The majority of these tips have appeared in club newsletters over the years. Please note that you use them at your own risk as neither the Bristol Austin 7 Club nor the authors can be responsible for the results of trying to follow the instructions given.

## Speedometer - Lucas “Magmo” - Faults and remedies - by Ron Hayhurst

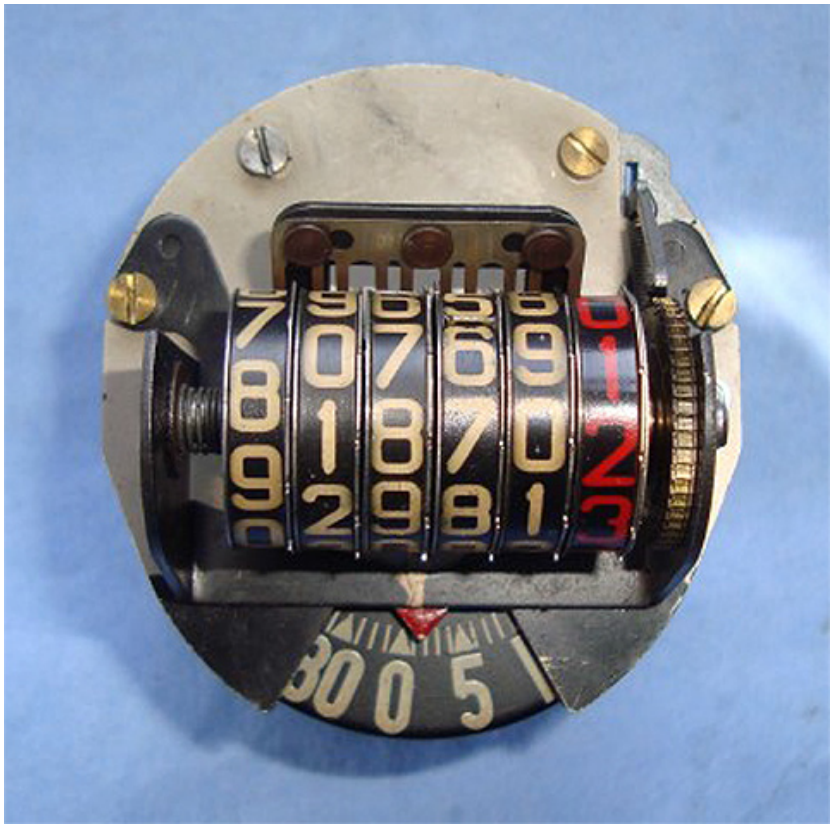
This is the speedometer that was fitted to Austin Sevens from 1932 to 1935. One of the faults sometimes found is for the rotating dial to remain stuck at or near to the zero position unless given a sharp tap. An article in the Cornwall Austin Seven Club’s Focus newsletter, by Mike Davis in February 2009, describes in detail how this may be remedied. The article can be viewed on line by going to the club site at **www.austin7.org** clicking on Technical Articles and scrolling down to “Dashboard Instruments”. It would be advisable to take a print to put alongside the notes below if doing any work. Mike gives step by step instructions which show how to take the instrument apart and free-up the small brass gear wheel which takes the drive to the rotating dial and the milometer. If this action is not taken soon after the fault is first noticed there is a good chance that the gear teeth will be stripped. New spares are not available.

The later type with the more conventional rotating needle is very similar so spares might be obtained from either of these types.

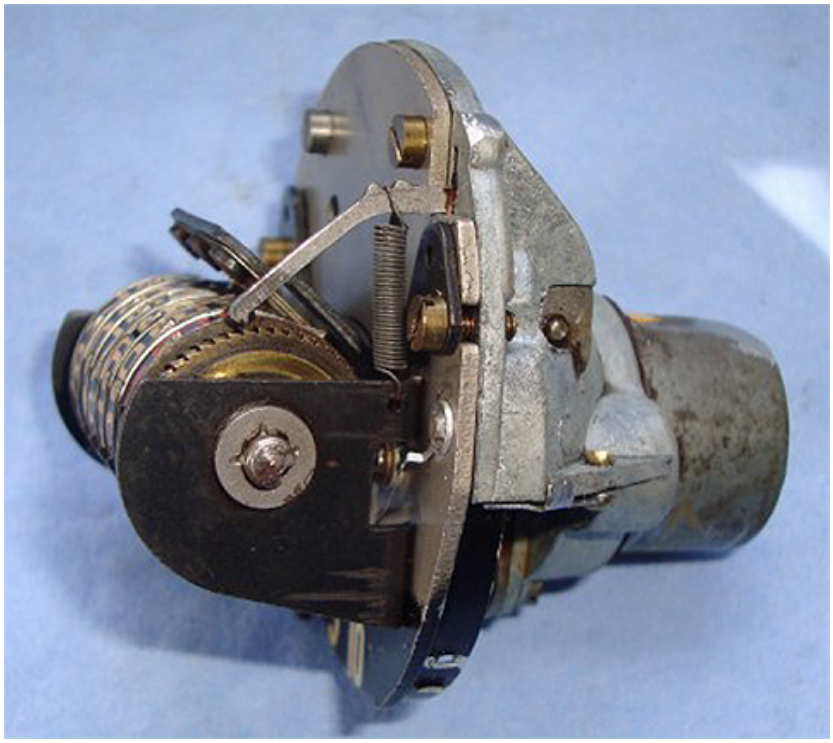
There are two other types of fault and these have both happened on my Seven. (1) The speed would still show but the milometer failed to count the miles. (2) Only some of the number discs moved around ! Methods of solving the problem, or problems, are described below.

