Sprite-Barracuda SHOP MANUAL

125cc - 200cc - 250cc FOUR AND FIVE SPEED

INDEX

PRICE $3.00

COSMOPOLITAN MOTORS, INCORPORATED
JACKSONVILLE & MEADOWBROOK ROADS, HATBORO, PA. 19040 **(215) OS 2-9100**

ENGINE - Single cylinder 4 stroke - Over head valves - Bore 54 mm. - Stroke 54 mm. - Cylinder displacement 123,7cc. - Compression ratio 9,5 to 1 - CV. 16 at 8.800 R.P.M. - Distribution with standard cam - Intake open 30° BTDC - Intake close 75° ABCD - Exhaust open 75° BBDC - Exhaust close 30° ATDC - Valve clearance with hot motor 0.006" - Forced lubrication by gear pump 60 L/H Oil capacity 2 qts - Gravity fuel supply 98 to 100 octane - Carburetor UB 22 BS - Ignition by alternator flywheel magneto with external H.T. coil - Ignition advance 19° - Plus automatic advance of 25° - Point gap 0.016" - Marelli Plug CW 260 L - Champion plug N. 3 - With multiplate clutch - Costant mesh gear box - Foot shift pedal - Primary transmission by helicoidal gears - Secondary transmission by chain 1/2" x 5/16".
FRAME - Combination of pressed steel and tubular - Double action hydraulic front fork - Rear swing arm with adjustable hydraulic shock absorbers.

TIRES - Pirelli 2.75 x 18" (rib.) front wheel - 3.00 x 18" (univ.) rear wheel - Expanding type brakes.

LIGHTING EQUIPMENT - Alternating current 6V 7 amp equipped with battery to ensure steady supply of current to lights and horn - Large 130 mm. headlight - Headlight: 6V 25/25 S. B.

OVERALL DIMENSIONS - Length 76.44" - Width 27" - Height 36.64" Weight 229 lbs. (DRY) - Fuel tank capacity 3,5 gallons - Reserve .05 gallons - Maximum speed 78 MPH - Fuel consumption 90 MPG.

MOTORCYCLE 200cc. (Technical data different from 125cc.)

ENGINE - Bore 66,5 mm. - Stroke 57 mm. - Cylinder displacement 197,9cc. - Compression ratio 8,8 to 1 - CV. 19,5 at 8.600 R.P.M. - Carburetor UB 22 BS - Ignition advance 9° 30' - Plus automatic advance of 29° with flywheel magneto ADP 79/AN.
(**Note:** with flywheel magneto ADP 54/2ANB ignition advance 17° - plus automatic advance of 25°).

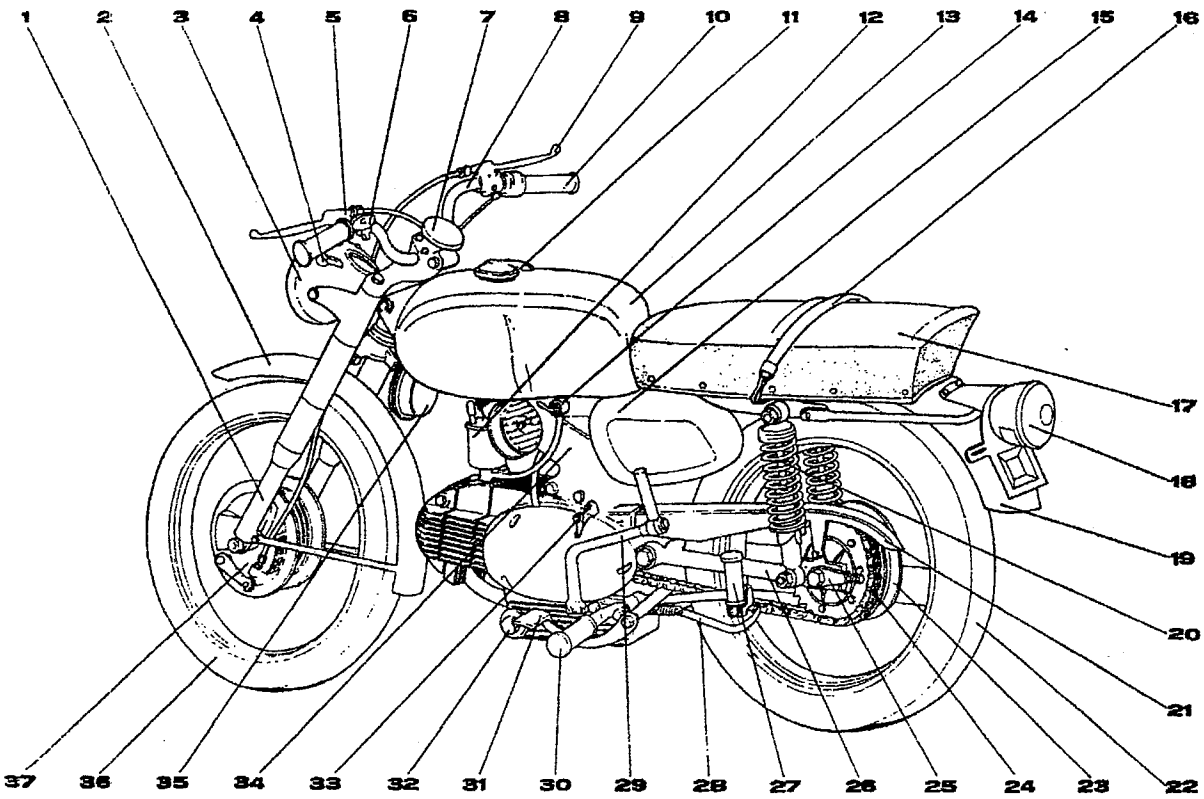
TIRES - Pirelli 3.00 x 18" rib. front wheel - 3.00 x 18" univ. rear wheel.

OVERALL DIMENSIONS - Weight 231 lbs. (DRY) - Maximum speed 90 MPH - Fuel consumption 85 MPG.

MOTORCYCLE 250cc. (Technical data different from 125cc.)

ENGINE - Bore 74 mm - Stroke 57 mm - Cylinder displacement 245.1cc. - Compression ratio 8,5 to 1 - CV. 24 at 8.500 R.P.M. - Carburetor UB 24 BS 2 - Ignition advance 9° 30' - Plus automatic advance of 29° with flywheel magneto ADP 79/AN and ADP 78/2ANB.
TIRES - Pirelli 3.00 x 18" univ. front wheel - 3.25 x 18" univ. rear wheel.

