

# Adjusting Emma's Tappets:

## Introduction:

I appreciate that Group Members who built their own NG's have a good mechanical knowledge and the series of posts on how I am bringing Emma up to scratch may be like teaching Grannie to suck eggs. My posts are generally slanted towards those with more limited knowledge in a particular subject area; hopefully encouraging them to have a go/get a little more involved with their own maintenance.

## Adjusting Tappets:

Emma wasn't particularly noisy in the tappet department but nevertheless I wanted to check and adjust them.

The firing order of four cylinder engines is invariably '1342' and on the 'B Series' engine the distributor rotates anti-clockwise when viewed from above. I always put a red cable tie on number one plug lead which enables you to always put the leads back on the plugs in the right order.

To adjust the tappets we need to turn the engine over which is normally done with a suitable spanner on the bottom pulley. Access is a bit tight on Emma so I adopted the fall-back-method; i.e. take the spark plugs out, put it in top gear, handbrake off and push it backwards and forwards.

On a four cylinder engine with two valves per cylinder we use the 'Rule of 'Nine' i.e. with number one valve spring fully compressed we adjust number 'Eight' valve (One and Eight = Nine), hence the 'Rule of Nine'. When we adjust number Two we put number Seven into the fully compressed condition. You will notice a pattern here insofar as whichever valve you adjust then the one that's the same number from the other end of the cylinder head needs fully compressing. So the Fourth one from the front is number Four and the Fourth one from the rear is number Five when counted from the front (Four and Five is again Nine).

In practice I never look for the valve spring to be on full compression, I look for the adjusting nuts to be at their maximum height as I find it easier. Some people don't bother with the Rule-of-Nine instead they turn the engine so both springs in one cylinder are compressed and adjust **both** valves on the cylinder where **both** pushrods rotate freely.

Before we can start we need to remove the spark plugs, tie a knot in the lead of number one plug to identify it or use a cable tie etc. for long term/future identification. Now remove the rocker cover which is quite close to the bonnet, as the rocker cover is slightly to the near side of centre it's easier to remove it from the near side. Emma's rocker cover is aluminium and a bit crappy so I gave it a quick polish on the buffing wheel and then a polish just to keep corrosion at bay. To do a really good job you need to apply a lot more effort. A rub down with 600\*\* grade wet and dry (I use oil instead of water), is a good starting point then go over it with 800 grit then 1000 grit and finish off with 1200 grit. To degrease it I used aluminium wheel cleaner followed by a wash in soapy water. If you have a buffing wheel then now's the time to use it but leave it for at least one hour to oxidise (a tip given to me by a professional metal polisher), before you start polishing. If you haven't got a polishing mop then apply Solvol Autosol to a piece of stiff cardboard and rub vigorously.

## Note.

*\*\* Abrasive grit gets its grading from the number of grits that would make up an inch if laid end to end; i.e. if we removed the grit from grade 600 paper we would need to lay 600 pieces next to each other to achieve an inch of length; therefore the higher the grade number the finer the grit.*

Back to the tappets and I found the easiest way was to do everything from the left hand side. The settings are 15 thou\*\* (0.015"), cold. Hold the 15 thou feeler gauge between your fingers and

slowly pull it out with the other hand. This is what you are trying to achieve with your adjustment; i.e. a nice sliding fit. Insert the feeler gauge between the end of the valve stem and the pad on the rocker arm. Adjust if not a nice sliding fit. Adjustment is by loosening the locknut (1/2" AF spanner), then turning the adjusting screw with a screwdriver. Keep the screwdriver still while you tighten the locknut. You can test for accuracy by trying a 0.016" (10+6), feeler which shouldn't go in, then a 0.014" (8+6), which should be loose.

**Note.**

*\*\* Most Imperial feeler gauges also have a gauge marked 0.0015" but this is 'one and a half thou', don't confuse this with the 0.015" gauge, if you do you will burn out your valves.*

To replace the rocker cover I like to use Blue Hylomar Sealant; start by applying it to one side of the gasket then stick it to the rocker cover. Leave it for about 30 minutes to get tacky then apply a coat of Hylomar on the other face and lift the rocker cover carefully into position. After checking that the gasket is not displaced fit and secure the special rocker cover fastenings but don't over tighten.

Finish off by checking the spark plugs then put them back in; some Copaslip grease on the threads is a good idea, now connect the leads in the order 1342.

**DON'T FORGET TO TAKE IT OUT OF GEAR BEFORE YOU TRY AND START IT!**

**Postscript:**

Most tappets when correctly adjusted are normally reasonably quiet but several things stick in my mind from my days as a young mechanic.

1. Correctly adjusted tappets make the engine sound like a well oiled sewing machine. Just listen to a Bugatti, "eat your heart out Rachmaninov, a well tuned Bugatti is music to the ears!"
2. A broken con-rod is often preceded by a loud tappet like noise that gets worse, much worse!
3. A single loud tappet noise on a VW Beetle is often followed by the disintegration of number three exhaust valve and a ruined engine.
4. Later Talbot cars had the noisiest tappets I've ever heard, even when correctly adjusted.