

# Meccano Explorer

*by Neil Bedford*

I hope you don't mind my writing but I have been building a model of a Scammell Explorer complete with trailer and more than once I have used the Scammell Register's great website as a source of information. Having quite recently completed the model I thought you might like a quick look.



I am a member of the South West Meccano Club (we have a website with a few more pictures of the Scammell at different stages of build and many great models by other modellers) and I have built models

with Meccano all of my life (I am now mid forties). A brief technical spec is as follows:- 1950's Scammell Explorer 6x6 Recovery Vehicle (but you already knew that!).

A more detailed description is:-

- 1950's Scammell Explorer 6x6 Recovery Vehicle
- all parts are from the vast Meccano system, other than the very powerful drive motor
- length 31 inches, width 13 inches, height 15 inches
- weight is around four stone so everything has had to be built very strongly.

Meccano was patented in 1901 by Frank Hornby and has seen several colour schemes over the years and whilst my collection spans a number of periods, the bulk of my good Meccano is from the 1970 - 77 period (aligning with my childhood). This period saw yellow flat plates, blue flanged plates, zinc strips and girders, black rubber tyres and a large range of solid brass gears, pulleys and couplings. Having said this, I have also used some parts from other colour schemes to add contrast.

During this period, Meccano sets were numbered from one to ten and whilst the number ten set was just a dream for most boys (I did not amass a 'Set Ten' until I was well into my teens) even this great set would not build a model as large and detailed as this one. Published plans for Meccano models are also essentially confined to these sets and consequently enthusiasts generally “scratch-build” their models beyond this point and such was the case with this model.

I have always liked the look of all Scammell lorries but the angular nature of the Pioneer and Explorer in particular lends itself very well to Meccano modelling as compound curves are very hard to get right, even on this large scale.

I was lucky enough to find excellent scale drawings on the Internet as well as many photos and I have also seen a couple of Explorers and Pioneers “in the flesh” - *they*

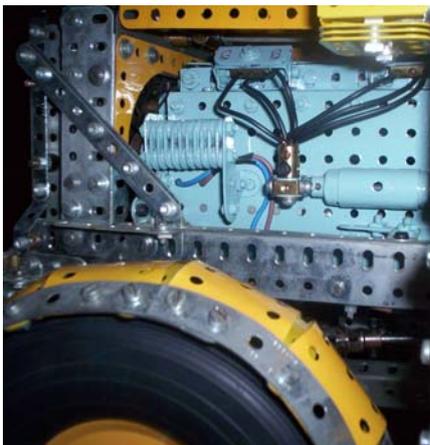
*are truly lovely things!* The first step was to decide a scale and, as I usually model road vehicles, my method is to use the road wheels to determine this. I could have built the bodywork twice as big, but the six inch wheels I have used are the largest readily available to the Meccano modeller. Another factor was going to be weight and I really wanted this model to drive under its own power and I thought that this scale was as large as I could go and still achieve this - although I still underestimated this challenge!

First off then, I measured the diameter of the road wheels on the scale drawing and compared this to the six inch diameter Meccano wheels. As it worked out, I needed to measure the drawing in millimetres and divide by 5.74 to get the model size in inches. This may sound like a palaver but I am (just) young enough to work naturally in metric, although Meccano parts are all measured in inches, because of their heritage. This gave a scale of about 1 to 9. Most Meccano parts are lined with holes and these holes are half an inch apart. From this point on it was a matter of measuring each part on the drawing and calculating the model size in inches, then rounding up or down to the nearest half inch. In this way, the model is quite accurate, in theory to a maximum deviation of a quarter inch.



Each component was then built, sometimes preceded by a sketch, and almost always rebuilt at least once until I had it right, selecting suitable parts as I went. Whilst my collection is extensive, it was still necessary to purchase some new parts along the way - perhaps where I needed a great many of a part which is less common.

Much like restoring the real thing, I imagine; I started with the chassis, then the suspension and drive train, then the cab and rear body with crane. Many pictures of



real Scammells showed them with the engine side covers removed (I assume to aid cooling) and this inspired me to replicate the huge Meadows petrol engine. Another hobby of mine is classic car restoration so I know my way around an engine reasonably well (although my 1967 Mini has a slightly smaller power unit!). The engine was modelled in rough Meccano parts because I wanted to paint it pale blue to replicate the ex-Army engines and to make it stand out in the model. Engine, fan, exhaust, radiator and so on are all represented.

Whilst Meccano produced many electric motors over the years (as well as clockwork and even live steam) none of these would come close to moving this beast along and a very powerful modern electric motor was used and this is buried within the Meadows unit.

This was never going to be one of those models which you chase around the floor, reaching into the cab to press the clutch pedal with your finger and quickly changing gear, so instead I went for simplicity in the drivetrain, to keep friction to the absolute minimum. This simplicity ended with the differentials however, which are more complex and extremely robust - the torque going through them is enormous. These two diffs are of the all-pinion type, worm driven, to my own design - I actually figured them out laying in bed one night and had to jump up and sketch them - much



