

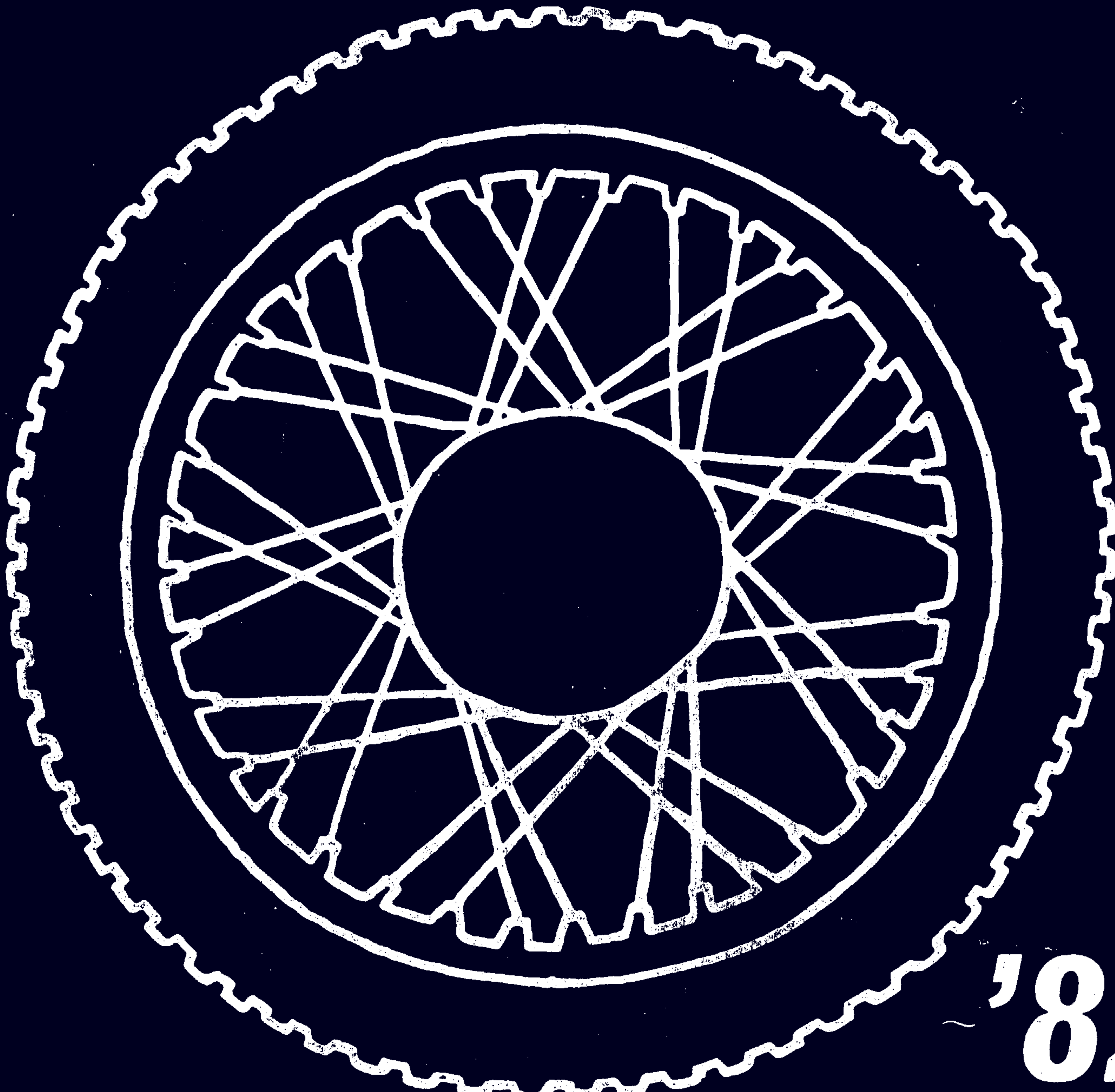
Official

HONDA

SHOP MANUAL

ST50-70

CT70-70H



'82

FOREWORD

This manual covers information on models ST 50, ST 70, CT 70, CT 70 K1, CT 70 K2, CT 70 K3, CT70H, and CT 70HKI. This manual should be kept in a place for easy reference with **50/65 Shop Manual (Code No. 620401)**. If properly used it will enable the service shops to provide reliable service to the owners.

All information, illustrations and specifications contained in this publication, are based on the latest product information available at the time of publication. Honda Motor Co., Ltd. reserves the right to make changes at any time without notice.

Following are the initial serial numbers of each model at the time of change:

ST 50 E (England type)	ST 50— 111528~
ST 70 D I (General type)	ST 70— 108801~
ST 70 D II (General type)	ST 70— 505971~
ST 70 E (England type)	ST 70— 137314~
CT 70 H (U. S. A. type)	CT 70H—100001~
CT 70 HKI(U. S. A. type)	CT 70HKI—2000001~
CT 70 (U. S. A. type)	CT 70— 100001~
CT 70 K1 (U. S. A. type)	CT 70—2000001~
CT 70 K2 (U. S. A. type)	CT 70—2100001~
CT 70 K3 (U. S. A. type)	CT 70—2300001~

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I. SPECIFICATIONS

1.1 Specifications

ITEMS	ST 50 (England type)	ST 70 (General type)	CT 70 (U.S.A. Type)	CT 70H (U.S.A. Type)
DIMENSION				
Overall Length	1,510 mm (59.8 in.)	←	←	←
Overall Width	580 mm (22.8 in.)	←	←	←
Overall Height	960 mm (37.8 in.)	←	←	←
Wheel Base	1,035 mm (40.7 in.)	←	←	←
Ground Clearance	165 mm (6.5 in.)	←	180 mm (7.1 in.)	←
Curb Weight	64 kg (141.1 lb.)	65 kg (143.3 lb.)	62 kg (136.7 lb.)	65 kg (143.3 lb.)
FRANE				
Type	T-bone type	←	←	←
Suspension, F.	Telescopic fork	←	←	←
Suspension, R.	Swing arm	←	←	←
Tire Size, F.	3.50-10 (2 PR)	←	4.00-10 (2 PR)	←
Tire Size, R.	3.50-10 (2 PR)	←	4.00-10 (2 PR)	←
Brake	Internal expanding shoe	←	←	←
Fuel Capacity	2.5 lit (5.28 U.S. pt. 4.46 Imp. pt.)	←	←	←
Tire Pressure, F.	1.0 kg/cm ² (14.2 psi)	←	1.1 kg/cm ² ~1.3 kg/cm ² (15.6 psi~18.5 psi)	←
Tire Pressure, R.	1.2 kg/cm ² (17.0 psi)	←	1.3 kg/cm ² ~1.5 kg/cm ² (18.5 psi~21.3 psi)	←
Caster Angle	65°	←	←	←
Trail Length	0.058 m (2.3 in.)	←	←	←
ENGINE				
Type	Air, cooled, 4-stroke O.H.C	←	←	←
Cylinder Arrangement	Single 80° inclined from vertical	←	←	←
Bore and Stroke		47×41.4 mm (1.85×1.63 in.)	←	←
Displacement		72 cc (4.4 cu-in.)	←	←
Compression Ratio	8.8	←	←	←

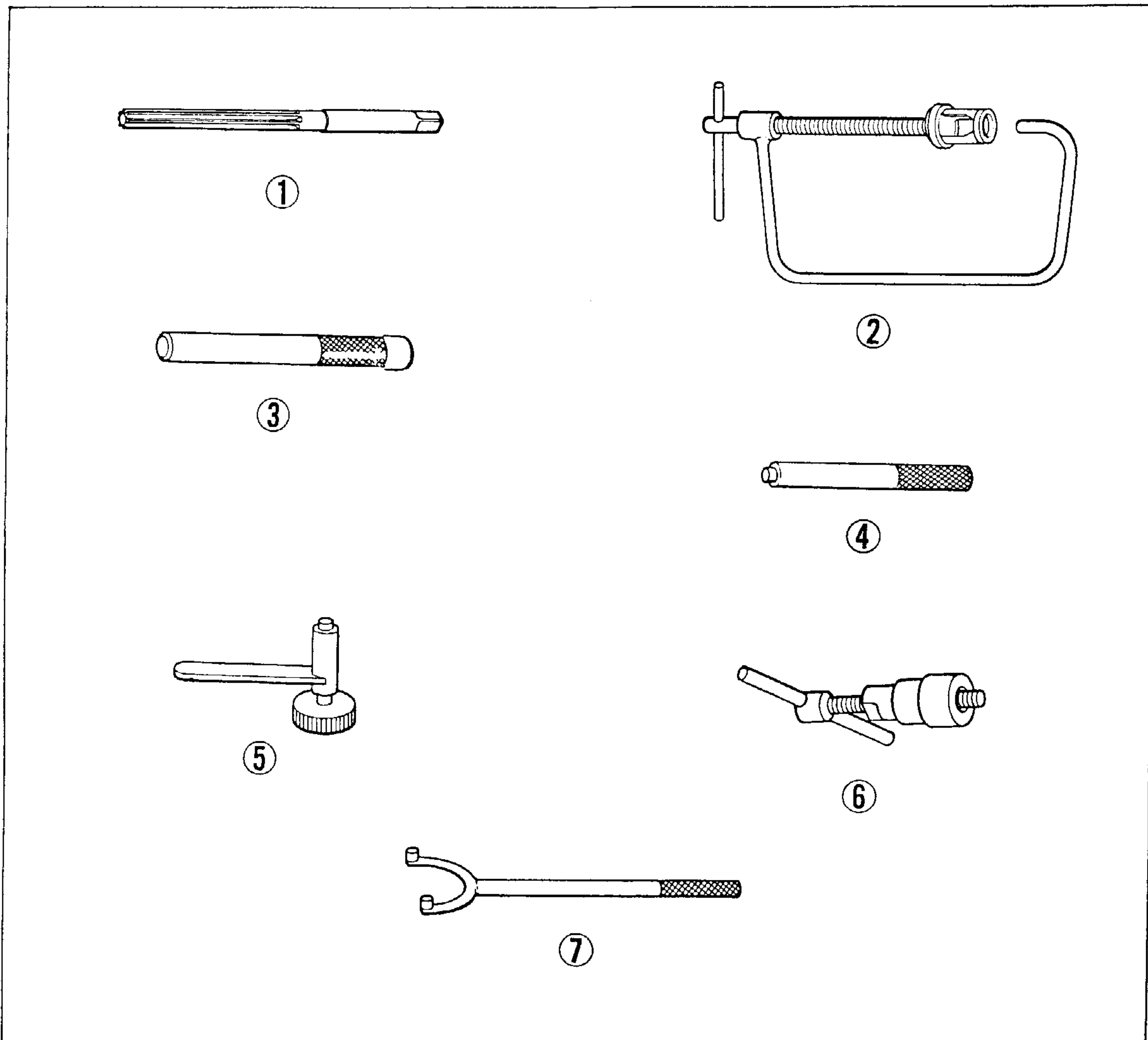
CT 70K1 (U.S.A. Type)	CT 70K2 (U.S.A. Type)	CT 70K3 (U.S.A. Type)
1,515 mm (59.6 in)	←	←
660 mm (26.0 in)	←	←
1,010 mm (39.8 in)	←	←
1,050 mm (41.3 in)	←	←
190 mm (7.5 in)	←	←
73 kg (161 lb)	←	←
Steel pressing	←	←
Telescopic fork	←	←
Swing arm	←	←
4.00-10 (2 PR), Knobby tire	←	←
4.00-10 (2 PR), Knobby tire	←	←
Internal expanding shoe	←	←
2.51 lit (5.28 U. S. Pt. 4.46 Imp pt.)	←	←
1.2 kg/cm ² (17 psi)	←	←
1.4 kg/cm ² (20 psi)	←	←
63°	←	←
0.070m (2.7 in)	0.071m (2.8 in)	←
Air cooled, 4-stroke O. H. C	←	←
Single 80° inclined from vertical	←	←
47×41.4mm (1.85×1.63 in)	←	←
72cc (4.4 cu-in)	←	←
8.8	←	←

ITEMS	ST 50 (England type)	ST 70 (General type)	CT 70 (U.S.A. Type)	CT 70H (U.S.A. Type)
Carburetor	KEIHIN, piston valve type	←	←	←
Valve Train	Chain driven over head camshaft	←	←	←
Oil Capacity	0.8 lit (1.7 U.S. pt. 1.4 Imp.pt.)	←	←	0.7 lit (0.74 U.S. pt. 1.62 Imp. pt.)
Lubrication System	Forced and wet sump	←	←	←
Engine Weight (includes oil)	18.5 kg (40.8 lb)	←	←	18 kg (39.7 lb)
DRIVE TRAIN				
Clutch	Wet, multi-plate, automatic centri- fugal type	←	←	Wet, multi-plate, manual type
Transmission	Constant mesh, 3-speed	←	←	4-speed
Primary Reduction	3.722	←	←	←
Gear Ratio I	3.364	←	←	2.692
Gear Ratio II	1.722	←	←	1.824
Gear Ratio III	1.190	←	←	1.300
Gear Ratio IV				2.958
Final Reduction	2.733	2.533	←	←
Gear Shift Pattern	1-N-2-3	Left foot operated return system 1-N-2-3 N-1-2-3		N-1-2-3-4
PERFORMANCE				
Max. Speed	70 km/H (43.0 mile/H)	75 km/H (47.0 mile/H)	←	75 km/H (47.0 mile/H)
Maximum Horsepower HP/rpm	4.5/9000	5.6/8000	5.0/8000	4.0/8000
Maximum Torque kg-m/rpm	0.87/8000	0.511/7000	0.50/5500	0.50/4000
Climbing Ability Sin θ	0.276	←	0.309	←
Turning Circle	3.2 m (10.50 ft.)	←	←	←

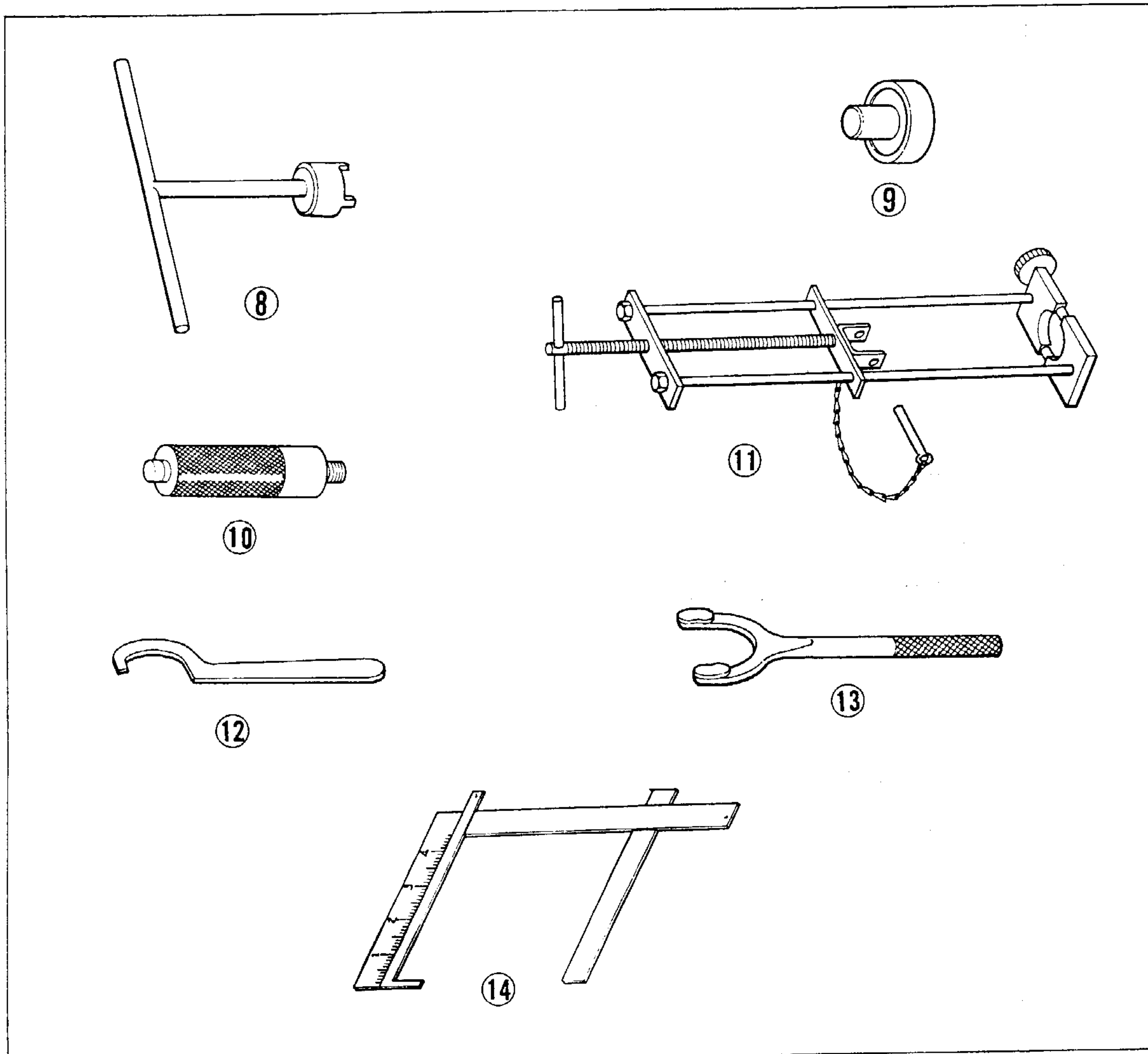
CT 70HK1 (U.S.A. Type)	CT 70K1 (U.S.A. Type)	CT 70K2 (U.S.A. Type)	CT 70K3 (U.S.A. Type)
KEIHIN, piston Valve type	←	←	←
Chain driven over- head camshaft	←	←	←
0.7 lit (0.7 U.S. qt. 0.6 Imp.qt)	←	←	←
Forced and wet sump	←	←	←
18.0 kg (40 lb)	←	←	←
Wet, multi-plate, manual type	←	←	←
4-Speed	←	←	←
3.722	4.058	←	←
2.692	3.272	←	←
1.823	1.824	←	←
1.300	←	←	←
3.214	2.333	←	←
N-12-3-4	←	←	←
75 km/H (47.0 mile/H)	←	←	←
4.5/8500	4.0/8000	←	←
3.61/4000	←	3.64/3500	←
18°	←	←	←
3.2m (10.50 ft.)		←	←

ITEMS	ST 50 (England type)	ST 70 (General type)	CT 70 (U.S.A. Type)	CT 70H (U.S.A. Type)
Braking Distance	Less than 6.5 m (21.30 ft.) at 35 km/H (21.9 mile/H)	←	Less than 7 m (23.00 ft.) at 35 km/H (21.9 mile/H)	←
ELECTRICAL				
Ignition	Flywheel magneto	←	←	←
Starting System	Kick starter	←	←	←
Alternator	Flywheel A. C. generator	←	←	←
Battery Capacity	YUASA B60-6 6V-2AH	←	←	←
Spark Plug	C-6 HS, U-24 FS (ND)	←	C-7 HS (NGK), U-24 FS(ND)	C-7 HS (NGK) U-22 FS (ND)
Headlight Bulb	6V-15/15 W	←	6V-25/25 W	6V-15/15 W
Tail/stop Light Bulb	6V-5 W/18 W	←	6V-5.3 W/17 W	6V-5.3 W/17 W
Turn Signal light	←	←	←	←
Turn Signal Indicator Light	—	—	—	—

CT 70K1 (U.S.A. Type)	CT 70K2 (U.S.A. Type)	CT 70K3 (U.S.A. Type)
Less than 7m (23.00ft) at 35km/H (21.9 mile/H)	←	←
Flywheel magneto	←	←
Kick starter	←	←
Flywheel A. C. generator	←	←
YUASA B60-6 6V-2AH	←	6 V 4 AH
C-7 HS (NGK), V-22 FS (ND)	←	←
6 V-15 W/15 W	←	←
6 V-5.3 W/17 W	6 V-3 W/32 W	6 V-5.3 W/25 W
←	6 V-1 W	6 V-18 W Front/Rear
6 V-1.5 W	6 V-1.5 W	6 V-1.5 W



Ref No	Tool No	Description	Remarks
1	07984-0980000	Valve Guide Reamed 5.48 mm dia	Commonly used with C70
2	07957-3290000	Valve Spring Compressor	
3	07942-1180100	Valve Guide Driver	
4	07942-3290100	Valve Guide Remover	
5	07908-0010000	Tappet Adjust Wrench	
6	07933-0010000	Flywheel puller	
7	07923-0400000	Clutch Outer Holder	



Ref No	Tool No	Description	Remarks
8	07916-2830000	16 mm Lock Nut Wrench	Commonly used with SS50
9	07945-0980000	Bearing Driver Attach	
10	07949-3000000	Bearing Driver Handle	Commonly used with C70
11	07959-3290000	Rear Cushion Dis/assembly Tool	
12	07902-0010001	Pin spanner 36 mm	
13	07925-0010001	Flywheel Holder	
14	07401-0010000	Fuel Level Gauge	

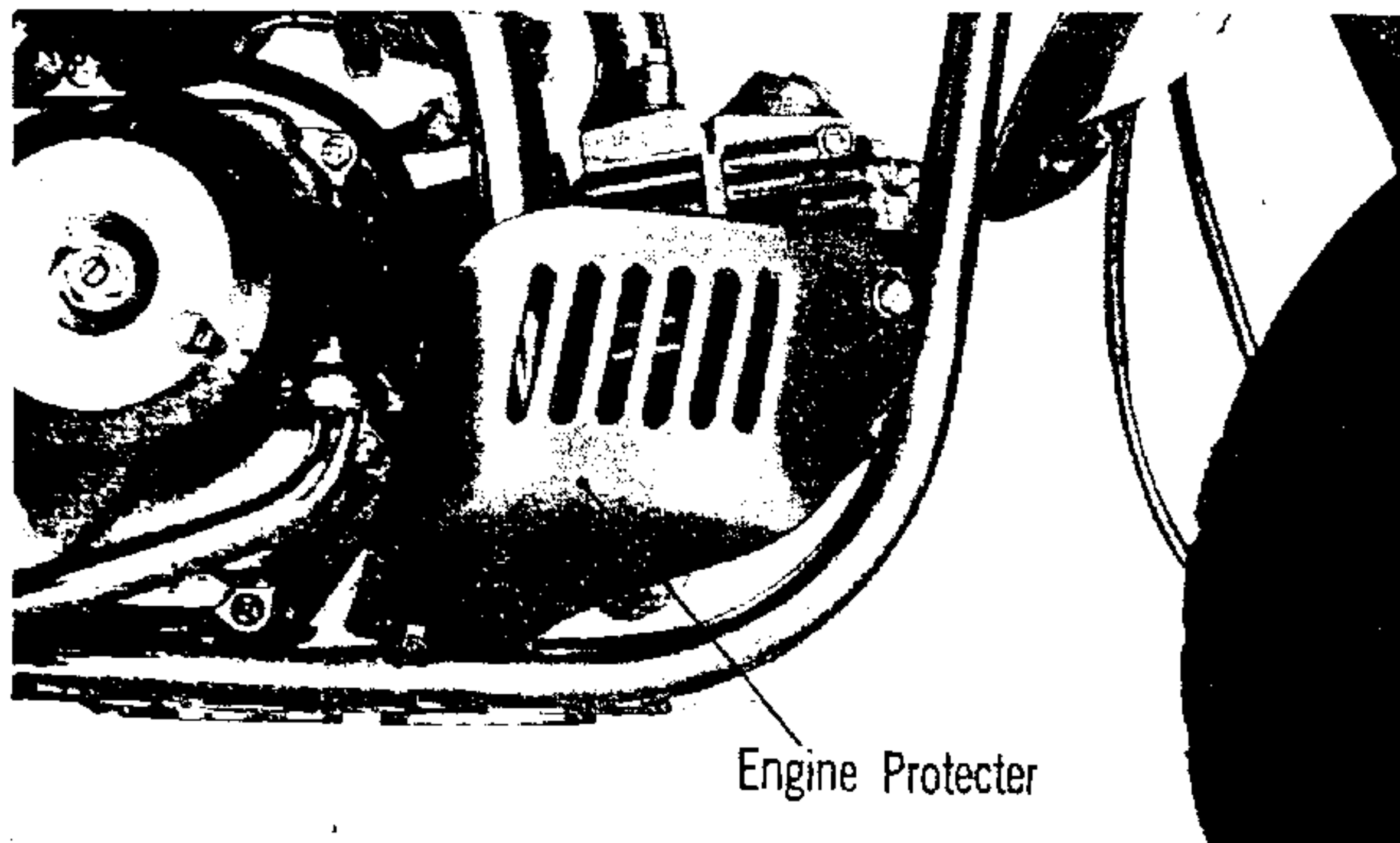


Fig. 1

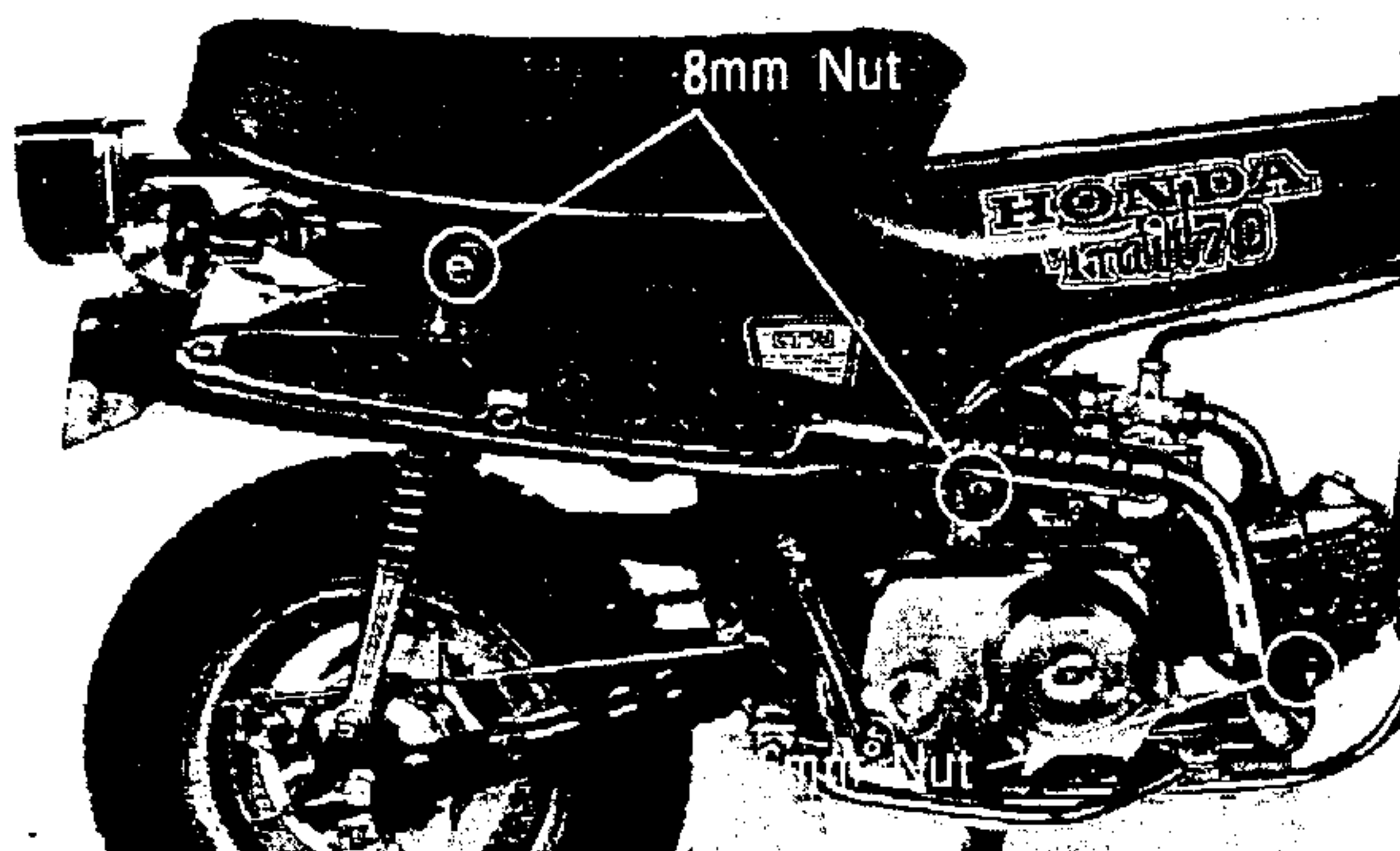


Fig. 2

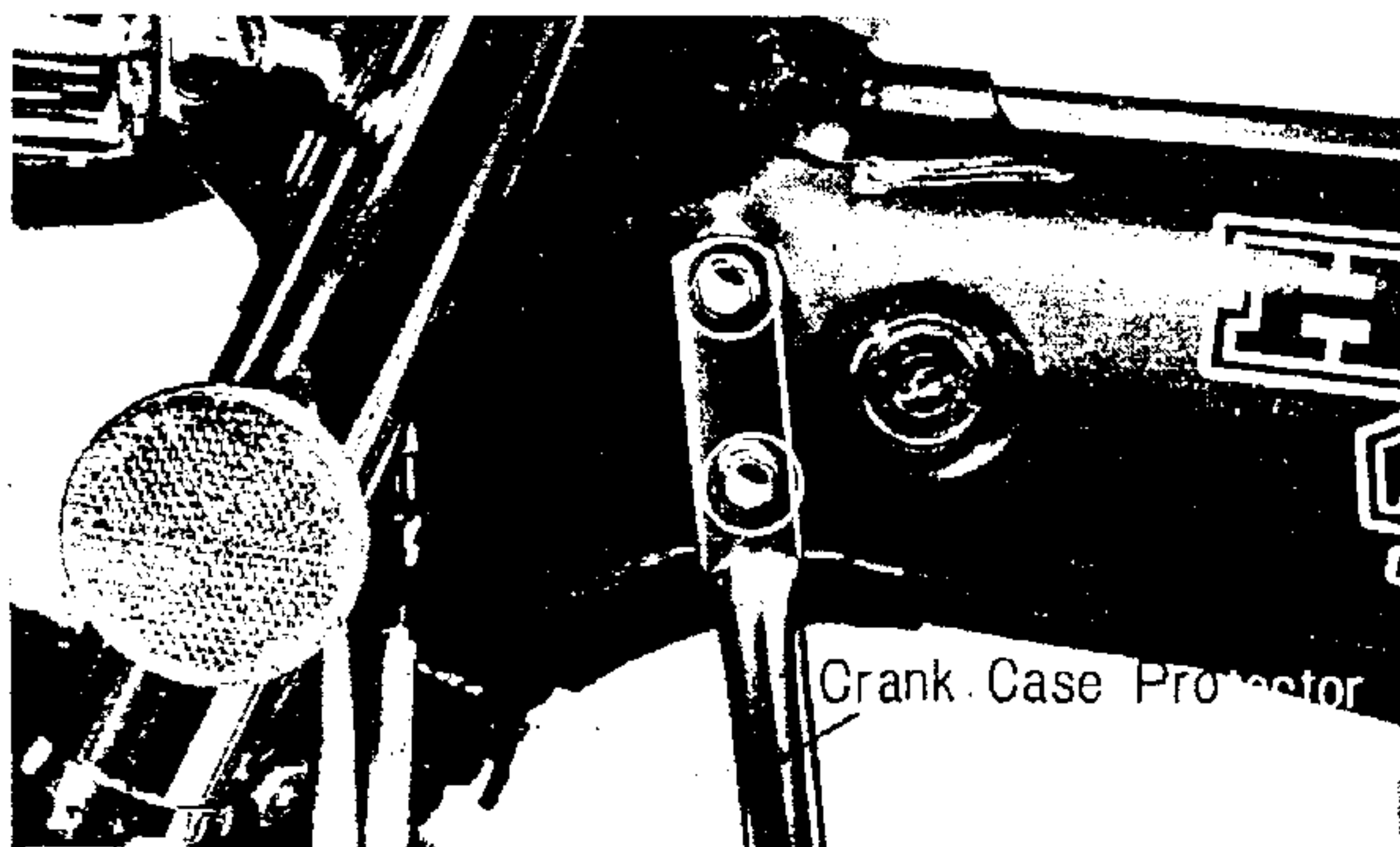


Fig. 3

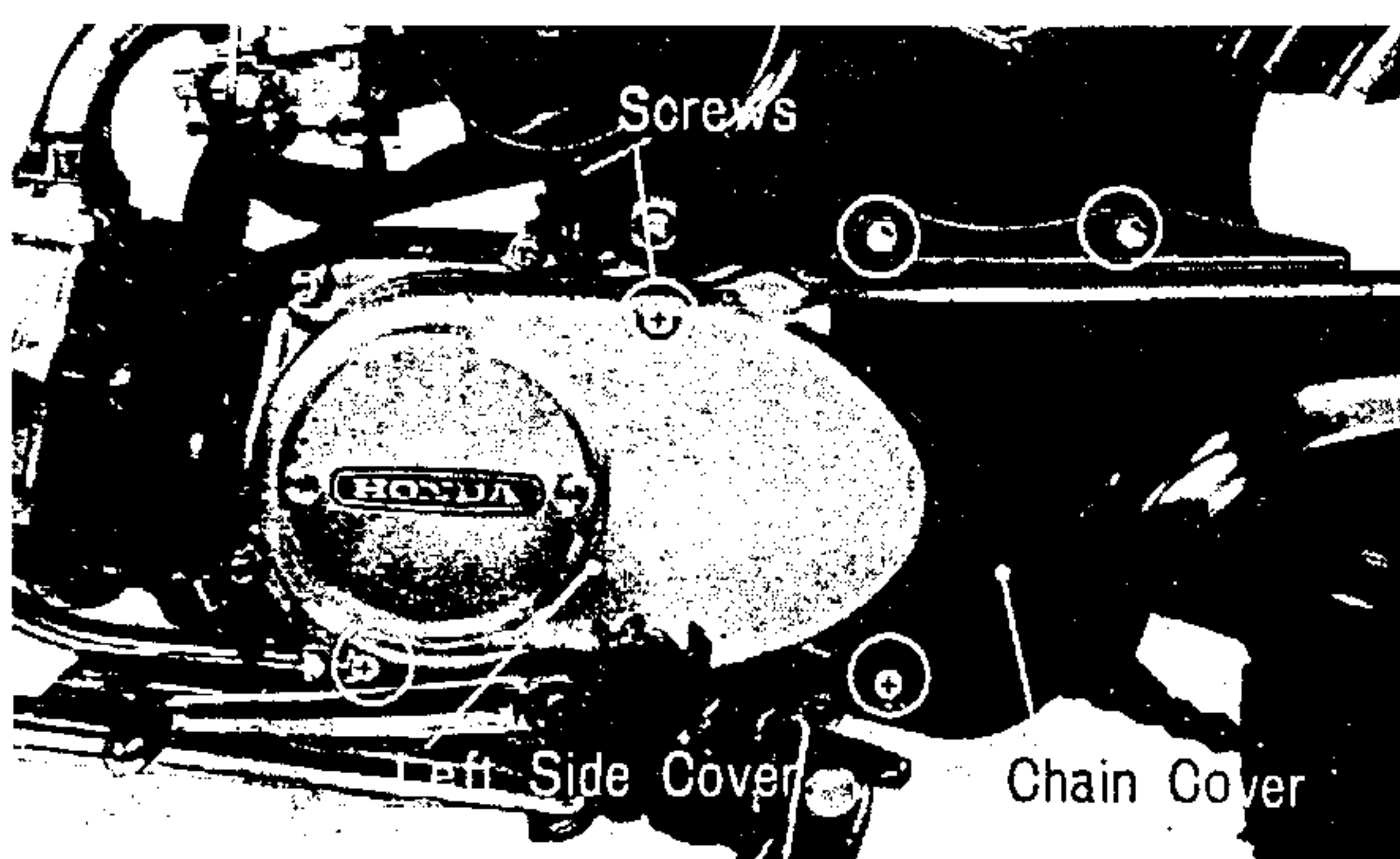


Fig. 4

3. ENGINE

3.1 Engine Removal and Installation

Engine Removal

1. Drain the engine oil by removing the drain plug and filler cap. Drain the oil while the engine is warm to assure complete draining.
2. (CT70, K1, K2, K3, /CT70 H, HKI)
Remove the engine protector by removing the two fixing bolts. (Fig. 1)
3. Remove the two 8 mm nuts as shown in Fig. 2 and detach the muffler by removing the two 6 mm fixing nuts.
4. Remove the spark plug.
5. Disconnect the throttle wire from the carburetor throttle valve.
6. (CT70, K1, K2, K3/CT70 H, HKI)
Remove the crankcase protector from the frame the top by removing four bolts. (Fig. 3)
7. Remove the chain case cover by removing the three screws.
8. Remove the left side cover by removing the two screws. (Fig. 4)
9. Disconnect the drive chain at the joint.

