

New Meccano Model

Land Rover and Trailer

OUTFIT No. 7 contains all the parts required to build the Land Rover and Trailer shown in Fig. 1 on this page. To make the chassis of the Land Rover bolt two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips between the ends of two $12\frac{1}{2}''$ Angle Girders. At the rear end attach a Large Fork Piece by a $\frac{1}{2}''$ Bolt to form the coupling for the trailer, and to the front bolt two Double Brackets. Use the bolts holding the Double Brackets to fix also two Fishplates 1. These will be used later to attach the body to the

and a $\frac{1}{2}''$ Reversed Angle Bracket bolted to the chassis, and with three Washers space the Collar from the lug of the Reversed Angle Bracket. On the lower ends of the $1\frac{1}{2}''$ Rods fix Cranks, and connect them with a $3\frac{1}{2}''$ Strip attached by lock-nutted bolts.

For the steering column mount a $3\frac{1}{2}''$ Rod in two made-up brackets formed as indicated at 5 and 6 (Fig. 2). The bracket 5 consists of a $\frac{1}{2}''$ Reversed Angle Bracket and an Obtuse Angle Bracket, and bracket 6 is made from a $\frac{1}{2}''$ Reversed Angle Bracket and an Angle Bracket. A Cord Anchoring Spring is used to hold the Rod in place and on it is placed a Worm to engage a $\frac{1}{2}''$ Pinion 7. Fix the Pinion 7 on a $1\frac{1}{2}''$ Rod mounted in a Double Bracket bolted to the chassis, and place on the Rod also a Bush Wheel with a Fishplate

