STEWART ENGINEERING

***THE* SUNBEAM SPECIALISTS**

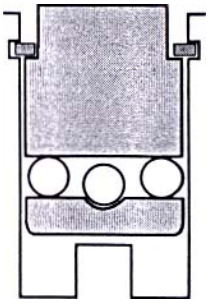
Data Sheet No. 6

Subject: Fault-finding - Clutch
Date: June 1992

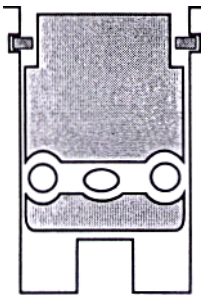
Clutch does not free properly ... cable seems to be continually stretching ... gears difficult to change ... ultimately ending in a high pitched squeal which alters note as the clutch is pulled in.

The clutch race has not been checked or repacked with grease lately, and is now wearing rapidly ... or worse, worn out. The gearbox end of the clutch cable is pulling an arm. This arm pivots on a screw in the gearbox and *pushes* against the **clutch race,** which can just be seen protruding from the gearbox.
If the wear has not gone too far, it can easily be removed by disconnecting the clutch cable, loosening the locknut, undoing the pivot screw, and removing the operating arm. The race should then be **easily** pulled out, using fingers only.

With the race in your hand, you will notice two tiny slots in the top, which enable you to pull out the circlip holding in the 'innards'. These innards consist of a top piece in which the clutch pushrod sits, a bottom plate, and between the two, either 6 balls and a central pip, or just 7 balls.



A



B

The surfaces that the balls run on should be smooth and flat. Deep grooves indicate bad wear, likewise miniature or chipped balls. Good innards raise the top part level with, or even slightly *proud* of, the outside body ... but if you find it is sunk *inside ...* then it needs replacing. Pack well with grease.

See A for GOOD, B for BAD.

BUT ... if the race will *NOT* pull out with fingers only ... then the wear is advanced. If even Stillsons will not move it, then the engine has to be removed from the frame and the gearbox taken off.

From the centre of the mainshaft, at the clutch plate end of the gearbox, can be seen the head of the clutch operating rod. Carefully prise this head off ... or the whole rod out. The race might then be found free . . . but if the race is still firmly in, then another rod placed down the centre of the mainshaft will have to be used to hammer the race out forcibly ... in which case it may push the brass bush out with it. This trouble is caused by lack of grease in the race, the balls wear or seize up, and instead of the rod and top part of the race spinning on the balls, the rod actually spins *IN* the top part. The heat then generated eventually neatly welds the rod *TO* the race and thus the engine has to come out.

Also, as the rod gets worn shorter and shorter, all the clutch trouble and difficult gearchanging appear, and the race starts hitting the end of the mainshaft, belling out the end ... thus pulling the bush out with **it.** You will need a new or exchange ROD, and new race INNARDS ... if you are lucky enough at *THIS* stage to be able to get the old innards out !

Always remove and check the race at intervals, repacking with grease, and replacing the balls or innards complete as necessary.

And *ALWAYS* check the race if the clutch cable seems to be stretching rather quickly !

SERVICE DEPARTMENT
B.S.A. CYCLES LIMITED