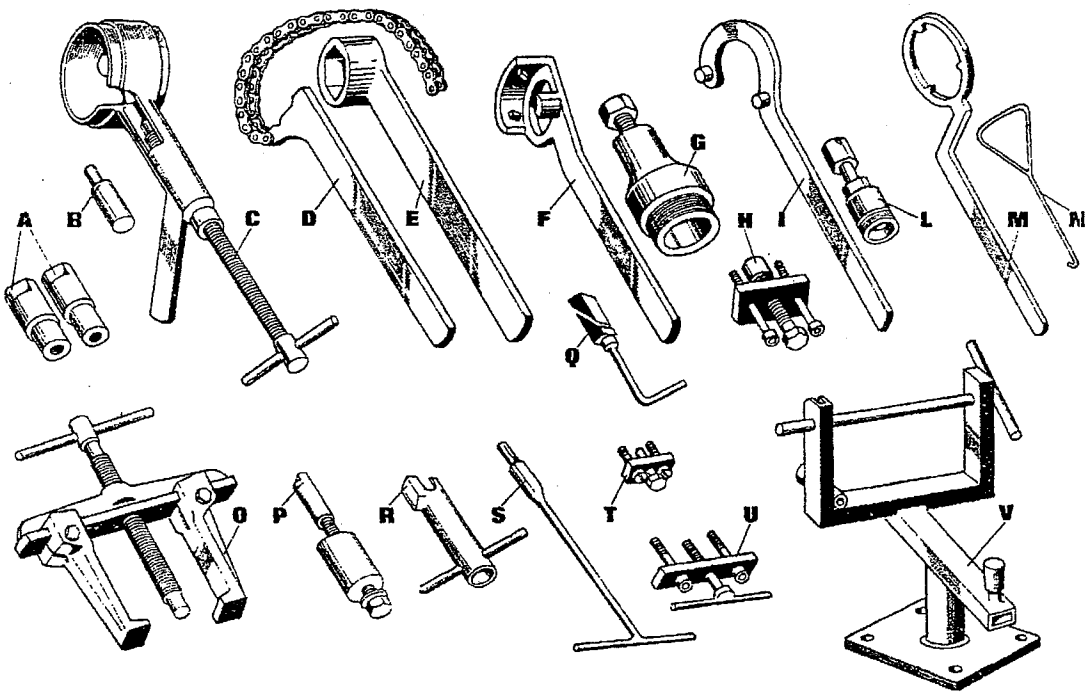
OVERALL DIMENSIONS - Weight 232 lbs. (DRY) - Maximum speed 95 MPH - Fuel consumption 80 MPG.



1	Front fork	14	Petcock	27	Rear foot rest
2	Front fender	15	Tool box	28	Stand
3	Headlamp	16	Strap	29	Kickstart
4	Switch key	17	Seat	30	Foot rest
5	Clutch lever	18	Rear light	31	Brake pedal
6	Dimmer switch	19	Rear fender	32	Oil drain plug
7	Damper	20	Shock absorber	33	Clutch adjuster
8	Handlebar	21	Chain guard	34	Frame
9	Front brake lever	22	Rear wheel	35	Horn
10	Throttle control	23	Rear hub	36	Front wheel
11	Gas cap	24	Chain	37	Front hub
12	Carburetor	25	Chain adjuster		
13	Gastank	26	Rear fork		

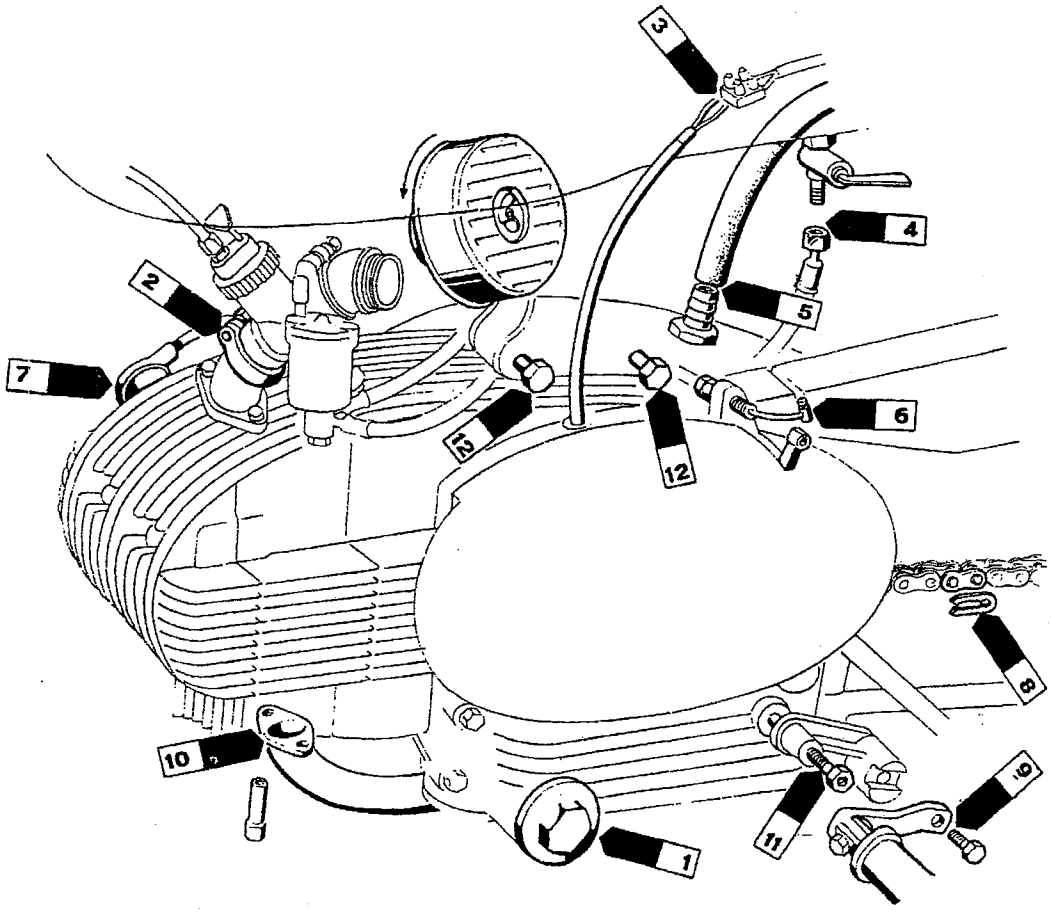
SPECIAL TOOLS

Special tools are made in order to facilitate disassembly and reassembly operations, and used with metric wrenches, will enable you to perform all necessary operations.



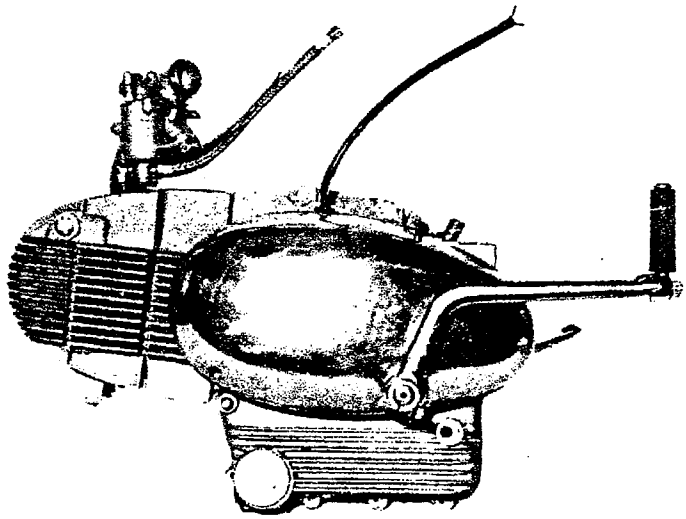
A	Thread protecting bushings	138&139/MB
B	Piston pin shaft extractor	144/MB
C	Piston extractor	
D	Countershaft sprocket holder	141/MB
E	Countershaft sprocket wrench	140/MB
F	Engine pinion holder	131/MB
G	Engine pinion puller	143/MB
H	Engine pinion puller	146/MB
I	Flywheel magneto holder	132/MB
L	Flywheel magneto extractor	137/MB
M	Clutch hub holder	130/MB
N	Clutch spring tool	135/MB
O	Universal puller	133/MB
P	Cam follower bushing extractor	134/MB
Q	Crankshaft spacer	G 276
R	Kich starter spring holder	142/MB
S	5mm Allen wrench	G 262
T	Shifting drum puller	136/MB
U	Cam gear extractor	147/MB
V	Engine support	145/MB

Before performing any operation, it is advisable to thoroughly clean the machine, in order to prevent any dust particles from accumulating on engine components.