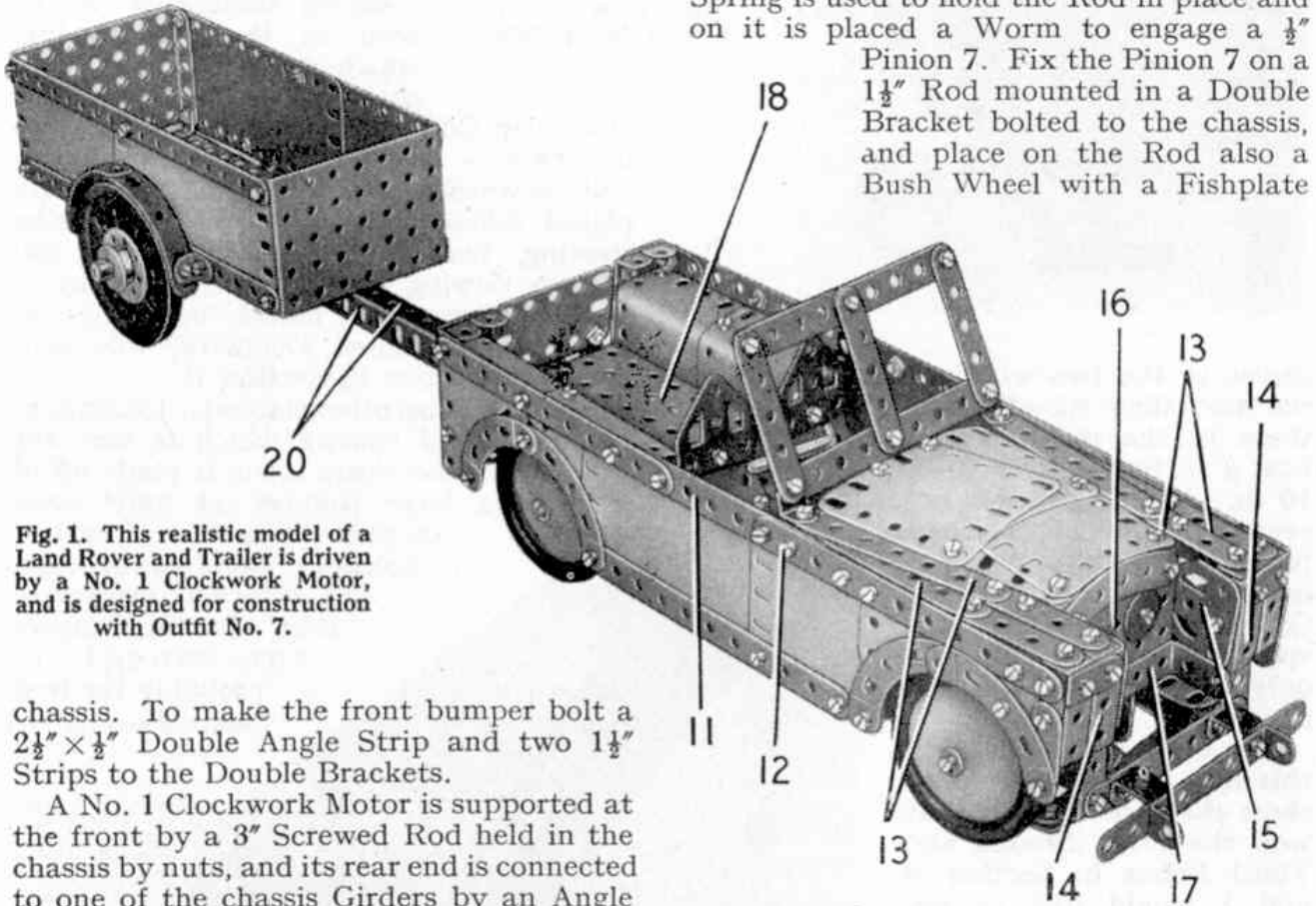


Fig. 1. This realistic model of a Land Rover and Trailer is driven by a No. 1 Clockwork Motor, and is designed for construction with Outfit No. 7.

chassis. To make the front bumper bolt a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip and two $1\frac{1}{2}''$ Strips to the Double Brackets.

A No. 1 Clockwork Motor is supported at the front by a $3''$ Screwed Rod held in the chassis by nuts, and its rear end is connected to one of the chassis Girders by an Angle Bracket. Fix a $\frac{1}{2}''$ Pulley on the Motor driving shaft and connect it by a $10''$ light Driving Band to a $1''$ Pulley on a $3\frac{1}{2}''$ Rod 2. A $\frac{1}{2}''$ Pinion on this Rod is used to drive a 57-tooth Gear 3 on the rear axle, for which you should use a $4\frac{1}{2}''$ Rod and fix it in position with a Collar. Extend the brake and reverse levers of the Motor by $1''$ and $2''$ Rods respectively held in Rod and Strip Connectors.

Each of the front wheels is free to turn on a $\frac{3}{4}''$ Bolt screwed into a Collar 4 fixed on a $1\frac{1}{2}''$ Rod. Support this Rod in a Fishplate

bolted to it. Fix a bolt in the Fishplate by means of a nut and then screw on the bolt a Collar 8. Now push a Threaded Pin through one end of a $2\frac{1}{2}''$ Strip 9 and fix it in the Collar 8. Pass a bolt through the other end of Strip 9 and screw it into a Collar on a Pivot Bolt. Then screw the Pivot Bolt into a Collar 10.

To form each side of the body overlap a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ and a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate four holes. Strengthen the lower edges of these Plates with a $5\frac{1}{2}''$ Strip and the upper

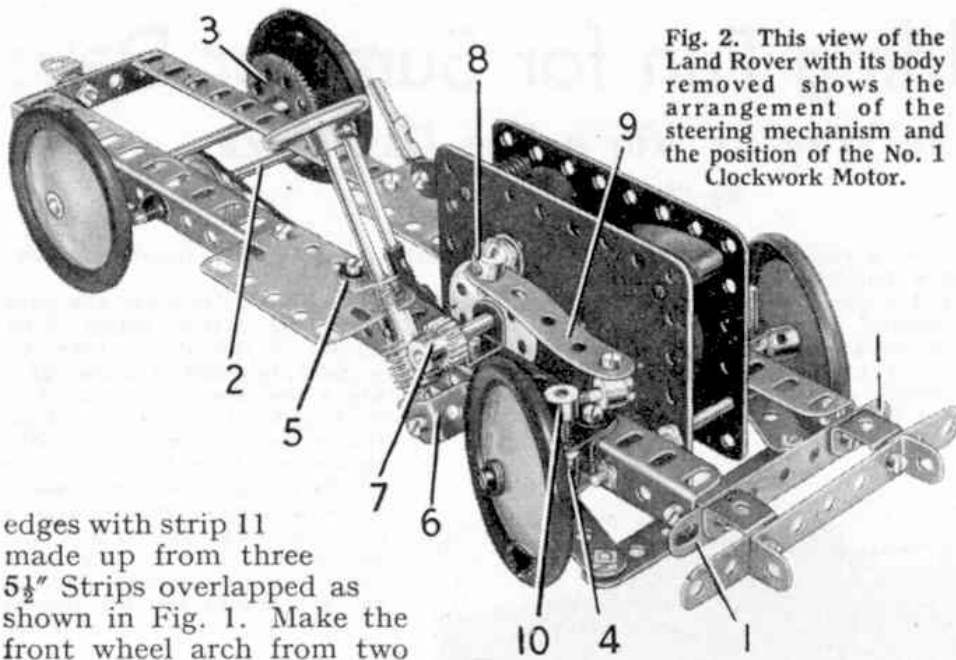


Fig. 2. This view of the Land Rover with its body removed shows the arrangement of the steering mechanism and the position of the No. 1 Clockwork Motor.

