECIAL TOOLS

Ref. No.	Tool No.	Tool Name	Application	Ref. Page
1	07708—0030400	Adjusting wrench B	Valve adjuster	25
2	07935—8950002	Flywheel puller	Flywheel(disassembly)	38
3	07925—8930000	Pulley holder or commercially available band strap wrench	Flywheel (dis/reassembly)	38
4	07936—8350001	Bearing remover set	6302 bearing (disassembly) Gear case needle roller bearing	43 46
5	07742—0010100	Valve guide remover	Valve guide (disassembly)	60
6	07942—8350000	Valve guide driver	Valve guide (assembly)	60
7	07944—8350100	2.5 mm Pin driver	Spring pin	
8	07944—8350200	4 mm Pin driver	Spring pin	78
9	07944—8350300	6 mm Pin driver	Spring pin	73
10	07945—8350001	Bearing remover	6203 bearing (disassembly) 17 mm water seal (disassembly)	76 76
11	07946—8350101	Attachment driver A	Coupling seal (assembly) 6203 bearing (assembly) 17 mm water seal (assembly)	79 79 79
12	07946—8350200	Attachment driver B	15 mm water seal (assembly) 6302 bearing (assembly)	80 82
13	07749—0010000	Driver handle	• Handle for tools (11) and (12)	
14	07955—8810000	Piston slider or commercially available piston ring compressor	Piston (assembly)	67
15	07757—0010000	Valve spring compressor	Valve cutter	59
16	07968—8350000	4 mm pin, pin flare tool	Shifter pin	86
17	07780—0010200	45° Cutter	Valve seat (refacing)	65
18	07780—0012100	Flat cutter (IN)	Valve seat (refacing)	65
19	07780—0012000	Flat cutter (EX)	Valve seat (refacing)	65
20	07781—0010100	Cutter holder	• Holder for cutters (17) and (19)	65
21	07984—2000000	Valve guide reamer (5.6 mm)	Valve guide (reaming)	60
22	07973—8810001	Water tube guide	Water tube (assembly)	81
23	07976—8810002	Test propeller, SPACER	For testing in water tank	
24	07979—8810010	SPACER		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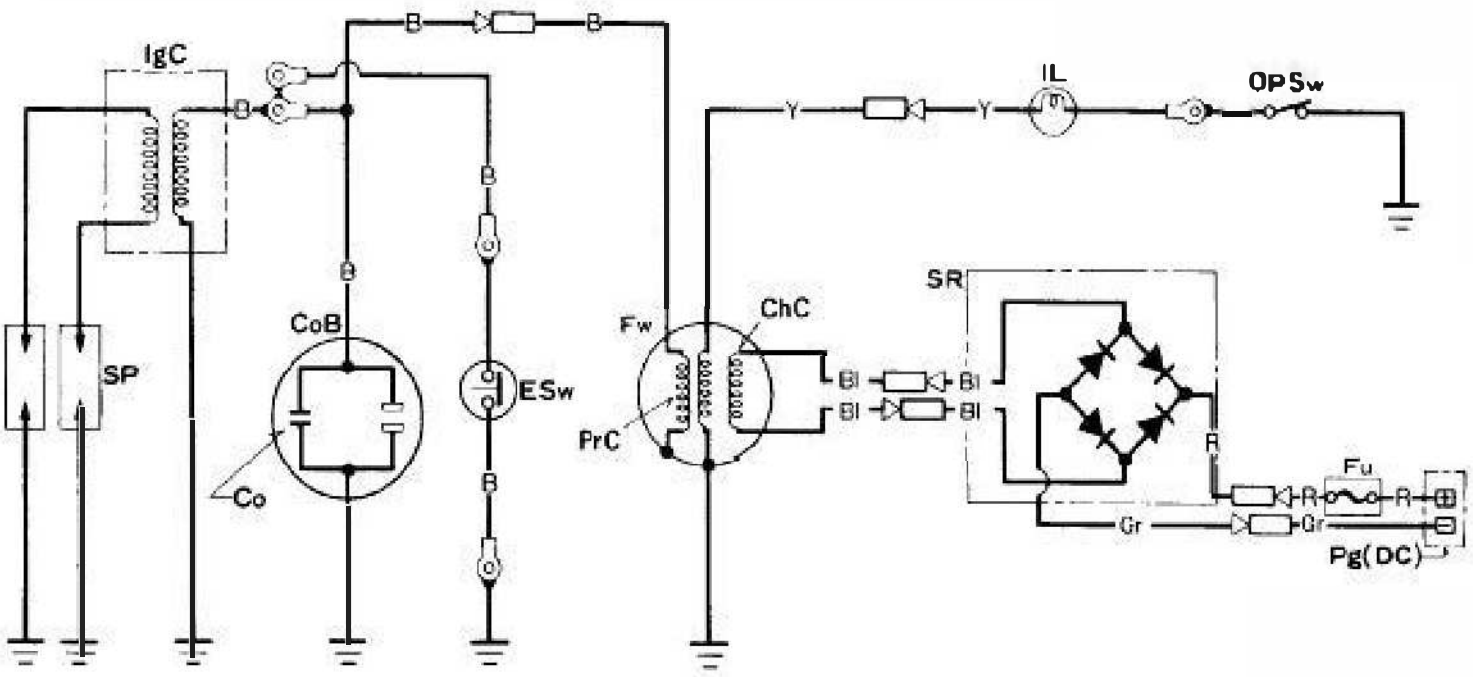
7. WIRING DIAGRAM

a. CONTACT BREAKER TYPE
(Engine serial number 1000004—1139999)

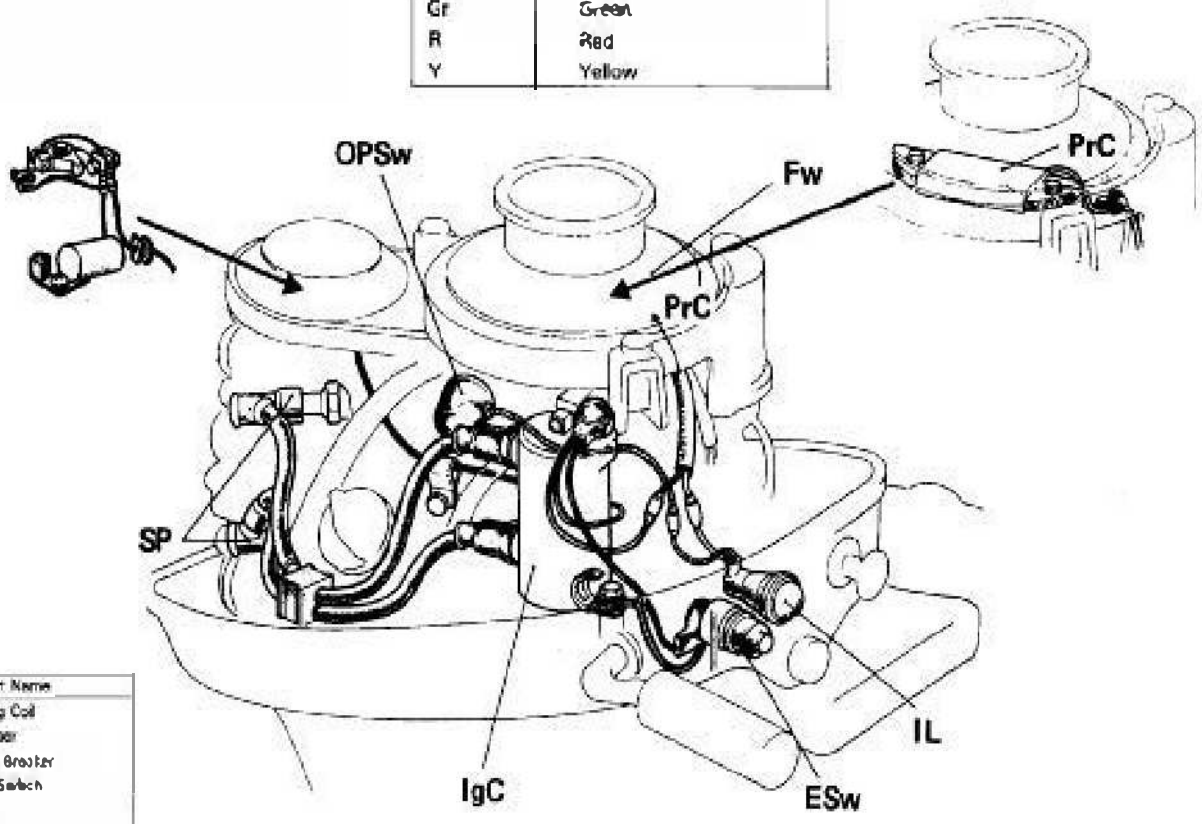


Code	Part Name
ChC	Charging Coil
Co	Condenser
C B	Contact Breaker
ESw	Engine Switch
Fu	Fuse
Fw	Flywheel
IgC	Ignition Coil
IL	Indicator Lamp
OPSw	Oil Pressure Switch
Pg (DC)	DC Output Plug
PrC	Primary Coil
SP	Spark Plug
SR	Silicon Rectifier

Code	Wire Color
B	Black
Bl	Blue
Gr	Green
R	Red
Y	Yellow

Engine serial number 1000004–1199999

Code	Wire Color
B	Black
Bl	Blue
Gr	Green
R	Red
Y	Yellow



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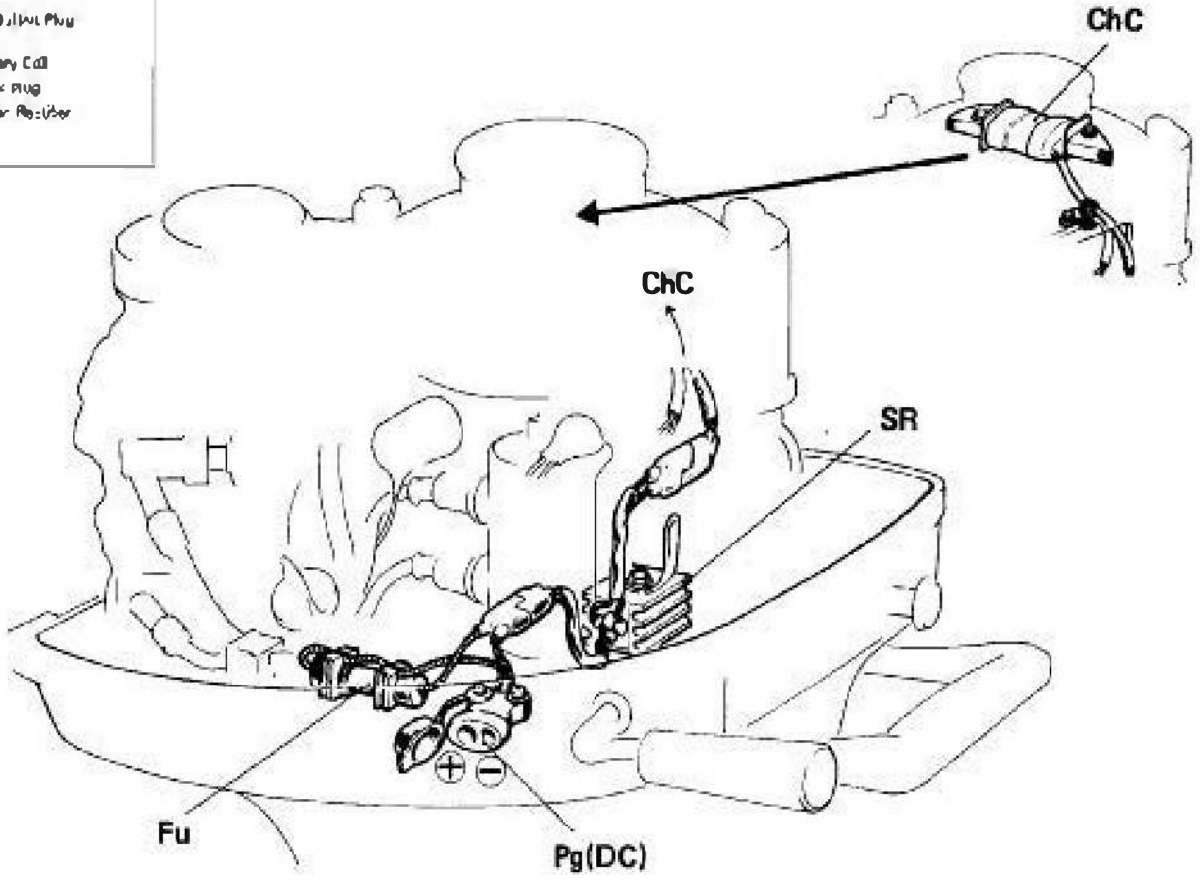
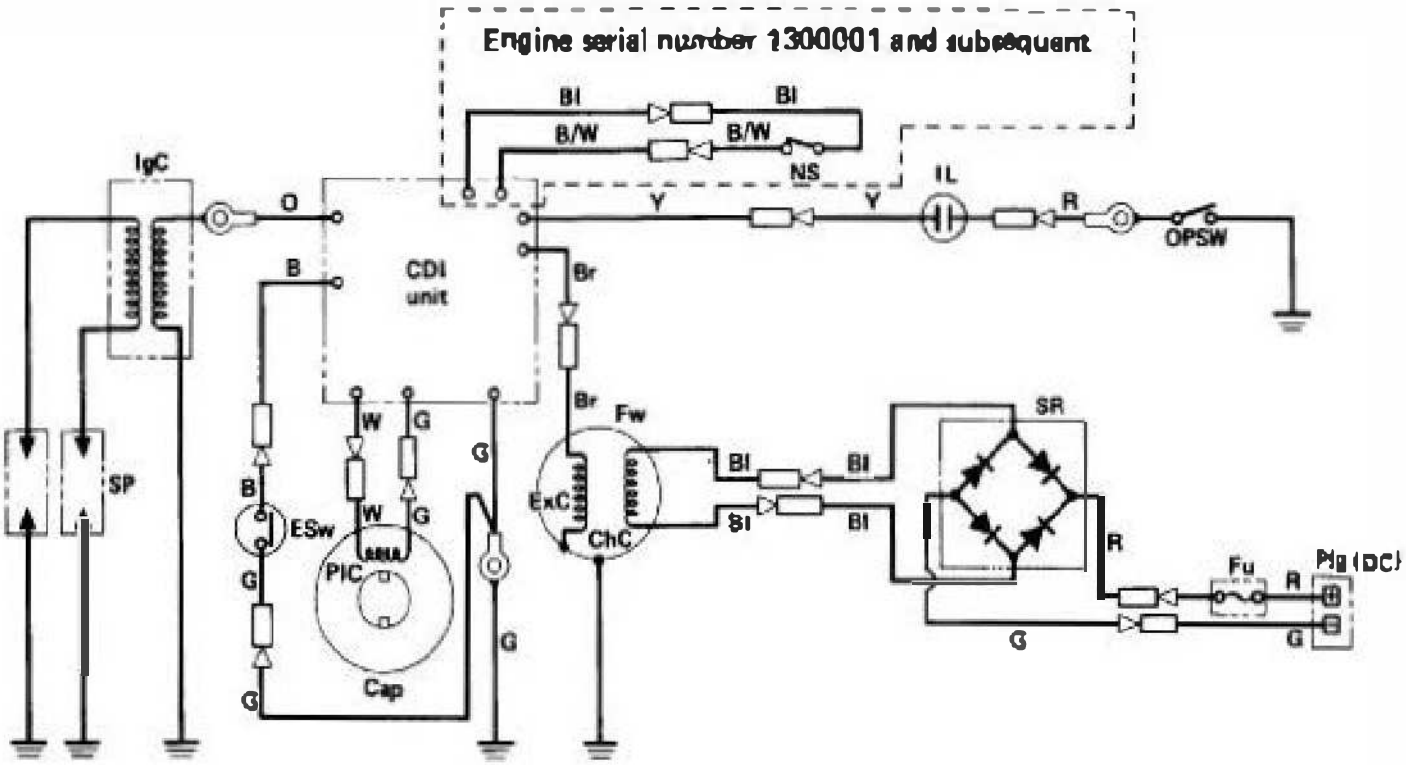


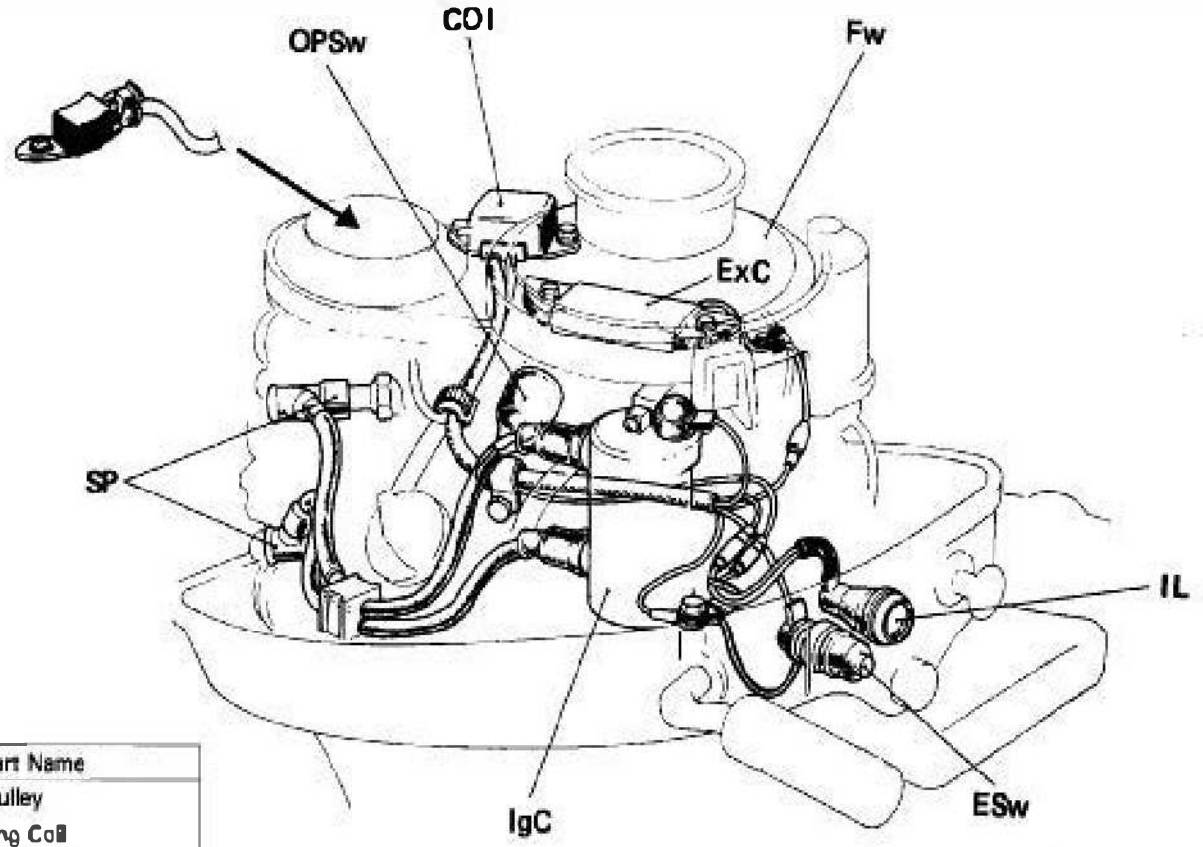
b. C.D.I. TYPE (Engine serial number 1200001 and subsequent)



Code	Part Name
Cap	Cam Pulley
ChC	Charging Coil
ESw	Engine Switch
ExC	Exciter Coil
Fu	Fuse
Fw	Flywheel
IgC	Ignition Coil
IL	Indicator Lamp
NS	Neutral Switch
Plg (DC)	DC Output Plug
PIC	Pulser Coil
SP	Spark Plug
SR	Silicon Rectifier
OPSw	Oil Pressure Switch

Code	Wire Color
B	Black
Bl	Blue
Br	Brown
G	Green
O	Orange
R	Red
W	White
Y	Yellow

- **Engine serial number 1200001–1299999**



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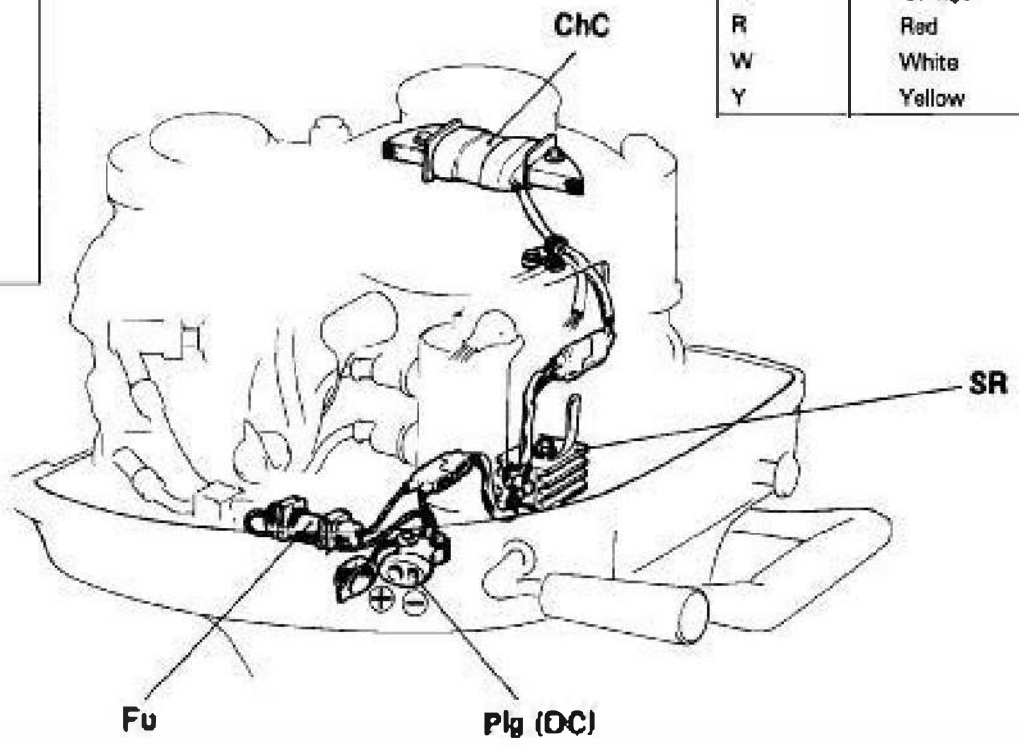
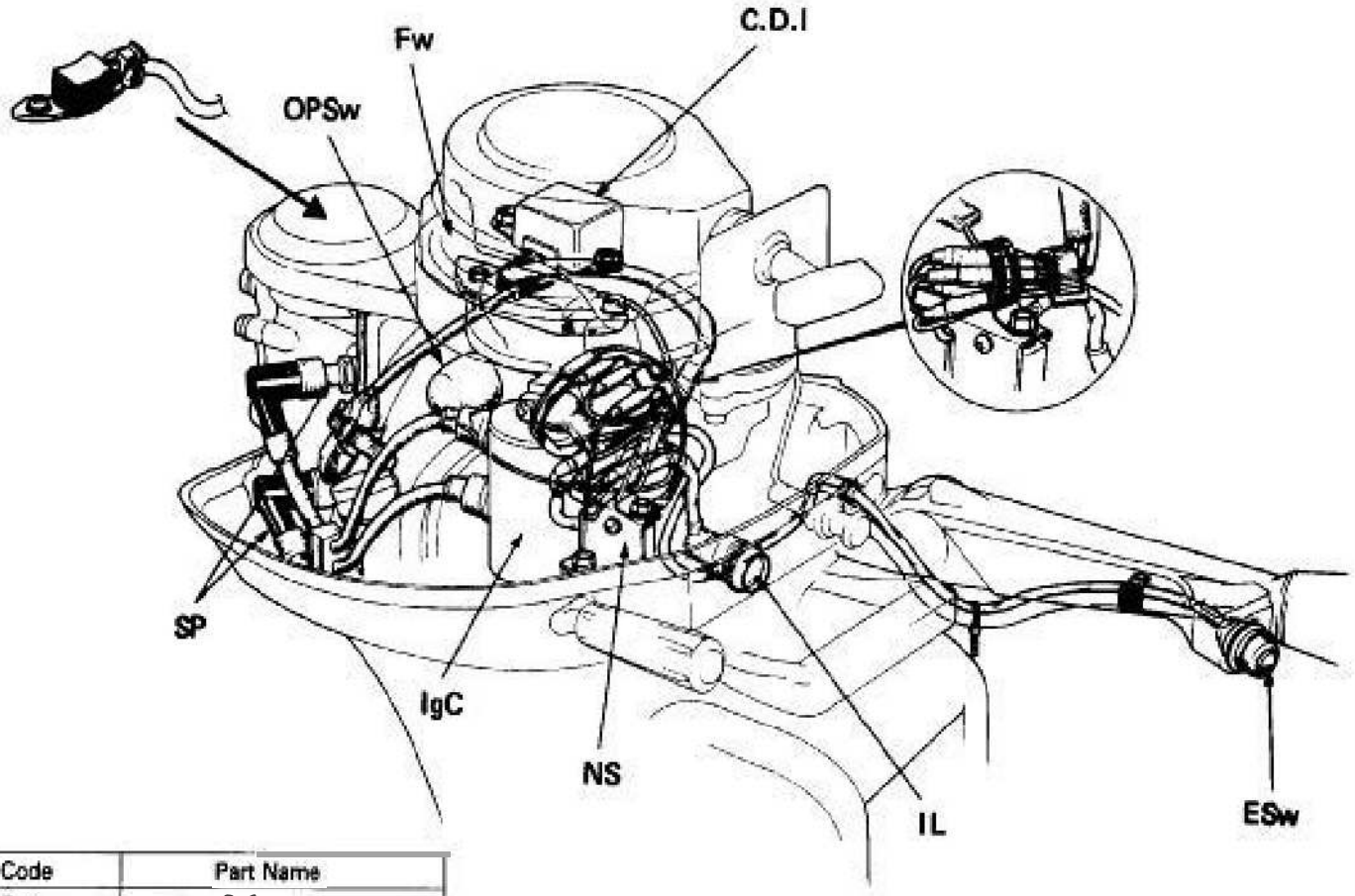


- **Engine serial numbers 1300001 and subsequent**



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SP	Spark Plug
SR	Silicon Rectifier
OPSw	Oil Pressure Switch

Code	Wire Color
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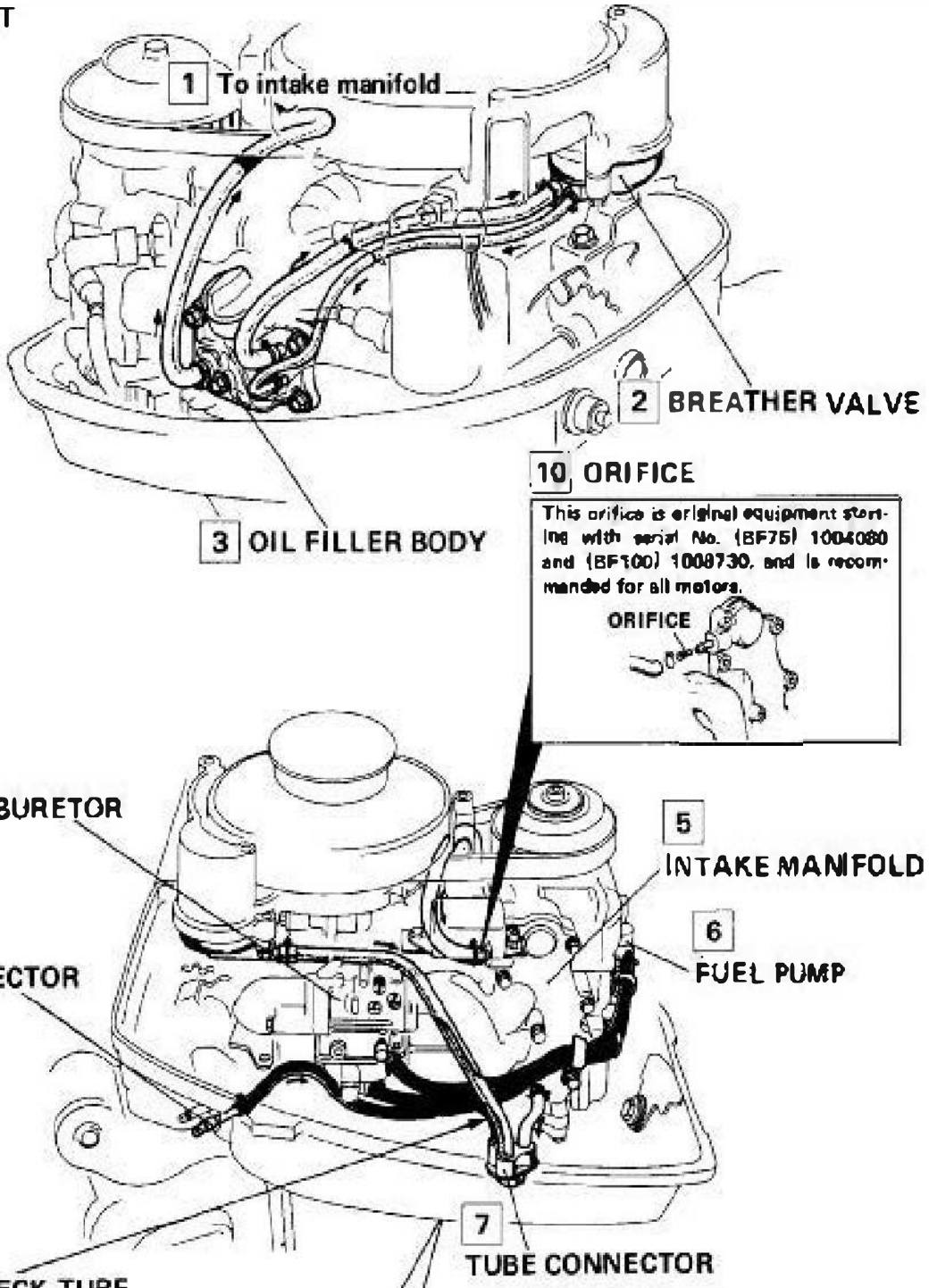
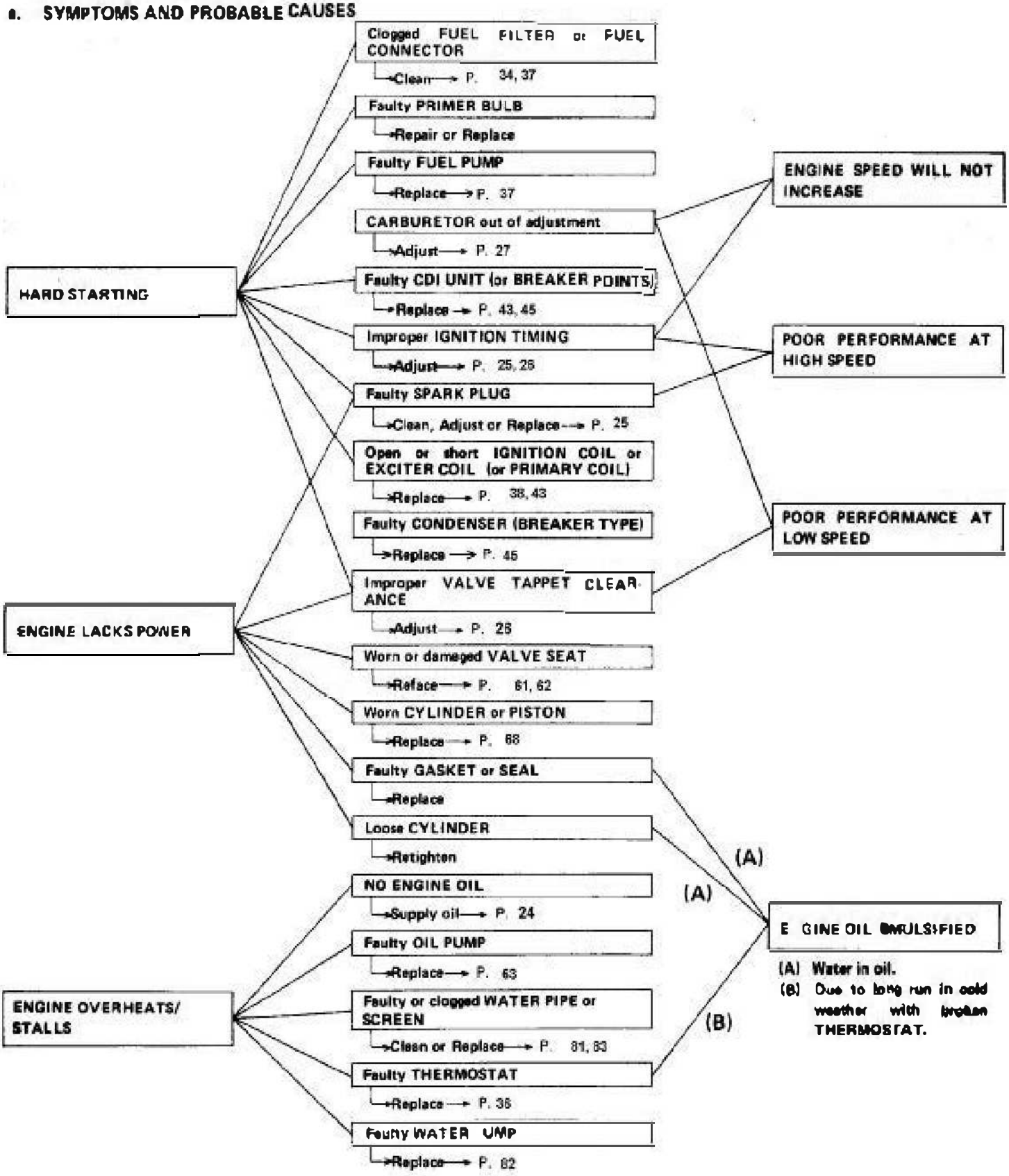
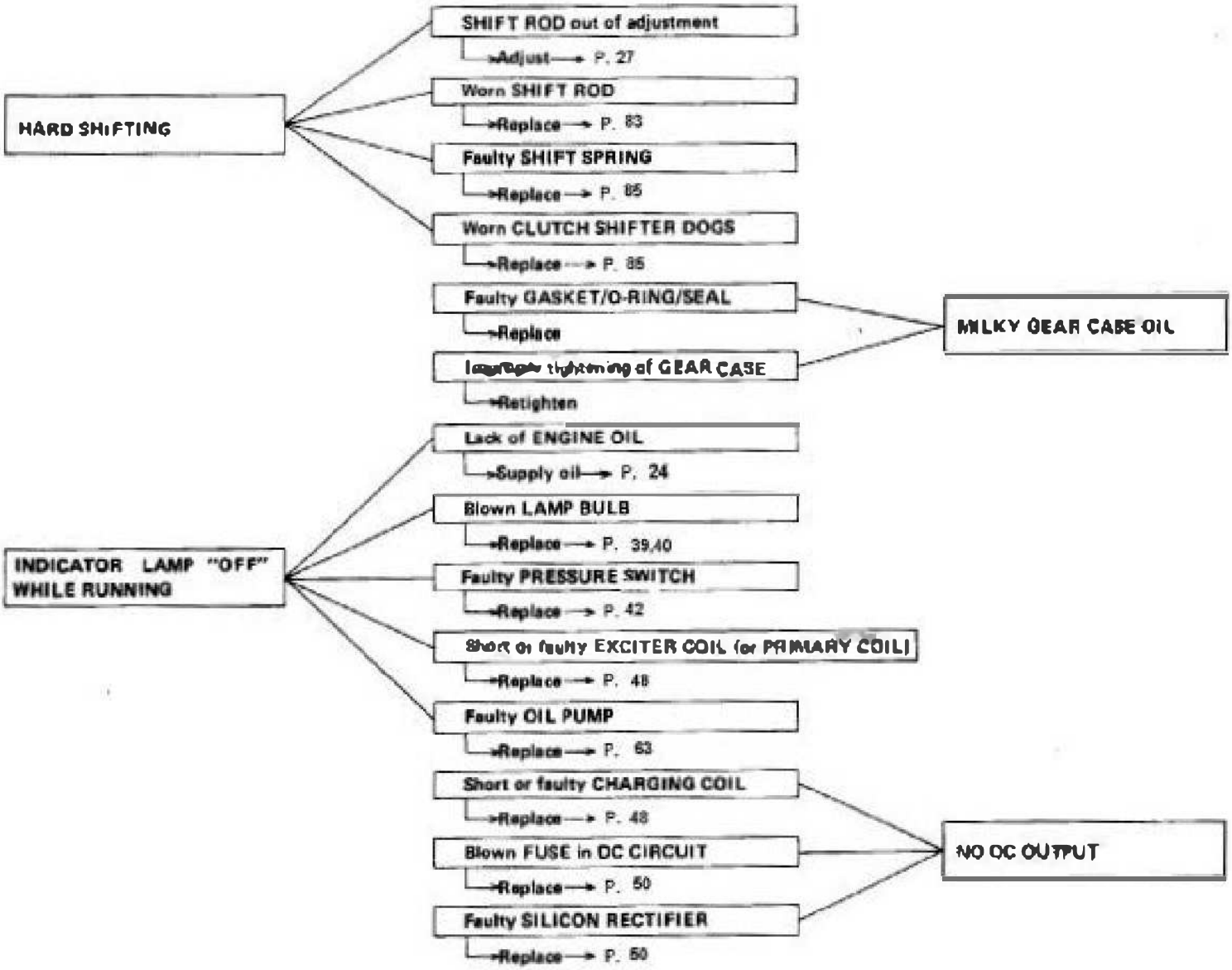
8. TUBING LAYOUT



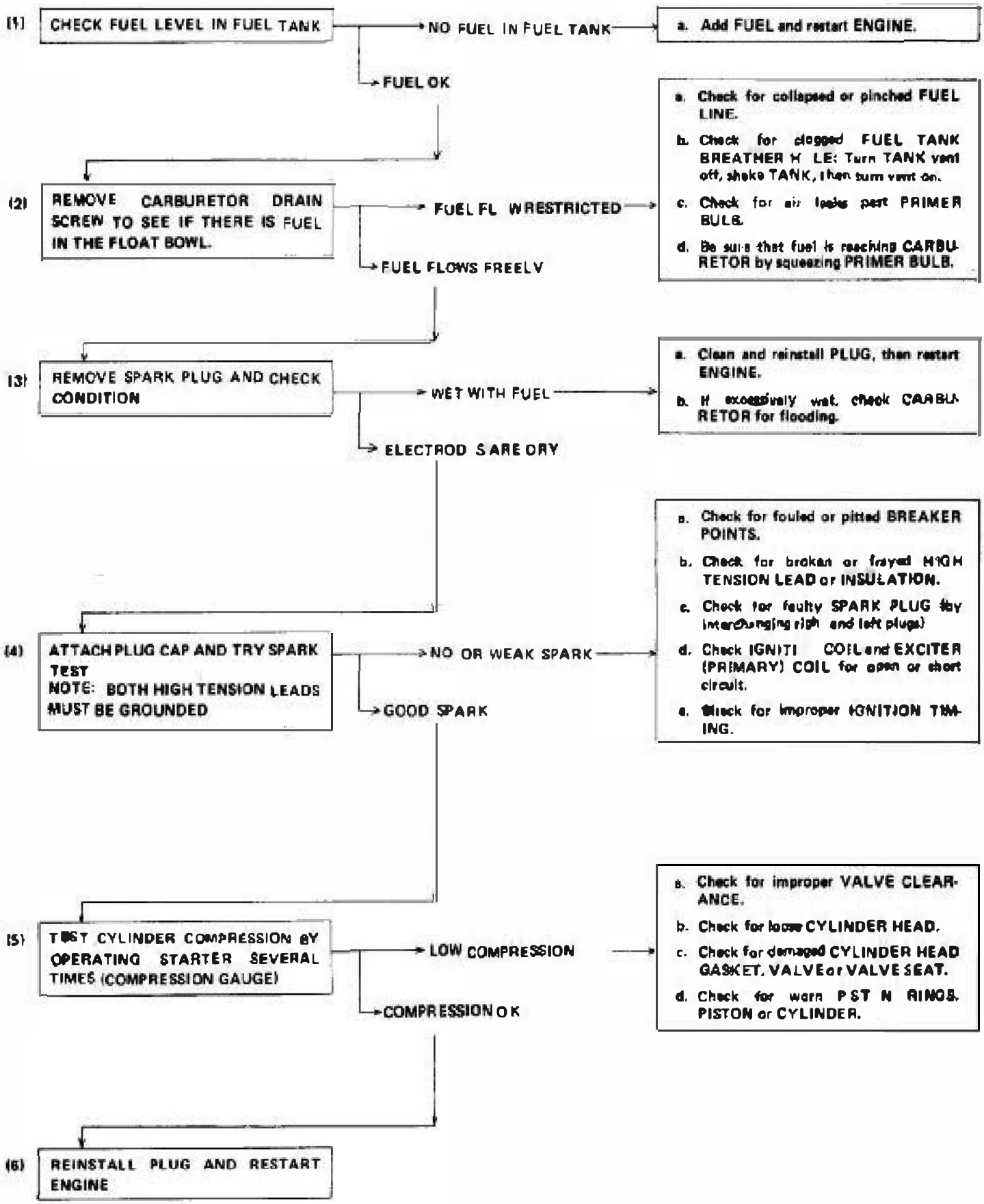
9. TROUBLESHOOTING

a. SYMPTOMS AND PROBABLE CAUSES




HARD SHIFTING
SHIFT ROD out of adjustment
→Adjust → P. 27
Worn SHIFT ROD
→Replace → P. 83
Faulty SHIFT SPRING
→Replace → P. 85
Worn CLUTCH SHIFTER DOGS
→Replace → P. 85
Faulty GASKET/O-RING/SEAL
→Replace
Loose tightening of GEAR CASE
→Retighten
MILKY GEAR CASE OIL
INDICATOR LAMP "OFF" WHILE RUNNING
Lack of ENGINE OIL
→Supply oil → P. 24
Blown LAMP BULB
→Replace → P. 39,40
Faulty PRESSURE SWITCH
→Replace → P. 42
Short or faulty EXCITER COIL (or PRIMARY COIL)
→Replace → P. 48
Faulty OIL PUMP
→Replace → P. 63
Short or faulty CHARGING COIL
→Replace → P. 48
Blown FUSE in DC CIRCUIT
→Replace → P. 50
Faulty SILICON RECTIFIER
→Replace → P. 50
NO DC OUTPUT

b. HARD STARTING



10. MAINTENANCE SCHEDULE

ITEM	Regular Service Period. Perform at every indicated month or operating hour interval, whichever occurs first.	First 15 hours or 1 Month	Every 100 hours or 6 Months	Every 200 hours or 1 Year	Ref. Page
ENGINE OIL	CHANGE	○	○		P. 24
GEAR CASE OIL	CHANGE	○		○	P. 24
GEAR CASE OIL	CHECK FOR WATER	EVERY 50 HOURS			P. 24
SPARK PLUG	CLEANING · ADJUST		○		P. 25
IGNITION TIMING (Contact breaker type only)	ADJUSTMENT	●		○	P. 25
VALVE TAPPET CLEARANCE	ADJUSTMENT	○		○	P. 26
CARBURETOR LINKAGE	CHECK	○	○		P. 34
FUEL FILTER	CHECK			○	P. 37
FUEL LINE	CHECK (Replace, if necessary)			○	
FUEL TANK	CLEANING			○	
THERMOSTAT	CHECK			○	P. 36
SHEAR PIN	CHECK		○		P. 79
LUBRICATION	GREASE		○		P. 23

11. RECOMMENDED SERVICE MATERIALS

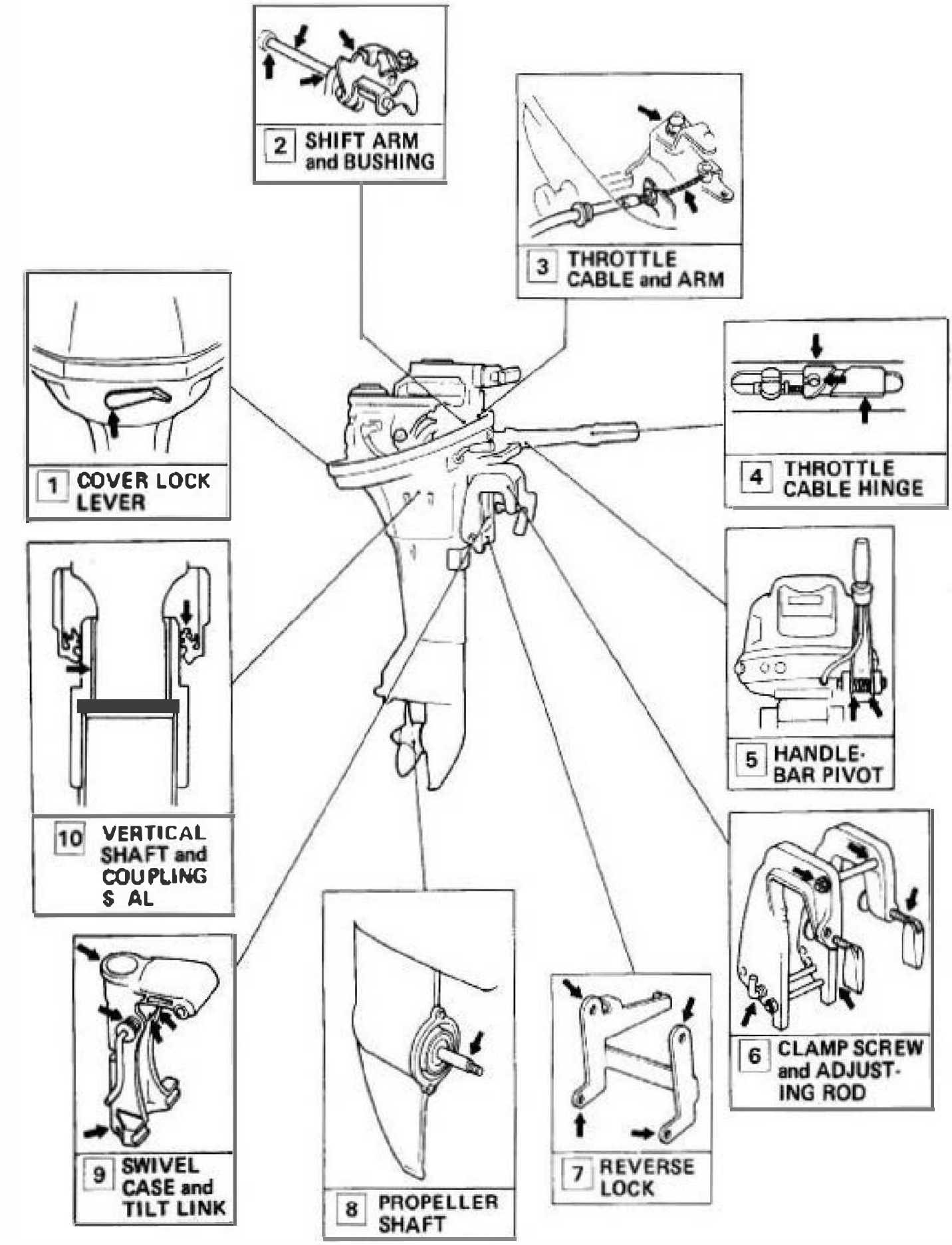
Types of Lubricants or Materials	Items to be Serviced	Brand	Remarks
OIL	ENGINE OIL PAN	SAE 10W–40 SE or SF Rated	Capacity: 0.8ℓ (1.85 US qt, 0.70 Imp qt)
	GEAR CASE	SAE 90 MARINE	Capacity: 0.23ℓ (0.49 US pt, 0.40 Imp pt)
PACKING	CRANKCASE EXTENSION CASE	THREE-BOND · 5TW	or equivalent
ADHESIVE	OIL FILLER BODY	CEMEDINE 521	or equivalent
	OIL FILTER	CEMEDINE 621	or equivalent
	OIL PRESSURE SWITCH	THREE-BOND · No. 50	or equivalent
	HANDLEBAR GRIP RUBBER	CEMEDINE 521	or equivalent
SEALER	BOLTS	LOCTITE	With anti–rust agent

12. ALTERNATE PROPELLERS

The following propellers, or their equivalents, may be used on this unit in place of the Honda part:

Manufacturer	Model	Dia. X Pitch (in)	Application
MICHIGAN	PJ–16	9 x 10	Light duty
MICHIGA	PJ–21	9 x 9	Medium duty
MICHIGAN	SMC–39	9-1/4 x 7	Heavy duty

13. LUBRICATION CHART



1. ENGINE OIL CHANGE
2. GEAR OIL CHANGE
3. SPARK PLUG CLEANING/ADJUSTMENT
4. IGNITION TIMING ADJUSTMENT
5. VALVE CLEARANCE ADJUSTMENT
6. CARBURETOR ADJUSTMENT
7. SHIFT ROD ADJUSTMENT
8. THROTTLE CABLE ADJUSTMENT
9. THROTTLE GRIP FRICTION ADJUSTMENT
10. STEERING HANDLEBAR FRICTION ADJUSTMENT
11. CYLINDER COMPRESSION CHECK
12. SPARK TEST

1. ENGINE OIL CHANGE

NOTE: Secure the unit vertically to change the oil.

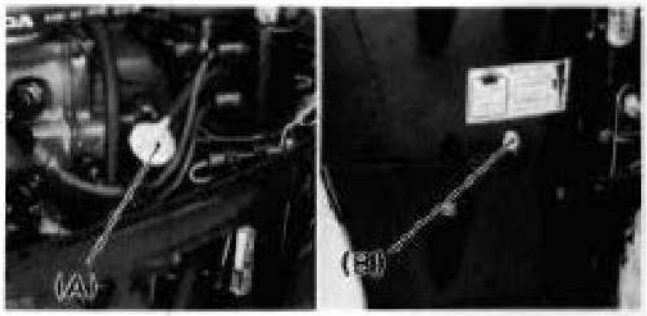
(1) Remove the oil filler cap and drain plug to drain oil thoroughly.

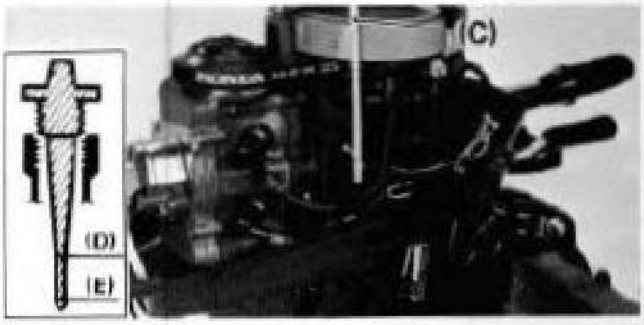
(2) Replace the drain plug and pour fresh oil up to the UPPER level mark on the filler cap/dipstick through the oil filler opening.

ENGINE OIL CAPACITY: 0.6ℓ (0.65 US qt, 0.70 Imp qt)

RECOMMENDED OIL: SAE 10W–40: API Service Classification SE or SF

(A) OIL FILLER CAP/DIPSTICK
(B) DRAIN PLUG
(C) OIL LEVEL GAUGE
(D) UPPER LIMIT
(E) LOWER LIMIT





2. GEAR OIL CHANGE

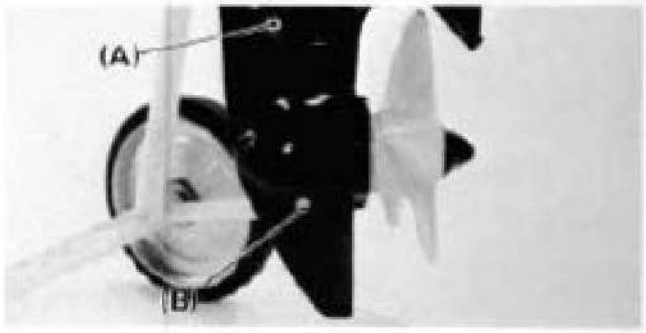
(1) Remove the oil level plug and drain plug to drain oil thoroughly.