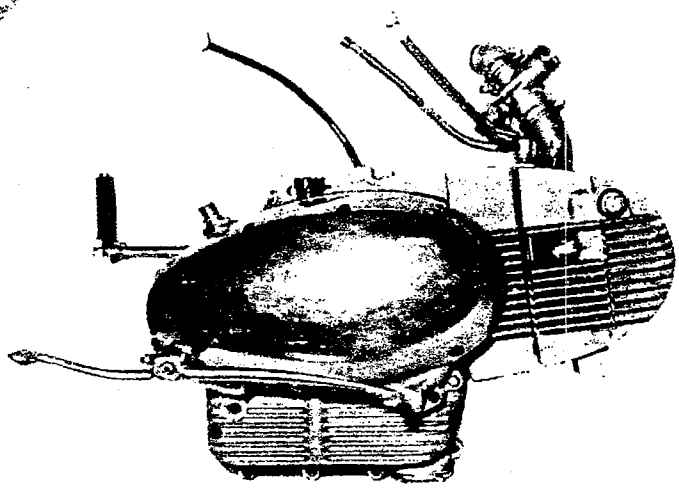


1) Remove engine oil, using 27mm wrench to unscrew oil plug. Then remove oil filter assembly.
2) Loosen carburetor clamp with 8mm wrench and pull out carburetor after air filter has been removed.
3) Remove electric wires from junction box.
4) Unscrew fuel lines with 12mm wrench.
5) Pull out engine breather tube.
6) Loosen clutch cable clamp and pull out cable.
7) Pull out the spark plug cap.
8) Remove with pliers, master link clip, master link and chain.
9) Unscrew foot peg bolts with 17mm wrench. Remove knurled nut of brake rod.
10) Remove exhaust pipe and muffler.
11) Unscrew lower engine stud nut using 17mm wrench - press out stud.
12) Remove upper engine studs nuts with 14mm wrench, also studs and engine from frame.

To reassemble, reverse above instructions.

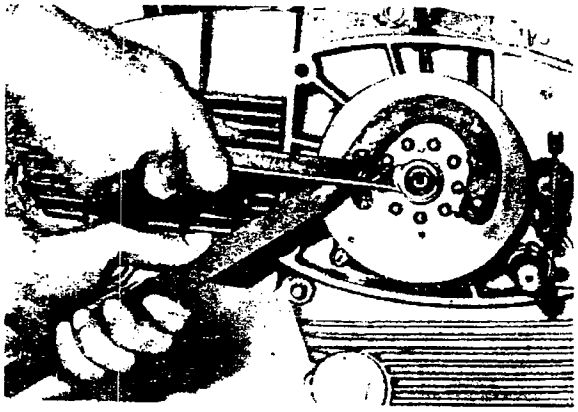


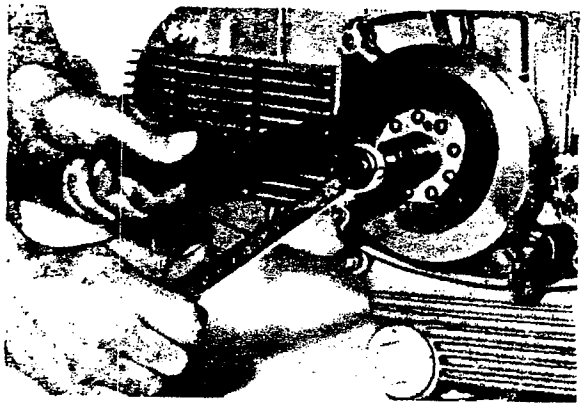
Engine view flywheel magneto side

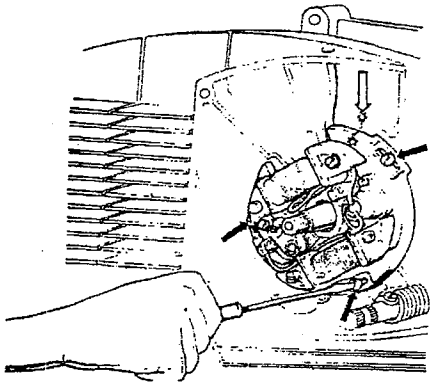


Engine view clutch side

NOTE:
Due to the unique characteristics of the engine, most of the operations shown in this book can be made with the engine on the frame. Only if the crankcase must be split, will engine have to be removed.
By removing the left hand cover, the flywheel magneto, clutch adjuster and countershaft sprocket are accessible.
By removing the right hand cover, the clutch, preselector components and cam distribution gears are visible. These are operated in oil bath, therefore, this cover must be perfectly sealed.
The cylinder head, rocker arm and cylinder are removable from the front side.







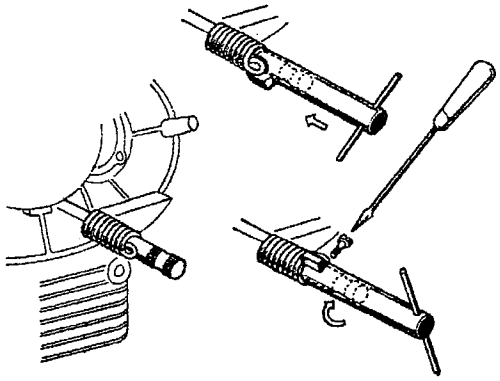
hand cover (flywheel magneto side) with tool S, removing the three fastening screws.

Remove the flywheel magneto nut, using 19mm wrench, holding at the same time, the flywheel with tool I.

Lock the flywheel puller L in position and with 22mm wrench, loosen the flywheel from crankshaft. Tap on the puller bolt slightly with a hammer if the flywheel is hard to remove.

Before removing the backing plate, it is advisable to made a reference mark on the crankcase in order to facilitate the reassembly operation.