10. (CT70, K1, K2, K3/CT70 H, HKI)
Remove the crankcase protector from the engine at the bottom by removing the two bolts. (Fig. 5)
11. Remove the step bar by removing the two bolts. (Fig. 5)

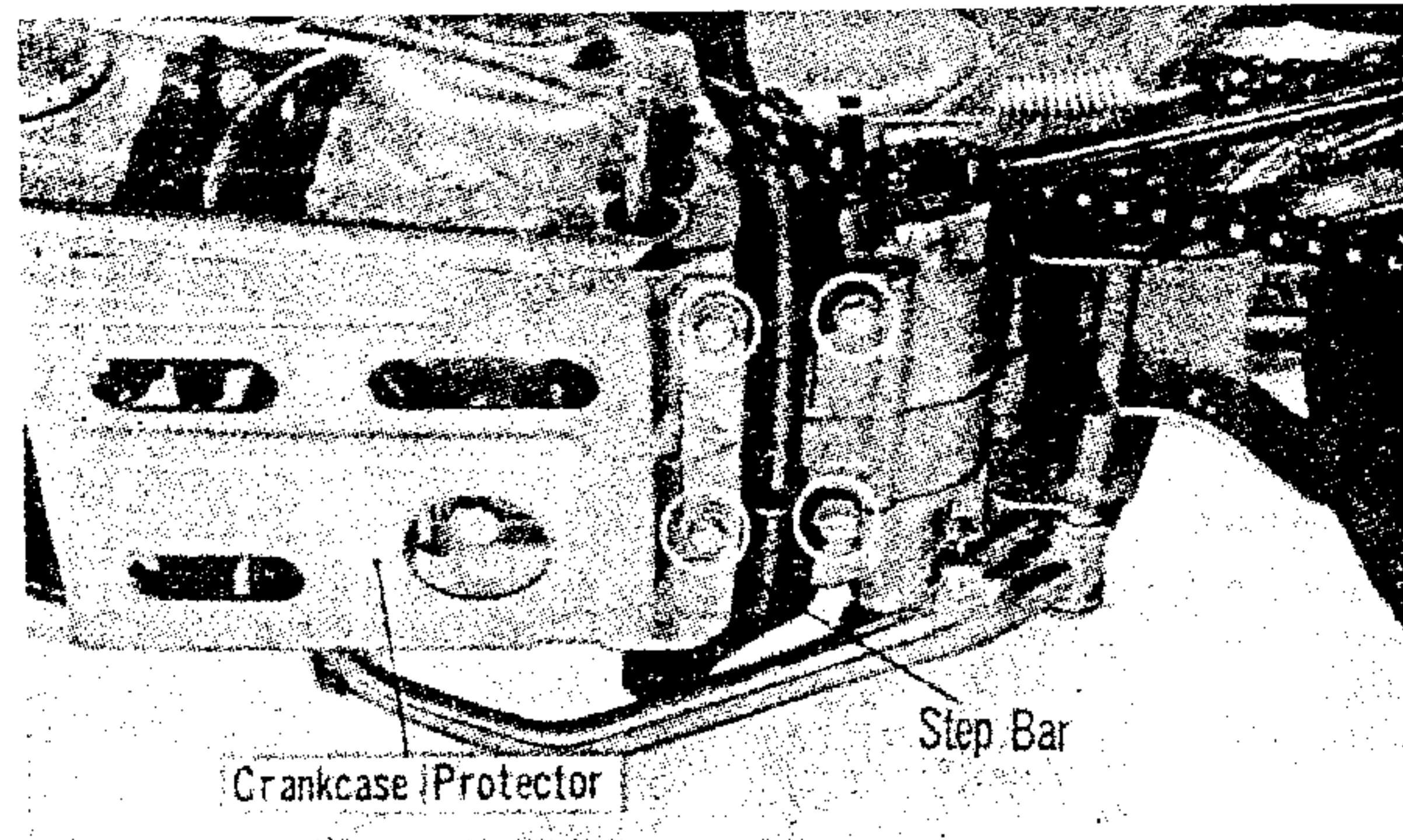


Fig. 5

12. Hook the brake pedal spring to the top to simplify engine removal. (Fig. 6)
13. Remove the two 6 mm bolts and disconnect the intake pipe from the cylinder head intake flange.
14. The engine can then be separated from the frame, by drawing out the two 8 mm engine mounting bolts. (Fig. 6)

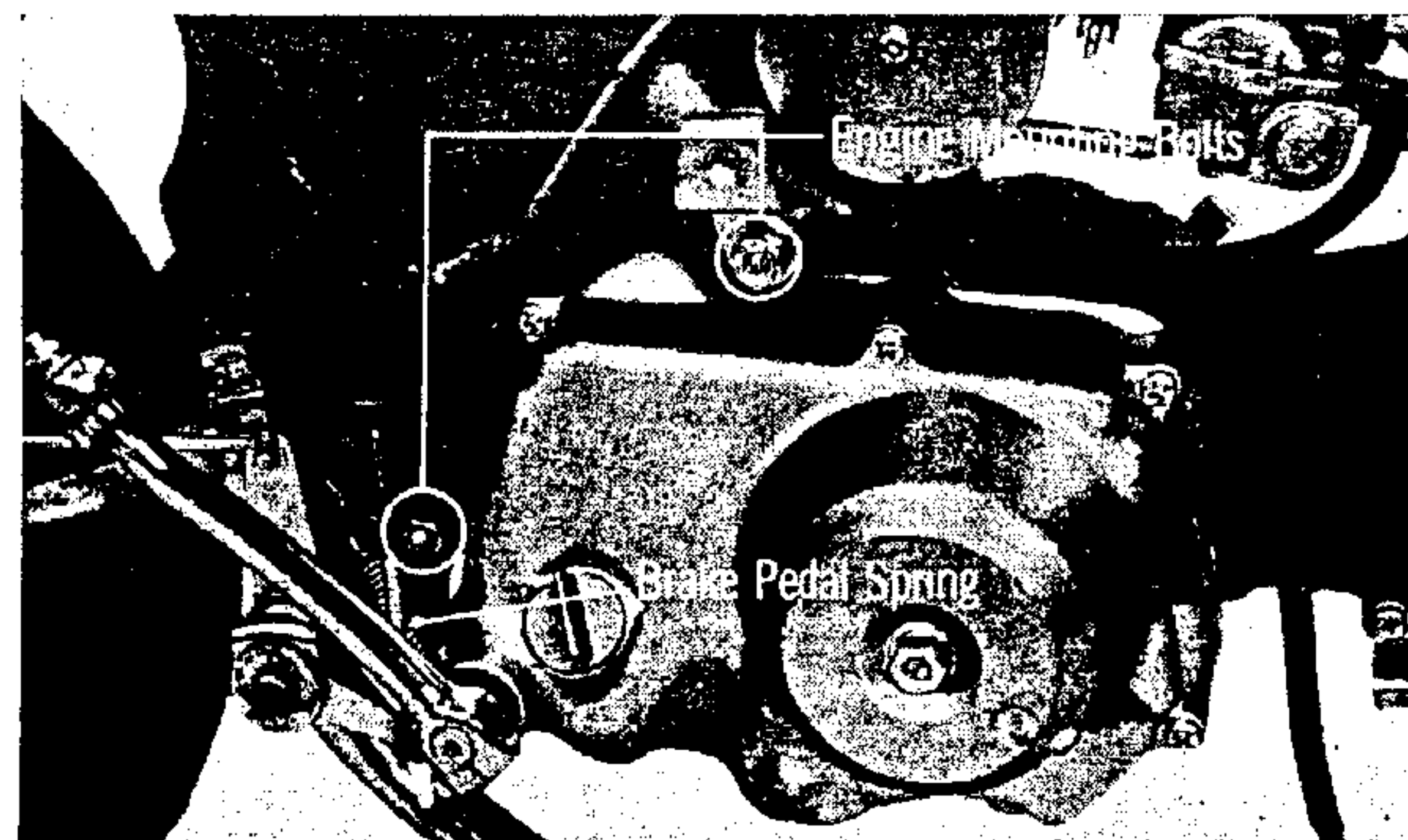


Fig. 6

Engine Installation

1. Perform the engine installation in the reverse order of removal.
2. The drive chain should be connected so that the closed end of the link clip faces the normal chain rotation.

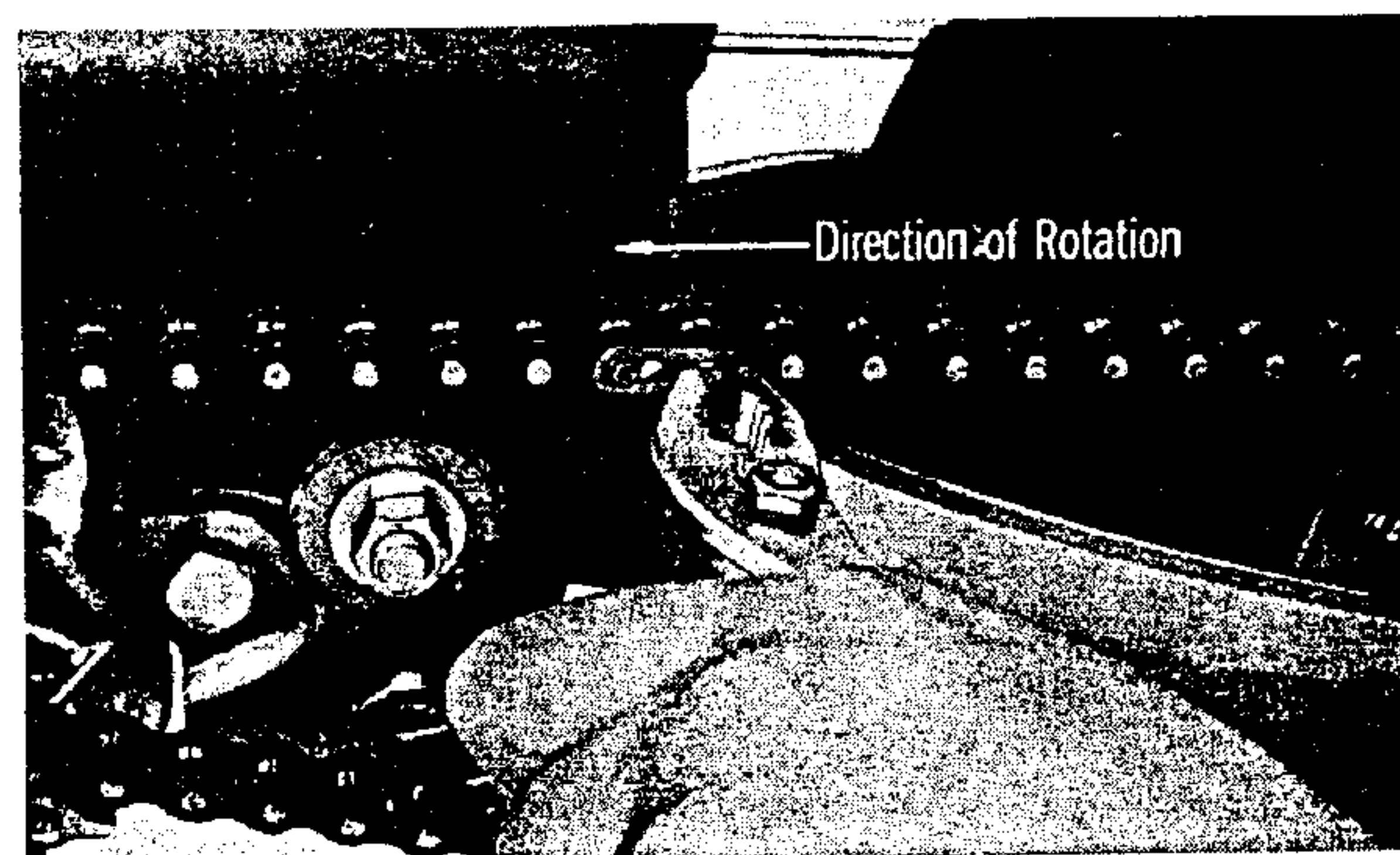


Fig. 7

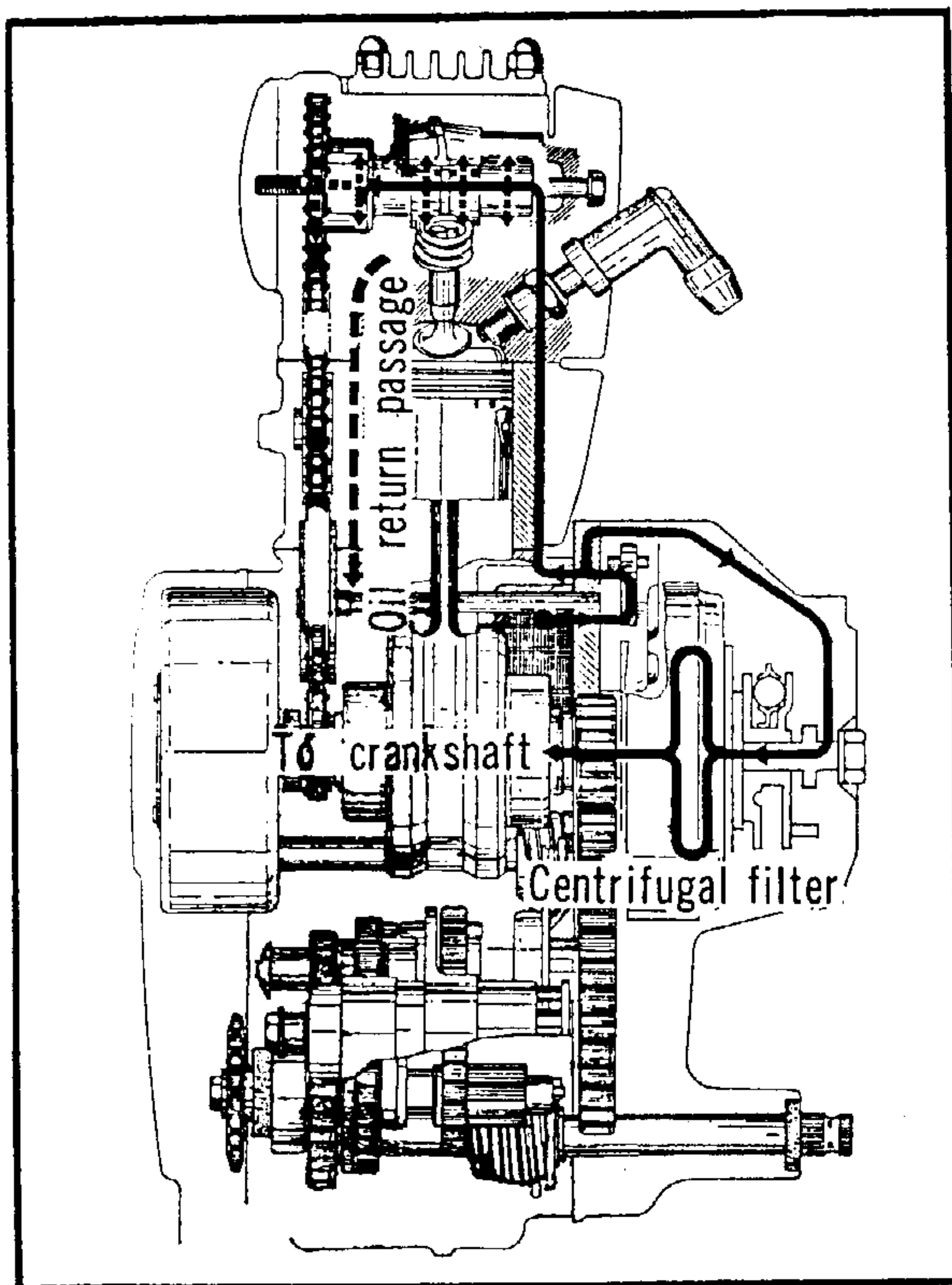


Fig. 8

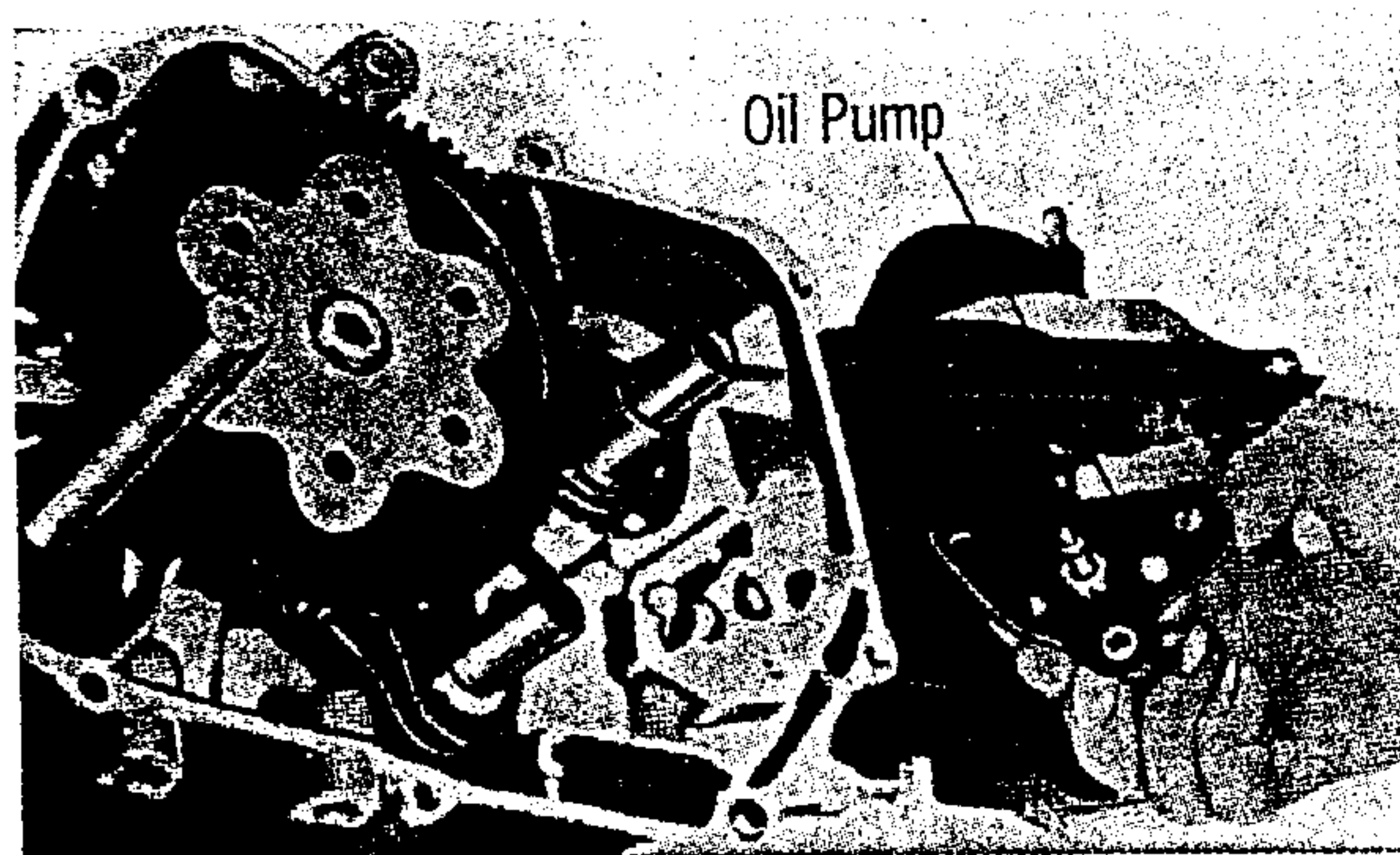


Fig. 9

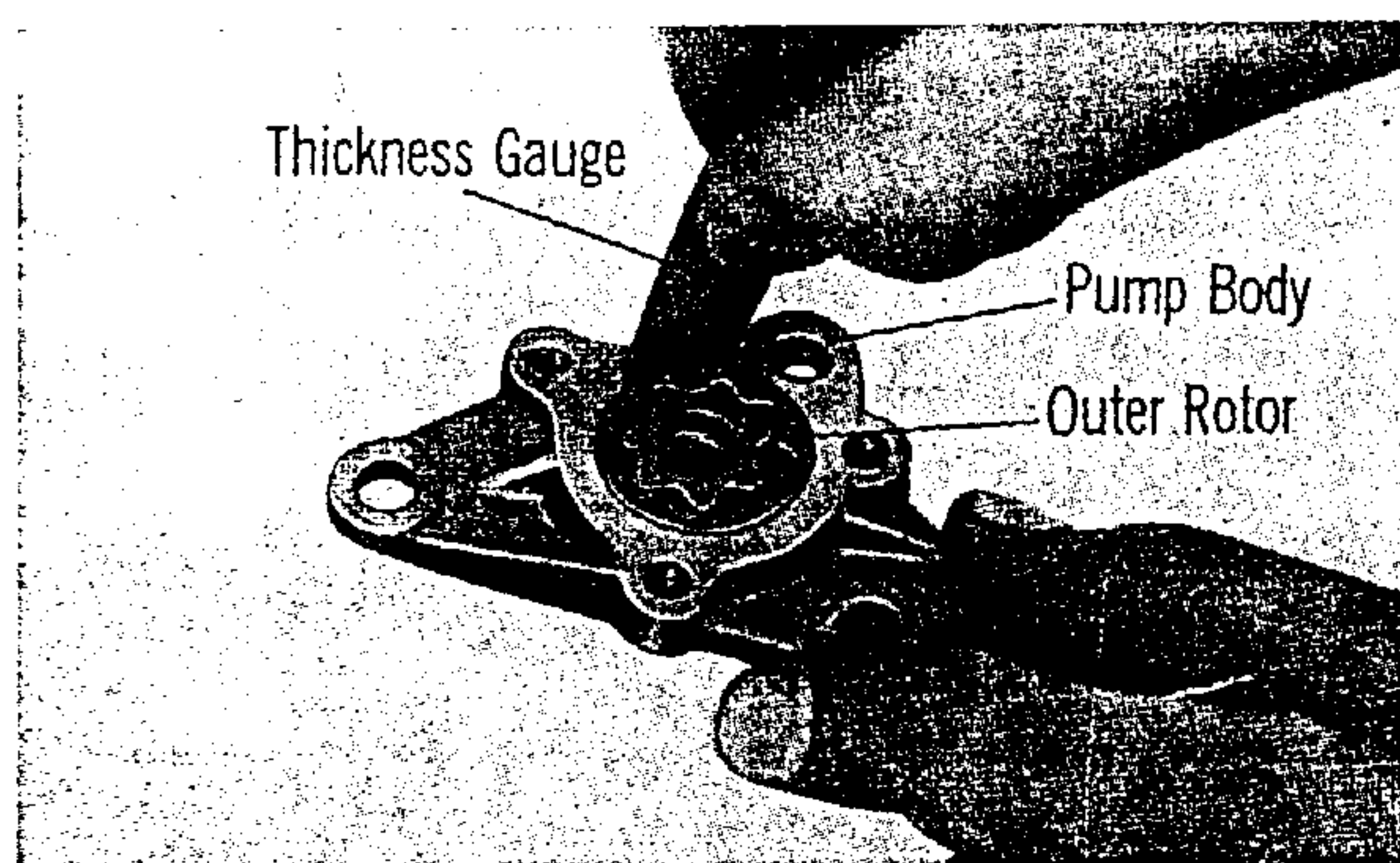


Fig. 10

3.2 Lubrication System (Oil Pump)

Description

The engine oil from by the trochoid pump is diverted into two routes. (Fig. 8)

Route one:

Oil is sent through the right crankcase→right crankcase cover→centrifugal filter→connecting rod large end rollers.

Route two:

Oil is sent through the cylinder stud bolt→rocker arm side cover→camshaft profiles and bearing→valve mechanism.

Disassembly

1. Unscrew the right crankcase cover mounting screws the cover.
2. Remove the clutch outer cover.
3. Unscrew the 14 mm clutch lock nut and washer. Remove the clutch assembly.
4. Loosen the three 6 mm oil pump mounting bolts and remove the oil pump assembly.
5. Loosen the three cross screws attaching the oil pump cover. The oil pump can then be disassembled (Fig. 9).

Inspection

1. Turn the oil pump drive shaft by hand to make sure it turns smoothly.
2. Measuring the clearance between the outer rotor and the pump body. Insert the thickness gauge between the outer rotor and the pump body (Fig. 10).

mm (inch)

Standard Value	Serviceable Limit
0.10~0.15 (0.004~0.006)	Replace if over 0.20 (0.0079)

3. Measuring the end clearance of the rotor. Place a straight edge across the pump housing and check the clearance of the rotor with a thickness gauge (Fig. 11).

mm (inch)	
Standard Value	Serviceable Limit
0.02~0.07 (0.0008~0.0027)	Replace if over 0.12 (0.0047)

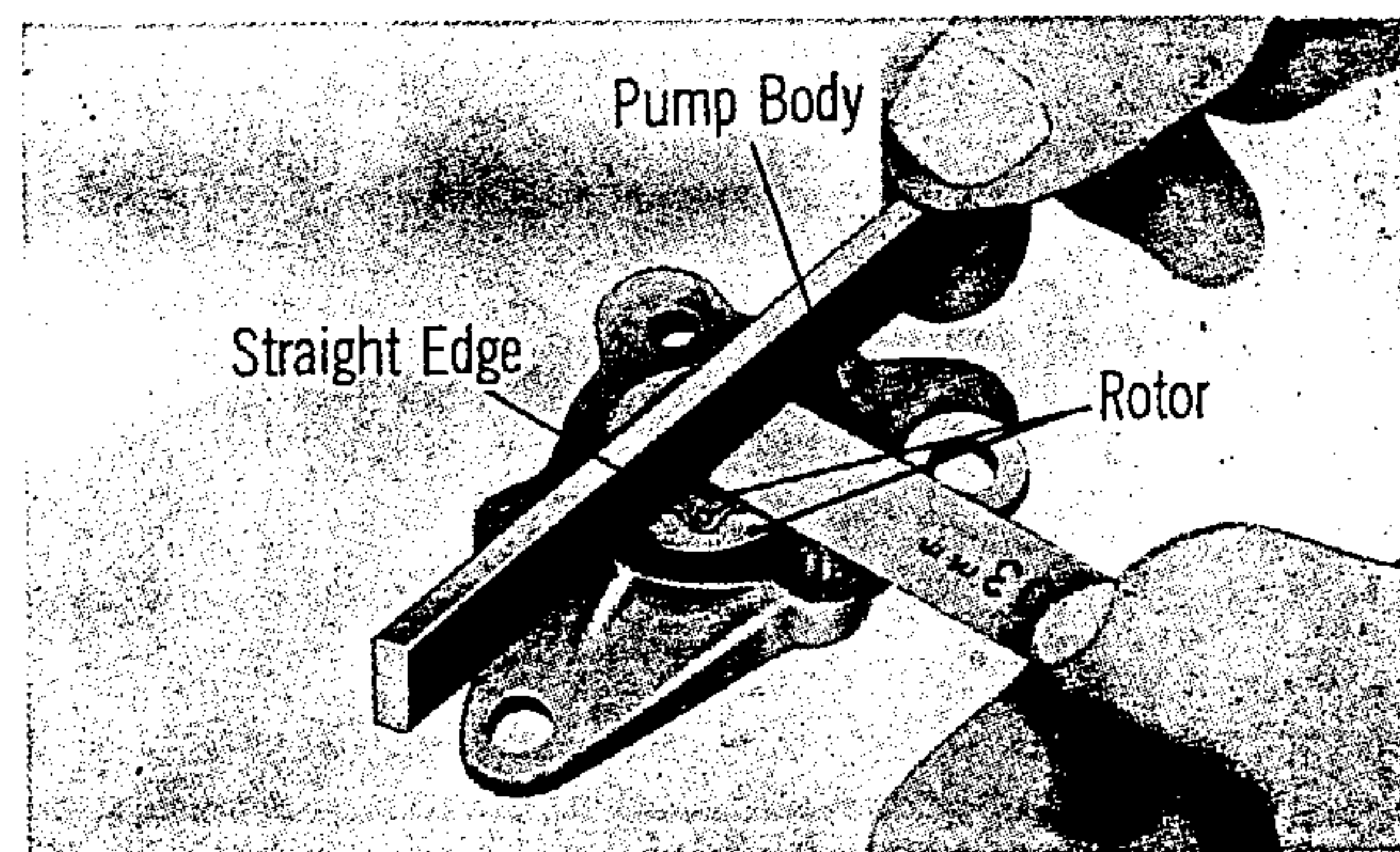


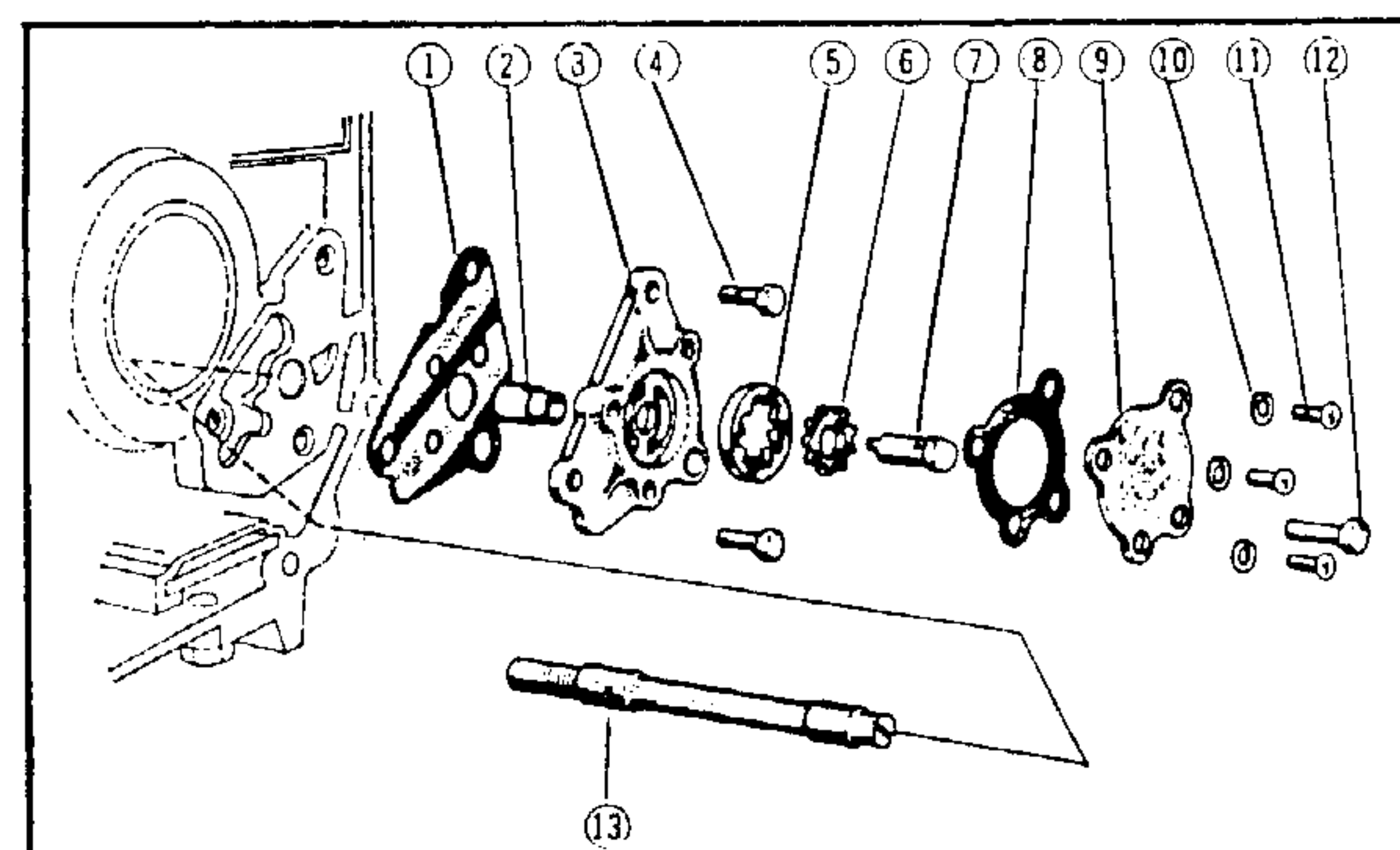
Fig. 11

Reassembly

Perform the reassembly in the reverse order of disassembly the following items (Fig. 12):

Note:

1. Clean Parts thoroughly before assembling.
2. After completing pump reassembly, check to make sure that the pump is operating smoothly by turning the shaft by hand before mounting the pump in the crankcase.