edges with strip 11 made up from three $5\frac{1}{2}$ " Strips overlapped as shown in Fig. 1. Make the front wheel arch from two $2\frac{1}{2}$ " Stepped Curved Strips. The plating above it consists of two $2\frac{1}{2}$ " \times $1\frac{1}{2}$ " Triangular Flexible Plates. For the rear wheel arch also you should use two $2\frac{1}{2}$ " Stepped Curved Strips, but in this case the plating is formed by a $2\frac{1}{2}$ " \times 2" and a $2\frac{1}{2}$ " \times $2\frac{1}{2}$ " Triangular Flexible Plate.

You should now connect the sides of the body at the centre with a strip made from two 3" Strips overlapped three holes. Attach this to Angle Brackets held by a bolt 12 on each side, and use the bolt that connects the strip and the Angle Brackets to support also two made-up strips 13. Make each of these from a $3\frac{1}{2}$ " and a $2\frac{1}{2}$ " Strip, and at the front end of the outer one fix a $1\frac{1}{2}$ " \times $\frac{1}{2}$ " Double Angle Strip. At the front end of the inner strip 13 fix a $2\frac{1}{2}$ " \times $\frac{1}{2}$ " Double Angle Strip 14. Now connect the two Double Angle Strips on each side with a 1" \times 1" Angle Bracket, and bolt the latter to the front end of strip 11. Fix a Trunnion to each of the Double Angle Strips 14 and to it bolt a Flat Trunnion 15.

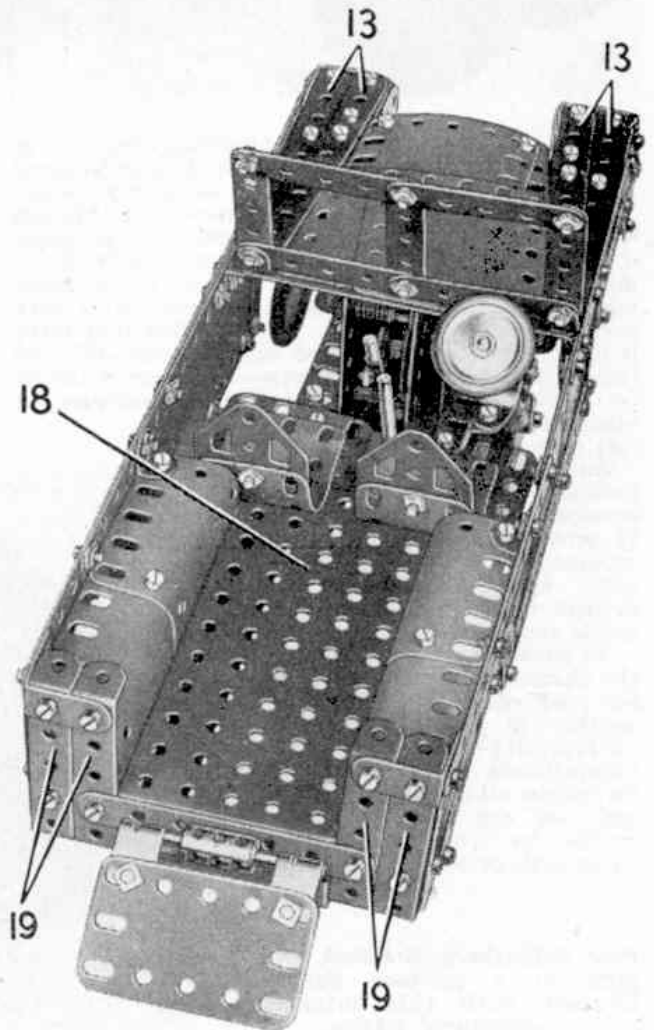
The radiator is a $2\frac{1}{2}$ " \times $1\frac{1}{2}$ " Flanged Plate 16 and you should connect it by Angle Brackets to the inner pair of strips 13. Bolt a $2\frac{1}{2}$ " Curved Strip along the upper edge of the Flanged Plate, and to the lower edge attach a $2\frac{1}{2}$ " \times 1" Double Angle Strip 17 by means of a Fishplate. Make the top of the bonnet by curving slightly four $2\frac{1}{2}$ " \times $2\frac{1}{2}$ " Flexible Plates and arrange them as shown. They should be connected to the radiator by Angle Brackets and attached by $\frac{3}{8}$ " Bolts to the strip across the centre of the body.