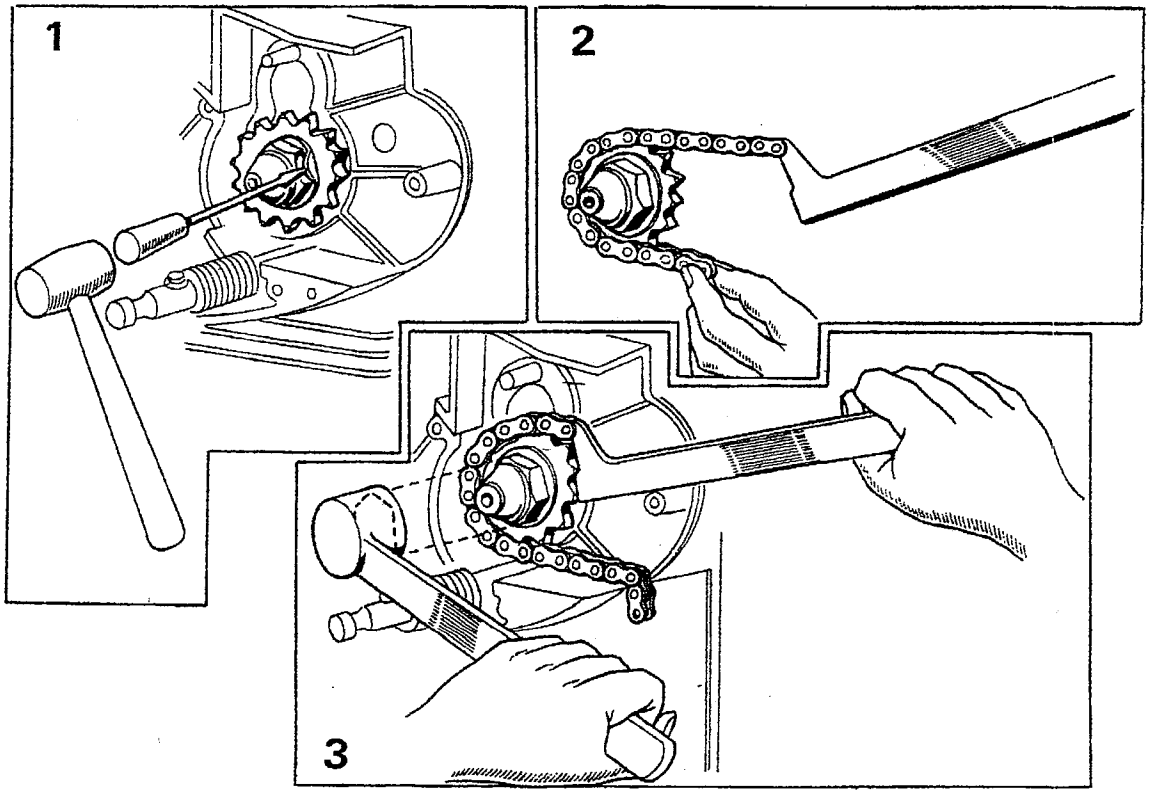
Remove clutch lever support screws using tool S. With screw driver, unscrew flywheel protection cover fastening screws.

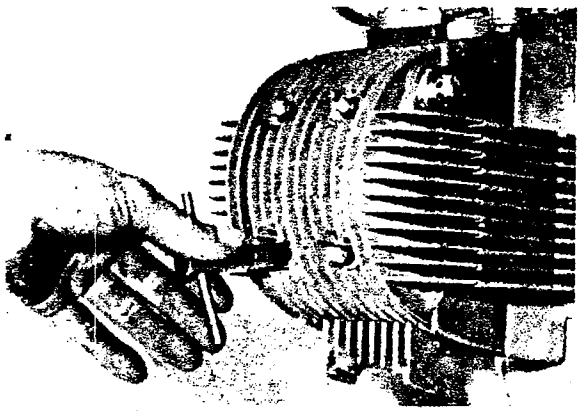


Holding kick starter spring with tool R, remove with screw driver the spring fastening screw.

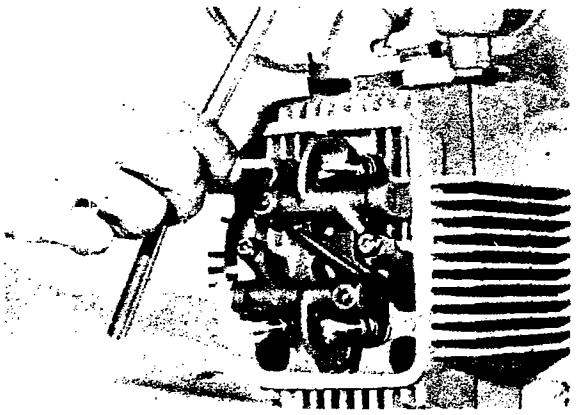
To remove countershaft sprocket it is necessary to:

1) Lift up the safety washer loop.
2) Install the special tool D.
3) Remove the nut with special wrench E, holding at the same time the countershaft sprocket with tool D.

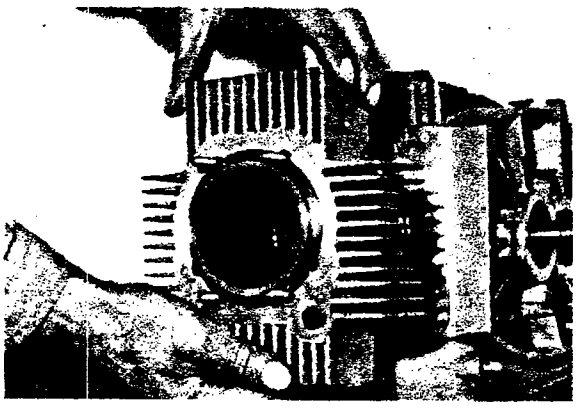




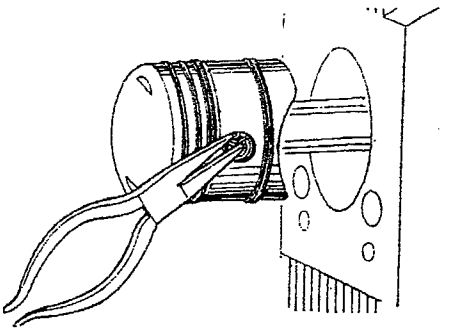
With 10mm socket wrench, remove the 4 rocker cover fastening screws. Pull out cover and aluminum gasket.



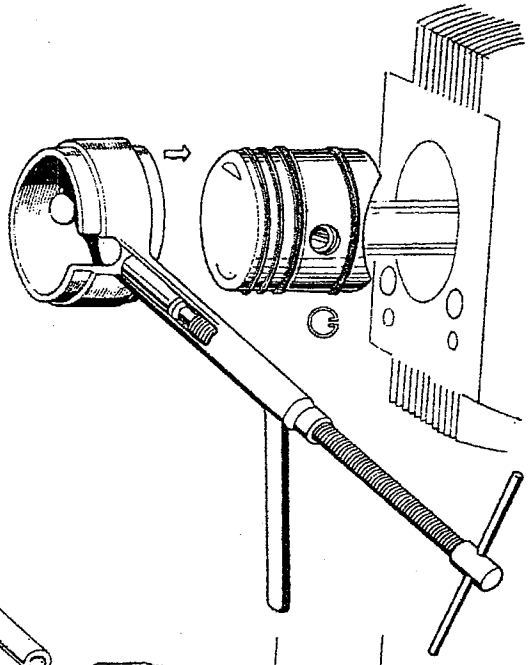
Before removing with 12mm socket wrench, the four cylinder head nuts, be certain that the piston is in compression stroke position. Pull out the rocker arm support carefully in order not to damage the threads of the cylinder studs.



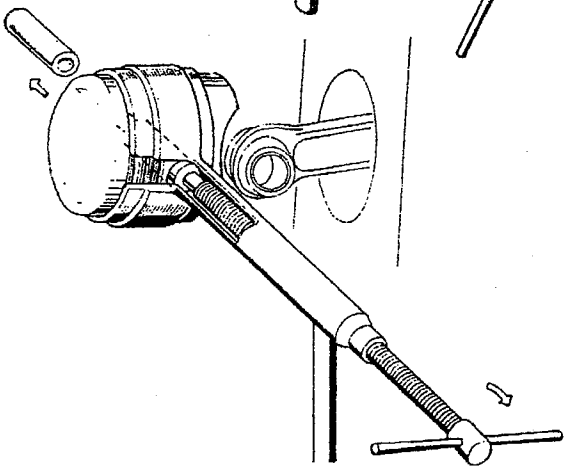
Pull out the cylinder head, gasket, cylinder and base gaskets.



Remove with plyers the two piston pin circlips.