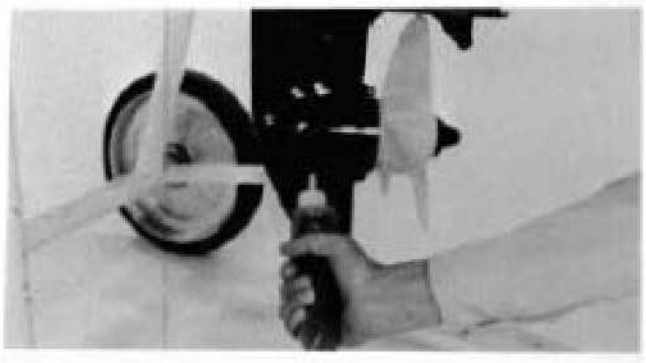
(2) Squeeze fresh oil through the drain plug hole until oil is flowing out of the level plug hole. Use the oil tube available as an optional part.

GEAR OIL CAPACITY: 0.23ℓ (0.49 US pt, 0.40 Imp pt)

RECOMMENDED GEAR OIL: SAE 90 MARINE

(A) LEVEL PLUG
(B) DRAIN PLUG





3. SPARK PLUG CLEANING/ADJUSTMENT

(1) Remove carbon and other deposits from the spark plugs with a stiff wire brush.

(2) Measure the spark plug gap with a feeler gauge. To adjust, bend the negative (grounded) electrode.

STANDARD PLUG GAP: 0.6 – 0.7 mm (0.024 – 0.028 in)

STANDARD SPARK PLUG: DR–6HS (NGK)
ALTERNATE: DR–4HS (NGK)

NOTE: If the DR–6HS plugs tend to get heavily carbonized or get fouled, try the DR–4HS type.

4. IGNITION TIMING ADJUSTMENT

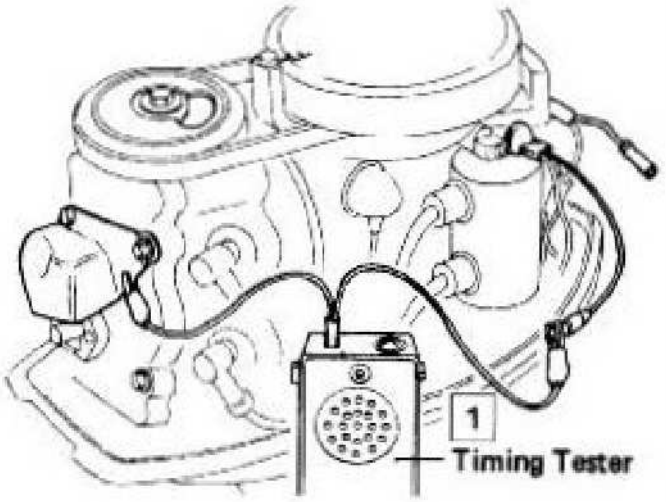
CONTACT BREAKER TYPE

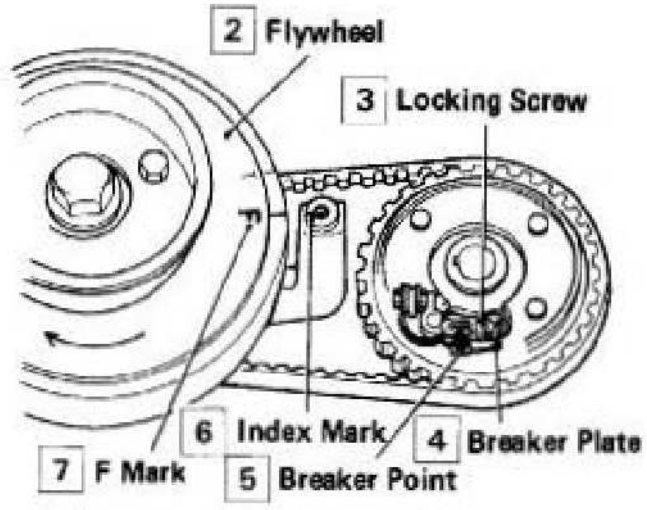
(1) Connect a timing tester or ohmmeter as shown.

(2) Rotate the flywheel to align the "F" mark on the flywheel to the index mark on the starter case. At this time, the contact breaker points should just start to open (15°B.T.D.C.)

(3) To adjust the timing, loosen the breaker plate locking screw and move the contact breaker plate to achieve correct timing. Retighten the locking screw.

(4) Rotate the flywheel one full turn, and check ignition timing for the other cylinder. Readjust the contact breaker points, if necessary, so the ignition timing will be as correct as possible for both cylinders.



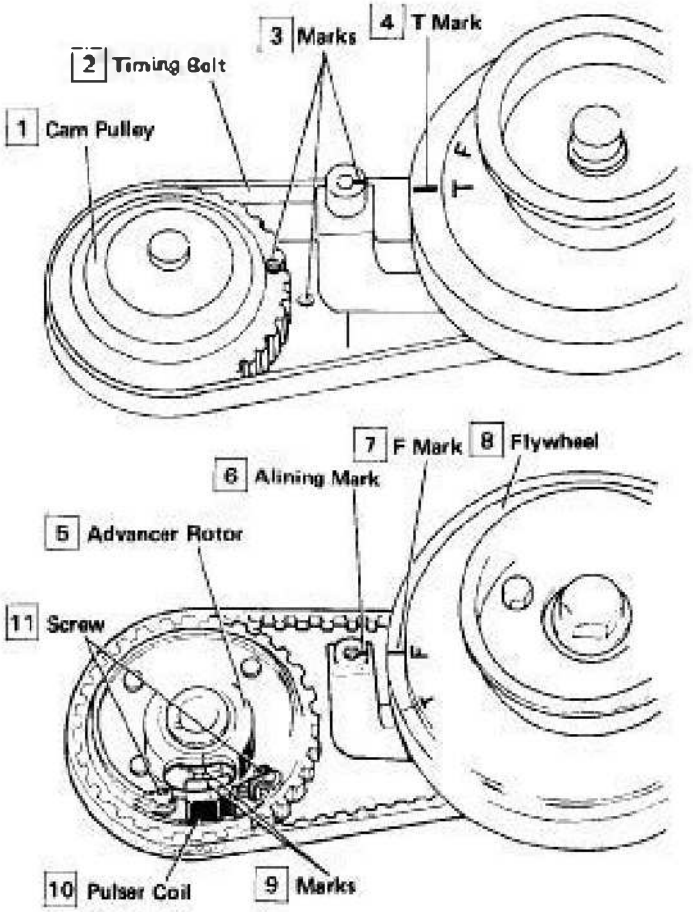


CDI TYPE

NOTE: A CDI system does not require adjustment, except when the CDI unit is replaced and/or the pulser coil is removed. The timing remains unchanged as long as the set parts remain undisturbed.

(1) To set timing, align the flywheel "T" mark and the punch mark on the cam pulley as shown, then install the timing belt.

(2) Rotate the flywheel one complete turn and align the "F" mark with the aligning mark.
Loosen the two screws and move the pulser coil so the marks on the coil and advancer rotor are in line.



5. VALVE CLEARANCE ADJUSTMENT

(1) Rotate the flywheel to align the "T" mark on the flywheel to the index mark on the starter case.

(2) Check the clearance of both valves on the camshaft base circle by inserting the feeler gauge between the adjusting screw and the valve stem.

STANDARD CLEARANCE :	0.06 – 0.10 mm/0.002 – 0.004 in/ (IN/EX)

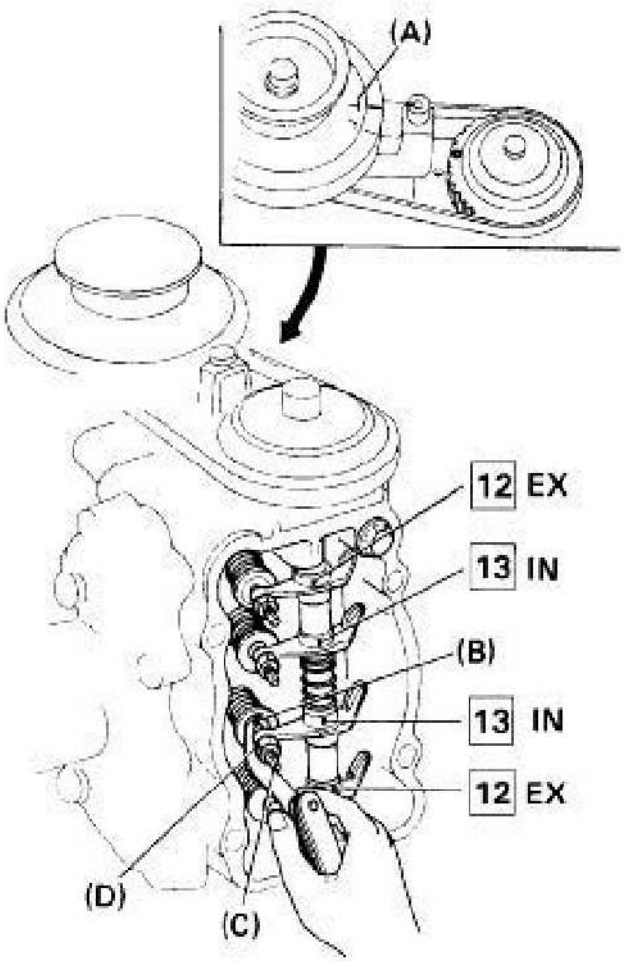
(3) If adjustment is necessary, loosen the lock nut and turn the adjusting screw by using the special tool "Adjusting Wrench ⊠ 07708–0030400" until there is a slight drag on the feeler gauge. Hold the adjusting screw in this position and tighten the lock nut. Recheck the clearance with the gauge.

Tightening torque: 60–100 kgcm (4.3 – 7.2 ft-lb)

NOTE:
- Perform this operation with the engine cold and the cylinders at T.D.C. on the compression stroke.
- When the cylinder is at T.D.C. on the compression stroke, the intake and exhaust valves should be fully closed.

(4) To adjust the remaining cylinder, rotate the flywheel 360° further.

(A) "T" MARK
(B) FEELER GAUGE
(C) ADJUSTING SCREW
(D) LOCK NUT

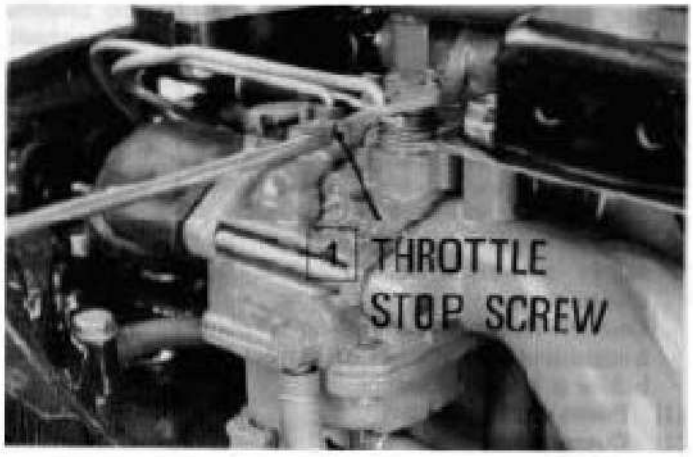


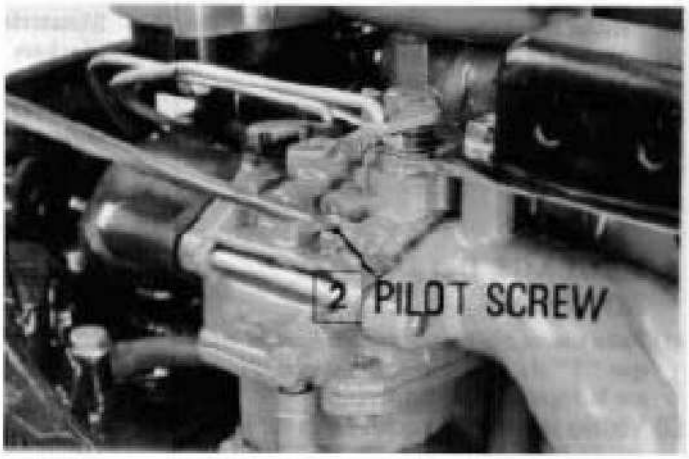
6. CARBURETOR ADJUSTMENT

- Idle Speed
  (1) Start the engine and run at idle until a normal operating temperature is obtained.
  (2) Turn the throttle stop screw in or out as necessary until the specified idle speed is obtained.

Specified idle speed	1,200 ± 100 rpm (in neutral)

- Pilot Screw
  If the pilot screw setting needs adjustment,
  (1) Turn the pilot screw in or out until the highest idle rpm is reached.
  (2) Readjust to the specified idle speed using the throttle stop screw.

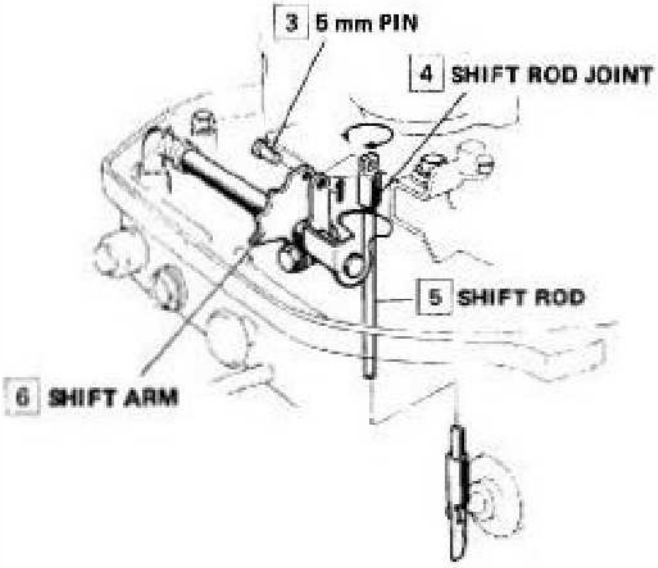




7. SHIFT ROD ADJUSTMENT

With the shift rod and shift arm in the forward position, and the linkage pin removed, turn the shift rod joint to align the linkage pin holes. Install the pin.

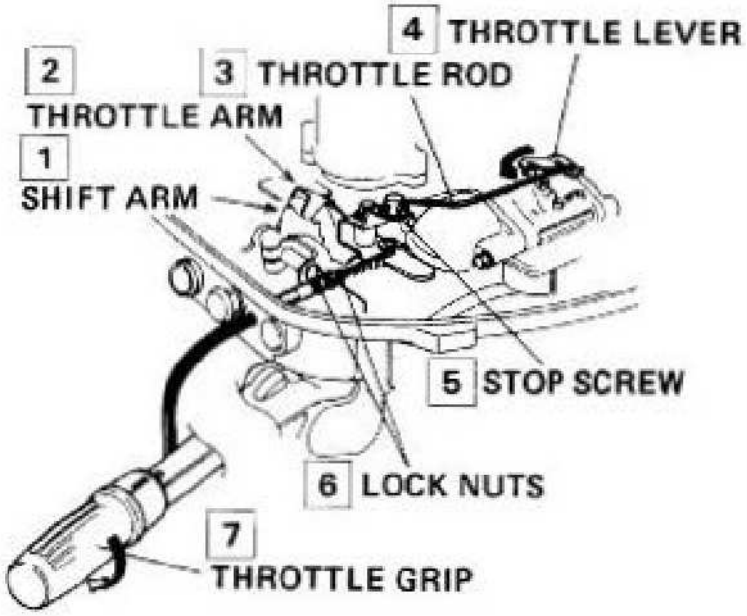
NOTE: The holes will usually align if the shift rod joint is turned all the way in and then unscrewed 4½ turns.



8. THROTTLE CABLE AOJUSTMENT

(1) Put the shift lever in NEUTRAL and turn the throttle grip to START position.
(2) Adjust the length of the cable so that the throttle arm comes with the shift arm by turning the lock nuts.
(3) Tighten the lock nuts securely.
(4) Close the throttle grip fully and adjust the stop screw so that the carburetor throttle is fully closed.
(5) After adjustment, shift the engine into each position and make sure that it attains the following maximum speeds.

Maximum engine speed:
Engine Serial Number 1000004 and subsequent:
F BF75: 5,200 rpm BF100: 5,700 rpm
N 6,000 - 200 rpm
R 3,200 ± 200 rpm

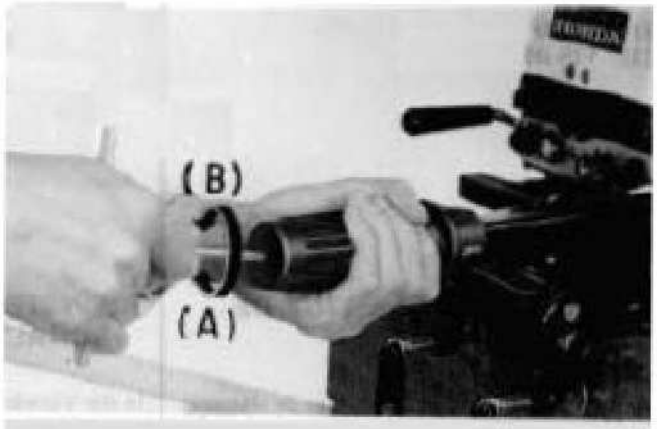


9. THROTTLE GRIP FRICTION ADJUSTMENT

Engine Serial Number 1000004 - 1299999:

(1) Adjust the friction by turning the throttle grip and screw.

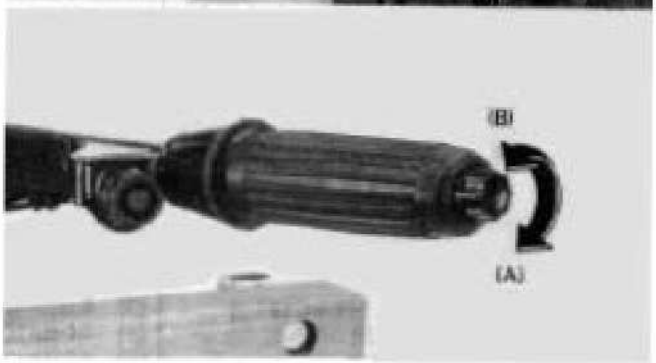
(A) Turn to RIGHT: To tighten
(B) Turn to LEFT : To loosen



Engine Serial Number 1300001 and subsequent:

(1) Adjust the friction by turning the throttle grip and adjuster.

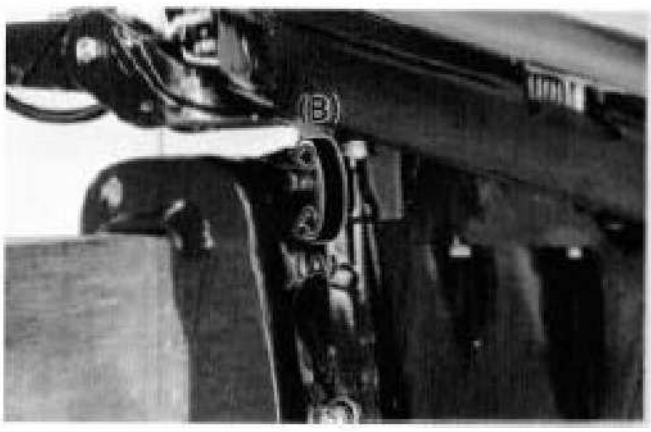
(A) Turn to RIGHT: To tighten
(B) Turn to LEFT : To loosen



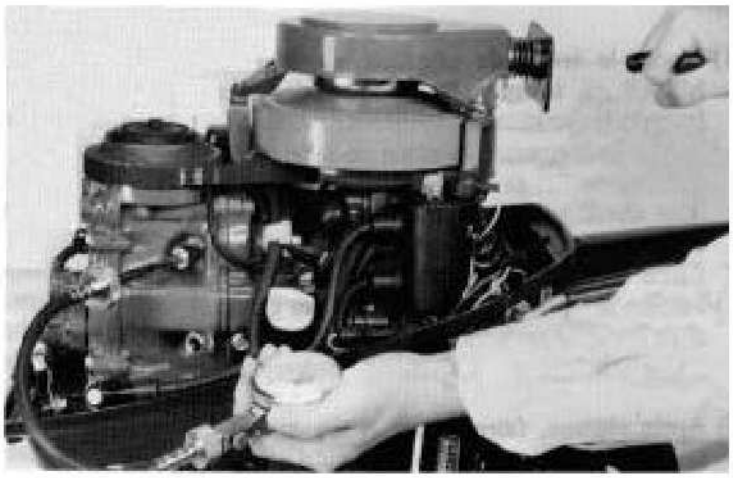
10. STEERING HANDLEBAR FRICTION ADJUSTMENT

(1) Adjust the friction by turning the adjusting bolt on the swivel case.

(A) Turn to RIGHT: To tighten
(B) Turn to LEFT : To loosen



11. CYLINDER COMPRESSION CHECK



(1) Remove both spark plugs and connect a compression tester to the cylinder by screwing the adaptor into the spark plug hole.
(2) With the throttle valve wide open and the engine stop button depressed, or a wire attached to ground the coil primary terminal, crank the engine several times. Note the maximum reading on the compression gauge.

CAUTION: The ignition coil may be damaged by cranking the engine with the spark plugs removed, unless the engine stop button is depressed or the coil primary terminal is otherwise grounded.

(3) Measure the compression of both cylinders.

STANDARD COMPRESSION

BF75	10.0 kg/cm² (142 lb/in²) /600 rpm
BF100	10.6 kg/cm² (151 lb/in²) /600 rpm

12. SPARK TEST

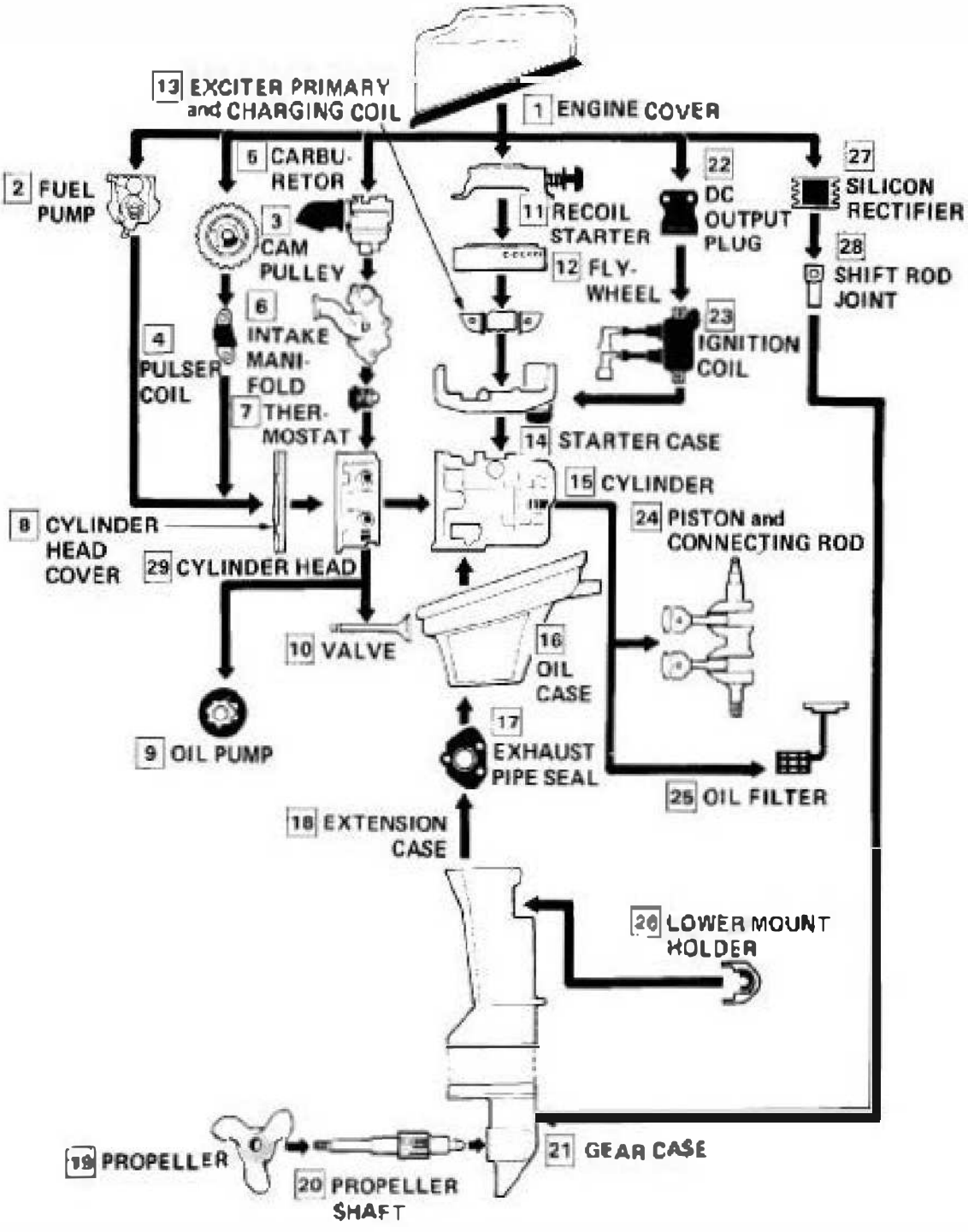
- When spark-checking, keep your hands away from high tension electrical parts.
- Make sure that no fuel has been spilt on the engine and that the plug is not wet with fuel.

(1) Remove the spark plug, attach the plug cap and ground the circuit by touching the negative (side) electrode to the cylinder block as shown.

(2) Pull the recoil starter and check to see if sparks jump across the electrodes.

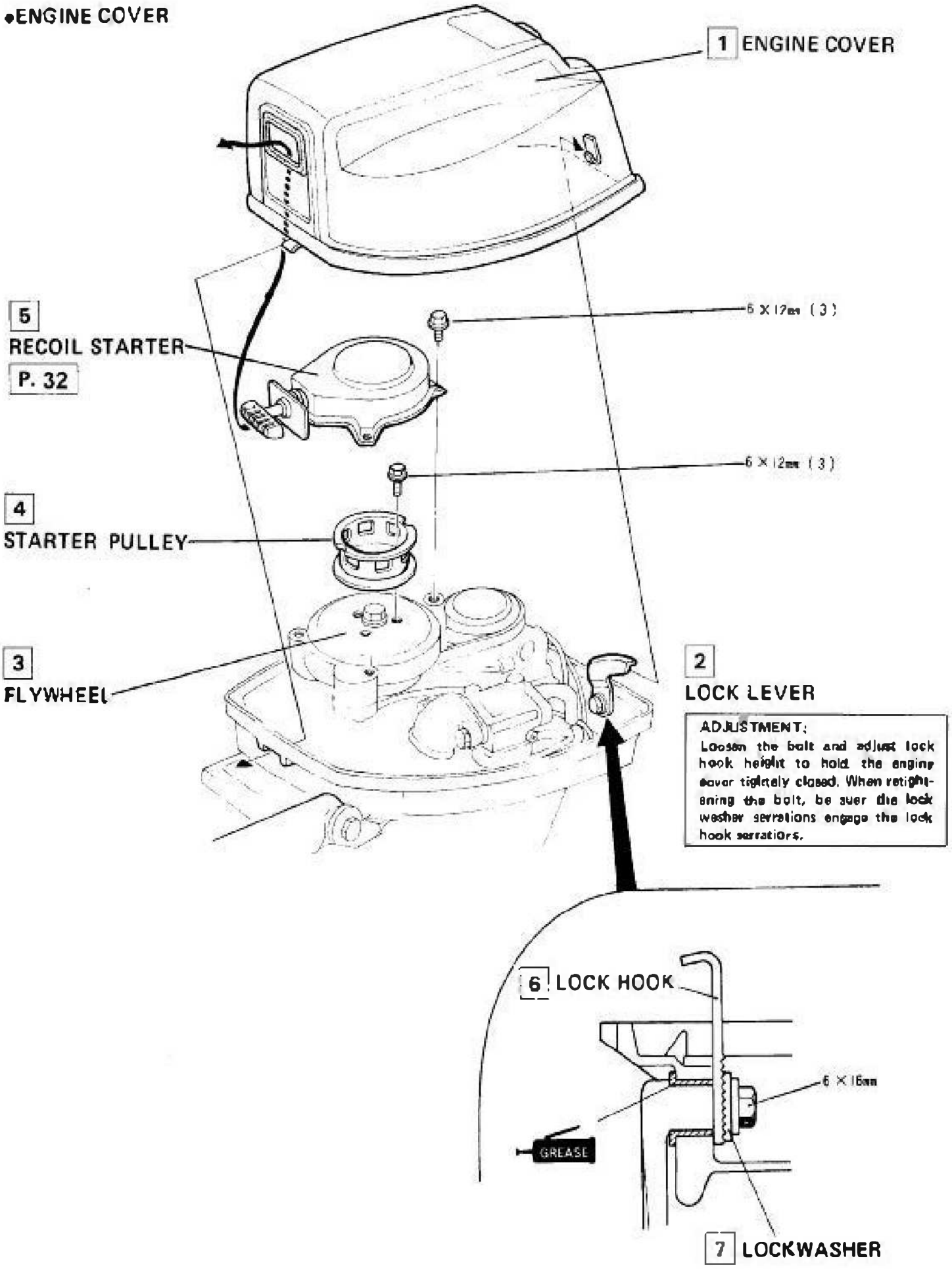
1. DISASSEMBLY CHART
2. RECOIL STARTER
3. CARBURETOR/FUEL PUMP
4. ELECTRICAL
5. ENGINE/LOWER UNIT REMOVAL
6. CYLINDER HEAD REMOVAL (SINGLE OPERATION)
7. CAM SHAFT/VALVE/OIL PUMP
8. CRANKSHAFT/PISTON
9. HANDLEBAR/SHIFT LEVER
10. SWIVEL CASE/STERN BRACKET
11. PROPELLER/GEAR CASE
12. OPTIONAL PARTS

1. DISASSEMBLY CHART

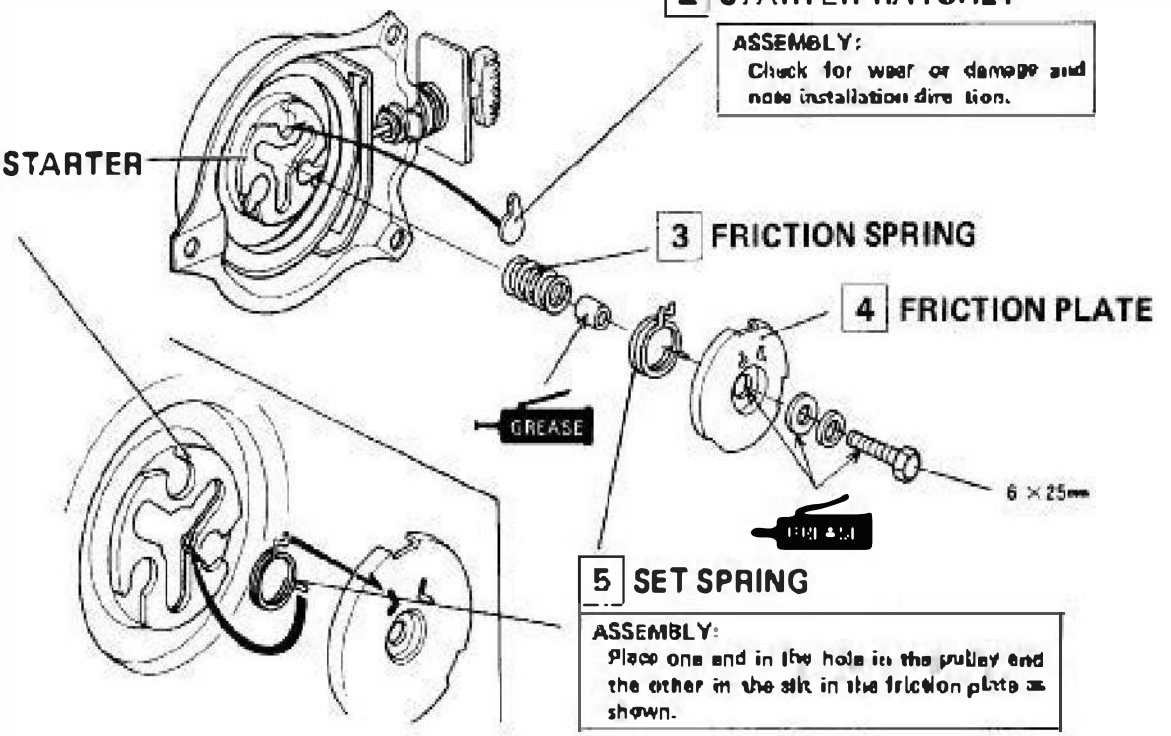


2. RECOIL STARTER

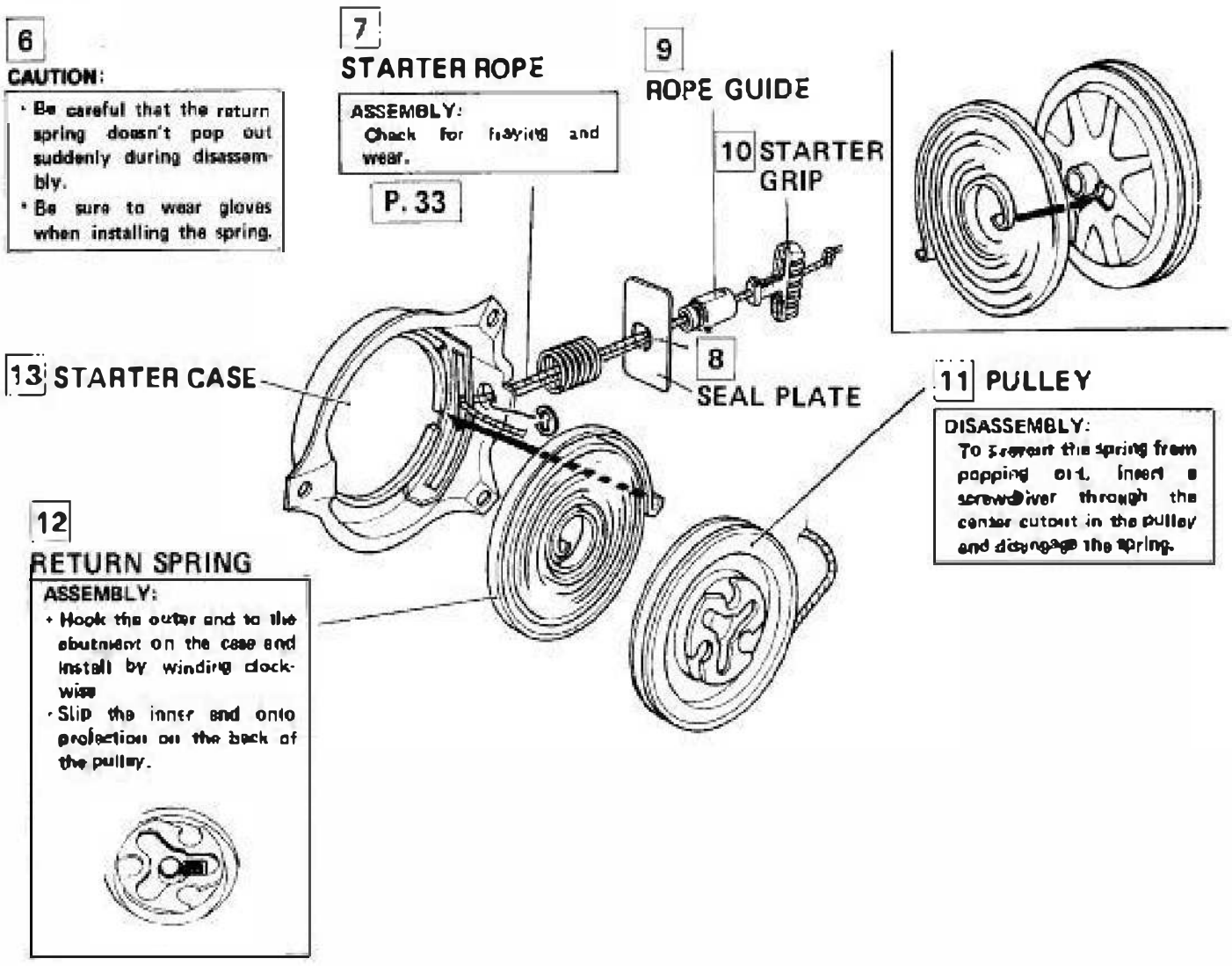
•ENGINE COVER



• FRICTION PLATE

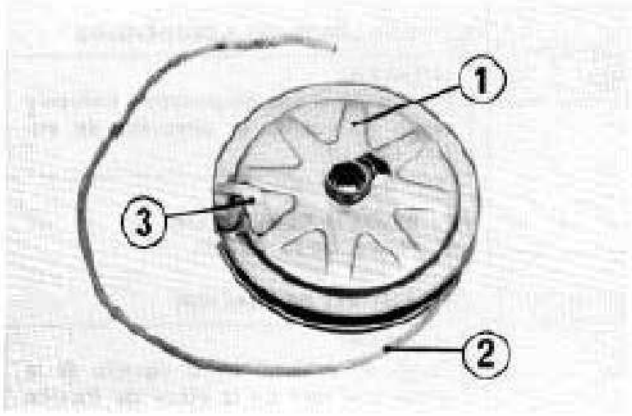


• RETURN SPRING



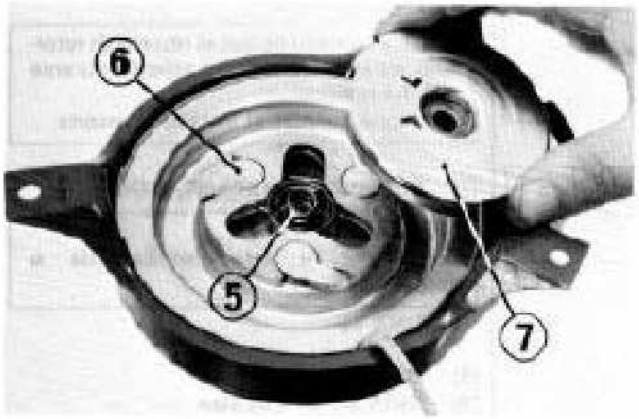
• STARTER ROPE ASSEMBLY

1) Route one end of the starter rope (2) through the hole in the starter pulley (1) and tie a knot in the end. Secure the rope with tab (3) on the pulley.

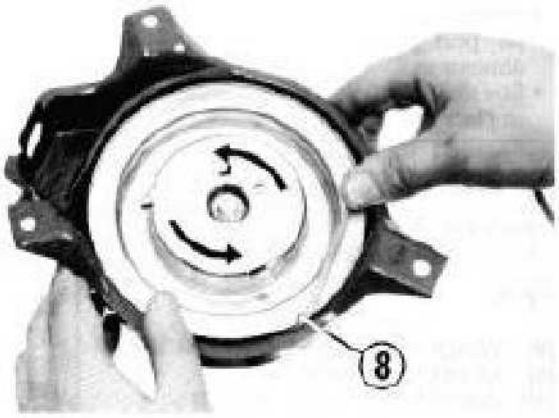


2) Wind the rope around the pulley. Set the pulley in the case (4).

3) Install the springs (5), ratchets (6) and friction plate (7), in order. Rotate the plate 1/3 turn clockwise and secure with the 6 mm bolt. Tighten securely.

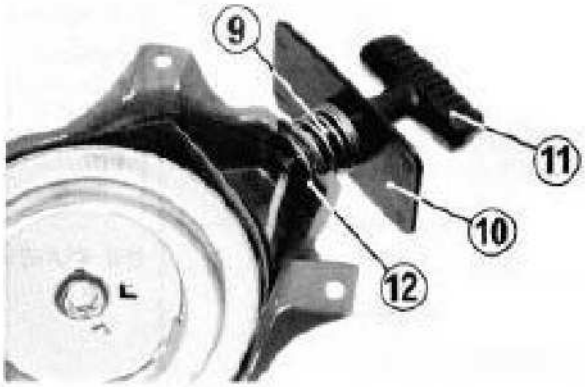


4) While holding the rope end in the cut-out (8) in the pulley, rotate the pulley 3 to 4 turns in the direction of the arrow.



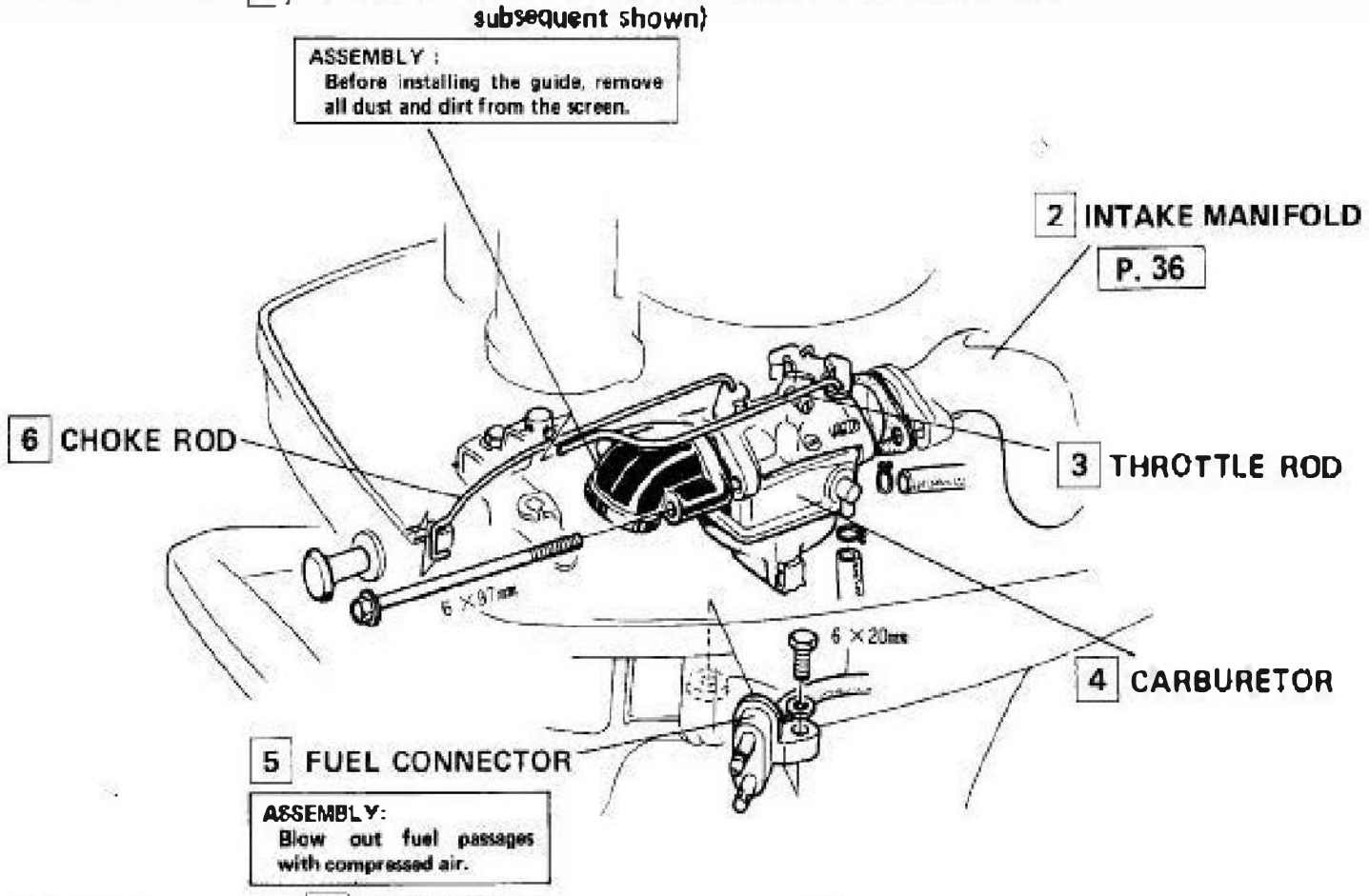
5) Attach a spring scale to the rope end and measure the force with which the rope is pulled out. If it does not fall within 1.3–2.3 kg (2.9–5.2 lbs), turn the pulley in or out as required.

6) Slip the rope guide (9), seal plate (10) and grip (11), over the rope and tie a knot in the end of the rope. Secure the rope guide with the E-ring (12). After assembling, check the operation of the starter ratchets and return of the rope.

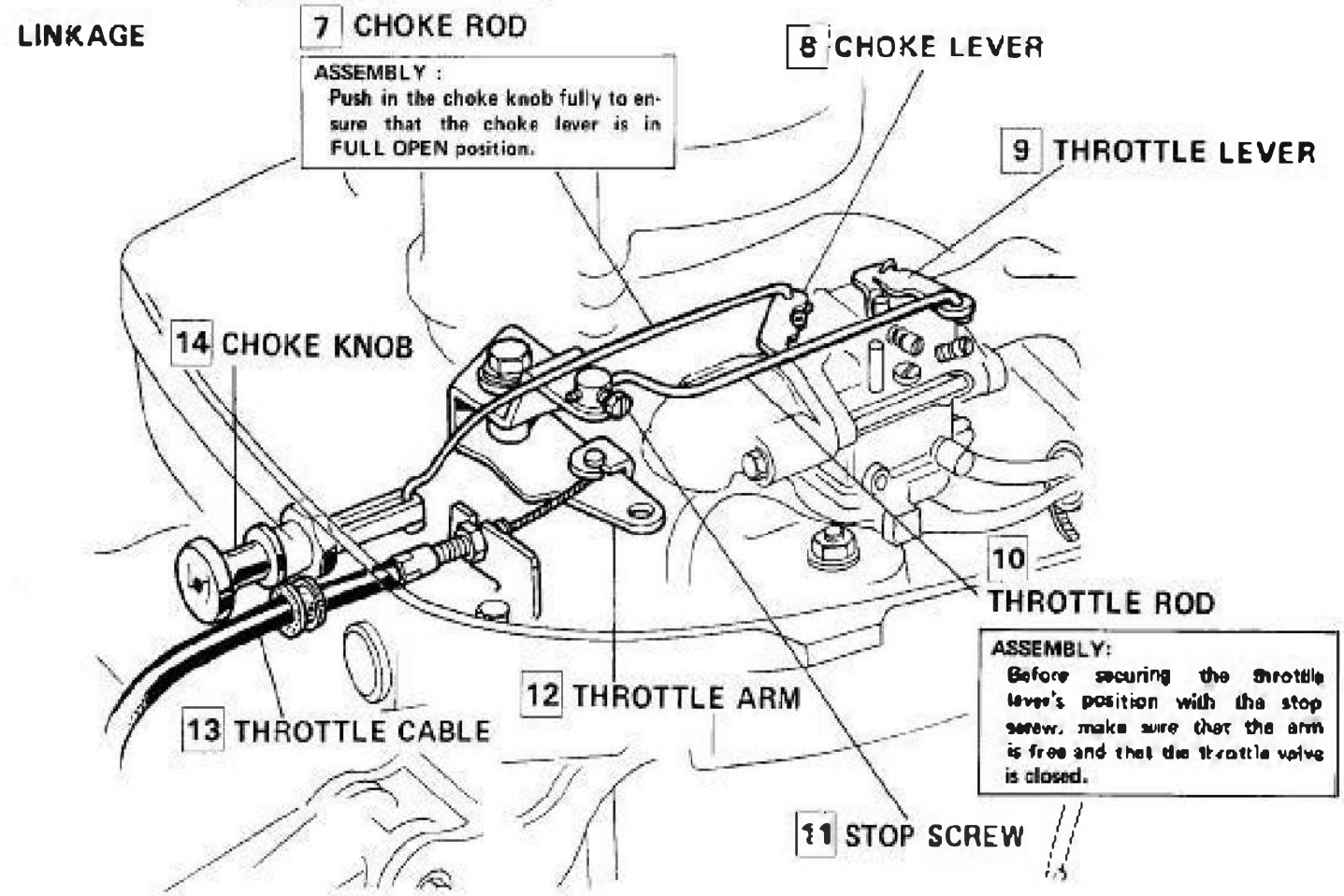


3. CARBURETOR/FUEL PUMP

• CARBURETOR



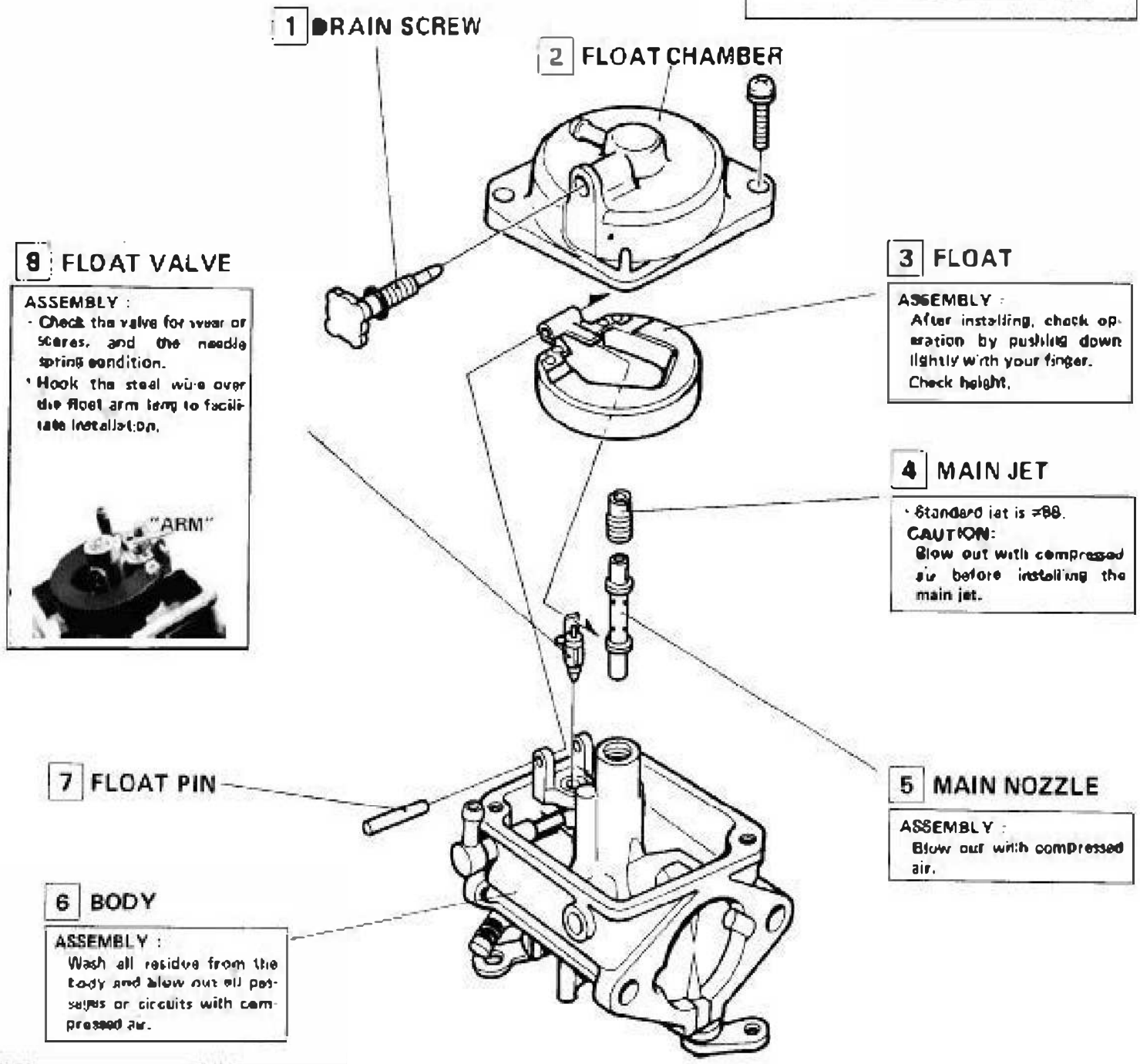
• LINKAGE



• FLOAT/MAIN JET

CAUTION: Always drain the carburetor before assembly.

- Hold the carburetor asshown with the float valve just touching the float tang and measure the distance between the top of the float and carburetor body.
  SPECIFIED FLOAT HEIGHT: 9.85–10.15 mm (0.388–0.400 in.)
- Bend the tab to adjust incorrect float height.
- See page 27 for carburetor adjustment.



1 DRAIN SCREW

2 FLOAT CHAMBER

3 FLOAT

ASSEMBLY :
After installing, check operation by pushing down lightly with your finger.
Check height.

4 MAIN JET

- Standard jet is #88.

CAUTION:
Blow out with compressed air before installing the main jet.

5 MAIN NOZZLE

ASSEMBLY :
Blow out with compressed air.

6 BODY

ASSEMBLY :
Wash all residue from the body and blow out all passages or circuits with compressed air.

