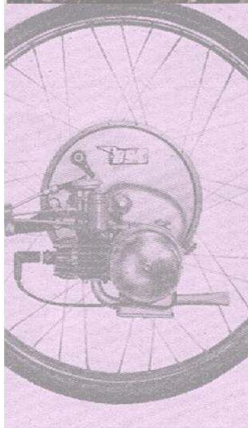


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SERVICING INSTRUCTIONS FOR THE RALEIGH MOPED CLUTCH

DISMANTLING

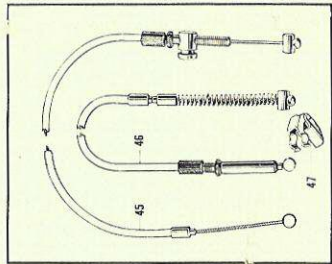
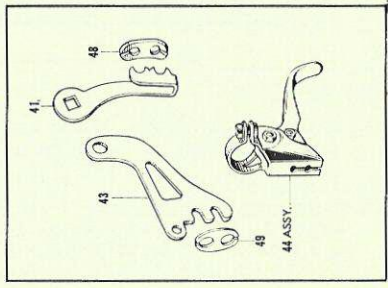
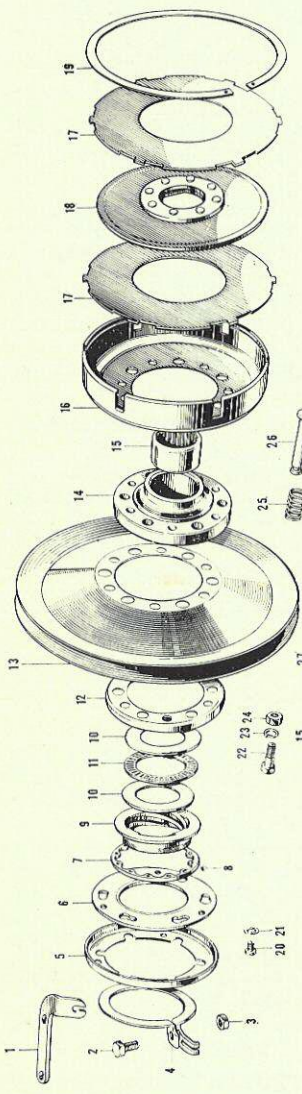
- (1) Remove both fairings, loosen engine fixing bolts and remove drive belt from Clutch pulley. Swing the engine forward and tighten fixing bolts.
- (2) Remove both chains.
- (3) Remove one pedal crank. (CAUTION. No attempt must be made to hammer out cotter pins, unless the pedal crank and axle are adequately supported. Failure to observe this precaution will inevitably result in serious damage.)
- (4) Remove and discard $\frac{3}{8}$ " circlip (28) and remove thrust washer (29) which is now exposed on bottom bracket axle (37). Withdraw axle complete with remaining pedal crank, circlip and washer.
- (5) NOTE: The Clutch plates can now be removed without disturbing the bottom bracket, as follows:—
 - (a) Operate the Clutch lever and lock it in position with the handlebar locking plate (47).
 - (b) Remove the large internal circlip (19) from the Clutch housing with internal circlip pliers. The Clutch plates can now be removed. If the driving shaft (34) needs attention, it may be extracted from the Clutch housing side after carrying out the following operation.
- (6) Prise out and discard the right-hand spring ring (30). Remove sprocket (31) and thick spacer (32). Later models are fitted with a smaller sprocket. This necessitates a stepped spacer. The spacer should be fitted with the smaller diameter towards the sprocket face.

REMOVAL OF CLUTCH UNIT COMPLETE

Follow above procedure, with the exception of operation (5).

- (7) Take out the bottom bracket locating pin (40). The complete Clutch assembly can now be withdrawn to the left-hand side. The Clutch plates are compressed after removal of the Clutch by means of the Clutch plate removal tool (4030074).

This tool is inserted through the centre of the drive shaft so that the collar of the tool slides over the shaft and abuts up to the bottom bracket bearing sleeve. The angled bracket of the tool is then placed over the threaded shank of the tool, with the legs facing the Clutch plates. On threading down and tightening the nut, the Clutch springs are compressed by the plates. The internal circlip can be removed and upon removal of the tool, the plates can be lifted out, also the drive shaft. To remove the Clutch retaining washer, prise off the spring ring and pull off the washer.
- (8) Unscrew bottom bracket sleeve (27) and remove. (For removal and replacement of needle bearings, see pages 26 and 27 of Service Manual.)
- (9) Lay Clutch assembly down on the bench with pulley (13) uppermost and remove the three screws and shakeproof washers from the Clutch locking plate (5). Remove the release ring clip and lift off the locking plate.
- (10) Insert a suitable block into the Clutch housing (a circular block of wood about $4\frac{1}{2}$ " diam. \times 1" thick would be ideal). This block should be deep enough to stand proud of the Clutch body and big enough to cover completely the heads of the six release pins. Lay the Clutch assembly down as previously. Depress rim of pulley in order to compress Clutch springs



and rotate release plate (6) clockwise to remove. Release ring, ball and roller thrust races and washers may now be removed. On lifting the pulley and Clutch hub assembly clear, the Clutch pins and springs can be withdrawn.

- (11) The Clutch hub assembly can now be dismantled by removing the six Clutch housing nuts, bolts and spring washers and the bearing shroud (12). The Clutch pulley hub can now be withdrawn from the Clutch housing (16) if required.
- (12) If it is necessary to remove the needle roller bearing, drive out with a hammer and suitable drift.