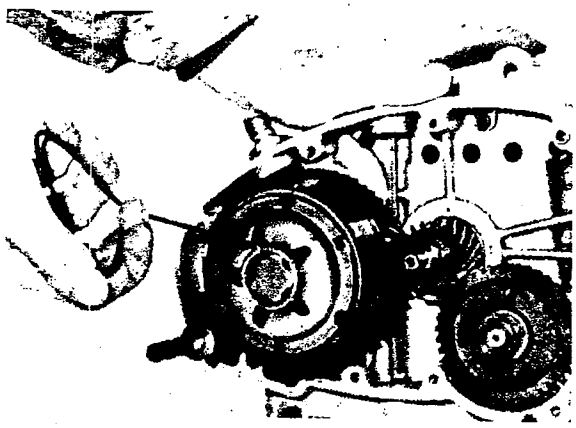
Insert the pin B in the tool C. Install the tool C on the piston. (It is advisable to slightly heat the piston before removing the pin).



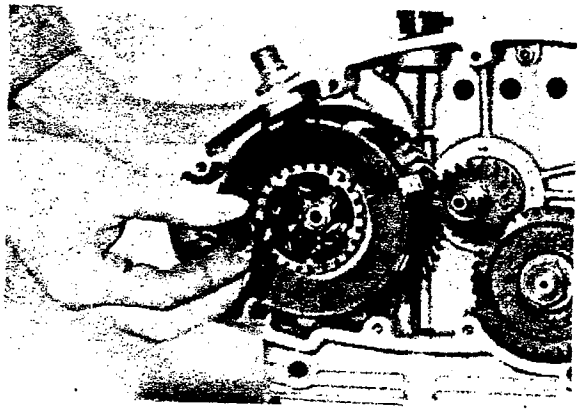
Turn the spindle until the piston pin is removed from the connecting rod.

NOTE: It is not necessary to remove the piston rings, to remove the piston.

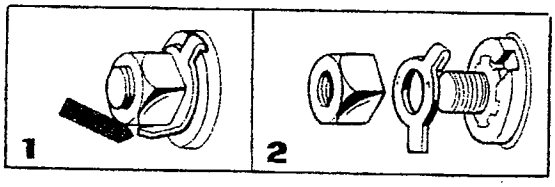
After the shifting lever has been removed, unscrew the 10 Allen screws with the tool S. Tapping slightly with plastic hammer, pull out cover.

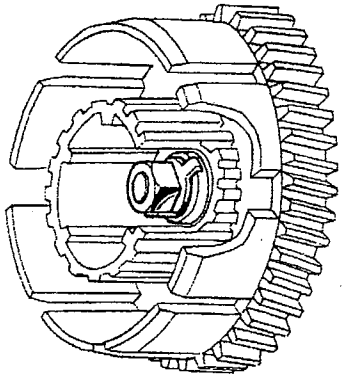


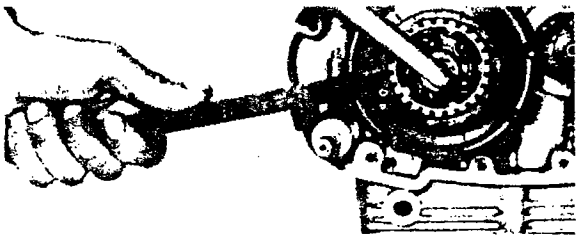
Dismantling of the clutch
With the special curved tool N, disconnect the five clutch springs.



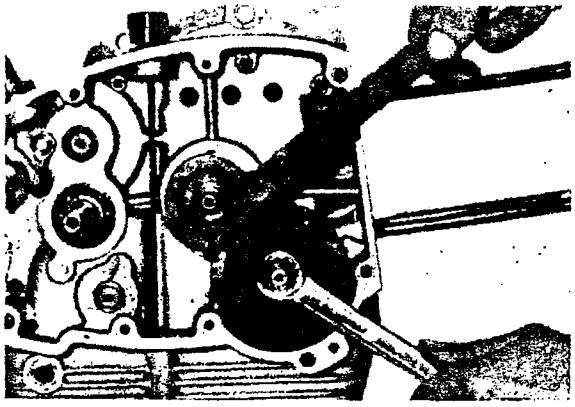
Remove the clutch plates and the short clutch rod.
Lift up the loop of the safety washer (bent over the nut).



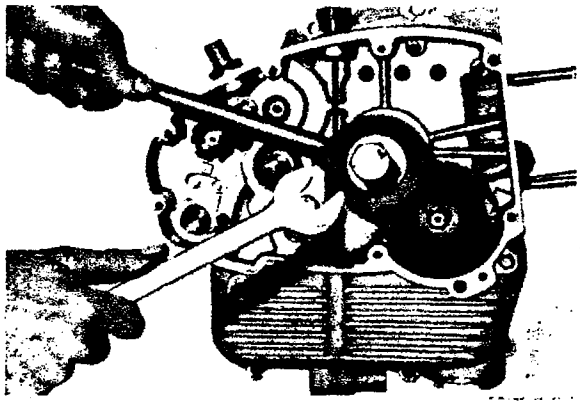




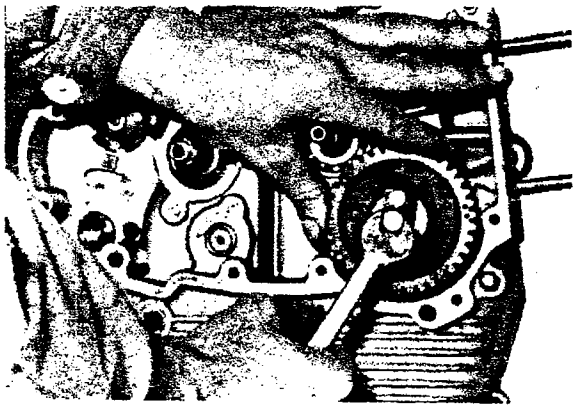
Holding the clutch drum with special tool M, unscrew the locking nut using 17mm wrench. Then pull out the clutch drum, thrust washer, clutch crown and second thrust washer.
Pull out the preselector shaft.



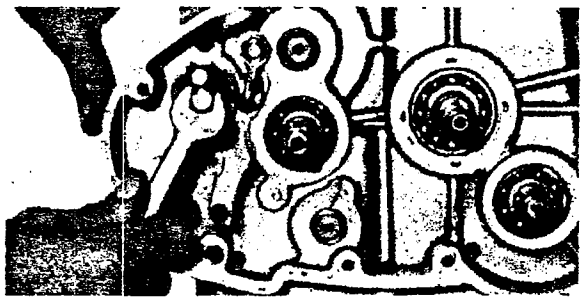
Holding with special tool F, the engine pinion gear, remove the cam gear and engine pinion gear locking nuts.



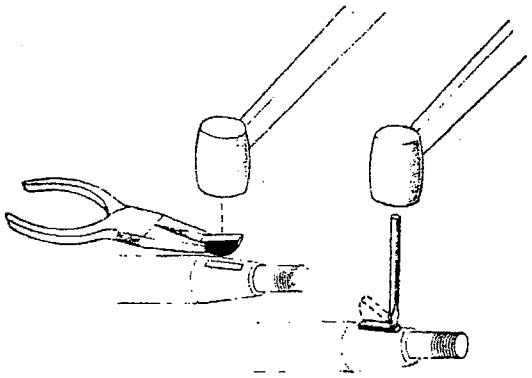
With special puller G, remove the engine pinion gear.
NOTE: If the special puller G can not be use, use puller H.



Using extractor O, pull out the cam gear.
NOTE: Use special puller U with gear having two threaded holes.



