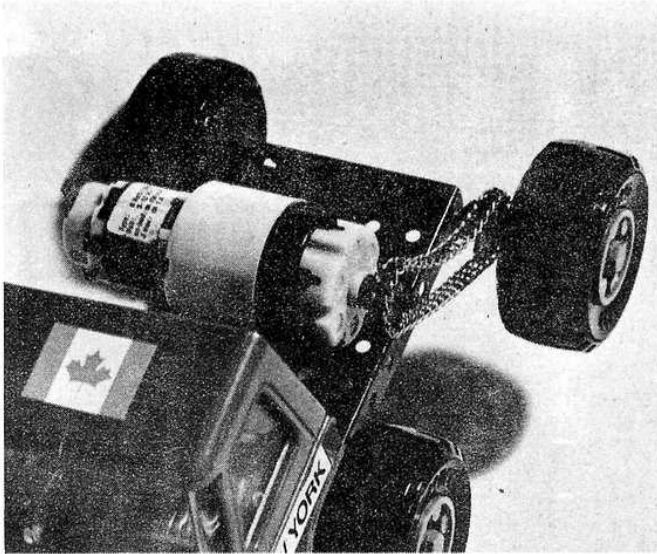


# MOTORISING MULTIKIT®

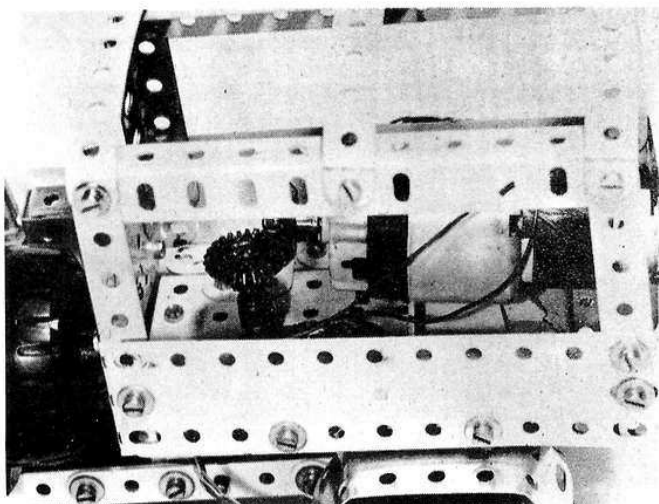
with the help of reader's models, **MIKE NICHOLLS** shows how easy it is to fit motors to Multikit vehicles



**Fig. 1, above:** a very simple, yet highly effective way of motorising a Meccano Multikit model, using Sprockets and Chain. The model was built by Gordon Plant of Henley-on-Thames.



**Fig. 2, above:** a model Unimog built by Iain Mitchell of Wooburn Green, in which the driving motor is built into the back of the model. In Fig. 3, below, the model can be seen with its 'tarpaulin' cover removed to show the position of the motor and the first stage of the drive, in this case using Bevel Gears.



IN THE FEW months that Meccano Multikit has been available, the demand for these novel outfits has been phenomenal. Many adults who thought that the Multikit sets were "just kids' stuff" have been pleasantly surprised when proved wrong on trying them. The Multikit is complete in itself, but has possibilities that extend to the limits of your imagination.

I think most people would agree that the Multikit manuals are very fine indeed, with their full-colour, step-by-step instructions, but, like all Meccano manuals, they are only a springboard; the most satisfying models are the ones you design, or adapt yourself.

One of the first things that spring to mind when thinking of extending a Multikit, is motorization. Although no motor is supplied with either the Highway or Army Kit, any Meccano motor may be successfully employed in a Multikit model.

Much has been said about the 'chunky' Multikit Wheels and the knurled Axle Rod. The Multikit Wheel is a push-on type and, originally, the Axle Rods supplied in the kits for use with these Wheels had knurled ends to provide extra grip within the wheel. However, it was found that the knurling increased the diameter of the Axle Rod ends to such an extent that Gears or Pulleys could not be pushed on. This led to the introduction of the 'Mark II' knurled Axle which had reduced knurling and allowed the application of bossed parts. This answer was found to be not entirely satisfactory, so the Wheel itself has been modified, and is now a good tight fit on the standard Axle Rods being supplied with the kits. Whichever combination of Wheel and Axle that you have in your Multikit, it is entirely suitable for motorization, as we shall see.

If a Multikit Wheel becomes slack, a short length of Sellotape should be applied to the ends of the Axle before inserting it into the Wheel. A Wheel should never be twisted on or off a knurled Axle, as this will cause wear on the inside of the Wheel, leading to a sloppy fit.

Fig. 1 shows a very simple motorization, where the builder (Gordon Plant of Henley-on-Thames) has simply fixed a Motor-with-Gearbox onto the back of a truck and connected the output shaft to an Axle by means of a Sprocket Chain. Gordon has, incidentally, used 'Mark II' knurled Axle Rods on this particular model.

The motor can, of course, be built into the rear of the vehicle. An example of this can be seen in Fig. 2. In this model of a Unimog, the builder (Iain Mitchell of Wooburn

Green) has supplied the back of the vehicle with a 'tarpaulin' cover made of cloth, (Meccano blue, of course!) With the back uncovered (Fig. 3) we can see how Iain has mounted the Motor. The drive is taken vertically through the floor by two Bevel Gears (Part No. 30). The 2½" Axle Rod is journalled in a Crank and, underneath the model (Fig. 4), the Rod carries a Worm which meshes with a ½" x ¼" Pinion on a 2" Axle Rod which also carries two 1" Pulley Wheels which drive the front and rear Axles by means of Driving Bands. Iain's model uses standard Axle Rods to carry the Wheels.

