

# MODEL ENGINEER

Vol. 197 No. 4279

UK £2.50 | Australia \$8.60 | New Zealand \$10.70 | Canada \$8.25

4-17 August 2008

**BUILD**  
THE OMC-3  
ENGINE

**GREAT  
ORME  
TRAMWAY**

**USEFUL  
INDEXING  
TABLE**



**FASCINATING  
HYPOCYCLOIDAL ENGINE**



# THE OMC-3 FROMENT ENGINE

**Malcolm Stride** reviews the third engine kit in this interesting series of models.

The subject of this review is the third in the series of interesting models from the Old Model Company of pioneering attempts at electric motors.

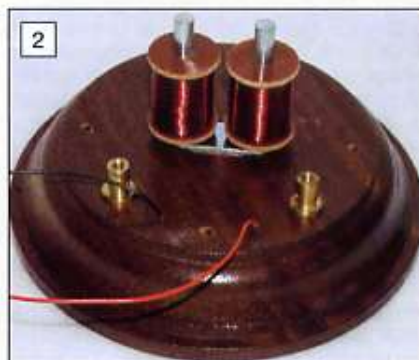
This engine is a direct current motor using a rotating armature with iron pole pieces. This is driven by a pair of fixed coils (the stator) energised via a contact system driven by a cam on the shaft. This is different to the typical DC motor of today which uses an armature with coils energised via a commutator and rotating between magnetic poles.

Unlike such modern electric motors the mechanism for this engine is completely exposed and provides a superb means of educating youngsters (or the not so youngsters) into the principles of operation of direct current electric motors.

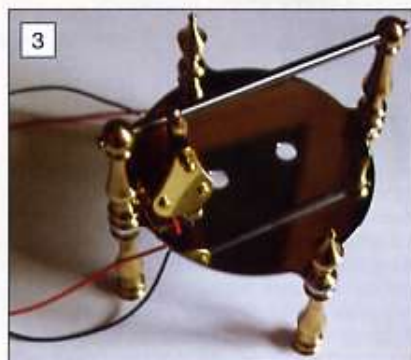
The now familiar well-finished parts are all packed into numbered bags to link to the relevant numbered sections in the detailed instructions. I have found from the previous kits that if the instructions are followed to the letter, the kits go together without problems and the model will work as expected which is how kits should be.



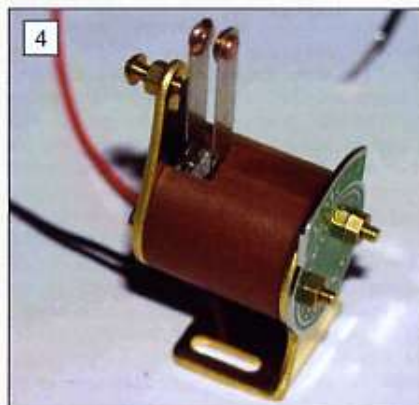
The engine assembled prior to final setting up.



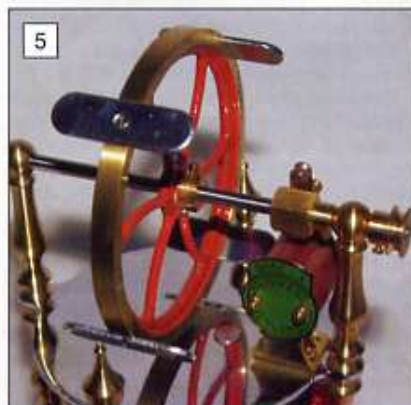
One of the two main sub-assemblies, the wooden base with the coils mounted.



The platform assembly with contact housing and cam on the shaft.



The contact housing showing the fine-tuning adjusting screw.



The main shaft showing the flywheel pole pieces and the contact cam.

## The kit

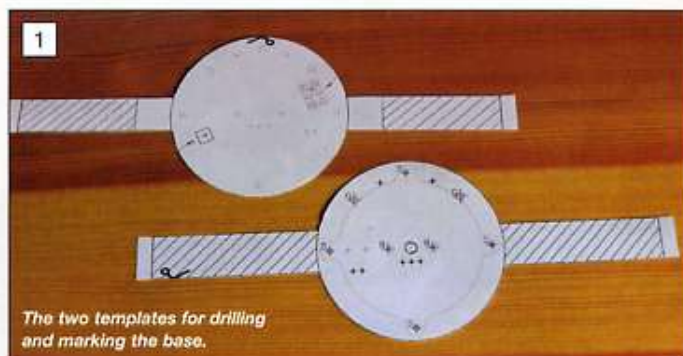
As readers who have followed this series of reviews will expect, the kit of parts (80) comes securely packed in a strong card box which doubles up as an assembly aid when everything is unpacked.

The now familiar well-finished parts are all packed into numbered bags to link to the relevant numbered sections in the detailed instructions. I have found from the previous kits that if the instructions are followed to the letter, the kits go together without problems and the model will work as expected which is how kits should be.

I do not intend to repeat the instructions in this review but have photographed the basic assembly stages to show the sequence.

## Assembly

As with the previous kits, the first thing that needs doing is to drill the base to the templates provided and then to varnish or stain to choice.



The two templates for drilling and marking the base.

Having discovered that the elderly tin of varnish I used for the previous kits had 'gone thick' I decided to use a can of spray gloss varnish from the local DIY store. This did avoid the "two minutes painting followed by ten minutes cleaning the brush" syndrome which tends to be the case when dealing with small parts like this.

I kept things simple with the varnished base and just the flywheel spokes painted red as a contrast.

I decided to drill the base after varnishing this time and as with the previous kits, cut out templates (photo 1) are provided for the top and underside. It is important that the underside template is lined up correctly so that the jack socket and terminal block are in the correct positions relative to the drilled holes.

There are two main sub-assemblies with this kit, the wooden base with the coils (photo 2) and the main wiring and the platform assembly (photo 3) which consists of the main mechanical components.

Whilst the varnish was drying I assembled the platform assembly ready to be mounted on the base.

One clever point illustrates the attention to detail in these kits. An extra shaft is provided for lining up the bearing pillars on the platform assembly. This shaft is a fraction larger in diameter than the actual working shaft thus ensuring that the working shaft will rotate freely when assembled. I suggest that builders keep this extra shaft in case anything moves and needs to be re-aligned later.

The contact assembly (**photo 4**) on this engine is slightly different from the previous two and has an adjusting screw for fine-tuning of the engine when running. It still pays to set up the contact assembly accurately first for best running.

The flywheel has bolted on pole pieces (**photo 5**) which locate into milled slots and I assembled these with a touch of thread lock on the screws to ensure they stayed put.

The wiring is similar to that on the OMC-1 engine and is easy provided the instructions are followed.



*Set up and spinning merrily.*

#### **Setting up and running**

Once everything is assembled (**photo 6**) it is time to set the flywheel position relative to the

contact cam and to fine tune the engine for running. I found that the best position for the cam was with the contact points just opening as the leading edge of the flywheel pole piece was level with the leading edge of the coil poles.

Once everything was running, the adjusting screw can be used to get the best performance.

This engine runs faster than the others (**photo 7**) and has a heavier flywheel so make sure small fingers do not get in the way of things when it is running!

This kit maintains the high standard that I have come to expect from this company and yet again is an interesting model of an early experiment in electric power which provides an instructional kit that assembles into something to grace the mantelshelf.

The OMC-3 is the third in the series from the Old Model Company who can be contacted at PO Box 455, Chichester, West Sussex PO18 9ZH, tel: 01243-575403 or via the website at [www.oldmodels.co.uk](http://www.oldmodels.co.uk)