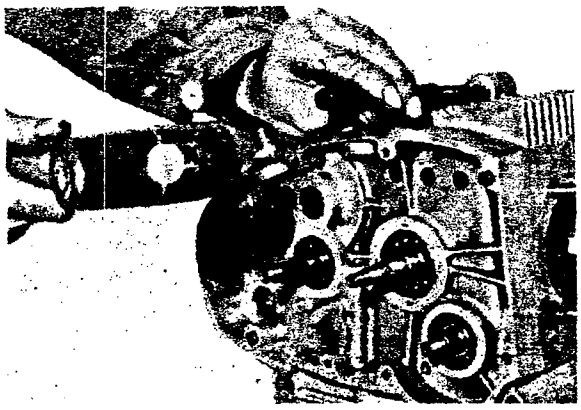
After the nut of the selector drum has been removed, using 11mm socket wrench, pull out drum with special tool T.



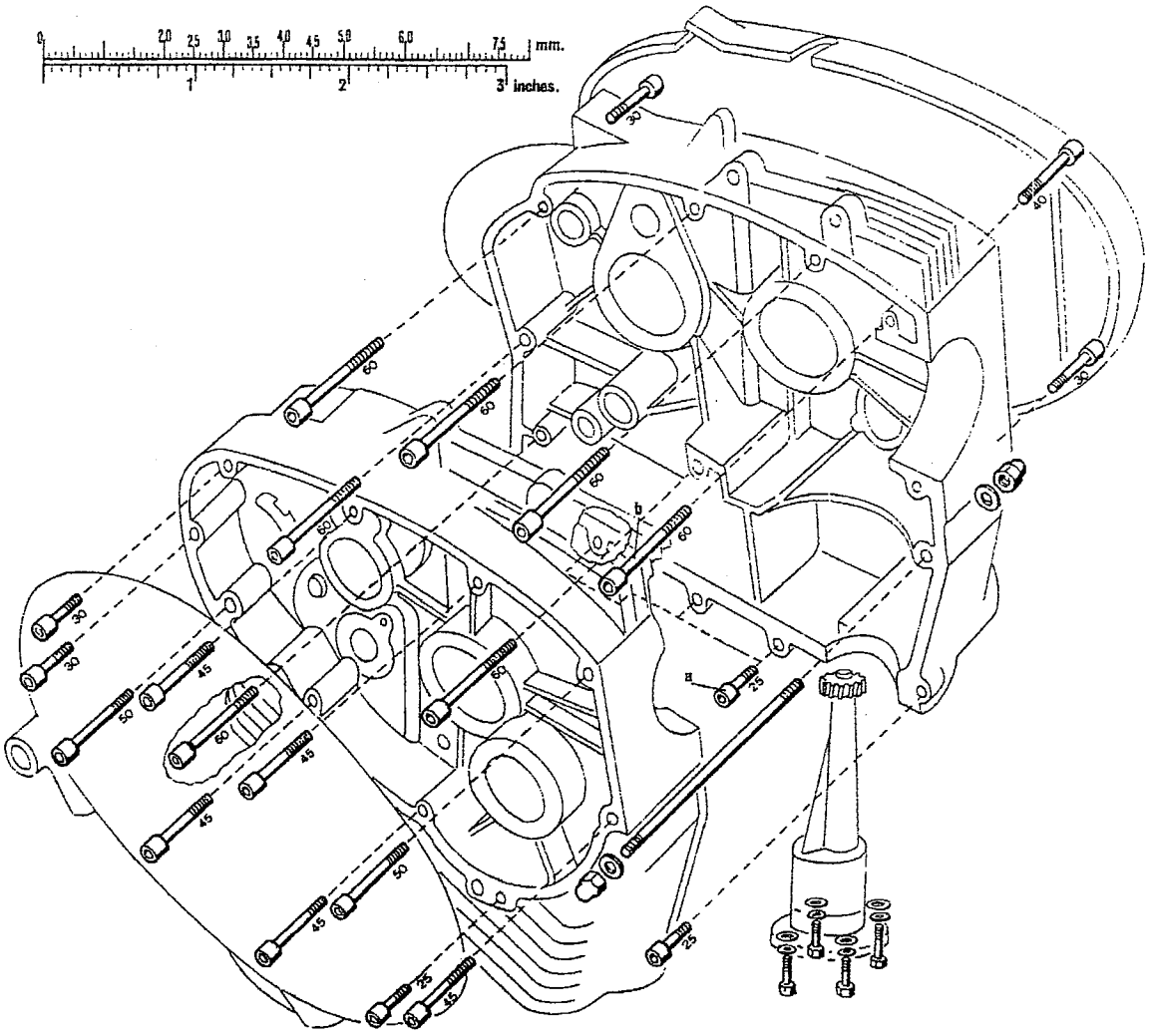
Extract the Woodruff keys of the engine pinion gear, cam shaft and desmodromic shaft.
To remove the Woodruff key, it is advisable to use a small pin in order to rotate it. To install Woodruff key, hold with pliers and tap slightly.

How to split the crankcase:

Remove the four oil pump bolts with 10mm wrench.
Use 11mm wrench to unscrew crankcase stud nut from one side, then pull out the stud. Unscrew and remove the Allen bolts, using tool S. The screws are indicated on sketch on page 14-15



