To remove the clutch cable

Remove the clutch cable inspection cap (two screws), the styling panel (two nuts) alongside the clutch cable entry. Use a screwdriver through the inspection cover aperture to prise the clutch operation lever in a forward direction, and disconnect the inner cable. Unscrew the clutch cable adjuster then disconnect the cable from the handlebar end.

Gear Box after 106838

Lubrication

The oil content, after draining, is 2¼ pints (1.25 litre).

Use one of the recommended engine oils SAE 50, drain and refill with fresh oil at first 500 miles and again at intervals of 5,000 miles. Check oil level at frequent intervals and top up as required. Oil is filled via the inspection plate the oil level plug is below this plate. Remove level plug, fill oil until excess drains from oil level aperture. Allow a little time for the oil to settle.

Special Note. There are two plugs in the bottom of the gear box casing.

The drain plug is the SMALLEST of the two.

The gear box

A strip down condition of the gear box is shown on fig.45. There is only one left hand thread used viz the nut retaining the rear chain sprocket on the main gear. The gear box internals can be removed in a cluster if the clutch is taken off the gear box mainshaft. The figures in parenthesis refer to fig. 45.

Dismantling the gear box

Remove the clutch (see para 'primary chain removal' for method.

Remove the drain plug, the selector plunger and spring (24) from underneath the gear box shell.

Remove the kickstart crank bolt, loosen the footchange pedal bolt and take off both levers.

Remove five outer cover screws, then the cover.

Remove clutch inner wire from operating lever 39.

Remove circlip retaining clutch actuating assembly and take out the assembly.

Remove clutch push rod.

Remove gear change shaft assembly 20.

Remove mainshaft fixing nut (9)

Remove five nuts and washers for gear box end plate 45.

Remove gear box end plate complete with kickstarter mechanism (45).

Remove gear change ratchet and plate.

Take out together the mainshaft, the layshaft and selector shaft, which will bring with it the gear cluster.

Dismantling the main gear

Turn back the tab washer (19), remove sprocket nut (18) LEFT HAND THREAD. The sprocket can be held by a short length of rear chain attached to a steel bar.

The sprocket should come off the splines without difficulty.

Take away the distance piece and tap the main gear into the gear box shell.

The oil seal removal

To remove prise it out of the bearing housing.

Removing the bearing (7)

The gear box shell must be gently heated, when the main bearing also the two bronze bushes can be drifted out. Pre-heat the gear box shell when re-fitting these bearings to avoid "scruffing" the housings.

To assemble the main gear (5)

If the oil seal is replaced it should be fitted with the metal backing outwards.

Remove circlip retaining clutch actuating assembly and take out the assembly.

Remove clutch push rod.

Remove gear change shaft assembly 20.

Remove mainshaft fixing nut (9).

Remove five nuts and washers for gear box end plate 45.

Remove gear box end plate complete with kickstarter mechanism (45).

Remove gear change ratchet and plate.

Take out together the mainshaft, the layshaft and selector shaft, which will bring with it the gear cluster.

The oil seal removal

To remove prise it out of the bearing housing.

Removing the bearing (7)

The gear box shell must be gently heated, when the main bearing also the two bronze bushes can be drifted out, pre-heat the gear box shell when re-fitting these bearings to avoid "scruffing" the housings.

To assemble the main gear (5)

If the oil seal is replaced it should be fitted with the metal backing outwards.

The sprocket for the rear chain is refitted with the flat face outwards. Do not omit the distance piece ¼" wide between the bearing and sprocket (17). The left hand sprocket nut must be firmly tightened as it is subjected to reversal loads.

Turn back the tab washer.

Gear box end plate bearings (48)

The two bronze bearings (48) also the small mainshaft bearing are a force fit in the plate. To remove apply gentle heat, support the plate and press out the bearings.

Assembling gear box internals

The assembly sequence is shown on fig. 45.

To refit:

Take up layshaft (10) fit gear (14) (13) (15).

Take up mainshaft and fit second gear (3).

Take up selector assembly (20) engage striker forks (21), with gears (3) and (14) then introduce the parts assembled into the gear box. Fit mainshaft third gear (4) and first gear (2). Complete assembly by fitting layshaft first gear (11).

The footchange assembly

The footchange ratchet (27) also the small pinion on the selector shaft are marked so that the gears can be correctly indexed.

Insert the footchange ratchet with line mark on it to register with the line mark on the small pinion.

Fit the footchange actuating plate (29) with letter "O" outwards.

Fit the gear box end cover with kick-starter assembled (five nuts and washers) (45).

Fit the mainshaft nut (9) and tab washer.

Fit the clutch operating assembly (split pin outwards) (39).

Fit the circlip securely in its groove.

Fit the footchange ratchet (30), over the spindle (flat side of ratchet facing the left, or rear of the gear box).

