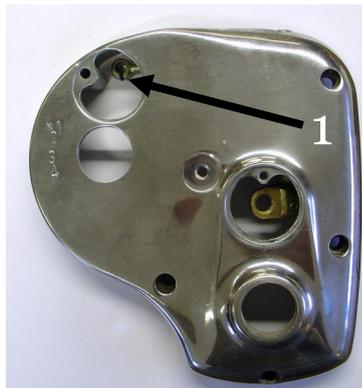


## Solving Royal Enfield Clutch Problems

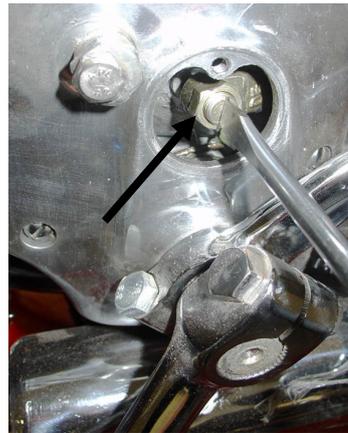
The standard clutch fitted to Royal Enfield Bullets and other Royal Enfield machines is a simple, traditional wet multi-plate design—with little to go wrong. Even so it is not entirely without fault and clutch slip, clutch drag and a heavy clutch action are not uncommon problems. In this article we will suggest a few tips that may help avoid or cure a number of typical clutch problems. (Please note: this article is concerned only with the regular type of clutch fitted to Royal Enfields. It does not cover scissor type clutches or belt drive clutches.)

**ADJUSTING THE CLUTCH** If the clutch fails to operate effectively it is often assumed that the clutch internals are to blame. However, experience shows that frequently the underlying cause is poor adjustment of the clutch.

Effective clutch operation depends on accurate adjustment. Firstly, slacken off the cable using the adjusters (these may be on the handlebar lever and/or halfway along the cable). Remove both gearbox inspection covers and loosen the lock nut on the clutch adjusting screw (arrowed in the picture on the right). Turn the adjusting screw clockwise until resistance is felt. Now loosen the screw by approximately  $\frac{1}{2}$  turn. As it



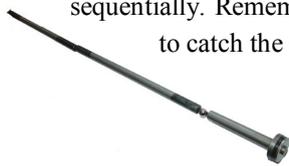
is extremely difficult to determine the point at which resistance is felt and what is causing the resistance, there is a second method of adjusting that may be used. In this case turn the adjusting screw until the upper arm of the clutch operating lever (1) is parallel with the surface of the clutch cover. The position of the arm is visible through the top gearbox inspection cover (see the photograph on the left). Tighten the lock nut and



adjust the cable adjusters to give about 5mm free play at handlebar lever.

If after carefully carrying out this adjustment the clutch still drags or slips it is worth repeating the entire process but varying the amount the adjusting screw is slacked off (from  $\frac{1}{4}$  turn to about 1 full turn of the screw) until an improved clutch performance is achieved.

Failure of the clutch to operate effectively may be down to a mechanical problem with the clutch assembly itself. If adjustment does not solve the problem, the next step will be to remove the primary drive cover and inspect the clutch components. (Normally no special tools are required for clutch work carried out with the clutch in situ.) As always, this process should be carried out methodically and sequentially. Remember to place an oil tray beneath the primary drive cover to catch the oil that will be released as the cover is removed.

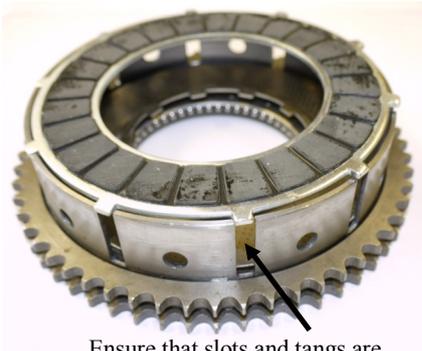


Begin with an examination of the clutch operating rod. Determine if it is true and not bent and that the ends are not burred or damaged.

Examine the clutch operating pad to determine if that too is sound. An improved clutch pad containing a tiny needle roller bearing is available. This modification gives a smoother clutch operation, allowing the plates to lift more cleanly. The picture on the right shows the roller clutch pad and the outer clutch pressure plate.

