

Fastback Tachometer Repair

The tachometer on my recently re-commissioned Fastback had ceased to function due to being 'upset', by the live feed used to power the electric fuel pump. This was sorted and another tacho. fitted, but the replacement was somewhat optimistic, showing 7000 RPM at 60 MPH in overdrive top!

Coincidentally around the same time, Mark Willows of Clocks4Classics made contact with the club; alerting us that repair kits for the type of tachometers fitted to Fastbacks were available from his company.

He hadn't been aware of one being used on a Fastback, so I volunteered, thinking it would be a good opportunity to test out the kit on a Rapier installation and a really good test it would be, with such an inaccurate gauge.

There will be a more detailed article about the work I undertook in the next issue of Cut & Thrust; including removal and re-fitting of the unit in the dashboard, together with what is involved in carrying out the actual repair to the gauge. For now I will just say that the kit was dispatched promptly, full fitting instructions were supplied. Additionally there were videos available on-line to assist you. The job can be completed by most DIY mechanics and is straightforward. Working on the dashboard itself is likely the most tricky bit and it took a little longer than expected, but I was noting down each step & taking lots of photos for the article I will produce.



As I write I have completed my static test and it looks to have done the job. I need to do a proper road test, but it is looking like its a great way of making your tachometer 'spot-on'. The tacho. on my H120 that I have owned for 45 years, has never been accurate, so it looks like another kit will be winging its way to my home once I have completed and fully tested this first installation.

Mark's kits can be viewed on the Clocks4Classics website www.clocks4classics.com

Note that the Fastback was fitted with different types of gauge over the course of production. Mine is an early model with the looped wire and sensor. Later models did away with this and had a wire to the coil via bullet connectors. There were two slightly different types of these latter gauges, but the operation is essentially the same.

Glen Mason

Fastback Tachometer Repair - Part 2

As promised last issue, here is the second and more detailed report on installing a Clocks4Classics repair kit to the tachometer fitted to the Fastback Rapier and H120. As you may recall from the last feature, the one in my Fastback drastically over-read. This second instalment gives more detail on what is involved. Picture 1 shows how things look at the start.



Picture 1: How things look at the start.



Picture 2: Overdrive and indicator stalk removal.

The Workshop or Haynes manuals give the basic steps involved in removing the instrument panel from the main dashboard/crash roll assembly. If you don't have access to one of these books the key points are:-

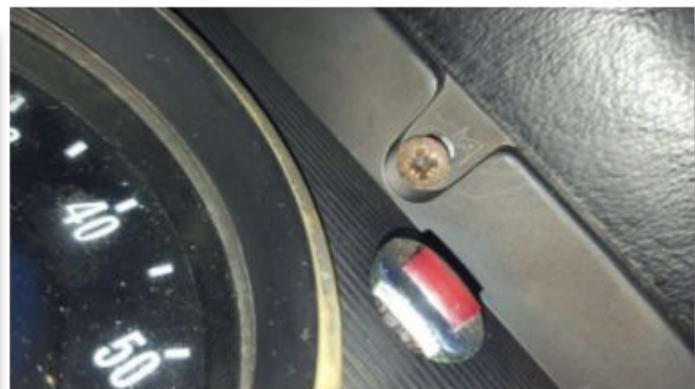
1. Disconnect battery cables
2. Disconnect choke cables at the carburettor end
3. Disconnect speedo drive
4. Disconnect oil feed pipe to oil pressure gauge
5. Disconnect screen-washer pipes from back of wiper switch
6. Disconnect instrument harness cable plugs from behind the instrument panel
7. Detach eye-ball vent pipe
8. Remove steering column cowl
9. Removed indicator and overdrive stalks (Picture 2)
10. Remove the 4 spring clips from the lower edge of the instrument panel (Picture 3*)
11. Remove the 4 cross-head screws from the upper edge of the instrument panel (Picture 4**)
12. Disconnect cables from the panel light switch and cables supplying the clock

* Showing securing thread with spring clip removed

** Showing one example

As the tachometer is at the right-hand end of the instrument panel I found from past experience that it was not necessary to undertake steps 4, 5 or 6, as there was sufficient 'slack' for the panel to be withdrawn further on the right than the left and this gave enough room to gain access to the gauge. I was also taking the opportunity to replace the clock, but this is more easily accessible though the speaker aperture.

With those steps undertaken the panel can be withdrawn slightly: enough to provide a view of the back of tachometer, which is held in place on the panel by 2 little brackets that are part of the rear casing and secured to the binnacle by two cross-



Picture 3: Lower instrument panel fixing thread.