REASSEMBLY

- (1) **Thoroughly clean all parts.**
- (2) If the pulley hub needle bearing (4519440) has been removed, replace with a new bearing, using special tool (4030024) to draw bearing into position. The bearing cage face, which carries the identification markings, must face outwards toward the Clutch plates and the bearing should be drawn into the hub from the outer side, i.e., Clutch plate side of the pulley hub.
- (3) Loosely assemble together the bearing shroud (12), pulley (13), pulley hub (14) and Clutch housing (16), using two bolts only, with nuts fitted loosely. The bolts are fitted through the small holes with the nuts and spring washers at the Clutch housing end.
NOTE: The bearing shroud must be fitted into the recessed face of the pulley with the raised lip facing outwards. The pulley hub should be fitted to the pulley from the Clutch side, so that the smaller spigot passes through both pulley and bearing shroud (see diagram).
- (4) Insert Clutch release pins (26) without springs, in order to line up the assembly. Fit the remaining bolts and tighten all nuts evenly.
- (5) Remove pins, apply a *slight* smear of grease to the sliding surfaces. Place the springs on the pins and assemble to the Clutch hub.
- (6) Place the previously-mentioned block across the heads of the Clutch release pins and lay the assembly down with the Clutch housing to the bottom. Note that the Clutch springs may now be compressed by pressing downwards on the pulley rim.
- (7) Apply a little grease to the recess in the pulley hub and place one needle bearing thrust washer (10) in it, followed by the well-greased needle thrust bearing (11) and finally the other thrust washer also greased. Check that the bearing rotates freely.
- (8) Place the release ring (9) on the last thrust washer with larger diameter towards the pulley and assemble the bearing race (7) with twelve $\frac{1}{8}$ " balls on the release ring, ensuring adequate greasing.
- (9) Take the release plate (6) and place over the protruding release pins with the raised face downwards. Compress the Clutch springs by pressing down on the pulley rim and rotate the release plate anti-clockwise in order to fully engage its slots in the grooves machined in the Clutch release pins.
- (10) Fit the locking plate (5) with raised rim towards pulley and tighten the three securing screws.
NOTE: It is advisable to use new shakeproof washers.
- (11) Fit the Clutch retaining washer (35) and a new spring ring over the shorter flats of the driving shaft, using special service tool (MS.20) (see fig. 25 in Service Manual for use of tool), to fit the spring ring and enter driving shaft into pulley hub from Clutch housing side.
- (12) Lightly grease and with the fingers screw the bottom bracket bearing sleeve into the release ring to its fullest extent.

- (13) Fit the steel clutch driven plate into the Clutch housing, then slide the driving plate on to the driving shaft with the grease thrower to the inside. Now fit the outer clutch driven plate.
- (14) Using special service tool (4030074) compress the Clutch plates so that the internal circlip may be fitted. (Care should be taken to ensure that the circlip is fully home in its groove.) Remove Clutch plate tool.
- (15) Place the release ring clip loosely over the release ring so that the joint in the clip lines up with the scribed mark on the bottom bracket bearing sleeve and so that one row of knurling can be seen to protrude evenly above the face of the clip. Tighten the clip securing bolt and nut. Ensure that the bearing sleeve is screwed into the release ring to its fullest extent during the lining-up operation. If no scribed line is discernible the release ring clip joint should be positioned at 120° anti-clockwise from the tapped hole in the bearing sleeve (third of the way round) looking from the sprocket end.
A later pattern release ring and clip may be encountered. This release ring may be distinguished from the old type by a shoulder formed at the base of the knurling. The clip employed with this type release ring is slightly different in shape from the previous pattern and should be fitted firmly against the shoulder so that the top of the head of the clip securing bolt lines up with the scribed line on the bottom bracket bearing sleeve. Once this lining-up operation has been carried out, it should be noted that owing to the four-start thread employed, the release ring and bearing sleeve can be assembled four ways, only one of which is correct.
- (16) The assembly may now be fitted to the bottom bracket so that the locating pin passes through the hole in the bottom bracket and into the tapped hole in the bearing sleeve. Do not forget the cable clip, shakeproof washer and grease nipple. Alternatively, the bearing sleeve can be removed, fitted into the bottom bracket and locked with the location pin, then the release ring screwed on to the bearing sleeve. If the release ring clip joint is positioned roughly in line with the chain stays and then the release ring screwed home, the ring and sleeve will then be in their correct relative positions.
- (17) Now fit the thick spacer (plain or stepped) over the driving shaft (step towards sprocket) followed by the sprocket and then a new spring ring (30) using service tool (MS.20) to fit spring ring.
- (18) Refit the bottom bracket axle (37) complete with pedal crank, taking care to fit one thrust washer (29) at either end of the axle. Fit a new $\frac{5}{8}$ " dia. circlip in place of the one previously removed.
- (19) Refit the Clutch cable and adjust to give $\frac{1}{8}$ " to $\frac{3}{16}$ " free movement at the handlebar lever. Finally lubricate the bottom bracket assembly through both grease nipples. (Caution-spring rings, $\frac{5}{8}$ " circlips and shakeproof washers should not be re-used, but always replaced by new parts.)
- (20) Replace chains.
- (21) Refit drive belt and adjust. Replace fairings. Road test machine. Thorough cleanliness is essential during these operations and if grease is allowed to come into contact with the Clutch plates, inefficient operation of the Clutch will result.

RECOMMENDED GREASE

Shell Alvania No. 2.

SPECIAL TOOLS AVAILABLE

4030024 Clutch Bearing Assembly tool.
 4030074 Clutch Plate Assembly tool.
 MS.20 Spring Ring tool.