

## MAINTENANCE MATTERS.

Having spent half an hour on the telephone explaining to a fellow AJS rider just where and how I would start looking if my bike suffered the same symptoms that he had just described it was no surprise to find that I was back in trouble with my daughter ! She had been expecting a call from the boy(?)friend - the question mark is because he drives a car - and I had been 'blocking' the telephone. In the ensuing discussion I queried how else I could possibly help anyone mend their machines at a distance except by using the phone. The riposte was terribly logical - why don't you write to that Jampt magazine and help several all at the same time, so here we go.....

The problem was with a trials Ajay of 1955 vintage, used fairly regularly in pre-65 trials. Having given many years of good service, with two rebores and four sets of swinging arm bushes to it's credit it started a very irritating fault. Halfway through a section it would jump out of gear, sometimes in second and often in bottom. Double checking with a question the owner realised that, although he had not paid much heed, the bike was usually in neutral after the jump. He merely selected the gear 'properly' as he put it and all was well again for a few sections, then, without warning, it would jump out of gear again.

I was fairly certain that I knew where the problem lay and within the hour he was back on the telephone to confirm that my suspicions were correct, he had dismantled the gearbox - for the first time in his life - and found the problem. I suggested a bodge to keep him running until we found the new spare that he needs and the following Sunday he rode in a Club trial without a hint of gearbox problem.

So what was the mysterious fault and the remarkably quick cure ?

The bike in question uses the B52 Burman gearbox. Gear selection in that gearbox is by means of selector forks which are pinned to (early models) or welded to (later models) two spindles which are located in bushes by the side of the main gearbox driveshaft bearing, one above and one below. The shafts run through the gearbox inner cover, bushed again. At the gearlever end of the selector shaft is an eye through which passes a cylindrical peg which sits in the track machined in the gear selector cam. The gear pedal acts on pegs on the outer surface of the selector cam which causes the rotation. As the cam assembly rotates the pegs in the selector shafts follow the tracks and the selector spindles are moved in and out of the gearbox in the predetermined pattern governed by the track. The selector forks make the gears slide on the mainshaft and layshaft and the relevant gear is selected. Now we come to the point. The gears only stay meshing because of the action of the selector forks, which are held in the predetermined position unless the cam assembly rotates. To stop the cam assembly rotating except when the rider intends to change gear there is a spring loaded plunger which locates the cam assembly by pushing into five depressions machined into the inner face of the cam, one for each gear plus one for neutral. If that plunger does not locate in the hole properly the cam assembly can move round, pulling the

machine out of gear, so a bike which jumps out of gear can often be traced to a faulty plunger. A secondary fault is that in jumping out of gear under load conditions the teeth and engagement pawls on the gears are often worn far worse than under normal fair wear and tear.

So how do you go about fixing the fault? First drain the gearbox oil. Then remove the five screws which hold on the gearbox outer cover, each of the screws is a different length so make a careful note of which was in the top position, etc., so that you can put them all back in their correct place.

Undo the nut holding the gear selector indicator drum and remove the indicator assembly, watch out for the small spring on the shaft. Leave the footchange lever and the kickstart on their shafts and, carefully holding the kickstart to stop it losing the return spring pull the gearbox outer cover off.

Facing you is the outer face of the selector cam, with three small pegs sticking out of it. Above and below the selector cam are the selector spindles with pegs in the trackway. Remove the split pins which hold the selector pegs in the trackway and carefully pull the pegs through the eyes in the spindles until they are clear of the tracks. Note the position on the three pegs on the outer face and then carefully lift the cam assembly out. It sits in a bushed hole in the inner cover of the gearbox.

When the cam assembly is clear the offending locating plunger will be seen, like a small pointed thimble sticking out of a hole in the inner cover. Lift it out carefully and examine it and the spring which pushes it into the depressions in the bottom of the cam assembly. It may be the spring is broken or worn but it is much more usual to find the top part of the thimble worn down almost flat. Some models were rounded-topped others came to a point. If you have a new or replacement plunger fit it, if not a temporary improvement can be achieved by carefully filing the operating surface of the plunger to match, as closely as possible the shape of the depressions in the cam.