Picture 4: Upper instrument panel fixing screw.

head screws, one of which carries the earth-wire. It is a bit fiddly to get a small screwdriver in behind there, but as the screws are screwed into plastic they are not too tight. Best to remove all wiring to the gauge first (Picture 5 and 6 - note this is the early fitting) whilst it is still securely attached. Once wiring and retaining screws are removed it is free to be withdrawn from the bottom of the dashboard leaving this situation (Picture7)



Pictures 5 and 6: Wiring - early fitting tachometer

Picture 7: Tachometer out.

On to the work on the gauge itself. The kit consists of a circuit board to replace the outer one on the existing dial - instructions don't come in the box, but there is a comprehensive set of instructions printable from the internet, so I won't repeat those here, I will just highlight any key points I encountered once I started to take the unit apart. The Lucas units fitted to all cars of the period are basically the same in operation, but the unit fitted to the Rapier is unique to that vehicle. Remember that there were 3 different types of tachometer fitted to the Rapier during its production run, the early one - as fitted to mine with an impulse coil - with the later ones, both essentially the same in operation took pulses direct from the coil; however, they had 2 types of fittings on the back of the gauge. You do need the correct kit to go with the type of tachometer fitted.

I struggled somewhat to remove the bezel from the instrument but slowly tapping it around and after loosening it a little was able to gently prize up the sprung clips (Picture 8) a little to allow more movement and turn the bezel to the point where the clips line up with the flat areas of the case, so it can - after removal of the retaining screws - be withdrawn from the unit itself. The 2 screws arrowed in Picture 9 are the ones that need to be removed in the case of the Rapier's gauge. The other 2 secure the outer circuit board to the unit. NB: In picture 2.2 of the instructions these are reversed.



Picture 8: Bezel retaining clip.



Picture 9: Casing removal screws.

It is then a case of replacing the outer circuit board with the the one supplied, which involves cutting some existing wires - as detailed in the instructions. Here you need to be very precise to allow as much of the original wire to be retained (Picture 10 shows the old outer circuit board now free) for joining to the new board. (Picture 11). IDT's (Insulation Displacement Connectors) are used to join the new wiring to the existing, so no soldering is required. To accommodate the additional wiring that will be used to make direct connections to power/earth/coil when in situ, it is necessary to drill a central hole in the casing. A template is provided for this; although the instructions are for an 8mm hole to be drilled I only had a 5mm one, but this did the job; albeit a tight fit - just make sure all burrs are removed and the hole is smooth



Picture 10: The old circuit board removed.



Picture 11: The new circuit board in place.

before feeding the wires through (Picture 12)

It is then a case of calibrating the unit by connecting up to a 12V battery. I made up my own little test rig using crocodile-clips and bullet connectors - again instructions are clear what to do, one just needs to familiarise oneself with the back of the replacement circuit board and then the procedure is straight forward. I had an issue because the needle on my unit was catching along the path of the rheostat, so it would not go past 4500: on contacting Mark, he said it was vital that the 3 calibration points are used as stated (1000, 3000 and 5000 rpm marks). It took me a while to work out the problem, but it shows the importance of not rushing these things. Even though I had to re-calibrate 4 times it is best done properly before putting everything back into the car, only to find you have a problem. (Picture 13 shows the unit going through the re-calibration process). There is a single page trouble shooting guide for the more basic problems, but mine was not one encountered before!



Picture 12: New wiring inserted.



Picture 13: Calibration.

Before fitting back in the binnacle I connected up the re-built gauge to the 'live' (using an ignition controlled 'live-point'); earth and with the necessary additional wire to pick up from the coil: resting the gauge on the steering column. The car didn't start immediately and the rev-counter needle did not move like it normally does on cranking, however, once the engine burst into life, so did the tachometer, which settled down to a smooth tick-over of 900 RPM (Picture 14) and a few subsequent blips of the throttle and a gentle build to 3000 RPM seemed to prove all was well. A later test run when everything was back in place proved the unit is now reading exactly as it should; so a worthwhile investment if you want to see your rev-counter reading correctly.



Picture 14: Testing.

Finally just to say when putting everything back; do check at each stage that all ancillaries like lights etc. are working as they should. I had problems with wires becoming detached from the lighting switch as they were a bit stretched and had to do several re-connections in the process of putting the panel back in. Also, remember on this early unit, none of the existing wiring for the tachometer is used (other than earth and illumination) when re-fitting, so make sure the old wiring is suitable tied up and insulated.

Thanks go to Mark Willows of www.clocks4classics.com (where kits can be viewed and ordered) for his help during the work I carried out.

Glen Mason