With a pin, press out the crankcase centering bushing.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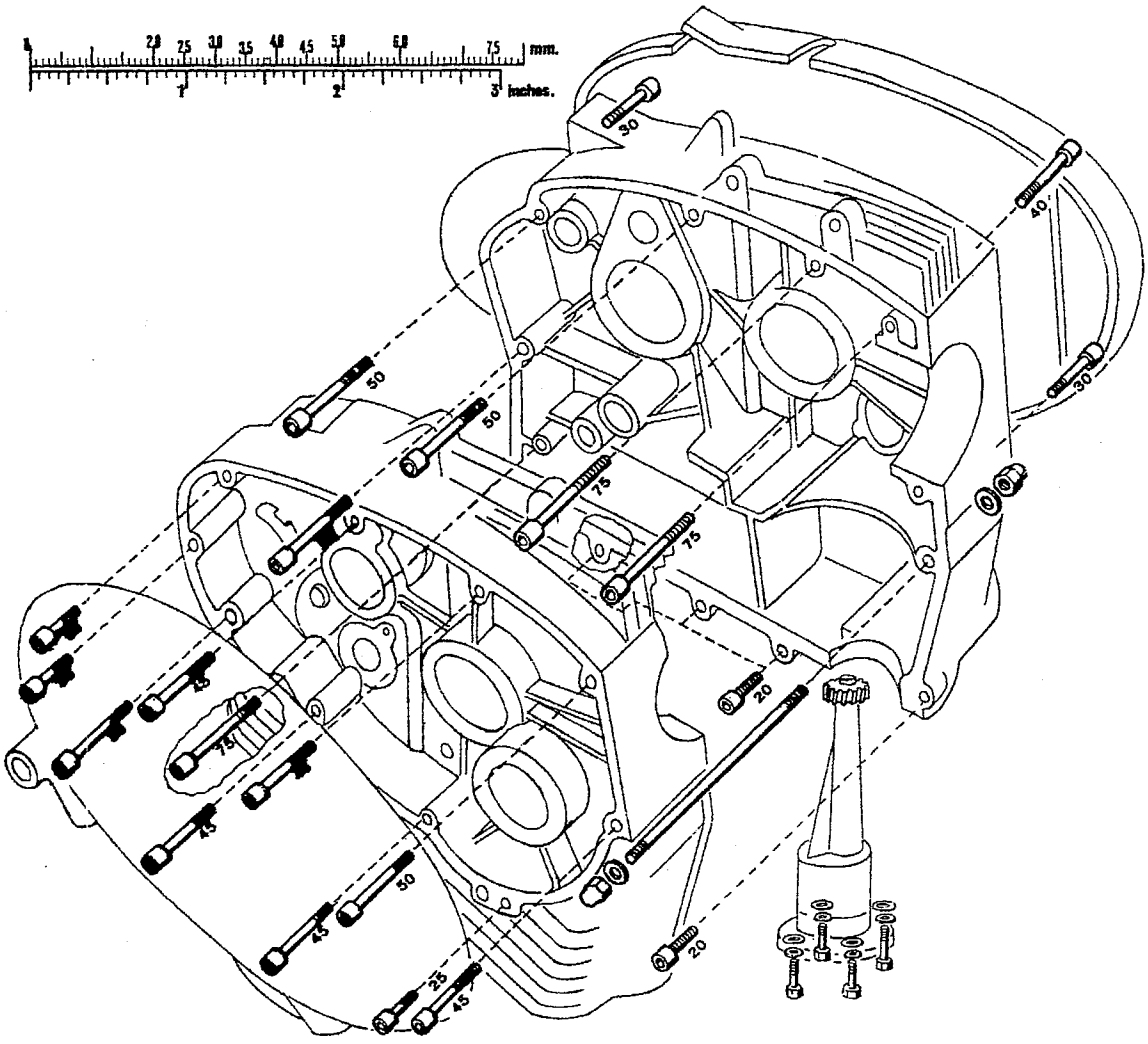
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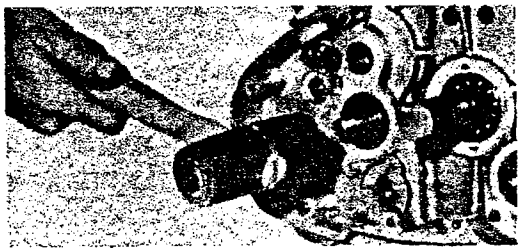
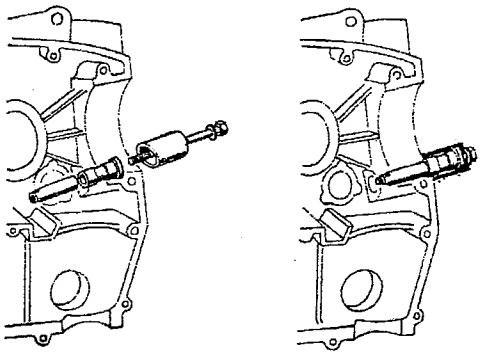
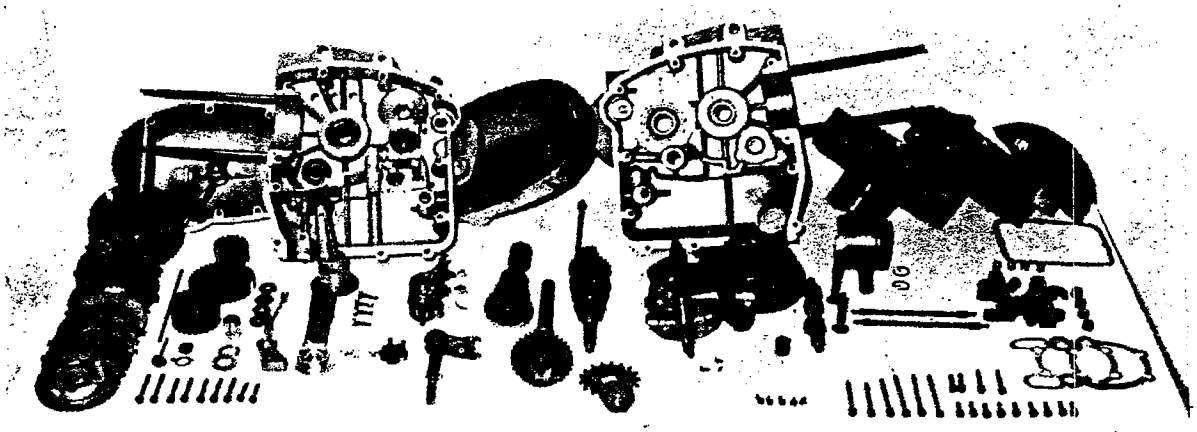


Install the protecting bushing A **tightly** on the crankshaft.
It is advisable to slightly heat the crankcase before proceeding to split it. (140° F. H.)
Tap slightly with plastic hammer on primary shaft and crankshaft until the right hand crankcase is separated from the other half.

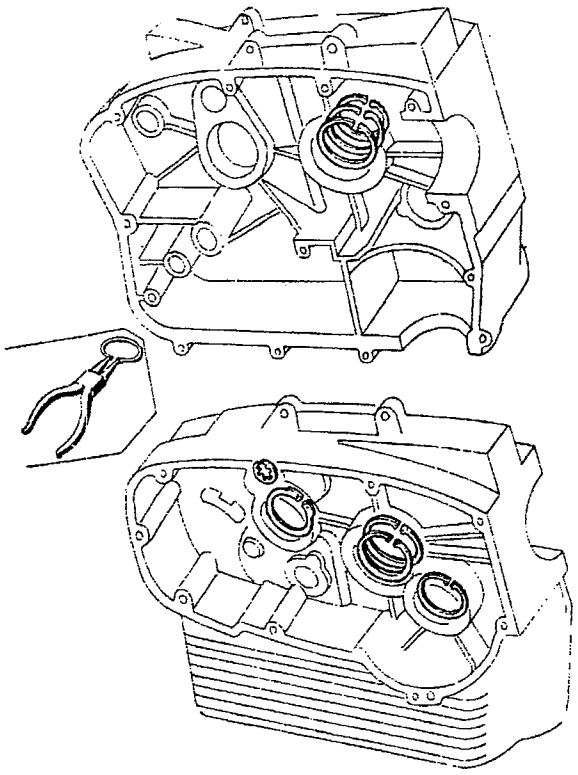
Remove all the components and clean thoroughly.
To disassemble the crankshaft from the left hand side crankcase, **install tightly** the coarse threads protecting bushing and proceed as per above instructions.



Heat the crankcase at approximately 140° to 180° Fahrenheit before removing bearing from it.
To remove the camshaft and final gear drive bearings from left hand crankcase (flywheel magneto side), dismantle the two bearing covers and press out.
To replace the cam follower bushings, use special extractor P as indicated on the figure alongside.