- ① Oil pump body gasket
- ② Oil pump dowel pin
- ③ Oil pump body
- ④ 6 mm hex bolt
- ⑤ Oil pump outer rotor
- ⑥ Oil pump inner rotor
- ⑦ Oil pump drive shaft
- ⑧ Oil pump cover gasket
- ⑨ Oil pump cover
- ⑩ 5 mm spring washer
- ⑪ 5 mm cross screw
- ⑫ 6 mm hex bolt
- ⑬ Cam chain guide sprocket spindle

Fig. 12

3.3 Cylinder and Cylinder Head

Description

The cylinder head is aluminum alloy to improve the cooling effect. The cylinder is cast iron to provide good against wear high temperature and pressure.

Disassembly

1. Drain the engine oil by removing the drain plug.
2. Unscrew the left crankcase cover mounting screws and remove the cover.
3. Loosen the 6 mm hex bolt from the left cylinder head side cover, and remove the side cover. Loosen the two cross screws and remove right cylinder head side cover.
4. Remove the flywheel with the flywheel puller. (Tool No. 07933-0010000). Remove the stator assembly (Fig. 13)

Note:

1. For convenient disassembly, set the piston at the compression top dead center (See Reassembly on page 20)

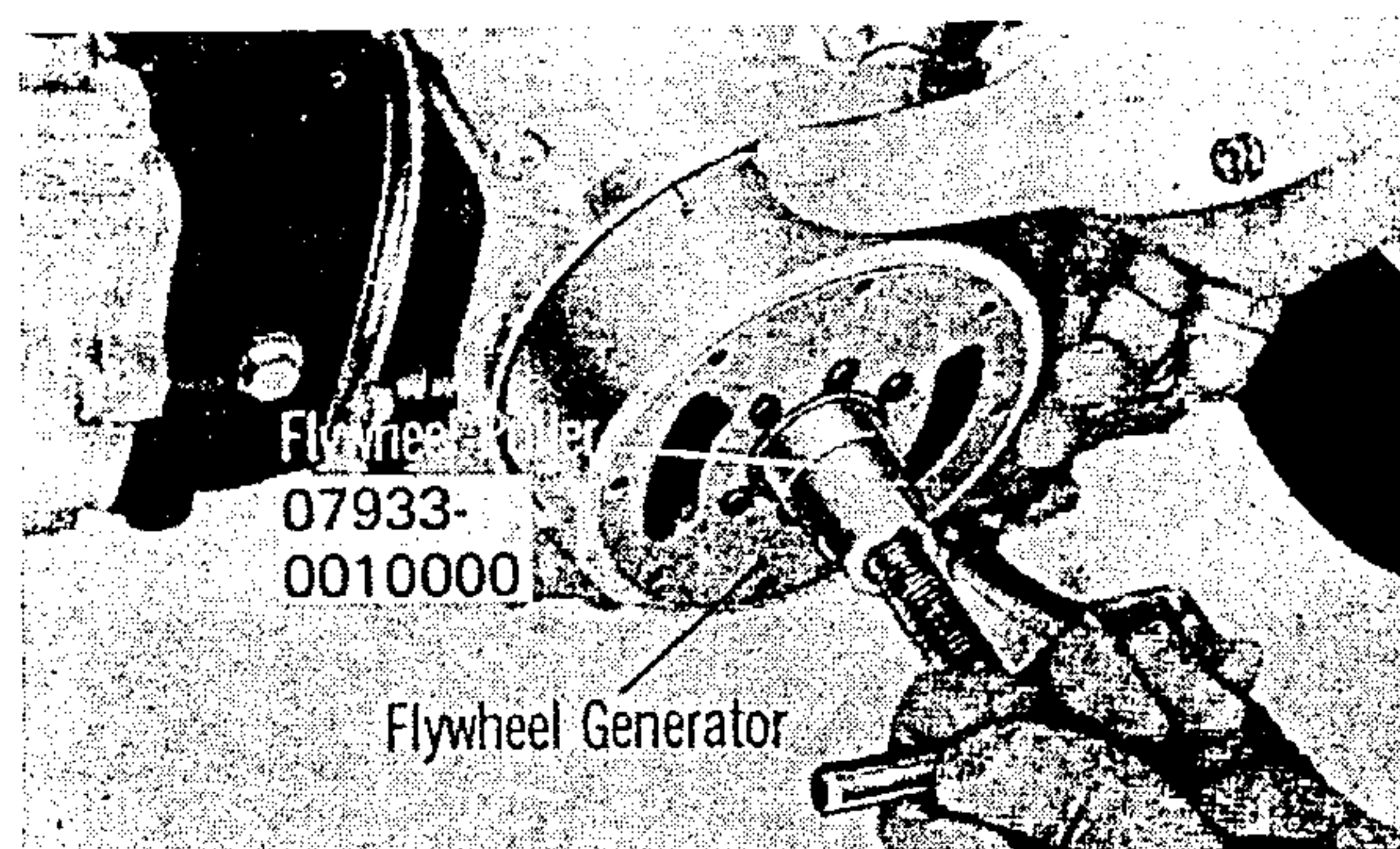


Fig. 13

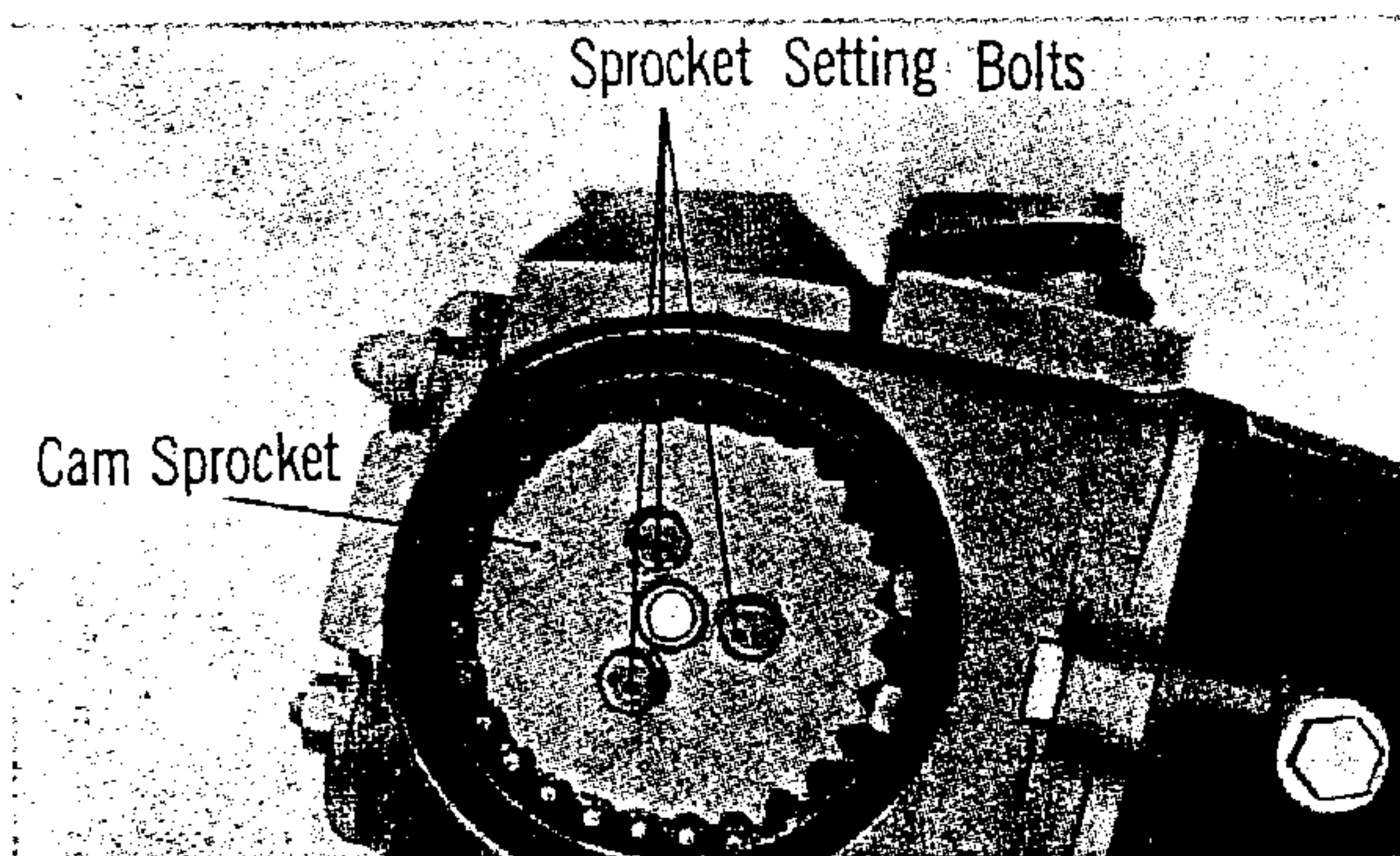


Fig. 14

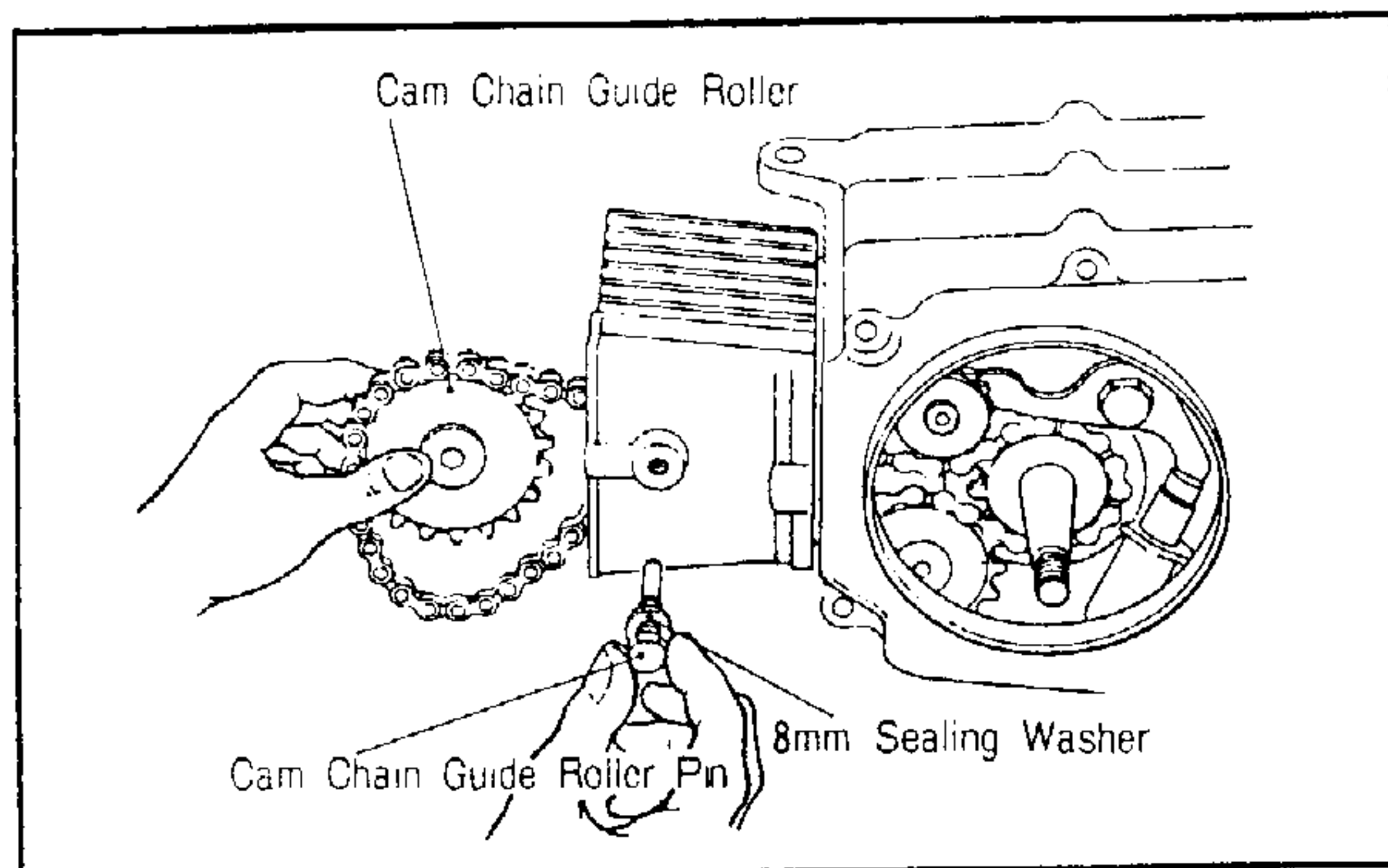


Fig. 15

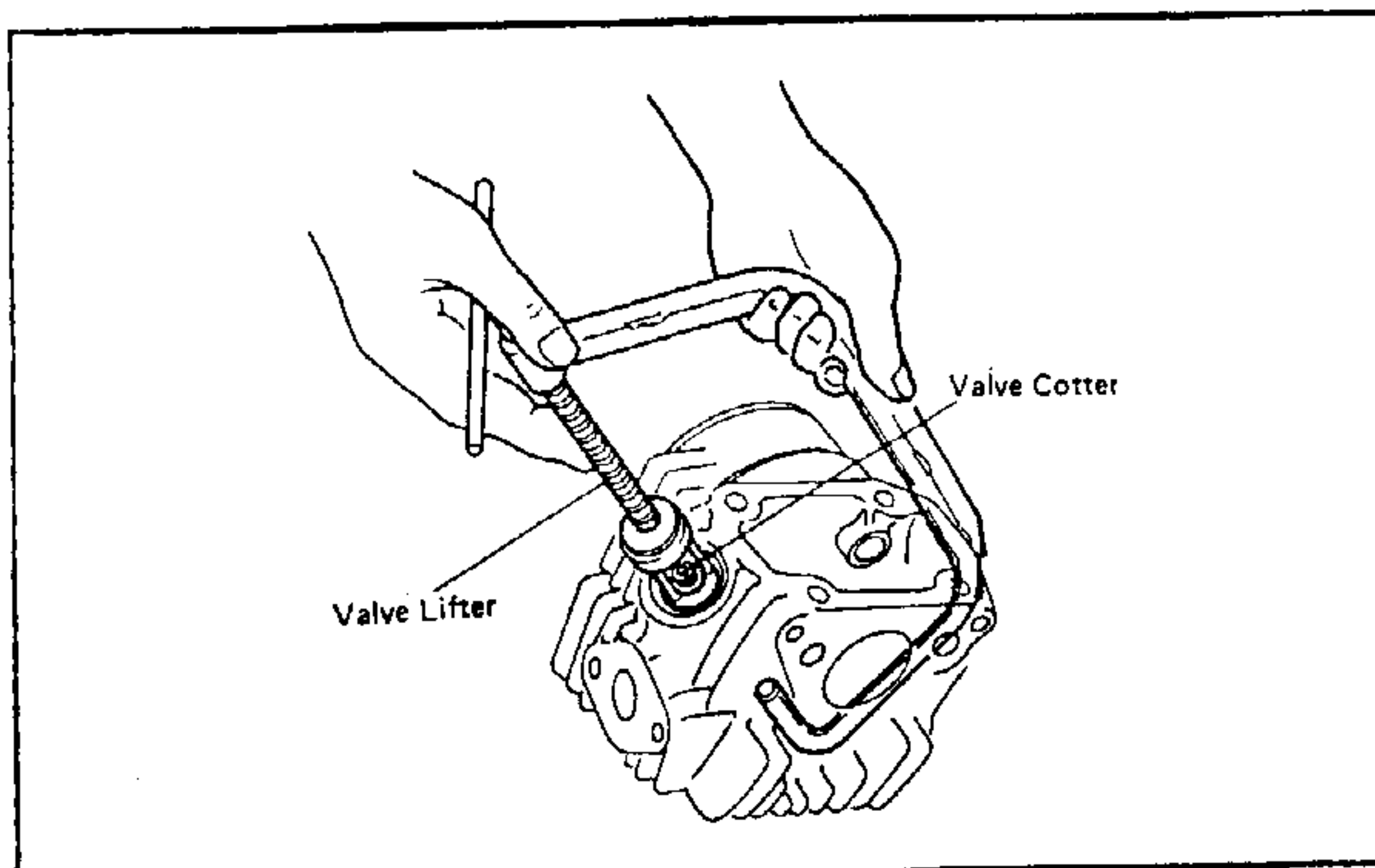


Fig. 16

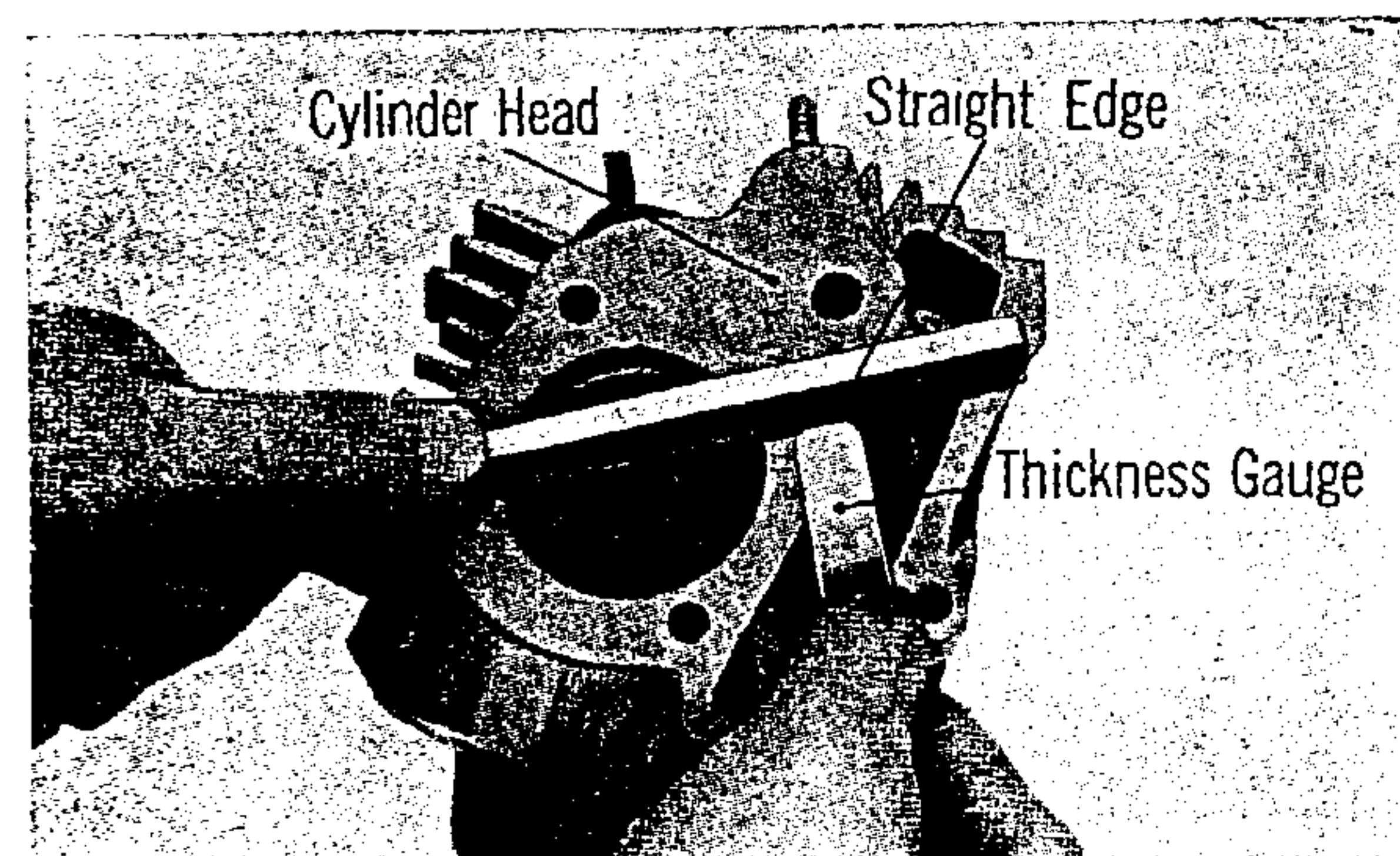


Fig. 17

5. Loosen the three cam sprocket mounting bolts and remove the cam sprocket from the camshaft (Fig. 14).

6. Unscrew the four cylinder head hold-down nuts and 6 mm hex bolt and separate the cylinder head from the cylinder.
7. Loosen the cam chain guide roller pin and remove the cam chain guide roller from the cylinder (Fig. 15).
8. Unscrew the cylinder mounting bolt (1 each) and remove the cylinder.
9. Disassemble the valve rocker arm and the camshaft from the cylinder head. Use the 6 mm bolt for pulling the rocker arm pin out.

10. Disassemble the valve with the valve removal tool (Tool No. 07957-3290000) (Fig. 16).

Inspection

1. Inspecting the cylinder head machined gasket surface.

Place a straight edge across the machined gasket surface and measure the clearance between the straight edge and the machined surface with a thickness gauge. If the clearance exceeds 0.05 mm (0.002 in), the cylinder head should be repaired or replaced (Fig. 17).

To perform the repair, place a sheet of fine grit emery paper on the flat surface, and rework the cylinder head. The condition of the machined surface can be checked by using prussian blue or red lead (Fig. 18).

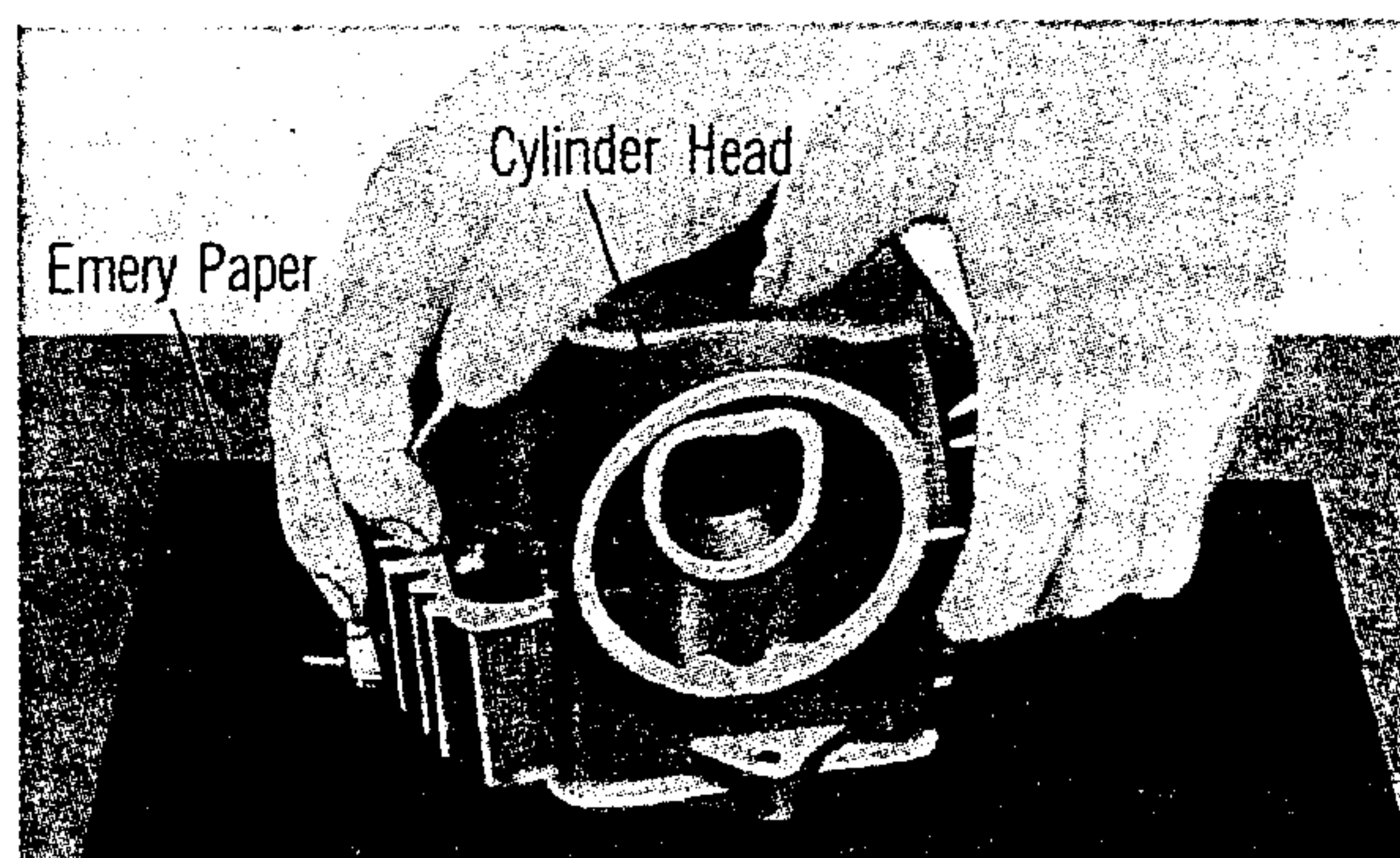


Fig. 18

2. Inspect the valve seat.

STANDARD: 1.0-1.3 mm
(0.04-0.05 in.)

SERVICE LIMIT: 2.0 mm (0.08 in.)

If the seat is too wide, too narrow, or has low spots, the seat must be ground. If the valve seats must be ground, the use of a power grinder is recommended.

Valve Seat Outside Diameter	mm (inch.)	
	Intake	Exhaust
ST 50	0.889 (22.5)	0.767 (19.5)
ST 70 CT 70, K1, K2, K3 CT70H, HK1	0.964 (24.5)	0.846 (21.5)

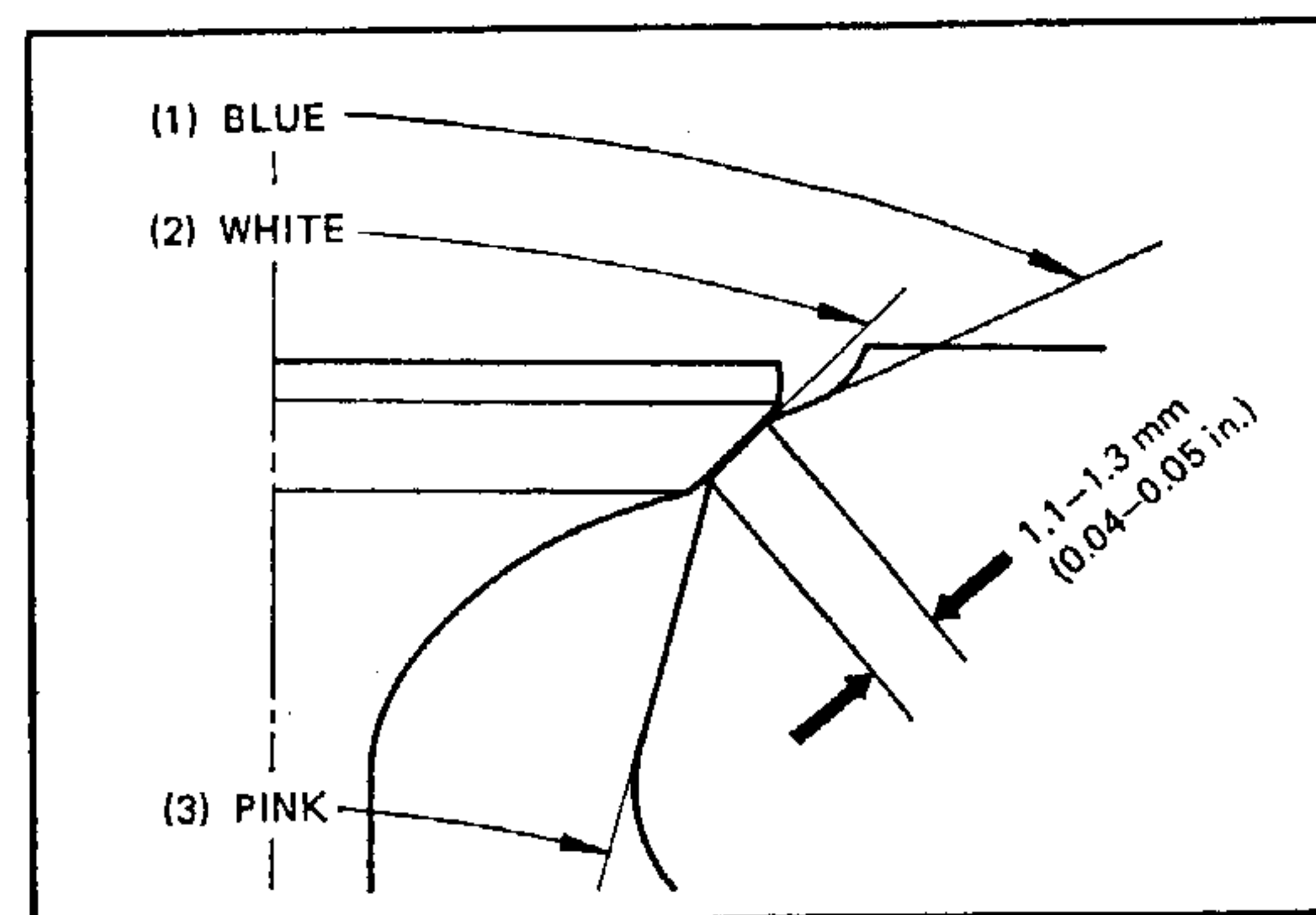


Fig. 19

Caution:

Use the valve seat grinder (Tool No. 07782-0020000, A set) to correct the valve seat width and contact.
Read valve seat grinder the instructions carefully.

