

INSTRUCTIONS

Meccano Transformer Type T20A

Output: 35 VA. at 20/3.5 Volts

This Transformer is intended for those who have a mains Alternating Current supply in their homes and who wish to use this current to run a Meccano 20-volt Motor or a Hornby 20-volt Electric Train. In addition to running a train, it will supply current for Hornby Accessories fitted for electric lighting. What the Transformer does is to transform the high-voltage mains current down to a suitable low-voltage current. It does this quite simply and with perfect safety, and the running cost averages only about one penny for three hours. Follow the instructions, and you will have no trouble.

If any difficulty should occur, read the instructions again to make sure you have not missed anything. Then, if the trouble still remains send us a postcard telling us about it, and we will put you right immediately. Address your postcard to Meccano Limited, Binns Road, Liverpool 13.

It must be specially noted that all Transformers work only on Alternating Current. This Transformer, therefore; must not on any account be connected to Direct (sometimes called continuous) Current.

The 3-core flex provided with this Transformer is intended to be used with a 3-pin plug and socket. If your plug is of this type, connect the two free ends of the flex to the terminals of the two smaller pins, which are the supply terminals; and the end tied back and labelled "Earth" to the terminal of the remaining larger pin, which is the earthing terminal. On no account must the earth lead be connected to either of the supply terminals. If you have a 2-pin plug, connect the free ends of the flex to the terminals of these pins, leaving the earth lead disconnected. As an extra safety precaution the earth lead may be connected to earth. This should certainly be done where the Transformer is to be used on a stone or concrete floor. In any case of doubt, consult your electrical supplier.

Fig. A is a diagram of three pairs of plug sockets on one side of the Transformer. The first pair, numbered 1, gives current at 20 volts under control of the 5-stud speed regulator fitted to the Transformer as shown in Fig. B. The current from this pair is intended for driving a 20-volt Hornby Train. The second pair of sockets, 2, also gives a current at 20 volts, but this current is not controlled by the speed regulator. It is intended for driving a Meccano 20-volt Motor, as shown in Fig. B. These two pairs of sockets must not be used at the same time. That is to say, either a train or a motor can be run, but not both together.

The third pair of sockets, 3, gives current at 3½ volts and this current is intended for lighting Hornby Accessories. Any number of 3½-volt flash-lamp bulbs up to 14 can be lighted at the same time. Care must be taken that such 3½-volt lamps are not connected to either the first or the second pairs of sockets, as this would cause the lamps to burn out quickly.

We have referred to the 5-stud speed regulator that controls the train-driving circuit from the first

pair of sockets. When the handle of this regulator is at the extreme left, as shown in Fig. B, the current to the motor or train is "off." To start a train, move the regulator handle over to the stud at the extreme right, without pausing on the intermediate studs. Then, by moving the handle toward the left, the speed is gradually increased until the maximum is reached, when the handle is in contact with the stud next to the "off" stud.

Fig. C shows the Transformer connected to the track for driving a 20-volt Hornby Train. The connection between the Transformer and the rails is made by means of the flexible leads supplied with the Transformer.

The plug ends of the leads are inserted in the upper and lower sockets of the pair marked 1, the socket fittings of these leads being connected to the plug fitting on the Terminal Connecting Plate. The lead connected to the lower socket must always be connected to the outer rails of the track, that is to the plug connected to the locking lever on the Terminal Connecting Plate. If the Transformer obtained is of the type with a twin-flex lead, it is not necessary to distinguish between the upper and lower of the first pair of sockets.

We come now to the use of the third pair of sockets for lighting Hornby Accessories. The method of connection is shown in Fig. D. With this Transformer are packed two Plugs, a Bonding Clip, a coil of Wire and a Fuse Unit. A piece of wire is cut from the coil, of a sufficient length to reach from the Transformer to the track. One end of this wire is attached to the Bonding Clip, which is then clipped to one of the sleepers of the track, as shown in Fig. D. The other end of the wire is inserted in one of the Plugs and secured by the set screw. The Fuse Unit is now plugged into the upper socket of the third pair, and the plug end of the wire is inserted in the lower socket (See Fig. D).

A second piece of wire is now cut, of a sufficient length to reach from the Transformer to the first Accessory that is to be lighted. One end of this wire is inserted in the remaining Plug, and this is plugged into the Fuse Unit in the upper socket of the third pair of the Transformer. The other end of this wire is taken to the terminal of the Accessory that has a red washer, and is screwed up tightly. With each Accessory is packed a Bonding Clip, and the final step is to cut a third piece of wire to connect the other terminal of the the Accessory to a sleeper of the track by means of this Clip. If the connections have been made correctly the lamp of the Accessory will now light up.