7 FLOAT PIN

8 FLOAT VALVE

ASSEMBLY :
- Check the valve for wear or scores, and the needle spring condition.
- Hook the steel wire over the float arm tang to facilitate installation.

• INTAKE MANIFOLD/FUEL PUMP

NOTE: For tubing installation, see page 16.

1 THERMOSTAT

INSPECTION:

Suspend the thermostat in heated water. Measure water temperature and valve lift.

HIGH TEMPERATURE THERMOSTAT – no longer available: original equipment through serial No. (BF75) 1004086 and (BF100) 1009155.

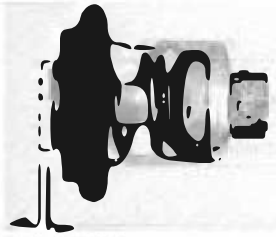
Water Temperature	Valve Lift
Below 70°C (158°F)	0 mm
Above 80°C (176°F)	3–4 mm (0.12–0.16 in)

MEDIUM TEMPERATURE THERMOSTAT: original equipment starting with serial No. (BF75) 10 4086 and (BF100) 1009156.

Water Temperature	Valve Lift
Below 60°C (140°F)	0 mm
Above 70°C (158°F)	2–3 mm (0.08–0.12 in)

LOW TEMPERATURE THERMOSTAT – original equipment starting with serial No. 1600001. (Canada: BF75, 100 Long types only)

Water Temperature	Valve Lift
Below 50°C (122°F)	0 mm
Above 60°C (140°F)	2–3 mm (0.08–0.12 in)

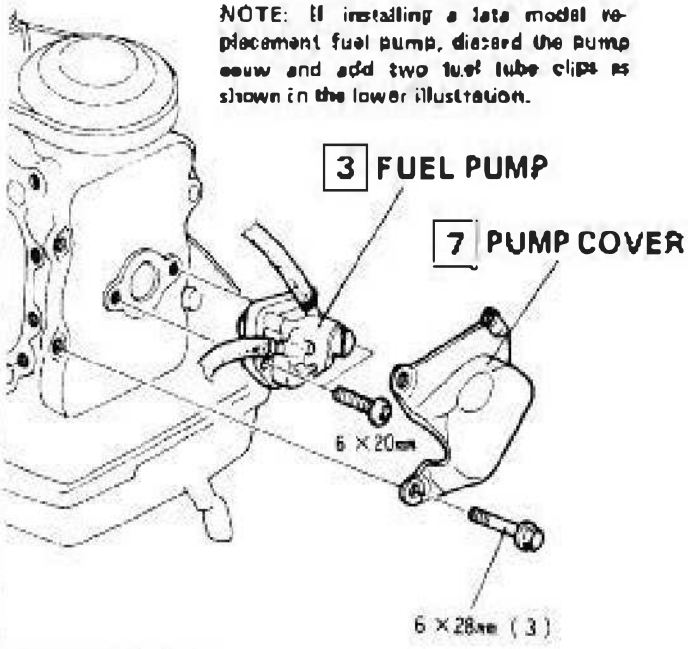


VALVE LIFT

EARLY MODEL FUEL PUMP

Engine serial numbers:
BF75 : 1000004–1102880
BF100: 1000004–1101260

NOTE: If installing a late model replacement fuel pump, discard the pump cover and add two fuel tube clips as shown in the lower illustration.



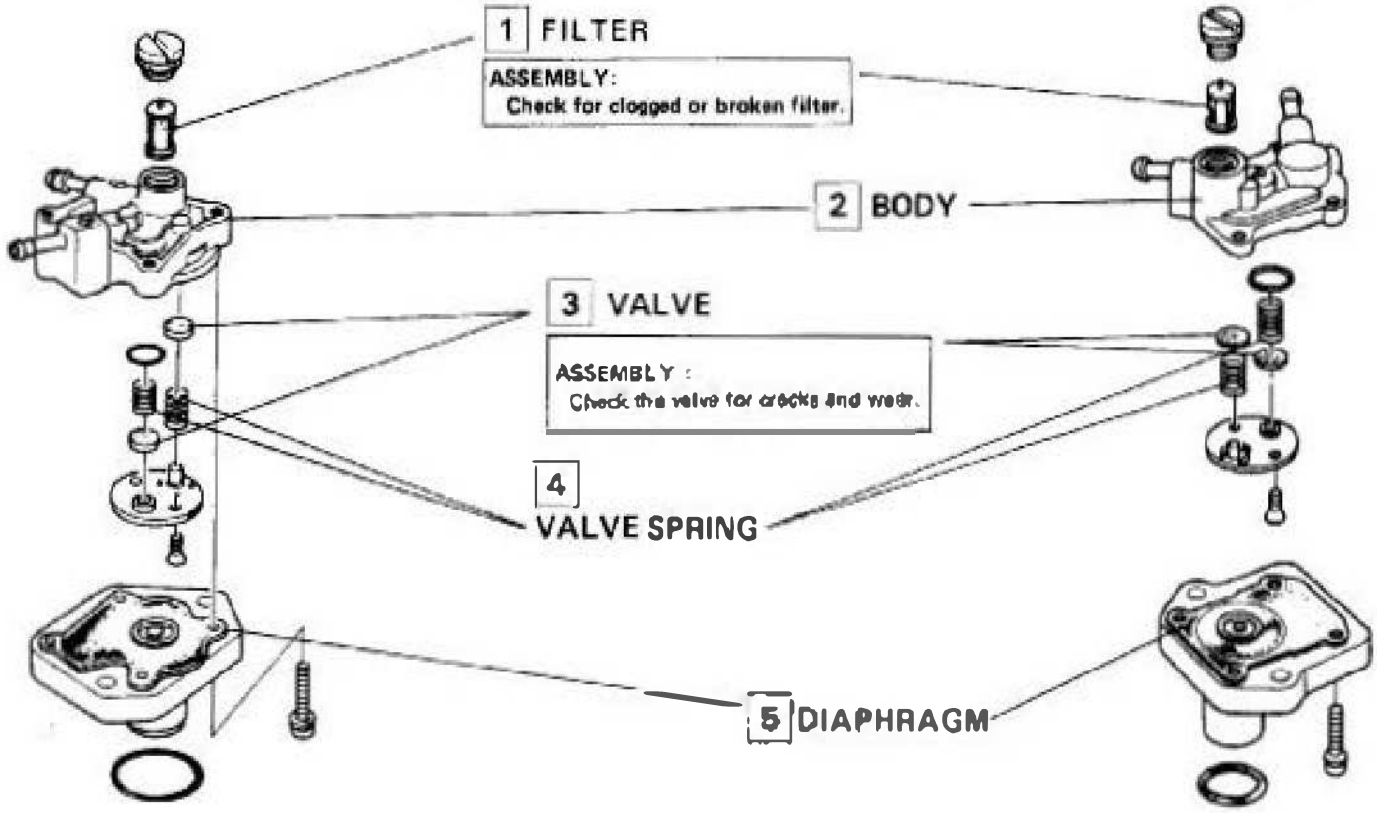
ASSEMBLY:
Blow out all passages with compressed air before installing.

ASSEMBLY:
Note installation direction and location.

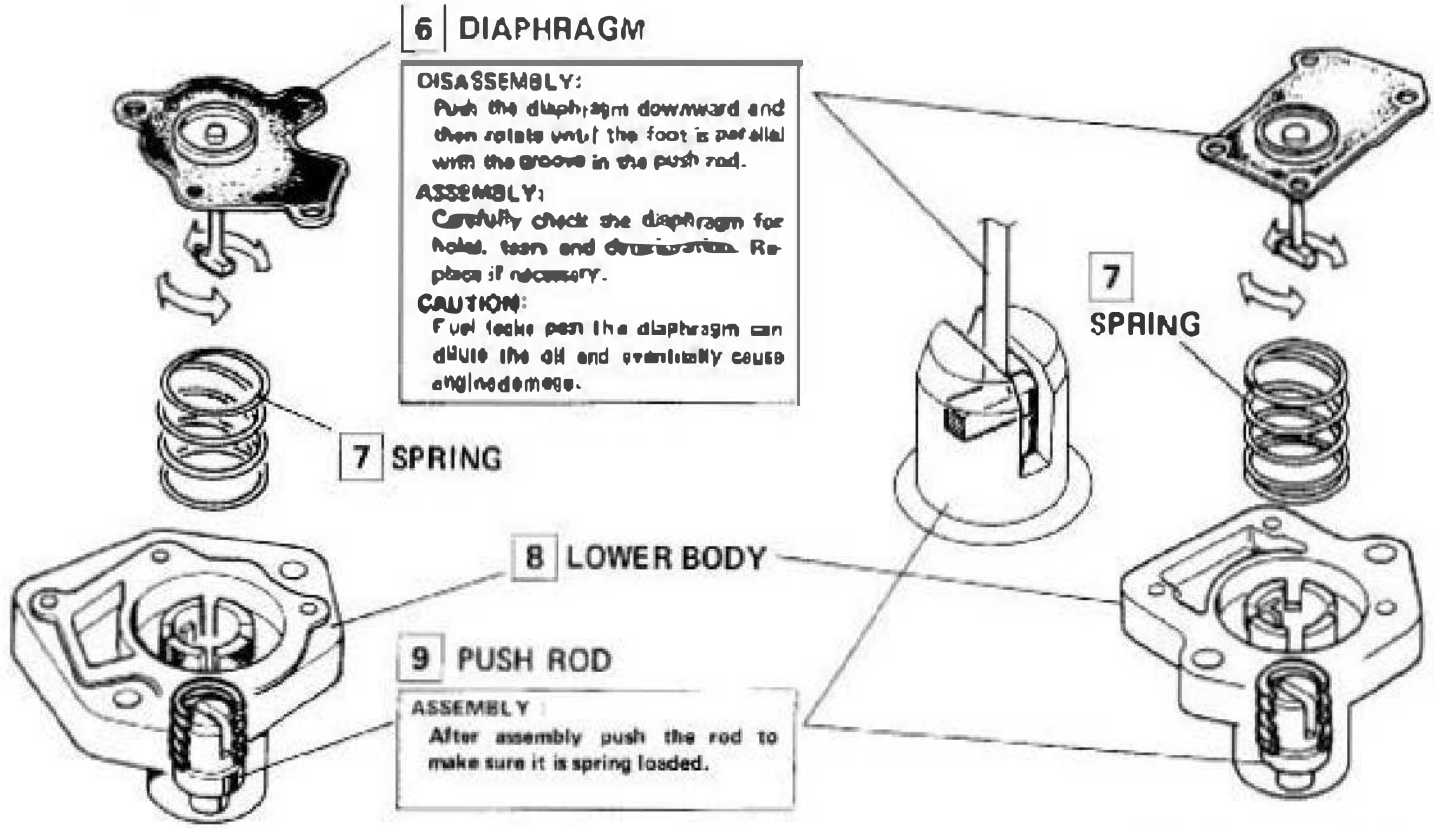
• FUEL PUMP

Engine serial numbers:
BF75 : 1000004—1102880
BF100: 1000004—1101260

Engine serial numbers:
BF76 : 1102881 and subsequent
BF100: 1101261 and subsequent



• DIAPHRAGM



4. ELECTRICAL

a. DISASSEMBLY/ SSEMBLY

- FLYWHEEL

1

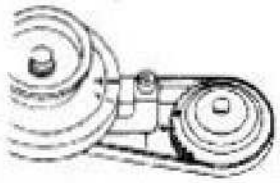
ASSEMBLY :
See page 12 for wire connections.

2 CHARGING COIL
P. 42

11 TIMING BELT

DISASSEMBLY:
Remove the belt from the cam pulley with your fingers. Do not use a screwdriver.

ASSEMBLY:
- Check for wear or cracks.
- Align the "T" mark on the flywheel and the punch mark on the pulley to their respective aligning marks.
- Always install the belt so that "HONDA" can be read.



650 kg-cm
(47 ft-lb)

3 FLYWHEEL

DISASSEMBLY:
07925–8930000
PULLEY HOLDER
or commercially available band strap wrench.
07935–8050002
FLYWHEELPULLER

ASSEMBLY:
Clean the crankshaft taper before installation.

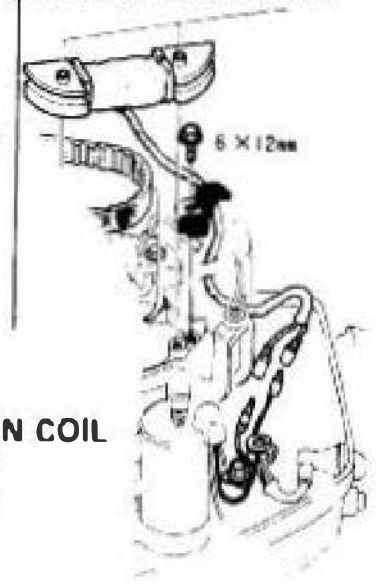
6 × 35mm (2)

4 EXCITER COIL

ASSEMBLY :
After installation, make sure that the coil does not interfere with the flywheel.

5 PRIMARY COIL

CONTACT BREAKER TYPE



10 CAM PULLEY
P.45

9 WOODRUFF KEY

ASSEMBLY :
Do not forget to install and be sure it is in place.

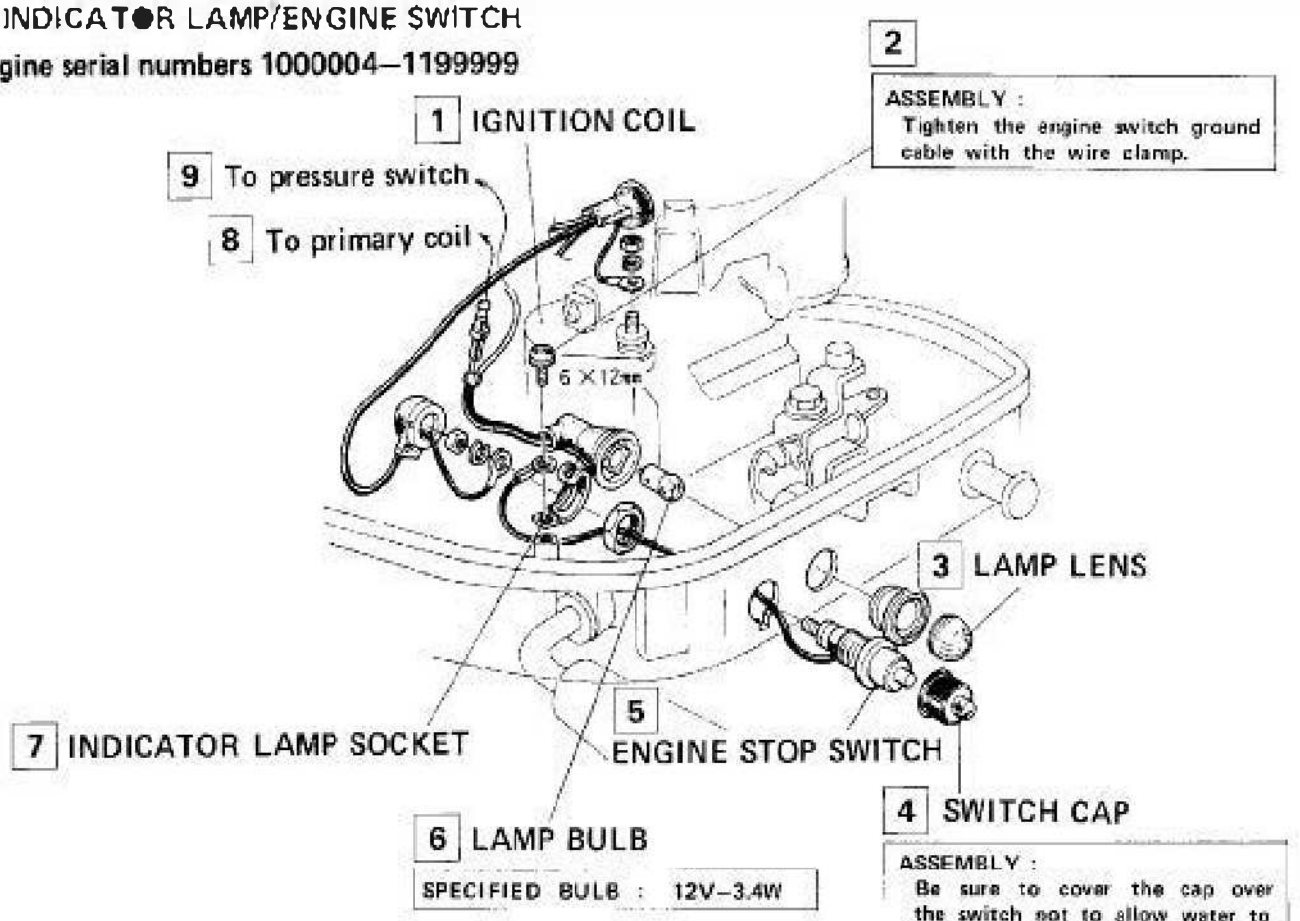
8 STARTER CASE
P. 44

7 TIMING PULLEY
P. 44

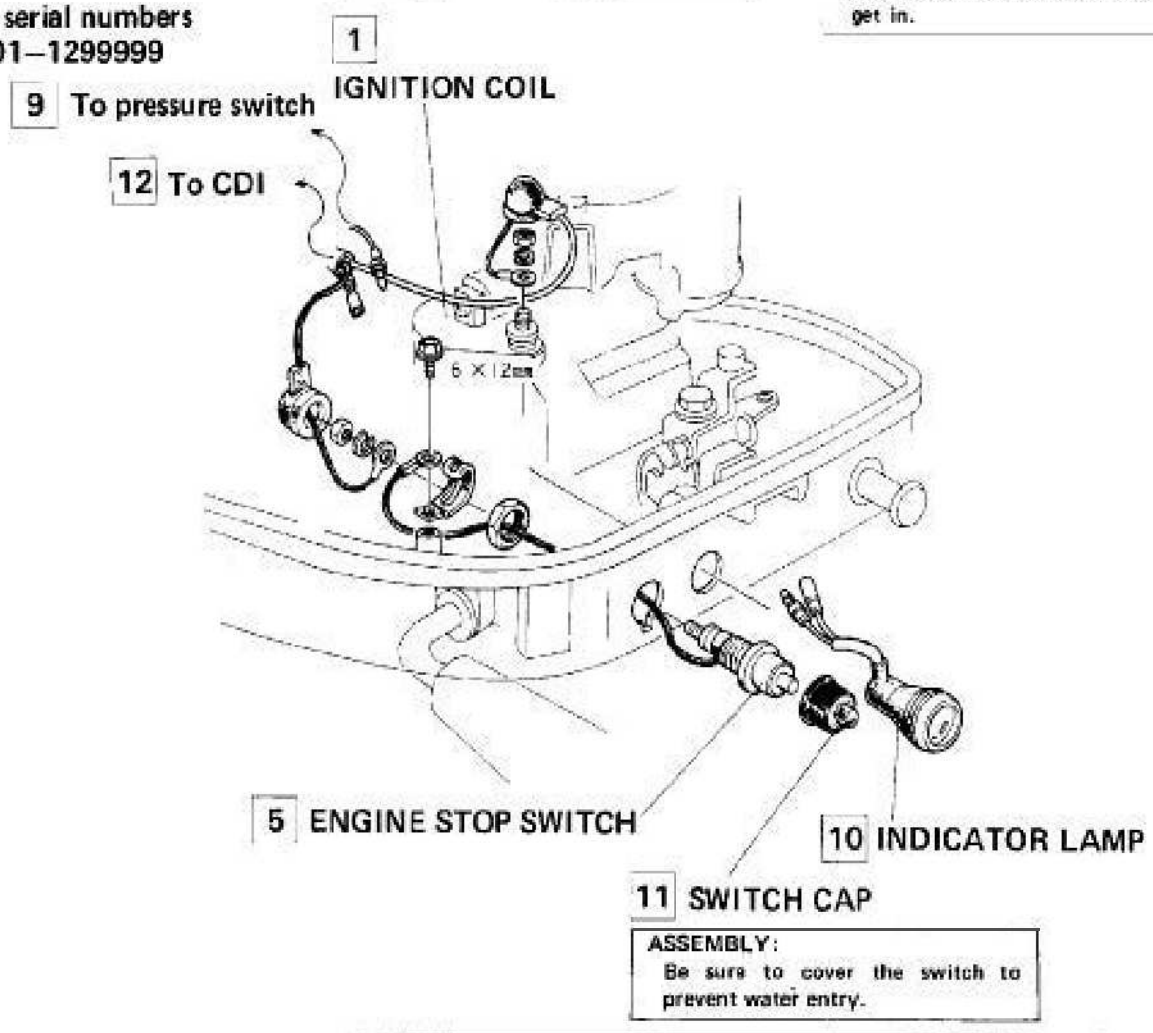
6 IGNITION COIL
P. 43

• INDICATOR LAMP/ENGINE SWITCH

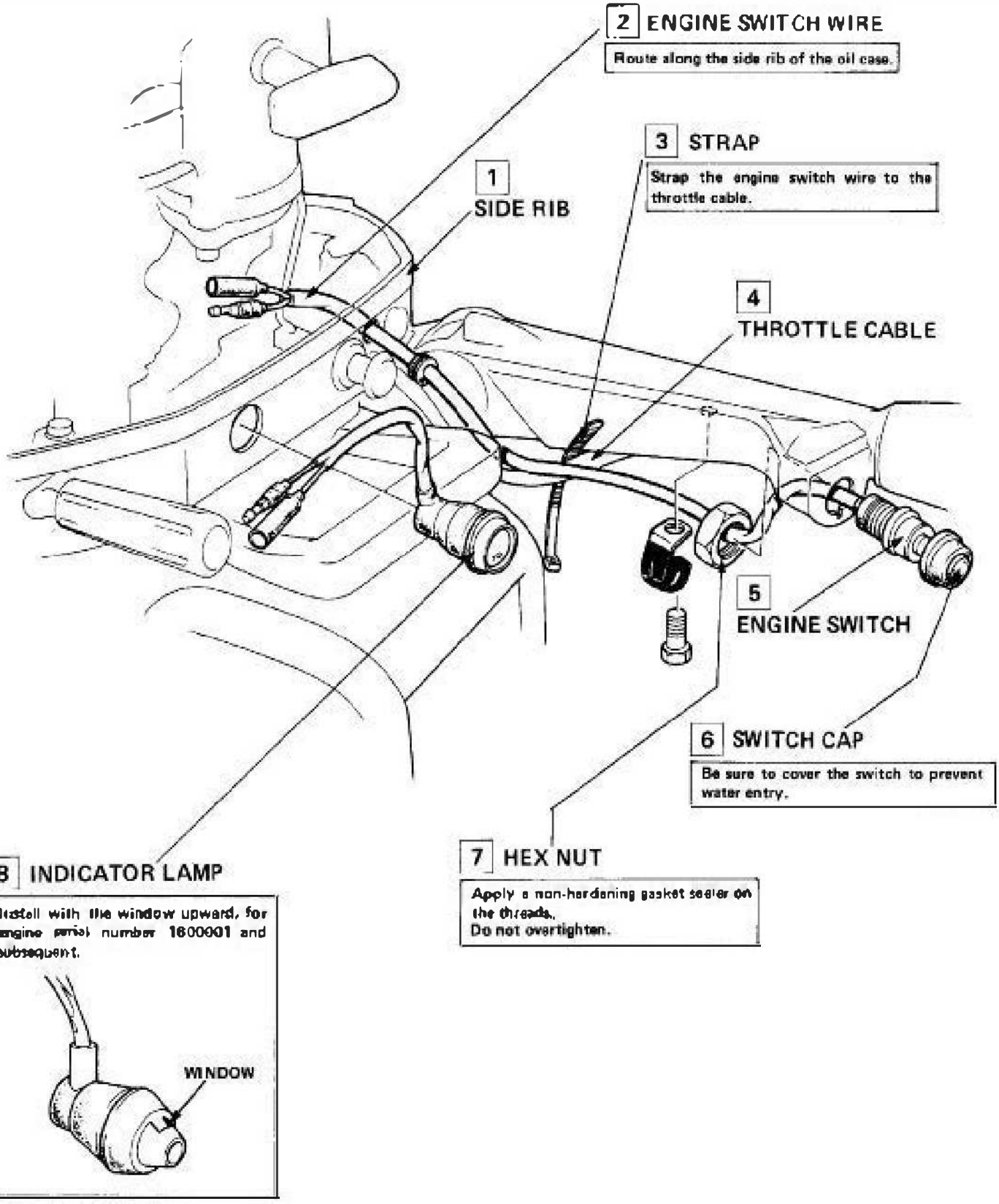
Engine serial numbers 1000004–1199999



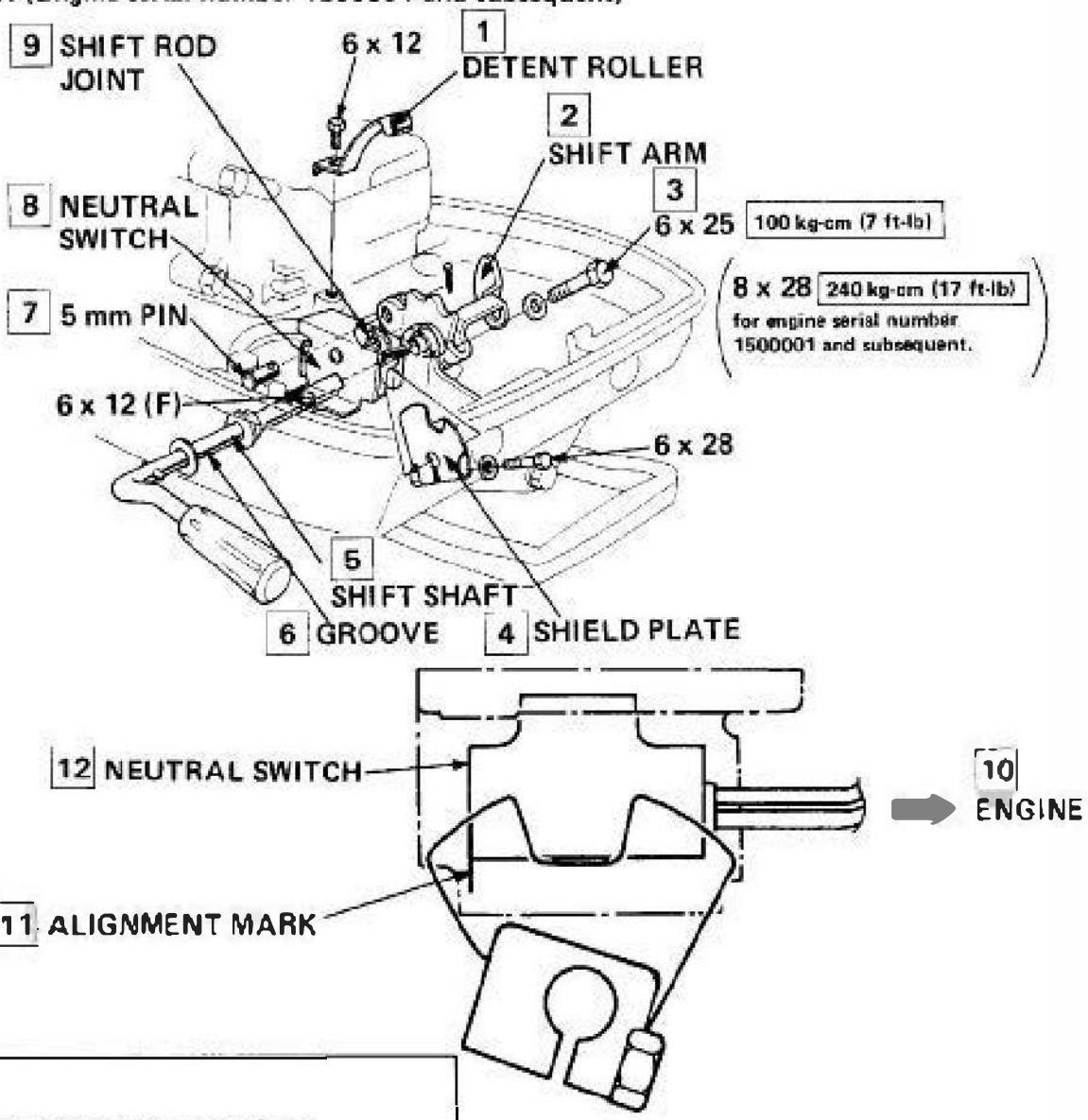
Engine serial numbers 1200001–1299999



Engine serial number 1300001 and subsequent



- NEUTRAL SWITCH (Engine serial number 1300001 and subsequent)



13

ASSEMBLY:

1. Install the shift shaft through the shield plate and shift arm.

   NOTE: Be sure the shaft goes all the way through the arm.

2. Secure the shift arm on the shaft with the 6 x 25 mm or the 8 x 28 mm bolt and washer, then install the detent roller.

3. With the transmission in neutral (the detent roller in the middle notch on the shift arm) slide the clevis pin through the shift arm and shift rod joint. Install the cotter pin.
   NOTE: The pin should go in without binding. If adjustment is necessary, turn the shift rod joint as required: counter-clockwise to raise it, clockwise to lower it.

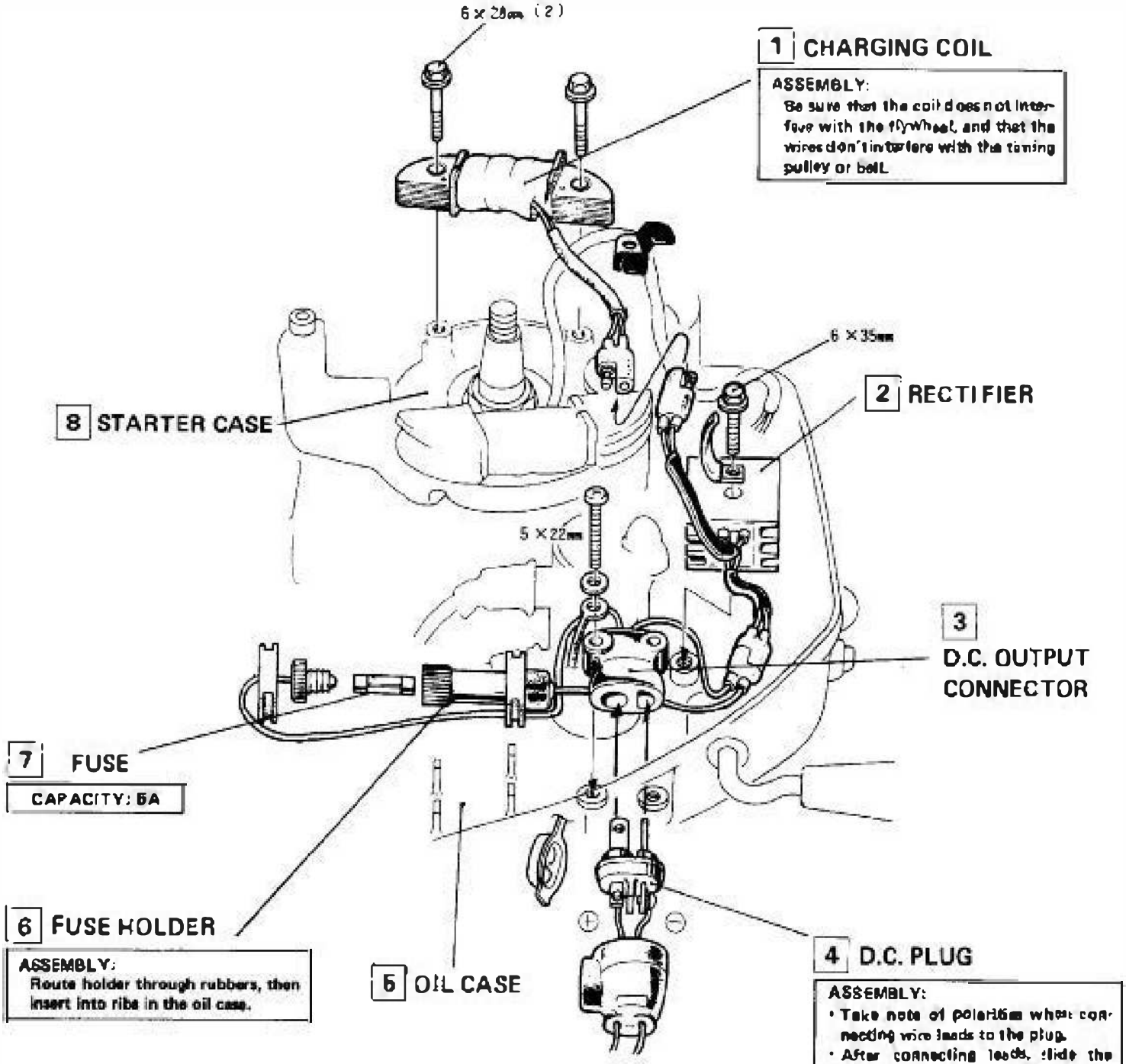
4. Install the neutral switch with the 6 x 12 mm bolt.

5. Put the shift lever in REVERSE so the shaft groove is accessible. Secure the shield plate on the shaft with the 6 x 28 mm bolt through the groove.

6. Put the shift lever in NEUTRAL and check that the mark on the shield plate aligns with the end of the neutral switch body. If not, loosen the 6 x 28 mm bolt and adjust the shield plate position. Retighten the bolt.

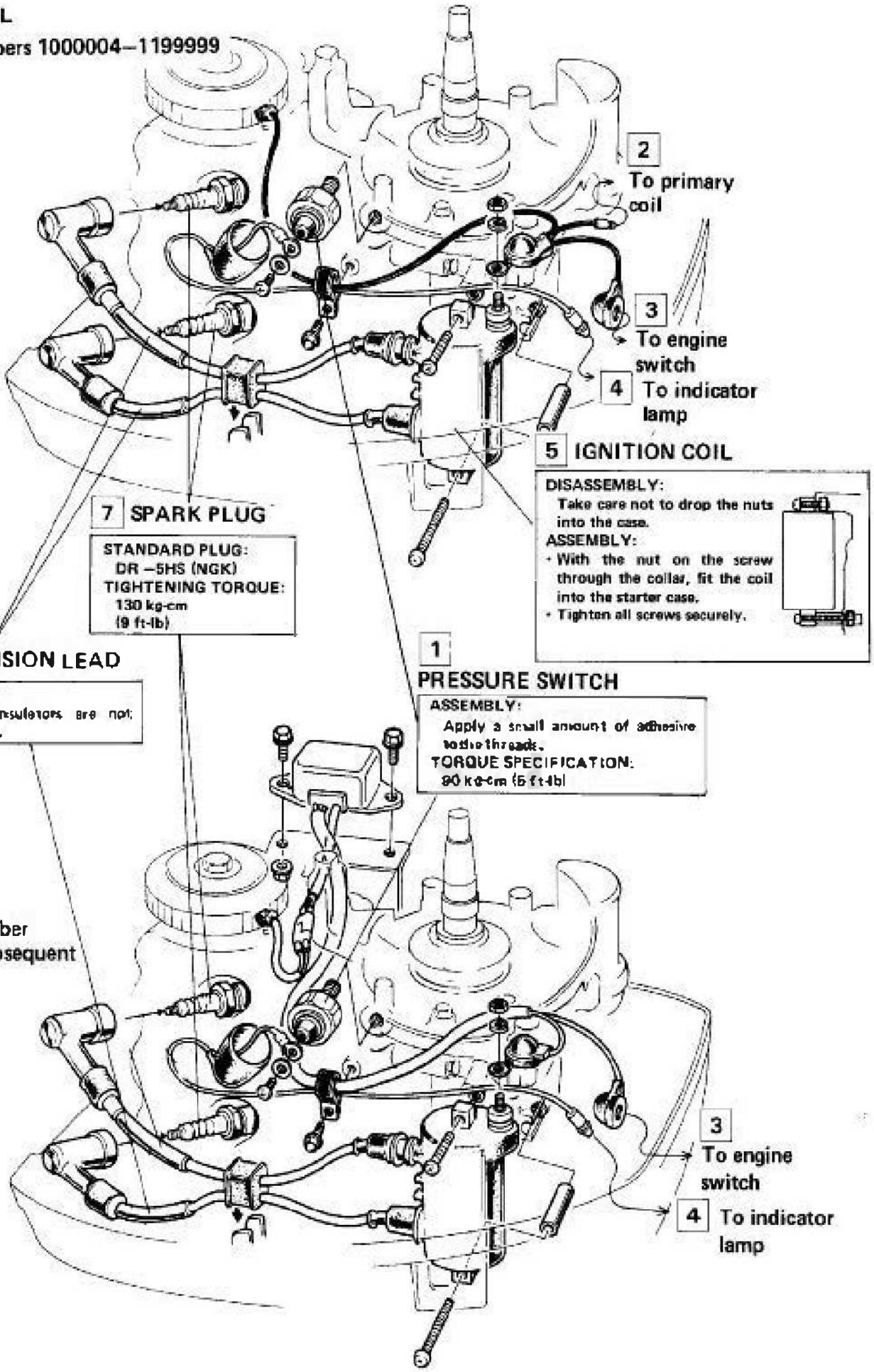
7. Check switch continuity as described below.

• D.C. OUTPUT CIRCUIT



• IGNITION COIL

Engine serial numbers 1000004–1199999

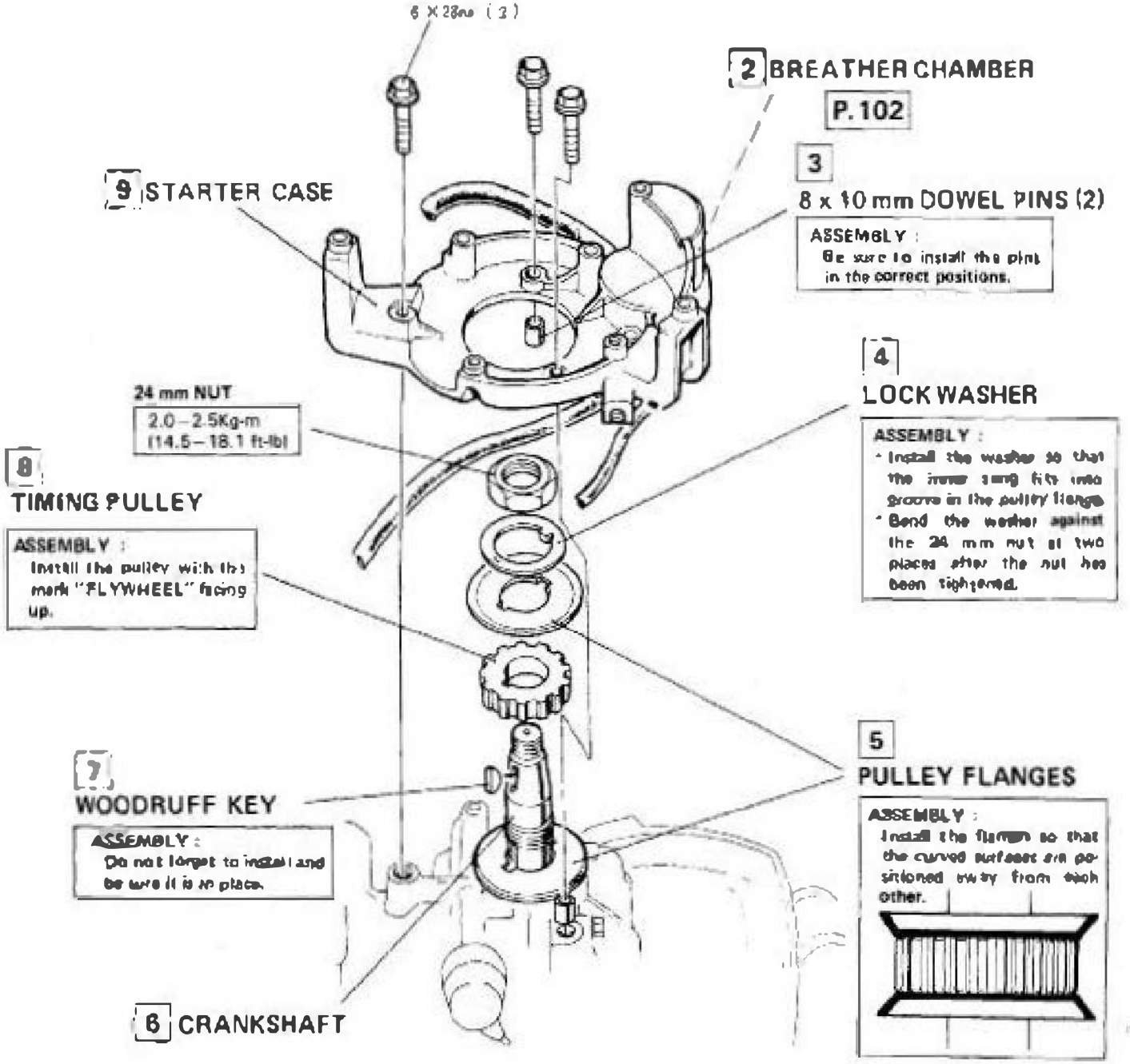


Engine serial number
12000001 and subsequent

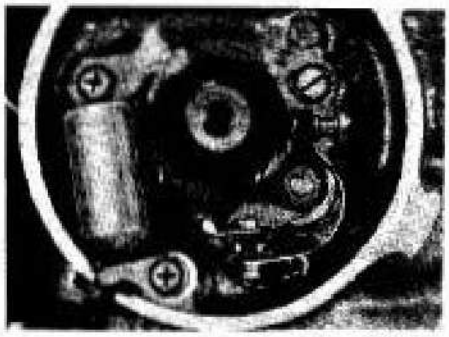
• STARTER CASE

1

ASSEMBLY :
Connect all tubes as illustrated on page 34.



• CONTACT BREAKER (Engine serial numbers 1000004–1199999)



1 POINT COVER

ASSEMBLY :
Align the keyway in the cover with the woodruff key in the crankshaft.
Make sure that the cover is seated.

[redacted]
The engine should not be run until the cover has been installed; otherwise, the contact breaker points may become contaminated.

6 × 22mm
100 kg-cm (7 ft-lbs)

10 CAM PULLEY

DISASSEMBLY : Do not hammer.

9 SPARK ADVANCER P. 40

2 CONTACT BREAKER

ASSEMBLY :
Check the points for pitting or corrosion.

8 CONDENSER

3 WIRE CLAMP PLATE

ASSEMBLY :
Note the installation direction. If the plate is not installed properly, the contact breaker will be grounded, making it impossible to start the engine.

7 CYLINDER HEAD COVER

Engine serial numbers:
BF75 : 1000004–1102999
BF100: 1000004–1101299

ASSEMBLY :
If equipped with the early model fuel pump (page 35), install the fuel pump, then install the pump cover together with the cylinder head cover.

4 To ignition coil

6 FUEL TUBE CLIPS

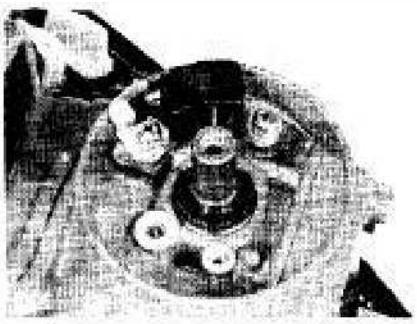
Fuel tube clips are required if equipped with a late model fuel pump (page 36)

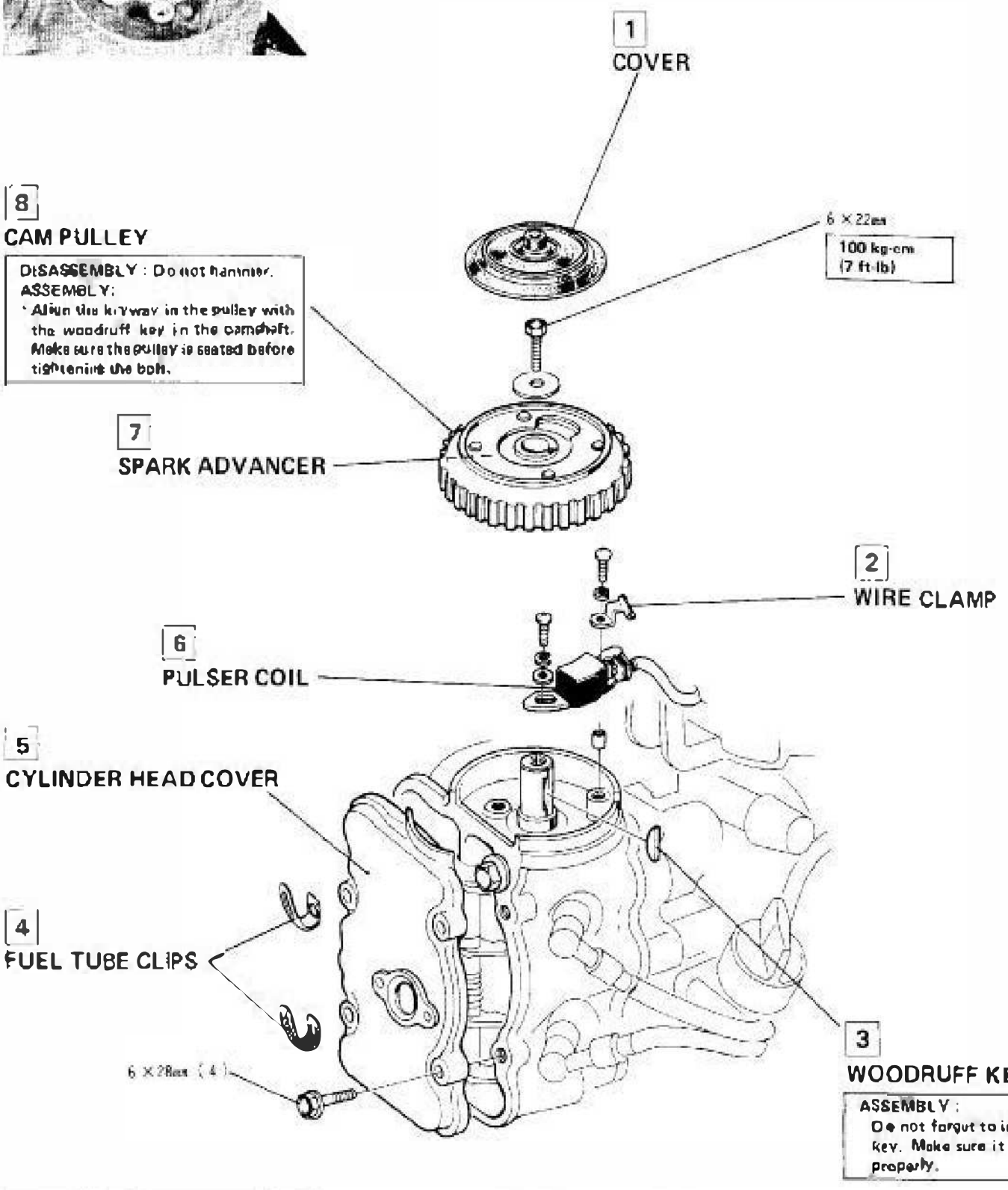
5 WOODRUFF KEY

ASSEMBLY :
Do not forget to install the key. Make sure it is seated properly.

6 × 28mm

- PULSER COIL (Engine serial number 1200001 and subsequent)

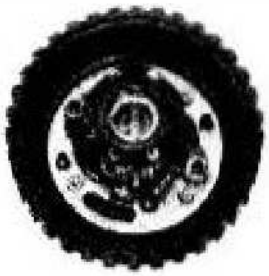


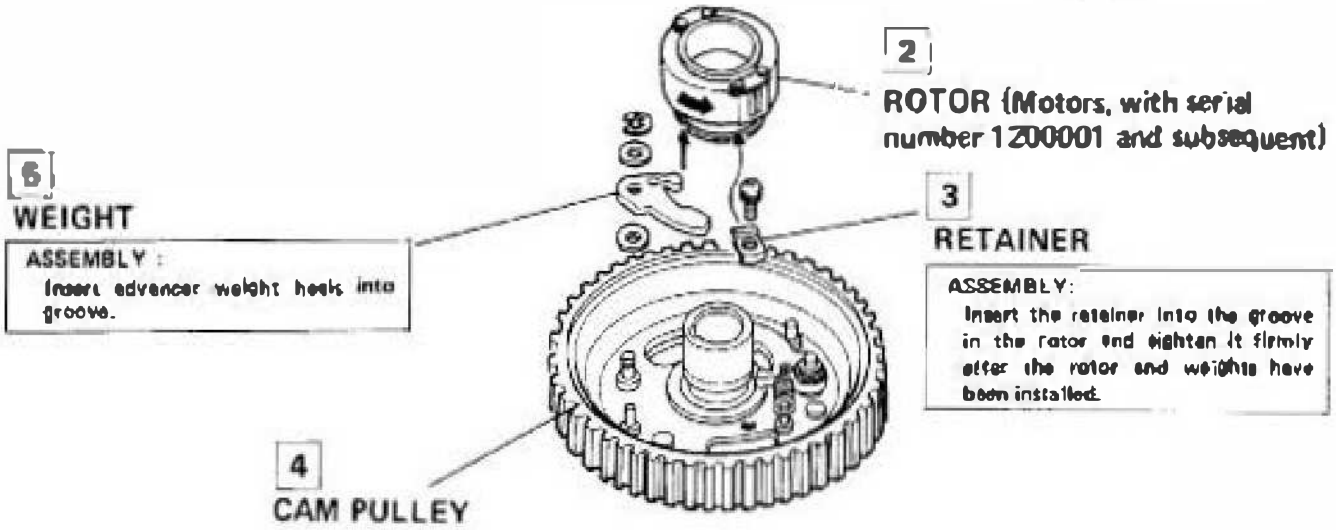


• SPARK ADVANCER

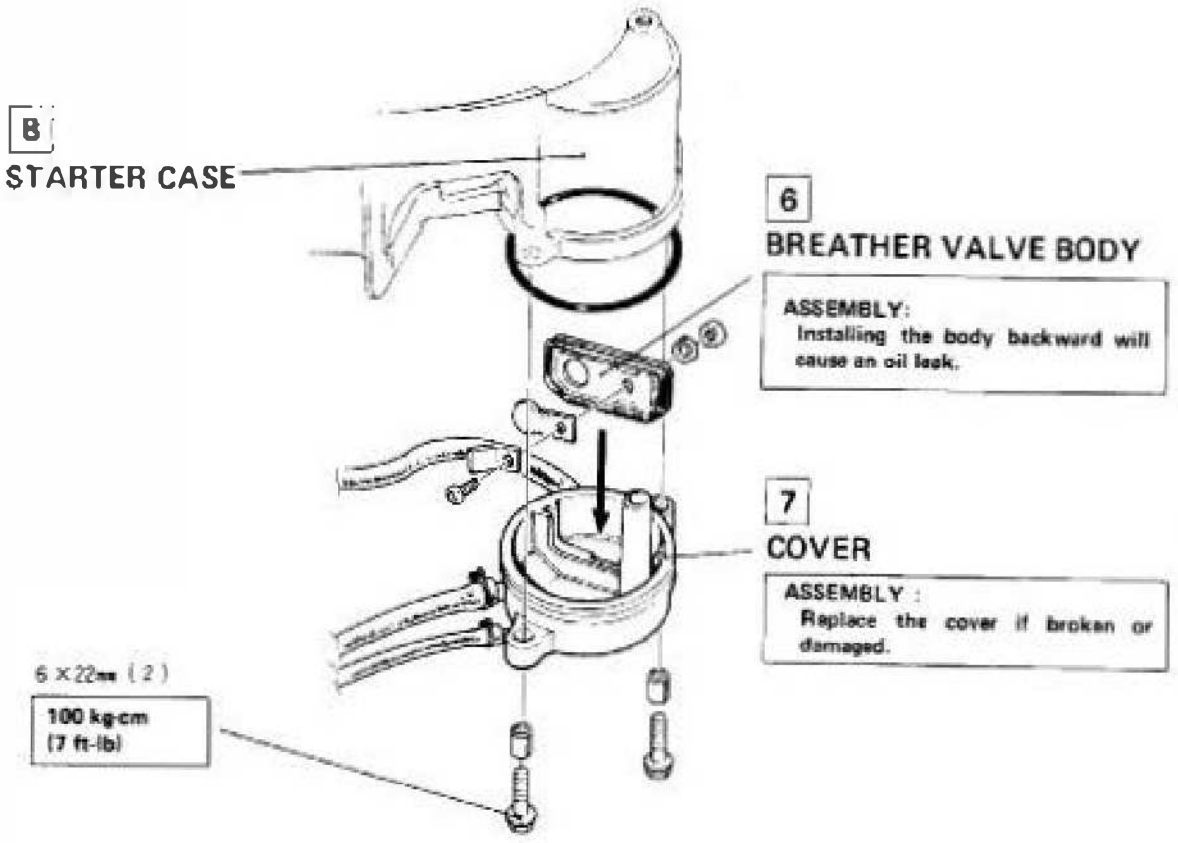
1

After assembling, pull the weight outward to be certain that the rotor turns freely in the direction of the arrow. It should return to the original position smoothly when the weight is released.