Fig. 3. A semi-plan view of the Land Rover, showing interior details of the body and the assembly of the hinged tailboard.

Space the Plates from the strip by three Washers on each of the Bolts.

For the boxes over the rear wheels use an opened-out U-section Curved Plate and a bent $1\frac{1}{8}$ " radius Curved Plate bolted together. Attach each box to the side of the body by means of an Angle Bracket, and bolt it also to a $5\frac{1}{2}$ " \times $2\frac{1}{2}$ " Flanged Plate 18 that forms part of the floor. Now join two $2\frac{1}{2}$ " \times $\frac{1}{2}$ " Double Angle Strips 19 on each side by a Fishplate and one arm of a 1" \times 1" Angle

Bracket. Use the other arm of the 1" \times 1" Angle Bracket and a $\frac{1}{2}$ " \times $\frac{1}{2}$ " Angle Bracket to attach the Double Angle Strips 19 to the side of the body. Bolt the inner one of each pair of Double Angle (Continued on page 342)



The S.R. "Schools"—(Continued from page 297)

Coast trains. All are now stationed on the Eastern Section, whereon I have logged speeds up to 85 m.p.h., with good hill climbing and acceleration.

Schools ran between London and Eastbourne before the 1935 electrification, and were responsible for most of the fast train working over the difficult Waterloo-Portsmouth route before electric operation began there in 1938. About that time, on the much straighter and more easily graded main tracks to Bournemouth and Salisbury, though with faster schedules, their performances on expresses to or from Waterloo were astonishingly fine and often equalled the best speeds and timings achieved by the two 4-6-0 passenger types with substantial loads. On occasion speeds round about 90 m.p.h. were touched; non-stop runs were made over the 108 miles between London and Bournemouth in 116-18 mins. with 10 or 11 coaches.

Cargo Submarines Under the North Pole—

(Continued from page 301)

submarines which the Germans used to supply their U-boat fleets at sea.

The great strides made in submarine construction since then have brought the day of trans-polar shipping routes much closer. It would be necessary to build harbours along the routes to be taken by the cargo submarines of any new shipping lanes between Europe and Asia via the Arctic. Would this be possible?

The answer is YES. Murmansk, in Arctic Russia, is a major port. So is Igarka, where British ships load timber every autumn after the spectacular voyage through the narrow ice-jammed straits east of Murmansk.

Many miles of the Soviet Union's Arctic shores are swept by pack ice sometimes one hundred feet thick. But there are many bays, inlets and river estuaries where the sea is not grinding with moving floes, but merely topped with a layer of ice. The same applies to the coasts of Alaska, Arctic Canada, Greenland, and Spitzbergen. Given suitable equipment it would be possible for cargo submarines to surface in such havens, and when one considers what the Americans have accomplished in the construction of great air bases in the Arctic there can be little doubt about whether it would be possible to build harbours on the frozen shores of the Far North.

Ten years ago I wrote that air liners would be flying from Europe to the Far East via the Far North by 1955. The very idea of this seemed far fetched then! But it has been fulfilled. B.O.A.C. are planning a new northern route to Tokio as against the present normal one via Bangkok, and Scandinavian Airlines have already pioneered this route with fare-paying passengers. And there are men who think that it will not be many years before this development in world transport is paralleled by one even more spectacular—that of new trade routes through the translucent greens and blues beneath the grinding ice of the Polar Basin.

Model-Building Competition Results—(C. from p. 325)

entered in the Contest, and the judges hesitated for some time before finally deciding that Mr. Henry's model had the edge on it by a slight margin.

Work of almost equal standard is shown in the Third Prize model built by F. S. Rouse, Cheltenham, who also made a very successful attempt to reproduce the details and movements of the actual crane as accurately as possible. He just failed to attain the very high degree of realism of the two models I have already mentioned, however, although the external appearance of the model is really excellent. Mr. Rouse managed to include in the model all the essential mechanical features and it was only in the matter of layout and minor details that the others took the lead. I congratulate all three competitors on their handiwork and trust to see further entries from them in our monthly M.M. competitions.

Two Bells—(Continued from page 310)

The aircraft he now flies, and the XV-3, look strange in an age of super-streamlined, supersonic jets. But they are among the first of a new generation of aeroplanes that should be safer and more versatile than any we know today. We are only at the "Wright brothers stage" of this new era of flight, and Rolls-Royce, Bell and Fairey are the pioneers. The convertiplanes and VTOLs of the future will be as different to the XV-3 and "Flying Bedstead" as the Comet is different to the Wright biplane; and they may well bring true the old dream of safe, cheap, convenient flying for everyone.