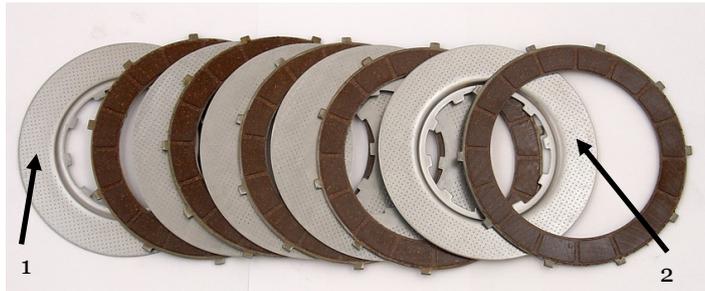


With the clutch dismantled, examine the components. Check that the tangs on the clutch friction plates are not ragged and that the slots in the clutch basket are undamaged. Ensure the plates slide freely in the slots. Examine the ball bearing in the inner edge of the clutch basket and check there is no ridge in the bearing ring. The friction materials must be free from burning or excessive wear. Check the plain metal plates for flatness with a straight edge across the face of the plate. Renew any components that are damaged or distorted.



Ensure that slots and tangs are free from burrs and snags. If necessary file them smooth.

If the problem is clutch slip it may be advisable to fit the alternative 5 friction plate improved unit. This modification is especially useful where the engine has been tuned or the bike is used to pull a sidecar. The modified plates are thinner than the standard parts and the dished plates are shallower, allowing the 5 plate conversion to fit easily into the standard 4 friction plate clutch basket. The picture on the right shows the sequence in which the plates



are fitted. The first plate to be fitted is the dished plate marked 1 and then alternately a friction plate and a steel plate. The two 'dished' plates must be fitted with the raised portion of 'plate 1' facing the fitter and the raised portion on 'plate 2' facing away from the fitter. If the raised surfaces of the dished plates do not face each other clearance problems will occur. The two points where problems may occur are; firstly, 'plate 1' may not sit correctly on the riveted friction plate; secondly, 'plate 2' may 'drop off' the clutch centre.

Where new plates are used, soak the friction plates in ATF (Automatic Transmission Fluid) before fitting the clutch.

Finally, ensure that the springs are sound and are of equal length. Lighter and heavier springs are both available (see picture below). It is possible to use a full

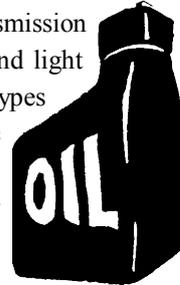


set of light springs or a full set of heavy springs but it is most advisable to use a combination



of both. This combination will give a light lever action with good 'bite' on the clutch plates. If a combination of heavy and light springs is used, fit the springs alternately: one light, one heavy spring (as in the picture on the right).

The type of oil used in the primary drive case can have a marked effect on clutch action. We recommend the use of ATF (Automatic Transmission Fluid). ATF is an effective, robust lubricant; it is also clean and light and performs well in the primary drive case. There are many types of ATF for different applications in motor vehicle automatic transmissions, but, as ATF is being used only for very basic lubrication in the Bullet primary drive, any type of normally available ATF will be suitable.



If the problem with your clutch is ‘drag’ and gear selection becomes difficult, it is advisable to check the play at the handlebar clutch lever. The correct amount of play in most cases should be approximately 5mm between the lever and the lever housing. Where play is greater than 5mm clutch drag may occur.

In some clutches a small ball bearing is placed between the clutch rod and the clutch pad, or between the two sections of the clutch rod. Where a ball bearing is the standard fitting, it is important to ensure that this ball bearing is in place. Among other causes of clutch drag are buckled steel clutch plates, damaged plates, plates not lifting cleanly, using an oil with a viscosity that is too low (too thick) in the primary drive or a bent, worn or too short clutch rod. Clutch drag can also be caused by a slipping clutch. A badly slipping clutch generates heat and the heat can cause the clutch plates to expand, which will then create clutch drag.

Special and replacement parts mentioned in the article are available from Hitchcock’s Motorcycles:

5 friction plate clutch kit 90041

Clutch spring kit—3 light, 3 heavy springs 200105

For a clutch pad with needle bearing please phone 01564 783 192 (or refer to the web site: [www.hitchcocksmotorcycles.com](http://www.hitchcocksmotorcycles.com)) as there are specific pads for specific gear box types.