• CRANKCASE BREATHER/SEPARATOR

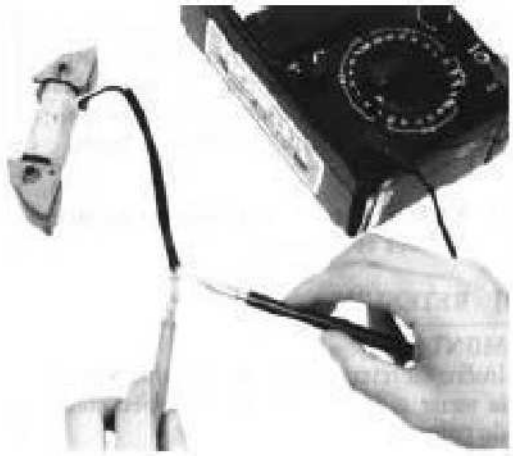


b. INSPECTION

• PRIMARY COIL (CONTACT BREAKER TYPE)

INSPECTION :
Measure the resistance between the two wires with an ohmmeter.

RESISTANCE : 2.0Ω

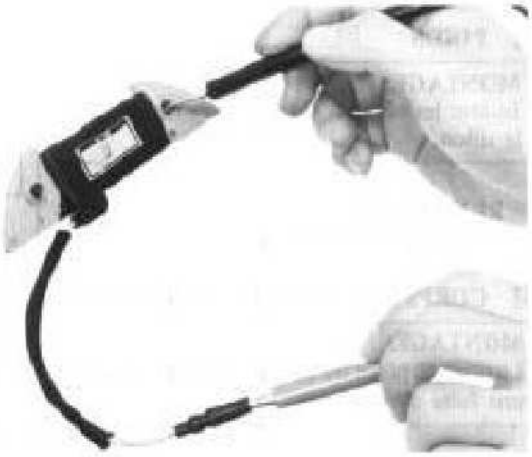


• EXCITER COIL (CDI TYPE)

INSPECTION

Measure the resistance between the wire lead end and the core.

RESISTANCE: 330Ω ±10%

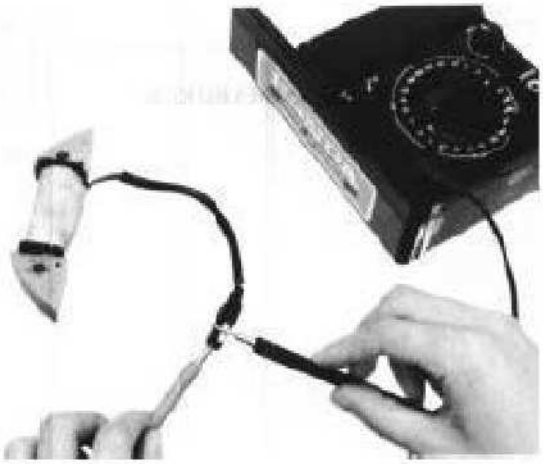


• CHARGING COIL

INSPECTION

Measure the resistance between both wire terminals with an ohmmeter.

RESISTANCE: 0.12Ω ±10%

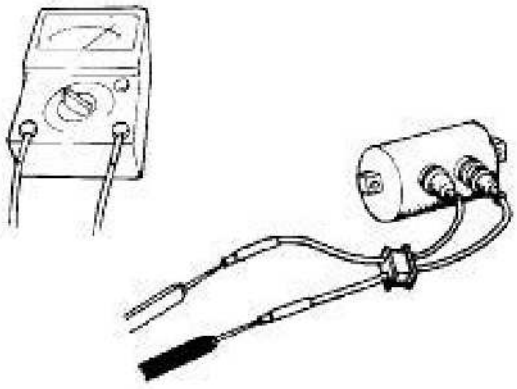


• IGNITION COIL

INSPECTION

Remove the spark plug caps and measure the resistance between the high tension wires.

RESISTANCE: 8kΩ ±20%



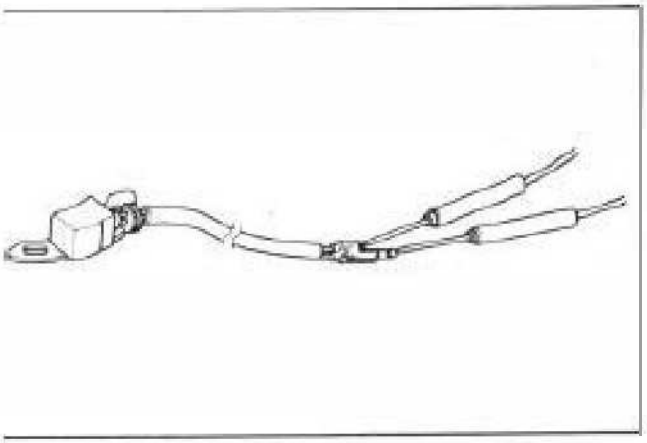
RESISTANCE: 0.56Ω ± 10%

• PULSER COIL (CDI TYPE)

INSPECTION

Measure the resistance between both wire leads.

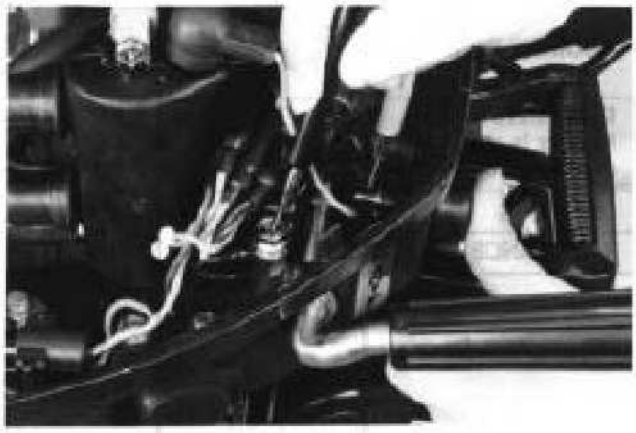
RESISTANCE: 120Ω ±10%



• ENGINE SWITCH

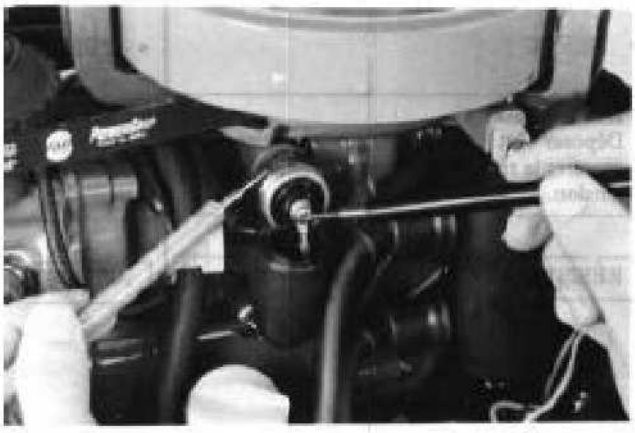
INSPECTION:
Engine serial numbers 1000004–1299999: Check continuity between the black lead and ground, while pushing the engine stop button.
Engine serial number 1300001 and subsequent: Check continuity between the black lead and green lead while pushing the engine stop button.

ENGINE SWITCH	CONTINUITY
Pushed	YES
Released	NO



• PRESSURE SWITCH

INSPE TION:
(1) Remove the pressure switch and run the engine at idle. Check that the engine oil comes out. If not, inspect the oil pump.
(2) If the oil pressure is normal, reinstall the pressure switch and check if there is continuity between the wire and ground. If continuity exists, the switch is normal.



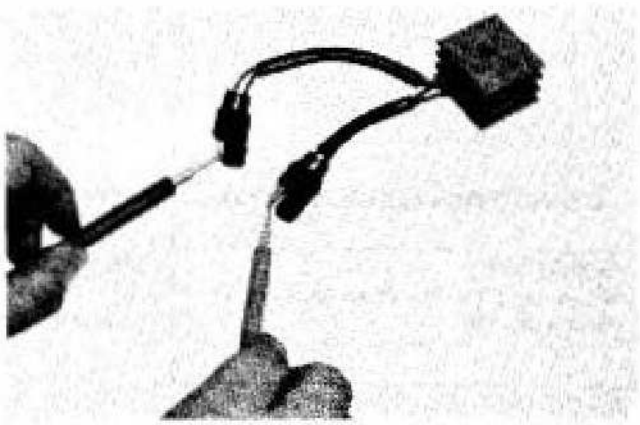
• INDICATOR LAMP

When the lamp doesn't come on, check the engine oil level p.56, and the pressure switch p. 49.
If there are fault, replace the lamp. If the lamp still doesn't light, replace the CDI.

• DIODE RECTIFIER

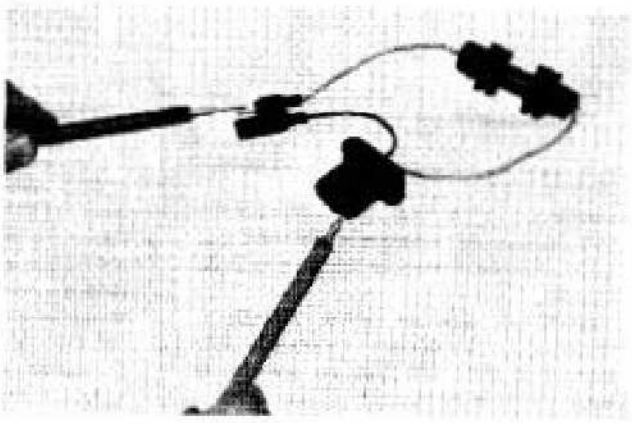
INSPECTION :
- Measure resistance between terminals with an ohmmeter.
- Measure both blue lead terminals.

Tester Probe		Continuity
+	−	
Green	Blue	No Continuity
Blue	Green	Exists
Blue	Red	No Continuity
Red	Blue	Exists



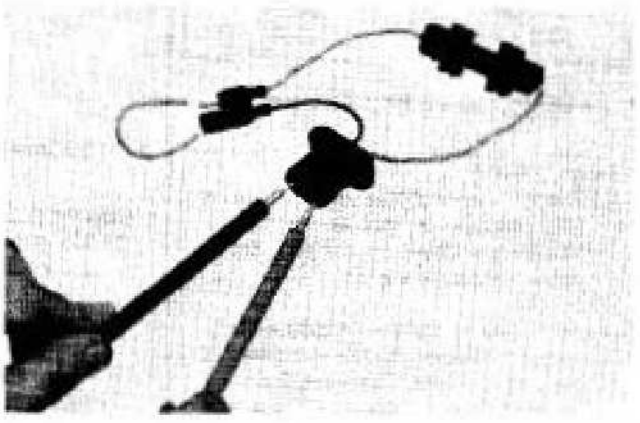
• FUSE/FUSE HOLDER

INSPECTION :
Check fuse and fuse holder (fuse lid) for continuity.



• D.C. OUTPUT CONNECTOR

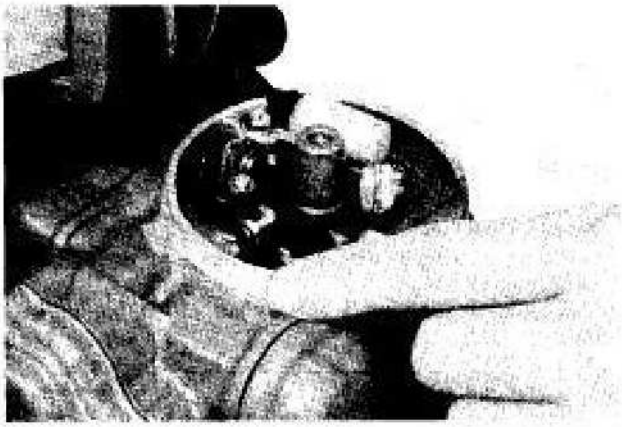
INSPECTION :
- Short circuit the connector and check for continuity.
- Before checking, make sure fuse is not blown out.



• CONTACT BREAKER POINT (Engineserial numbers 1000004–1199999)

INSPECTION:
With ignition timing correctly adjusted, check maximum point gap with feeler gauge.

STANDARD POINT GAP: 0.3–0.4 mm (0.012–0.016 in)



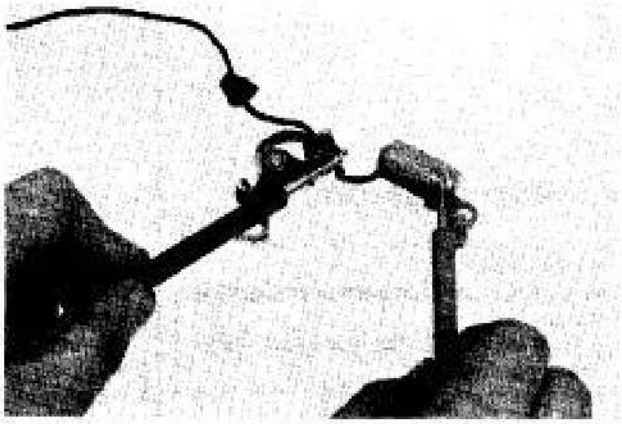
INSPECTION :
Check for pitting, fouling misalignment or metal transfer.

• To polish point surfaces, use a fine emery cloth or point file.

• CONDENSER (CONTACT BREAKER TYPE)

INSPECTION :
Discharge condenser before testing capacity.

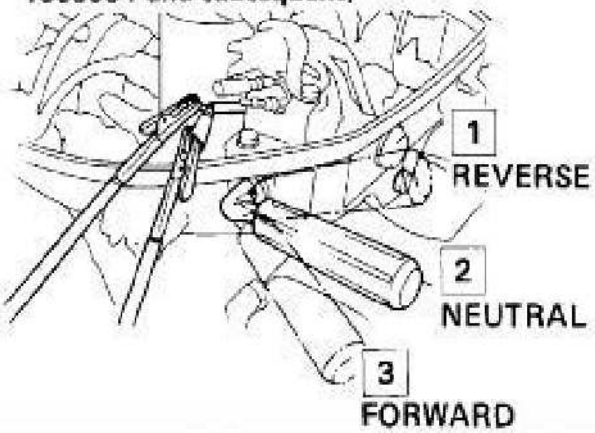
Capacity : 0.24 µF



Before inspection, be sure the neutral switch, shift shaft and shield plate are installed securely. Check for continuity between blue and black/white wire leads.

SHIFT LEVER POSITION	CONTINUITY
REVERSE	NO
NE TRAL	YES
FORWARD	NO

• NEUTRAL SWITCH (Engine serial number 1300001 and subsequent)



• CDI UNIT

Disconnect wiring and check the continuity of CDI terminals. Replace the CDI unit if the readings do not fall within the limits shown in the table.

NOTE:

- The CDI unit is fully transistorized.
- For accurate testing, it is necessary to use a specified electrical tester. Use of an improper tester or measurements in improper range may give false readings.
- Use SANWA ELECTRICAL TESTER (P/N 07308-20000) or KOWA SEIKI TESTER (P/N KS-TH-5H-1 or KS-AHM-32-003).

Engine serial numbers 1200001 – 1299999

[kΩ]

(+) Probe / (–) Probe	Brown	Green	Black	Yellow	Orange	White
Brown		6 – 10	0 – 0.5	10 – 20	∞	∞
Green	0.5 – 10		0.5 – 10	15 – 30	∞	∞
Black	0 – 0.5	6 – 10		10 – 20	∞	∞
Yellow	10 – 20	15 – 30	10 – 20		–	∞
Orange	100 – 400	100 – 400	100 – 400	100 – 400		∞
White	10 – 100	10 – 100	10 – 100	10 – 100	∞	

Engine serial number 1300001 – 1300700:

[kΩ]

(+) Probe / (–) Probe	Brown	Green	Black	Yellow	Orange	Blue	Black/White	White
Brown		6 – 10	0 – 0.5	10 – 20	∞	6 – 10	8 – 30	∞
Green	0.5 – 10		0.5 – 10	15 – 30	∞	0.05 – 5	1 – 20	∞
Black	0 – 0.5	6 – 10		10 – 20	∞	6 – 10	8 – 30	∞
Yellow	10 – 20	15 – 30	10 – 20		∞	15 – 30	15 – 50	∞
Orange	100 – 400	100 – 400	100 – 400	100 – 400		100 – 400	100 – 400	∞
Blue	0.5 – 10	0.05 – 5	0.5 – 10	15 – 30	∞		1 – 20	∞
Black/White	20 – 40	15 – 25	20 – 40	35 – 70	∞	15 – 25		∞
White	10 – 100	10 – 100	10 – 100	10 – 100	∞	20 –	0.5 – 10	

Engine serial number 1300701/1300703 (BF75/BF100) and subsequent:

[kΩ]

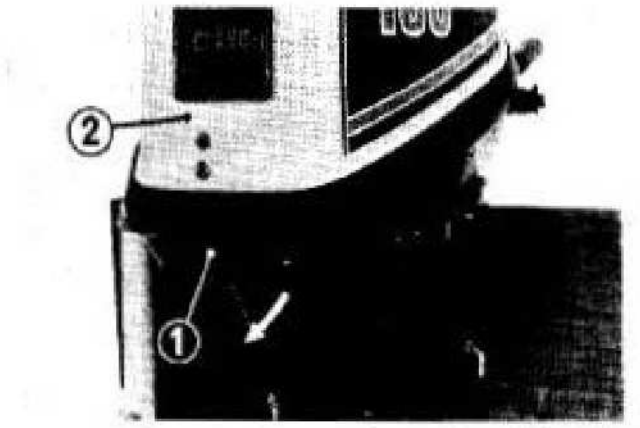
(+) Probe / (–) Probe	Brown	Green	Black	Yellow	Orange	Blue	Black/White	White
Brown		35 – 100	0 – 0.5	10 – 20	∞	30 – 100	30 – 100	∞
Green	0.5 – 10		0.5 – 10	15 – 30	∞	10 – 40	0	∞
Black	0 – 0.5	20 – 100		10 – 20	∞	30 – 100	30 – 100	∞
Yellow	10 – 20	30 – 200	10 – 20		∞	30 – 200	30 – 200	∞
Orange	∞	∞	∞	∞		∞	∞	∞
Blue	3 – 30	0.5 – 10	3 – 30	20 – 200	∞		0.5 – 10	∞
Black/White	0.5 – 10	0	0.5 – 10	15 – 30	∞	10 – 40		∞
White	2 – 20	0.5 – 10	2 – 20	20 – 200	∞	20 – 200	0.5 – 10	

5. ENGINE/LOWER UNIT REMOVAL

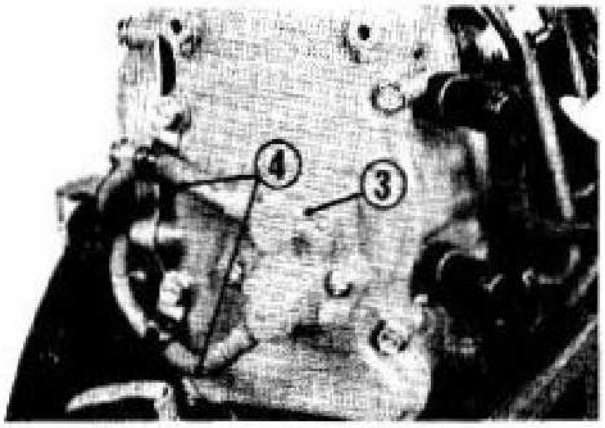
a. REMOVAL

- ENGIN (See also P. 56)

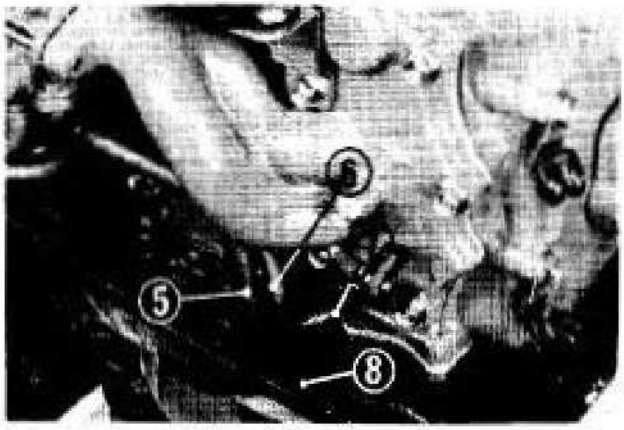
(1) Turn lock lever (1) and remove engine cover (2).



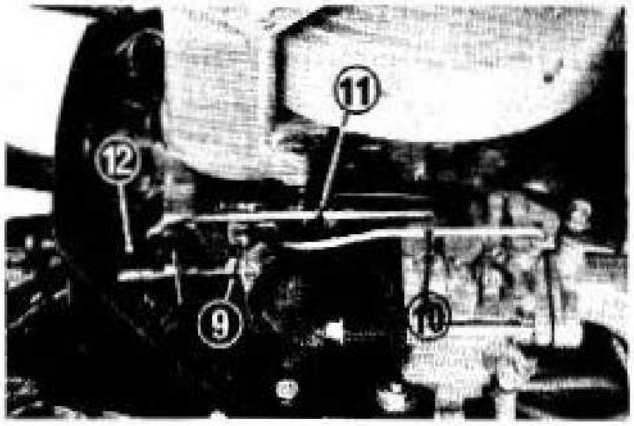
(2) If equipped with the early model fuel pump, remove the pump cover (BF75 serial numbers 1000004–1102860 and BF100 serial numbers 1000004–1101260).
Disconnect fuel tube (4) from pump (3).



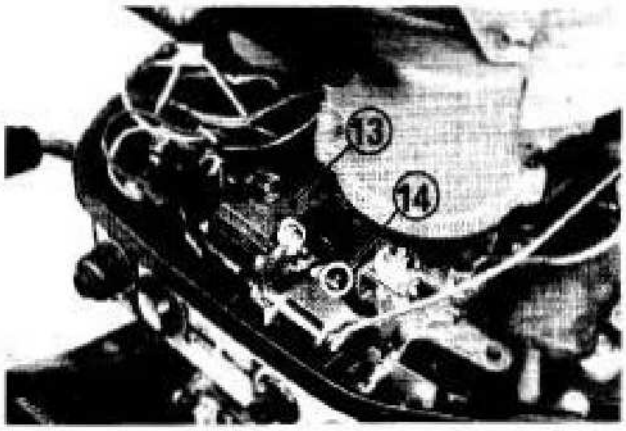
(3) Remove breather tube (5), carburetor overflow tube (6) and cooling water tube (7) from tube connector (8).



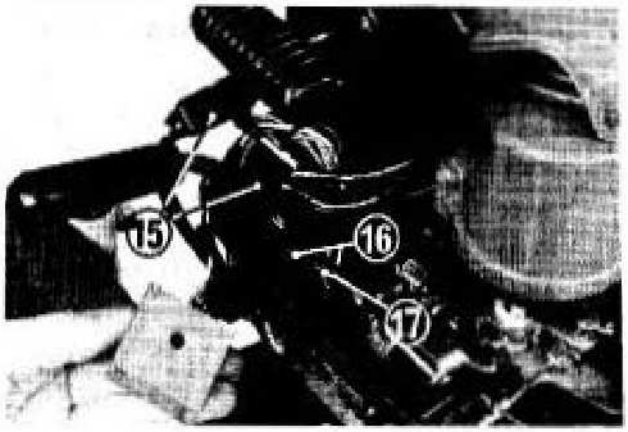
(4) Loosen lock screw (9) and remove throttle link (10). Remove choke link (11) from choke knob (12).



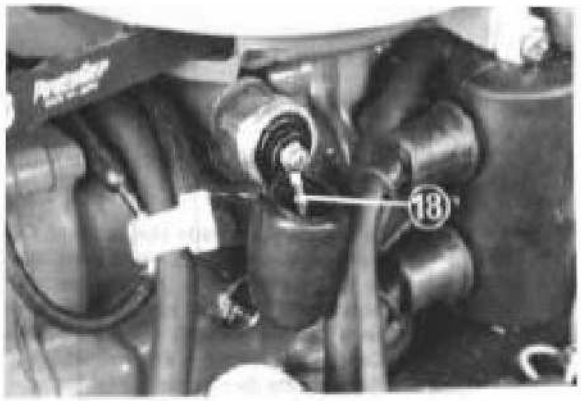
(5) Remove rectifier (13) by unscrewing the 6 mm bolt. Remove the cotter pin and 5 mm clevis pin (14).



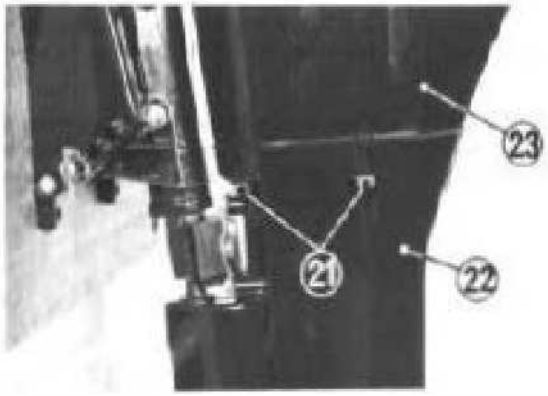
(6) Disconnect wire leads (15), (16) and (17) coming from the rectifier, engine switch and oil indicator lamp at their connections.



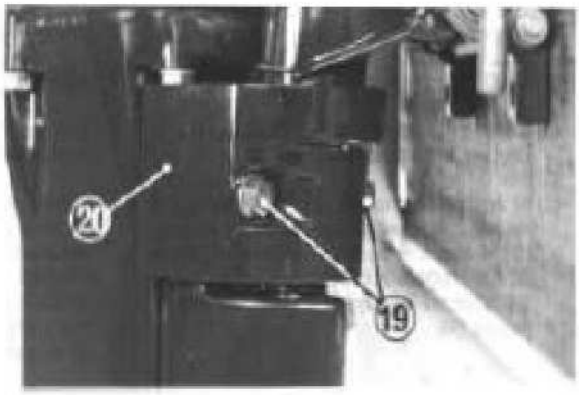
(7) Disconnect wire lead (18) from the oil pressure switch.



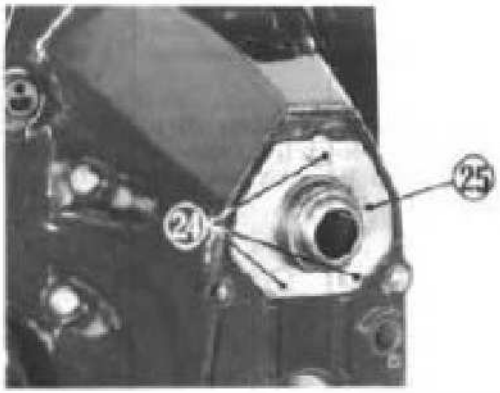
(8) Remove four 6 mm bolts (23), and separate extension case (22) from oil case (21).



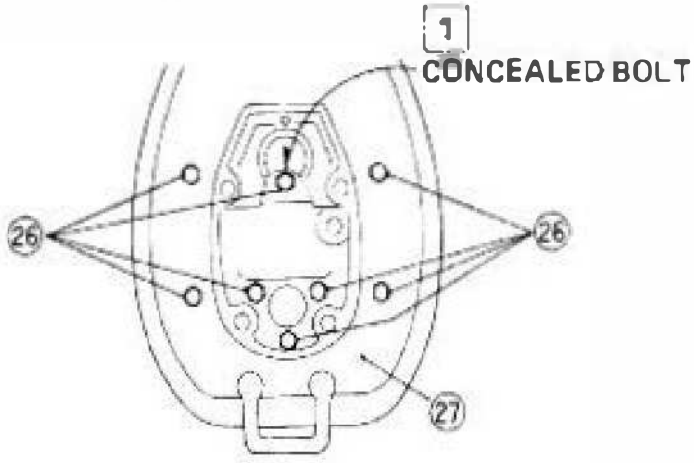
(9) Remove lower mount housing (20) by unscrewing two 6 mm bolts (19).



(10) Remove three 6 mm bolts (24) and exhaust pipe seal (25).



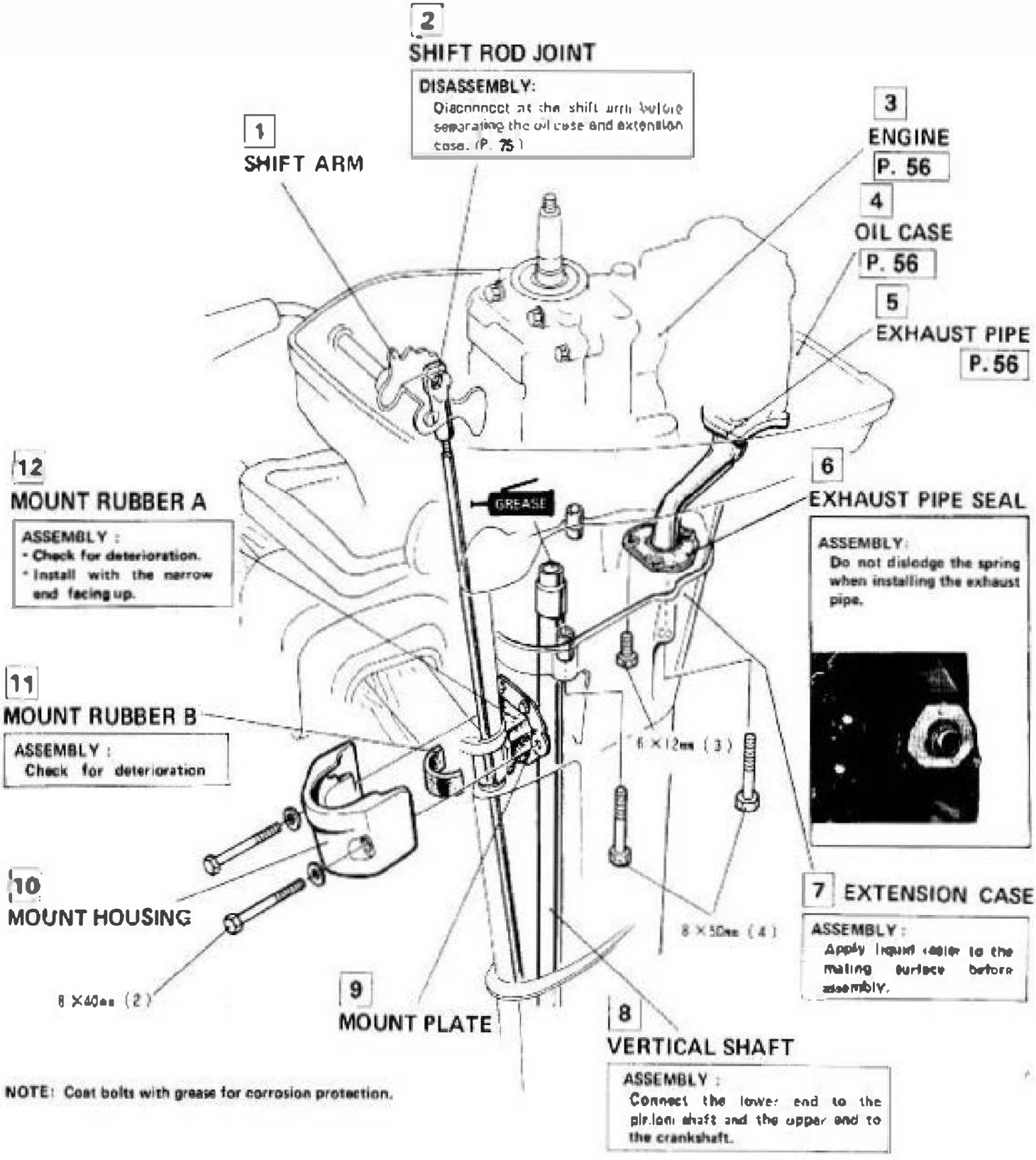
(11) Remove eight 6 mm bolts (26) and take the power head out of oil case (27).



NOTE:
- One bolt is concealed as indicated in the illustration.
- Coat bolts with grease for corrosion protection.

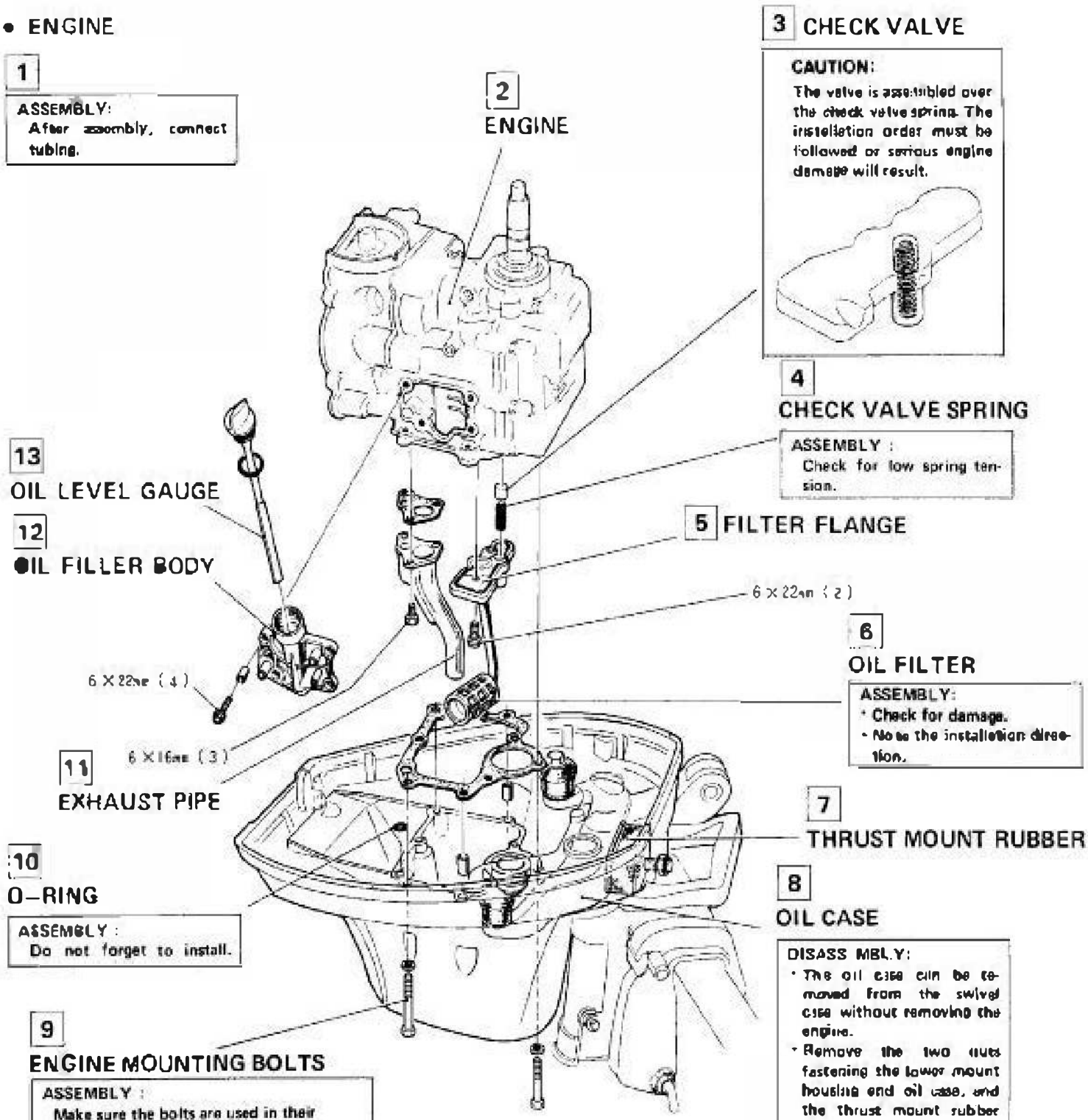
b. DISASSEMBLY/ASSEMBLY

- **EXTENSION CASE**



NOTE: Coat bolts with grease for corrosion protection.

• ENGINE

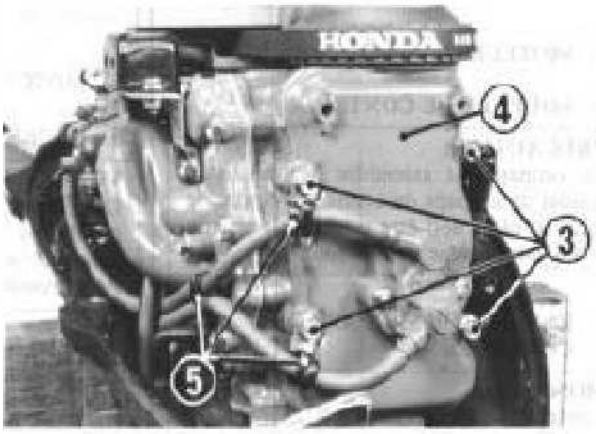


NOTE: Coat bolts with grease for corrosion protection.

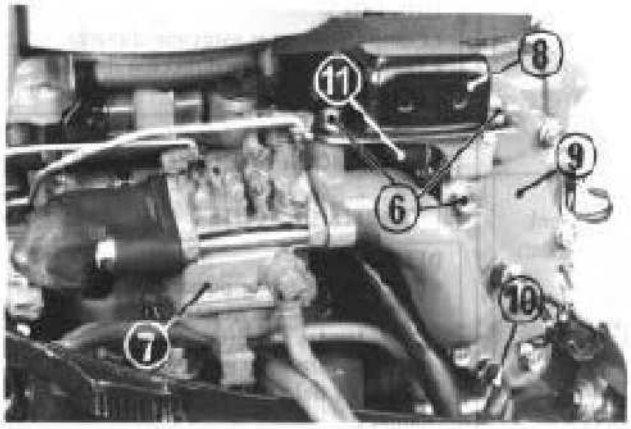
5. CYLINDER HEAD REMOVAL (SINGLE OPERATION)

(1) Turn lock lever (1) and remove engine cover (2).

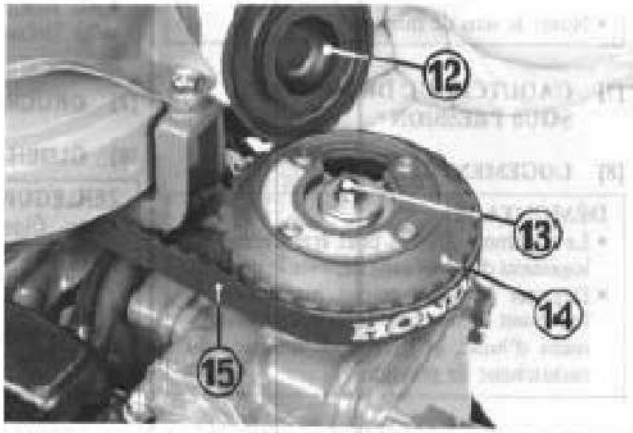
(2) Remove four 6 mm bolts (3) to remove cylinder head cover (4). Raise tube clamps (5) to release the tubes.



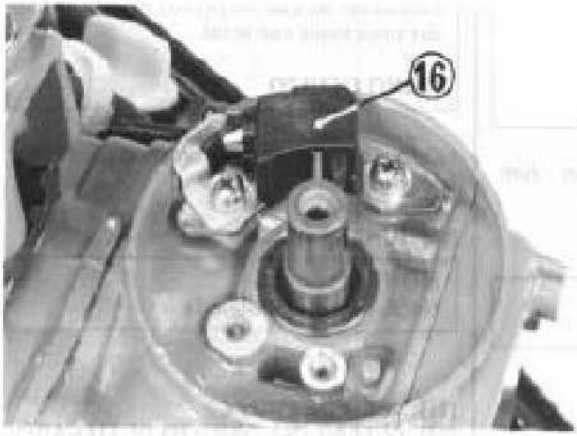
(3) Unscrew the two 6 mm bolts to separate carburetor assembly (7) from intake manifold (9). Loosen the three 6 mm bolts (8) to remove CDI unit (6) from the manifold. Disconnect cooling water check tube (10) and bypass tube (11) from the inlet manifold.



(4) Remove cover (12) and 8 mm bolt (13) to release cam pulley (14) from the camshaft and timing belt (15).

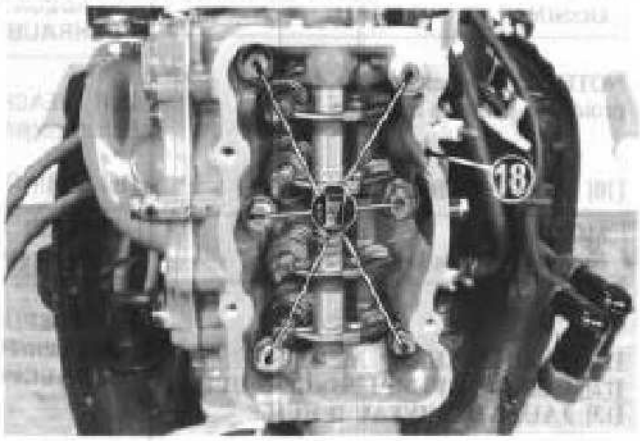


(5) On contact breaker type, remove the contact breaker, condenser and clamp plate.
On CDI type, unscrew the two screws and remove stator coil (16).



(6) After removing six 8 mm bolts (17), remove cylinder head (18) with the intake manifold, exhaust pipe, oil pump and valve train installed.

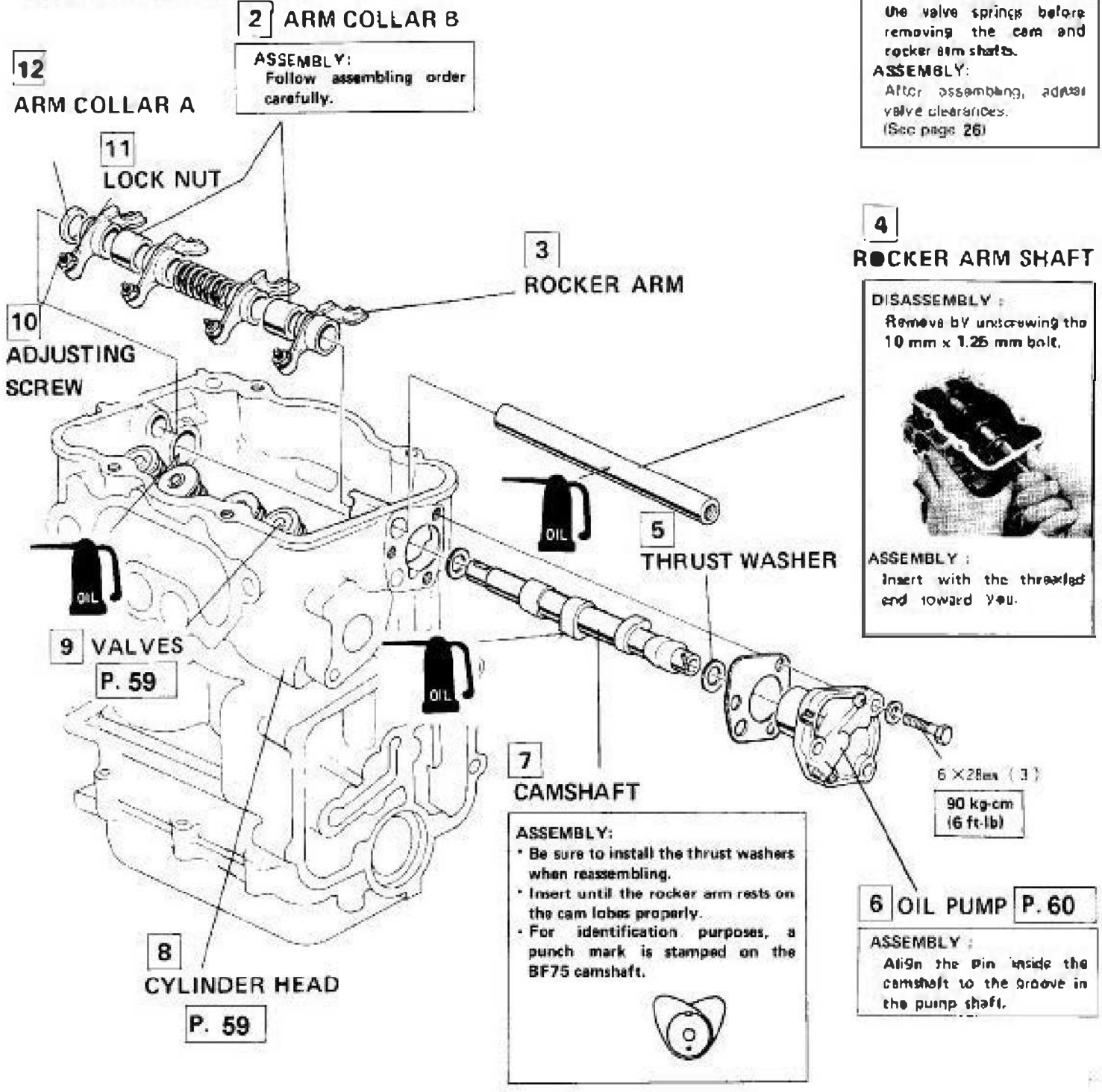
CAUTION: When reassembling, apply a coat of grease on the exhaust pipe end and insert it through the exhaust pipe seal. Be careful not to dislodge the seal spring.



7. CAMSHAFT/VALVE/OIL PUMP

a. DISASSEMBLY/ASSEMBLY

- CAMSHAFT/ROCKER ARM



1

DISASSEMBLY:
Loosen the lock nuts and adjusting screws to unload the valve springs before removing the cam and rocker arm shafts.

ASSEMBLY:
After assembling, adjust valve clearances.
(See page 26)

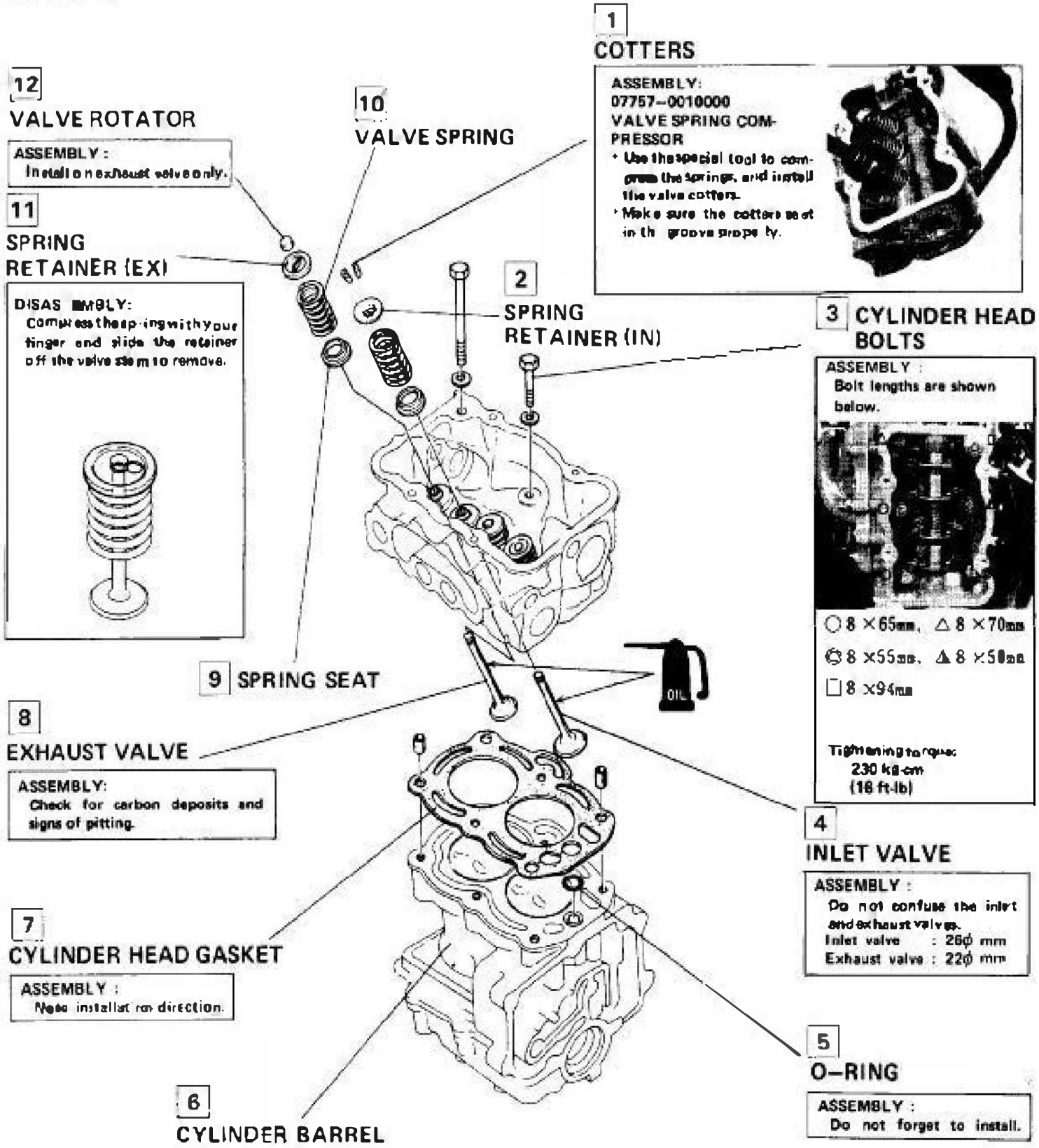
4

ROCKER ARM SHAFT

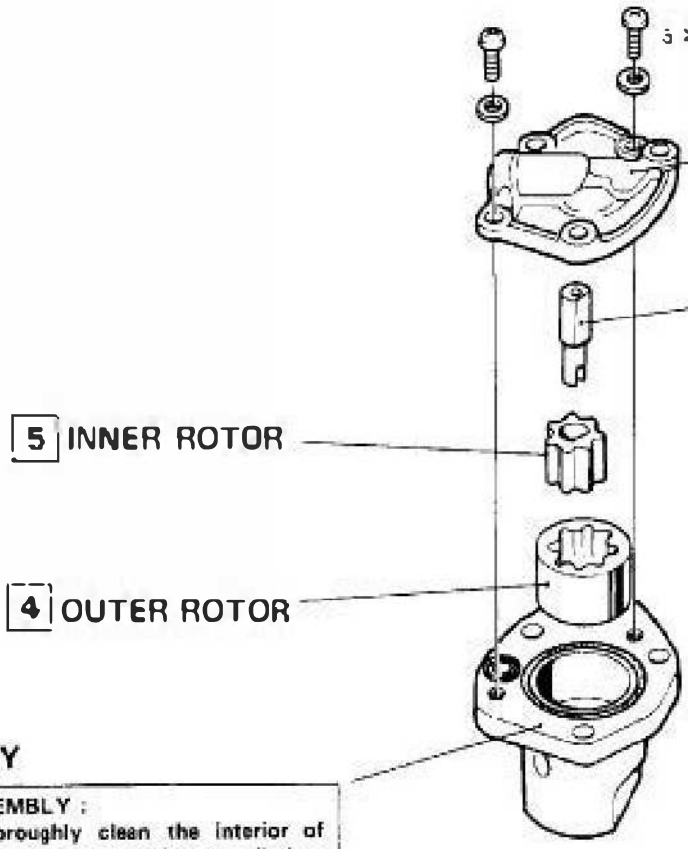
DISASSEMBLY:
Remove by unscrewing the 10 mm x 1.25 mm bolt.

ASSEMBLY:
Insert with the threaded end toward you.