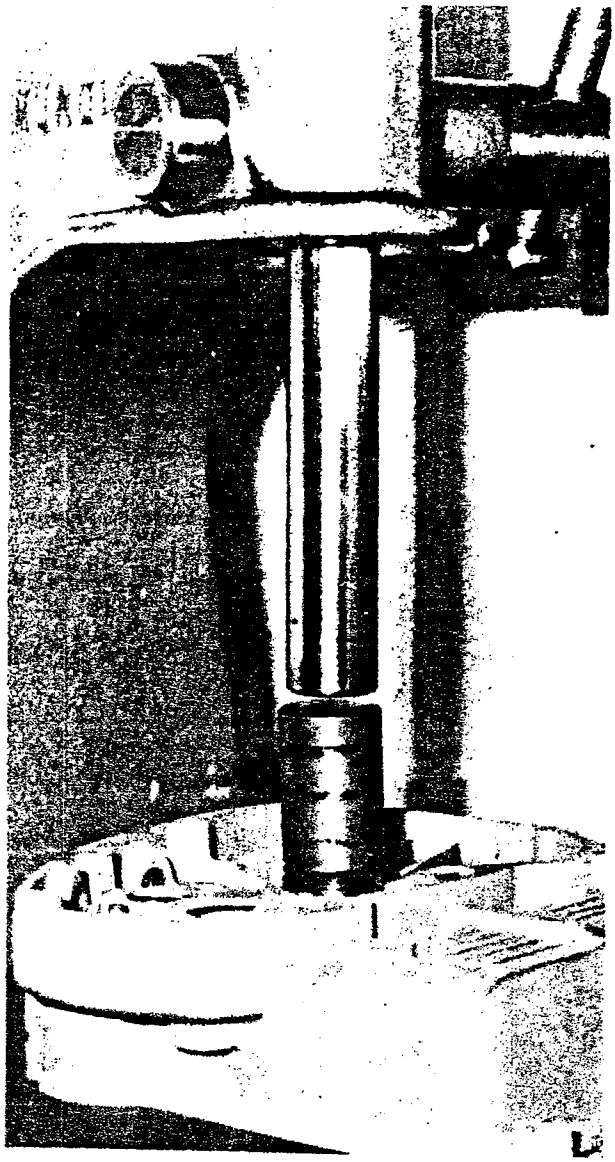


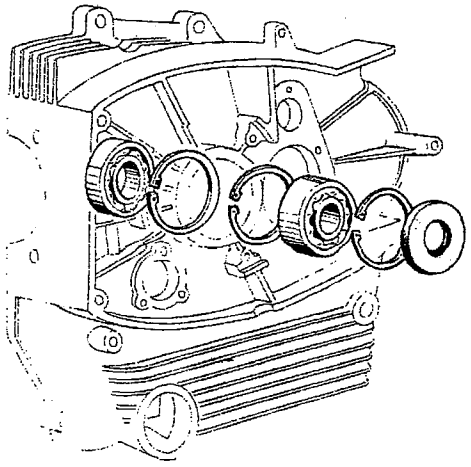
the seeger rings and other components.
NOTE: The two half crankcase are joined without gaskets, therefore, any imperfections of the contact faces must be corrected.



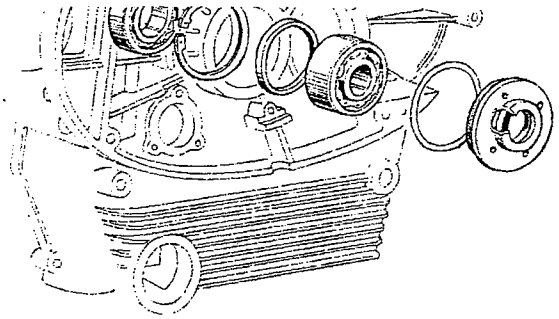
List of seeger assembled on 5 speed engine crankcases
Left hand half crankcase, (Flywheel magneto side).
No. 2 seeger rings type 47J assembled into the main bearing seat.
No. 1 seeger ring type 47J must be installed after the large bearing is assembled.
Right hand crankcase (clutch side).
No. 2 seeger rings type 47J assembled into the main bearing seat.
No. 1 seeger ring type 40J assembled into the camshaft bearing seat.
No. 1 seeger ring type 40JV assembled into the primary shaft bearing seat.
No. 1 seeger ring type K assembled into the secondary shaft bearing seat.
NOTE: This seeger most be installed (after the crankcase are joined).

List of seeger rings assembled on 4 speed engine crankcases
Left hand half crankase (Flywheel magneto side)
No. 1 seeger type 47J assembled on the main bearing seat.
Right hand half crankcase (clutch side) FOR 200cc and 250 cc.
No. 1 seeger ring type 47J assembled into the main bearing seat.
Right hand half crankcase (clutch side) FOR 125cc.
No. 2 seeger ring type 47J assembled into the main bearing seat.
NOTE: All the other seeger rings are interchangeable.
After all the seeger rings are installed into the half crankcases and before the installation of all the bearings, it is necessary to heat the crankcase at approximately 140° to 180° Fahrenheit.

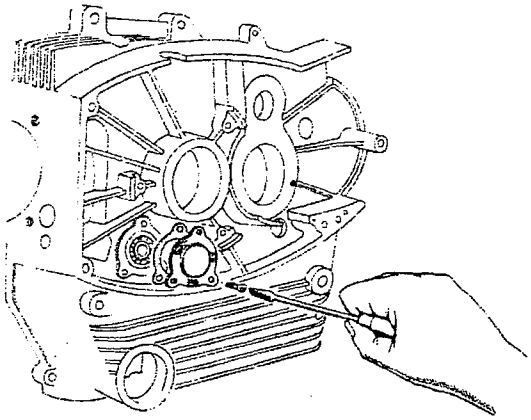




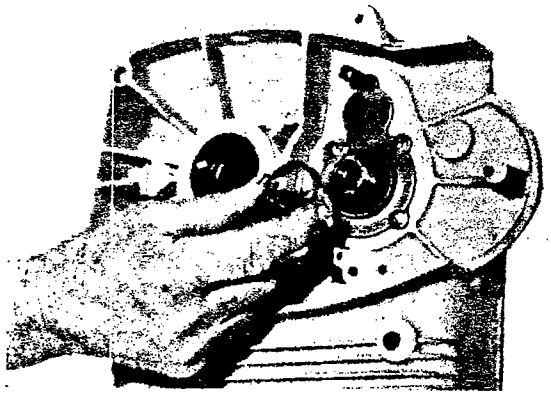
List of bearings installed into left hand crankcase (5 speed engine).
1 Bearing 25-47-14 for crankshaft (inner side).
1 Bearing 20x47x20,6 (double race) for crankshaft (external side).
1 Bearing 25x52x12 for primary shaft installation from the external side of crankcase.
The bearing must be even with crankcase face externally.
1 Bearing 12x32x10 for camshaft.
1 Steel bushing for secondary shaft needle cage installed internally.
1 Cam follower bushing.
Install the seeger rings J 47 from the external side. Then install the oil seal 20x47x8.
Install oil ring into the kick starter shaft hole.



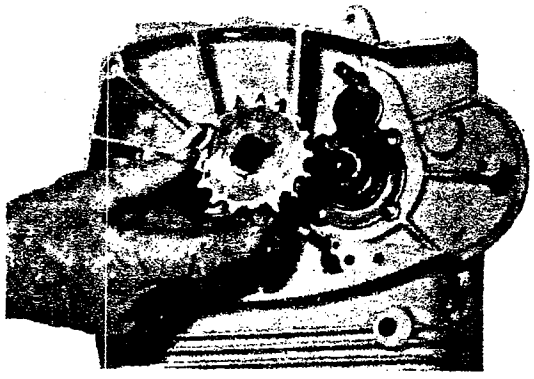
1 Bearing for crankshaft installed externally (20x47x20,6 with double races).
1 Oil seal 20x30x7.
Install the crankshaft oil seal into the threaded ring (20x30x7).
Assemble gasket and ring on the external side of crankcase.
The oil seal and plate of the final gear drive are assembled on the external side of crankcase.



The special supporting screw of the dust protecting plate must be installed on the upper side of the engine (see picture alongside).
Install the cam shaft bearing cover with the respective gasket and lock the three screws tightly.



Install the final drive gear (internally) and from the external side, press in the countershaft sprocket spacer.



Assemble the countershaft sprocket.