



ROYAL ENFIELD AND AMAL SPARES

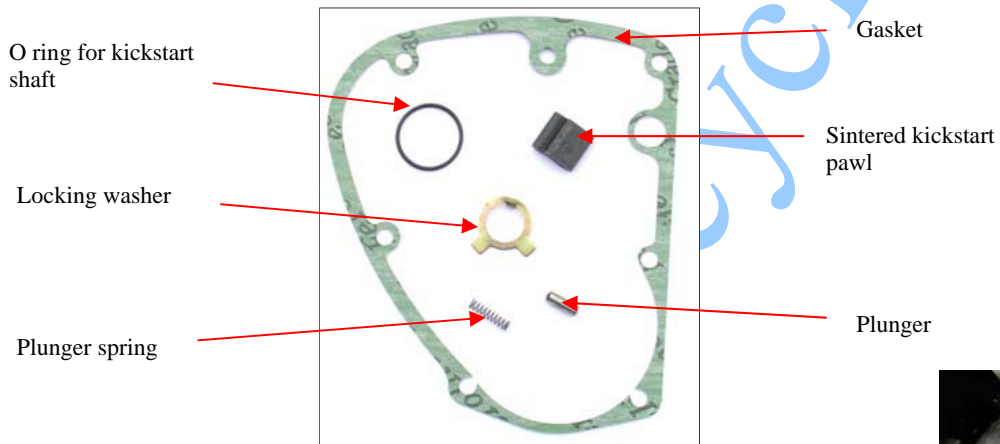
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Replacing the Kick-Start Pawl on a Bullet 4 Speed Gear Box

If the kick-start pawl breaks the kick-starter will be inoperative and replacement of the kick-start pawl will be required. Hitchcock's supply a kick-start pawl replacement set (part number 90116). The kit include all parts needed for this project—except oil and grease.



To access the kick-start pawl it is necessary to remove both the outer and inner covers (arrowed in the picture) from the gearbox. This guide will take you through the entire procedure step by step.

If your gearbox is filled with oil it will be necessary to drain the gearbox. If the gearbox is packed with grease – the standard practice for 4 speed Indian Bullets – you need not drain it but you are likely to loose a small amount of lubricant.



Remove the kick-start lever and gear lever. If they are tight, carefully ease the split open with a broad-bladed screwdriver. Remove the neutral finder components. Unscrew the centre bolt and remove the spring cap, spring, washer, gear indicator, neutral lever and washer. It will help in reassembly if these parts are carefully laid out in their correct order, or threaded together with wire or a nylon cable tie, as in the photograph.

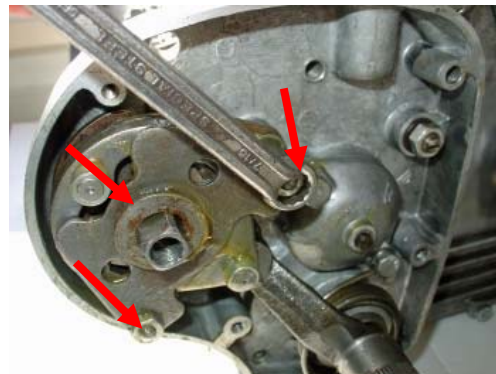


Remove the upper and lower inspection covers and disconnect the clutch cable. Note the upper cover has a longer screw, the lower cover a shorter screw.

Four slot headed screws hold the outer gearbox cover in place – 2 longer screws and 2 shorter screws—note the location of these screws. The screws may be tight, take care not to damage their slotted heads. The neutral eccentric stop and bolt (arrowed in the picture) need not be disturbed. Remove the gearbox outer cover. No oil will be found in this space.

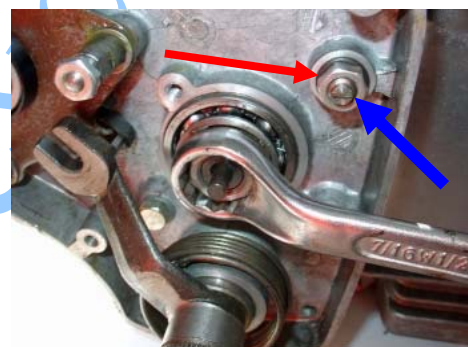


Five screws and a number of other components must be removed before the inner cover is lifted away from the gearbox. Undo the two nuts that secure the foot control stop plate and remove the washer (as arrowed in the picture). Lift the stop plate away, followed by the inner ratchet, the outer ratchet assembly and figure of 8 ratchet spring. **Do not remove the adjuster plate** behind these components or loosen the studs, as this will affect the gear selector adjustment.



Slide the foot control lever off its shaft (arrowed in the picture). This gives easy access to the main shaft bearing cap, held in place by two bolts. The longer, lower of these two bolts also secures the looped end of the kick-start spring in place. As you remove this bolt take care the kick-start spring does not uncoil suddenly. Unscrew the bolt and withdraw it from its housing. Prevent the spring from uncoiling suddenly with a substantial screwdriver lodged against the gearbox case as shown in the picture.