• VALVES


1
COTTERS
ASSEMBLY:
07757-0010000
VALVE SPRING COMPRESSOR
• Use the special tool to compress the springs, and install the valve cotters.
• Make sure the cotters seat in the groove properly.
12
VALVE ROTATOR
ASSEMBLY:
Install on exhaust valve only.
10
VALVE SPRING
11
SPRING RETAINER (EX)
DISASSEMBLY:
Compress the spring with your finger and slide the retainer off the valve stem to remove.
2
SPRING RETAINER (IN)
3
CYLINDER HEAD BOLTS
ASSEMBLY:
Bolt lengths are shown below.
○ 8 ×65mm, △ 8 ×70mm
◇ 8 ×55mm, ▲ 8 ×50mm
□ 8 ×94mm
Tightening torque:
230 kg-cm
(16 ft-lb)
9
SPRING SEAT
OIL
8
EXHAUST VALVE
ASSEMBLY:
Check for carbon deposits and signs of pitting.
4
INLET VALVE
ASSEMBLY:
Do not confuse the inlet and exhaust valves.
Inlet valve : 26φ mm
Exhaust valve : 22φ mm
7
CYLINDER HEAD GASKET
ASSEMBLY:
Note installation direction.
5
O-RING
ASSEMBLY:
Do not forget to install.
6
CYLINDER BARREL

• OIL PUMP

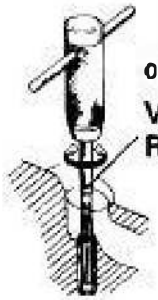


ASSEMBLY :
Thoroughly clean the interior of the pump body before installation.

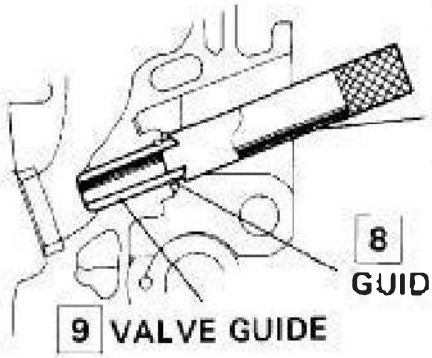
• VALVE GUIDE

6

* After installing new guides, ream them to size with the special tool "VALVE GUIDE REAMER".



07984-2000000
VALVE GUIDE REAMER

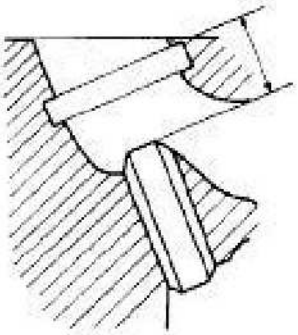


ASSEMBLY:
07942-9350000
VALVE GUIDE DRIVER

DISASSEMBLY :
Drive the guide out of the head from the combustion chamber by using valve guide remover 07742-0010100.

ASSEMBLY:
Install the clip on the new guides and drive them to the depths shown.

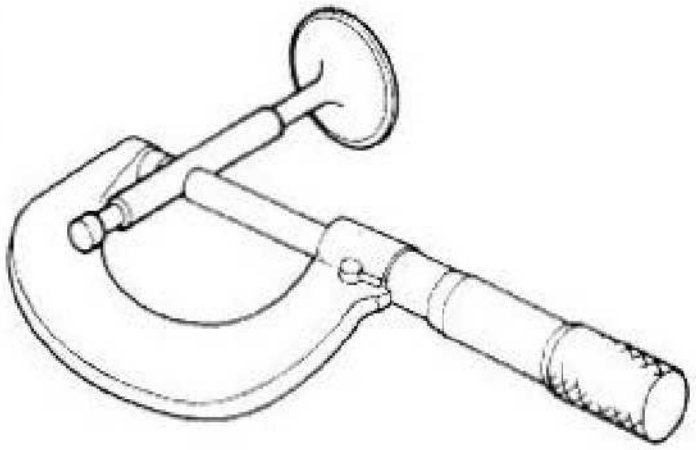
IN : 15 mm (0.59 in)
EX: 13 mm (0.51 in)



b. INSPECTION

- VALVE STEM O.D.

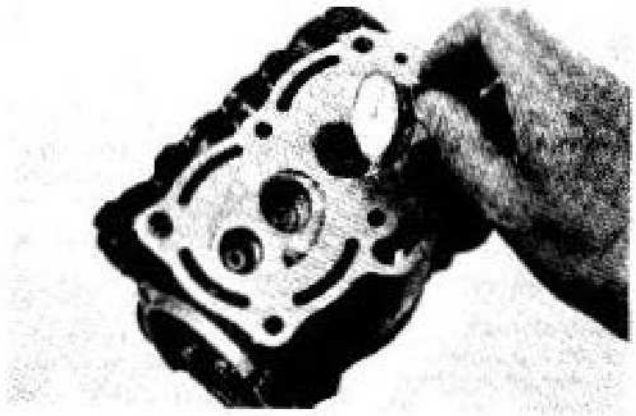
STANDARD	SERVICE LIMIT
IN 5.468–5.480 mm (0.215–0.216 in)	5.08 mm (0.2 in) min.
EX 5.435–5.450 mm (0.214–0.2145 in)	4.75 mm (0.187 in) min.



- VALVE GUIDE I.D.

STANDARD	SERVICE LIMIT
5.500–5.512 mm (0.2165–0.2170 in)	5.54 mm (0.218 in) max.

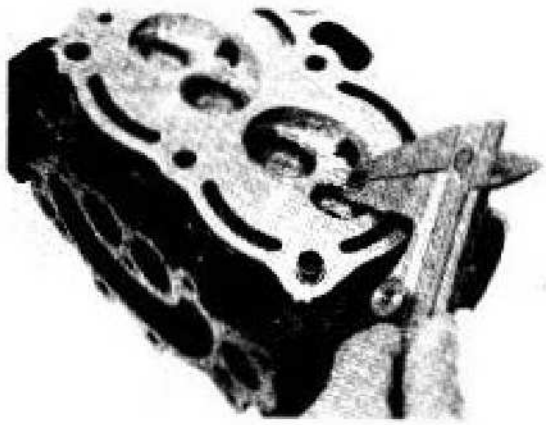
• For replacement, see Page 60.



- VALVE SEAT WIDTH

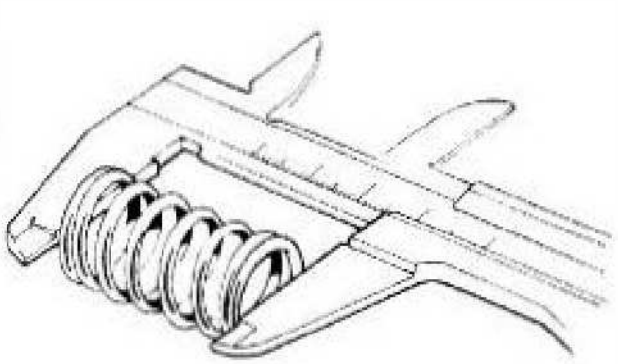
STANDARD	SERVICE LIMIT
0.7 mm (0.03 in)	2.0 mm (0.079 in) max.

• For refacing, see Page 66.



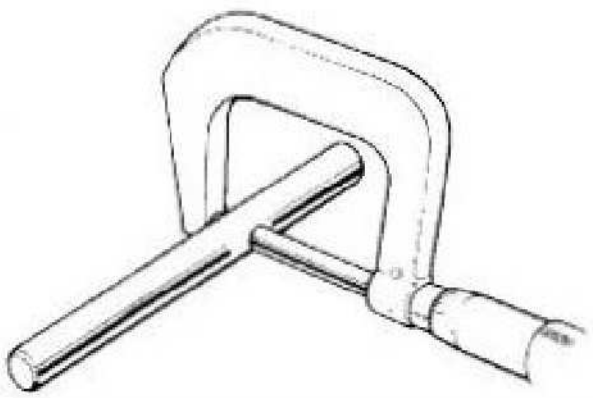
- VALVE SPRING FREE LENGTH

STANDARD	SERVICE LIMIT
28.9 mm (1.148 in)	27.4 mm (1.079 in) min.



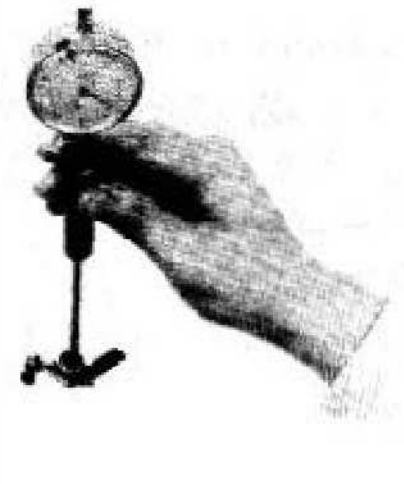
- ROCKER ARM SHAFT O.D.

STANDARD	SERVICE LIMIT
12.947–12.968 mm (0.510–0.511 in)	12.92 mm (0.509 in) min.



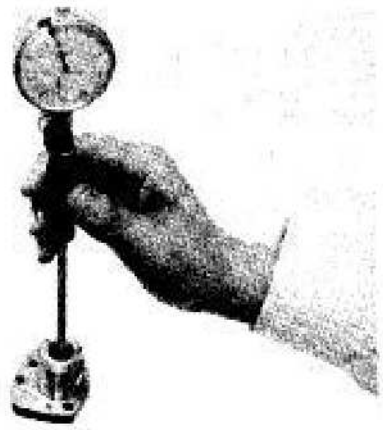
- ROCKER ARM I.D.

STANDARD	SERVICE LIMIT
13.00–13.03 mm (0.512–0.513 in)	13.06 mm (0.514 in) max.



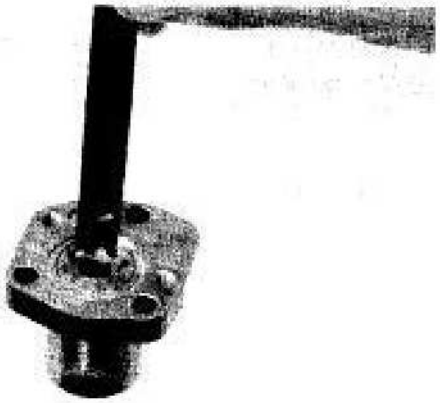
- PUMP BODY I.D.

STANDARD	SERVICE LIMIT
23.15–23.18 mm (0.911–0.913 in)	23.23 mm (0.915 in) max.



- INNER ROTOR–TO–OUTER ROTOR CLEARANCE

STANDARD	SERVICE LIMIT
0.15 mm (0.006 in)	0.20 mm (0.008 in) max.



- OUTER ROTOR–TO–BODY CLEARANCE

STANDARD	SERVICE LIMIT
0.15 mm (0.006 in)	0.26 mm (0.010 in) max.

• CAM HEIGHT

COI TYPE

		STANDARD	SERVICE LIMIT
BF100		26.2 mm (0.99 in)	24.95 mm (0.982 in)
BF75	IN	26.5 mm (1.04 in)	26.25 mm (1.033 in)
	EX	23.2 mm (0.91 in)	22.95 mm (0.904 in)

CONTACT BREAKER TYPE

	STANDARD	SERVICE LIMIT
BF100	25.0 mm (0.98 in)	24.75 mm (0.974 in)
BF75	23.0 mm (0.91 in)	22.75 mm (0.896 in)

• CAMSHAFT O.D. (OIL PUMP SIDE)

STANDARD	SERVICE LIMIT
15.966–15.984 mm (0.6285–0.6292 in)	15.916 mm (0.627 in) min.

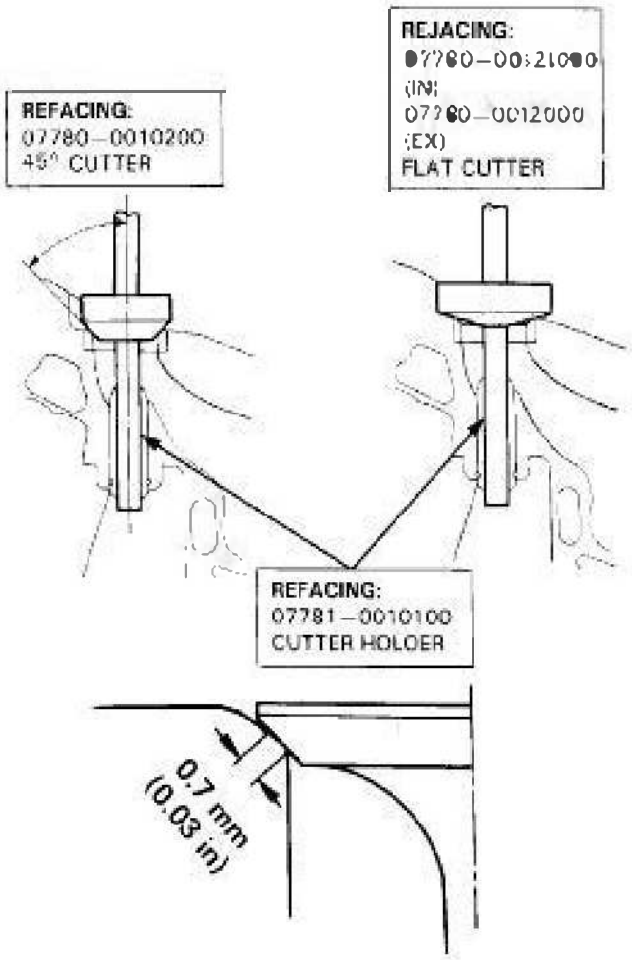
c. REPAIR

• REFACING VALVE SEATS

(1) Cut the valve seats to a true 45° angle using the 45° cutter.

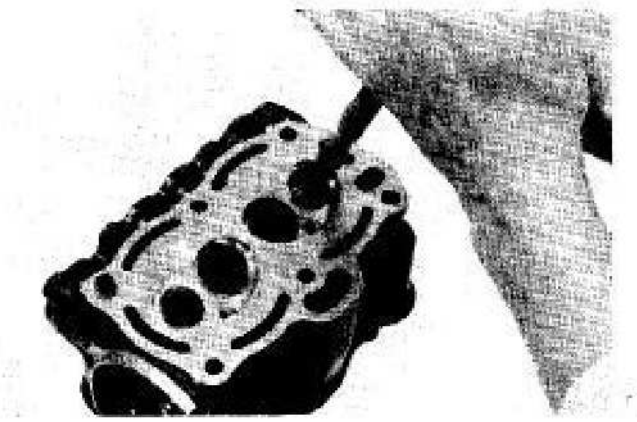
(2) Cut the seat outer edge with the flat-face cutter.

(3) Reface the seat again with the 45° cutter to bring it within the limits.



(4) Check the valve and valve seat for proper contact by applying prussian blue.
Specified seat width : 0.7 mm (0.03 in)

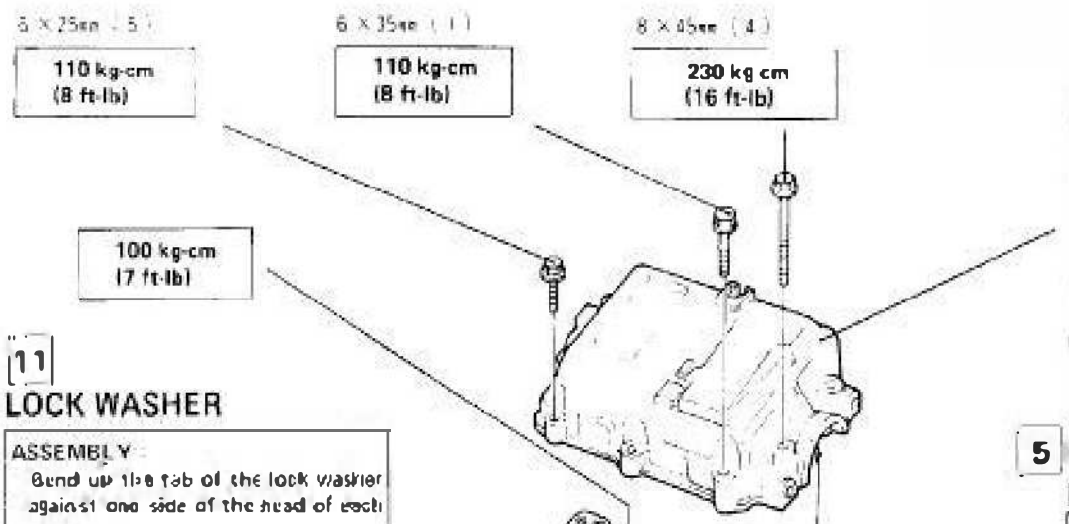
(5) Fit the valve and valve seat by lapping after the seat has been refaced.



8. CRANKSHAFT/PISTON

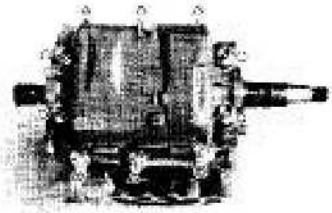
a. DISASSEMBLY/ASSEMBLY

- CRANKSHAFT



1 CRANKCASE

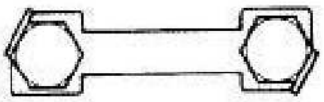
ASSEMBLY :
- Check that the oil seals are in place.
- Note the bolt positions.



○ 8 x 45mm, △ 6 x 25mm,
□ 6 x 35mm

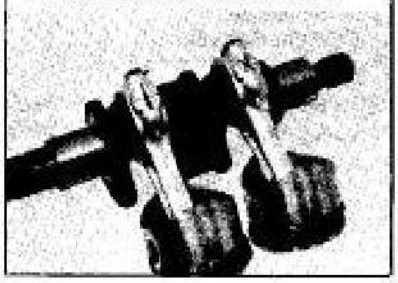
11 LOCK WASHER

ASSEMBLY :
Bend up the tab of the lock washer against one side of the head of each bolt.



5 CONNECTING ROD/LOWER CAP

DISASSEMBLY :
During disassembly, mark the rods and caps so that they can be placed back in their original locations.



4 "LOCKING LUG"

10 LOWER OIL SEAL

ASSEMBLY:
The seal is marked "LOWER" for identification. Do not confuse the upper and lower seals. Otherwise, oil leakage will result.

2 THRUST BEARING

ASSEMBLY :
- Install the bearing with the grooved end inside.
- Fit the locking lug in the notch in the cylinder barrel.

9 CRANKSHAFT

ASSEMBLY :
Note the installation direction.

3 UPPER OIL SEAL

ASSEMBLY :
The seal is marked "UPPER" for identification. Do not confuse the upper and lower seals. Otherwise, oil leakage will result.

8 CYLINDER BARREL

ASSEMBLY :
Apply liquid packing to the crankcase mating surface.

6 CRANKSHAFT BEARINGS

ASSEMBLY :
- Use care not to damage them.
- Make sure the locking lug on each bearing fits in a notch in the crankcase and cylinder barrel.

7 PISTON P. 67

• PISTON

1

ASSEMBLY :
After installing both pistons and connecting rods in the cylinders, secure the rods to the crankshaft. (p. 66)

10 TOP RING

ASSEMBLY :
Chrome plated. Do not interchange with SECOND RING.

2
PISTON RINGS

ASSEMBLY :
- Install the rings with the markings facing up.
- Stagger the rings end gaps 120° apart. Do not align with the piston pin or thrust sides.

9 SECOND RING

8 OIL RING

3
"VALVE RELIEF"

7
PISTON

ASSEMBLY :
- Install the piston so that the valve reliefs are on the valve side.
- Use the special tool and push the piston in with your fingers as shown.

07955-8810000
PISTON SLIDER
or commercially available piston ring compressor.

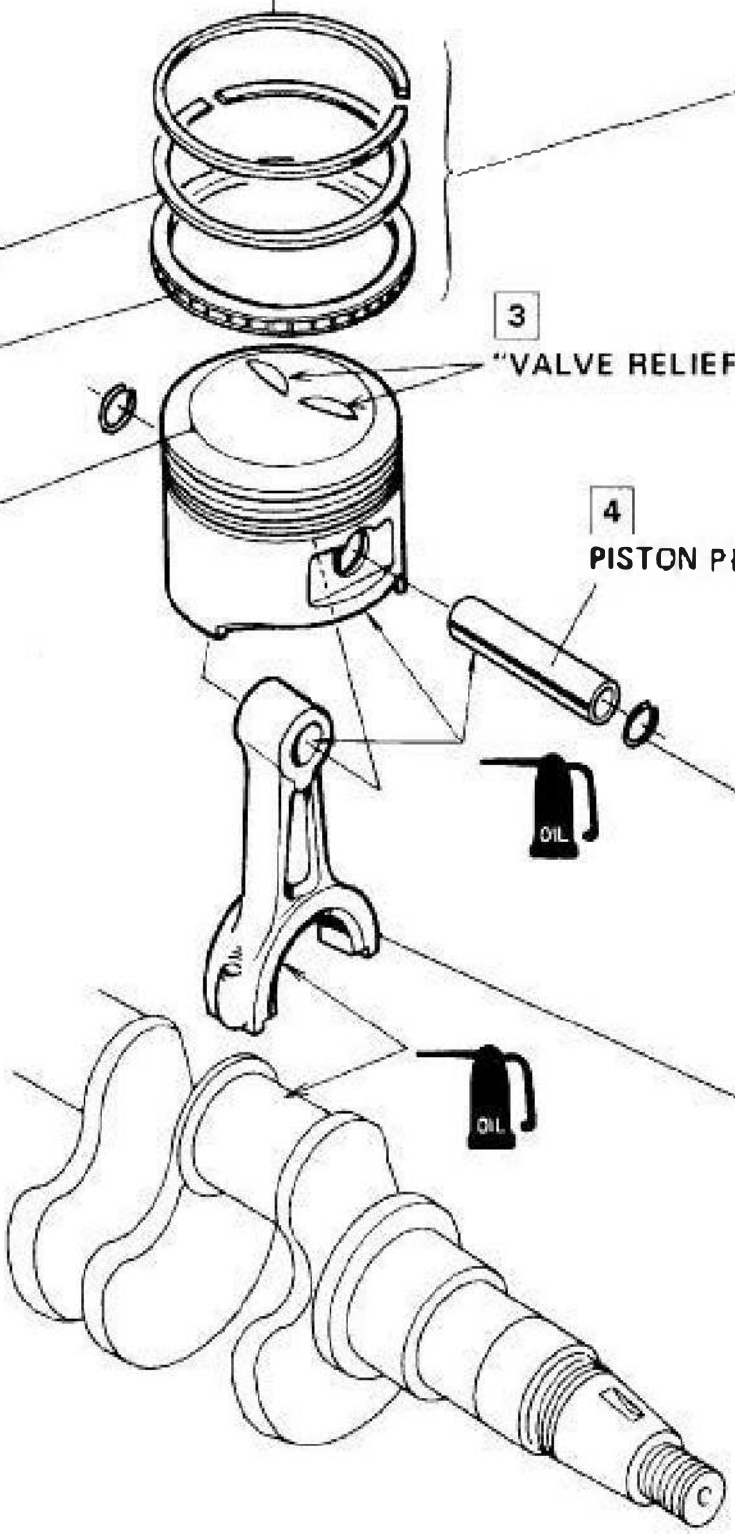
4
PISTON PIN

5
PIN CLIP

ASSEMBLY :
Set one end of the clip into the groove in the piston and work the other end around in the groove using a pair of pliers.

6
CONNECTING ROD

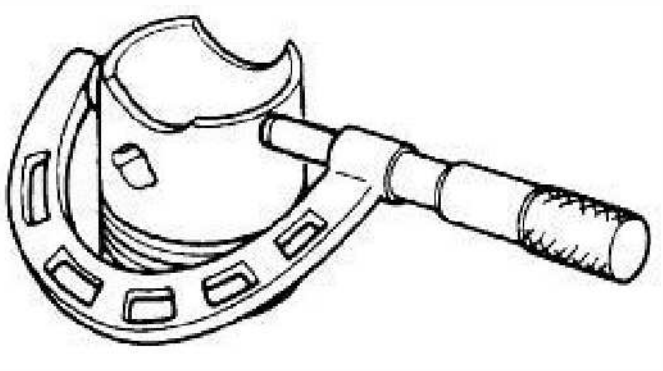
DISASSEMBLY:
Mark the rods so they can be placed back in their original positions.



b. INSPECTION

• PISTON O.D. (at skirt)

STANDARD	SERVICE LIMIT
55.960–55.990 mm (2.203–2.204 in)	55.880 mm (2.2 in) min.

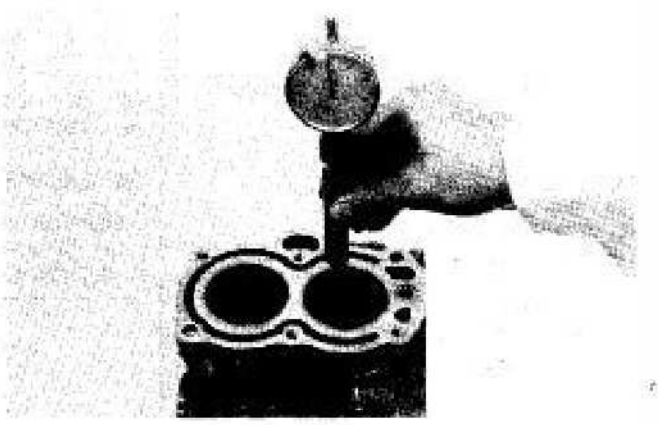


• PISTON PIN I.D.

STANDARD	SERVICE LIMIT
14.002–14.008 mm (0.5513–0.5515 in)	14.048 mm (0.553 in) max.

• CYLINDER I.D.

STANDARD	SERVICE LIMIT
56.000–56.015 mm (2.2047–2.2053 in)	56.165 mm (2.211 in) max.

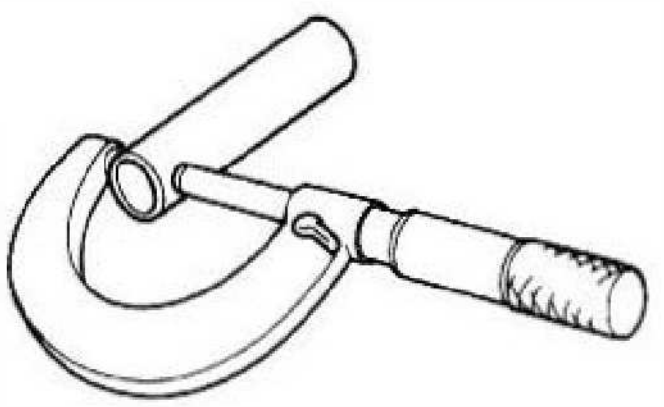


• PISTON-TO-CYLINDER CLEARANCE

STANDARD	SERVICE LIMIT
0.010–0.055 mm (0.0004–0.0022 in)	0.12 mm (0.0047 in) max.

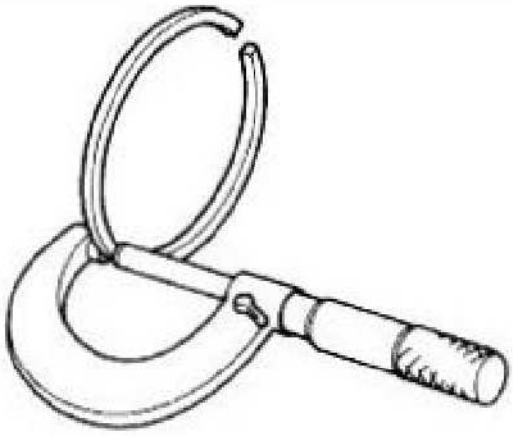
• PISTON PIN O.D.

STANDARD	SERVICE LIMIT
13.994–14.00 mm (0.5509–0.5512 in)	13.954 mm (0.549 in) min.



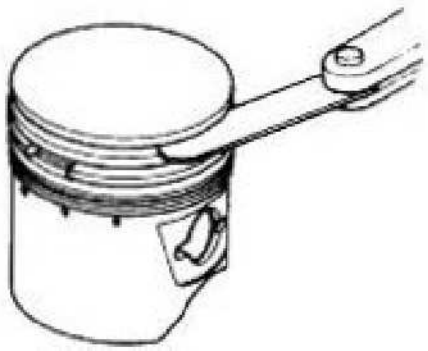
• PISTON RING WIDTH

STANDARD		SERVICE LIMIT
TOP	1.460–1.475 mm (0.057–0.058 in)	1.36 mm (0.054 in) min.
SECOND	1.476–1.490 mm (0.058–0.059 in)	1.37 mm (0.054 in) min.
OIL	2.479–2.490 mm (0.097–0.098 in)	2.37 mm (0.093 in) min.



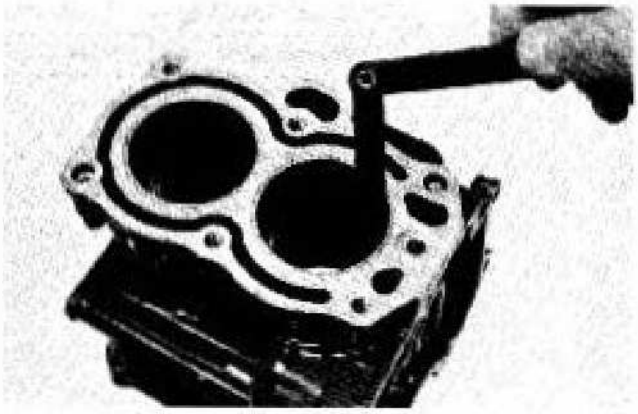
• PISTON RING SIDE CLEARANCE

STANDARD		SERVICE LIMIT
TOP	0.025 mm (0.001 in)	0.10 mm (0.004 in) max.
SECOND	0.025 mm (0.001 in)	0.10 mm (0.004 in) max.
OIL	0.015 mm (0.0005 in)	0.10 mm (0.004 in) max.



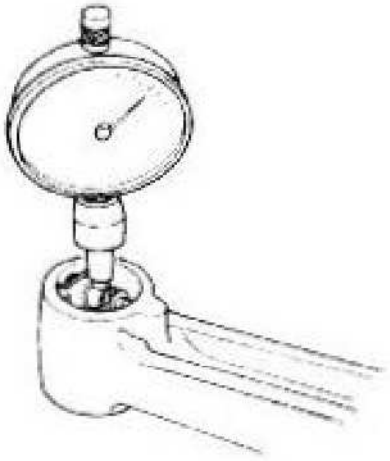
• PISTON RING END GAP

STANDARD	SERVICE LIMIT
0.15–0.35 mm (0.006–0.014 in)	1.0 mm (0.039 in) max.



• CONNECTING ROD SMALL END I.D.

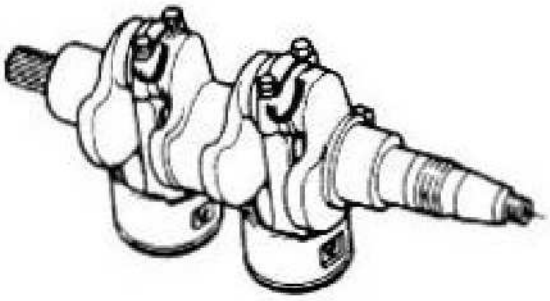
STANDARD	SERVICE LIMIT
14.005–14.020 mm (0.5514–0.5520 in)	14.07 mm (0.554 in) max.



• CONNECTING ROD BIG END OIL CLEARANCE

INSPECTION:
Measure the clearances with plastigauge.

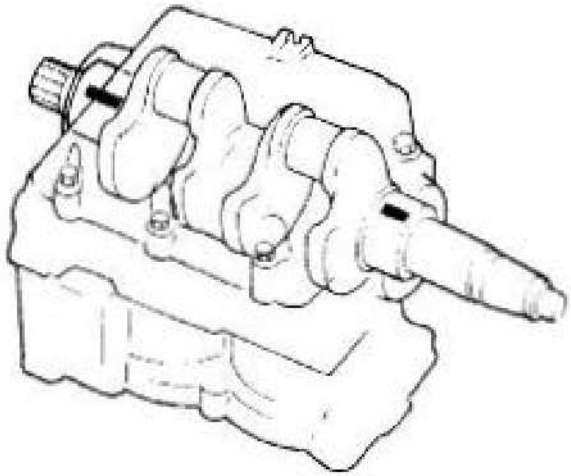
STANDARD	SERVICE LIMIT
0.040–0.068 mm (0.002–0.003 in)	0.083 mm (0.003 in) max.



• CRANKSHAFT MAIN BEARING OIL CLEARANCE

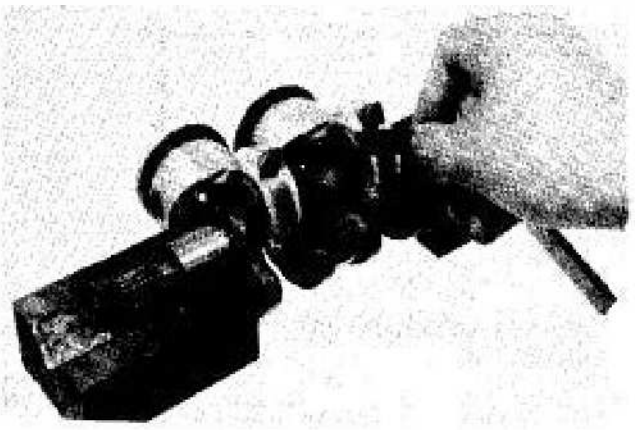
INSPECTION:
Measure the clearances with plastigauge.

STANDARD	SERVICE LIMIT
0.020–0.065 mm (0.001–0.003 in)	0.080 mm (0.003 in) max.



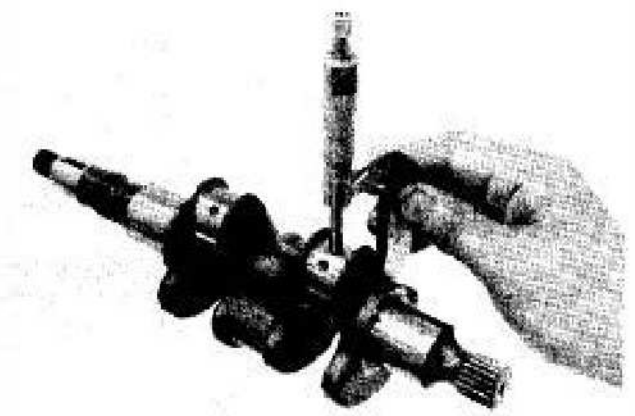
- CONNECTING ROD BIG END AXIAL CLEARANCE

STANDARD	SERVICE LIMIT
0.6 mm (0.02 in)	1.3 mm (0.051 in) max.



- CRANKPIN O.D.

STANDARD	SERVICE LIMIT
27.967–27.980 mm (1.1010–1.1016 in)	27.952 mm (1.100 in) min.



9. HANDLEBAR/SHIFT LEVER.

- HANDLEBAR AND GRIP

1

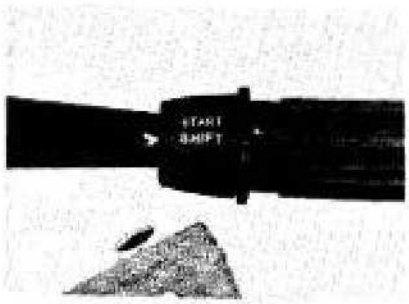
After assembly, adjust the throttle cable and throttle grip friction.
Page 12.

2 HANDLEBAR PIVOT SCREW

ASSEMBLY
Be sure that the handlebar moves freely without binding.
TIGHTENING TORQUE:
240 kg-cm (17 ft-lb)

3 GRIP PIPE COVER P.73

ASSEMBLY:
Align the word "SHIFT" on the cover with the red dot on the handlebar when installing.



4 HANDLEBAR

5 CABLE HINGE P.73

6 FRICTION UNIT

ASSEMBLY:
Align the ears on the nut with the grooves in the grip pipe. Then, push the nut into the pipe and slide it onto the handlebar.

7 GRIP PIPE

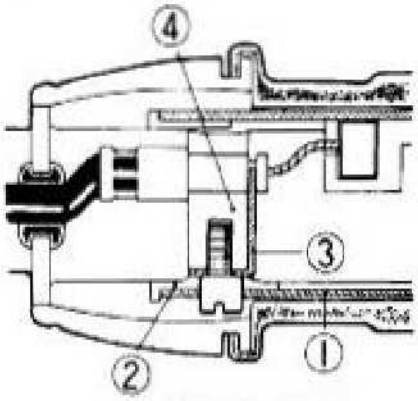
8 GRIP RUBBER

Engine serial number 1300001 and subsequent

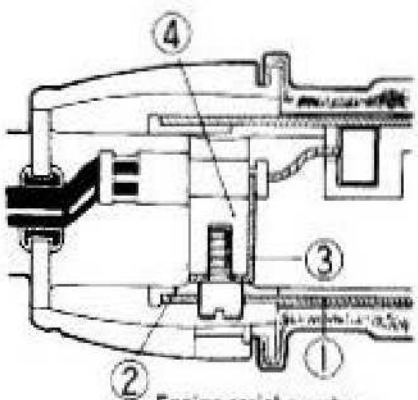
DISASSEMBLY:
Apply clean engine oil to the inner face to facilitate removal.
ASSEMBLY:
- Coat the inner face with adhesive prior to assembly. Fit the rubber on the grip pipe with light hammer blows on the end.
- Apply adhesive to the lip and insert it into the groove in the pipe cover.

9 GUIDE STOPPER

ASSEMBLY:
Screw the stopper from the bottom, through the grooves in the grip pipe (1) and pipe guide (2) and the holes in the cable stopper (3), into the cable holder (4). See page 22. Tighten securely.



Engine serial number 1000004–1299999



Engine serial number 1300001 and subsequent

10 PIPE GUIDE P.73

11 PIVOT SPRING

ASSEMBLY:
Check for weakened tension.

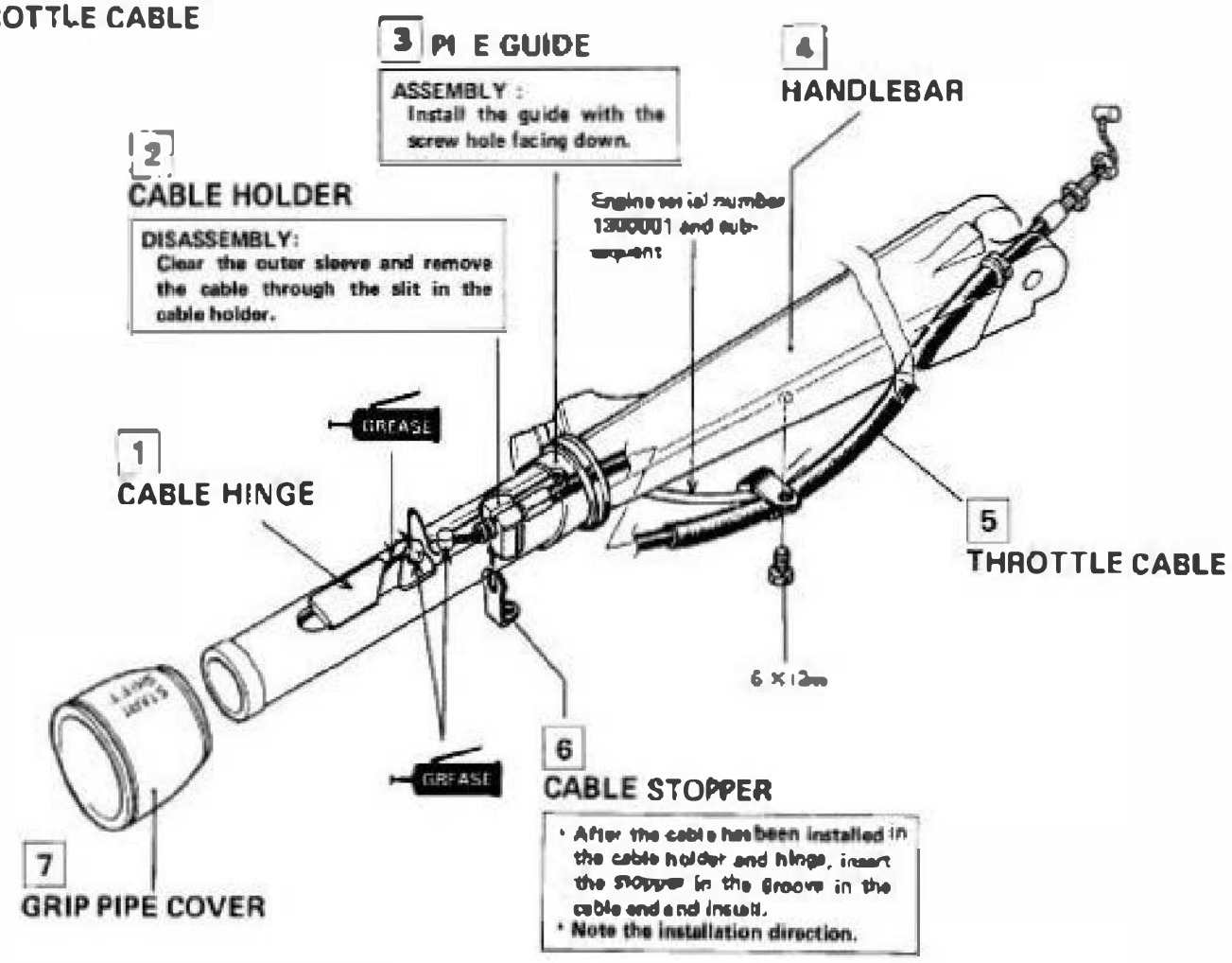
12 THROTTLE CABLE

GREASE

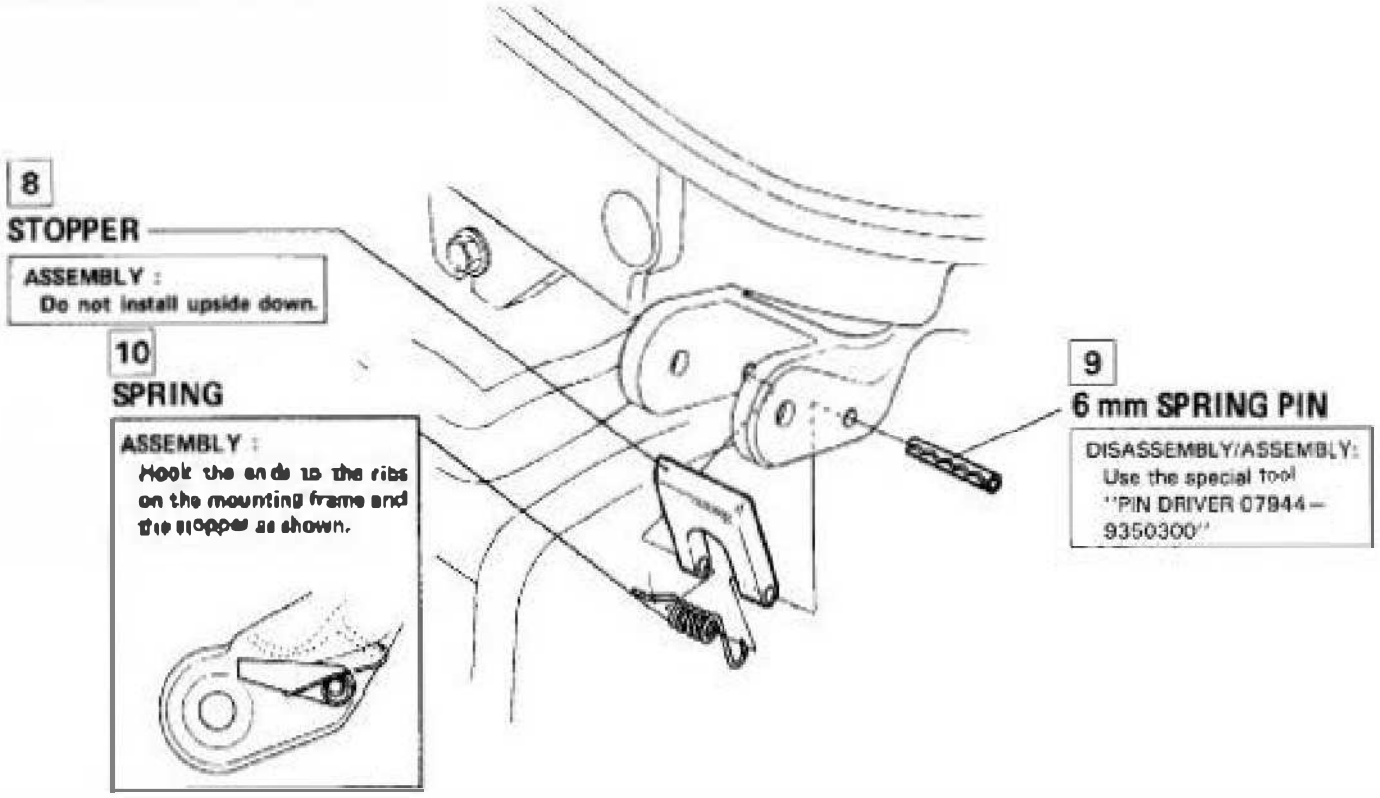
GREASE

13 THROTTLE ARM P.73

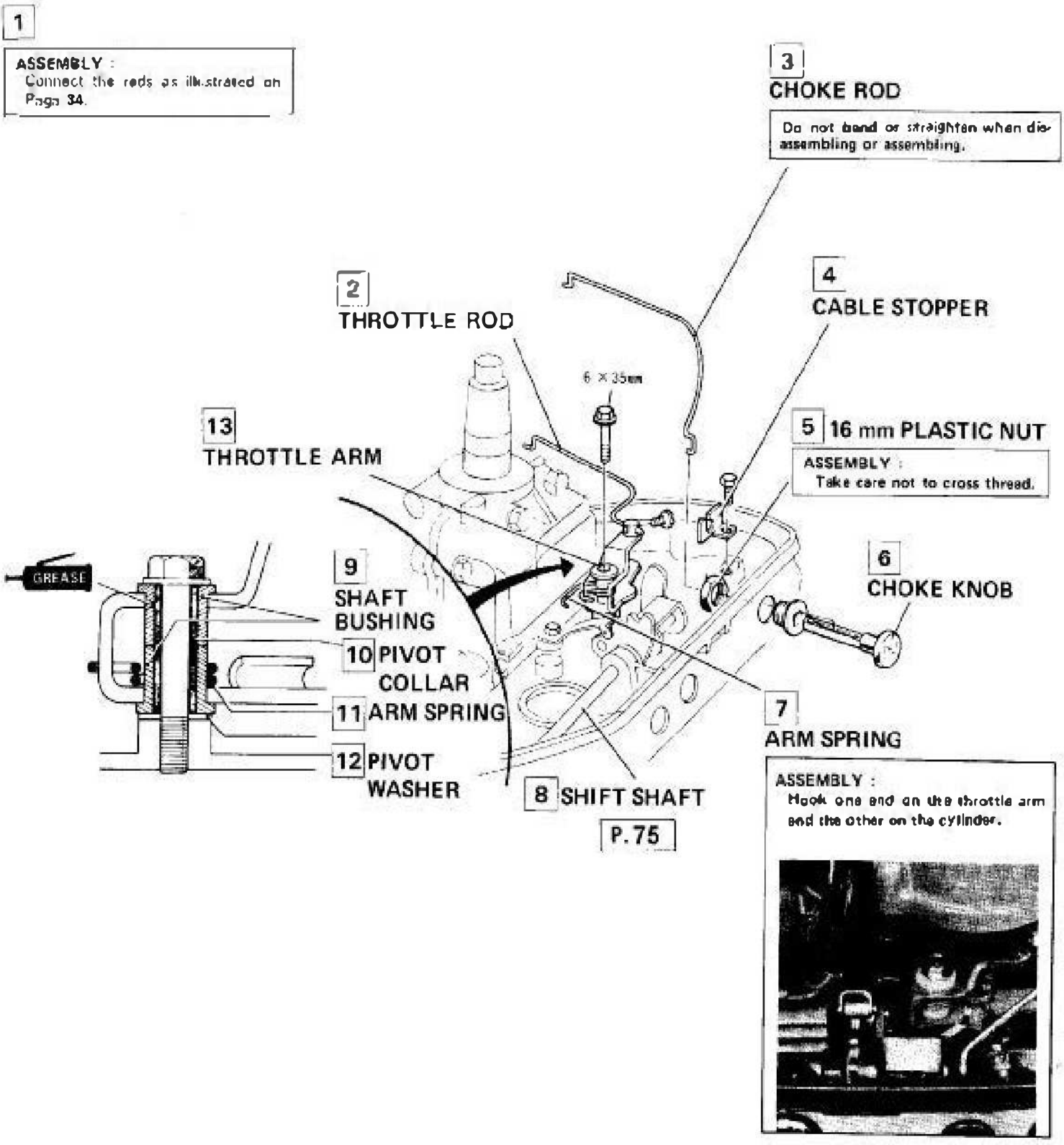
• THROTTLE CABLE



• HANDLEBAR STOPPER

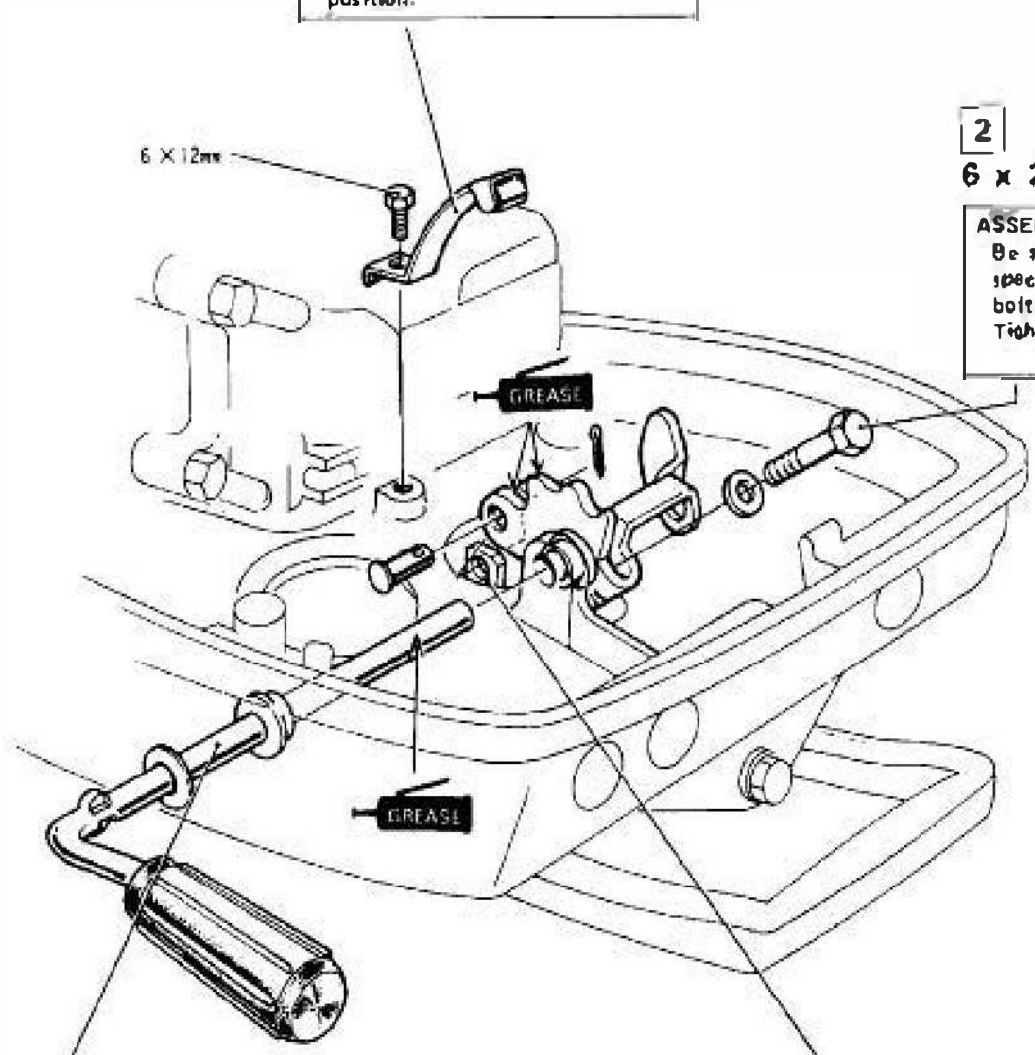


• THROTTLE ARM



• SHIFT SHAFT (Engine serial number range 1000004–1299999)

NOTE: For models with neutral switch (engine serial number 1300001 and subsequent), see page 41.



1
CLICK ROLLER

ASSEMBLY :
Check that the roller follows the cam contour properly in each gear position.

2
6 x 25 mm BOLT

ASSEMBLY :
Be sure to tighten the bolt to the specified torque. Otherwise, the bolt may bend.
Tightening torque :
100 kg-cm (7 ft-lb)

3
SHIFT ROD JOINT

ASSEMBLY:
With the shift shaft, arm, and roller installed in the forward position, and the shift rod in the forward position, turn the shift rod joint to align the linkage pin holes. Then install the pin.

NOTE: The holes will usually align if the shift rod joint is turned all the way in and then unscrewed 4½ turns.