### 1. Failure of the Milometer

After stripping down by removing the bezel and glass, and removing the two screws holding the instrument in its case, the unit looks as seen in the first picture. To the right of the number display is a ratchet attached to the red number disc. Above this is the arm of the pawl that pulls the disc around. It is seen again in the second picture where it enters a groove in the main body of the speedo; a spring keeps it in contact with the ratchet. At its far end the arm engages with

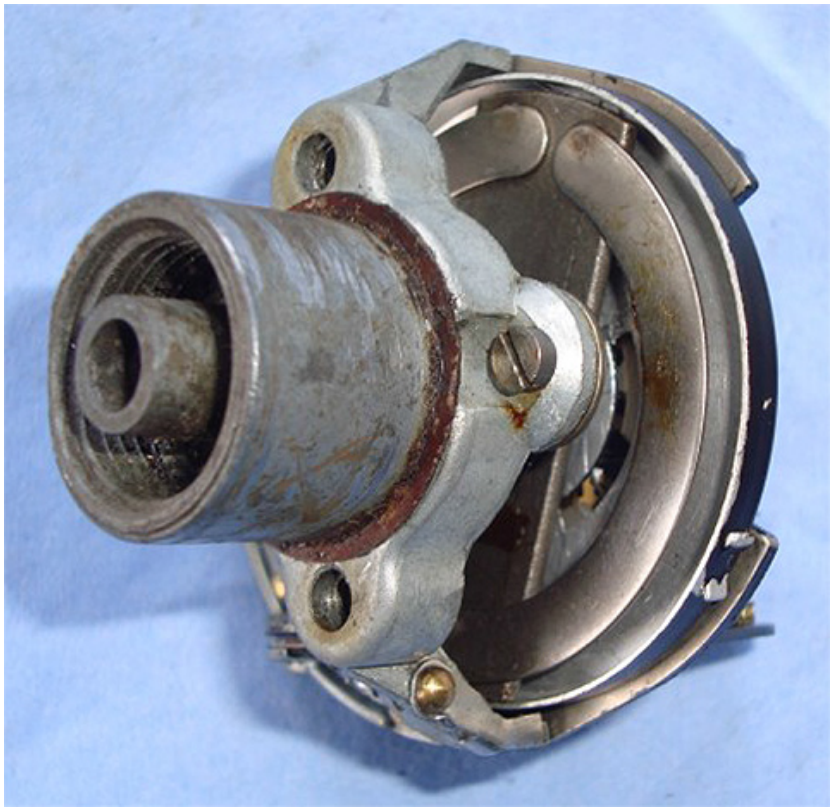



Picture 1



Picture 2

a pin on the end of the gear driven by the worm on the input drive. As the pin is mounted eccentrically, it makes the arm pull one notch on the ratchet for each revolution of the gear. Herein lies the potential problem. Over the years the long groove, through which the arm moves, appears to warp slightly until eventually it starts to nip the arm and the spring can no longer keep it tight to the ratchet. Also, possibly as a result of such stiff movement, or as a result of recording many miles, the profile of the business end of the pawl may be so worn that it cannot properly engage.



Picture 3

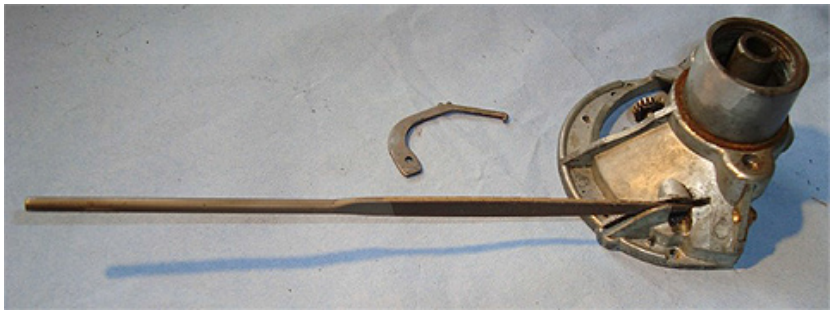
Now if you are careful, initially there is no need to strip everything down unless the worm gear is badly worn and needs replacing. So, having reached the stage shown in pictures 1, 2 and 3, proceed as follows:-