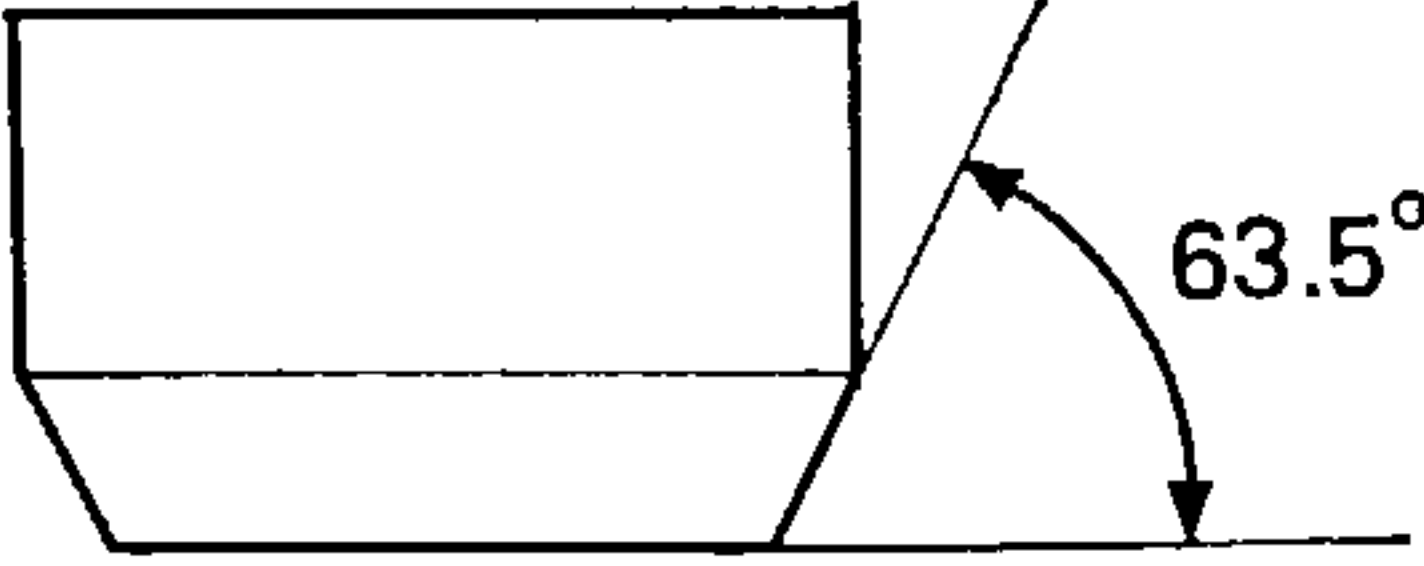
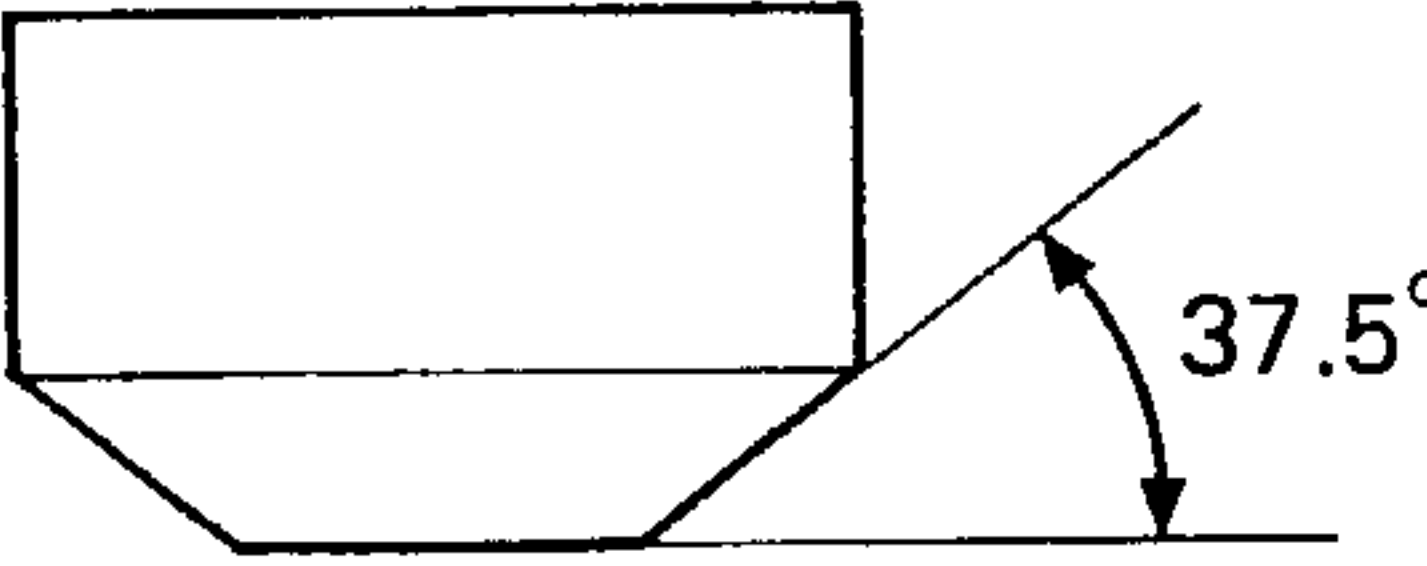
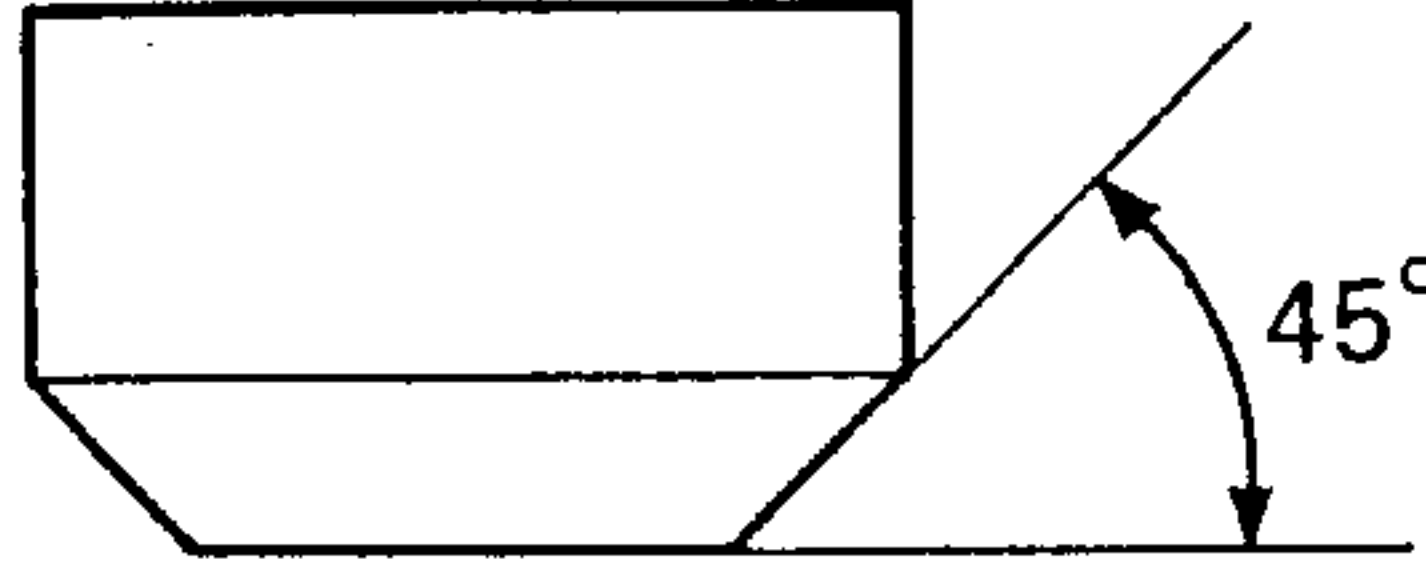
(1) PINK	(2) BLUE	(3) WHITE
		
<p><ST50> IN: 07783-0050100 (23 mm) EX: 07783-0050100 (23 mm) <CT70, ST70> IN: 07783-0050300 (29 mm) EX: 07783-0050200 (26 mm)</p>	<p><ST50> IN: 07783-0030200 (23 mm) EX: 07783-0030100 (21 mm) <CT70, ST70> IN: 07783-0030500 (29 mm) EX: 07783-0030400 (26 mm)</p>	<p><ST50> IN: 07783-0049200 (24 mm) EX: 07783-0040100 (21 mm) <CT70, ST70> IN: 07783-0040400 (29 mm) EX: 07783-0040300 (26 mm)</p>

Fig. 20-1

Fig. 20-2

Fig. 20-3

If the valve seat has been repaired or the valve replaced, the valve must be lapped to the seat. To lap the valve, apply a small amount of lapping compound to the valve contact surface and rotate the valve back and forth against the seat with a surction cup tool; lifting the valve off the valve seat occasionally. After valve lapping is completed, wash the lapping compound off thoroughly from both the valve seat and face. Check the valve seating with prussian blue or red lead to assure that a good seat has been obtained.

Note:

1. Apply a small amount of oil to the valve stem when inserting the valve into the guide.
2. After the valve has been assembled into the cylinder head, check the valve sealing by pouring a small quantity of engine oil into the combustion chamber until the valve heads are covered and then apply compressed air at 2 kg/cm² (28.4 psi) alternately into intake and exhaust ports and check for any bubbles around the valve seats. If there are no bubbles, the valves are seating properly.

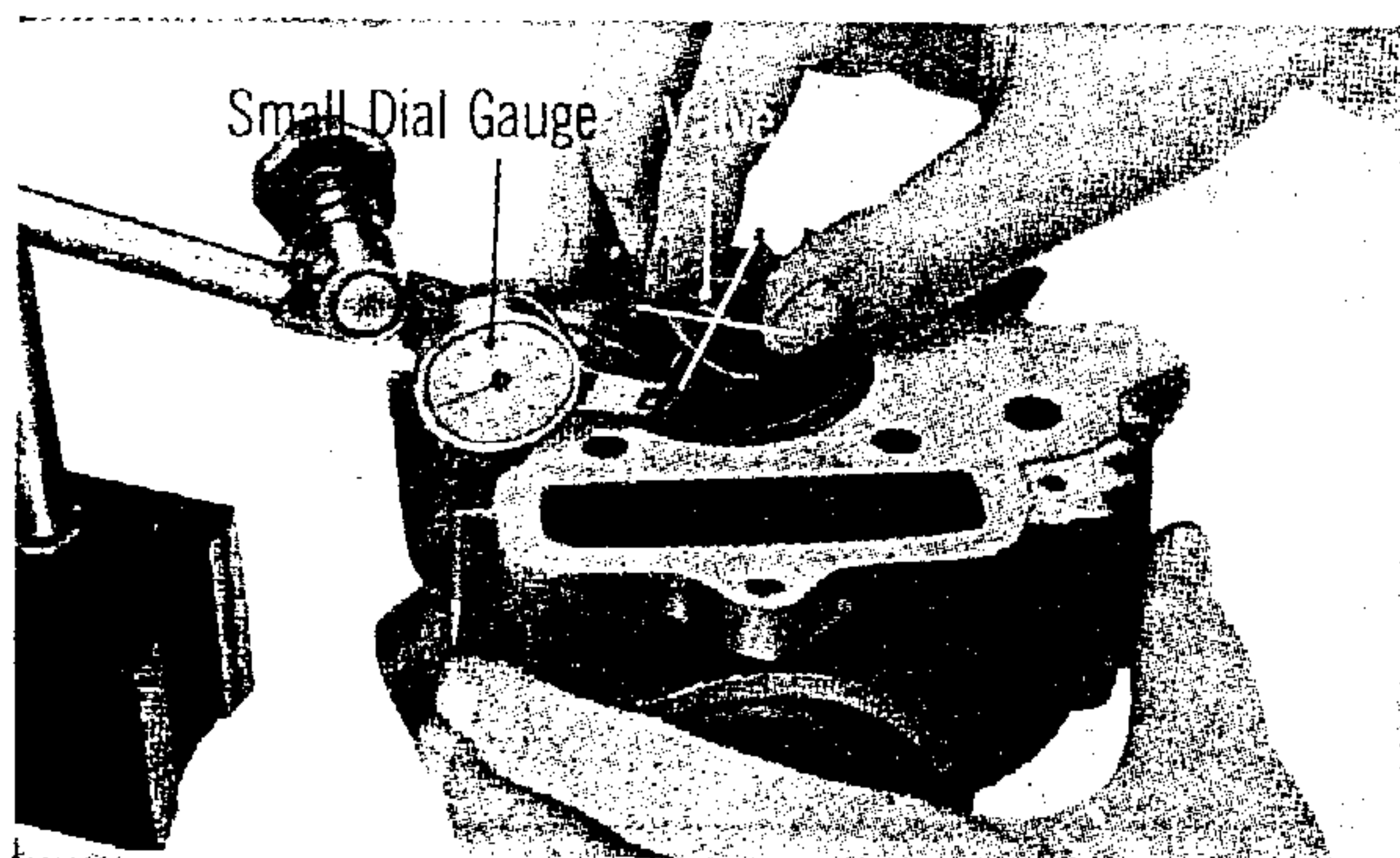


Fig. 21

3. Measuring valve stem and valve guide wear. Place a dial gauge against the valve stem and move the valve sideways and fore and aft. The amount of wear in any direction will be indicated on the gauge (Fig. 21).

mm (inch)

Item	Standard Value	Serviceable Limit
Intake	0.01~0.03 (0.0004~0.0012)	Replace if over 0.08 (0.0032)
Exhaust	0.03~0.05 (0.0012~0.002)	Replace if over 0.10 (0.004)

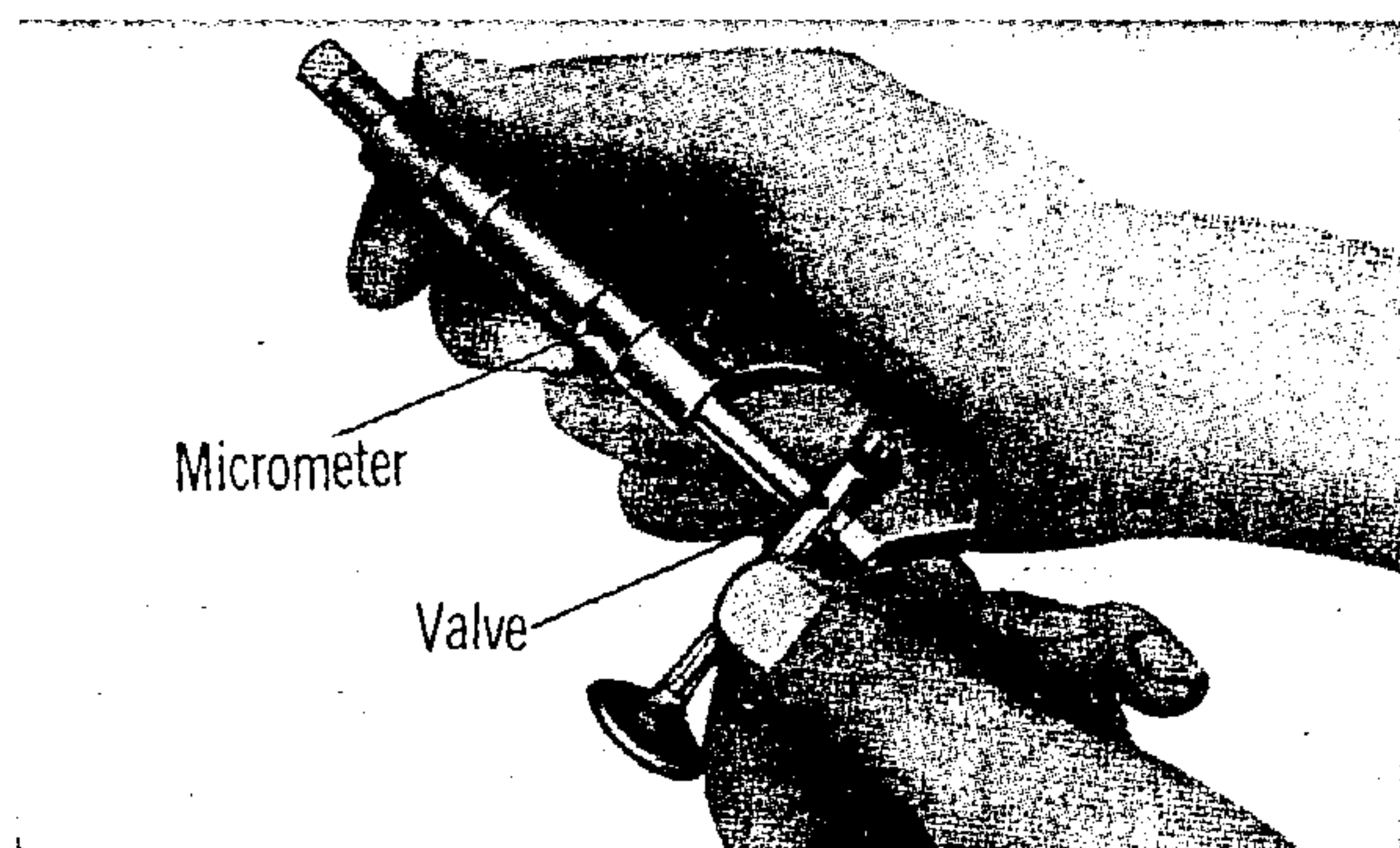


Fig. 22

4. Measuring the valve dimension. The valve stem diameter is measured with a micrometer. (Fig. 22).

mm (inch)

Item	Standard Value	Serviceable Limit
Intake	5.455~5.465 (0.2148~0.2187)	Replace if under 5.40 (0.2126)
Exhaust	5.435~5.445 (0.2070~0.2109)	Replace if under 5.38 (0.2048)



Fig. 23

5. Replacing the valve guide
If the valve guide is worn excessively and requires replacement, follow the procedure below:
 - a. Remove the valve guide from the cylinder head with the valve guide remover (Tool No. 07942-3290100) (Fig. 23).
 - b. Install the new valve guide with the valve guide driver (Tool No. 07942-1180100), and carefully drive the guide into the head. The replacement valve guide should be oversized.

- c. After the new valve guide has been installed, it must be reamed to the proper finish size with a guide reamer (Tool No. 07984-0980000). Exercise care when using the reamer and occasionally apply a small amount of oil to the reamer when it becomes difficult to use. Pull the reamer out and remove the metal chip before continuing to ream. The standard valve guide inside diameter is 5.475-5.485 mm (0.2156-0.2159 in.). (Fig. 24).



Fig. 24

6. Inspecting the valve spring
Measure the valve spring free length with a vernier caliper. (Fig. 25)

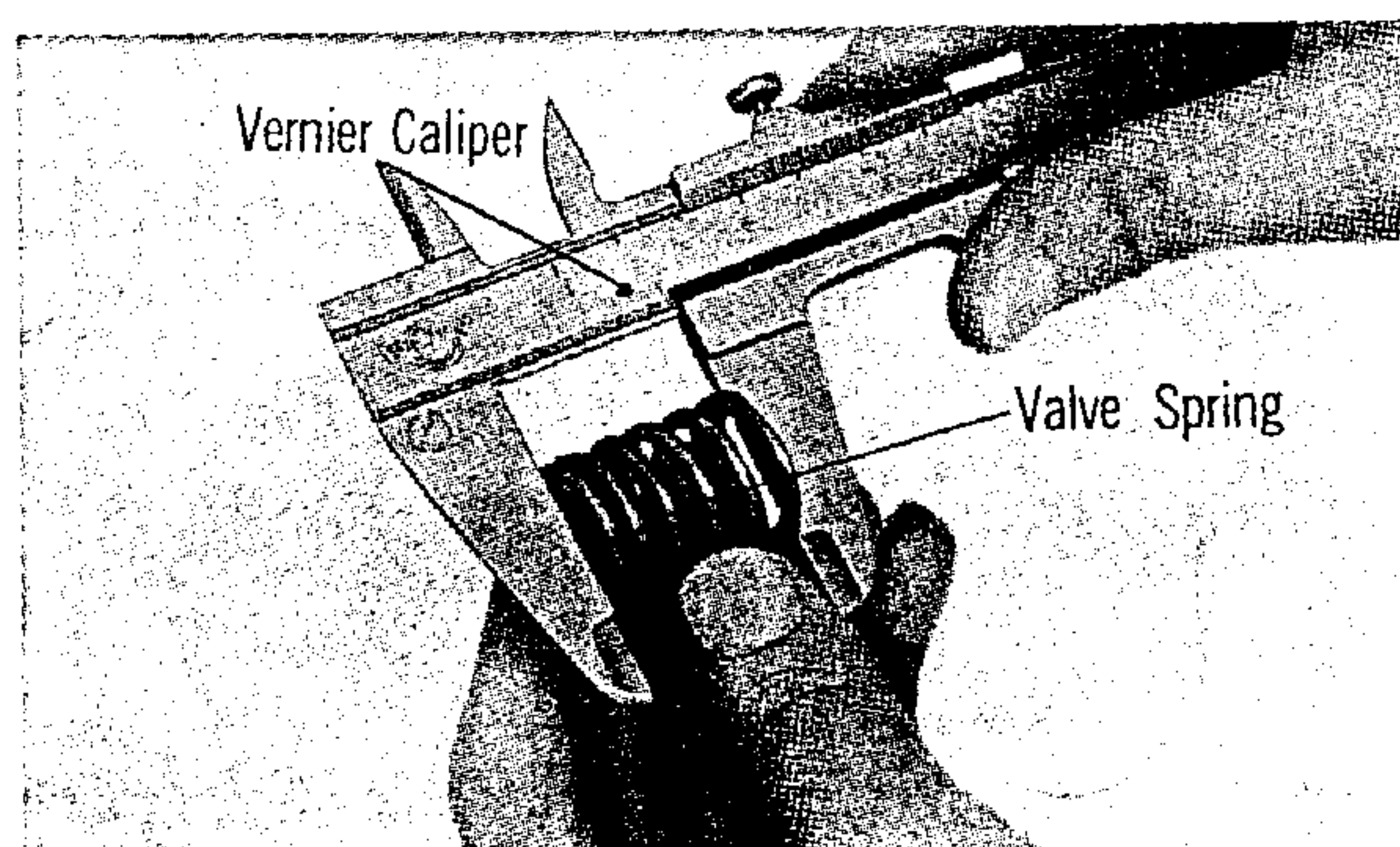


Fig. 25

mm (inch)

Item	Standard Valve	Serviceable Limit
Inner valve spring free length	25.1 (0.988)	Replace if under 23.9 (0.941)
Outer valve spring free length	28.1 (1.106)	Replace if under 26.9 (1.059)
Inner valve spring compression	2.45~2.75 kg/22.7 (5.37~6.03 lb/0.894 in)	Replace if under 2.0 kg/22.7 (4.41 lb/0.894 in)
Outer valve spring compression	6.65~7.75 kg/24.9 (14.66~17.09 lb/0.980 in)	Replace if under 4.6 kg/24.9 (10.14 lb/0.980 in)

7. Inspecting the camshaft
Measure the cam lift with a micrometer (Fig. 26).

mm (inch)

Item	Standard Value	Serviceable Limit
Base circle	21.0 (0.827)	Replace if under 20.8 (0.819)
Cam lift (including the base circle)	26.076 (1.0266)	Replace if under 25.8 (1.012)

Valve Timing

Intake opens	5° BTDC
Intake closes	20° ATDC
Exhaust opens	25° BBDC
Exhaust closes	5° BTDC

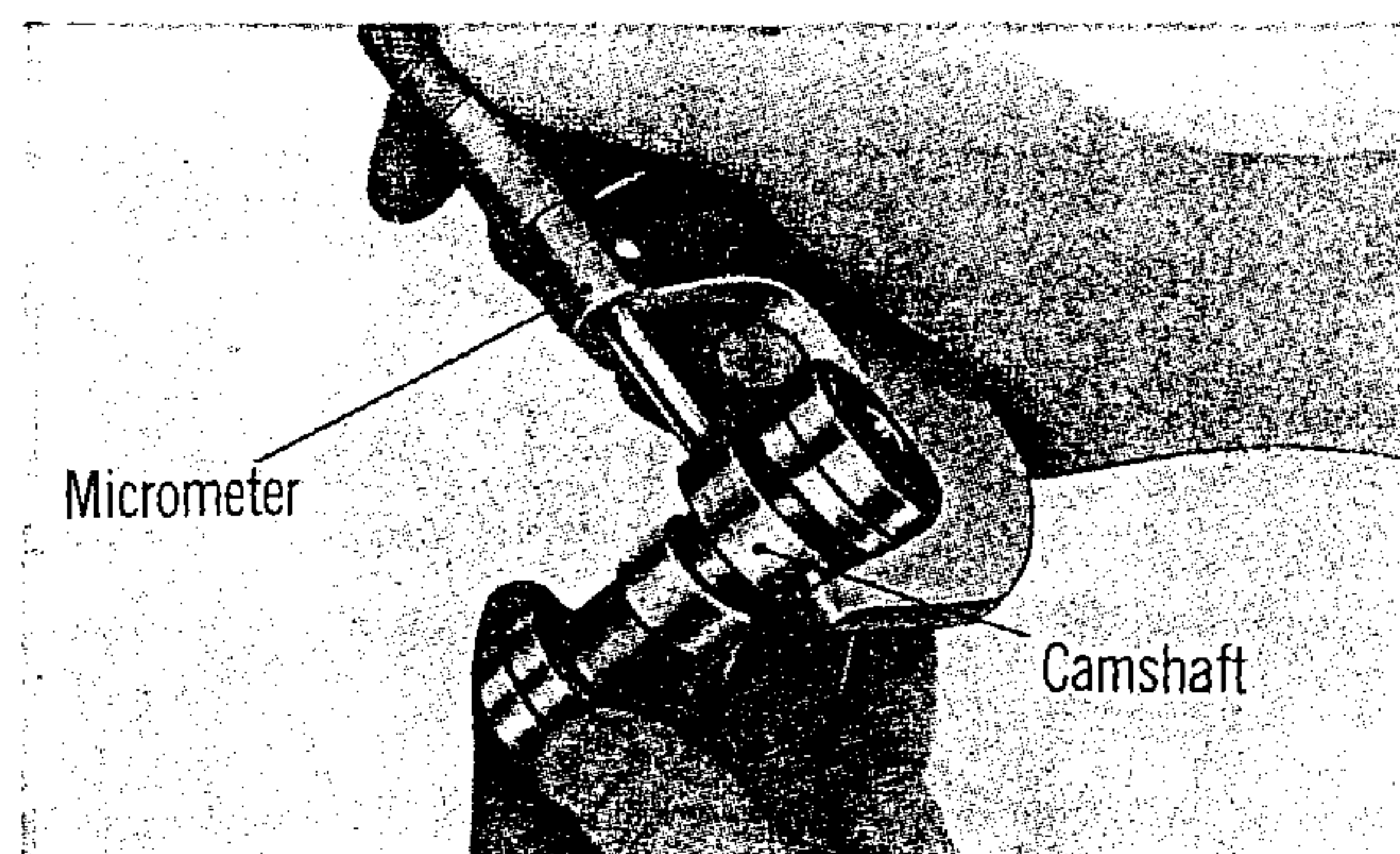


Fig. 26

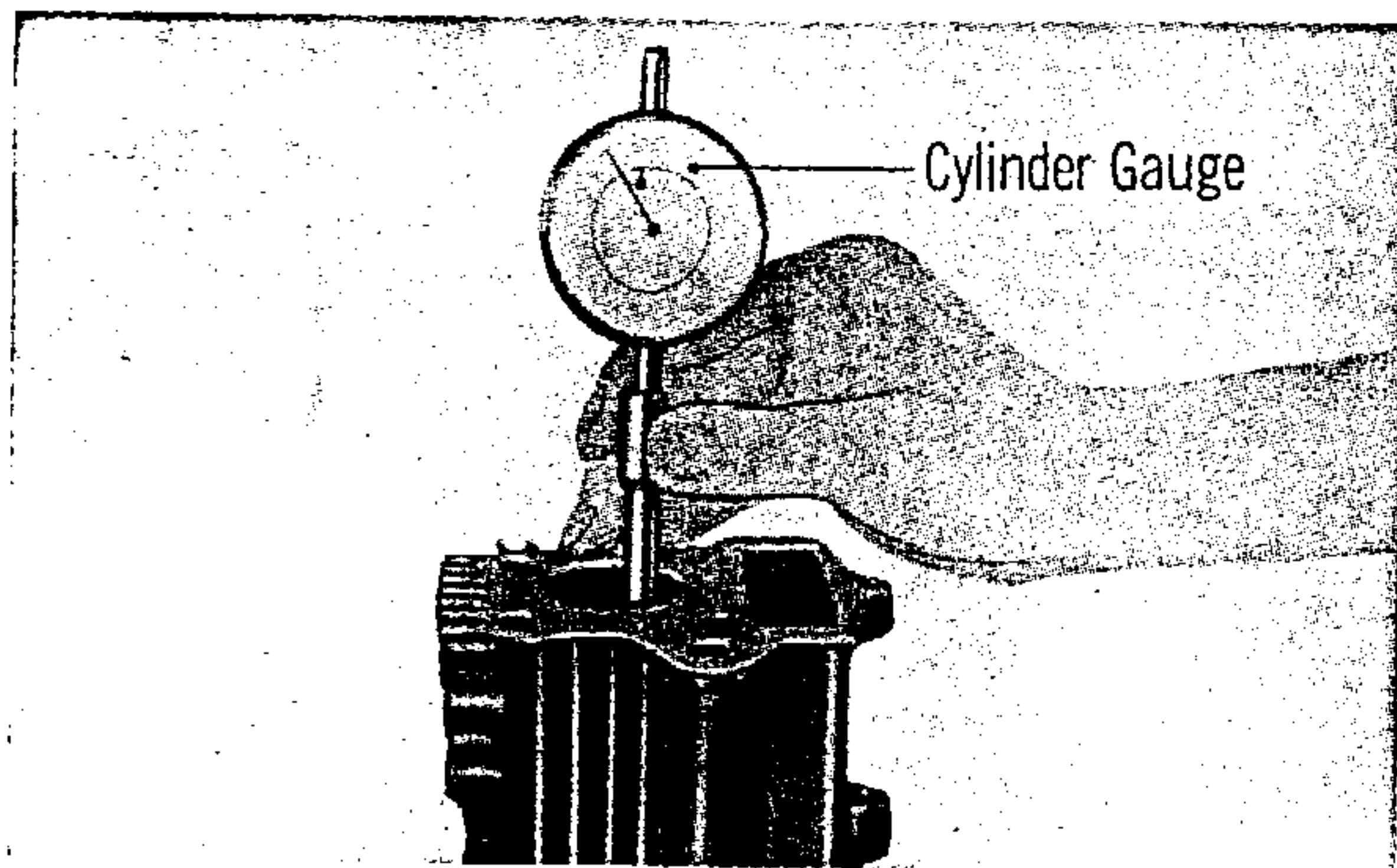


Fig. 27

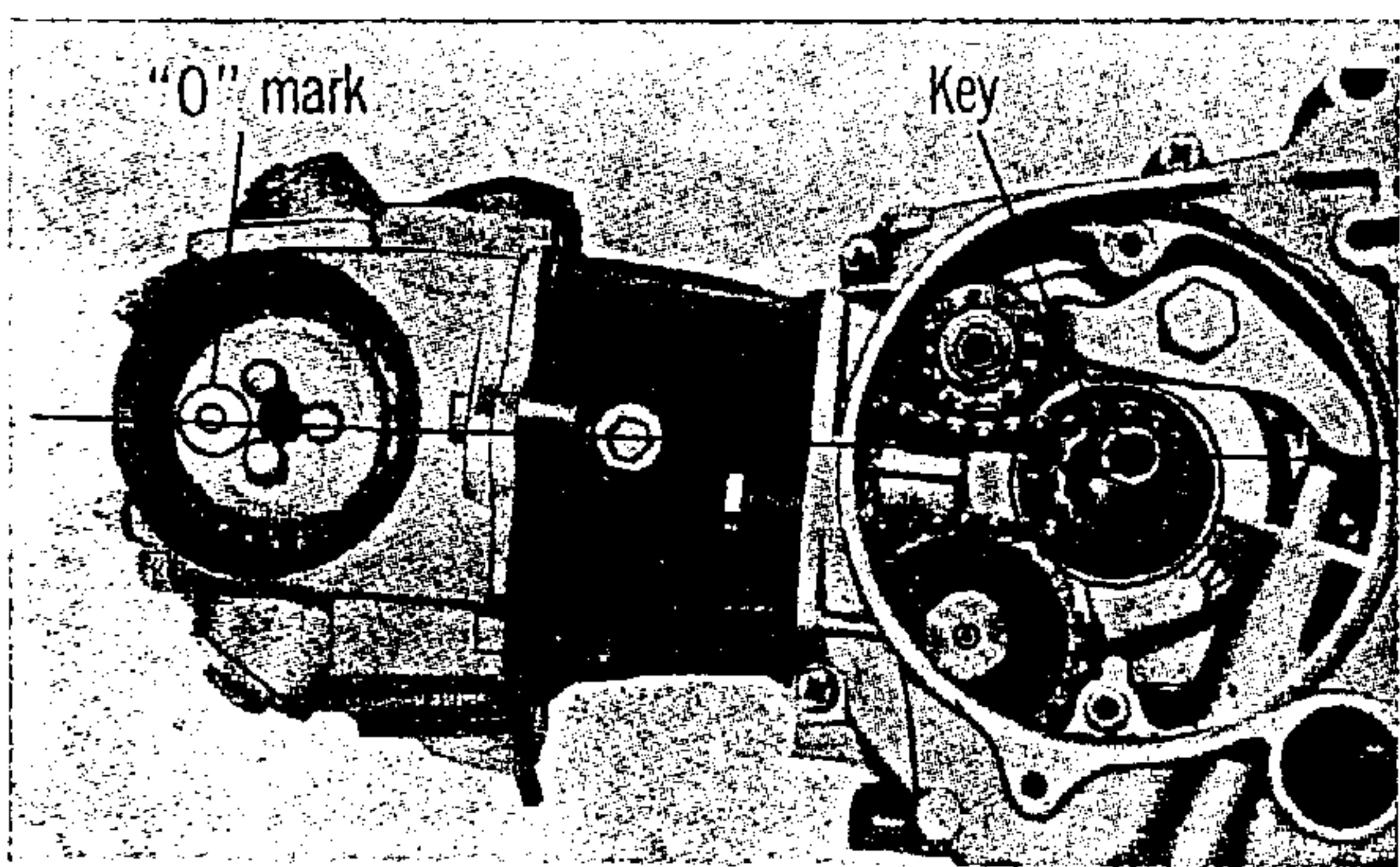


Fig. 28

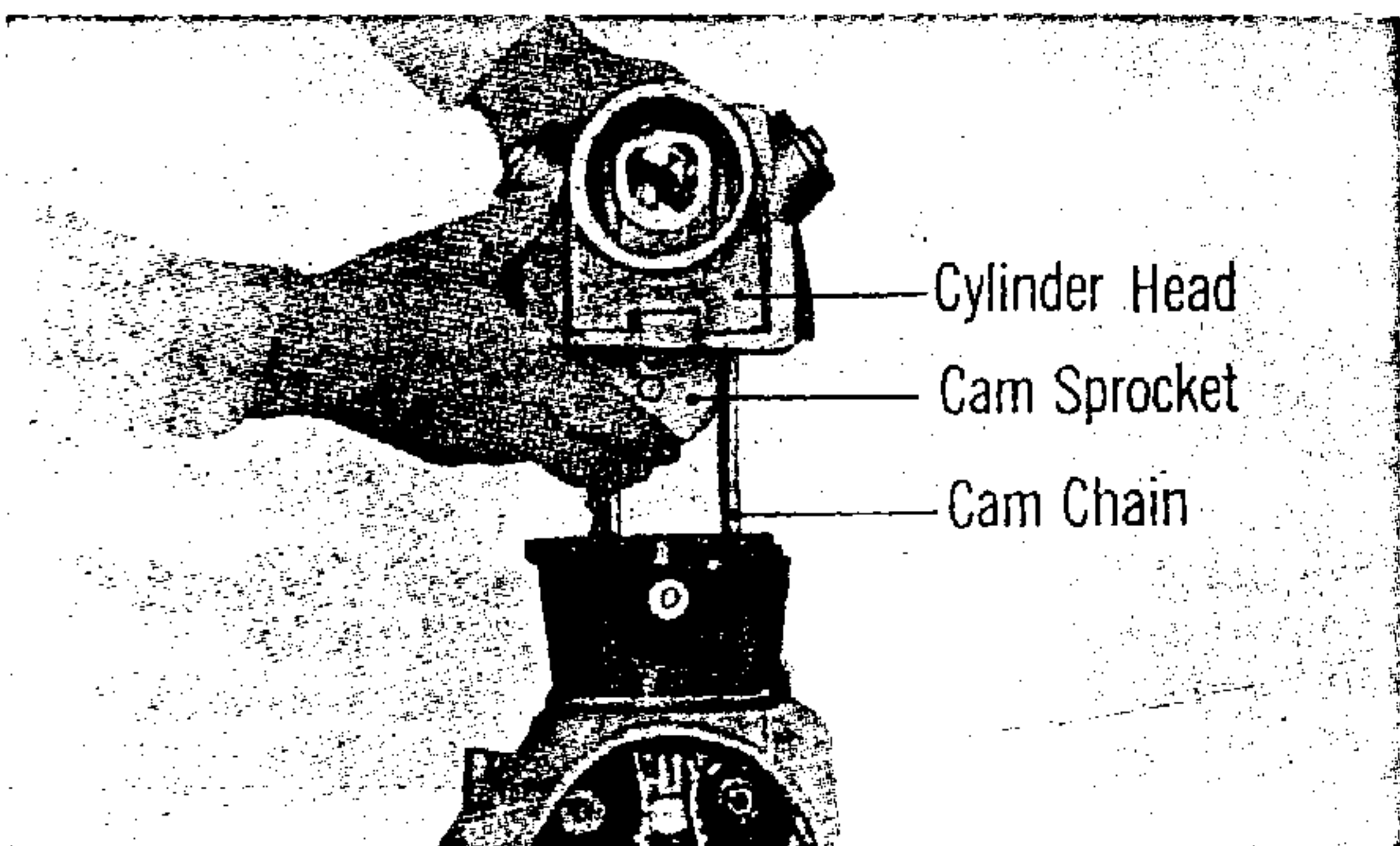


Fig. 29

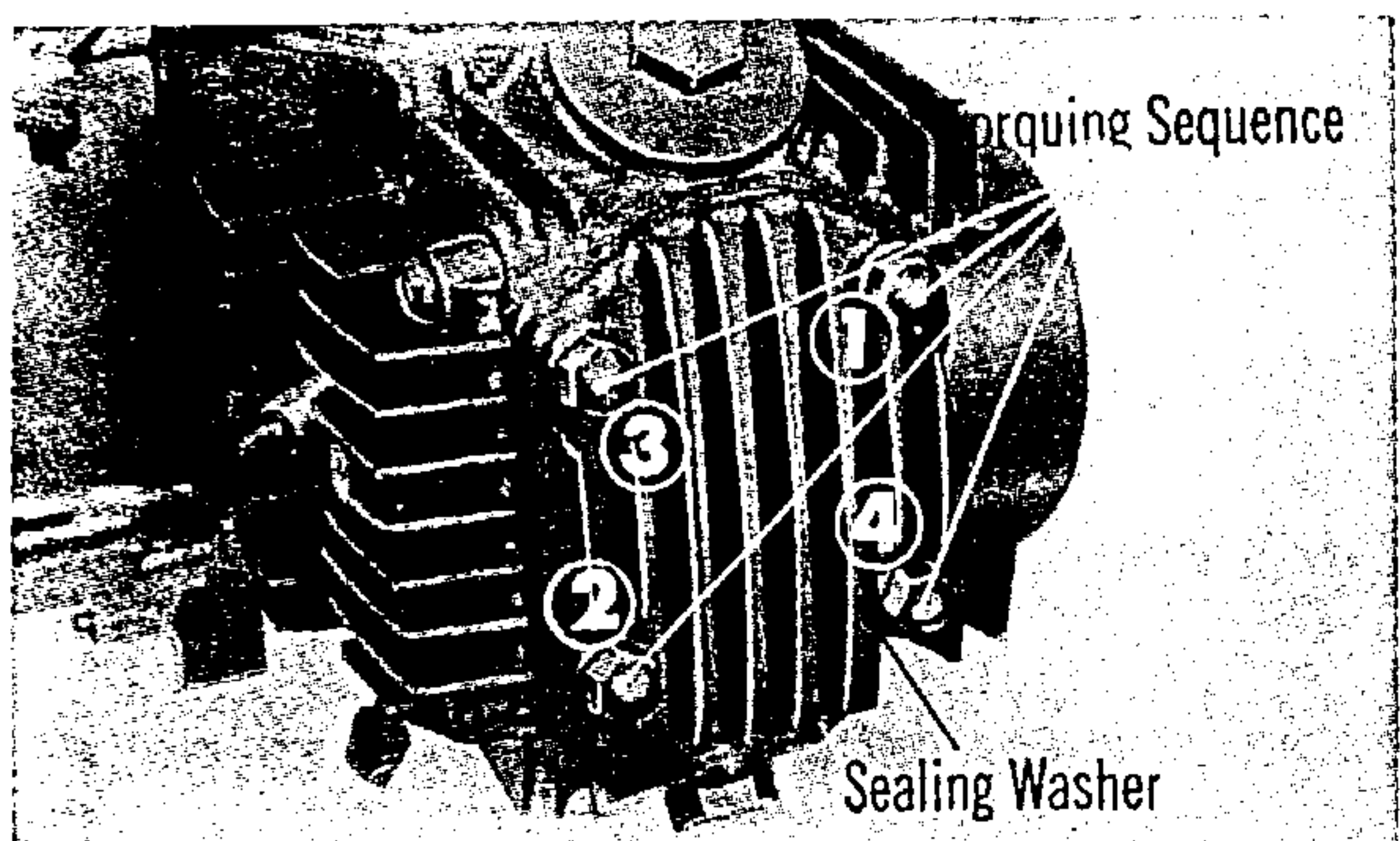


Fig. 30

8. Measuring the inside diameter of the cylinder
Use a cylinder gauge and measure the inside diameter of the cylinder at the top, center and bottom in both X and Y axes. If the cylinder is excessively worn, it should be either rebored or replaced with a new cylinder depending upon the extent of wear (Fig. 27).

mm (inch)

	Standard Value	Serviceable Limit
ST 50	39.005~39.015 (1.5356~1.5360)	39.1 (1.539)
ST 70 CT70K1, K2, K3 CT 70 H, HK1	47.005~47.015 (1.8506~1.8510)	47.1 (1.854)

Note:

When reboring the cylinder, it must be rebored to oversize units of 0.05mm (0.010 in) to a maximum of 1.0mm (0.040 in). The piston and piston ring sets are those oversizes only.