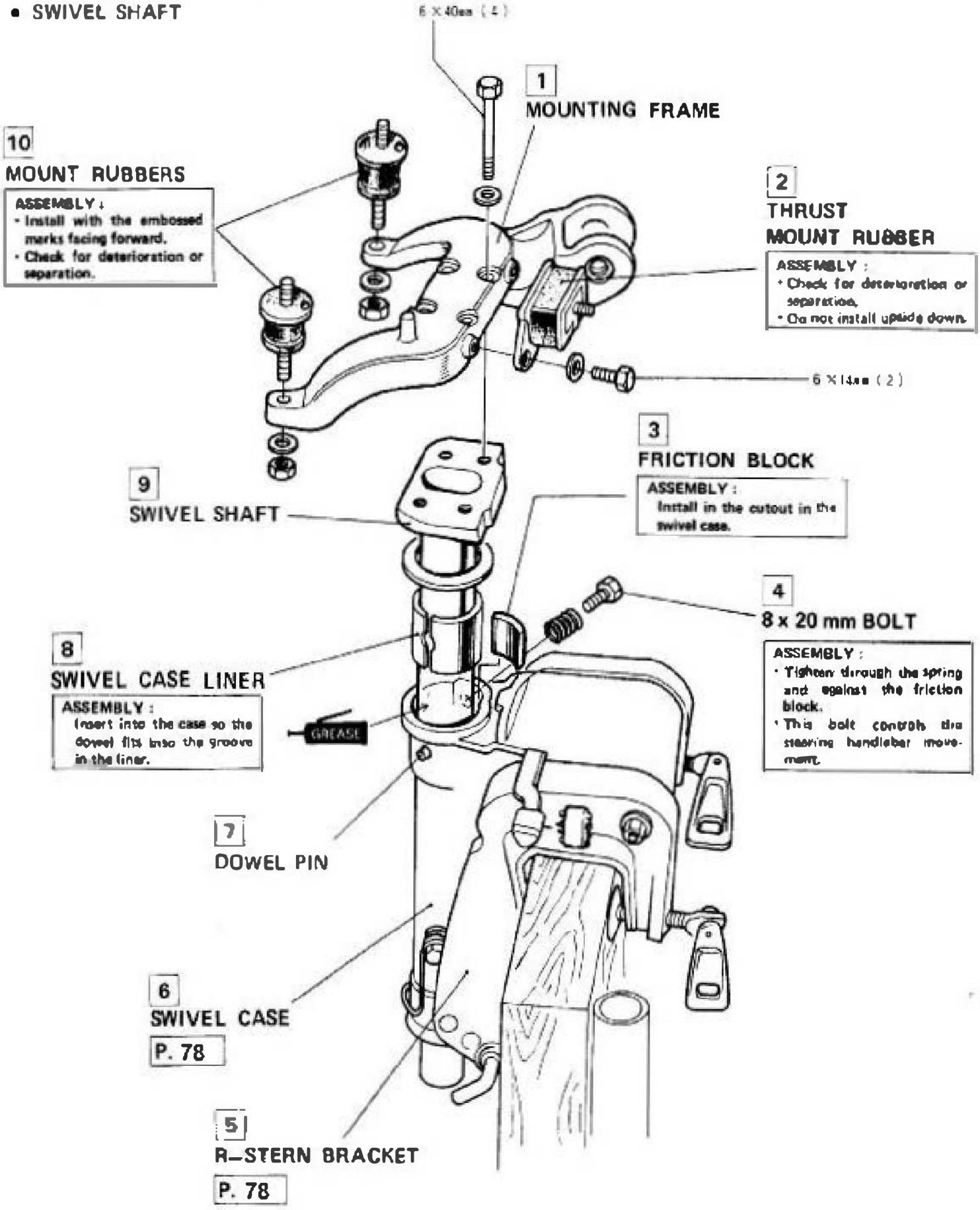
4
SHIFT SHAFT

ASSEMBLY:
Align the cutout of the shaft with the hole in the shift arm and install the 6 x 25 mm bolt. Tighten the bolt securely.

10. SWIVEL CASE/STERN BRACKET

a. DISASSEMBLY/ASSEMBLY

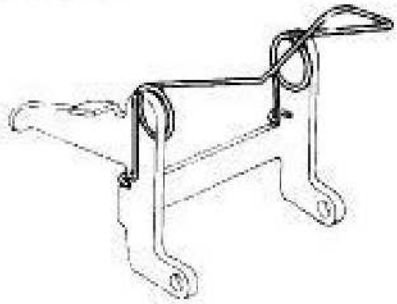
- SWIVEL SHAFT



• REVERSE LOCK

1 RETURN HOOK SPRING

ASSEMBLY :
Hook both ends of the spring on the reverse lock with the center resting on the swivel case.



9
To tilt lever

2
WIVEL CA E

8
REVERSE LOCK SPRING

DISASSEMBLY :
Secure the lock in a vice, and remove the spring.

6 × 16mm

3 6 mm COLLAR

4
REVERSE LOCK

ASSEMBLY :
After assembly, check operation.

7
L-STERN
BRACKET

5
ADJUSTING ROD

GREASE

DISASSEMBLY :
To install and remove, push in the rod fully and turn it to straighten the pawl.

6 × 160mm

6 DISTANCE COLLAR

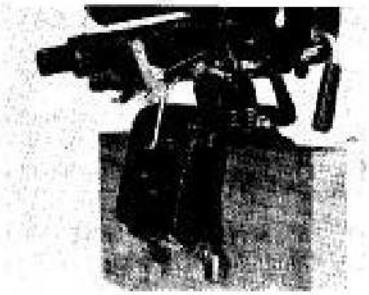
• SWIVEL CASE/TILT LEVER

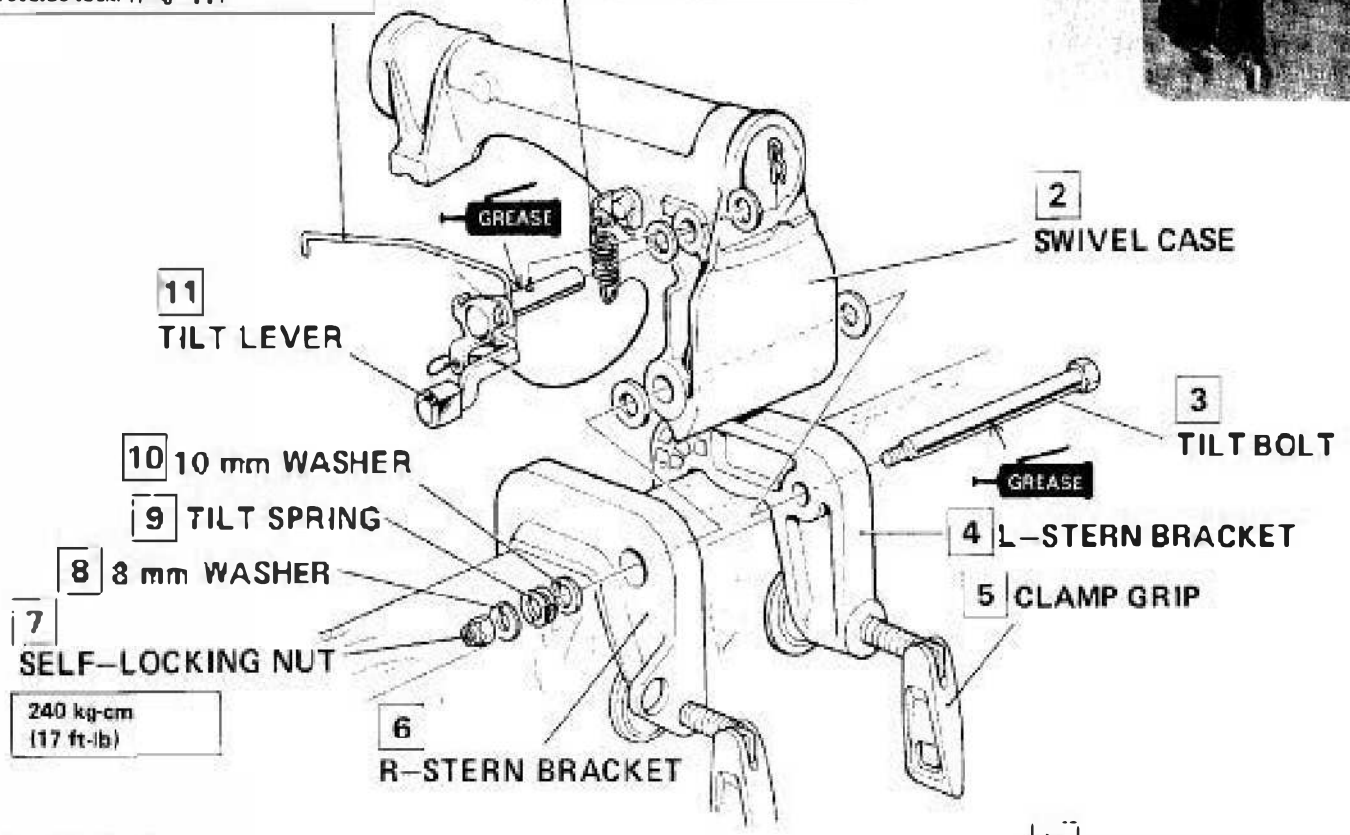
12 RELEASE ROD

ASSEMBLY :
Connect one end to the tilt lever and the other end to the hole in the reverse lock. (page 77)

1 TILT LEVER SPRING

ASSEMBLY :
* Hook the spring on the tilt lever bracket and tilt lever from the outside as shown.





2 SWIVEL CASE

11 TILT LEVER

3 TILT BOLT

10 10 mm WASHER

9 TILT SPRING

4 L-STERN BRACKET

8 8 mm WASHER

5 CLAMP GRIP

7 SELF-LOCKING NUT

240 kg-cm (17 ft-lb)

6 R-STERN BRACKET

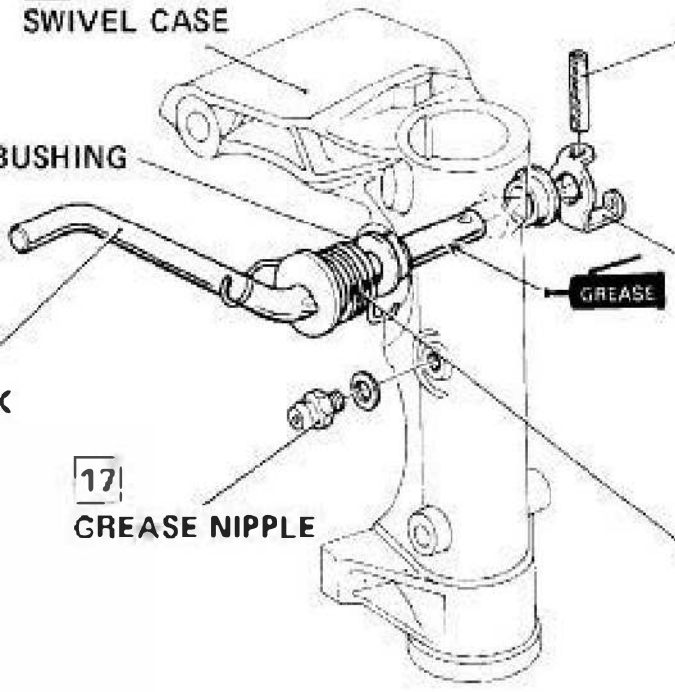
• TILT LINK

14 4 mm SPRING PIN

DISASSEMBLY/ASSEMBLY :
USE THE SPECIAL TOOL "PIN DRIVER 07944-3290200"

13 SWIVEL CASE

19 TILT LEVER BUSHING



15 TILT LEVER BRACKET

ASSEMBLY :
Do not install the bracket upside down.

18 TILT LINK

17 GREASE NIPPLE

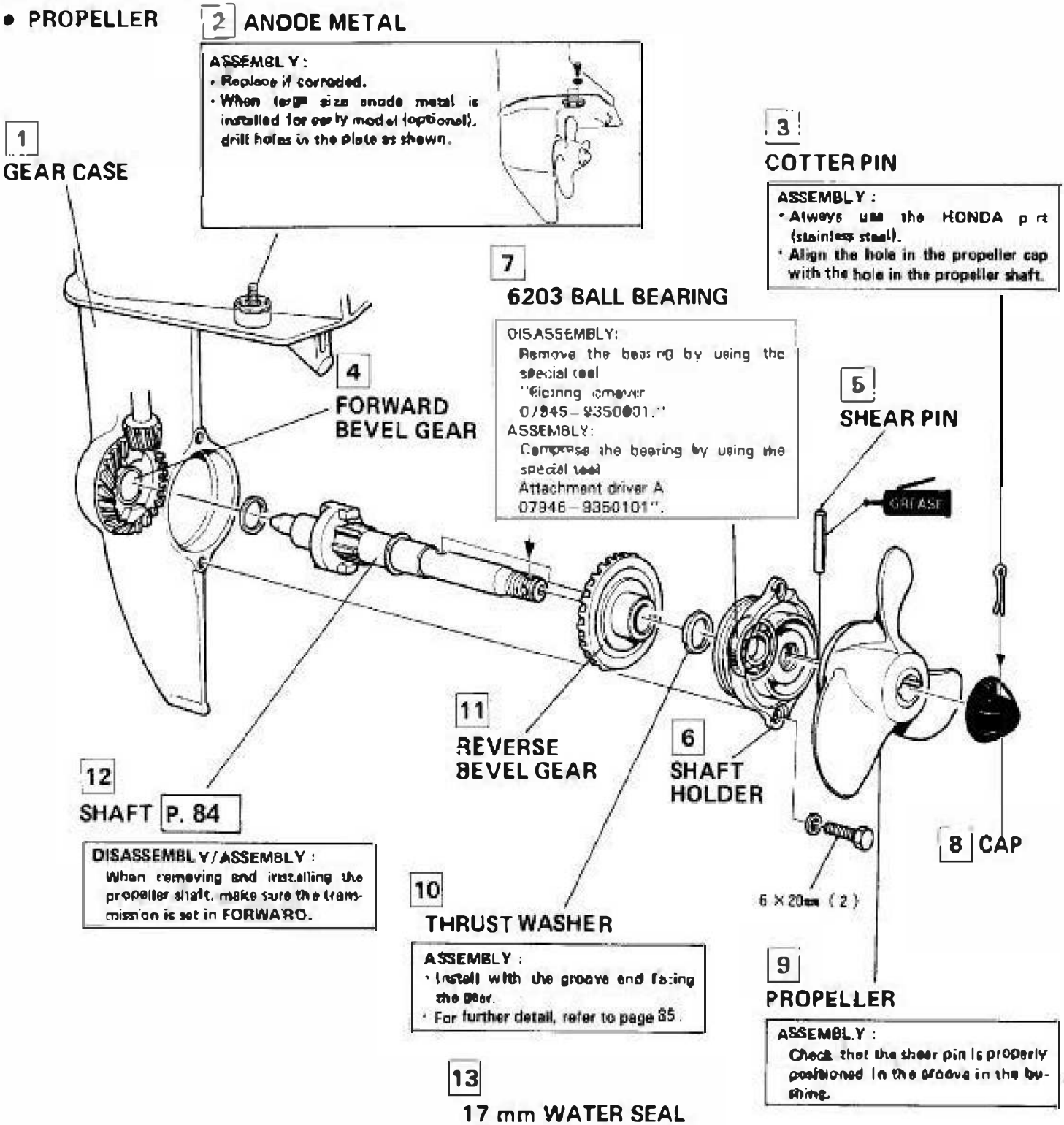
16 LINK SPRING

ASSEMBLY :
Hook the spring on the swivel case and tilt link as shown.

11. PROPELLER/GEAR CASE

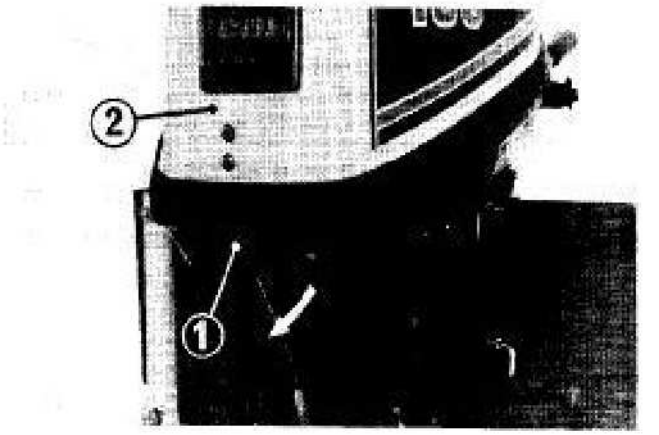
a. DISASSEMBLY/ASSEMBLY

- PROPELLER

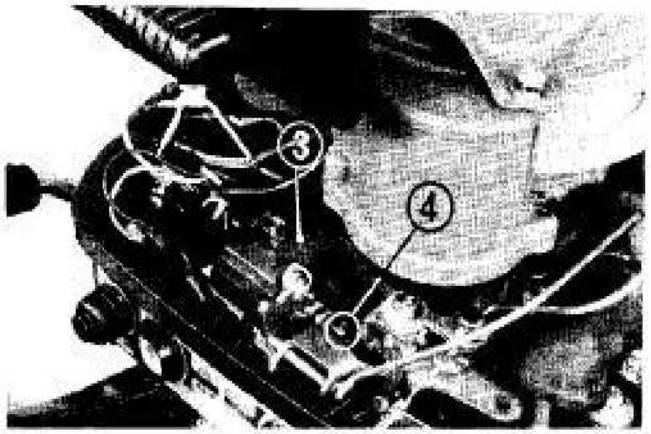


• GEAR CASE
(See also P. 81)

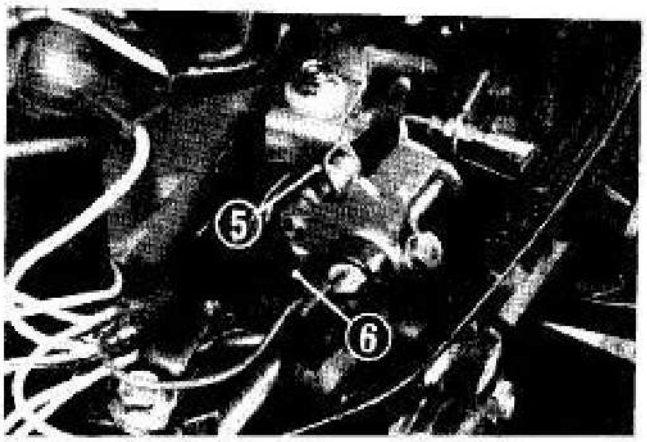
(1) Turn lock lever (1) and remove engine cover (2).



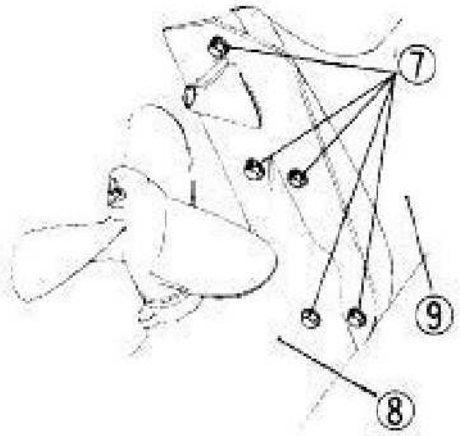
(2) Remove rectifier (3), the cotter pin, and 6 mm clevis pin (4).



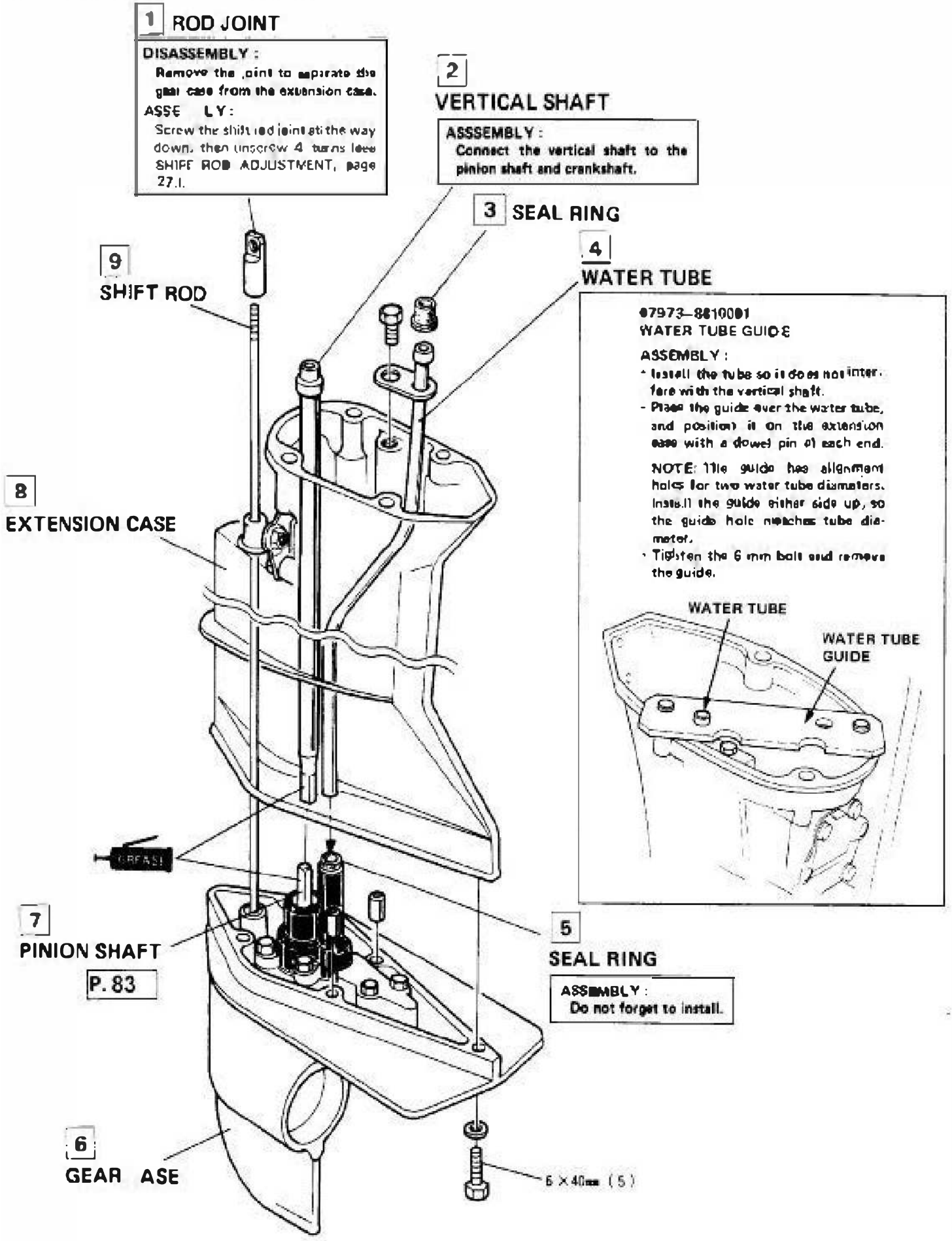
(3) Remove the 6 mm bolt to remove click roller (5). Remove shift rod joint (6) by turning it out.



(4) Remove five 6 mm bolts (7) and separate gear case (8) from extension case (9).



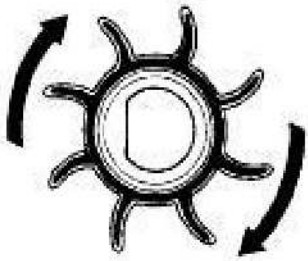
• GEAR AND EXTENSION CASES



• IMPELLER PUMP

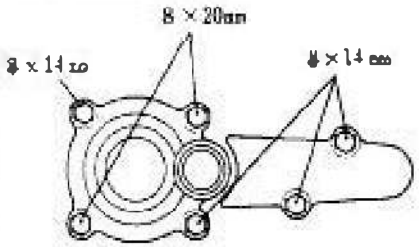
1
HOUSING

ASSSEMBLY :
Install the housing while rotating the pinion shaft clockwise.



8
DISTANCE C LLAR

ASSEMBLY :
Use the collars in the proper locations:



6 × 28mm (4)

6 × 28mm (2)

2
COVER HOLDER

7
IMPELLER

ASSEMBLY :
- Check for wear or cracks.
- Slide the impeller over the pinion shaft by aligning their sections.

6
GASKETS

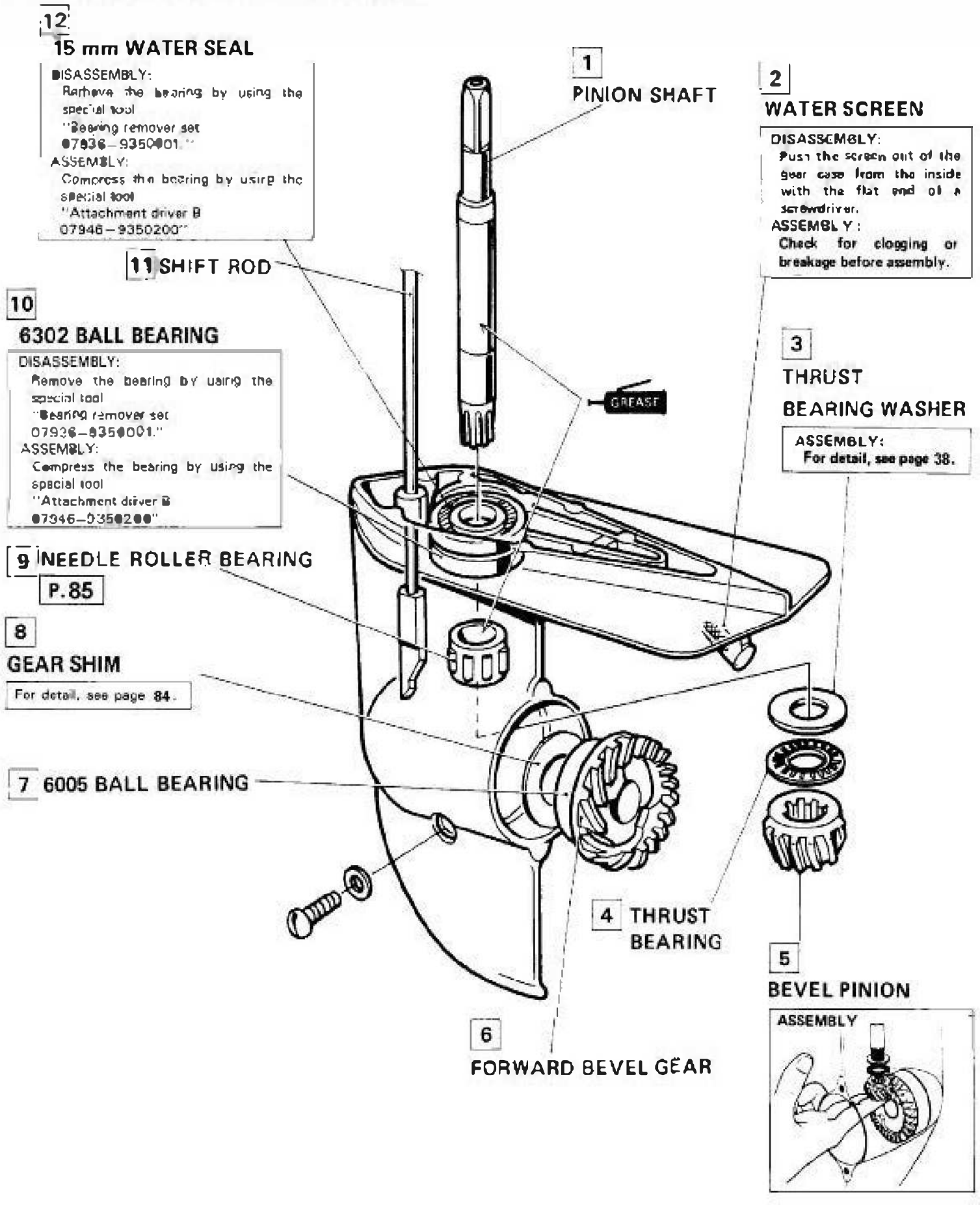
3
COVER

ASSEMBLY :
Make sure the cover is placed between the gaskets.

4
PINION SHAFT

5
GEAR CASE

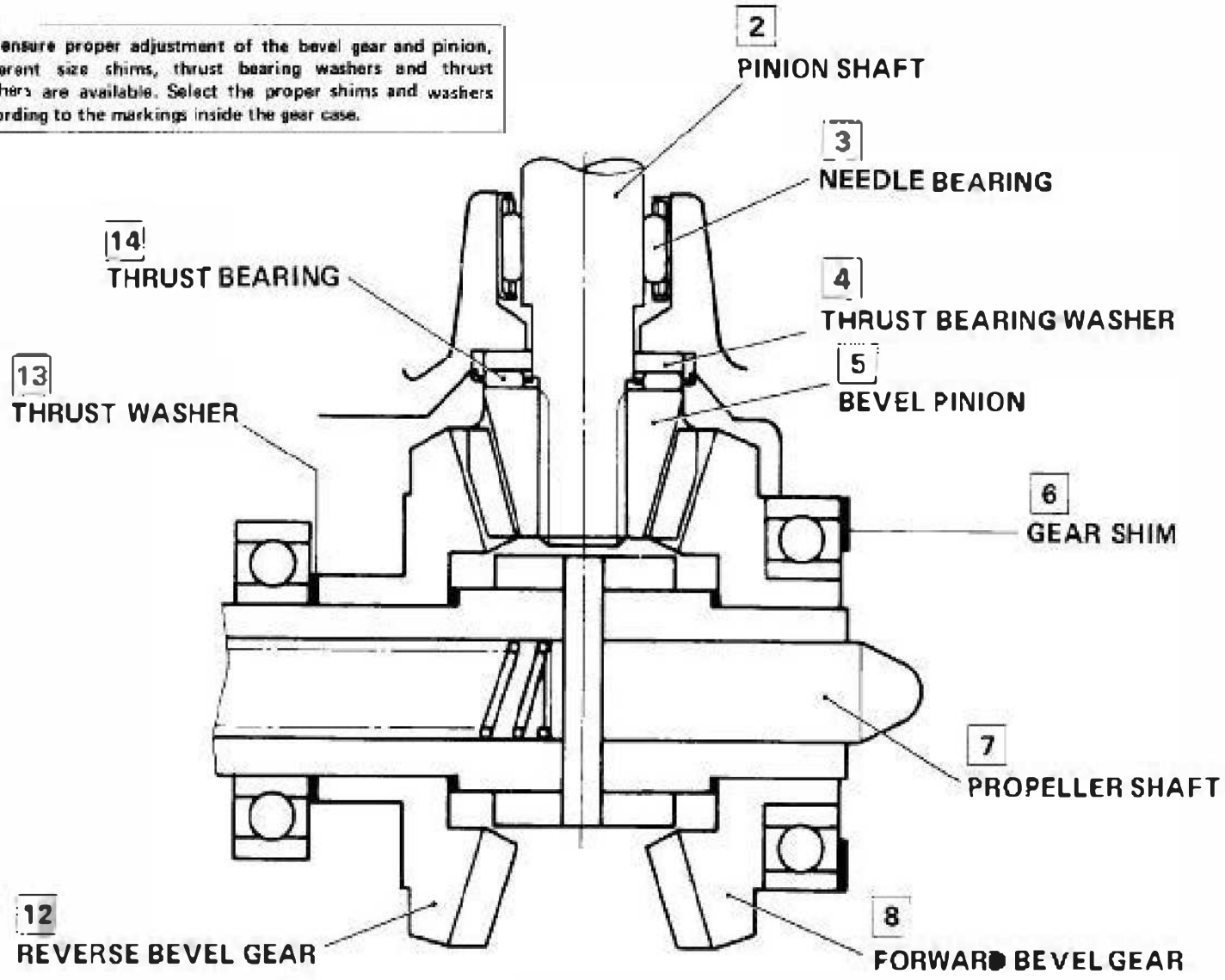
• PINION SHAFT/FORWARD BEVEL GEAR

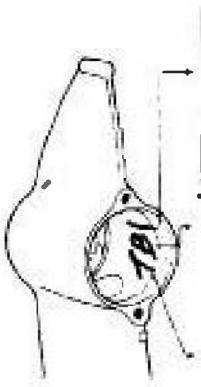


• SHIM AND WASHER SELECTION

1

To ensure proper adjustment of the bevel gear and pinion, different size shims, thrust bearing washers and thrust washers are available. Select the proper shims and washers according to the markings inside the gear case.





15 GEAR SHIM

CASE MARK	SHIM	SIZE
1	A+A	A: 0.10mm(one)
2	A+B	B: 0.15mm(one)

16 THRUST BEARING WASHER

CASE MARK	WASHER	SIZE
A	A	A: 2.00mm(one)
B	B	B: 2.05mm one)
C	C	C: 2.10mm(one)

17 THRUST WASHER

CASE MARK	WASHER	SIZE
1	C	C: 2.10mm(one)
2	D	D: 2.15mm(one)

18

-Example-

CASE MARK : "1 B1"

① :	Gear shim	A (0.10 mm) x 2
② :	Thrust bearing washer	B (2.05 mm) x 1
③ :	Thrust washer	C (2.10 mm) x 1

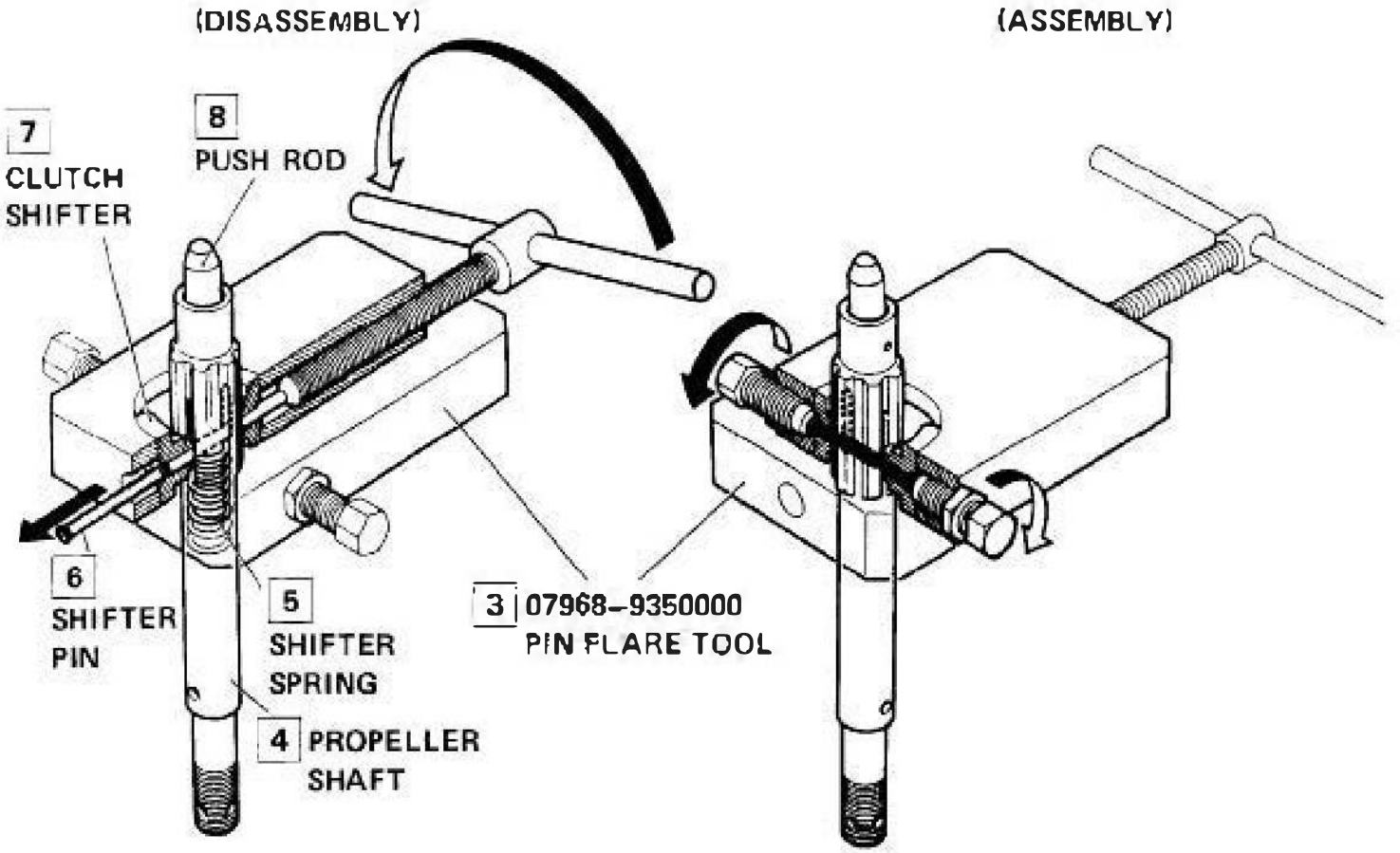
• PROPELLER SHAFT

1

DISASSEMBLY:
Using the special tool, push the shifter pin out to remove the push rod, clutch shifter and spring from the propeller shaft.

2

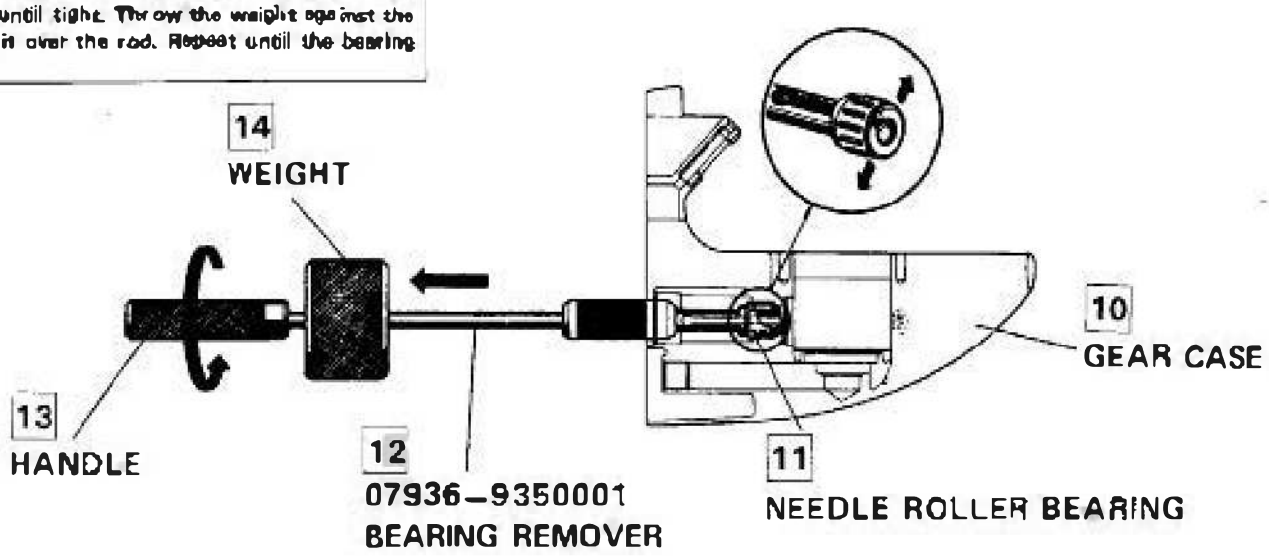
ASSEMBLY:
Flare both ends out after a new pin has been installed.



• GEAR CASE NEEDLE ROLLER BEARING DISASSEMBLY

9

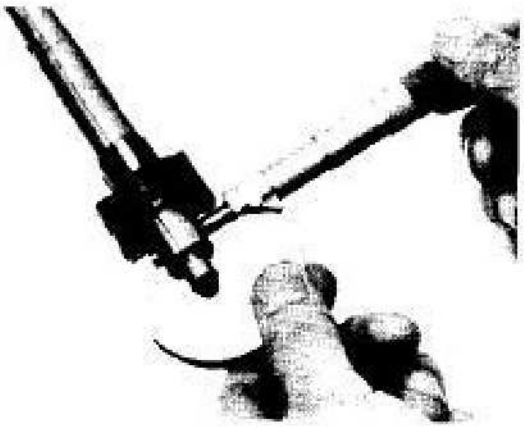
DISASSEMBLY:
Set the special tool in the bearing as shown and turn the handle clockwise until tight. Throw the weight against the handle by sliding it over the rod. Repeat until the bearing comes out.



b. INSPECTION

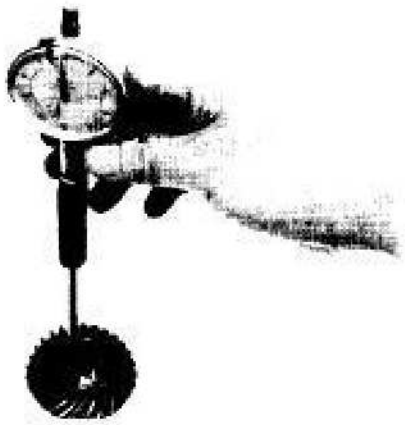
PROPELLER SHAFT O.D.
(Gear Contact Points)

STANDARD	SERVICE LIMIT
16.973–16.984 mm (0.6682–0.6687 in)	16.930 mm (0.667 in) min.



BEVEL GEAR I.D. (FORWARD AND REVERSE)

STANDARD	SERVICE LIMIT
17.00–17.018 mm (0.669–0.670 in)	17.06 mm (0.672 in) max.

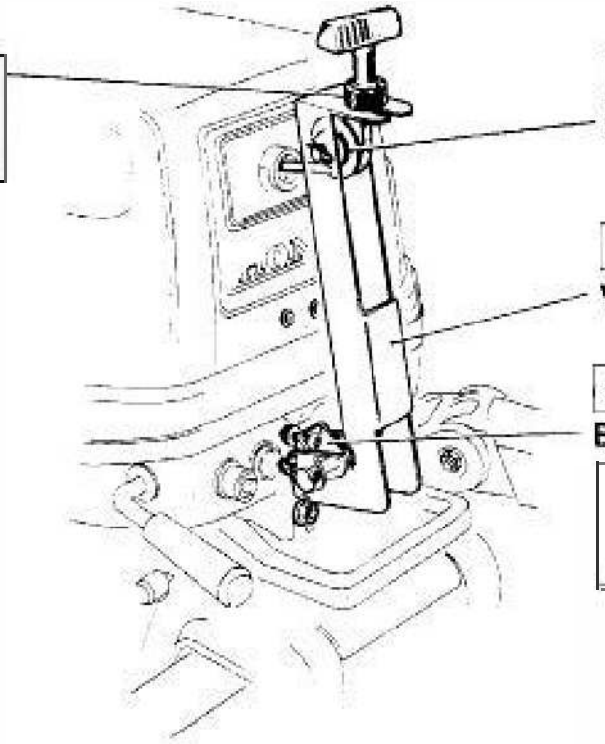


12. OPTIONAL PARTS

- VERTICAL STARTER

1
ROPE GUIDE

ASSEMBLY :
After installation, rotate the guide so the groove is not aligned with the groove in the stay bracket.



2
IDLER

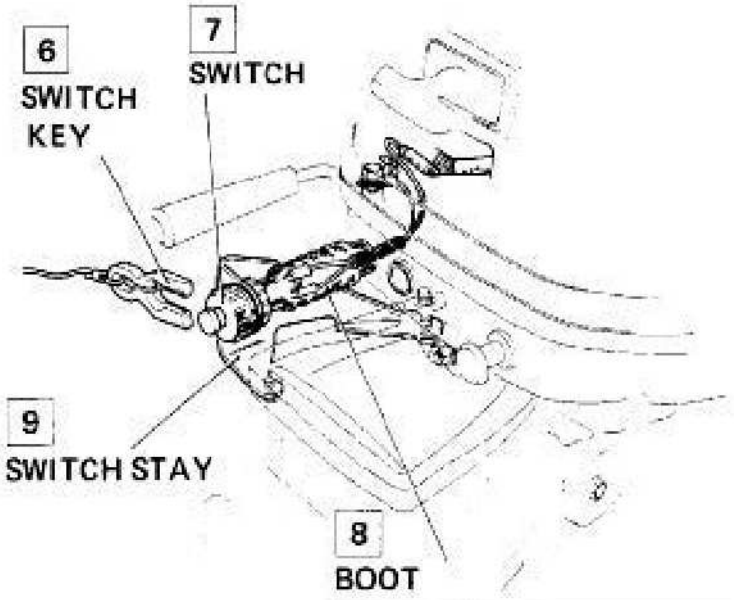
3
VERTICAL STAY

4
BRACKET

ASSEMBLY :
Drill two holes in the oil case then install the bracket with screws and nuts.

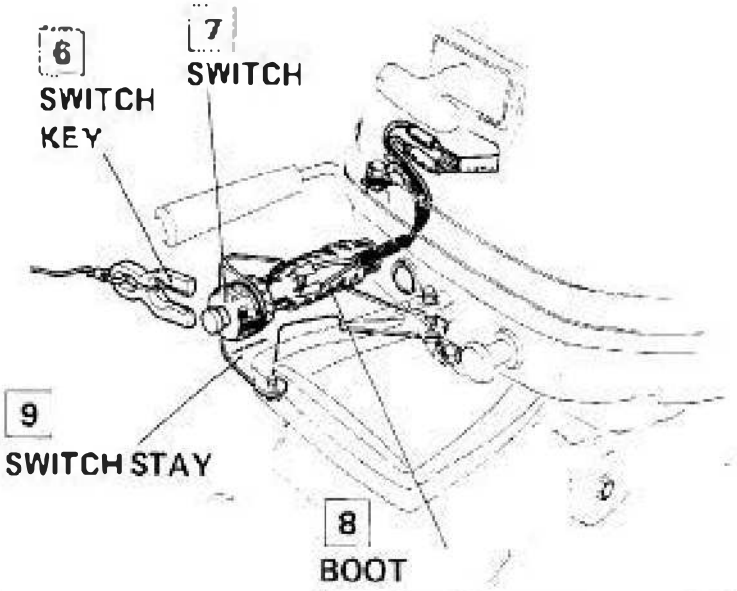
- SAFETY SWITCH

5
SWITCH KIT
P/No. 06360-881-810



ASSEMBLY :
Make sure the boot fits properly at both ends so that the wires are protected from water.

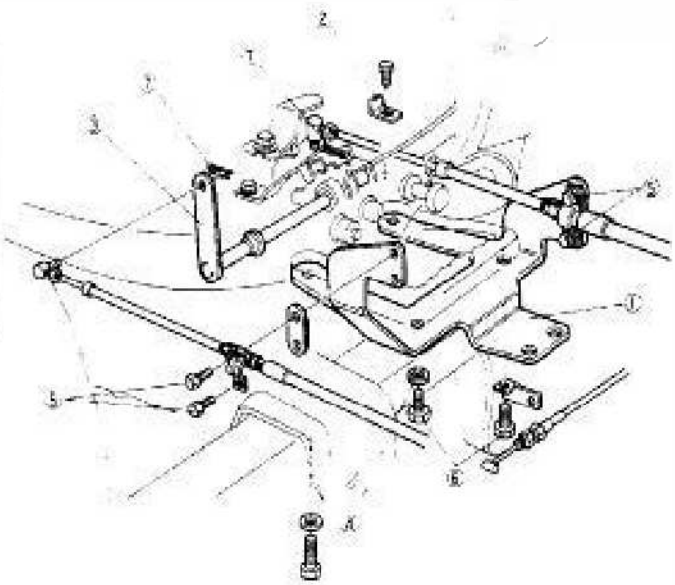
10
SWITCH KIT
P/No. 06360-881-813



ASSEMBLY :
Make sure the boot fits properly at both ends so that the wires are protected from water.

• REMOTE CONTROL BRACKET KIT

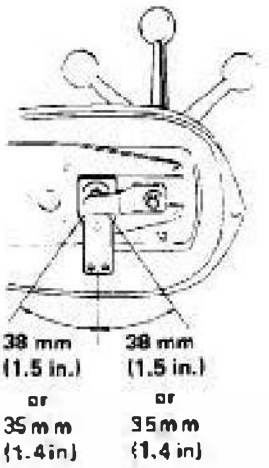
Ref. No.	Part No.	Description
1	17851-881-811	Steering bracket
2	17941-881-810	Throttle arm stopper
3	24701-881-812	Shift lever
4	90504-921-010	Washer, plain, 6 mm
5	92000-06010-4J	Bolt, hex. head, 5 x 10 mm
6	92000-06012-4J	Bolt, hex. head, 6 x 12 mm
7	94251-06000	Pin, lock, 6 mm
*	06170-881-811	Bracket, remote control



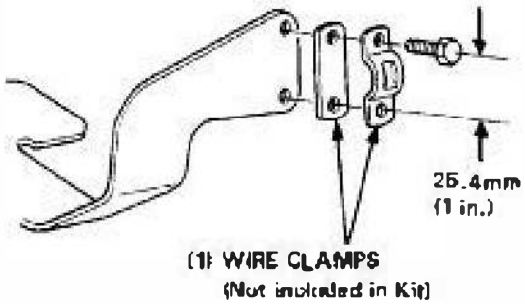
a. SELECTION OF REMOTE CONTROL UNIT

The remote control unit to be used with the HONDA Remote Control Bracket Kit must conform to these specifications:

- SHIFT LEVER STROKE: 38 mm (1.5 in) or 35 mm (1.4 in)

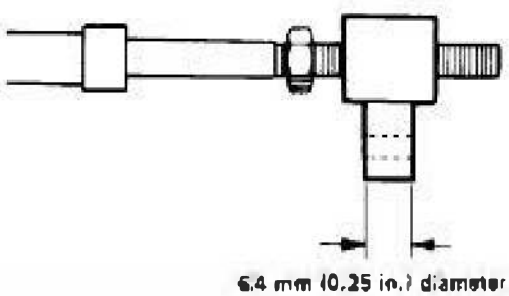


- CABLE CLAMP MOUNTING PITCH: 25.4 mm (1.0 in)



(1) WIRE CLAMPS
(Not included in Kit)

- CABLE END MOUNTING PIVOT: 6.4 mm (0.25 in)
- CABLE TYPE (SHIFT and THROTTLE) : 33C



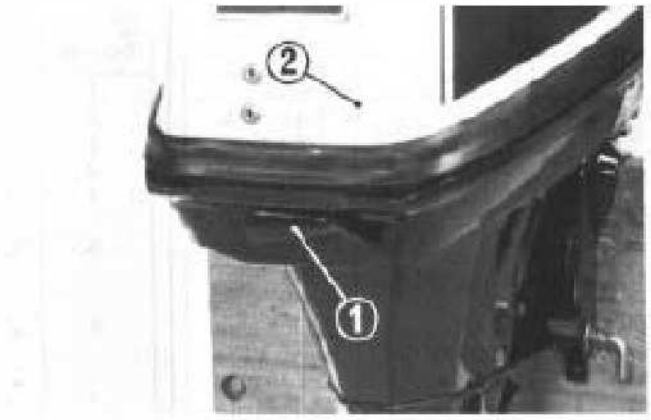
6.4 mm (0.25 in.) diameter

b. Bracket Installation

NOTE: These procedures apply to the BF75/BF100 even though photographs or illustrations may differ from the actual unit.

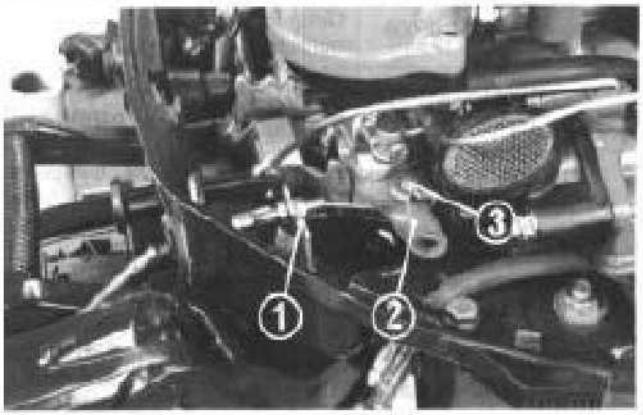
(1) Release the lock lever and remove the engine cover.

NOTE: For convenience, these procedures include remote control cable hook-up at the outboard.