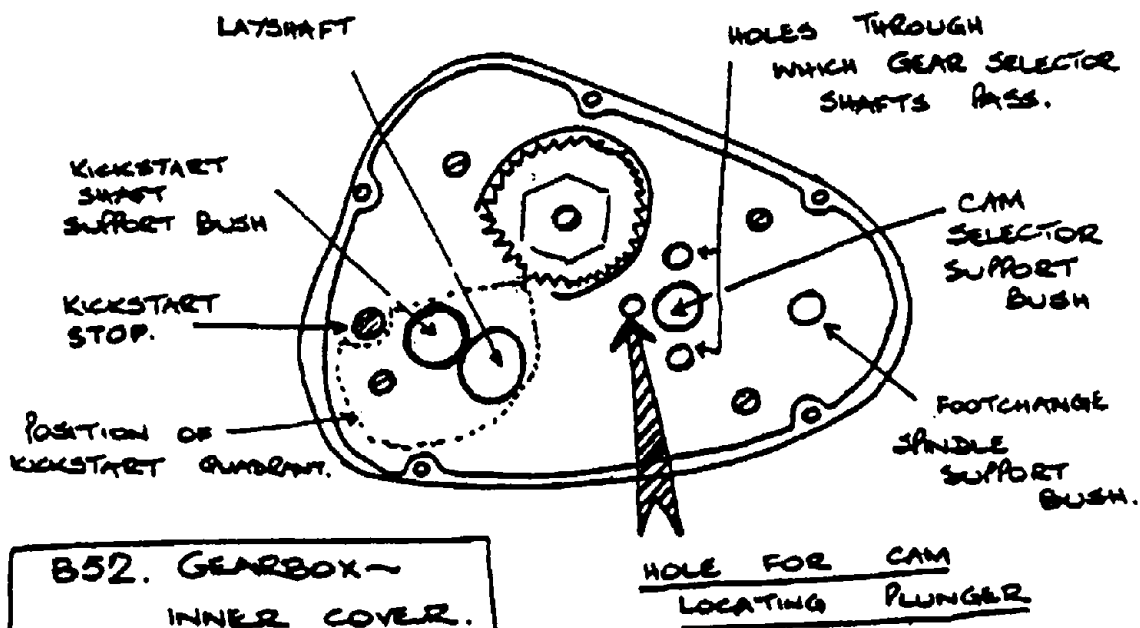
Reassembly is simple. Locator plunger in its hole with the spring inside it, feed the cam assembly spindle into the bushed hole of the inner cover then carefully push it home. Slowly rotate the cam to make sure that the plunger goes firmly into the depressions and that it won't jump out. Set the plunger back to the positions of the three pegs on the outer surface that you had previously noted and gently slide the pegs in the selector spindles back through the eyes into the tracks. Insert NEW split pins in the pegs to hold them in the track. Check the cover gasket, renew, regrease or replace with 'Instant Gasket' whichever is your way then put the outer cover back on, holding the kickstart very firmly to make sure you don't lose the return spring. Put the five cover screws back in the right holes and tighten it all up. Check the action of the gearlever and the kickstart, top up the oil, check the gear selection then put the gear indicator barrel back on and its securing nut.

What have I forgotten - well it would all have been a lot easier if I had remembered to take the clutch cable out of the gearbox end before I started, which is what my friend told me when he rang back to confirm that the job had been successful, but would have been a lot easier had I told him what to do with the clutch cable. You may have guessed that I had one suggestion.....

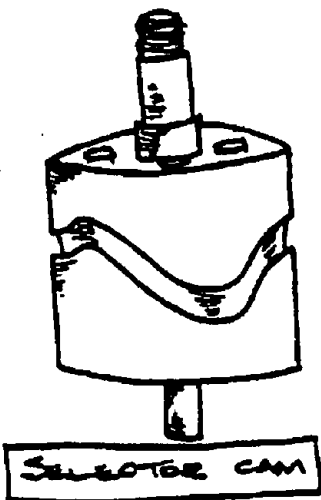
Finally, to help you understand what I have been talking about I have made some sketches which, I hope, the Editor can get into sensible shape for you. I'm afraid that I am happier with tools in my hand than with a pencil.

By the way my daughter didn't win because whilst she was still chuntering the phone rang again with another friend with problems looking for advice. I'll tell you about that one next month.

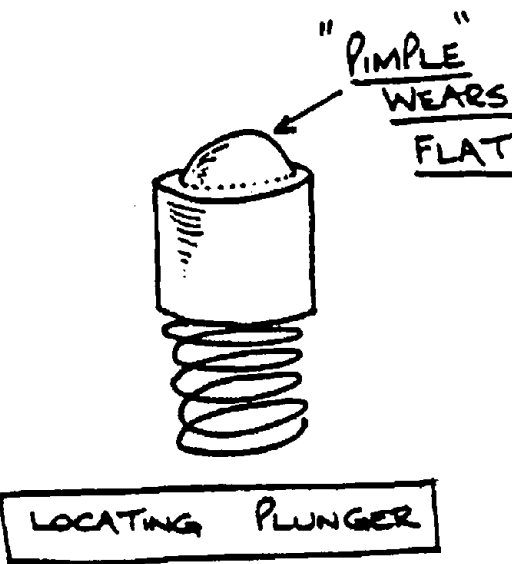
'Spanner in the Works'.



B52. GEARBOX ~  
INNER COVER.



SELECTOR CAM



LOCATING PLUNGER