**i.** Carefully lift off the spring and set aside.
**ii.** Remove the screw at the rear of the main body and take out the plate it secures.
**iii.** Ease out the shaft carrying the small gear.
**iv.** Clean up this gear and the worm and decide if they are still in good order.
**v.** Check how freely the pawl arm moves in its groove; if it is stiff the groove needs filing. Check the profile of the arm at point of engagement.
**vi.** With the main body secured in a vice use a thin file to open up the groove, making regular checks that enough metal has been removed. A small amount might also be removed from the mating part of the pawl arm. Hopefully it will not be necessary to gain access by removing the big round plate holding the speedo

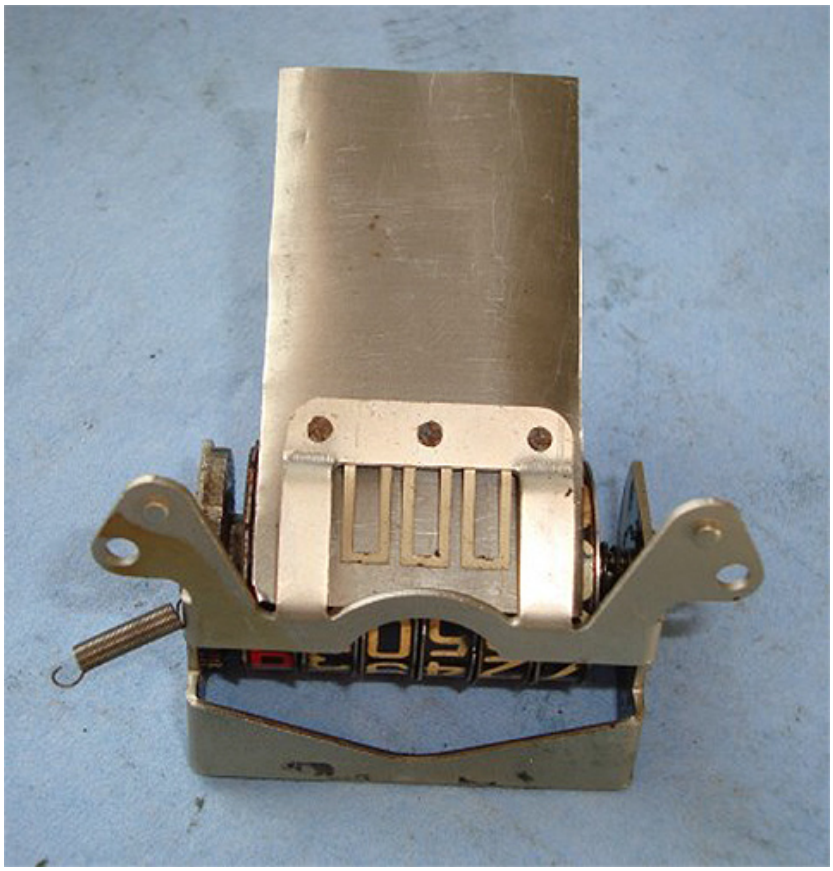
and milometer. If so read Mike Davis's warnings about the hair spring before you make it look like picture number 4!!

vii. Temporarily refit the arm and examine its profile where it engages. If worn, remove it and carefully restore the correct shape by filing off the minimum amount.

**viii.** Apply a small amount of grease to the shaft and gears, noting that there is a small thrust washer between the brass gear and the casing, and re-assemble



Picture 4



Picture 5

## 2. Making the Numbers Move

**i.** If only some of the numbers move around probably the best recourse is to replace this part of the instrument. If you want to change the displayed mileage, read on!
**ii.** Remove the spring holding the pawl arm
**iii.** Remove the number display after taking out the two securing screws.
**iv.** Note the bracket at the rear carrying a slotted spring plate held with three rivets. The slots hold the disc steady in a fixed position until lifted when the adjacent disc to the right comes around. If any of the slots are missing or broken it would be best to seek a replacement component. If tempted to strip this part take a very careful note of the way it has been assembled if you want to put it back together later!!
**v.** Fit a milometer acquired from another speedo. Trying to clean the numbers does not usually work.
**vi.** To change the reading, very carefully insert a piece of shim steel, or beer can, underneath the spring plate as shown in picture 5. This will enable the discs to be rotated and set as required.

**Some final thoughts:-**

• If the boss on the rearmost part of the speedo fouls the casing when first stripping down, it will help to file away the part of the boss that catches.

• If the speedo reading is inaccurate (assuming it is matched to the take-off gears in the gearbox and also the back axle has the appropriate ratio) it will probably be due to a loss of magnetism in the rotating disc. Fixing this is beyond this article! However, check that it is not due to a mangled hairspring or a missing notch on the disc where it mates with a small plate riveted to the body. If these defects are found, look for replacements from another speedo.

• If you want a professional repair, **Speedograph Richfield** would be the best bet. Having spoken with them I can report that they can help with Magmo speedos. The component carrying the milometer should present no problem. If all other components are in good order, recalibration should be possible. However it will not be possible to fix problems arising from wear/damage to the main shaft. As usual you can find them via Google and then follow-up with a telephone call to describe the symptoms.