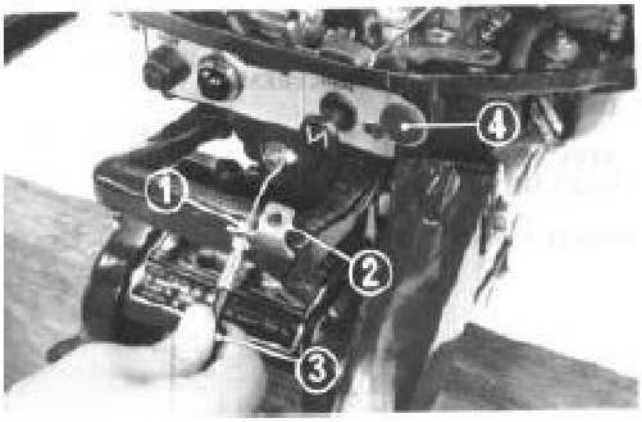
① LOCK LEVER ② ENGINE COVER

(2) Loosen the lock nut and remove the throttle cable holder from the cable by unscrewing the 6 mm bolt.
Disconnect the cable from the throttle arm.

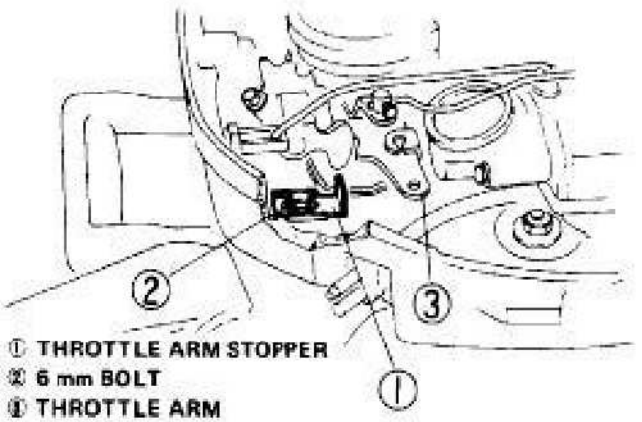


① THROTTLE CABLE HOLDER
② THROTTLE ARM
③ THROTTLE CABLE

(3) Pull out the cable with the cable grommet. Remove the oil case grommet. Reinstall the cable holder and lock nut on the cable.



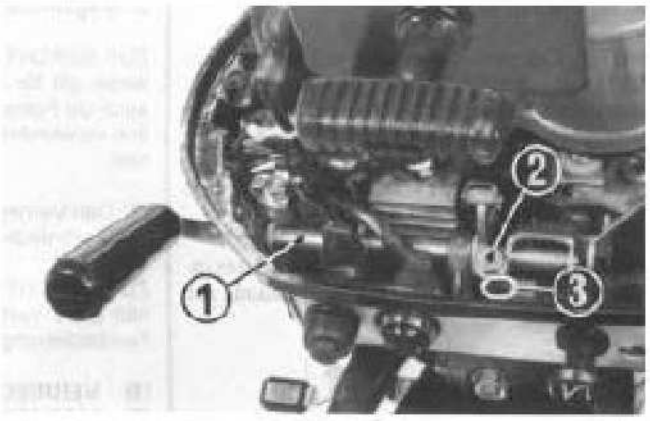
(4) Install the throttle arm stopper in the cable holdw mounting holes. When installed, the stopper should contact the throttle arm with the throttle fully open.



① THROTTLE ARM STOPPER
② 6 mm BOLT
③ THROTTLE ARM

(5) With the shift lever in REVERSE, remove the 6 mm bolt and washer from the shift shaft, then take out the shaft.

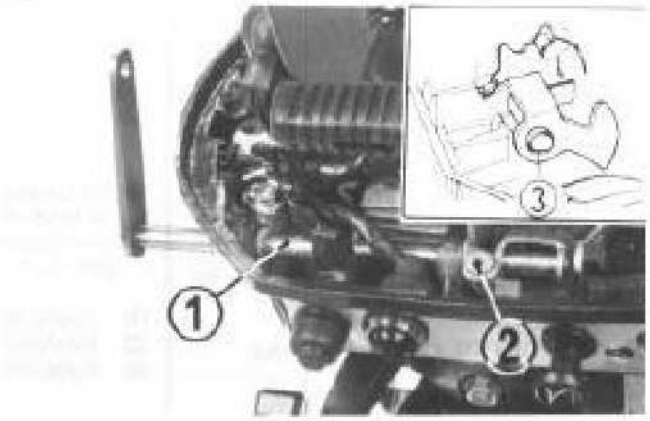
NOTE: If the shaft is difficult to remove, expand the shift arm groove with a screwdriver.



① SHIFT SHAFT ③ SHIFT ARM GROOVE
② 6 mm BOLT

(6) Align the cutout in the remote control shaft lever end with the hole in the shift arm and install the lever in the shaft hole.
Secure with the 6 mm bolt and washer removed in Step (5) above.

NOTE:
- Do not drop the washer and collar.
- For engine serial number 1300001 and subsequent, see additional instruction on page 90.



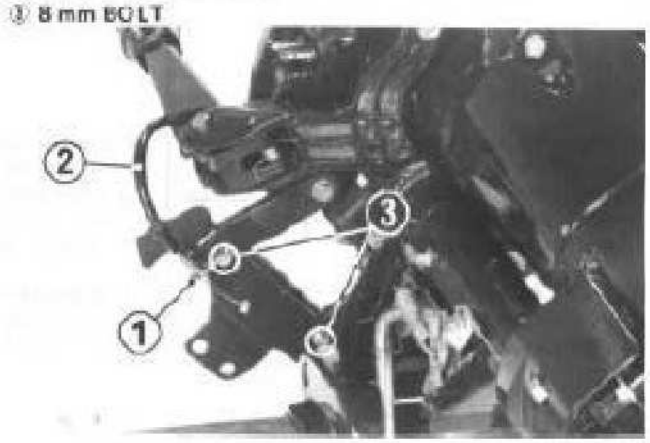
① REMOTE CONTROL SHIFT LEVER
② 6 mm BOLT
③ CUTOUT

(7) Remove two 8 mm bolts and washers attaching the carrying handle. Position the steering bracket under the handle and install using the 8 mm bolts and washers. Tighten securely.

① STEERING BRACKET
② CARRYING HANDLE
③ 8 mm BOLT

(8) Tighten the bracket and carrying handle together using 6 x 12 mm bolts, with the cable holder on the right and a 6 mm plain washer on the left side.

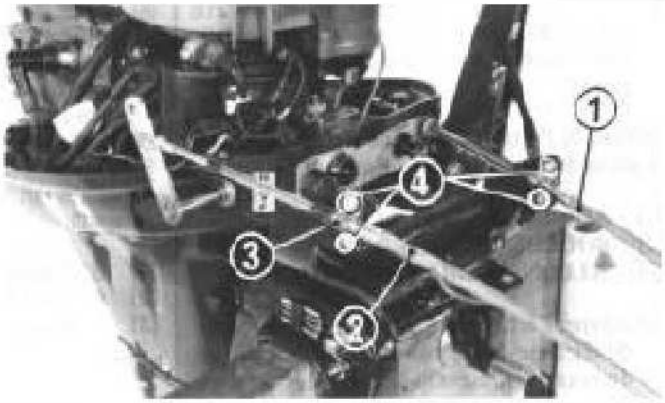
NOTE: Raise the steering handle when installing the cable holder.



① CABLE HOLDER
② THROTTLE CABLE
③ 6 x 12 mm BOLT

(9) Attach the throttle control cable to the inside, and the shift control cable to the outside of the bracket using cable clamps and 5 x 10 mm bolts.

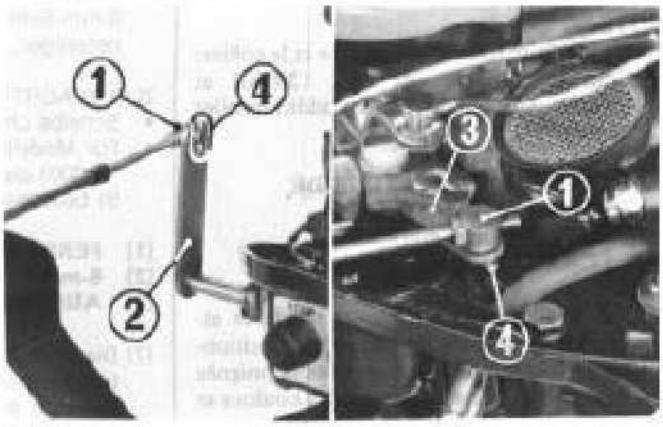
NOTE:
- Align the outer clamp inner lug with the cable outer groove.
- Cut the hole in the case grommet and install the throttle control cable through it.



① THROTTLE CONTROL CABLE
② SHIFT CONTROL CABLE
③ CABLE CLAMP
④ 5 x 10 mm BOLT

(10) Install the pivots on the cables, then insert pivots into the shift lever mounting hole (shift side) and the throttle arm mounting hole (throttle side).
Secure with lock pins.

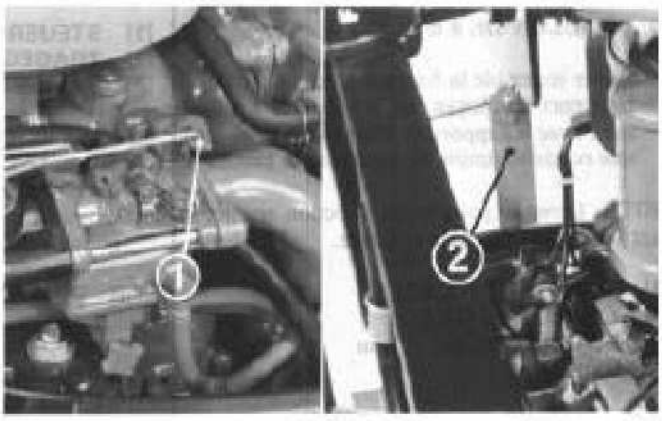
Shift lever stroke of remote control unit (p. 88)	Shift lever hole	Pivot setting position
38 mm (1.5 in)	Upper	Center of the cable threads
35 mm (1.4 in)	Lower	End of the cable threads



① PIVOT
② SHIFT LEVER
③ THROTTLE ARM
④ LOCK PIN

(11) With the throttle fully closed, set the shift lever in NEUTRAL. The remote control unit can now be connected.

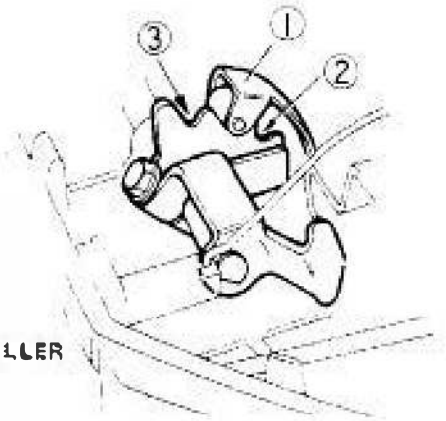
Before using the remote control, be sure that the throttle does not move until the shift lever is fully in gear. If the throttle moves during shifting, the engine will rev and the gears will be stripped.



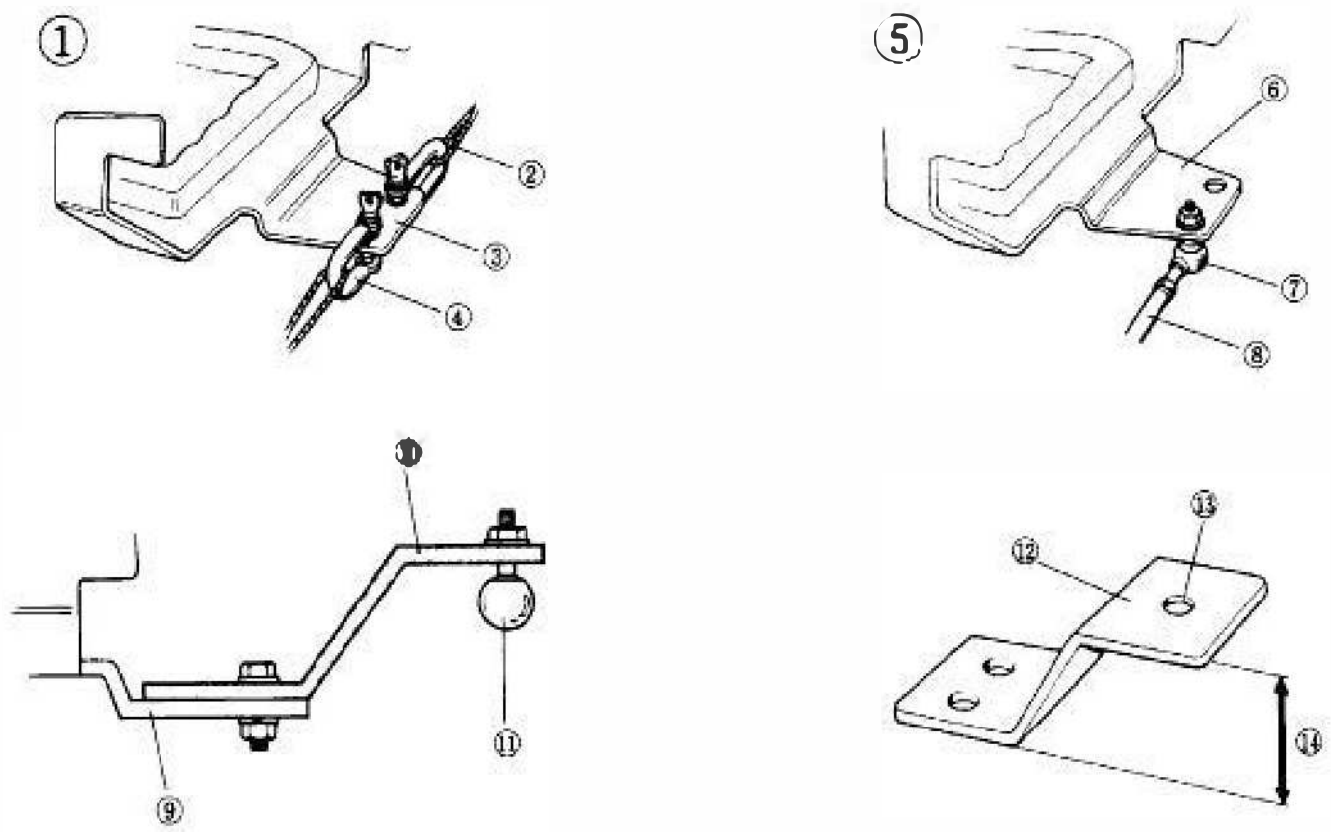
① CARBURETOR THROTTLE
② SHIFT LEVER

(12) Set the remote control lever to FORWARD and REVERSE to make sure that the detent roller is properly positioned in the corresponding FORWARD and REVERSE positions. If adjustment is needed, turn the cable end pivot as necessary.
Be sure to reinstall the lock pin on the pivot after adjusting. Check that the throttle will not operate while shifting the control lever to the FORWARD and REVERSE positions. If it will, adjust the throttle control cable length in accordance with the instruction manual furnished with the remote control kit.

NOTE: For engine serial number 1300001 and subsequent, see shield plate instructions on page 90.



① DETENT ROLLER
② FORWARD
③ REVERSE



WHEN INSTALLING THE STEERING DEVICE —

The bracket is designed to be used with wire-type steering equipment. If a joint-rod device is to be installed please note:

The motor may be tilted to the first level (32.5°) with a joint rod installed, but a full tilt (72°) is beyond the rod's range. To tilt the motor completely, either remove the joint each time or install a bracket adapter as shown. Tilt the motor to the second level and adjust the adapter height as required when installing.

① WIRE-TYPE
② Wire.
③ Bracket
④ Shackle
⑤ JOINT-ROD TYPE
⑥ Bracket
⑦ Ball Joint
⑧ Joint-rod
⑨ Bracket
⑩ Adapter
⑪ Ball Joint
⑫ Adapter
⑬ Ball joint attaching hole
⑭ Height (to be adjusted)

1. LUBRICATION SYSTEM
2. COOLING SYSTEM
3. FUEL SYSTEM
4. POWER TRANSMITTING SYSTEM
5. ELECTRICAL SYSTEM
6. TILT AND REVERSE LOCK MECHANISM

1. LUBRICATION SYSTEM

Oil from the oil sump is forced through the pressure lubrication system by a trochoid pump.

a. Oil circulation:

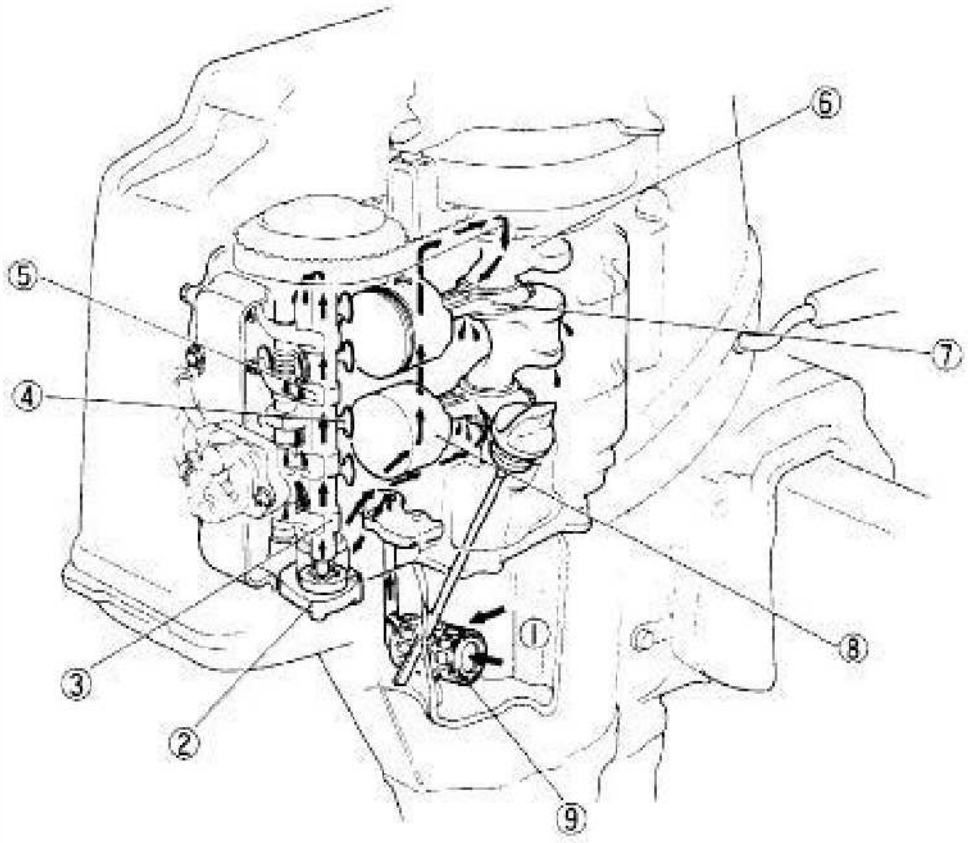
Oil (1) is drawn from the sump by the pump (2) through a filter (9), where dirt and metal particles are removed, and delivered under pressure to the various parts of the engine.
Oil from the oil pump flows through the drilled passages in the camshaft (3) to the valves (4) and rocker arms (5).
The oil also travels up through the oil gallery in the cylinder block. The oil gallery is divided into two parallel passages which index the oil holes in the upper and lower main journals of the crankshaft (6).
As the oil enters through the oil hole in the upper journal, it travels down through the drilled passage in the crankshaft to lubricate the upper crankpin. The lower crankpin is lubricated by the oil coming up from the lower main journal via the crankshaft passage.
Splash from the crankpin holes lubricates the connecting rod (7), piston (8) and cylinder.

b. Oil pump:

The pump is a trochoid type and consists of an inner rotor, outer rotor and pump body.
The inner rotor is driven by the camshaft. The outer rotor is free in the pump body and is driven by the inner rotor.
Volumetric changes in the oil between the rotors force the oil out and into the engine.

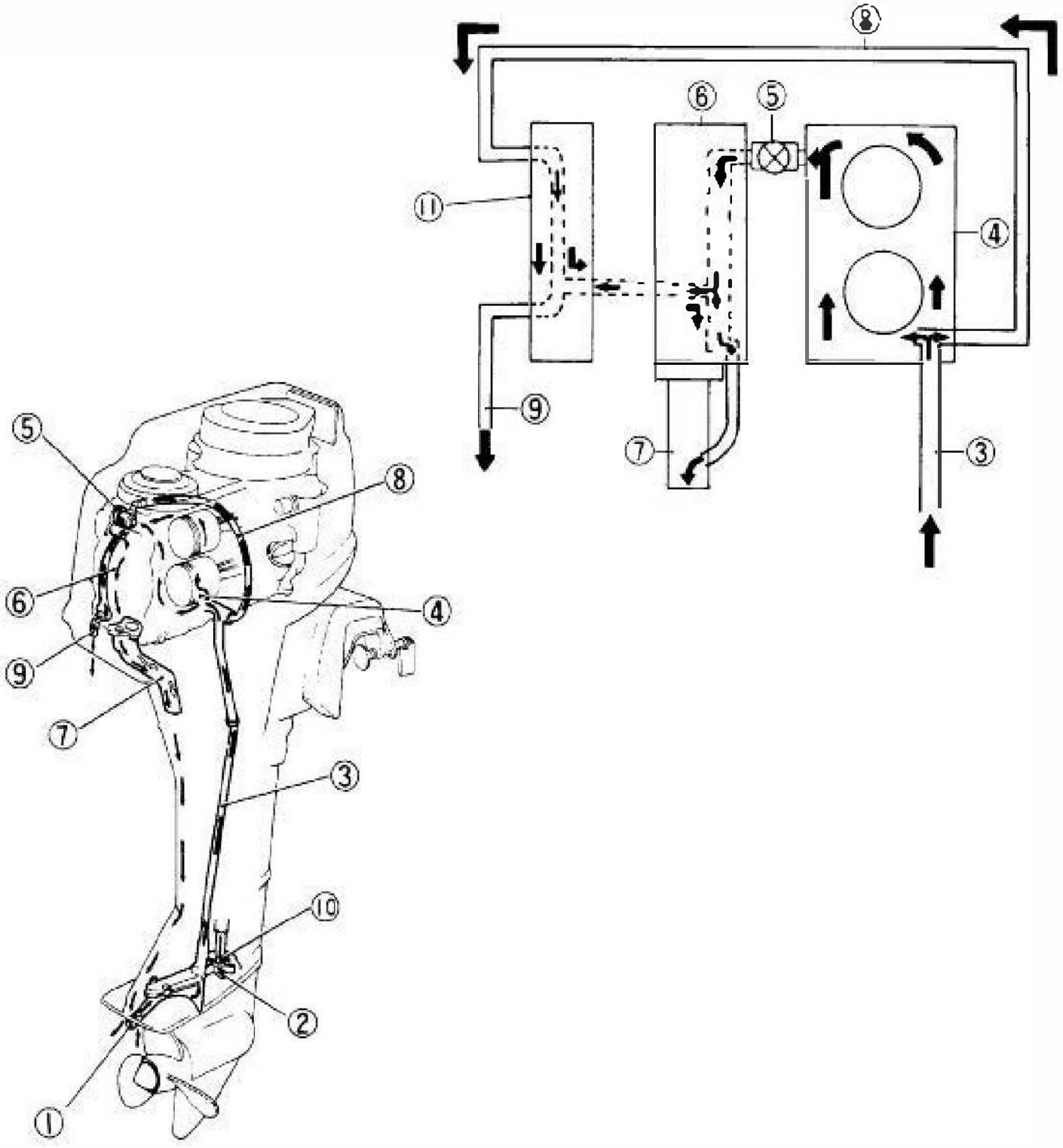
c. Oil pressure warning devices:

The lubrication system incorporates an oil pressure switch and indicator lamp.
They warn if oil pressure is low due to insufficient oil in the oil case. (See page 99).



2. COOLING SYSTEM

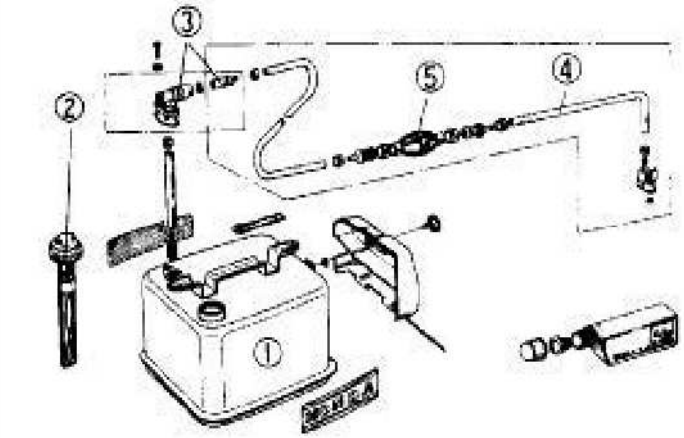
Water is drawn into the water pump (2) from the port screen (1) under the anticavitation plate.
It is then pumped through a water pipe (3) into the water jackets (4) to cool the entire length of each cylinder wall. After cooling the cylinders, the water is directed into the cylinder head (6), and from there back outside through the exhaust pipe (7) with the exhaust gases.
A thermostat (5), located at the outlet of the cylinder jackets, opens and closes to the water temperature from the cylinder jackets to maintain a constant cooling water temperature. When the water is cold, it cannot pass into the cylinder head; That is, it is just circulated through the intake manifold (11). The water from the pump outlet is directly returned outside through the water check pipe (9) and exhaust pipe via the bypass tube (8). The pump is an impeller type and is located on the gear case. It is driven by the pinion shaft (10).



3. FUEL SYSTEM

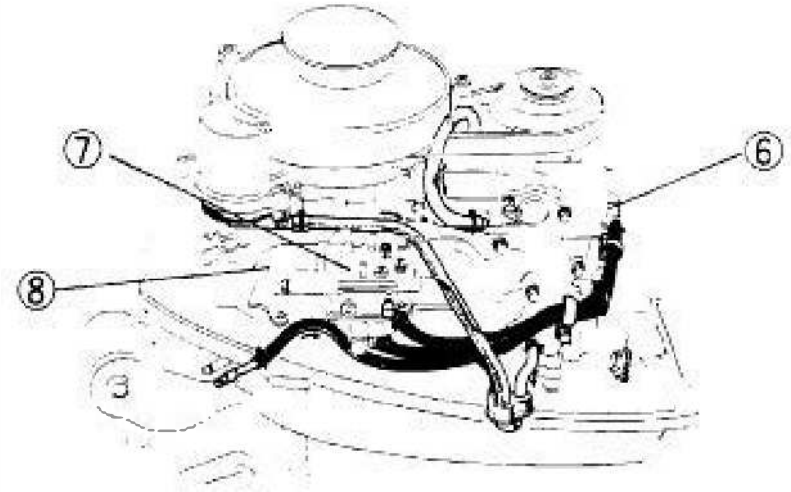
a. Fuel Tank

The fuel tank assembly consists of the fuel tank (1), filler cap (2), fuel connector (3), fuel pipe (4) and primer bulb (5). Squeezing the bulb creates a vacuum to prime the carburetor.
The filler cap incorporates a fuel gauge and a breather valve to prevent leakage during transport.
The fuel pipe may be disconnected at the fuel tank for easy handling.



b. Fuel Pump

The fuel pump (6) delivers fuel from the fuel tank to the carburetor (7). The pump is a diaphragm type driven by the rocker arm. The rocker arm pushes the diaphragm up and spring pressure forces it down, pumping fuel into the carburetor.



c. Carburetor

The carburetor is a horizontal butterfly valve type.

- Main circuit

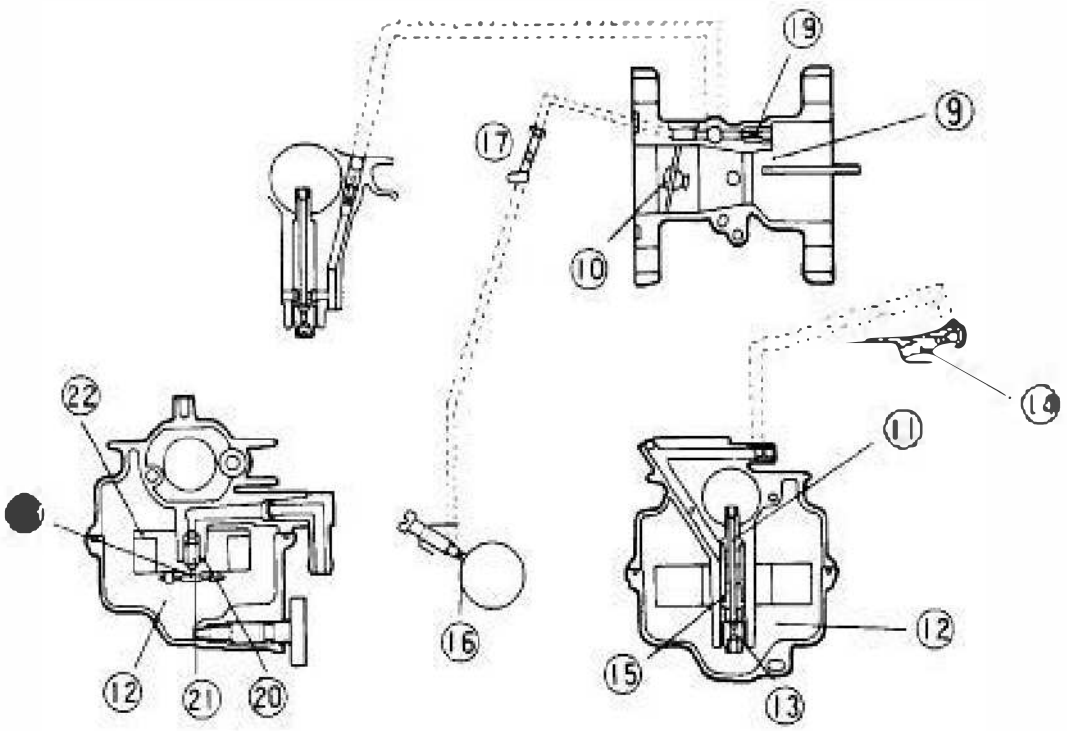
When the throttle valve (10) is opened, enough air is moving through the air guide (8) and carburetor air horn to produce an appreciable vacuum in the venturi (9).
Since the main nozzle (11) is centered in the venturi, atmospheric pressure forces fuel in the float chamber (12) out into the main nozzle via the main jet (13).
As the fuel enters the main nozzle, it meets air flowing through the air jet (14) and air bleed (15) in the main nozzle. They mix and flow past the main nozzle. The mixture has a high proportion of fuel. It leans out as it mixes with air flowing through the air horn to produce the final mixture.

- Slow circuit

When the throttle is opened slightly, a vacuum is produced in the pilot outlet (16) and bypass (17). Fuel in the float chamber is forced out, flowing through the main jet.
The metered fuel then mixes with air from the pilot air jet (19). Then they mix and flow past the bypass and pilot outlet into the carburetor air horn.
As the mixture flows into the air horn, it mixes with more air moving through the air horn, thereby producing the final mixture for slow speed operation.

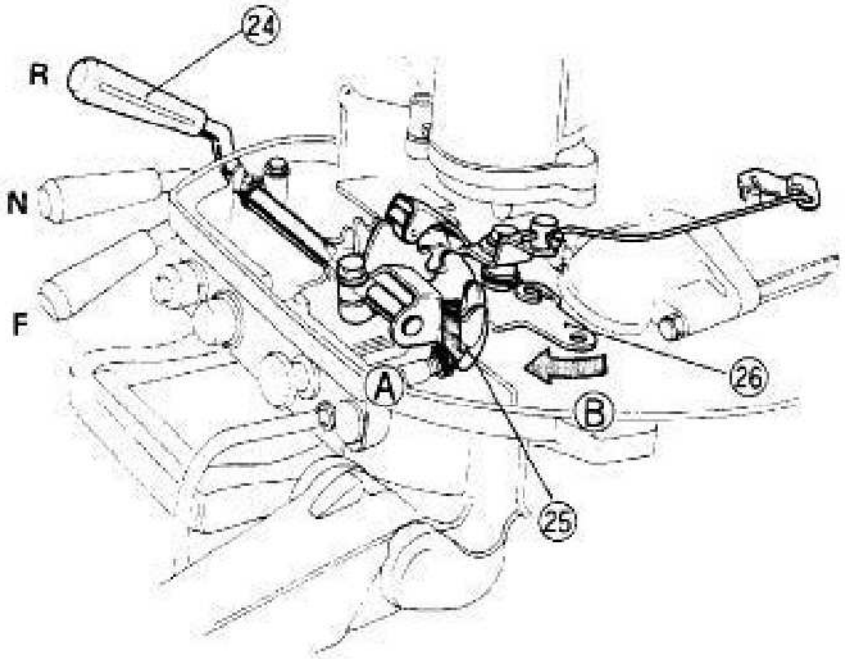
- Float chamber

Fuel from the fuel pump flows past the valve seat (20) and float valve (21) into the float chamber. The float (22) then moves up and pushes the float valve onto the seat with the float arm (23). This shuts off the fuel inlet clearance between the valve and valve seat. New fuel can not flow into the carburetor float chamber. If the fuel level is lowered, the float moves down, allowing the valve to move away from the valve seat. In this way a constant fuel level is maintained in the float chamber.



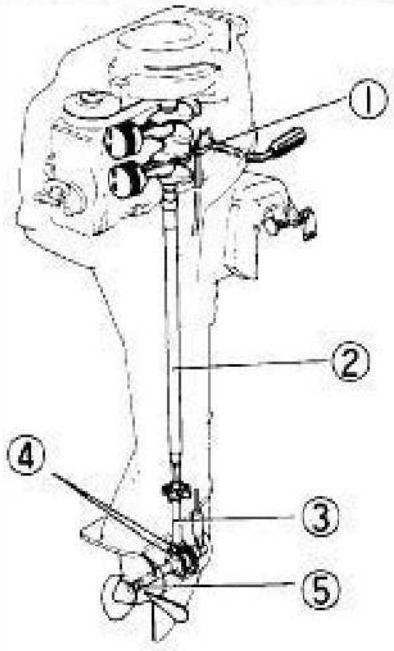
d. Throttle Limiter

The carburetor has a limiter which comes into operation when the shift lever is set in Nautral or Reverse.
As the shift lever (24) is placed in Neutral or reverse, the cam (25) on the shift shaft is rotated in direction "A". With the cam in this position, the throttle arm (26) is stopped (in direction B) once it reaches the half-open position.



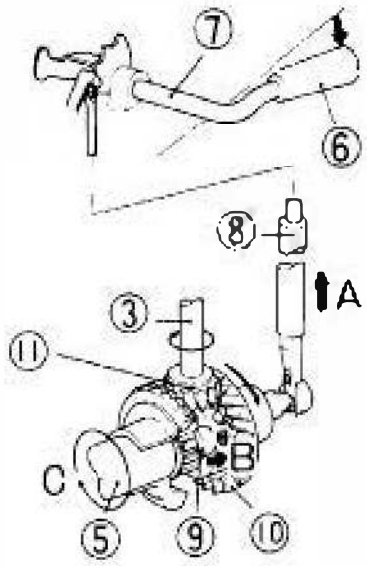
4. POWER TRANSMITTING SYSTEM

A 4-cycle, water cooled, 2-cylinder, 197 cc overhead camshaft gasoline engine is installed on the BF75 and BF100.
The turning effort of the crankshaft (1) is transmitted to the propeller shaft (5) through the vertical shaft (2), pinion shaft (3) and bevel gears (4).



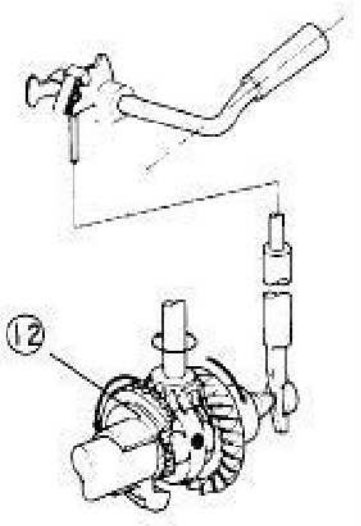
a. Power Flow – Forward

When the shift lever (6) is placed in Forward, the shift rod (8) is moved in direction "A" through the shift shaft (7).
This causes the spring to move the clutch shifter in direction "B"; and into engagement with the forward bevel gear (10). Power from the engine is then transmitted through the bevel pinion (11), forward bevel gear, clutch shifter (9) and propeller shaft (5) to the propeller. The propeller rotates clockwise.



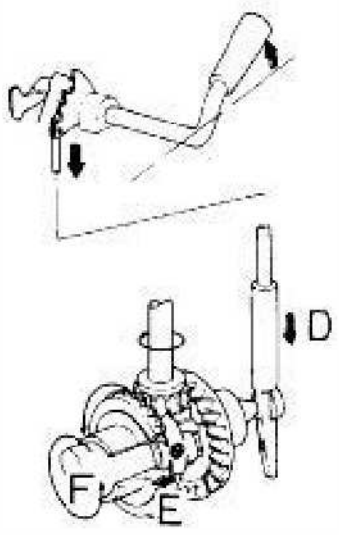
b. Power Flow – Neutral

In Neutral, effort on the shift lever causes the shift rod to move the shifter out of engagement with the bevel gears.
Since the shifter is disengaged, no power can be transmitted to the propeller shaft. The bevel pinion is placed midway between the two bevel gears.



c. Power Flow – Reverse

When the shift lever is placed in Reverse, the shift rod is moved in direction "D". The movement is transmitted to the clutch shifter, causing it to move in direction "E". Rotation is reversed since the shifter is in engagement with the reverse bevel gear (12).

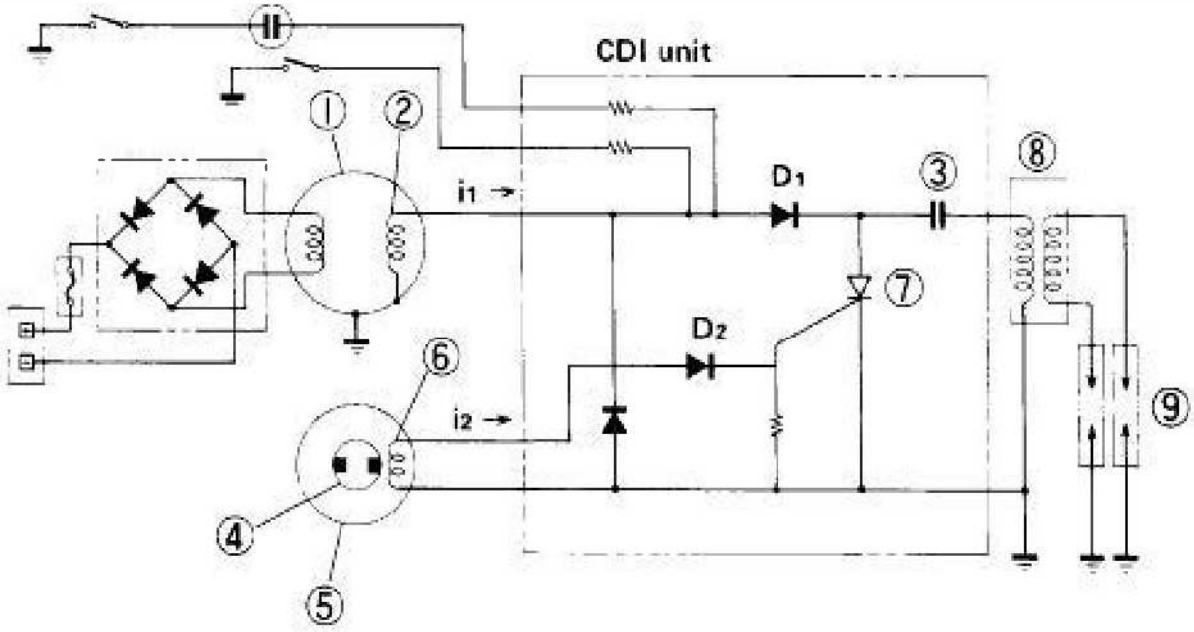


5. ELECTRICAL SYSTEM

a. Ignition System

A C.D.I. (Capacitor Discharge Ignition) system is employed in motors with engine serial number 1200001 and subsequent. It uses a semi-conductor switching element called "SCR" (for Silicon Controlled Rectifier), or more commonly, "thyristor".

OPERATING PRINCIPLE



1) With the engine running, the flywheel magneto (1) induces alternating current in the exciter coil (2). Positive half-cycle current flows in direction i_1 through diode D_1 in the CDI unit to charge the capacitor (3).

2) When the advancer rotor (4) in the cam pulley (5) turns to the ignition position alternating current is induced in the pulser coil (6).
The current flows in direction i_2 through diode D_2 and triggers the thyristor (7) into a conductive state, causing the capacitor (3) to discharge into the ignition coil (8).

3) This momentary inrush of discharging current induces a high voltage surge in the ignition coil secondary winding causing a spark at the plugs (9).

• INTAKE MANIFOLD/FUEL PUMP

NOTE: For tubing installation, see page 16.

1 THERMOSTAT

INSPECTION:

Suspend the thermostat in heated water. Measure water temperature and valve lift.

HIGH TEMPERATURE THERMOSTAT – no longer available: original equipment through serial No. (BF75) 1004086 and (BF100) 1009155.

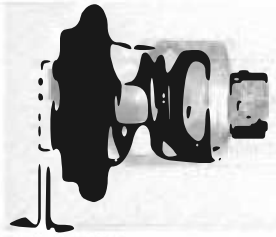
Water Temperature	Valve Lift
Below 70°C (158°F)	0 mm
Above 80°C (176°F)	3–4 mm (0.12–0.16 in)

MEDIUM TEMPERATURE THERMOSTAT: original equipment starting with serial No. (BF75) 10 4086 and (BF100) 1009156.

Water Temperature	Valve Lift
Below 60°C (140°F)	0 mm
Above 70°C (158°F)	2–3 mm (0.08–0.12 in)

LOW TEMPERATURE THERMOSTAT – original equipment starting with serial No. 1600001. (Canada: BF75, 100 Long types only)

Water Temperature	Valve Lift
Below 50°C (122°F)	0 mm
Above 60°C (140°F)	2–3 mm (0.08–0.12 in)

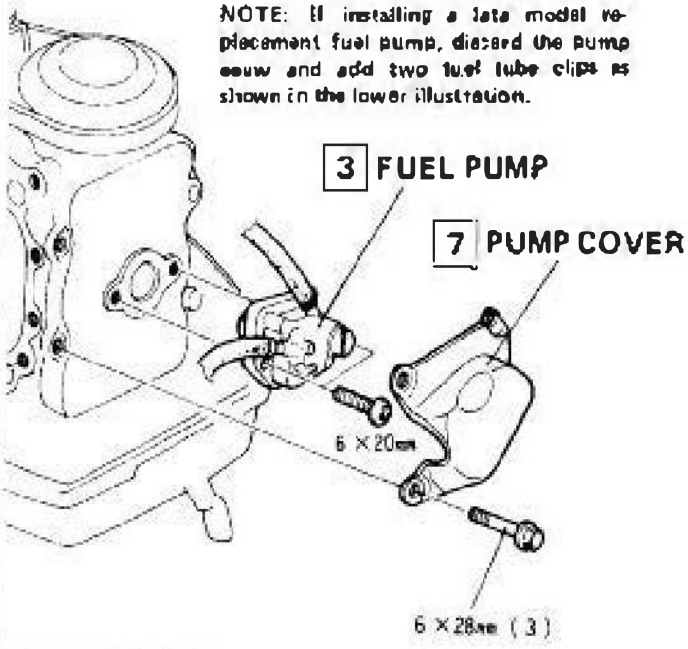


VALVE LIFT

EARLY MODEL FUEL PUMP

Engine serial numbers:
BF75 : 1000004–1102880
BF100: 1000004–1101260

NOTE: If installing a late model replacement fuel pump, discard the pump cover and add two fuel tube clips as shown in the lower illustration.



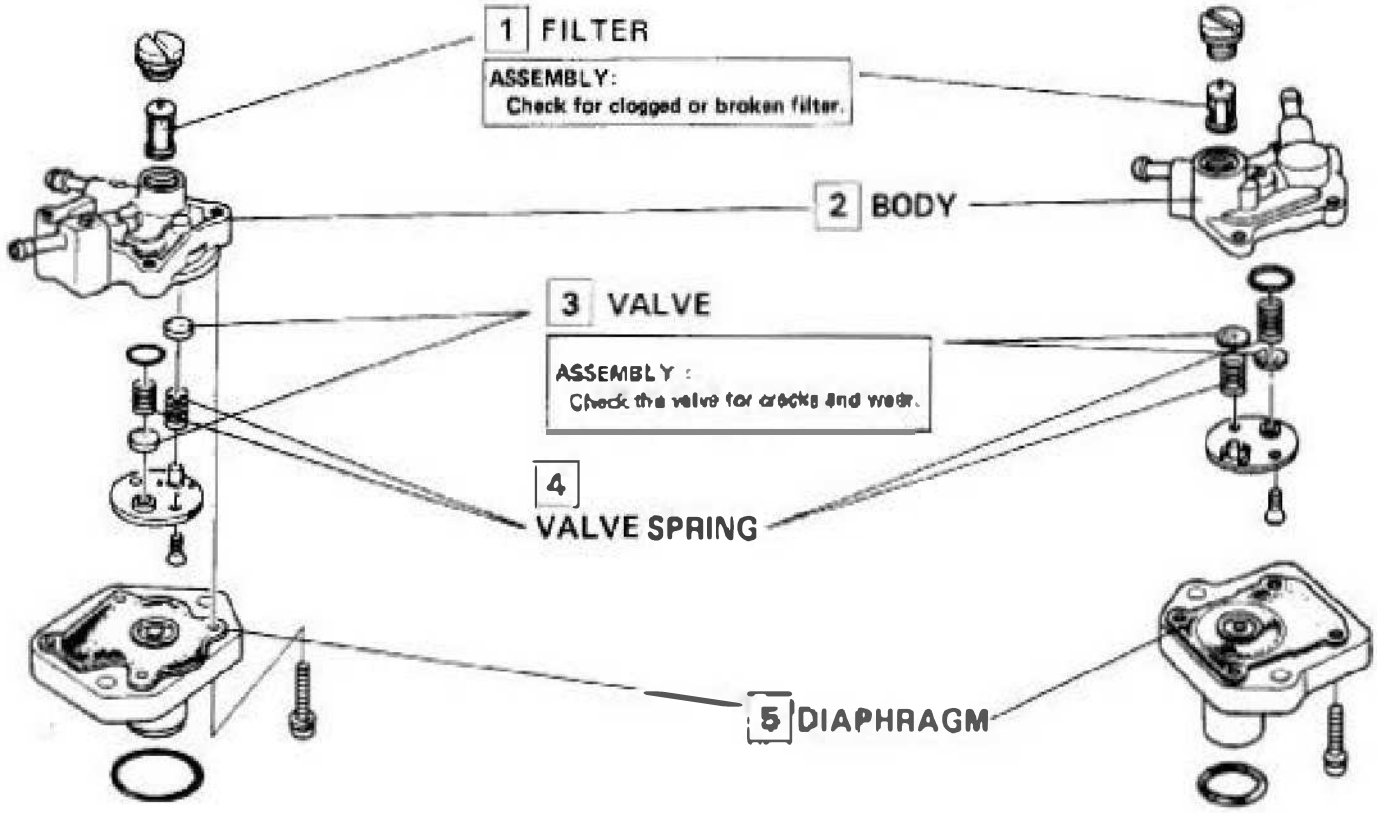
ASSEMBLY:
Blow out all passages with compressed air before installing.

ASSEMBLY:
Note installation direction and location.

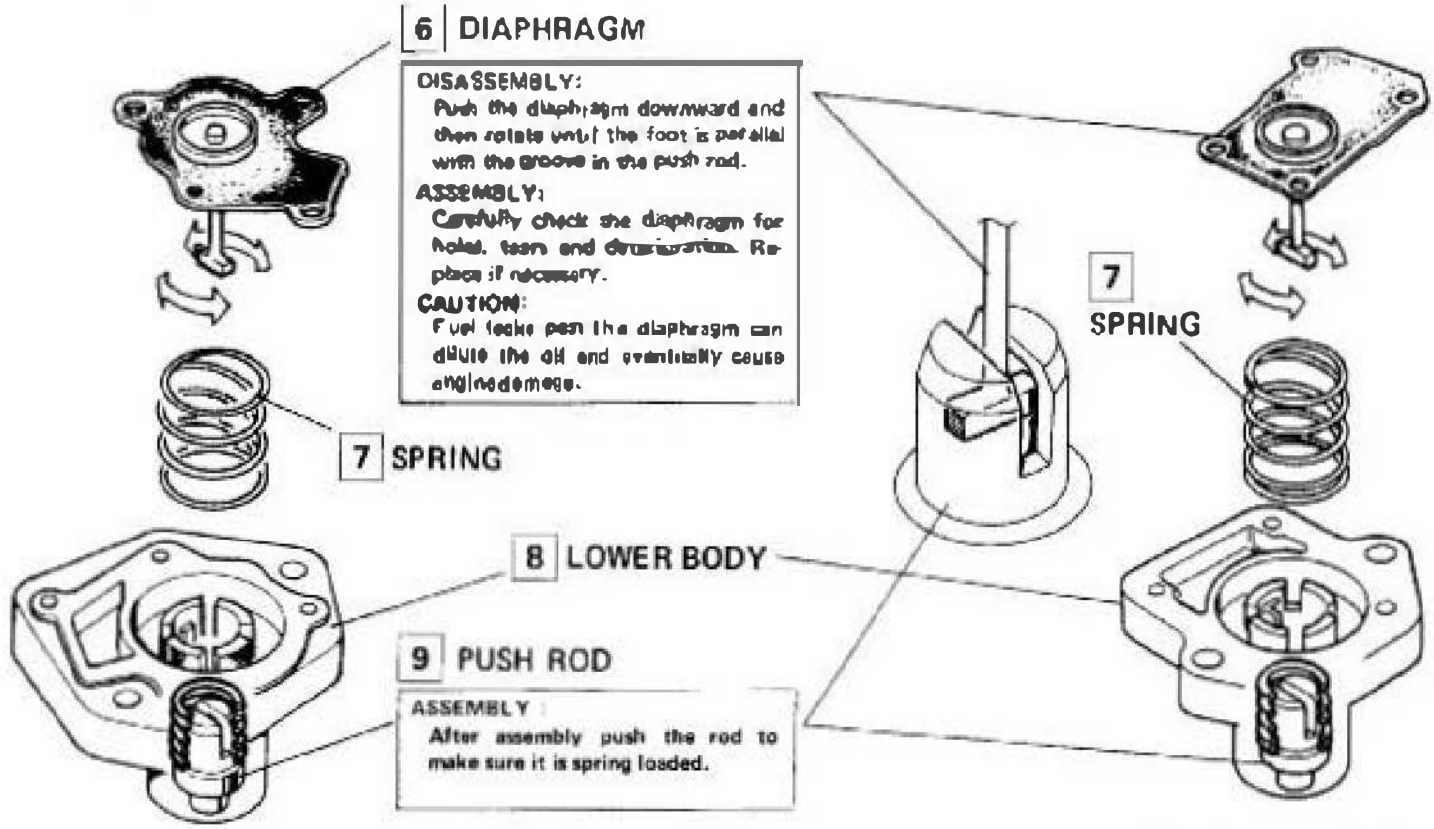
• FUEL PUMP

Engine serial numbers:
BF75 : 1000004—1102880
BF100: 1000004—1101260

Engine serial numbers:
BF76 : 1102881 and subsequent
BF100: 1101261 and subsequent

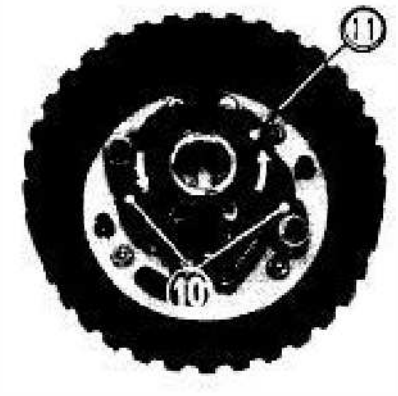


• DIAPHRAGM



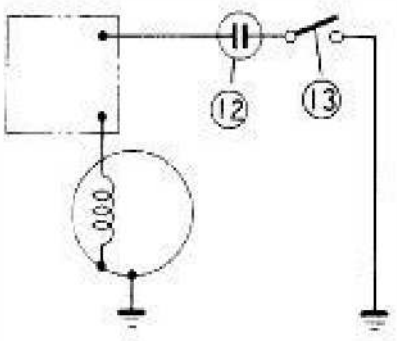
b. Spark Advancer

The spark advancer is housed in the cam pulley. When engine speed increases, centrifugal force moves the advancer weights (11) outward, causing the rotor (10) to turn in the direction shown by the arrows. This advances ignition timing in proportion to engine rpm.



c. Oil Pressure Warning Device

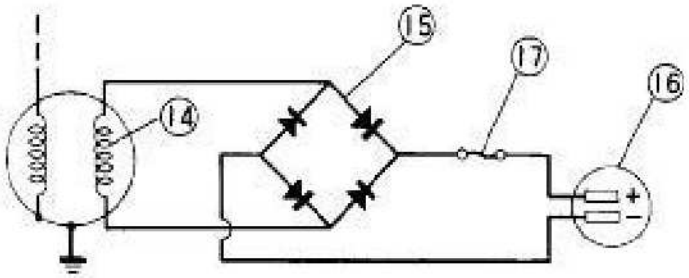
The oil pressure warning device consists of a pressure switch (13), a lamp (12) and wiring. The switch is installed on the cylinder block.
As the engine starts, oil pressure closes the switch and the exciter coil output causes the lamp to glow. As engine speed reaches 2000–2500 rpm, the light will be plainly visible.