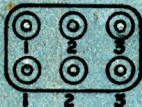


Fig. A

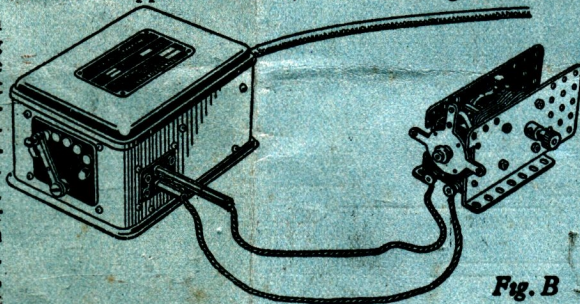


Fig. B

A second Accessory is connected up by leading a wire from the red washer terminal of the first to that of the second, and connecting the other terminal of the second Accessory to a sleeper of the track by means of the Bonding Clip. Other Accessories can be connected up in a similar manner.

The full load value of the Transformer circuit connected to the sockets marked 1 and 2 is 1 amp., and that of the circuit terminating at the sockets marked 3 is 4.5 amps. These values should not be exceeded, as continuous overloading causes damage to the windings. Overload is indicated by heating or by a loud buzzing noise, but it may occur although these symptoms are absent. As a guide to determining the load on the Transformer the following current consumptions are given: 20-volt Locomotive, .75 amperes; 20-volt Headlamp on Locomotive, .15 amperes; 3½-volt Flashlamp, .3 amperes; 20-volt Meccano Motor, 1 ampere.

The Fuse Unit to which reference has been made consists of a holder fitted with a piece of soft wire that melts at a low temperature and thus prevents damage to the Transformer resulting from short circuit. In connection with the lighting of Accessories, as already described, the Unit is plugged into the upper socket of the 3½-volt lighting circuit. It is supplied fitted with a piece of No. 24 S.W.G. Lead Fuse Wire, which is the correct wire for protecting the 3½-volt circuit. If a short circuit should

however, the Fuse Wire supplied with the Unit must be replaced by a piece of No. 32 S.W.G. Lead.

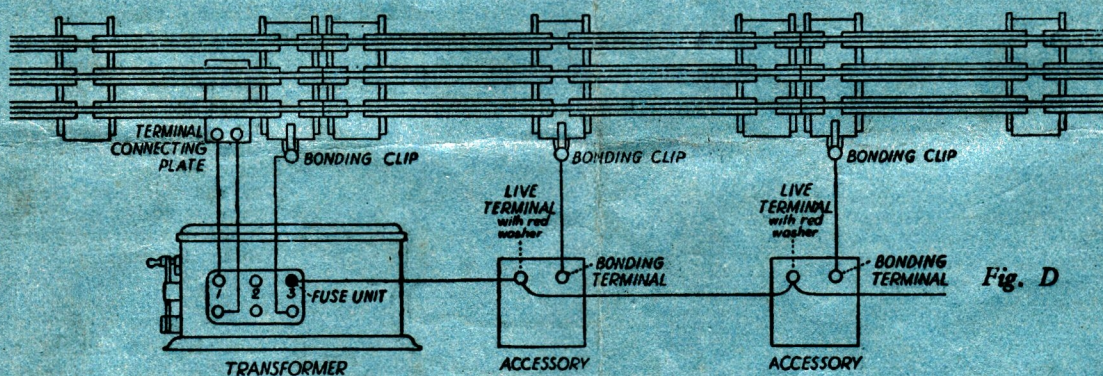
The Unit is then plugged into the upper of the second pair of sockets.

The 20-volt train circuit is protected by the fuse in the Terminal Connecting Plate attached to the rails. The correct Fuse Wire to use with the Terminal Connecting Plate to suit this Transformer is No. 32 S.W.G. Lead. In the event of a short circuit the wire melts and disconnects the power supply to the track. When this happens the current must be switched off, the fault cleared and the fuse wire then renewed.

Fig. C

Fuse Wires of the correct size can be purchased from any Meccano dealer. It is important that Fuse Wires of higher current carrying capacity should not be used, as they would afford no protection to the Transformer.

The necessity for replacing the fuse wire each time a short circuit occurs is apt to prove troublesome, and to avoid this the new Hornby Automatic Circuit Breaker has been introduced. This device automatically cuts off the current supply to the track in the event of a short circuit. At the top of the case of the Circuit Breaker is a small red button, which rises with a click when the device cuts off the current. When the derailment or other fault has been dealt with, and the current switched off, the Circuit Breaker is re-set by pressing the button.



occur the wire in the Fuse Unit will melt and must be replaced. To do this a piece of Fuse Wire 1½ in. long is passed through the holes in the holder, under the two washers and secured by the two screws.

The Fuse Unit can be used also to protect the 20-volt circuit of the second pair of sockets, when running a Meccano 20-volt Motor. For this purpose,

The Circuit Breaker is included in the circuit between the accumulator or Transformer and the track and must be connected to the terminal on the fuse side of the Terminal Connecting Plate. Full instructions are included with each Circuit Breaker. Ask your dealer to show you one.

The Circuit Breaker cannot be used with Meccano Motors.