Reassembly

Perform the reassembly in the reverse order of disassembly described in page 13 section 5.3. Follow the procedure below for timing the valves. Position the key of the left crankshaft so that it is pointing toward the cylinder head, and position the cam so that the "O" marking on the cam sprocket is at the top (Fig.28).

Note:

1. When installing the cylinder head, the cam sprocket must be contained within the cylinder head (Fig. 29).
Do not forget to install the respective gaskets, dowel pins and rings.
3. The position of the cylinder head nuts is ①, ②, and ③ for the blind nut, and ④ for the plain nut. Do not omit the sealing washer on the ④ position (Fig. 30).
4. When torquing down the cylinder head, tighten the nuts uniformly in a diagonal sequence as shown in Fig. 30 and torque to the final specified torque value of 90-120 kg-cm (6.5-9 ft-lb).

3.4 Cam Chain Tensioner

A constant force is applied to the cam chain automatically by the hydraulic and spring-operated cam chain tensioner. (Fig. 31).

Check valve inspection

Push the pushrod and check to see if oil is leaking from the check valve. If the oil is leaking, it is probably due to dirt in the valve. Clean the valve by blowing out with compressed air. If the oil is dirty, it should be changed. Check the guide rollers for wear.

The manual cam chain tensioner is equipped on the CT70-70H K1, K2 and K3 models.

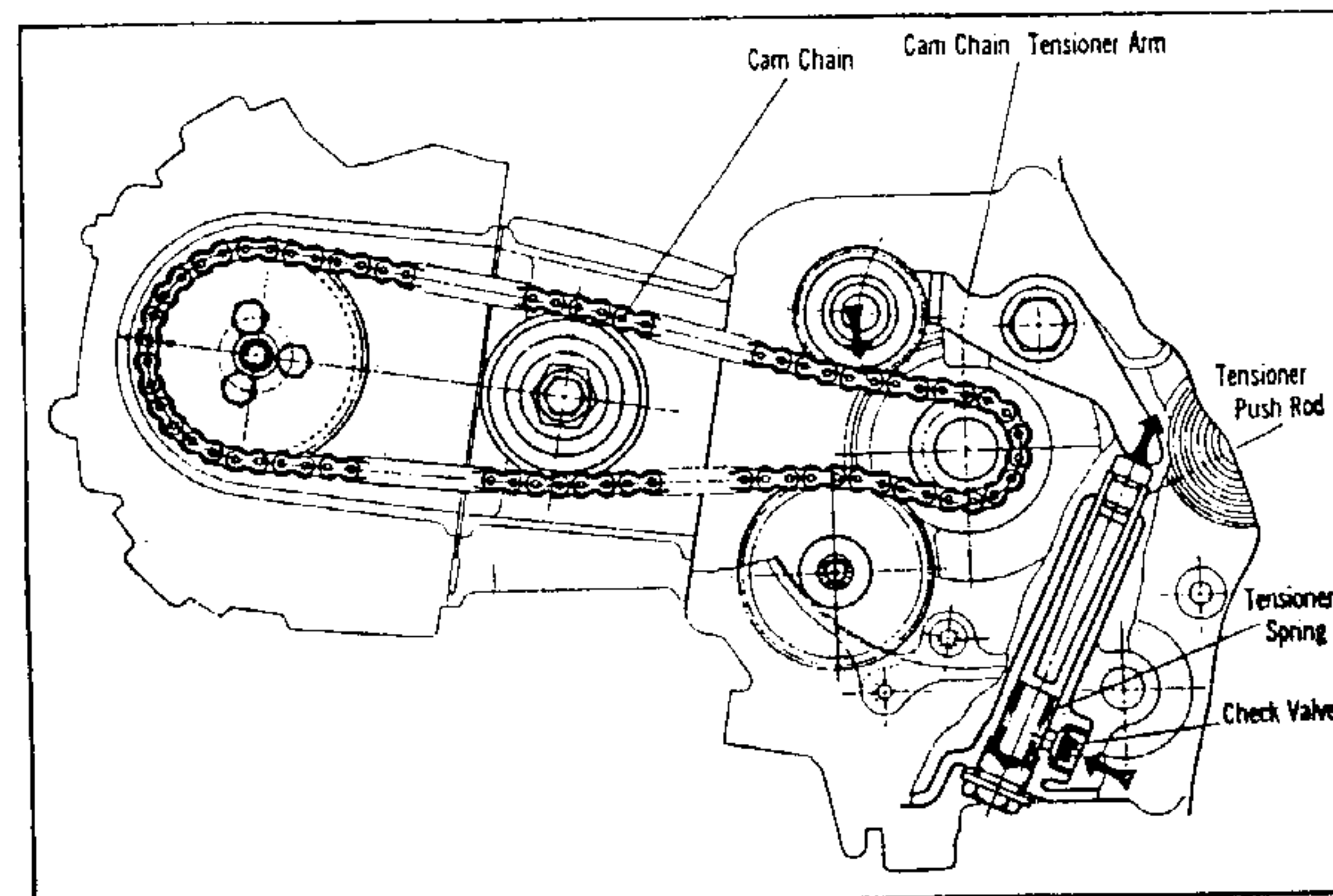


Fig. 31-A

Cam Chain Adjustment

1. To adjust, loosen the lock nut and back off the tensioner adjusting bolt approximately 1/2 turn.
2. If the chain is still noisy after adjusting, loosen the 14 mm sealing bolt located at the left lower side of the crankcase and tighten the tensioner bolt gradually until the chain becomes quiet. Upon completing the adjustment, tighten the tensioner adjustment, tighten the tensioner adjusting bolt, lock nut and 14 mm sealing bolt securely.

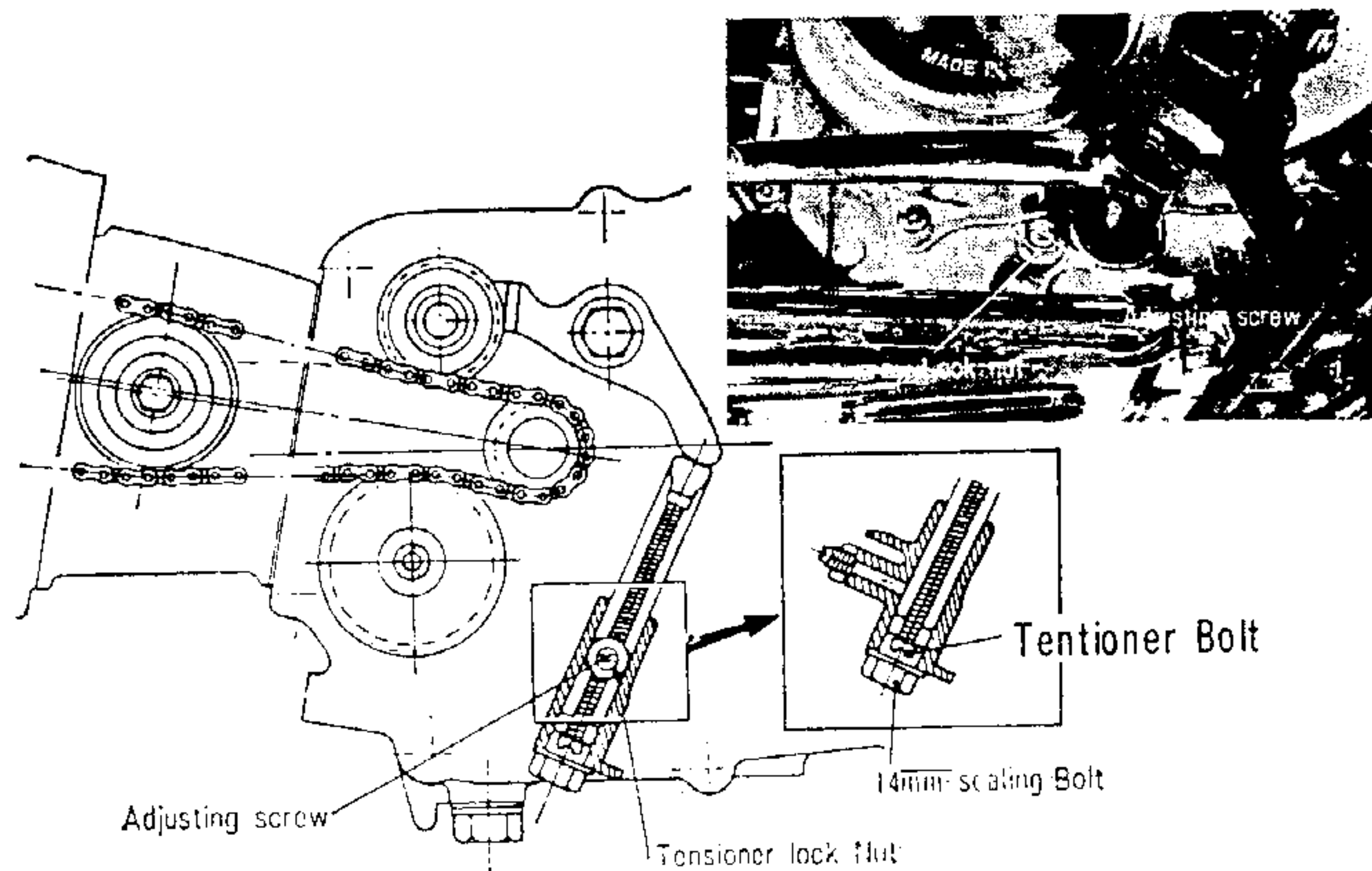


Fig. 31-B

3.5 Piston and Piston Rings

Description

The piston is made of special SAE 332 aluminum alloy to minimize material deformation caused by high temperature and also because of its good wear resistant qualities. The piston rings specially should be highly resistant and therefore, they are hard chrome plated or wet honed to give it the desired characteristics.

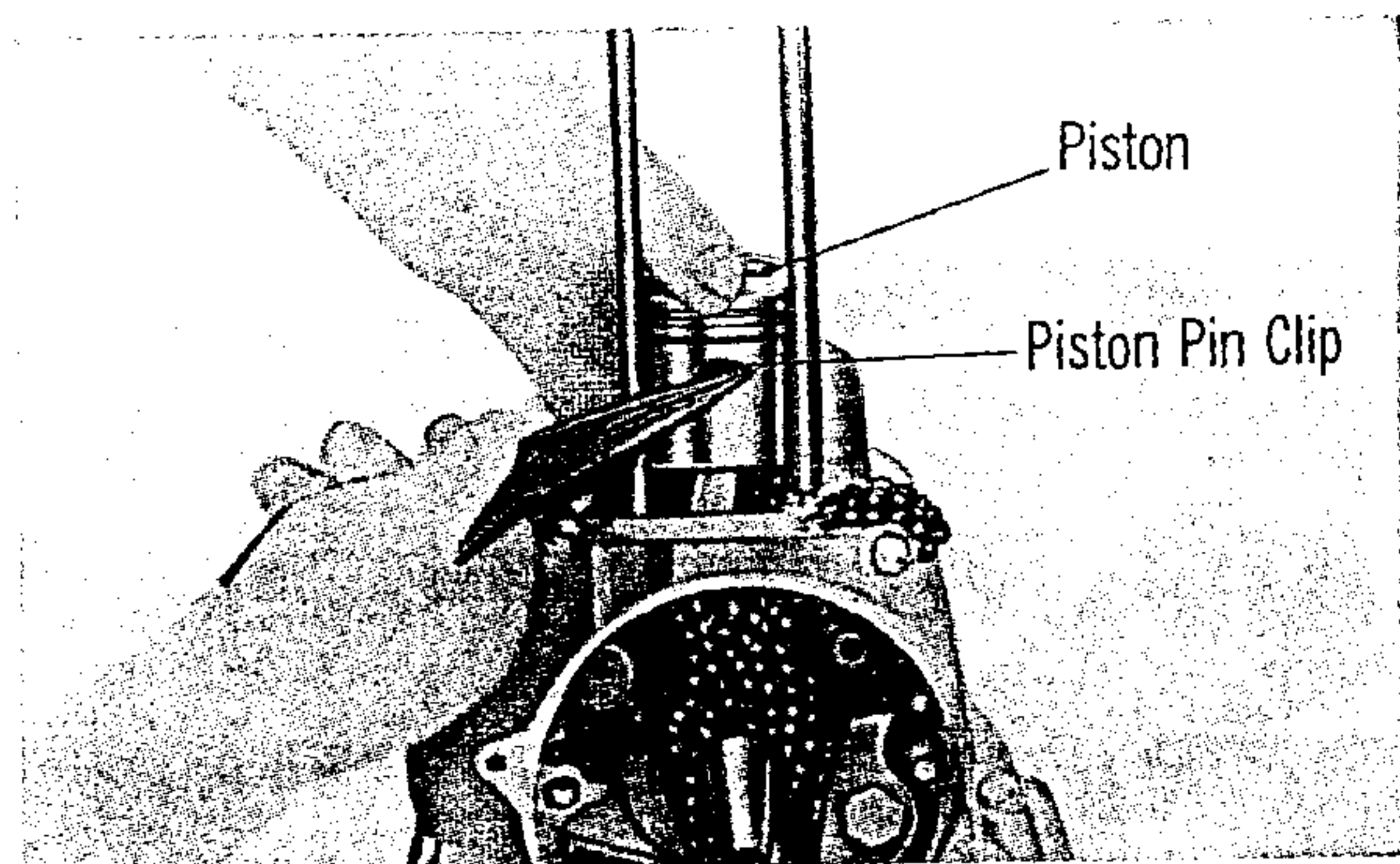


Fig. 32

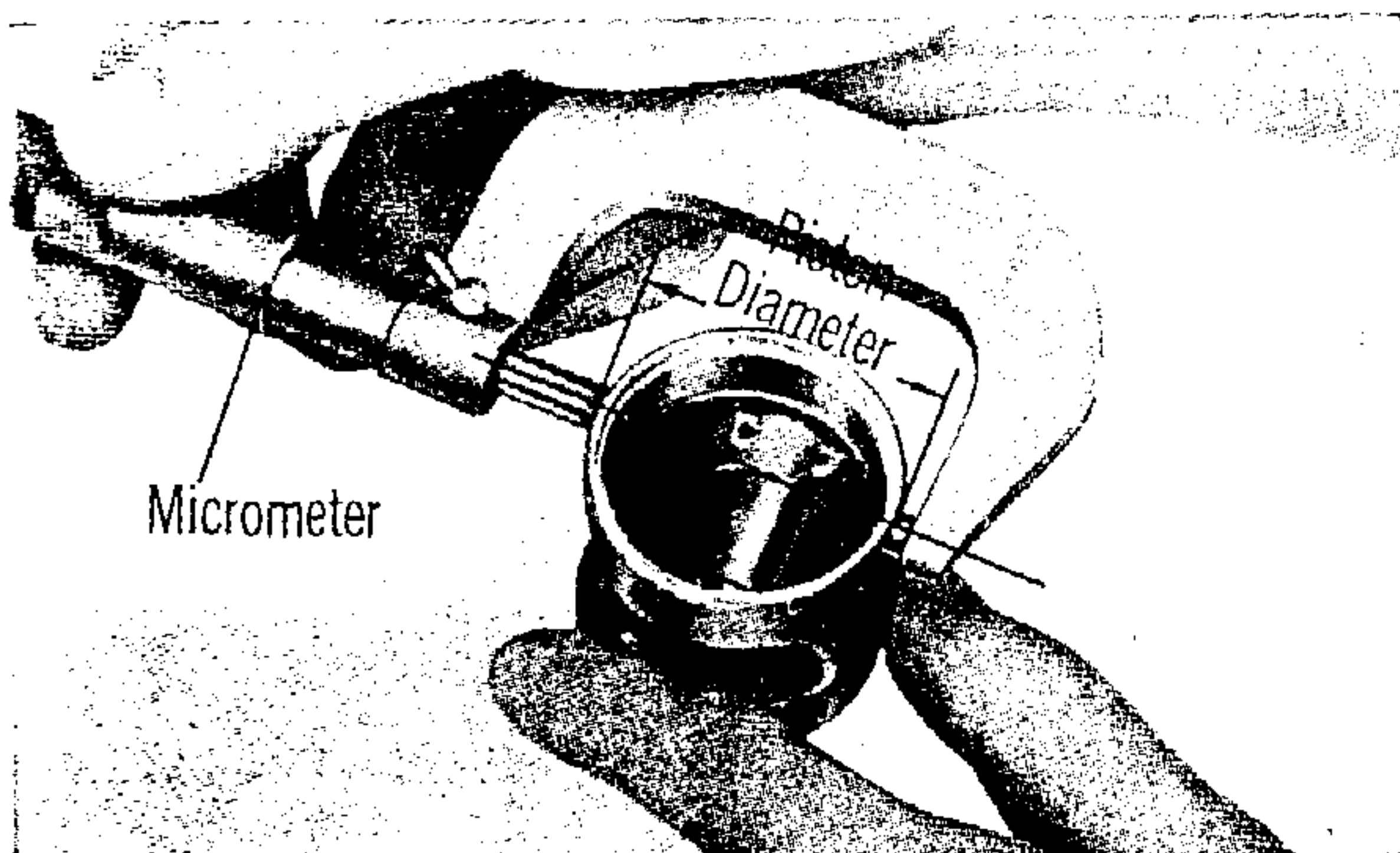


Fig. 33

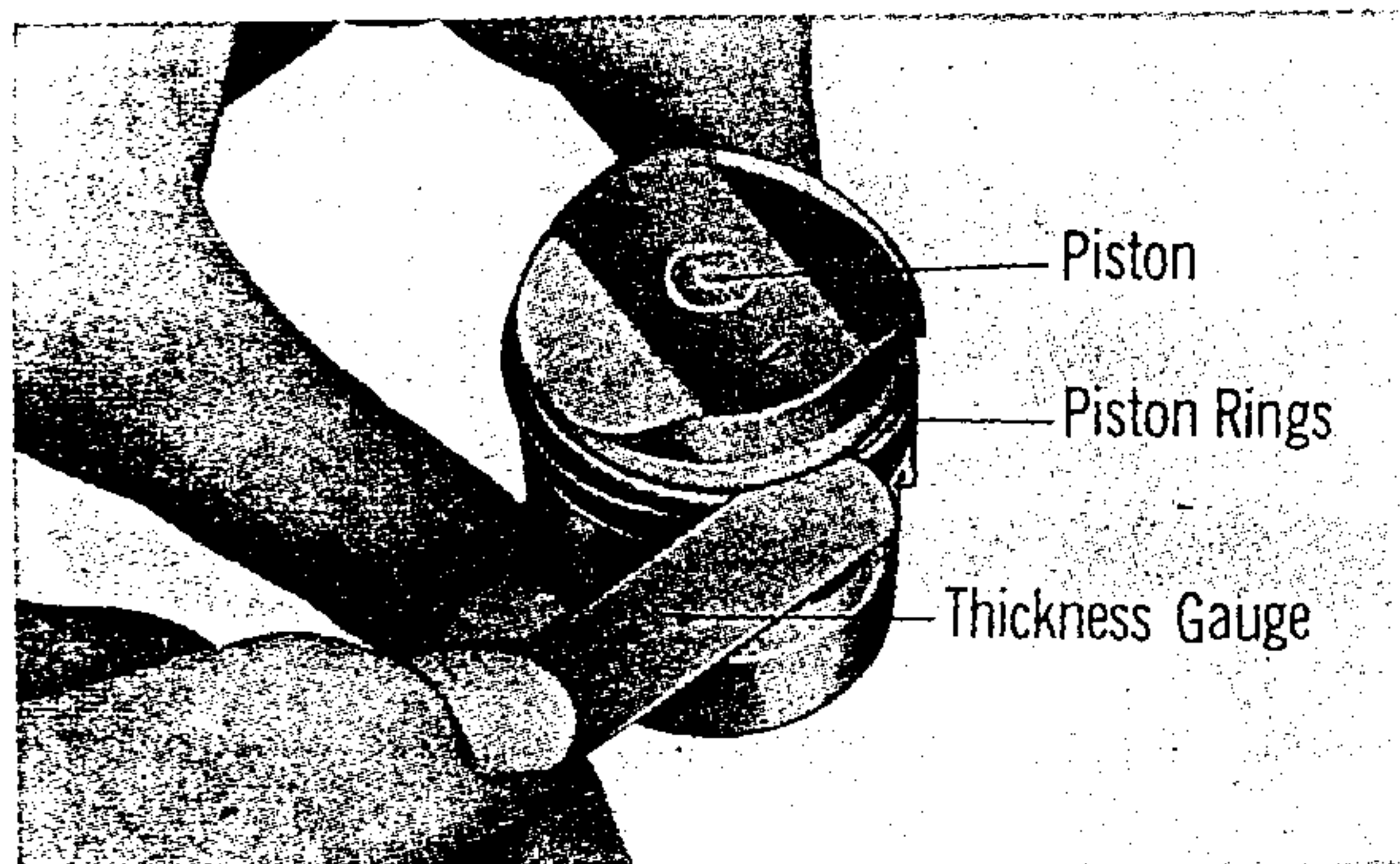


Fig. 34

Disassembly

1. The piston is disassembled from the connecting rod by first removing the piston pin clip and then the piston pin (Fig. 32).

Note:

When removing the piston pin clip, place a rag under the piston so that the clip will not fall into the crankcase if it should accidentally be dropped.

2. To remove the piston rings from the piston, it is recommended that the piston ring remover be used, however, if it is not available, they can be removed by hand, but care should be exercised so that they are not broken.

Inspection

1. Measuring the piston

Measure the piston diameter at the piston skirt at right angle to the piston pin axis using a micrometer (Fig. 33).

	Standard Value	Serviceable Limit
ST 50	38.98~39.00 (1.5346~1.5354)	Replace if under 38.9 (1.531)
ST 70 CT70, K1, K2, K3 CT 70 H, HK1	46.98~47.00 (1.8492~1.8500)	Replace if under 46.9 (1.847)

mm (inch)

2. Measuring the piston ring end gap

Insert the piston ring into the cylinder bottom end and measure the ring end gap with a thickness gauge

Item	Standard Value	Serviceable Limit
Top and second ring	0.15~0.35 (0.0059~0.0138)	Replace if over 0.5 (0.0197)
Oil ring	0.15~0.40 (0.0059~0.01575)	Replace if over 0.5 (0.0197)

mm (inch)

3. Measuring the piston ring side clearance

Measure the clearance between the piston ring and piston land with a thickness gauge (Fig. 34).

Item	Standard Value	Serviceable Limit
Top and second rings	0.015~0.045 (0.0006~0.0018)	Replace if over 0.12 (0.0047)
Oil ring	0.010~0.045 (0.0004~0.0018)	Replace if over 0.12 (0.0047)

mm (inch)

4. Piston and piston rings are available in four standard oversizes of 0.25mm (0.01 in) to 1.0mm (0.04 in).

Reassembly

Perform the reassembly in the reverse order of disassembly as described on page 24.

Note:

1. When assembling the piston to the connecting rod, make sure that the arrow mark on the piston head is pointing down (Fig. 35)
2. Apply oil when mounting the piston rings and piston pin.
Make sure that the rings move smoothly in the ring groove, and that the ring end gaps do not form a straight line.
3. Check the top surface of the ring. The rings should be mounted so that the R (or T) mark faces the top.
4. Use a new piston pin clip when fixing the piston pin to the piston.

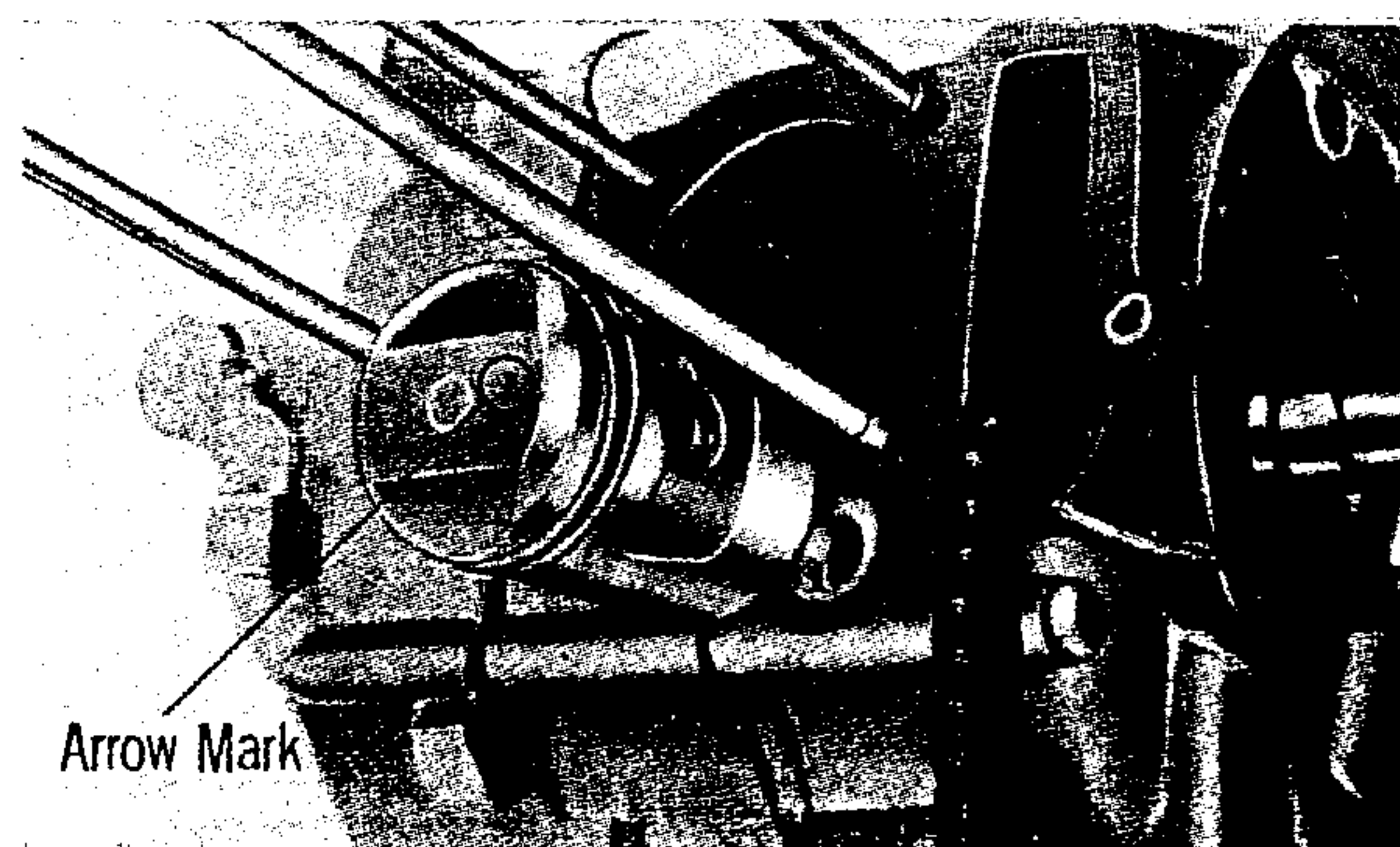


Fig. 35

3.6 Clutch

Description

The clutch is the conventional wet two-disc clutch which is automatically operated according to the centrifugal force generated by the engine rotation. The CT 70 H, HK1 incorporates the manual type clutch.