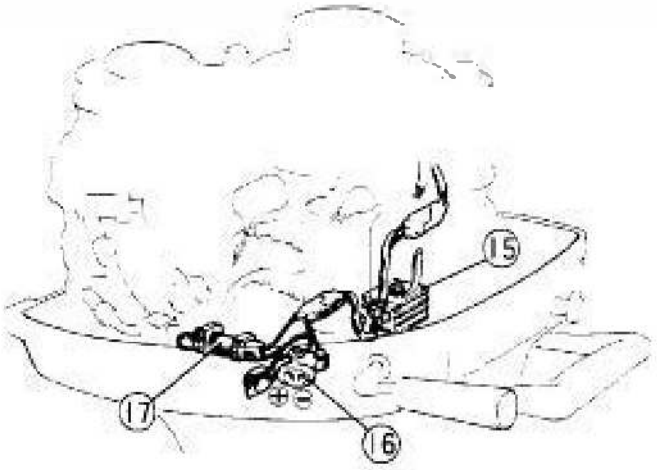


d. D.C. Output Circuit—Battery Charging

The entire circuit consists of a charging coil, connectors, a fuse and a silicon diode rectifier. A.C. output from the charging coil (14) under the flywheel is rectified by means of the rectifier (15) and is available at the D.C. output receptacle (16). A fuse (17) is inserted in the circuit between the rectifier and the receptacle to protect against damage to the circuits.

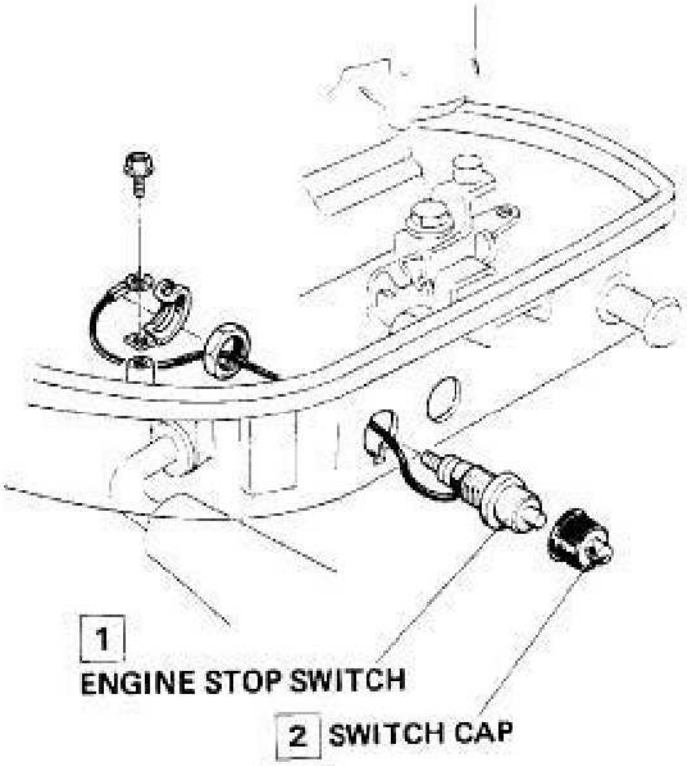
CAUTION:
When the battery charging plug is not inserted in the D.C. receptacle, the exposed plug prongs can short circuit your battery if they contact any metal surface.

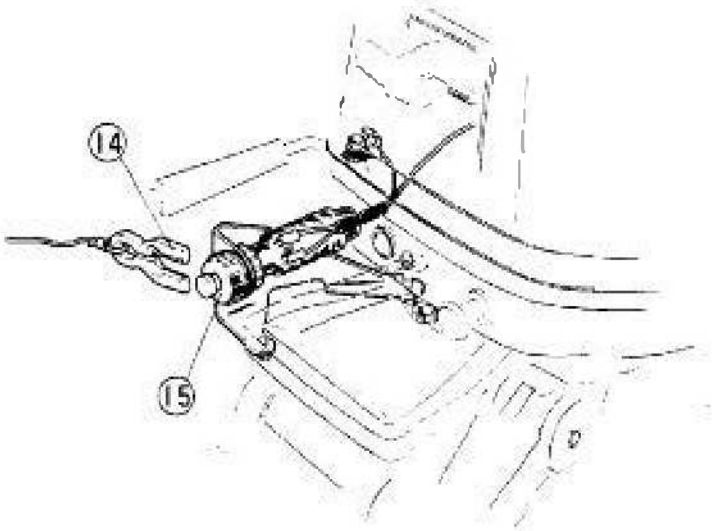




e. Engine Stop Switch

When the switch is depressed, the ignition primary circuit is grounded, thereby stopping the engine.
A safety switch is also available as an optional part.
Since the safety key (14) switch cord is tied around the wrist or waist of the operator, the switch (15) will be turned off if the operator falls overboard. There will be no possibility of the motor running unattended.

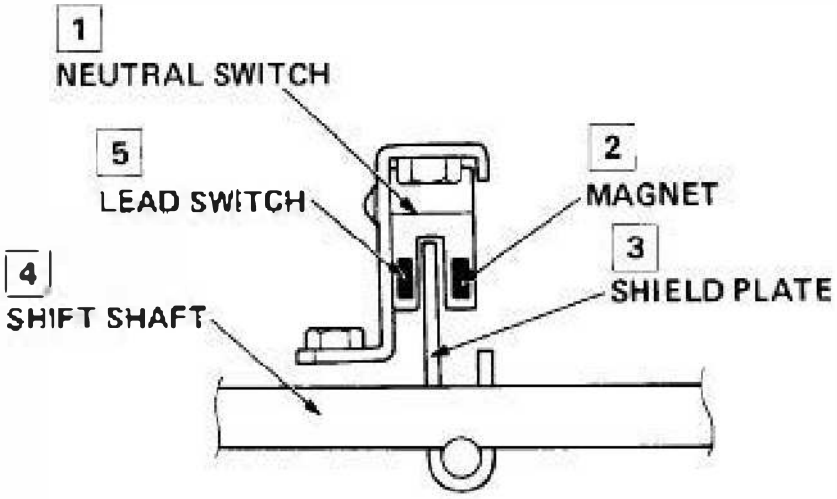




NOTE: The stop switch shown here is for engine serial number 1000004—1299999. See page 15 for engine serial number 1300001 and subsequent.

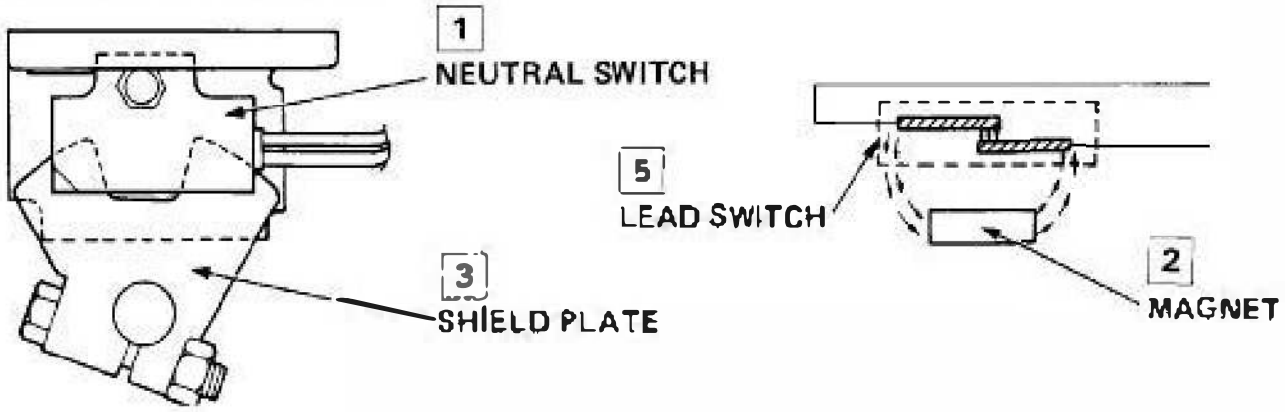
f. Neutral Switch (Engine serial number 1300001 and subsequent)

A neutral start system prevents the engine from starting when the shift lever is in the FORWARD or REVERSE position. The system's neutral switch consists of a lead switch on one side and a magnet on the other. A shield installed on the shaft either allows the magnetic force to reach the switch or obstructs the field, depending on the gear selected.



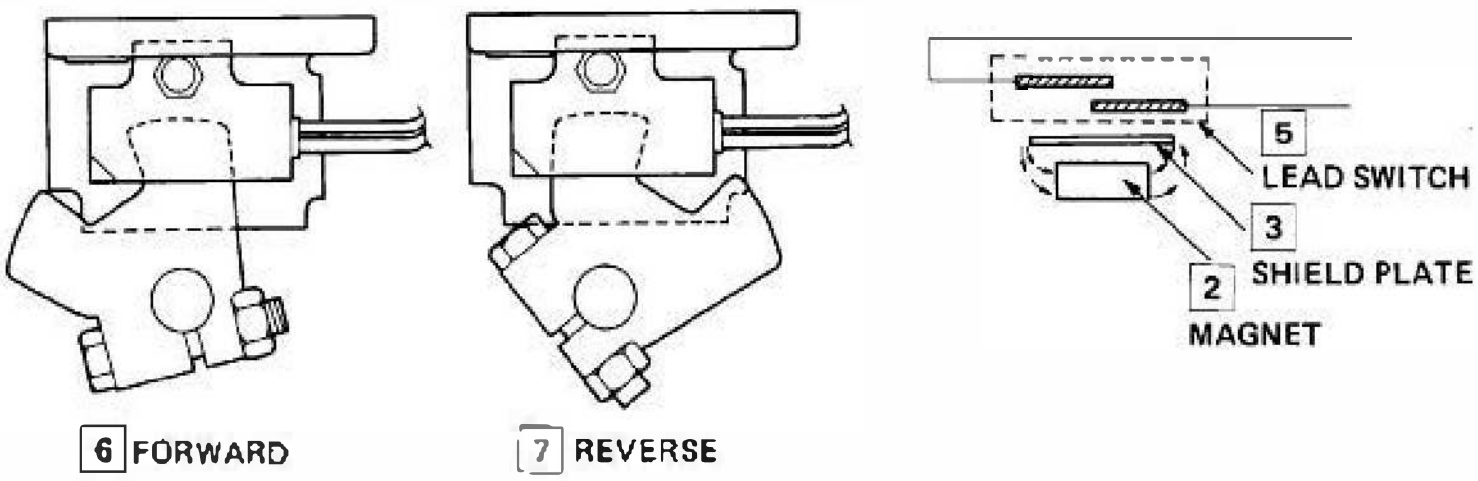
1) Neutral

When the shift lever is in NEUTRAL, the unobstructed magnetic force between the lead switch and the magnet creates a closed field to transmit the ignition circuit.



2) Forward/Reverse

When the shift lever is in FORWARD or REVERSE, the shield plate obstructs the magnetic force between the lead switch and the magnet. There is no closed field to transmit ignition.



6. TILT AND REVERSE LOCK MECHANISM

a. Tilt Mechanism

The tilt mechanism is used to tilt the motor in relation to the stern bracket when operating in shallow water.
As the tilt lever (1) is moved to TILT, the release rod (2) is raised, causing the reverse lock (3) to disengage from the adjusting rod (4). The unit can be set at 32.5° or 72° by raising the extension case. To release the tilt mechanism, return the tilt lever to "RUN" and raise the extension case slightly toward you, and lower it slowly.
The tilt lever should be kept in RUN while operating the outboard.

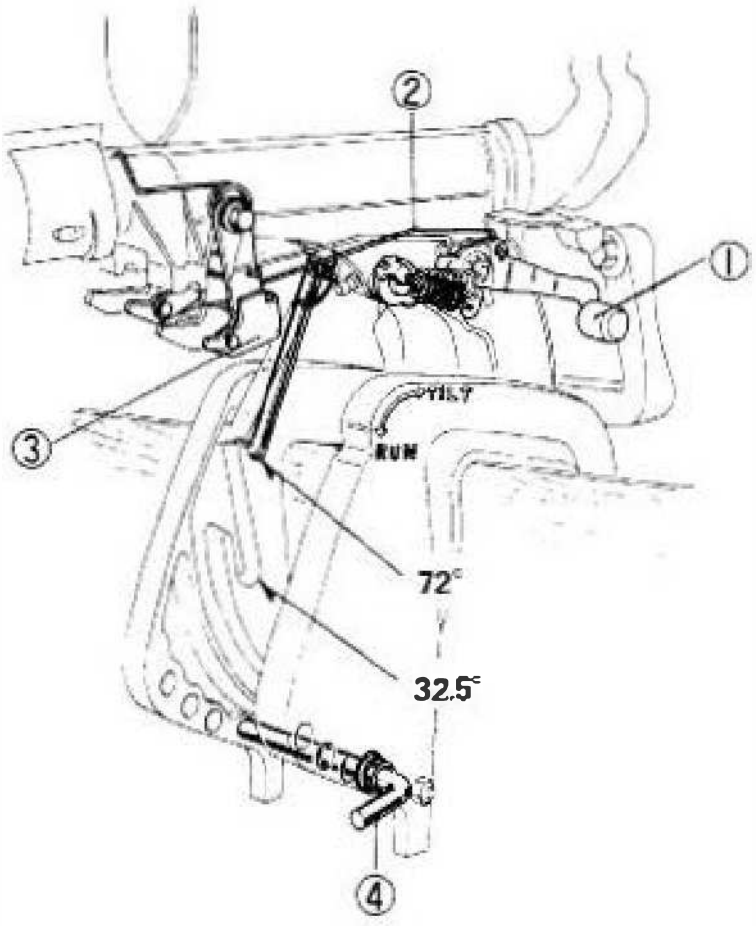
b. Adjust Rod

The installation angle at the transom can be adjusted in four stages by repositioning the adjust rod (3°, 8°, 13° and 18°).

c. Reverse Lock Mechanism

The mechanism is engaged when the tilt lever is in the RUN position so that the unit cannot be tilted.

NOTE: Do not shift the motor into reverse with the tilt lever in the TILT position. This causes the reverse lock hook to disengage with the adjust rod.



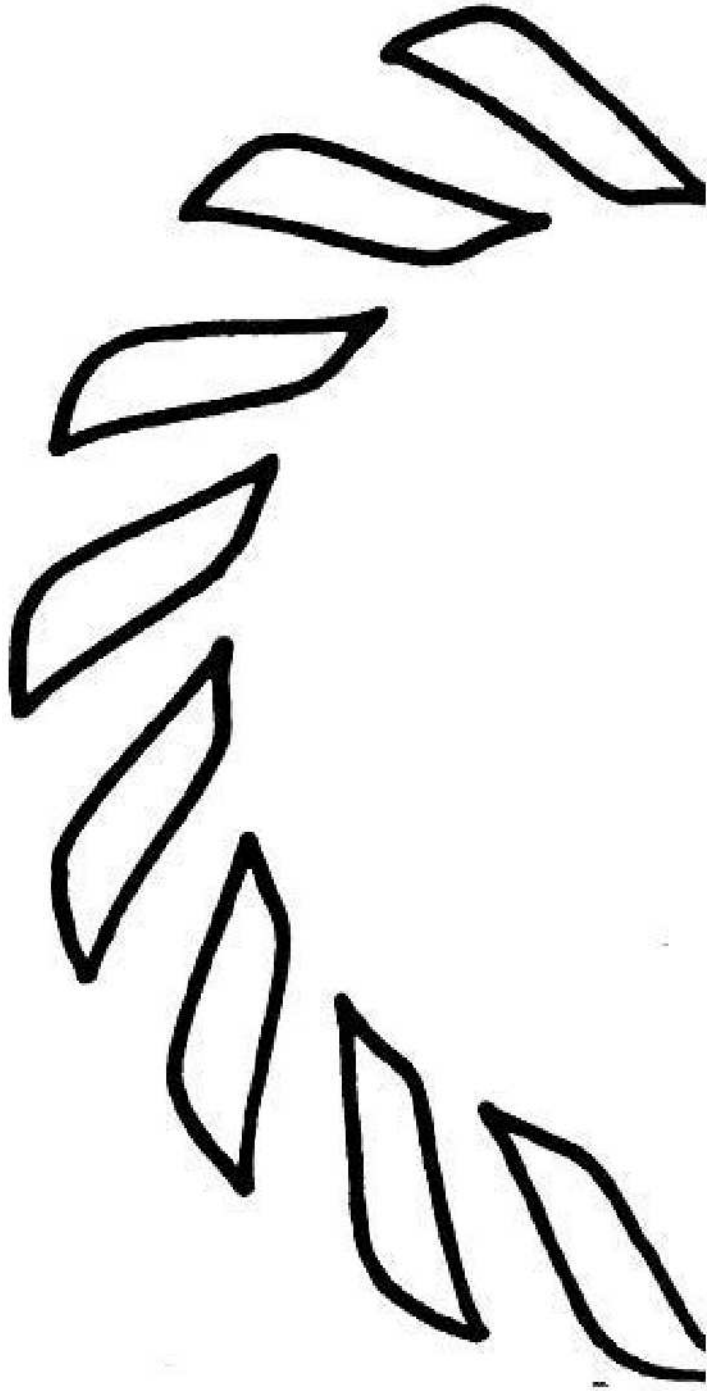
HONDA

BF75·BF100

'85

SUPPLEMENT

CONTENTS



PREFACE

This supplement describes service procedures for the '85 BF75 and '85 BF100 Outboard Motors, serial numbers 1700001 and subsequent.
Refer to the base shop manual No. 66881201 for service procedures and data not included in this supplement.

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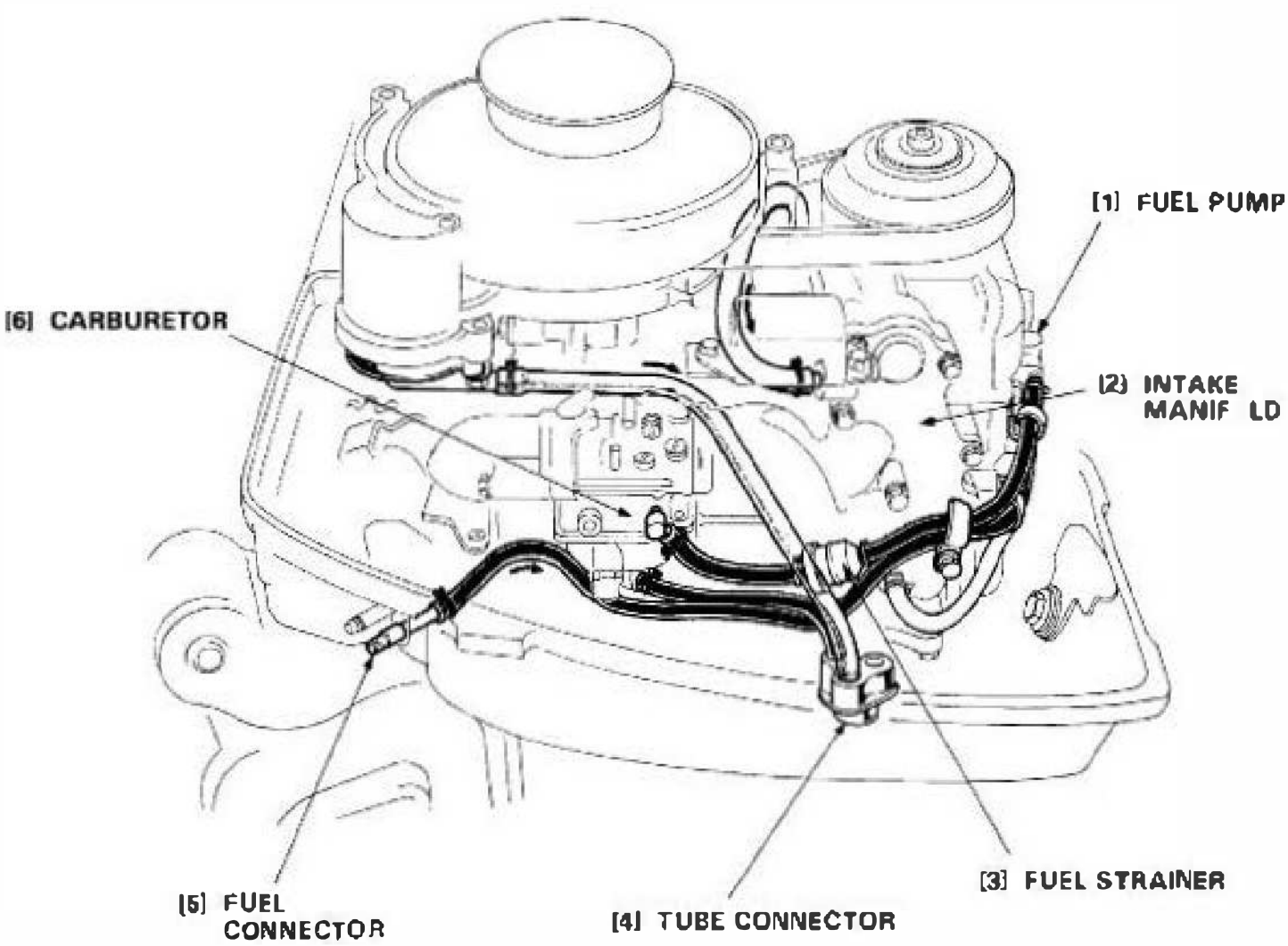
III. MAJOR MODIFICATIONS 109
1. ENGINE PART 109
2. FRAME PART 110

1. TUBE ROUTING 2. MAINTENANCE SCHEDULE

1. TUBE ROUTING



2. MAINTENANCE SCHEDULE

ITEM	REGULAR SERVICE PERIOD Performed at every indicated month or operating hour interval, whichever comes first.	EACH USE	FIRST MONTH OR 20 HRS	EVERY 6 MONTHS OR 100 HRS	EVERY YEAR OR 200 HRS
Engine oil	Check level	O			
	Change		O	O	
Gear case oil	Check level	O			
	Change		O		O
	Check for water contamination			O	
Carburetor linkage	Check		O		
Valve clearance	Check-Readjust		O		O
Spark plug	Clean-Readjust			O	
Shear pin	Check			O(1)	
Lubrication	Grease			O	
Fuel tank and fuel filter	Clean				O
Fuel strainer	Replace				O
Thermostat	Check				O
Fuel line	Check (Replace if necessary)	Every 3 years			

NOTE: (1) Lubricate more frequently when used in salt water.

1. THERMOSTAT CHECK 2. FUEL STRAINER REPLACEMENT

1. THERMOSTAT CHECK

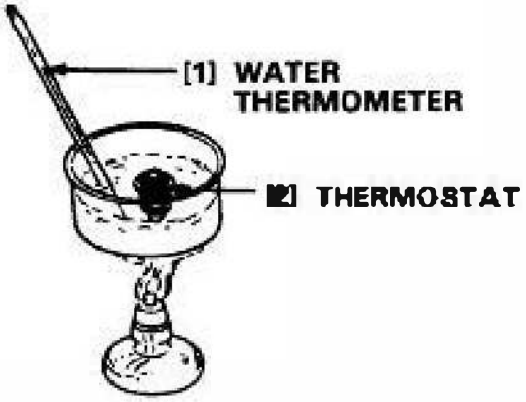
1) Suspend the thermostat in heated water.

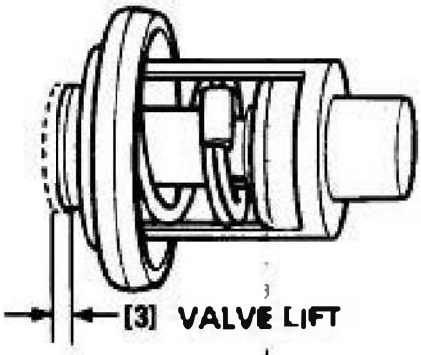
2) Measure water temperature and valve lift.

Water Temperature	Valve Lift
Below 60°C (140°F)	0 mm
Above 70°C (158°F)	3–4 mm (0.12–0.16 in)

NOTE

Between 60°C and 70°C, the valve may or may not operate. In either case, it is not a malfunction. Thermostats not complying with the figures listed above should be replaced with new parts.





2. FUEL STRAINER REPLACEMENT

(SERVICE PERIOD)
Every 200 operating hours or every one year

1) Disconnect the fuel tank line from the motor.

2 Remove the engine cover and remove the fuel strainer.

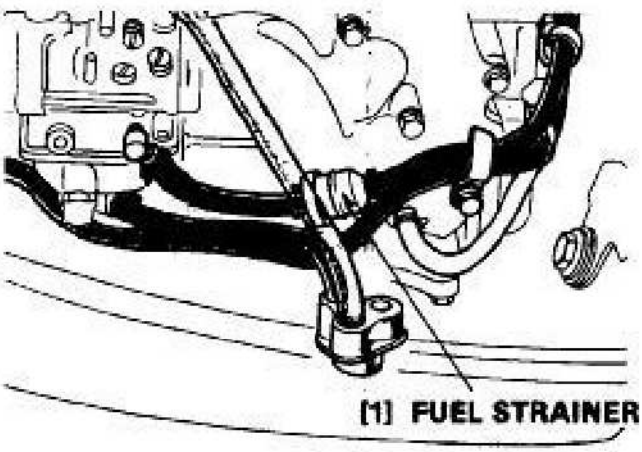
NOTE

Before removing the strainer, place clamps on the fuel tubes on each side of the strainer to prevent fuel leakage.

3) Ins all the new fuel strainer with the arrow mark pointing toward the carburetor.

NOTE

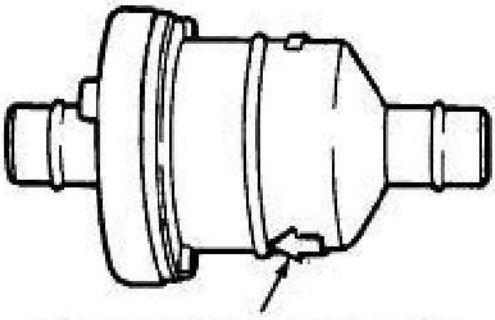
Fuel flow will be impeded if the strainer is installed backward.



Remove the clamps used to close the fuel tubes. Connect the fuel tank line to the motor.
Turn the fuel tank vent knob to the ON position, pump the primer bulb, and check for leaks.

WARNING

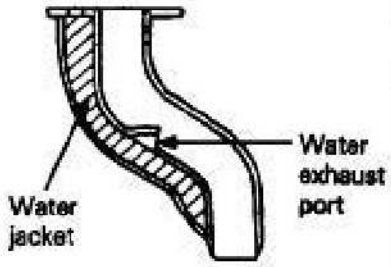
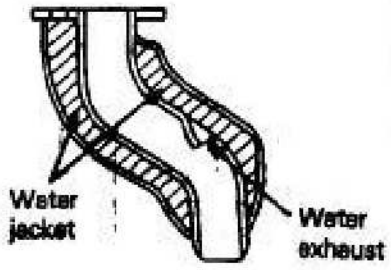
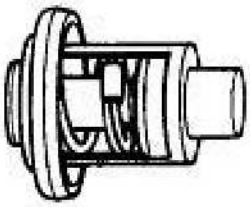
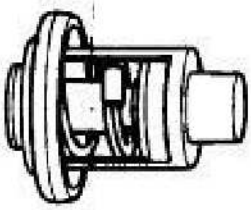
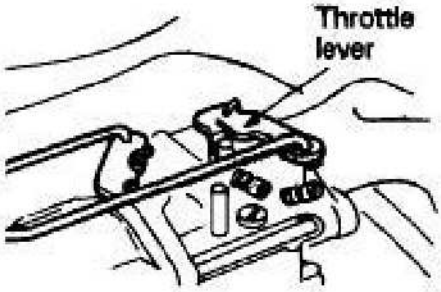
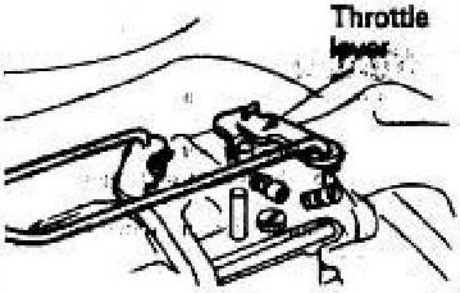
- Always work in a well-ventilated area.
- Be sure that any fuel drained from the outboard motor is stored in a safe container.
- Wipe up any spilled gasoline at once.

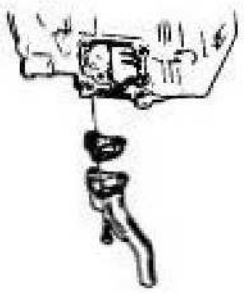
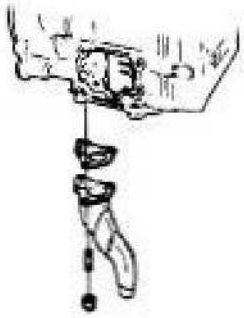
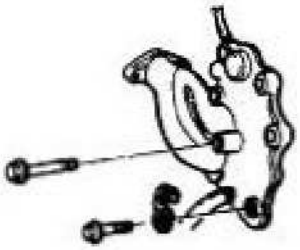
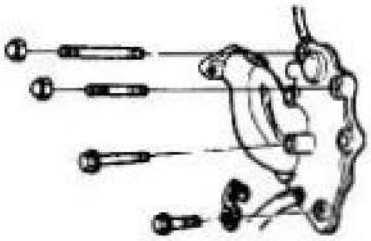
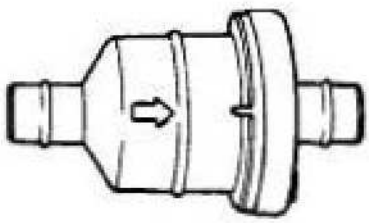


[2] The arrow mark indicates the fuel flow direction.

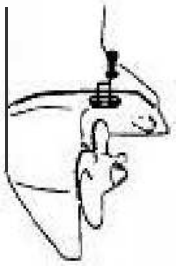
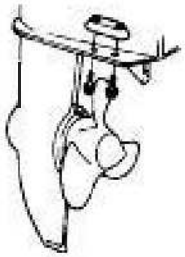
1. ENGINE PA | 2. FRAME PART

1. ENGINE PART

Items	Serial number ~1699999	Serial number 1700001~
• Cylinder head • Cylinder barrel • Inlet manifold • Oilcase Internal surface of water jacket for above parts has had its anti-corrosion finish modified.		Zinc chromate finish (anti-corrosion finish)
• Exhaust pipe Shape modification	 Half-surface cooling	 Full circumference water jacket, and position of water exhaust port has been changed (full surface cooling).
Thermostat material revised. Increase in lift amount at full open.	 Material C2720 (brass) Full open lift 2.3 mm	 Material CB101 (bronze) Full open lift 3.3 mm
Throttle lever material revised.	 Material BsBM (brass)	 Material resin POM

Items	Serial number – 1699999	Serial number 1700001 –
Tightening bolt for inlet manifold and exhaust manifold (pipe)	 Flange bolt	 Stud bolt and capnut
	 Flange bolt	 Stud bolt and capnut
Fuel strainer		 Installed between carburetor and fuel pump

2. FRAME PART

Items	Serial number ~1699999	Serial number 1700001–
Revised positioning of anode metal	 Lower surface of cavitation plate	 Upper surface of cavitation plate

* Design of side cover emblem has also been revised.

HONDA

BF8A

SUPPLEMENT

CONTENTS

PREFACE

This supplement describes service procedures for the BF8A Outboard Motors, which are not covered in the base Shop manual BF75,BF100 (6688121).

HONDA MOTOR CO., LTD.
SERVICE PUBLICATIONS OFFICE

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1. SPECIFICATIONS

- DIME SIONS AND WEIGHT

Model	S	L
Description code	BACS	BACL
Overall length	525 mm (20.67 in)	
Overall width	315 mm (12.4 in)	
Overall height	1,010 mm (39.76 in)	1,160 mm (45.67 in)
Operating weight	36.0 kg (79.1 lb)	37.0 kg (81.3 lb)

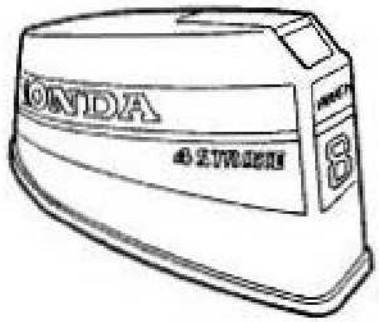
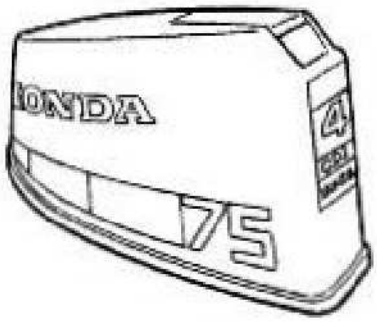
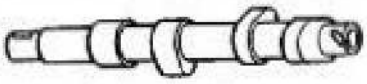
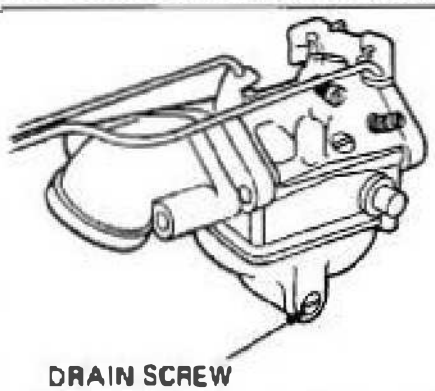
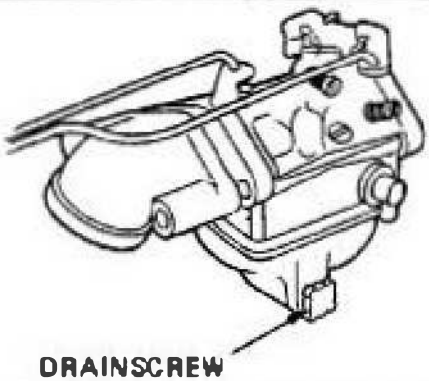
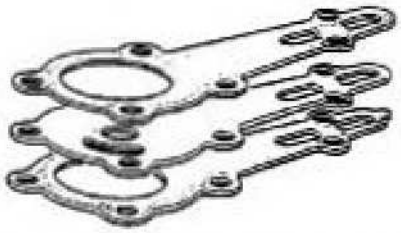
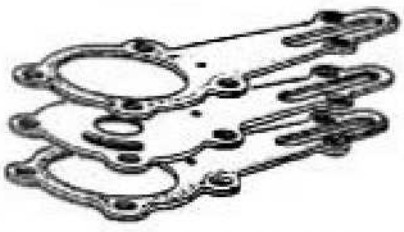
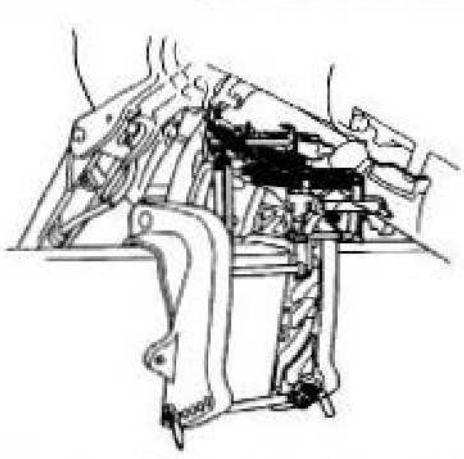
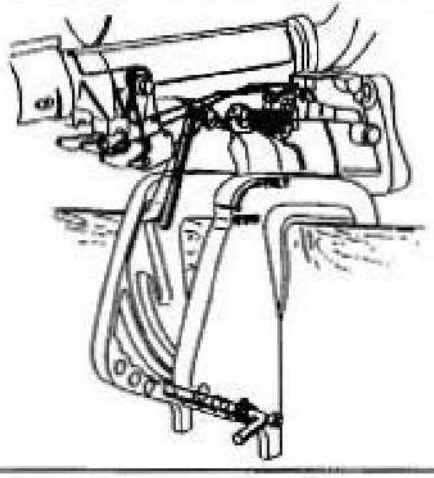
- FRAME

Transom height	422 mm (16.6 in)	572 mm (22.5 in)
Transom angle	5-stages (3° – 7° – 11° – 15° – 19°)	
Tilting	3-stages (30° – 45° – 70°)	
Swivel angle	40°	

- ENGINE

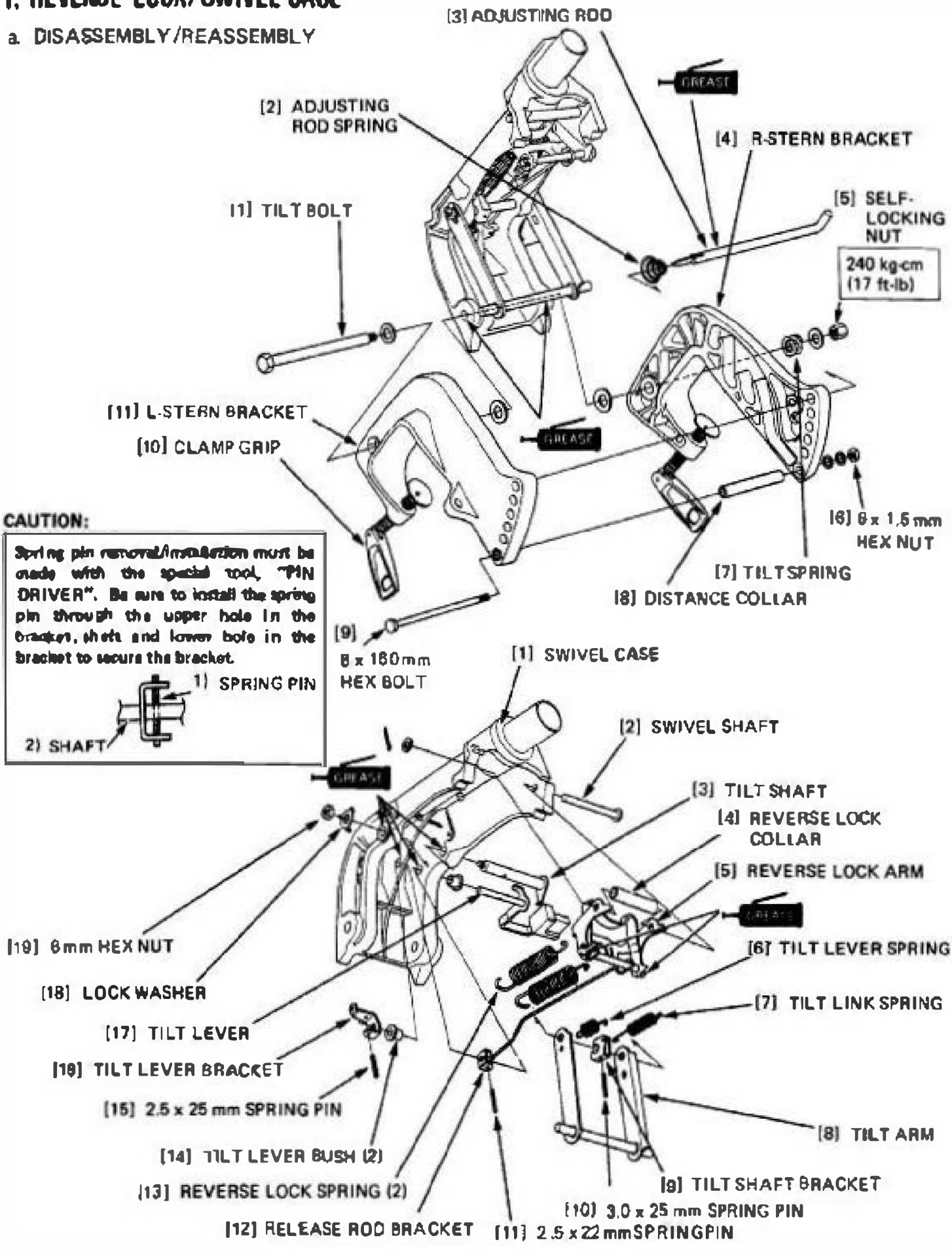
Type	2 cylinder, in-line, 4 stroke, water-cooled, OHC
Displacement	197 cc (12.0 cu in)
Bore and stroke	56 x 40 mm (2.20 x 1.57 in)
Max. horsepower	5.88 KW (8.0 ps)/5,500 min^{-1} (rpm)
Max. torque	11.8 N-m (120 kg-cm, 8.68 ft-lb)/4,500 min^{-1} (rpm)
Ignition system	C.D.I.
Ignition timing	15° BTDC

1 OUTLINE OF CHANGES

PARTS DESCRIPTION	BF8A	BF75/BF100
ENGINE COVER		
CAMSHAFT	 Valve tappet clearance IN : 0.12 ± 0.02 mm (0.0047 ± 0.0006 in) EX : 0.20 ± 0.02 mm (0.0079 ± 0.0006 in)	 Valve tappet clearance IN : 0.08 ± 0.02 mm (0.0031 ± 0.0006 in) EX : 0.08 ± 0.02 mm (0.0031 ± 0.0006 in)
CARBURETOR	 DRAIN SCREW	 DRAINSCREW
IMPELLER PUMP COVER AND GASKETS		
REVERSE LOCK SYSTEM		

1. REVERSE LOCK/SWIVEL CASE

a. DISASSEMBLY/REASSEMBLY



CAUTION:

Spring pin removal/installation must be made with the special tool, "PIN DRIVER". Be sure to install the spring pin through the upper hole in the bracket, shaft and lower hole in the bracket to secure the bracket.

HONDA OUTBOAD MOTOR BF75·BF100· BF8A

SHOP MANUAL NEWS

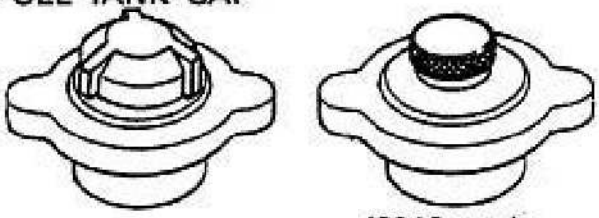
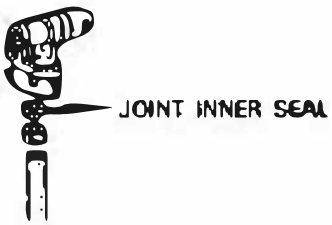
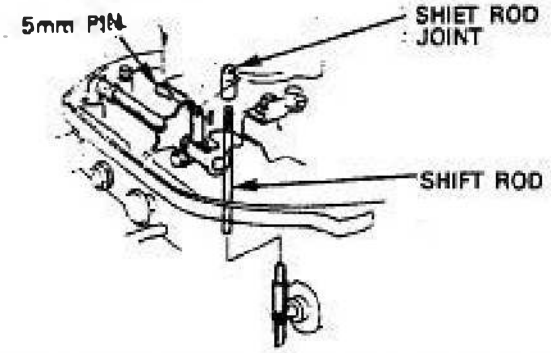
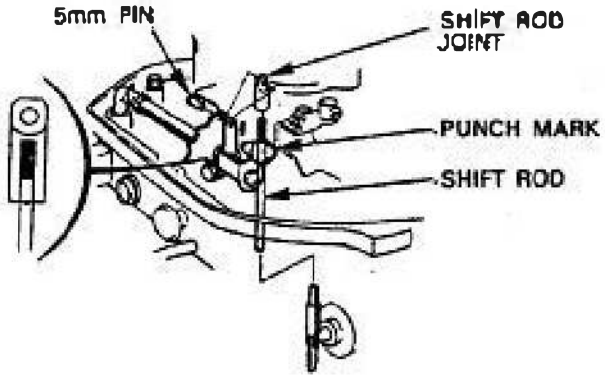
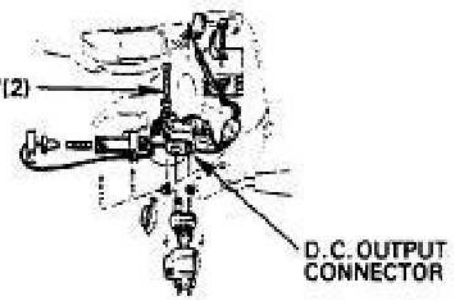
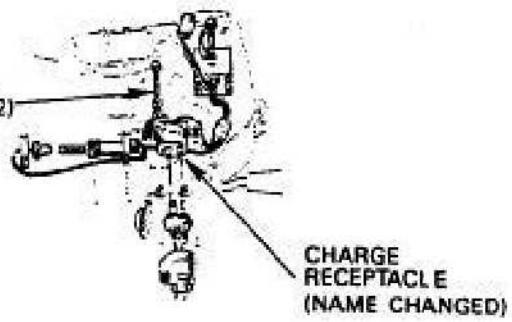
Power Equipment

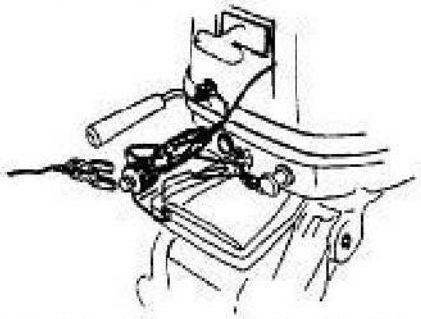
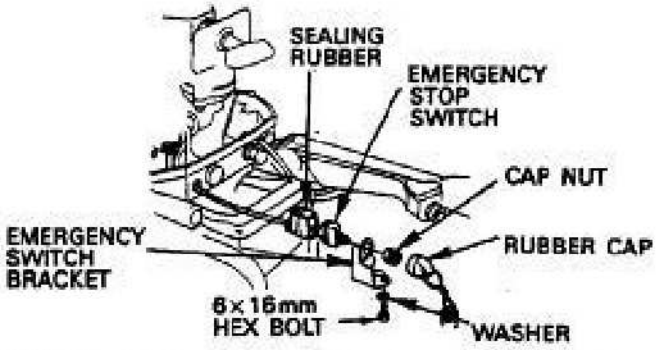
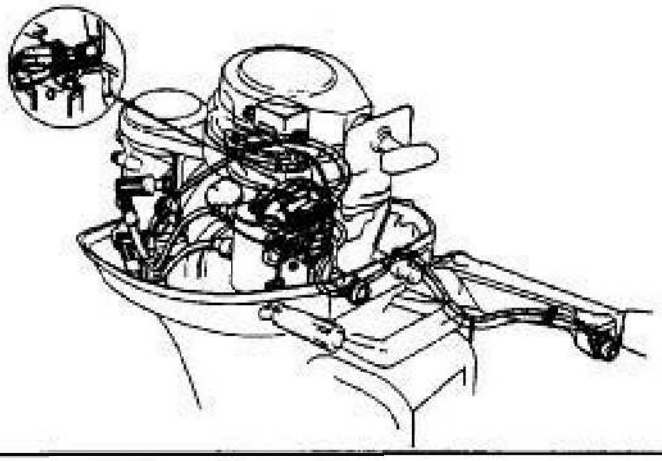
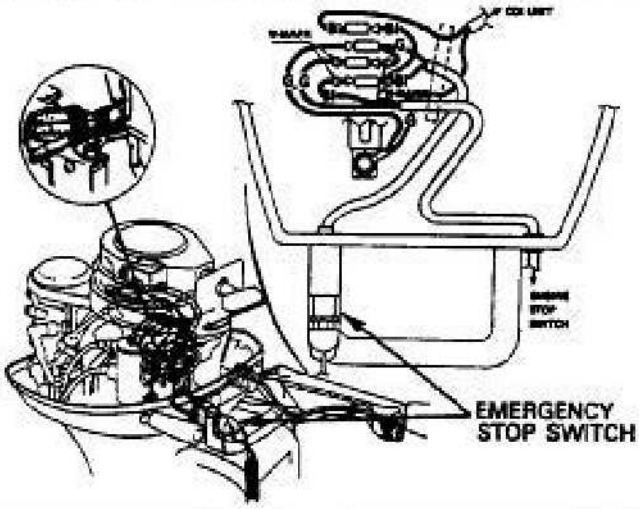
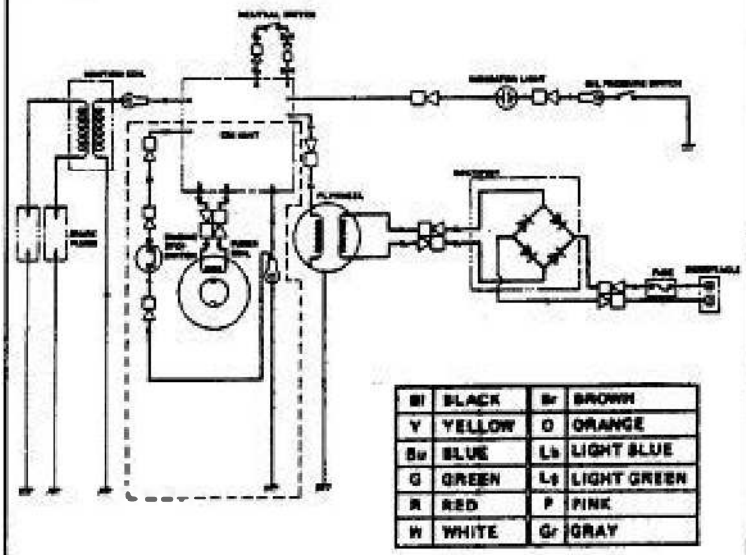
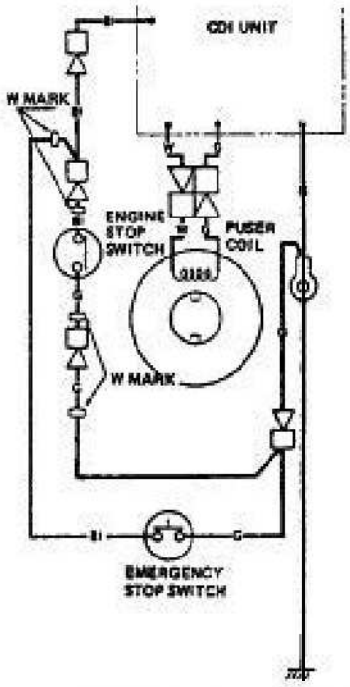
News No.	Issue Date
P/P-006	APR. 89

SOME PARTS OF BF75, BF100 AND BF8A ARE CHANGED

Applicable information	Publication No
Honda outboard motor BF75·BF100·BF8A shop manual	6688122

CHANGE LOCATIONS

BEFORE MODIFICATION Frame serial number 1000001~1099999	AFTER MODIFICATION Frame serial number 1100001 to subsequent
No.1 FUEL TANK CAP P.200  (SC,LC types)	· Except SC,LC types 
No.2 FUEL LINE CONNECTOR A P.200 	
No.3 SIFT ROD P.62, 120, 160, 172  · The holes will usually align when the shift rod joint is turned in all the way, and then unscrewed 4½turns.	 · The holes will usually align when the shift rod joint is turned in to the punch mark of the shift rod. (Adjustment is possible without the punch mark)
No.4 D.C. OUTPUT CONNECTOR P.92  	

BEFORE MODIFICATION Frame serial number 1000001–1099999	AFTER MODIFICATION Frame serial number 1100001 to subsequent
No.5 EMERGENCY STOP SWITCH (OPTIONAL PARTS) P. 184 	• Standard equipment 
No.6 WIRE ROUTING P.32 	
No.7 WIRING DIAGRAM P.28 	

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