If you have an early Multikit with 'Mark I' Axles, which do not accommodate bossed parts, there are two ways out of this difficulty. You can revert to standard Axle Rods with Sellotape on the ends as suggested earlier, or you can follow the example of Frank Palin (of Tunbridge Wells) whose model is illustrated in Fig. 5. As you will see, Frank has fitted Part No. 187 Road Wheels from the standard parts range to his model and, if we look underneath (Fig. 6), we can see that the truck is driven by a 'Magic' Clockwork Motor slung from the underside. A Driving Band transmits the drive from the output pulley on the Motor to a 1" Pulley (Part No. 22) carried on a 2" Axle Rod journalled in two ½" Reversed Angle Brackets (Part No. 311). These Brackets are bolted to the two Curved Strips (Part No. 313) which act as the journals for the rear Axle. The 2" Rod also carries a 7/16" Pinion (Part No. 26c) which meshes with a 50-teeth Gear Wheel (Part No. 27) on the rear Axle.

Before leaving Frank's model, I should like to draw attention to the Ackermann-type steering which has been fitted. The steering on this particular model is not controlled from the 'topside', but none-the-less, it shows that a little ingenuity can improve Multikit models greatly. Indeed, I have seen a Multikit model that had *powered* steering, as well as forward and reverse drive, all remotely controlled!

I have only illustrated Highway Multikit models, but of course the Army Multikit models – both the wheeled vehicles and those with caterpillar tracks – are just as suitable for motorization.



With Multikit, we saw the introduction of the Hexagonal Nut (No. 329, brass-plated for Highway Kits, and No. 427, black for Army Kits). The Hexagonal Nut is now very gradually being introduced into the standard parts range. The new version of the Hex Nut, which will eventually supersede the familiar square 37a, is bright zinc-plated, like the current Strips, Angle Girders, etc, and is numbered 37c; however, it will be some time before the square Nut ceases to be available.

Other changes to the standard parts range are as follows: the hexagonal Spanner (No. 34c) will eventually replace the ordinary No. 34, and a version of the Box Spanner (Part No. 34b) with a hexagonal centre hole will replace the earlier version. Similarly, a hexagonal version of the combined Spanner/Screwdriver (Part No. 34a) will replace the now-obsolete square version. The wooden-handled Screwdriver (36a) is now obsolete and will soon be replaced by the Multikit-type Screwdriver (34b). Modified versions of the Threaded Pins (115 & 115a) are also planned to bring them into line with the hexagonal change-over. The 4¼" Road Wheel (187b) has also been withdrawn from the system.

All these are small modifications, but they show that Meccano is regularly up-dated – a living system!

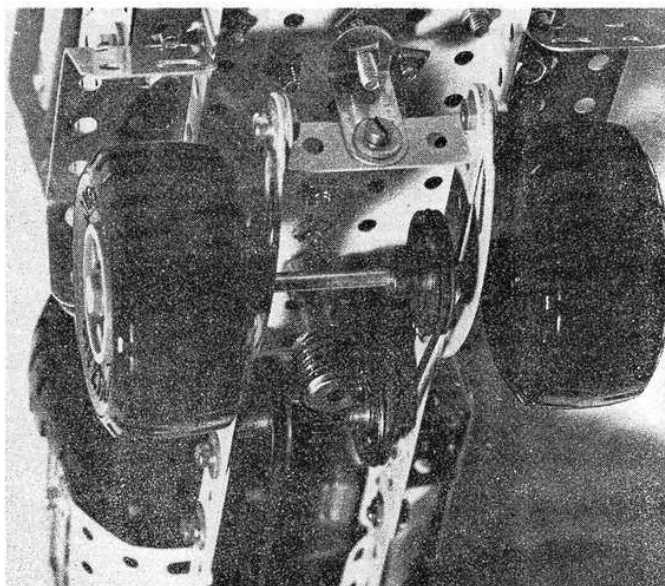
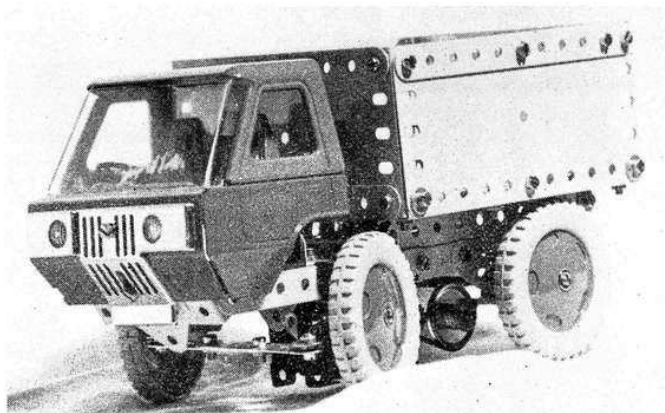


Fig. 4, above: an underside view of Iain Mitchell's Unimog showing the final drive to both the front and rear wheels using a Worm and Pinion and Driving Bands.



Standard Meccano parts may of course be used with Multikit models as is shown by the lorry pictured in Fig. 5, above. Here, Frank Palin of Tunbridge Wells has used standard Road Wheels in place of the special wheels supplied with Multikit. The underside view of the model in Fig. 6, below, shows that it is powered by a Magic Clockwork Motor.