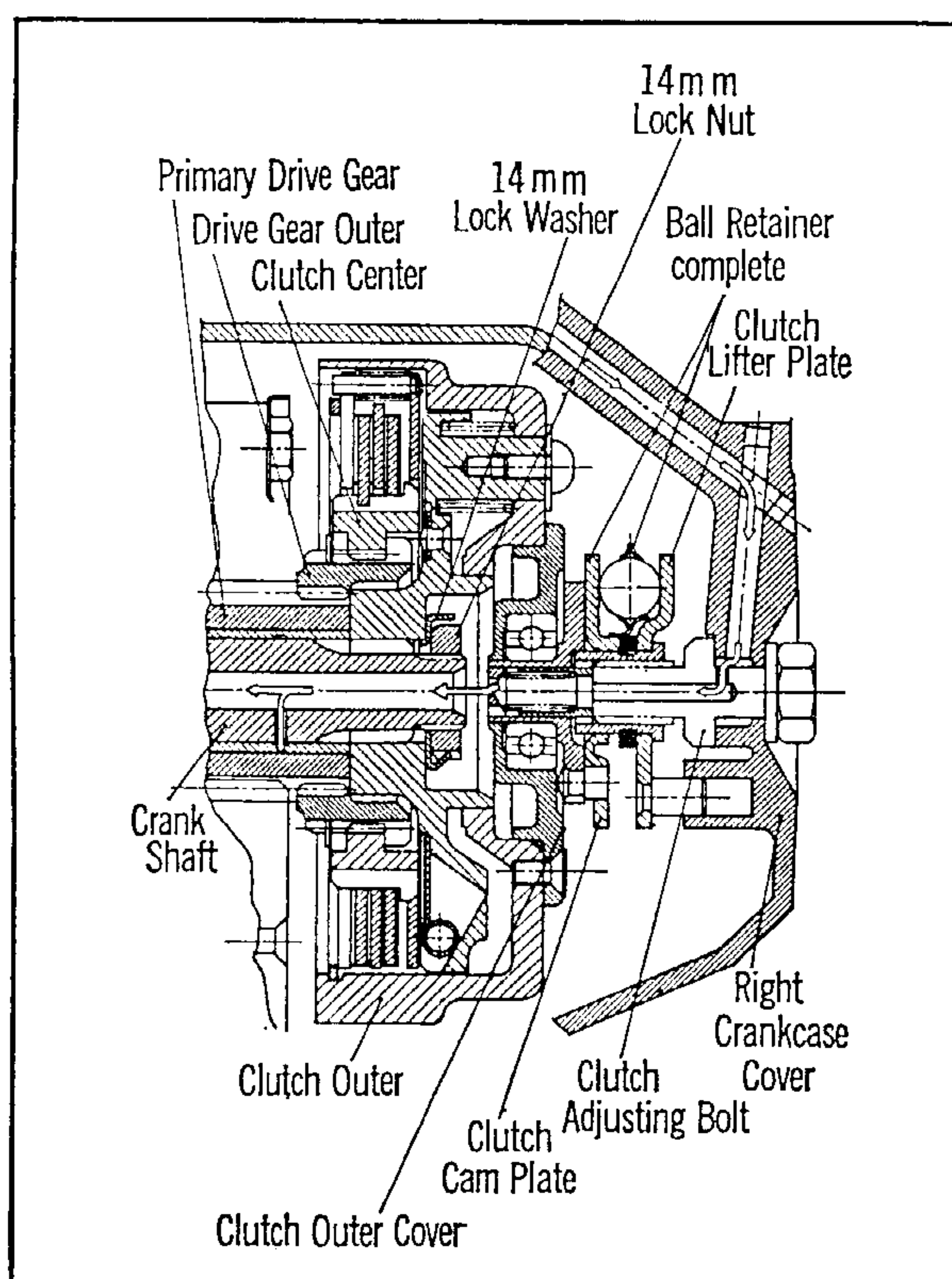


Fig. 36-1 ST 50·70·CT 70 CT 70, K1, K2, K3 Clutch assembly

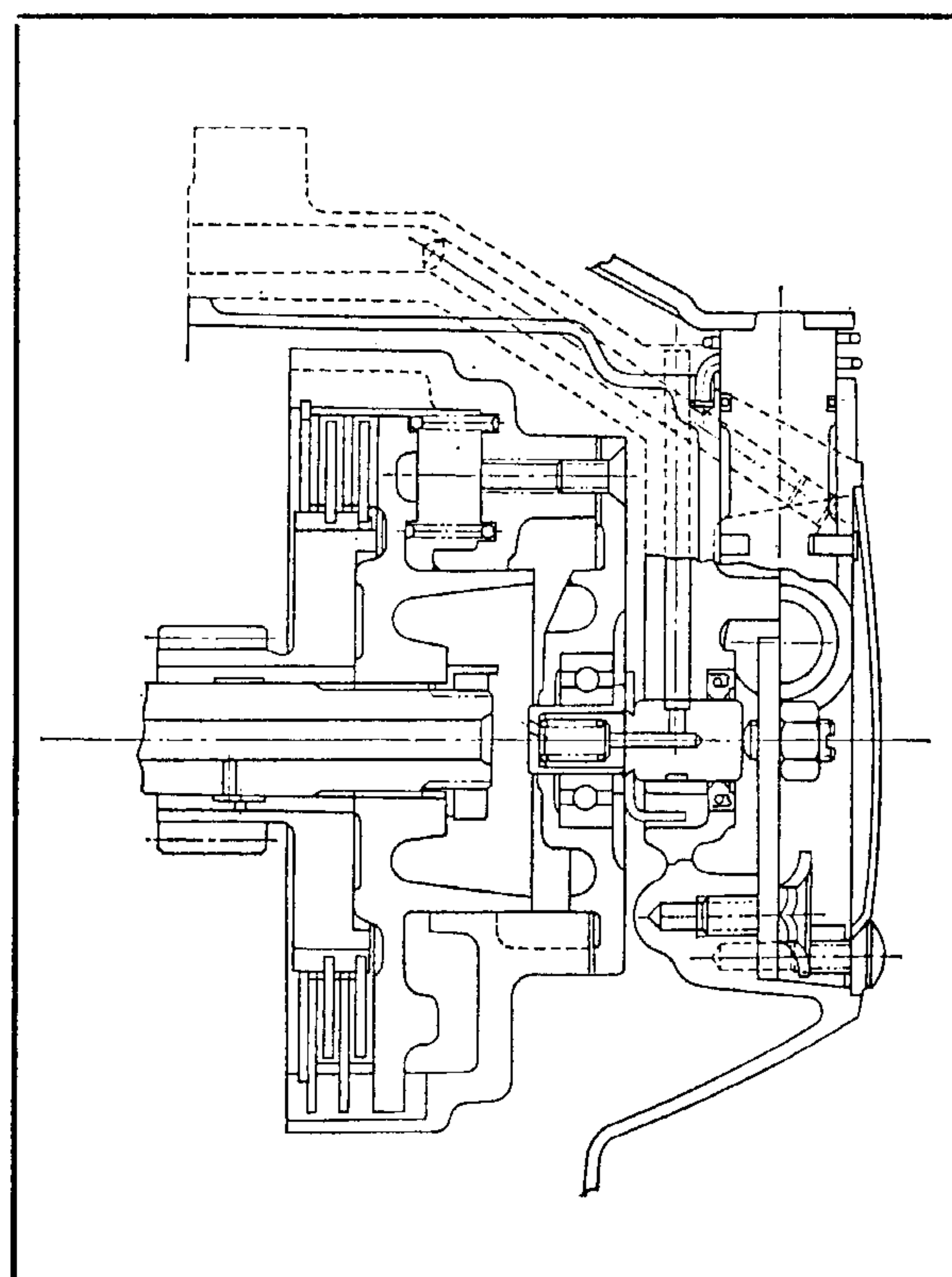


Fig. 36-2 CT 70 H, HK1 Clutch assembly

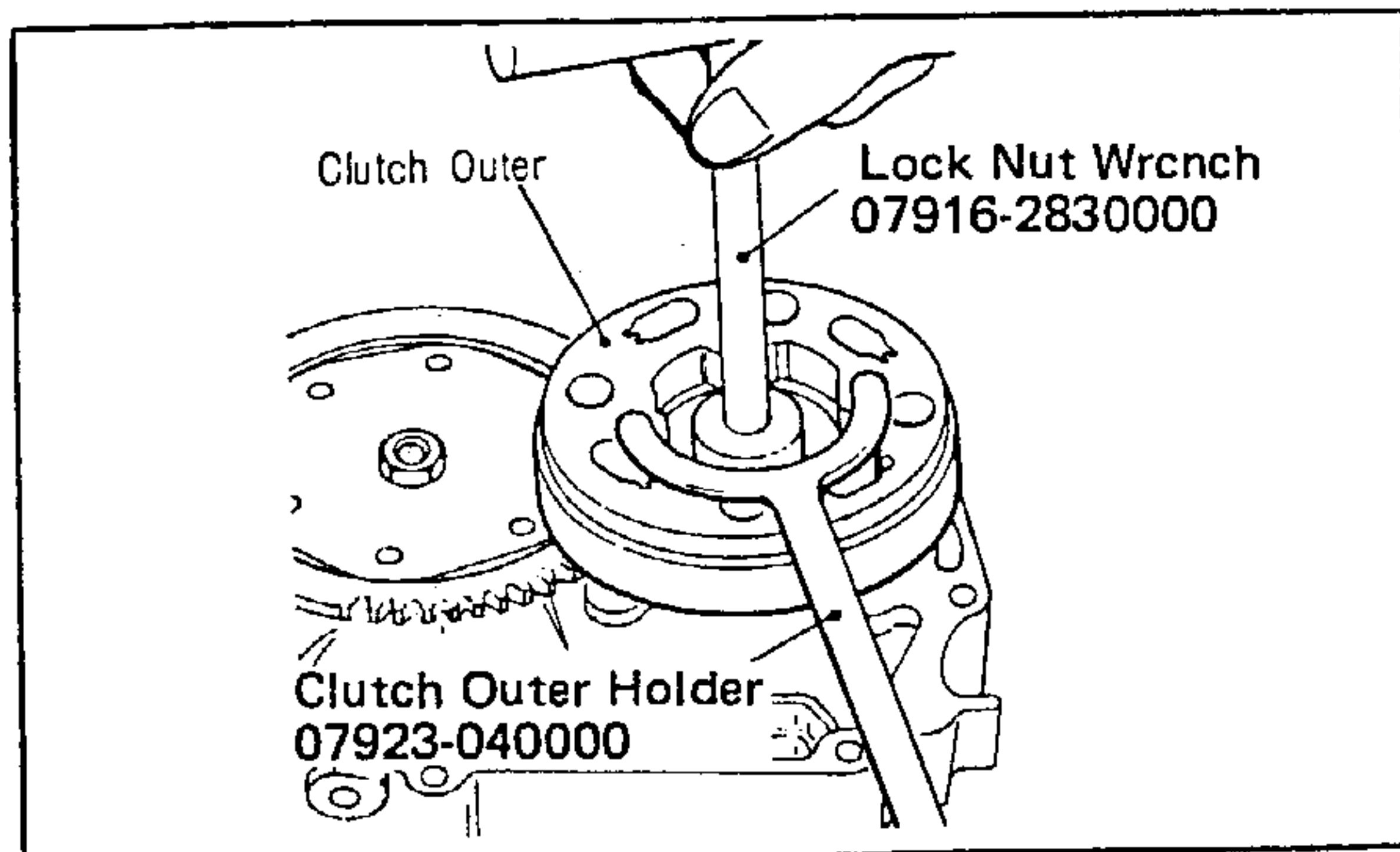


Fig. 37

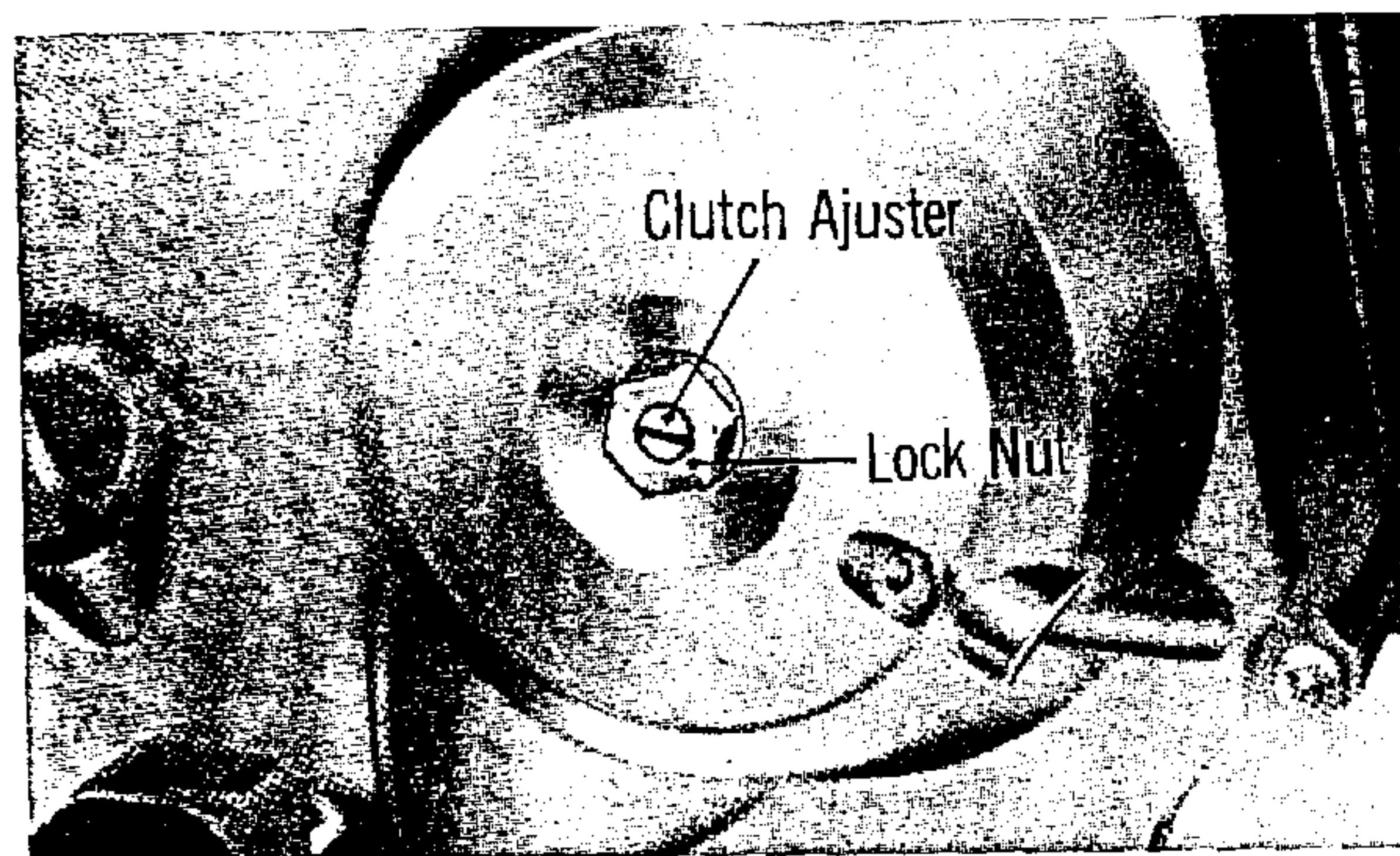


Fig. 38-1 (ST 50-70, CT 70, K1, K2, K3)
 ① Adjusting screw ② Lock nut

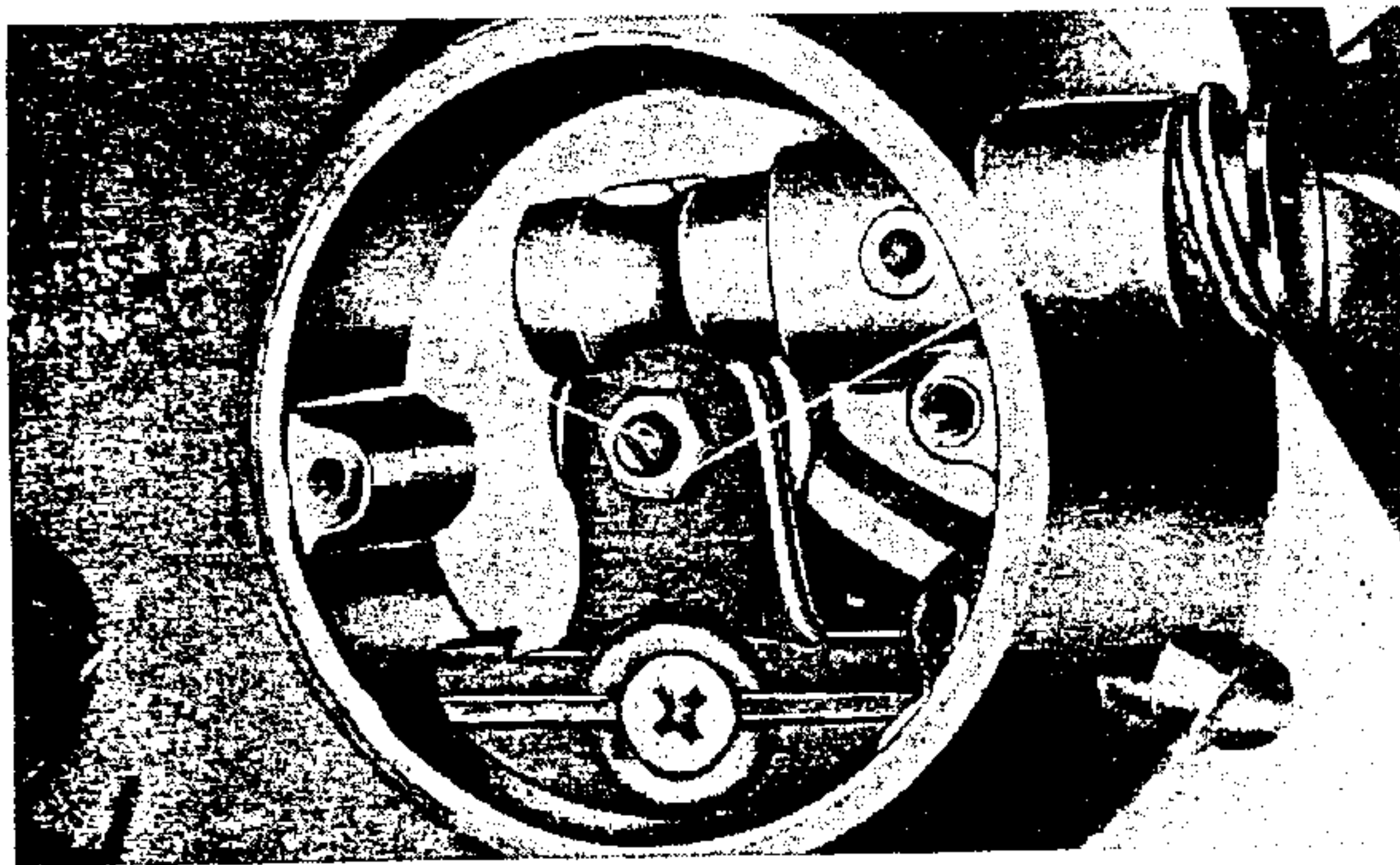


Fig. 38-2 (CT 70 H, CT 70, HK1)
 ① Adjusting screw ② Lock nut

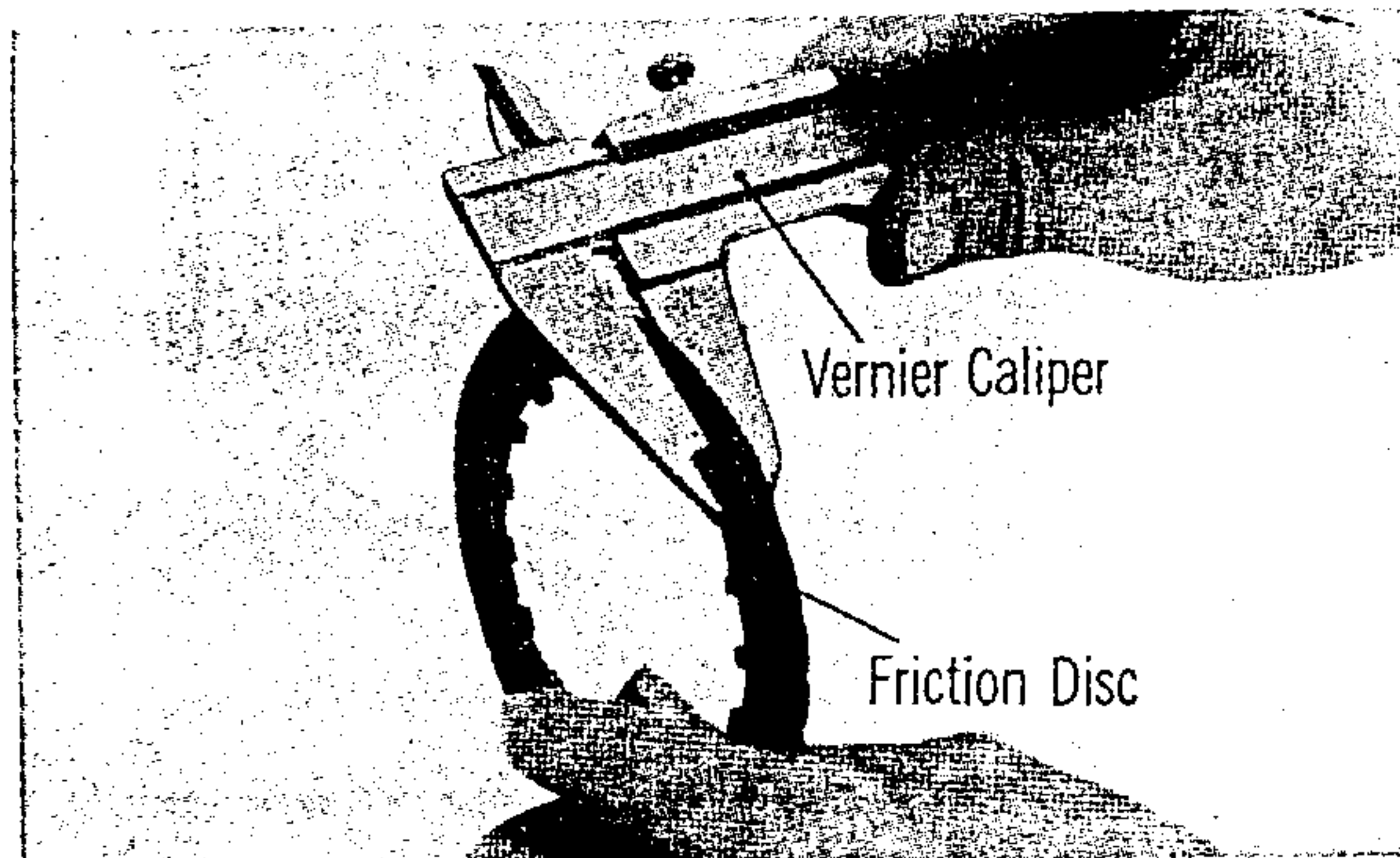


Fig. 39

Disassembly

1. Loosen the right crankcase cover retaining screws and remove the cover.
2. Remove the clutch outer cover.
3. Straighten the tab on the lock washer, and using the clutch outer holder (Tool No. 07923-040000) and lock nut wrench (Tool No. 07916-2830000), loosen the lock nut and remove the clutch assembly (Fig. 37). The clutch is then disassembled.

Inspection And Adjustment

1. Clutch adjustment.
 - a. The clutch must be adjusted with the engine off. Loosen the adjuster lock nut.
 - b. Turn the adjuster clockwise about one turn. Do not turn excessively.
 - c. Slowly turn the adjuster counterclockwise and stop when the adjuster to turn heavy.
 - d. From this point, back off the adjuster in the clockwise direction 1/8 to 1/4 turn, and tighten the lock nut (Fig. 38-1).

1. Clutch adjustment (CT70H, HK1)
 - a. The clutch adjustment should be made with the engine shut off
 - b. Remove the clutch cover and loosen the lock nut. Turn the adjusting screw clockwise until a slight resistance is felt, then back off 1/4 turn (Fig. 38-2).
 - c. Adjust the clutch cable so that the free play of 10-20 mm (0.4-0.8 in.) is available at the end of the clutch lever.

Check to make sure that the clutch operates properly after adjustment.

- The engine should start easily with the kick starter without the clutch slipping.
- When changing gear, the clutch slipping should be smooth and light, especially when shifting down in gear to the neutral position.

2. Measuring the friction disc
 Measure the thickness of the friction disc with a vernier caliper (Fig. 39).

		mm (inch)
Item	Standard Value	Serviceable Limit
Thickness	3.50 (0.138)	Replace if under 3.10 (0.122)
Flatness	—	Replace if over 0.15 (0.006)

3. Inspecting the clutch spring
Measure the spring free length with a vernier caliper (Fig. 40).

mm (inch)			
	Item	Standard Value	Serviceable Limit
ST 50	Free length	24.8 (0.976)	Replace if under 23.8 (0.937)
ST 70 CT 70	Free length	21.4 (0.843)	Replace if under 20.4 (0.803)
CT 70H	Free length	20 (0.787)	Replace if under 19 (0.748)

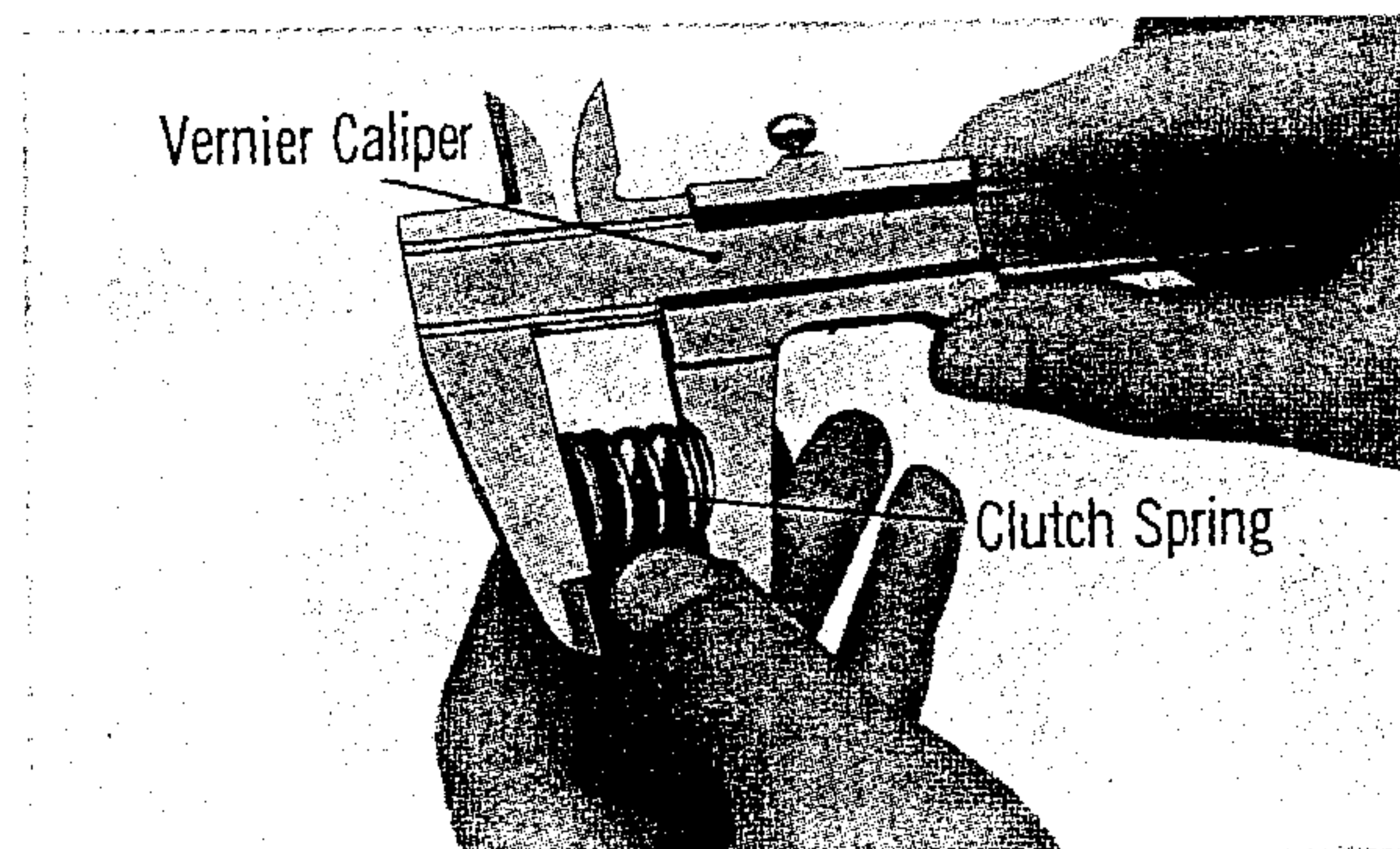


Fig. 40

Reassembly

Perform the reassembly in the reverse order of disassembly described on page 23.

Note:

Bend the lock tab positively in the clutch lock nut slot.

3.7 Crankshaft

Description

The connecting rod is assembled on the crank pin. The bearing at the large end is lubricated by the pressurized oil which flows through the crankshaft (Fig. 41).

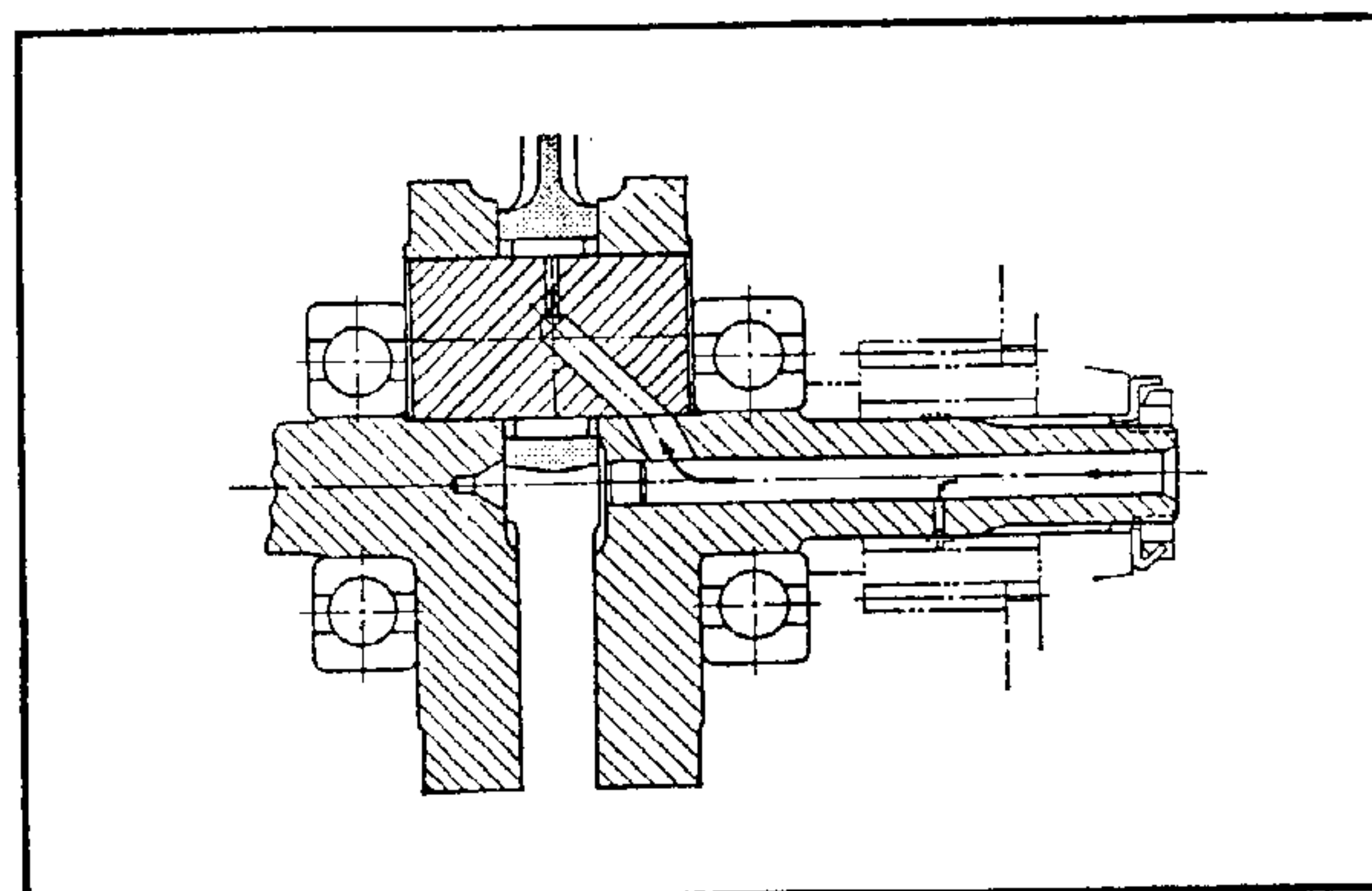


Fig. 41 Oil flow

Disassembly

1. Remove the cylinder head and cylinder according to the procedure on page 15.
2. Remove the clutch assembly according to the procedure on page 23.
3. Remove the primary driven gear and kick starter spring.
4. Remove the oil pump.
5. Remove the gear shift stopper and plate.
6. Loosen the left crankcase cover screws and remove the cover, flywheel, stator and cam chain.
7. Pull the rubber plug off and remove the gear shift drum stopper bolt.
8. Remove the final drive sprocket.
9. Remove the right crankcase.
10. Lift the crankshaft assembly out from the case.