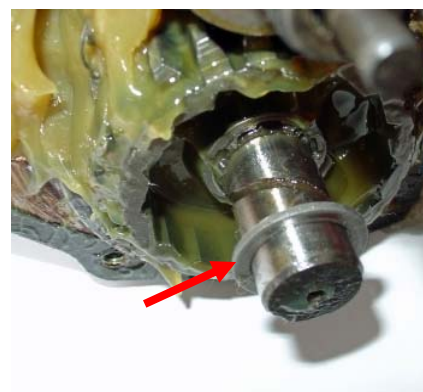
Behind the bearing cap is the large main-shaft nut. Bend back the locking tab and undo the nut. NOTE: this nut has a LEFT HAND thread and is LOOSENED by turning in a CLOCKWISE direction. To undo this nut, engage a gear and hold the rear brake firmly on. The nut and washer



(arrowed in the picture) must also be removed—but **do not remove or disturb** the gear operator selector assembly at the centre of this nut and washer (arrowed blue in picture).



Undo and remove all the bolts and five screws holding the inner gearbox case in position. To remove the inner case it is necessary to break the gasket seal with a few carefully placed blows using a rubber mallet. Under no circumstances use an iron hammer or any excessive force – nor lever the case away with a screwdriver! Separate the inner case from the gearbox.



Be sure that the oil thrower does not dislodge from the mainshaft shoulder.

Withdraw the kick-starter shaft and spindle. Be sure the kick-starter distance washer is left in position between the gear and the kick-start shaft (arrowed in the picture on the right).

The kick-start pawl, plunger and spring are located in the shaft. The pawl slides sideways from its location. It may be necessary to push the plunger (arrowed in the picture on the left below) into its housing to release the pawl. Remove the plunger, spring and 'O' ring. Replace each of these items in sequence with new parts from the kick-start pawl replacement kit. Apply a smear of grease to the shaft to assist fitting the new 'O' ring.

Remove every trace of the old gasket from the gearbox case, apply Wellseal sealant and place new gasket in position.

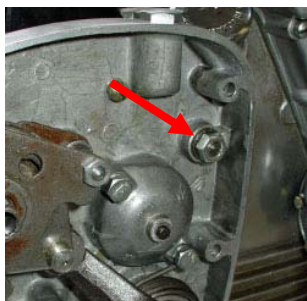


Reassembly begins with relocating the kick-start shaft in the inner case. Turn the shaft so the pawl is held 'closed' against its spring. Position the inner cover over the main gearbox case, making sure the foot operating lever locates over the arm spigot of the inner gear operator (parts arrowed in the pictures).



Locate the inner cover securing screws and

tighten them carefully. It is best at this stage to re-fit the kick-starter lever to ensure that the pawl is engaging and that all parts are free to operate correctly. Remove the kick-start lever. Replace and carefully tighten the gear operator selector assembly washer and nut (arrowed in picture).



Replace the main-shaft oil thrower, locking washer—be sure to use the new locking washer supplied in the pawl replacement kit!—and large nut. Engage a gear and apply rear brake firmly when tightening this nut [torque setting 45 lbs/ft] Remember, this nut has a LEFT HAND thread, tighten ANTI-CLOCKWISE. Bend locking washer tab over.

Replace the main-shaft bearing domed cap—with the cutaway in the position shown in the picture. Replace the upper securing bolt, at this stage tighten the upper bolt only finger-tight.



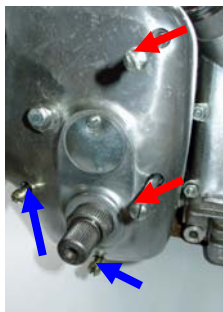
Place the kick-starter spring over the kick-starter shaft, locate the short hook on the spring deeply in its hole in the kick-starter shaft (arrowed in the picture). Hold the looped end of the spring tightly with long-nosed pliers and wind the spring until the spring loop lines up with the lower bolt hole in the main-bearing cap. Insert the bolt through the spring loop and into the hole in the doomed cap. Tighten both bolts.



Replace the figure of 8 spring on the foot control plate (arrowed in the picture on the left). Locate the forked end of the short foot control lever in the foot control ratchet assembly (arrowed in the picture on the right).

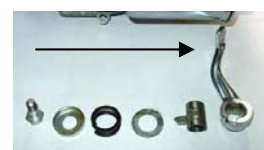


Lightly smear all the foot control ratchet components with grease to prevent corrosion and place them over the foot control shaft in the order shown in the picture on the right.



Replace the gearbox outer cover. Locate and tighten the two long screws (red arrows in the picture) and the two short retaining screws (blue arrows). Reconnect the clutch cable. Replace the upper inspection cover, with its long fixing screw and the lower cover and its shorter screw.

Replace the neutral finder components in their correct sequence (as in the picture). Secure the assembly with the neutral lever bolt. Fit the gear lever and kick-start lever on their splined shafts—check that both levers are free to move independently of each other.



Top-up the gearbox lubricant to the correct level using the level plug located in the gearbox inner cover (arrowed in the picture). If the gearbox is packed with grease, top-up with standard 20w-50 engine oil—and the job is done!