Fit the ratchet spring (31)

Fit the footchange pedal shaft (32), with pedal spring and plate over the footchange spindle and engage the two flats with the ratchet.

Fit the spacing collar (34).

A new or undamaged gasket for the end cover must be used which can be held in position with jointing compound on one side. Alternatively use some grease. Connect the clutch cable to the lever, refit the cover and tighten five screws. Put back the drain plug and spring loaded plunger and refill 2¼ pints (1.25 litres SAE 50 engine oil).

Dismantling the kickstarter (35)

Dismantle the gear box as far as removing the gear box end plate described elsewhere. Temporarily fit the kickstarter crank to the kickstarter shaft, then press the kickstarter axle inwards to clear the stop to allow the spring to unwind. Take off the kickstarter crank, press the axle right through the cover, the spring can then be taken away. To refit the kickstarter spring, put back the kickstarter axle, do not engage it with the stop. Fit the spring on to the anchor stud and engage the turned in end with the slot. Fit the kickstarter crank to axle and wind up the spring 1½ turns then press home axle to engage with its stop.

Wheels and Brakes — Heavyweight Twins

To remove the front wheel

With the machine on the central stand: Detach the brake cable from the expander lever. Detach the brake cable adjuster from the brake plate. Detach the right hand spindle nut. Release the pinch stud in left fork slider end. Take the weight of the wheel by the left hand, pull out the wheel spindle. The wheel can be taken out of the forks.

To refit the wheel

Reverse the procedure described for removal, with the following precautions. Remove traces of rust from the spindle and grease. Exercise care to correctly locate brake plate in the fork slider. Do not tighten unduly the slider pinch bolt, overtightening can cause a fracture.

Note—If the fork motion is stiff after refitting the wheel, slack off the spindle nut and work the forks up and down (the fork tubes will take up alignment), then retighten the spindle nut.

To remove the rear wheel

The rear wheel is detachable from the brake drum. With the rear wheel clear of the ground: Take out the three rubber grummets (4). Remove the sleeve nuts (8) which retain the wheel to the brake drum. Unscrew the wheel spindle (20) and remove it. Take away the distance piece, between the speedometer drive, which will come away also, there is no need to separate the cable from the drive. Pull the wheel away from the driving studs in the brake drum. Incline the machine to the right side, then pass the wheel under the left side silencer, clear of the machine.

To remove the brake drum

With the rear wheel removed: Take off the brake rod hand adjuster, then remove the rear chain connecting link. Release the nut securing the dummy spindle, pull back the brake drum clear of the fork ends.

To dismantle the front hub

The wheel hubs are packed with grease during initial assembly, and should not need further lubrication for at least 10,000 miles, when the hubs should be dismantled for cleaning and fresh grease used. To dismantle the front hub, with the wheel removed take away the brake plate with brake shoes.

Unscrew bearing lock plate on left side of hub, holes are provided for a peg spanner or use a punch. If the plate resists removal use a little heat which will facilitate removal, take out felt sealing washer and distance piece.

To eject the bearing use a drift through the brake side (the front wheel spindle can be used for this purpose) when a few light blows from a mallet will drive out the bearing until it is clear of the hub, and no more, as the other bearing goes into the hub during this process.

Take out the spindle, or drift, invert the wheel and repeat the process to eject the double bearing which will bring with it the large steel washer, the felt washer, also the thin steel washer.

Assembling the hub

Clean and repack both bearings with fresh grease (see table of lubricants). Press into the left side of the hub the single bearing, fit the distance washer (flat side against the bearing), then the felt washer and secure with the lock plate.

Invert the hub, insert the distance tube (small end first) against the bearing.

Enter the double bearing square with the hub, use the drift through both bearings and drive home until the bearing abuts against the distance tube.

Fit the smallest of the two washers, the felt washer, then the large steel washer.

With a suitable punch peen the hub material, where it joins the washer in three equidistant positions to retain the washer.

Rear hub dismantling

With the wheel removed, remove the speedometer drive lock ring (this has a *left hand thread*), take out felt washer and distance piece. To eject the bearing use the wheel spindle with its washer also the distance piece that goes between the speedometer drive and the frame placed on the spindle. Partially drive out the bearing until it abuts against the reduced diameter inside the hub. Take out the spindle, use a short length of steel tubing with the outside diameter slightly smaller than the inside diameter of the bearing and drive out the bearing.

Invert the wheel, then drift out the other bearing, which will take with it the steel cup, felt washer and the thin steel washer.

Assembling the hub

Deal with the bearings as already described and assemble by first fitting the single row bearing, in the reverse order described for dismantling, with the following precaution: when tightening the *left hand* lock ring avoid damage to the slots for the speedometer drive. Finally "peen" the hub dished washer to the hub. The hub assembly sequence is shown in fig. 46.

Dismantling the brake drum

A bearing is not used in the brake drum; when the spindle