Inspection

1. Measuring the crankshaft balance.
Support the crankshaft on V-blocks at the bearings. Rotate the crankshaft and measure the amount of runout at both ends of the crankshaft with a dial gauge (Fig. 42).

mm (inch)		
Item	Standard Value	Serviceable Limit
Left end, at 30 (1.2) from the weight	0.015 (0.0006)	Replace or repair if over 0.05 (0.002)
Right end, at 25 (1.0) from the weight		

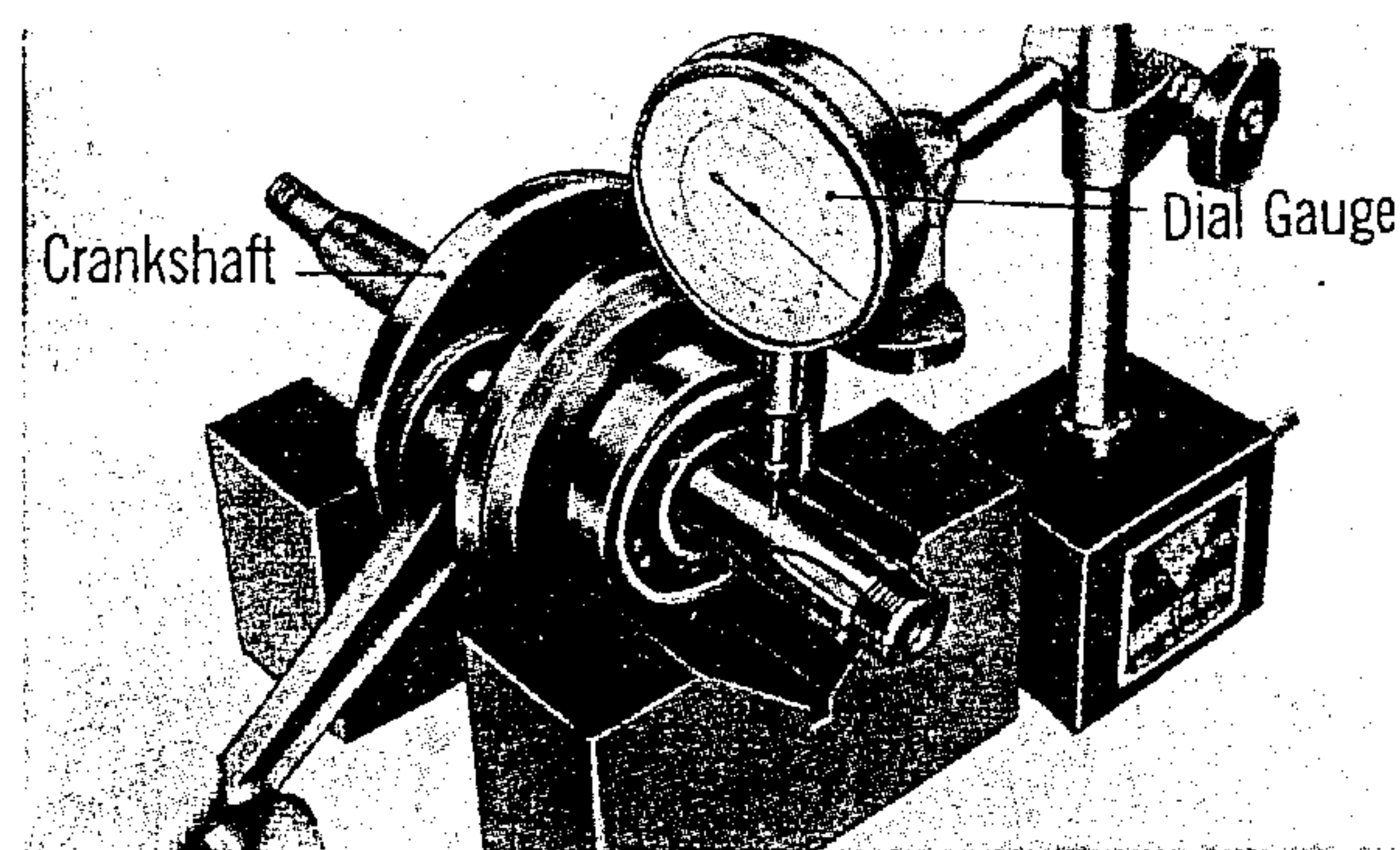


Fig. 42

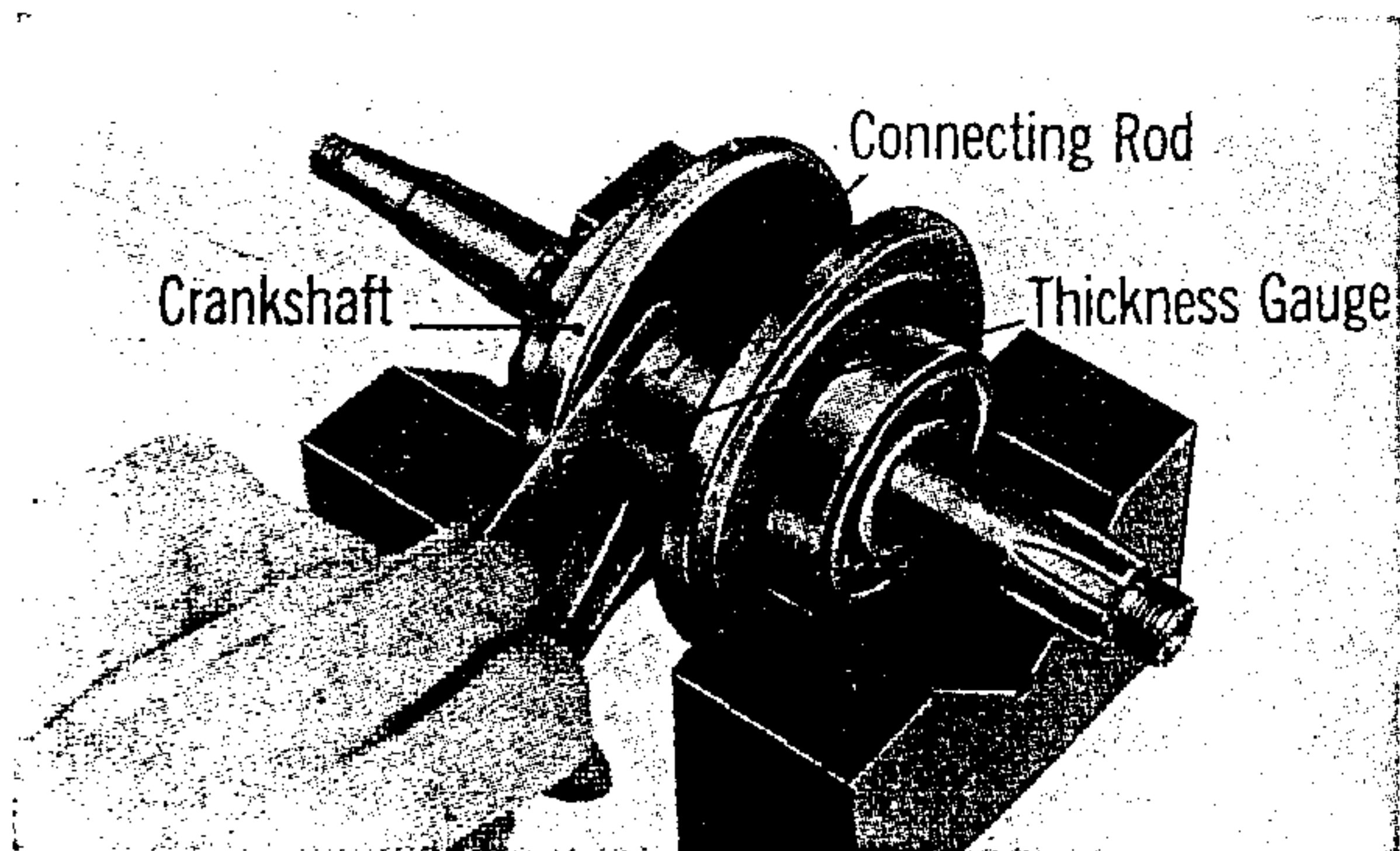


Fig. 43

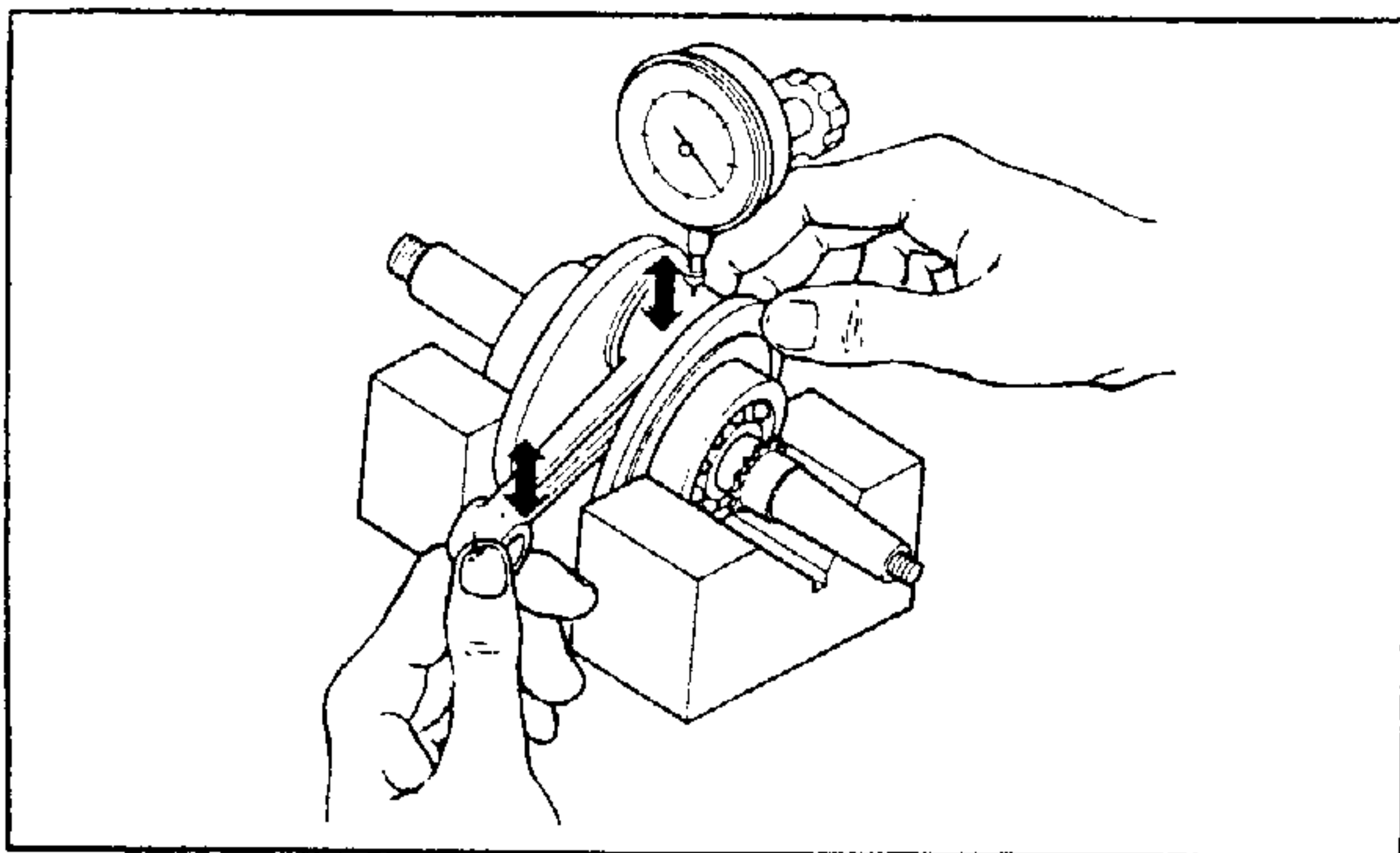


Fig. 44

2. Measuring the connecting rod side play.
Measure the amount of connecting rod side play using a thickness gauge (Fig. 43).

mm (inch)	
Standard Value	Serviceable Limit
0.1~0.35 (0.004~0.014)	Replace if over 0.80 (0.0315)

3. Measuring the radial clearance of the connecting rod large end bearing.
Measure the amount of clearance at the connecting rod large end with a dial gauge (Fig. 44).

mm (inch)	
Standard Value	Serviceable Limit
0.12 max. (0.0005 max.)	Replace if over 0.5 (0.002)

Reassembly

Perform the reassembly in the reverse order of disassembly.

3.8 Transmission

Description

The transmission incorporates the constant-mesh 3-speed gears.

The CT 70 H incorporates the constant-mesh 4-speed transmission.

The power train of the transmission is shown below.

(ST 50·70, CT 70)

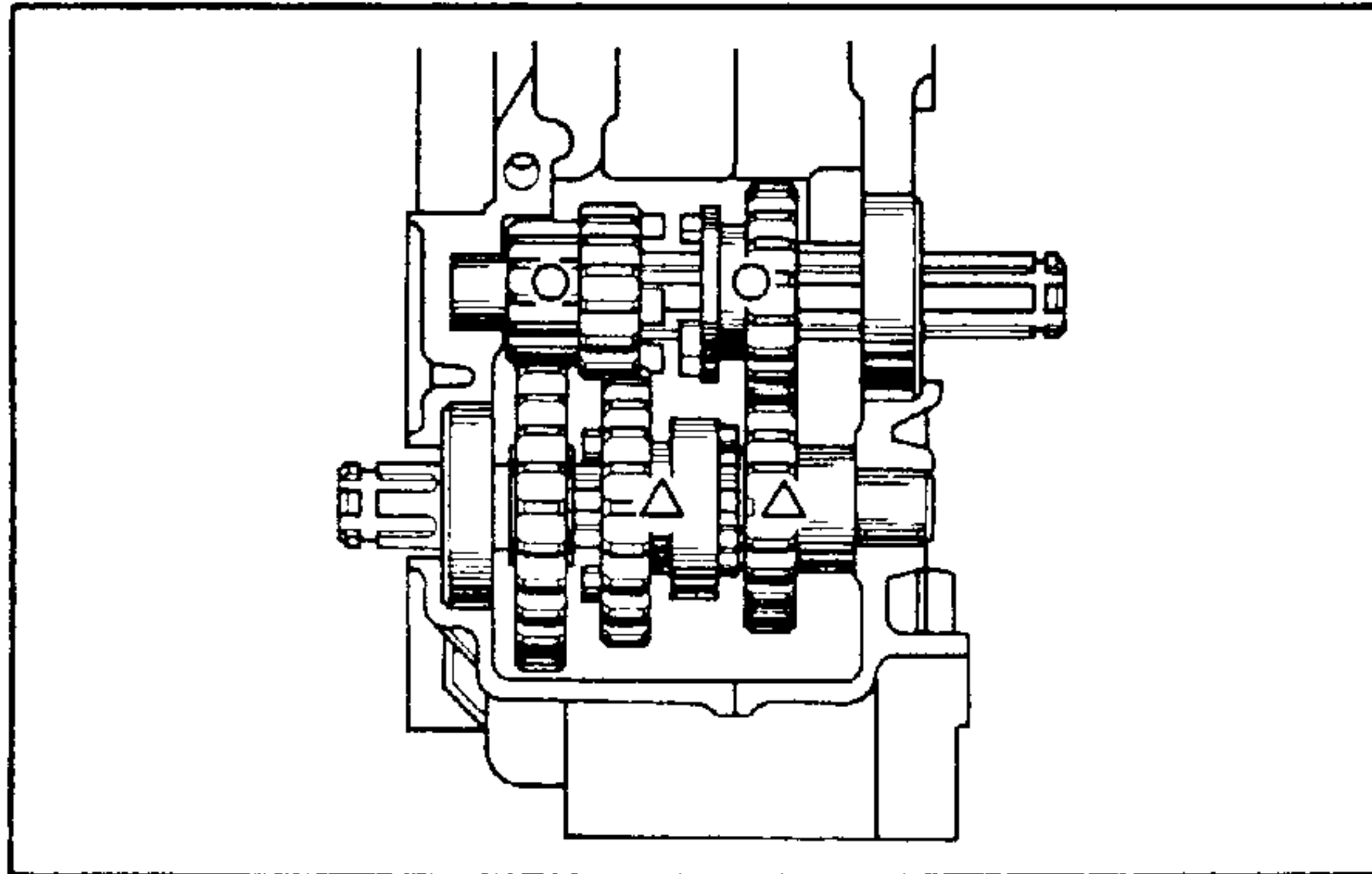


Fig. 45 Neutral position

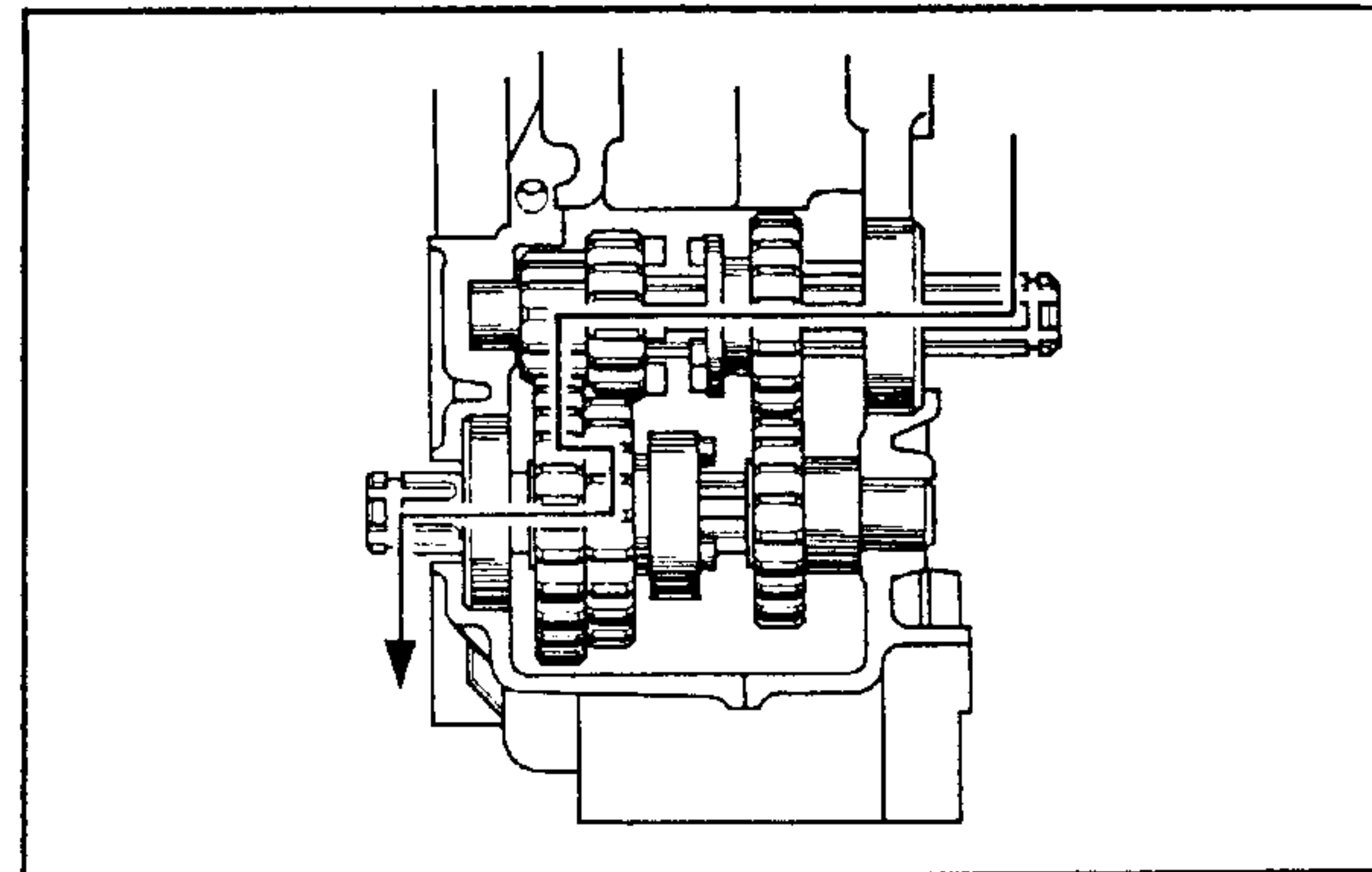


Fig. 46 Low gear position

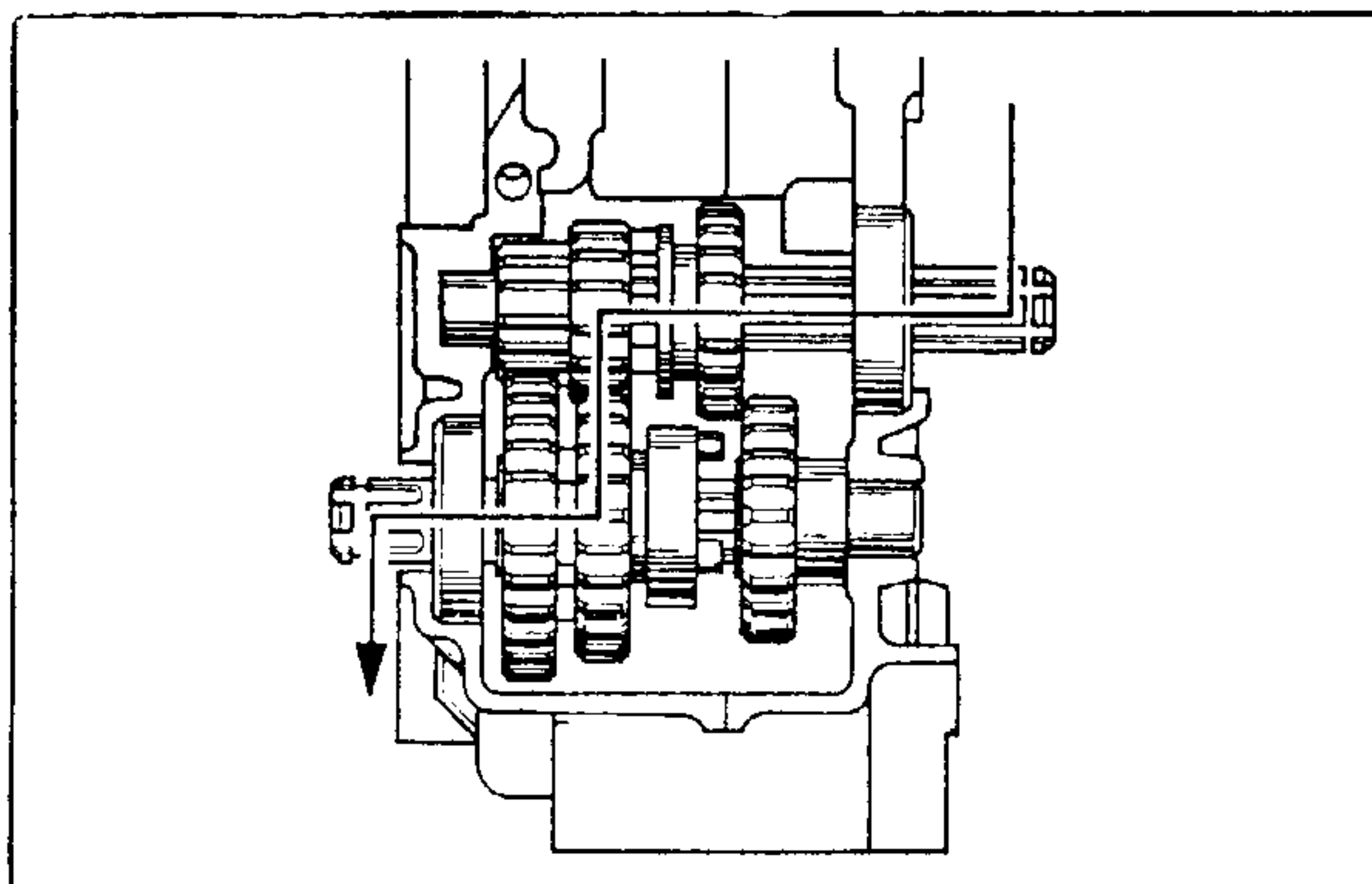


Fig. 47 Second gear position

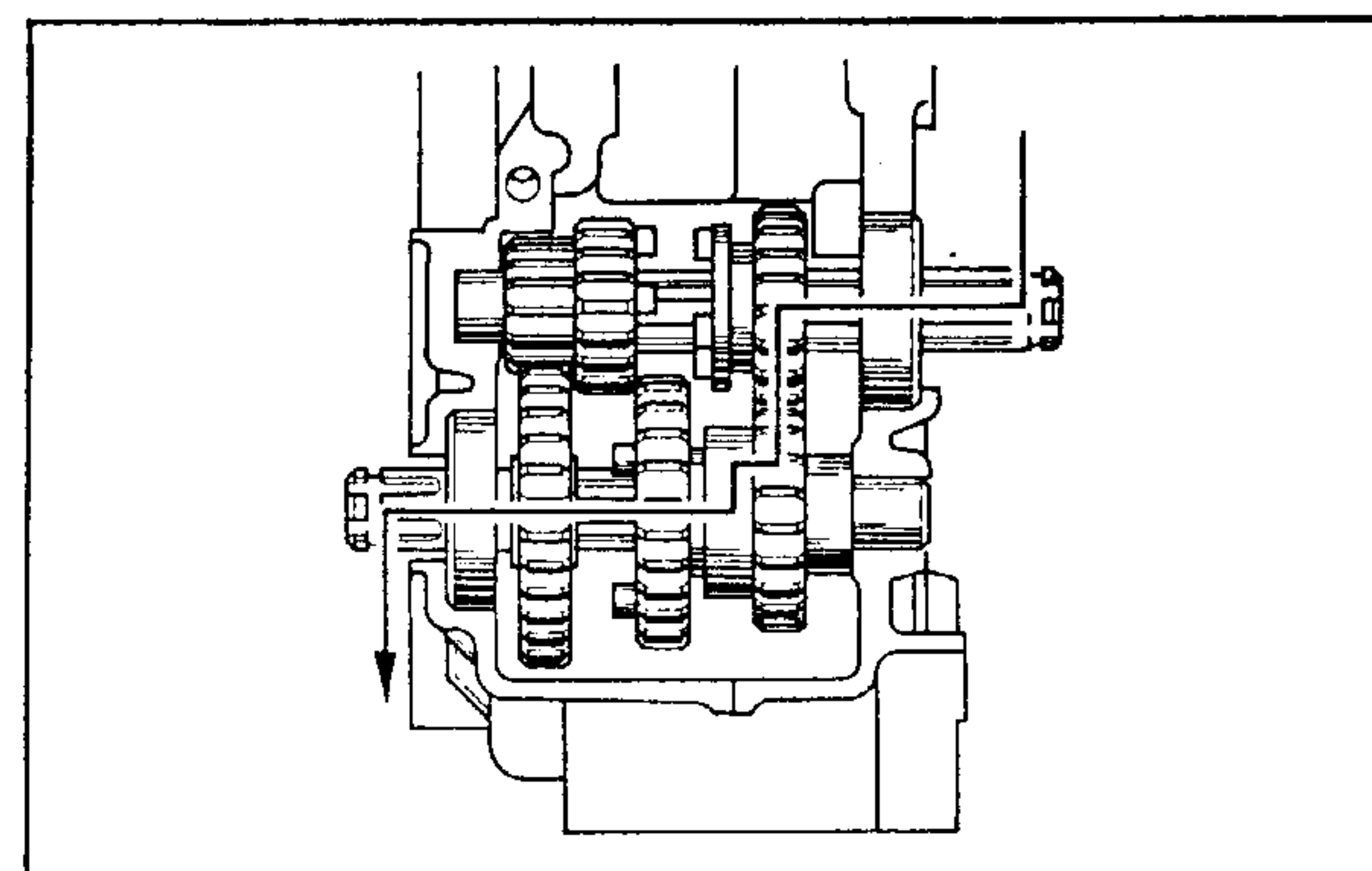


Fig. 48 Third gear position

(CT 70 H · HKI, CT70 · K1 · K2 · K3)