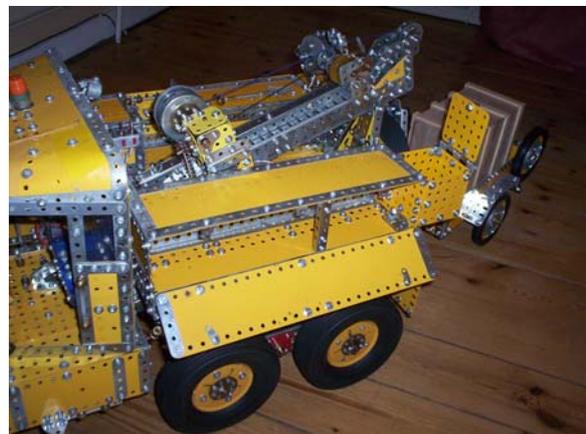
to my wife's annoyance! The back axle unit has probably been rebuilt eight times at least, as the model became increasingly heavier. Scammell's walking-beam concept is very clever but puts great strain on the half-shafts, which are now heavy-duty items on the model. At the front, the axle is not just driven but steered too, of course, and a typically

robust arrangement was designed. The leaf springs are fully functional, as are the walking beams and the articulation is fantastic - just like the real thing.

The lorry is six wheel drive as on the original, with two all-pinion differentials (worm driven) with walking beams on the back and transverse leaf at the front - the articulation on the model is as impressive as on the real thing.

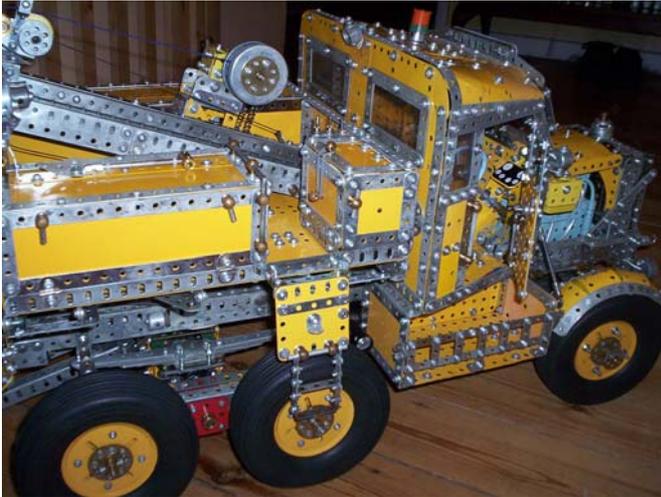
My gearbox is far simpler than the real thing - not because your complex gearbox could not have been replicated in Meccano but because when I tried, the extra friction was just slowing the model down too much and I had to sacrifice accuracy on this bit which would not be seen, in favour of the model actually driving under its own power. As it is, the speed is slow but not too slow and given the total weight, I am pleased that it achieves even this pace - other modellers have expressed surprise that it moves at all!

The crane is extended manually but has a two-speed hoist and the horizontal winch under the body is driven from the main transmission. There is also a spare wheel carrier which is a representation of the real thing, constructed mainly from narrow angle girders. The spare wheel itself is secured to the carrier by a threaded handle and is removable. The whole carrier can be raised and lowered using the vehicle's crane. When the carrier is fully raised, it is secured by a chain.



The model is wired as 12 volt negative earth and the wiring diagram is quite something, as many of the switches are of the 'forward/off/reverse' type which require six wires each. The wiring diagram is a bit of a nightmare and took a lot of figuring out. All lights, including the spotlights, work and all functions are controlled by miniature toggle switches built into the model, either in the cab or in the rear body.

I didn't want a trailing cable to a mains transformer and bought a very powerful (12 volt, 7.2 amp/hour) rechargeable battery. Unfortunately there was no way to neatly hide this battery in the model itself - hence the trailer. This also boasts working leaf springs, tail lights and so on and carries the battery housed in a wooden packing case. The model also carries 4.5 volt batteries which allow many functions to operate at either voltage. The trailer is electrically connected to the tractor unit by three wires - two taking the positive and negative feeds from the battery and one bringing the positive back from the tractor, to work the trailer tail lights from the same switch that works those on the tractor. The whole model is 12 volt negative earth, thus reducing the number of wires needed.



All doors and lockers and so on open and close and a hefty winching spade is attached at the rear, as spotted in a photo of one prototype.

Steering is by worm and pinion as per the original and because of its' weight, the model can only be steered when it is moving, which I assume must be the same for the real thing.

The model took around three years to build but this was between other hobbies, family, work and so on. I

have built models with Meccano all of my life and I am now in my mid forties, moving thirteen years ago from London to Bristol. Whilst I work as an office manager, I have always been an engineer at heart. I belong to the South West Meccano Club ([www.btinternet.com/~amed/meccano/index](http://www.btinternet.com/~amed/meccano/index)) which meets quarterly in the Bristol area and has an annual exhibition. This great club boasts members from all walks of life and many fantastic models are produced each year. Like all Meccano models, this one will have to come apart again so that the parts are available for the next project - probably after our club exhibition next year. Meccano modellers must be very unusual in this respect and I cannot imagine a model engineer taking something apart after all that work. For us though, this is taken for granted. It is actually one of my favourite times as it means the chance to pack the parts tidily away before starting a new and interesting project and whilst this is without doubt the best Meccano model I have built so far, I will have no problems with returning it to a pile of parts!

Throughout the build, I have regularly visited the excellent website of The Scammell Register and more than once have seen a connection between my hobby and yours - we are all still boys at heart! Anyway, I hope the pictures give you a grin and thanks for a great website which has provided no end of information and inspiration. Thanks again for your interest!

*Neil kindly brought his model to our March 2009 meeting in Swindon where he demonstrated its features and performance. I showed a film on the Explorer trails - a real treat for Explorer fans! Ed*