New Meccano Model—(Continued from page 327)

Strips 19 to a $3\frac{1}{2}$ " Strip fixed to the end flange of the Flanged Plate 18.

To curved $2\frac{1}{2}$ " x $1\frac{1}{2}$ " Flexible Plates attached to the Flanged Plate 18 bolt Flat Trunnions to form the seats, and for the hinged tailboard use a $2\frac{1}{2}$ " x $1\frac{1}{2}$ " Flexible Plate fitted with two Right Angle Rod and Strip Connectors. Pass the Right Angle Rod and Strip Connectors over a 2" Rod held in a Coupling screwed on a bolt passed through the end flange of Plate 18. Place two Washers on the bolt.

For the sides of the trailer $5\frac{1}{2}$ " x $2\frac{1}{2}$ " and $4\frac{1}{2}$ " x $2\frac{1}{2}$ " Flexible Plates edged by $5\frac{1}{2}$ " Strips should be used, and for the ends $3\frac{1}{2}$ " x $2\frac{1}{2}$ " Flanged Plates. Arrange two $12\frac{1}{2}$ " Angle Girders 20 to form a channel girder and bolt them to $3\frac{1}{2}$ " x $\frac{1}{2}$ " Double Angle Strips fixed between the sides. Make the floor from six $5\frac{1}{2}$ " x $1\frac{1}{2}$ " Flexible Plates.

A 4" and a $1\frac{1}{2}$ " Rod joined by a Rod Connector are used to form the wheel axle, and the wheels must be free to turn on it. Support the axle in Semi-Circular Plates bolted to the sides, and fix the wheels on it by means of $\frac{1}{4}$ " Flanged Wheels.

Now arrange a $5\frac{1}{2}$ " Strip so that it overhangs the front ends of the Girders 20 by one clear hole. Fix a Threaded Pin in this Strip and use it to couple the trailer to the Land Rover.

The parts you will require to build the Land Rover and Trailer are as follows: 17 of No. 2; 6 of No. 3; 2 of No. 4; 12 of No. 5; 4 of No. 6a; 4 of No. 8; 10 of No. 10; 3 of No. 11; 18 of No. 12; 4 of No. 12a; 1 of No. 12c; 1 of No. 15a; 1 of No. 15b; 2 of No. 16; 2 of No. 17; 4 of No. 18a; 1 of No. 18b; 2 of No. 19b; 2 of No. 20b; 2 of No. 22; 1 of No. 23a; 1 of No. 24; 2 of No. 24a; 2 of No. 26; 1 of No. 27a; 1 of No. 32; 171 of No. 37a; 160 of No. 37b; 27 of No. 38; 2 of No. 38d; 1 of No. 46; 2 of No. 48; 9 of No. 48a; 2 of No. 48b; 1 of No. 51; 1 of No. 52; 2 of No. 53; 6 of No. 59; 2 of No. 62; 1 of No. 63; 1 of No. 80c; 1 of No. 90; 8 of No. 90a; 2 of No. 111; 1 of No. 111a; 3 of No. 111c; 2 of No. 115; 1 of No. 116; 4 of No. 125; 2 of No. 126; 4 of No. 126a; 1 of No. 147b; 1 of No. 155; 1 of No. 176; 1 of No. 186b; 4 of No. 187; 6 of No. 188; 6 of No. 189; 6 of No. 190; 2 of No. 191; 4 of No. 192; 2 of No. 199; 2 of No. 200; 2 of No. 212; 2 of No. 212a; 1 of No. 213; 2 of No. 214; 4 of No. 215; 4 of No. 221; 2 of No. 222; 2 of No. 223; 1 No. 1 Clockwork Motor.

Stamp Collectors' Corner—(Continued from page 337)

hollows filled in, so that we get the clearer print.

Through the war it was apparently not easy to get the coated paper, so uncoated paper was used, which makes an interesting variety for collectors. And how can one tell the difference, I will be asked. Easily! Get something made of silver, an old coin for instance—those issued during the past few years contain little or no silver and will not do—and rub it over the paper. It will leave a mark as though an ordinary lead pencil has been used if the paper is chalky, but if the paper is "sub," or substitute to give it its full title, then no mark will be left. Only make a small line of course; this can be removed by a piece of ordinary rubber. Stamp dealers sell a little pencil for the job. This is quite inexpensive, about 1/6, and is tipped with pure silver.