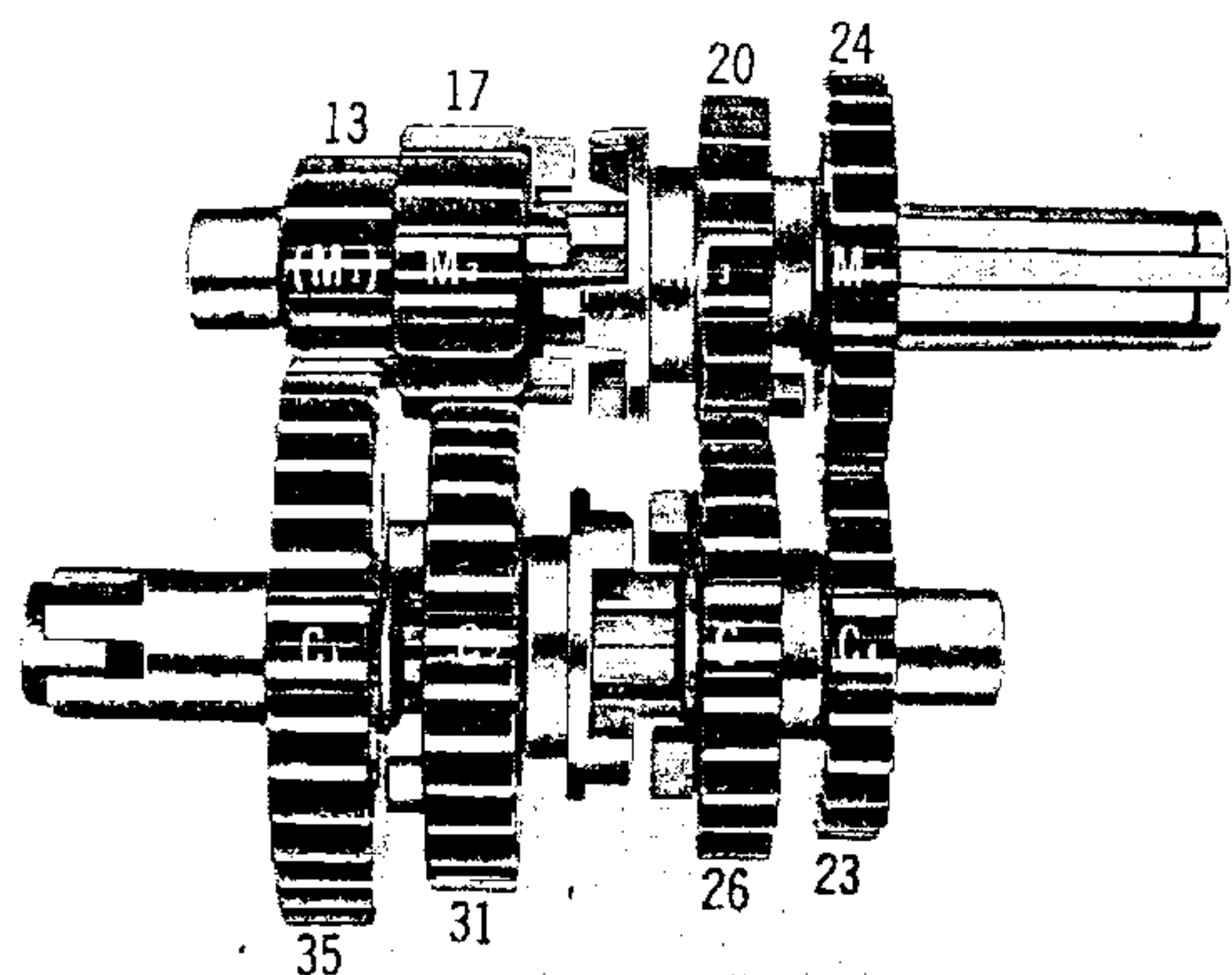


Fig. 48-1 Neutral position
① Mainshaft ② Countershaft

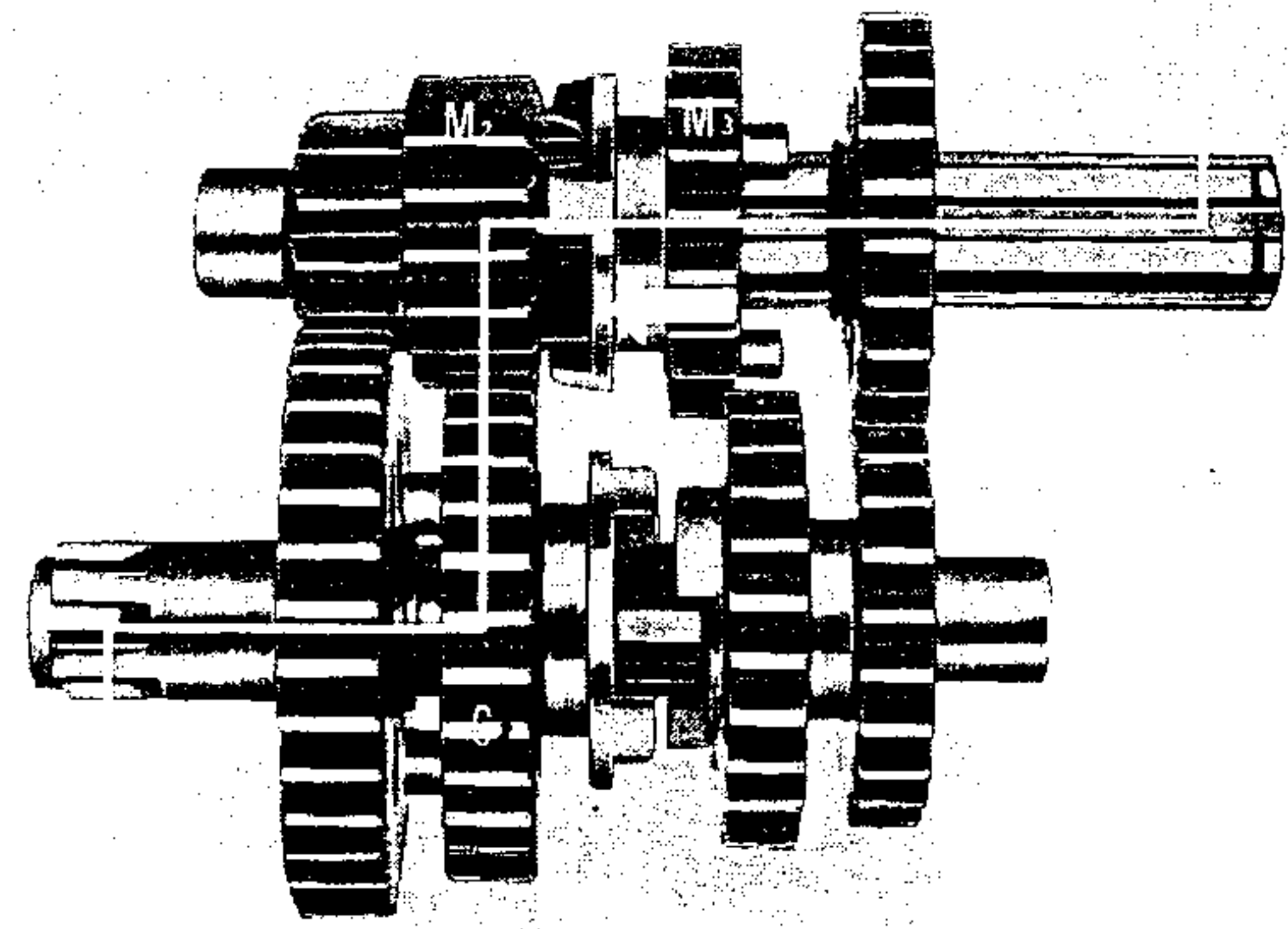


Fig. 48-3 Second gear position

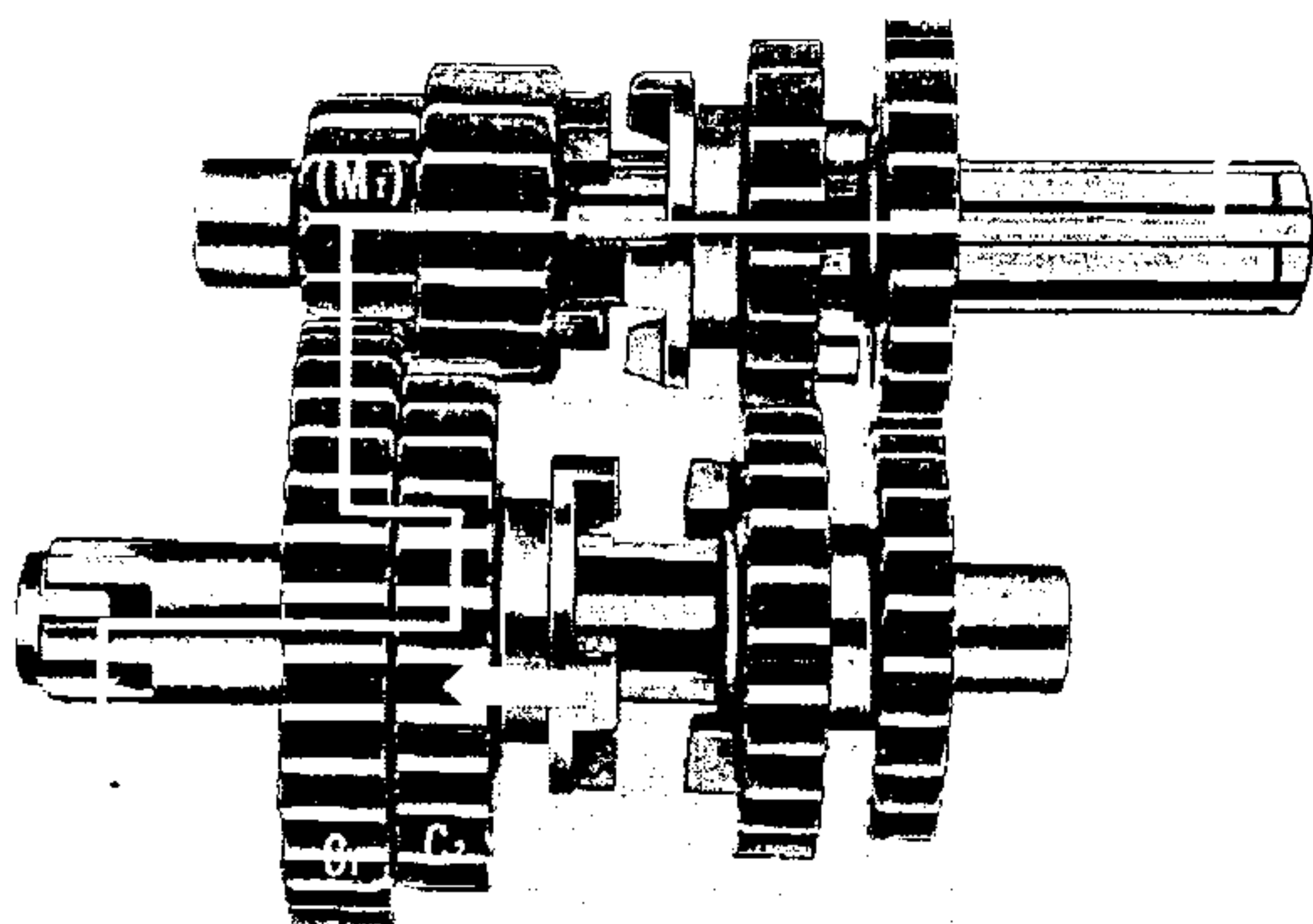


Fig. 48-2 Low gear position

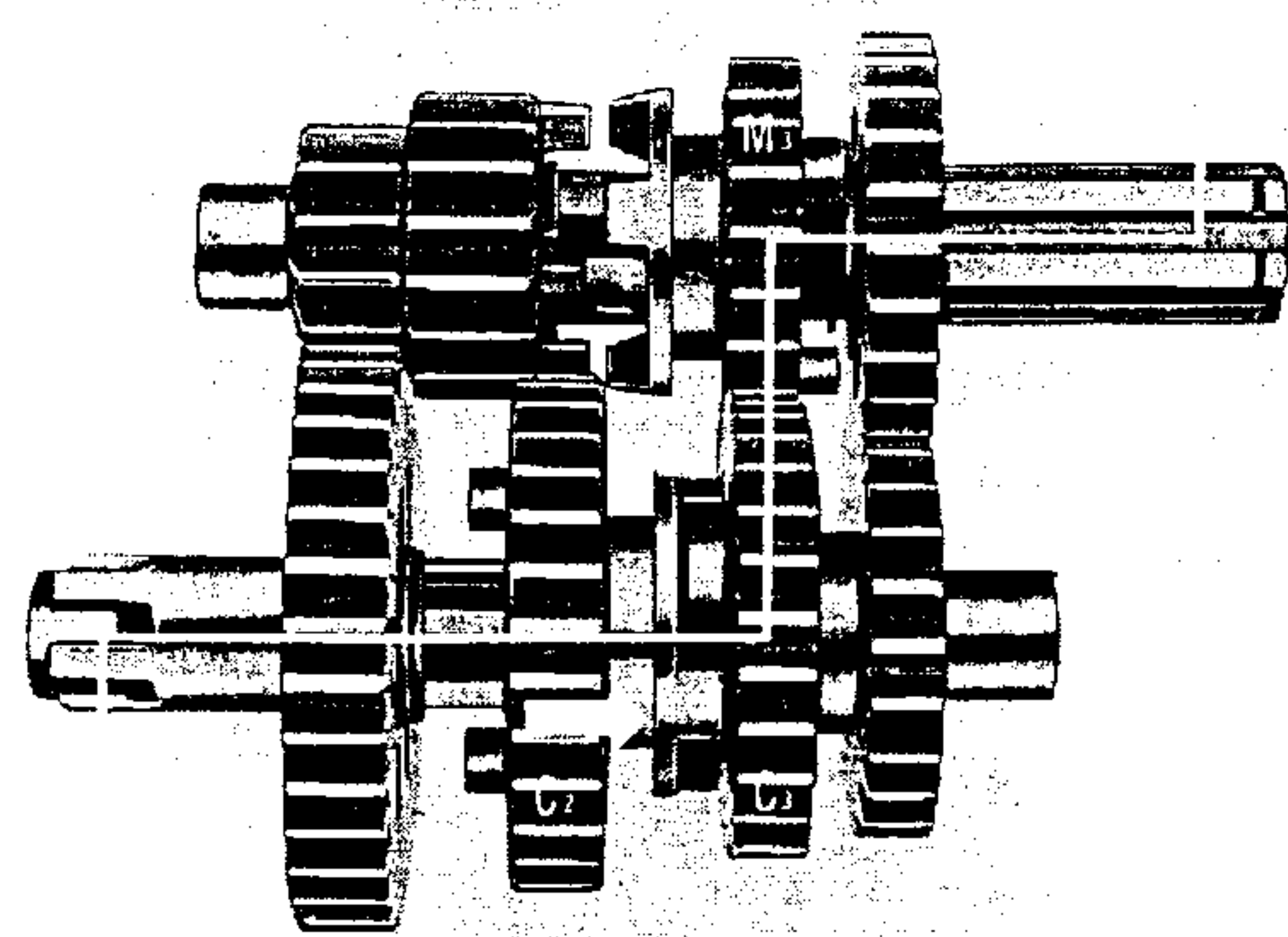


Fig. 48-4 Third gear position

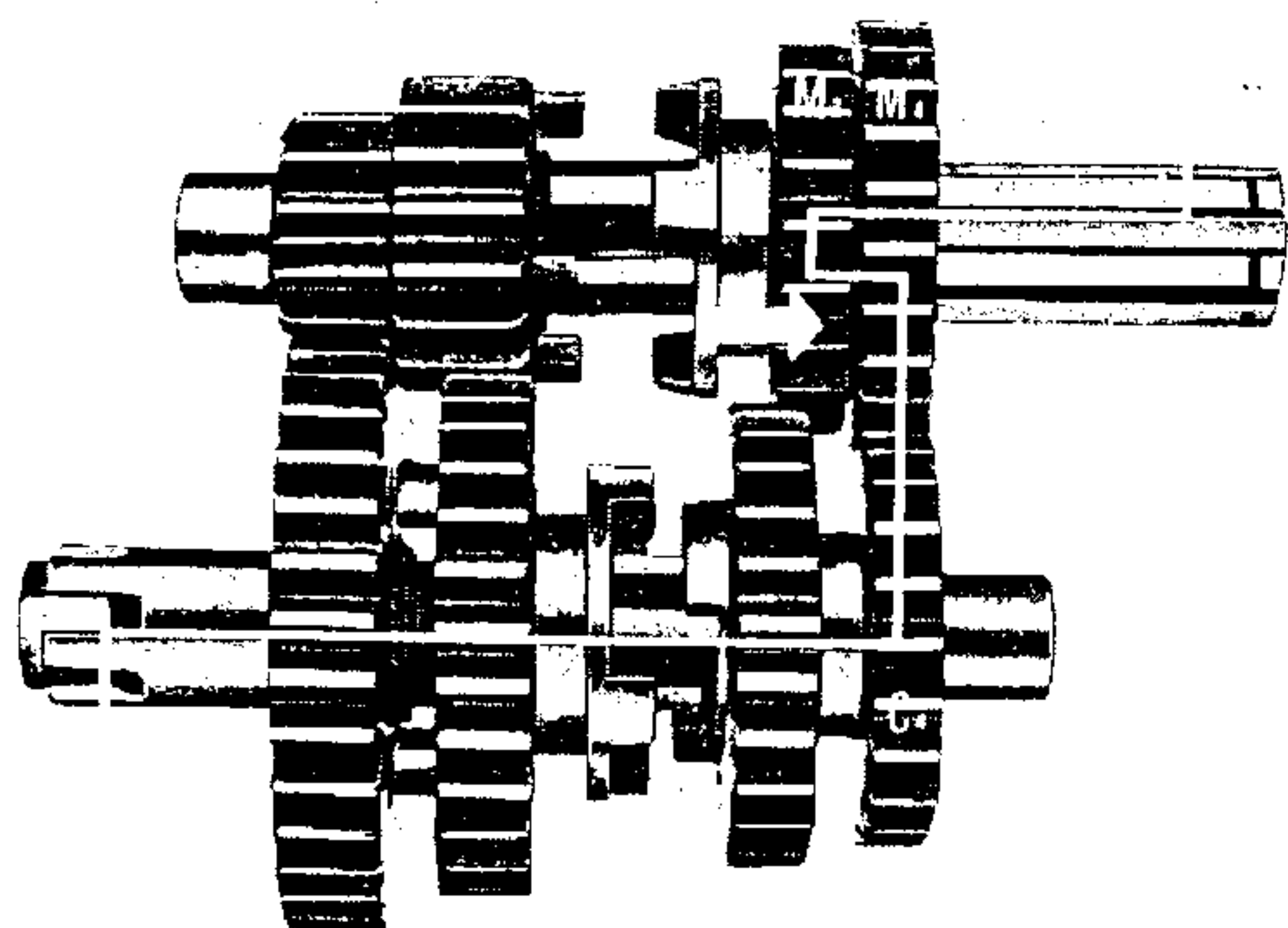


Fig. 48-5 Top gear position

Disassembly

Perform the disassembly according to section Crankshaft Disassembly. Remove the right crankcase and separate the mainshaft assembly, countershaft assembly and the gear shift fork assembly as a unit.

Inspection

mm (inch)

Item	Standard Value	Serviceable Limit
Gear backlash	0.09~0.18 (0.0035~0.0070)	Replace if over 0.25 (0.010)
Clearance between gear and shaft (mainshaft and gears)	0.02~0.06 (0.001~0.0025)	Replace if over 0.1 (0.004)
Clearance between gear and shaft (Countershaft and gears)	0.032~0.077 (0.0013~0.0030)	Replace if over 0.1 (0.004)

Reassembly

Perform the reassembly in the reverse order of disassembly.

Note:

1. Note the right position of each component referring to Fig. 47~50.
2. Replace all circlips with new ones.
3. After combining the right crankcase with the left crankcase, check the transmission if it engages smoothly in gears.

3.9 Gear Shift Mechanism

Description

The gear spindle arm which is connected to the gear shift spindle rotates the gear shift drum and this causes the gear shift fork to move left and right in the drum groove. The gear shift fork is controlled by the groove in the drum and this in turn causes the gears to slide and change gears.

Disassembly

1. Refer to the section on crankshaft disassembly on page 24. By removing the right crankcase, the gear shift drum and the fork assembly can be removed with the transmission gear as a complete unit.

Inspection

1. Measuring gear shift fork end thickness.
The shift fork end thickness is measured with a micrometer (Fig. 49).

mm (inch)		
Item	Standard Value	Serviceable Limit
Right side	5.5~6.3 (0.217~0.248)	Replace if under 5.3 (0.209)
Left side	4.5~5.3 (0.177~0.209)	Replace if under 4.3 (0.169)

2. Measuring the inside diameter of the gear shift fork.
The inside diameter of the gear shift fork is measured with a cylinder gauge or an inside micrometer (Fig. 50).

inch (mm)	
Standard Value	Serviceable Limit
34.0~34.03 (1.3385~1.3395)	Replace if over 34.2 (1.347)

3. Measuring the outside diameter of the gear shift drum
The diameter is measured with a micrometer (Fig. 51).

mm (inch)	
Standard Value	Serviceable Limit
33.95~33.98 (1.3366~1.3377)	Replace if under 33.9 (1.335)

4. Check the fork end for bending.

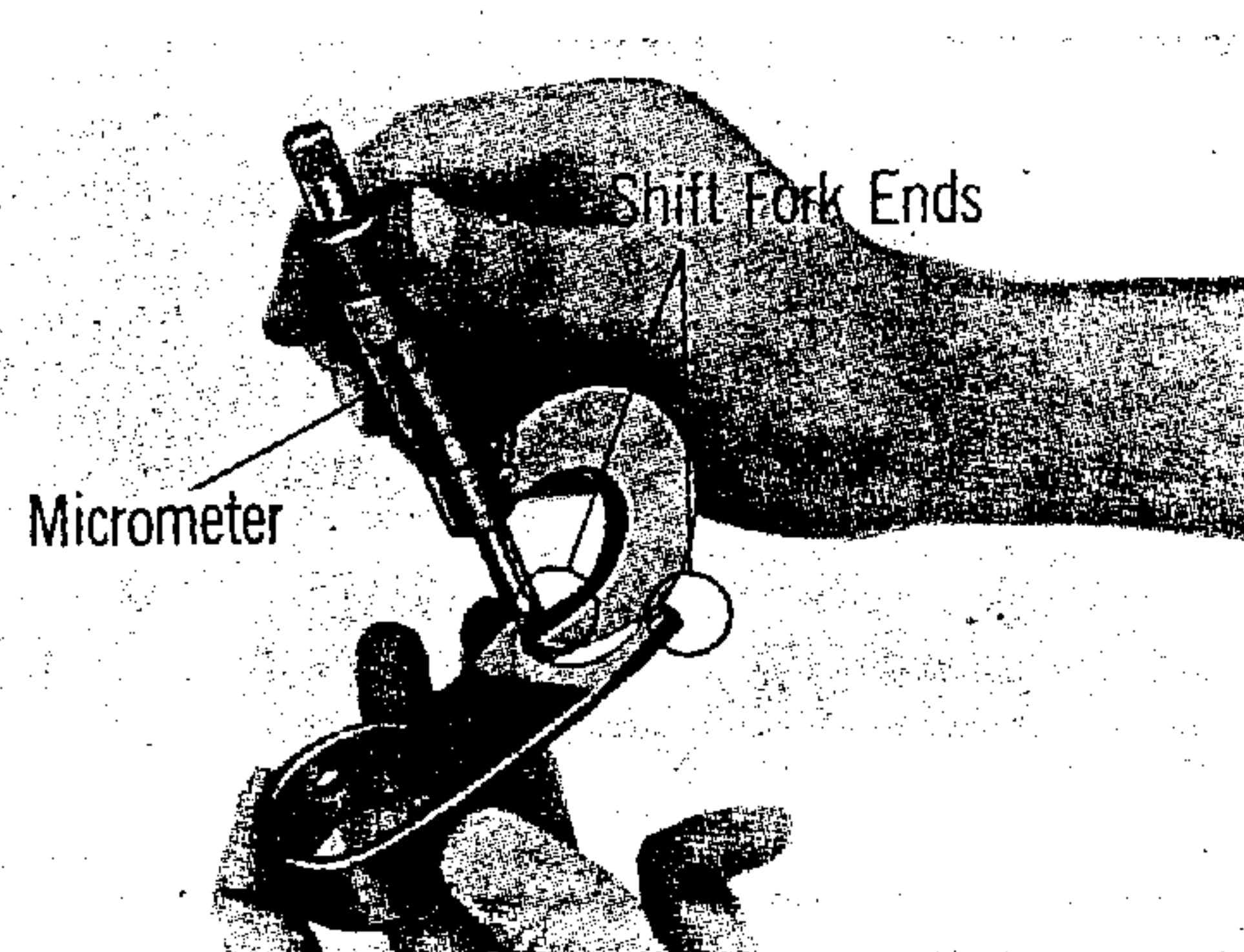


Fig. 49

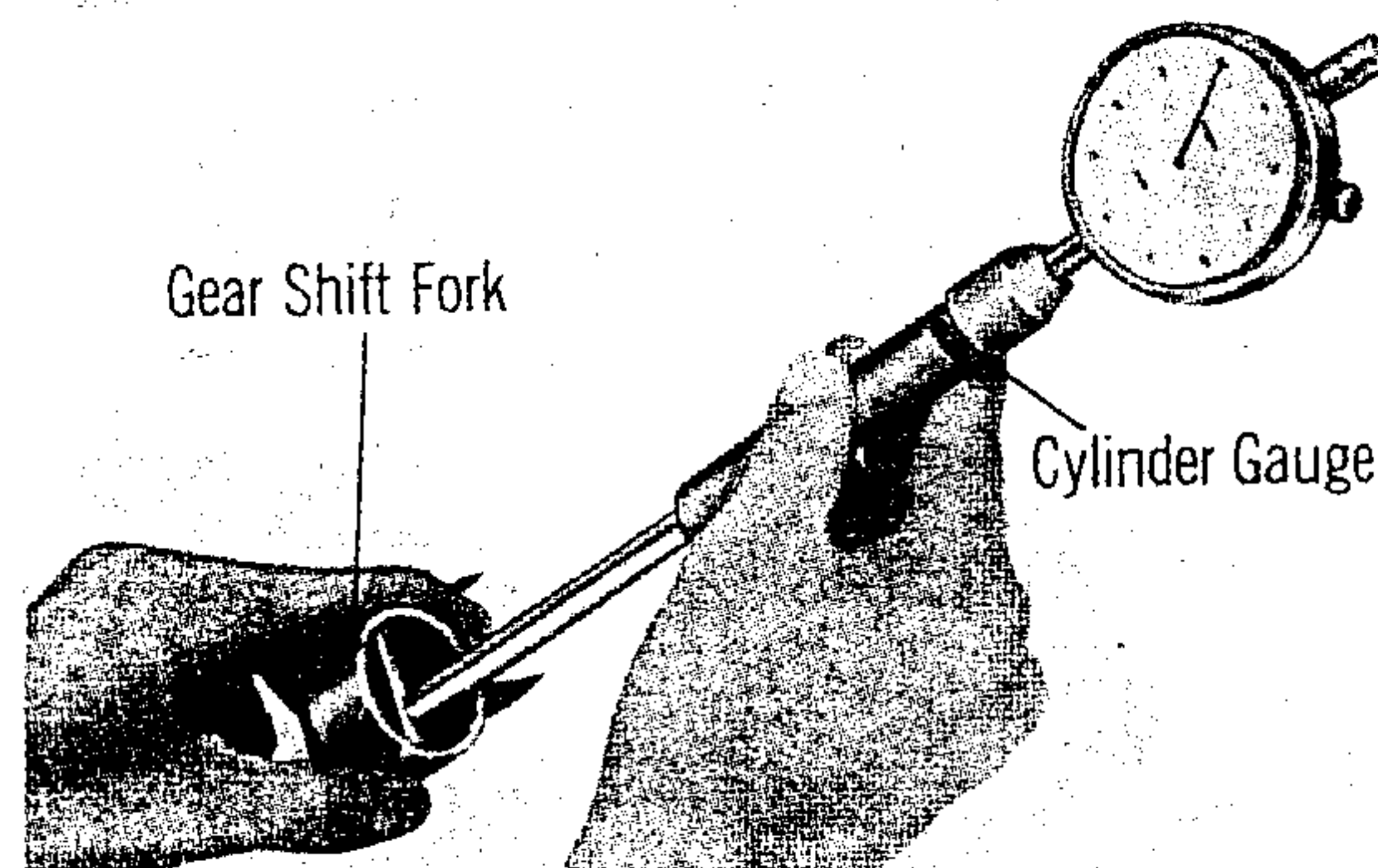


Fig. 50

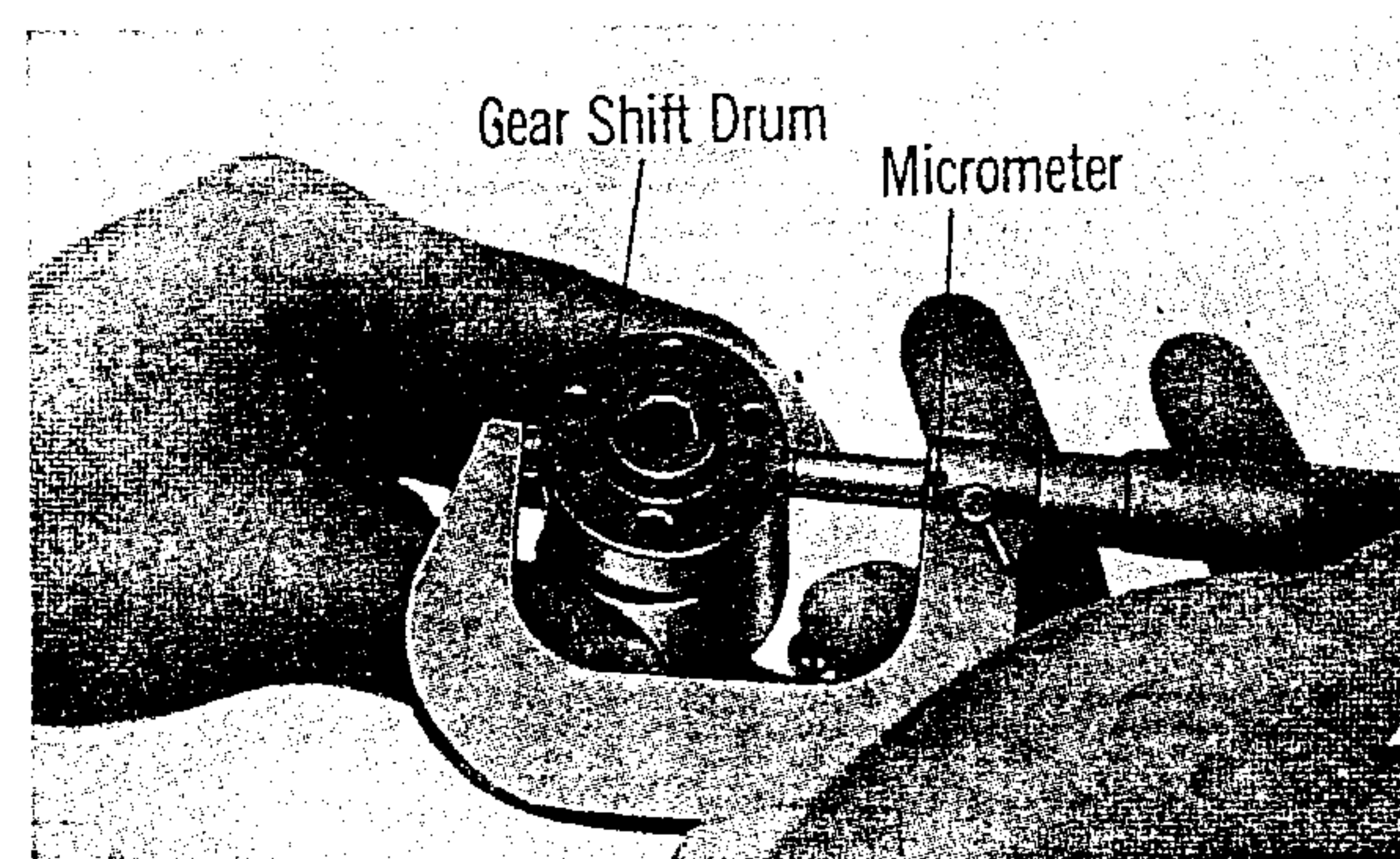


Fig. 51

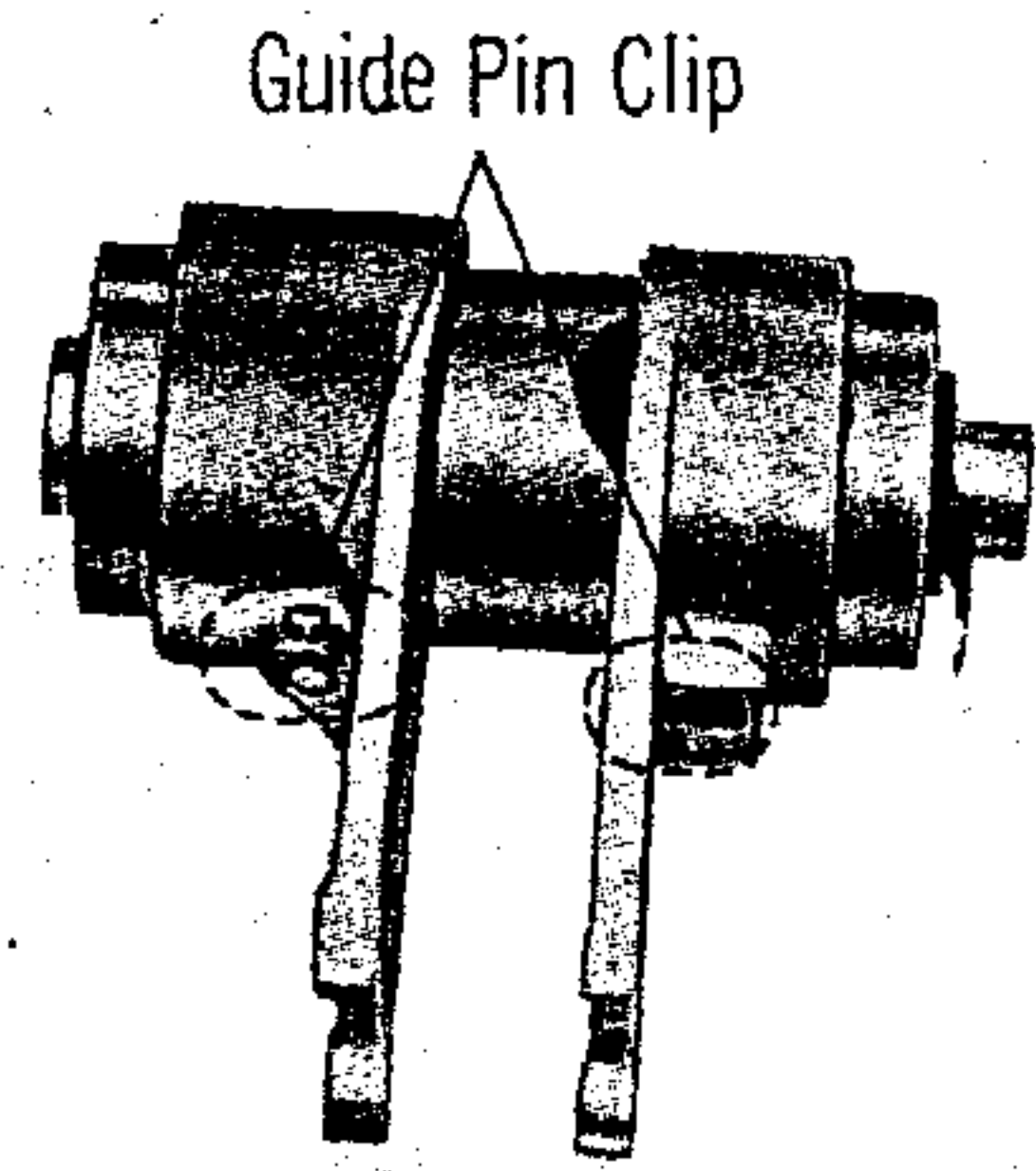


Fig. 52

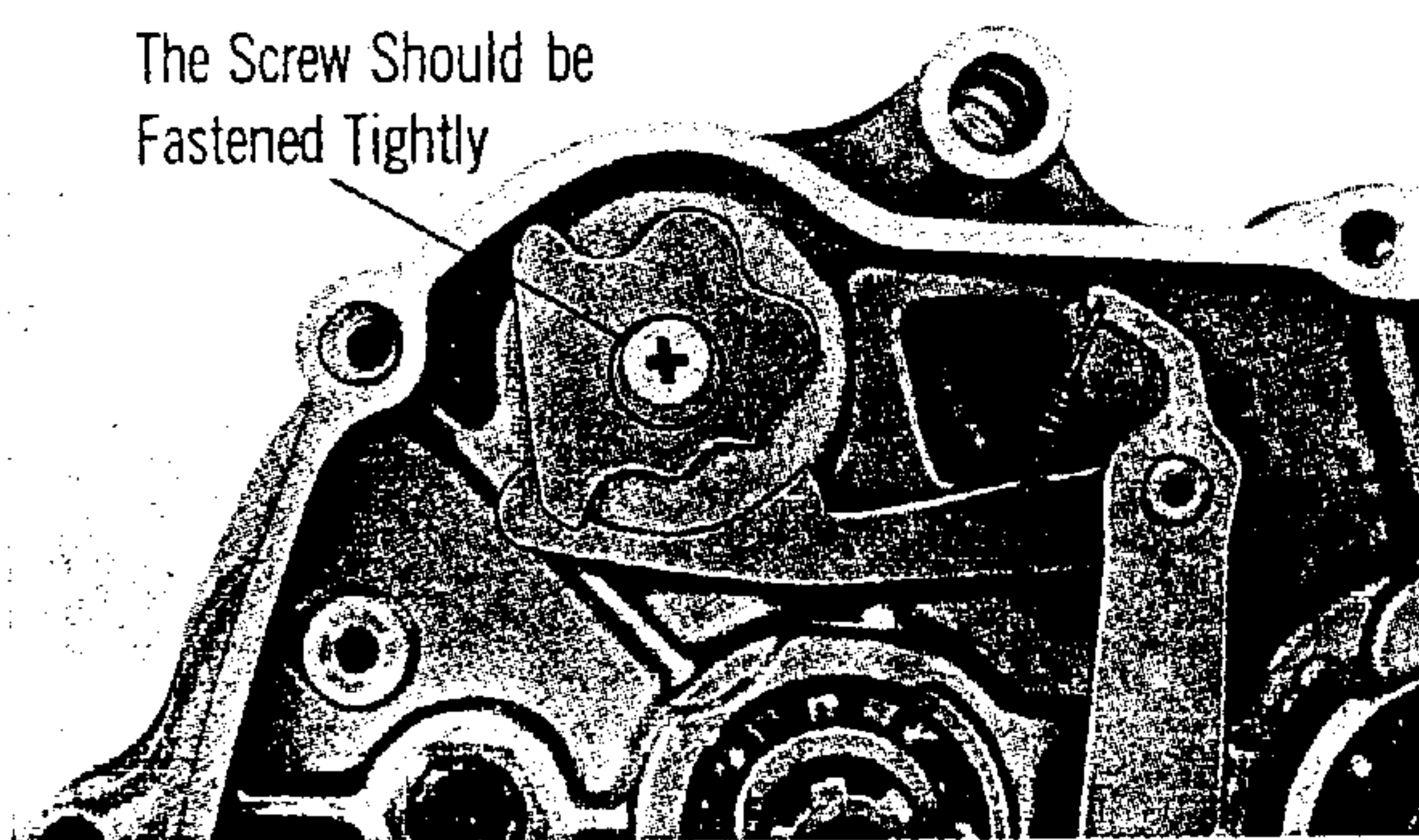


Fig. 53

Reassembly

Perform reassembly in the reverse order of disassembly. Note the following items:

1. Make sure that the guide pin and guide pin clip are properly installed on the gear shift drum for both the right and left shift forks (Fig. 52).
2. Apply screw locking agent to the stopper Plate fixing screw (Fig. 53).
3. Check that the transmission gears engage smoothly.

3.10 Kick Starter

Stepping on the kick starter will move the pinion, which is locked by the acme threads, to the left and meshed with the countershaft low gear and transmits the force to the crankshaft to start the engine.(Fig. 54).

Instruction for assembly

- 1) After completing the assembly, do not forget to install the circlip. Replace with a new part.
- 2) Assemble the parts in the position shown in the figure below.

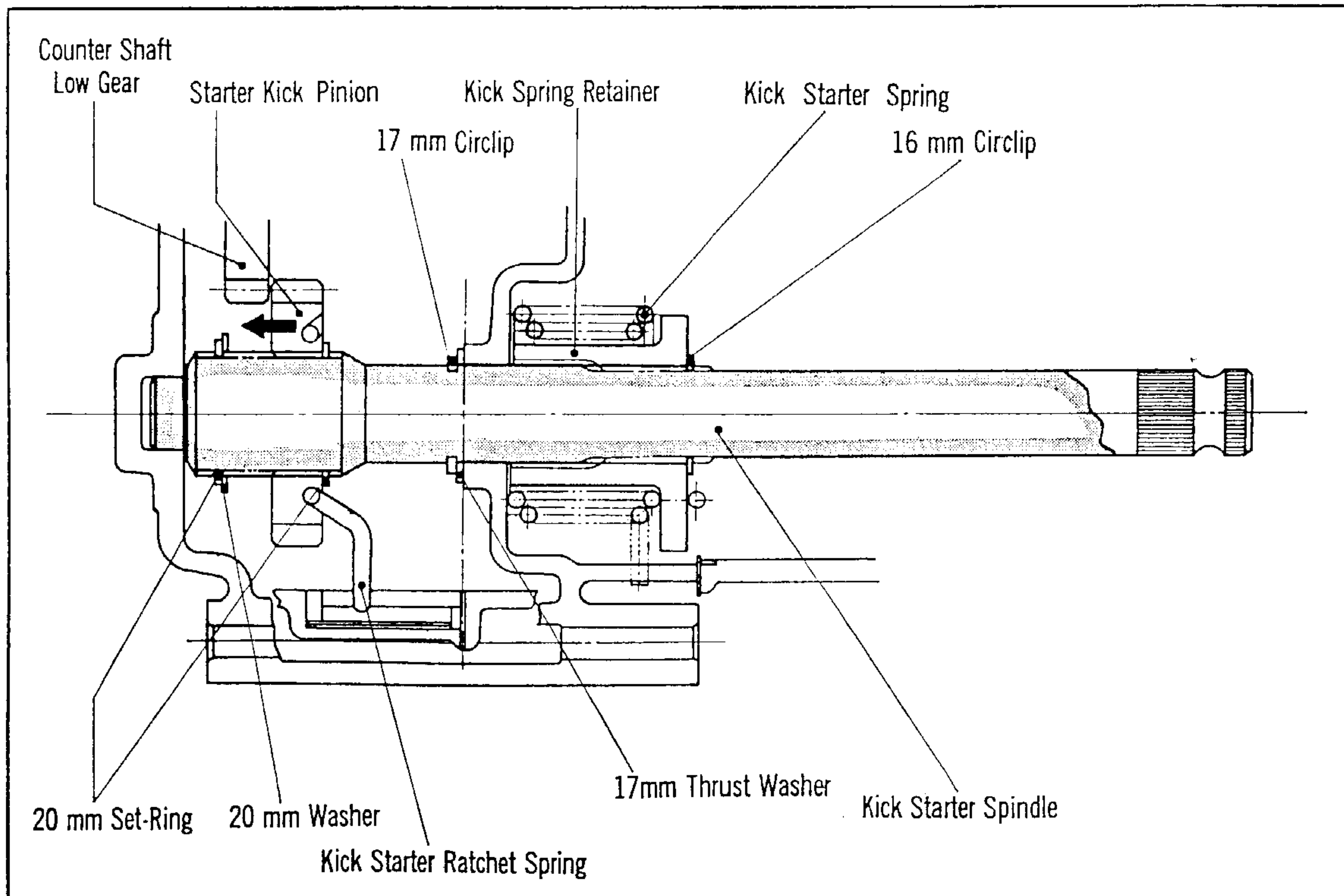


Fig. 54