

I ASKED AN EXPERT.....

Magneto Tips

What would I look for if a magneto comes in from an owner, the instructions being that it has a spark or it used to work well, just check it for me?

The heart of the matter is the coil and condenser. No point being fussy or doing anything with the rest of it, if this part of it is not up to scratch.

Sometimes the coil has been rewound recently, but this doesn't mean it's really good. Some people's idea of what is good is not just good enough when the temperature outside is over 30*c and the mag gets really hot. Modern materials, and extra turns on the secondary winding, along with vacuuming in the anti-tracking varnish with a long bake in an oven are what is required to make the coil strong yet reliable.

The condenser should be the easy bit. A trip to your local Jay Car should get you the condenser with the correct ratings, however this is not the way to go. These items are often not up to the standards required to be reliable in the application for which we are using them. Get a tested and reliable item from a known and reliable supplier who knows what they are to be used for. I use Rifa condensers, made in Finland and buy 3,000 at a time, but any English magneto spares dealer would find you a reliable item.

To the rest of the magneto: a magnetiser is essential on some magnetos. This takes only a few seconds to boost your maggy and costs little.

Slip rings should be checked for leakage; trued-up on the lathe when on the armature and polished, if it is a twin. Brushes on the pick-ups should be made of the correct grade of carbon, especially on a twin cylinder mag. The springs should be light and the brush free to move in the holder. Just because you have bought a pair of new pick-ups from a retailer does not mean the brushes are okay. The wrong grade of carbon can leave a track around the slip ring and then the spark can go anywhere!

Points assemblies need extra care. If you have the Lucas or ML face cam contact assembly, then never, under any circumstance hold this unit when tightening or undoing the drive nut on the other side. The zinc material and or the horseshoes drive on the end of the armature will be damaged and these parts are expensive to fix. Note that some of the aftermarket points assemblies make the original Lucas components look really good. On the outer blade there is another extra spring which people tend to fit the wrong way, it is not there to increase the spring

pressure, it is there to prevent the spring always flexing in a line so that the flair faces outwards.

Most CB points in our machines are made of tungsten. This material is very hard and lasts for years, with occasional refacing. However it does oxidise, so if not in use for a long time a hard grey film develops on the faces. It looks clean but contact will be intermittent. Remove them and polish off to a bright finish. This does not happen to platinum points, which is why platinum or gold can be used in machinery where an instant start is required when the mag is not in constant use. The downside is that tungsten lasts a lot longer and costs a lot less.

The breaker spring on ring cam mags should be removed and cleaned where screwed down. Check for any rust or pitting on the spring and replace if any found.

The contact arm pivot may need replacing if sloppy as the movement will cause the points to wear excessively. Check the cam ring for wear and replace if worn badly. Setting the points at 12 thou on a twin may find a difference on lift one side to another, if not excessive it's not a problem as long as a degree wheel, when fitted, shows the timing to be what you want. Remember 5* difference on the mag is 10* on the engine, enough to damage your motor.

Test run the magneto, it should run 8mm air gap consistently for one hour. A quick check is to carry a plug, with the outside electrode removed, on kick-start the spark should jump that gap, about 5mm.

Check plugs: should not be sooty; .020" plug gap. Check hole in tank cap. Blaming the mag for sooted plugs or faulty fuel supply is not uncommon!

Peter Scott.

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Timing Discs By Antony Gullick

Matthew Goodwin has manufactured some timing discs with the VMCC logo on them so as members can fine tune their motorcycle with a reminder of why they are doing it - the next run!

Most timing discs hang on the wall and are mere decorations in a man cave, but

they can be a very useful tool and a way of making sure your engine is doing exactly what it should be doing.



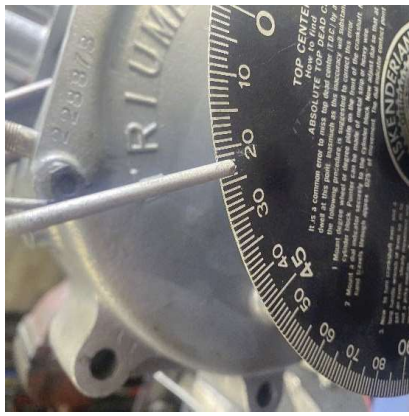
Most bikes have a hole on the crank on the timing side that you can hold the disc on with. This is best done with a couple of fibre washers so as to allow you to move the disc if need be.

Once you've attached the disc you need a pointer, this can be a

bit of bent welding wire or a piece of strap or whatever. Once you've got your pointer in place put a mark on the crankcase with a felt pen, this is so that when you look at your pointer, you line the mark up and don't get any parallax error.

Finding top dead centre. I use a piston stop that I screw into the spark plug hole, but an easy way is to get an old spark plug that you can pull apart and put a bolt or threaded rod through it so it is long enough to hit the piston before TDC. Then carefully rotate the motor in one direction until it stops and put a mark with a felt pen on the disc where the pointer is. Then rotate it the other way until it stops and put a mark on the disc where the pointer is. Exactly halfway between these marks is exactly TDC. At TDC and BDC the piston actually stops while the rod goes from one side to another, it's only a few degrees, but if you are timing accurately this is important to eliminate. This should be on the compression stroke, if it's just move it 180 degrees





Ignition timing – If your timing is to fire at 36 degrees BTDC at full advance, then simply turn your engine backwards past 36 degrees then bring it back up to 36, this is to negate any gear or chain backlash. After checking the magneto points gap you move your points until they are just opening and lock it up. Wind back before 36 degrees and then bring it forward and check if you have got it right. You can usually get it

first time but may need a couple of goes.

So why bother? If you have a veteran or vintage bike that you time at 5/16 BTDC then you have no need, but if you have a V twin or flat twin that you time from one cylinder, you can't be sure the other is accurate. Sometimes they are not and you need to split the difference and this is much easier with a timing disc.

The other area where Matt's discs are handy is knowing what's going on with your valve timing. Again for basic engines, this is mostly an academic exercise, but if you have something a bit sporty or you feel there is something not quite right with your bike, it's worth a look. Things you need to know.

Inlet opening, Inlet closing, Exhaust opening, exhaust closing. Using the VMCC timing disc, close your tappets up to about 2 thou then hold a 2 thou feeler gauge in there and turn the motor until the feeler gauge



can't move and note the spot on your disc, then when it releases, note the spot on the disc. For more complex engines like this International Norton I did recently setting up a dial gauge (or two) is better as the cams are verniered and can be adjusted separately.

I hope this makes sense and I would like to thank Matt for having the foresight to produce

