

Why Not Try Cab Control on Your Railway Layout

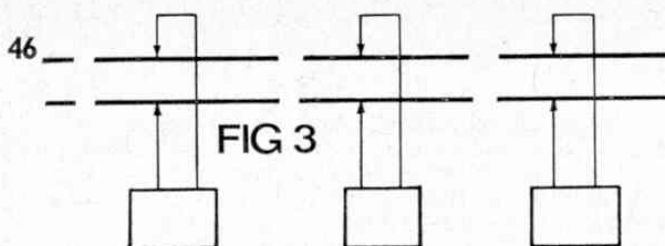
by Mike Rickett

NO MATTER what sort of model railway you own, without reliable, trouble-free wiring, it would be about as much use as the proverbial white elephant. Admittedly, model railway systems like Tri-ang Hornby, Trix or Fleischmann, will provide a reliable track system with equally reliable, foolproof, wiring that anyone can understand. If however, you are an enthusiast with a model railway that uses flexible track, or if you are thinking of building such a layout, then it is necessary for you to understand at least the basic principles of wiring as applicable to model railways. Eventually, to improve the range of movements you are able to arrange for your trains, you will want to know about a wiring system that provides the means for you to operate more than one train at a time, whether it be on the same oval of track or in the same station.

Ultimately, this is where a system like Cab Control comes in, for with this system you can add an almost indefinite number of controllers, enabling you to operate an equally large number of trains at the same time. Cab Control is probably the simplest system there is that provides this control and, unlike other more complicated wiring systems, Cab Control can be used on layouts of practically every size, shape or gauge.

Before dealing with the technicalities of this however, let us examine the very first thing you would do when, for instance, your train set is removed from its box. As shown in figure 1, you would simply attach two wires from the terminals at the rear of the power unit or controller to a similar two terminals at the side of the track. No matter which way the wires are attached, the train will operate hour after hour without any trouble at all.

Most layouts fall into this category in one way or another. They may have a station situated at some point around the oval, or a siding, but basically all that is needed is the one terminal point—as it is called. If the layout is enlarged by the addition of a second oval within the other, as in figure 2, you still only need one power unit in order to operate one train over any point on the layout. You do admittedly require an additional second terminal point on the inside oval so that power can reach there. Add a crossover, as at X, and the two terminal points are still adequate. You may need an

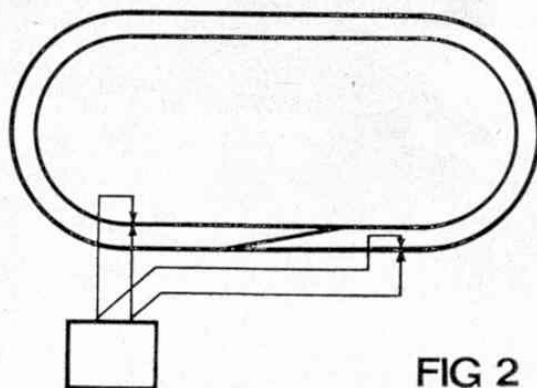
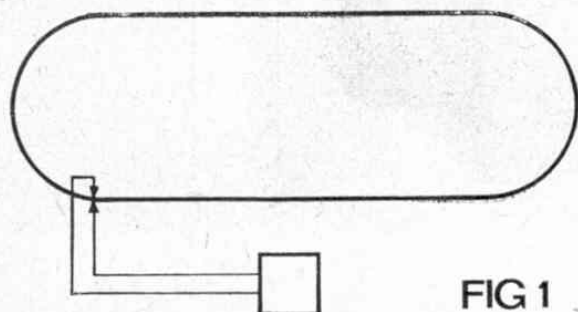


extra terminal to enable power to reach the more inaccessible points on the layout, but this is easily done by finding out where the power does not reach and then adding an additional terminal point. It doesn't matter in the least if you have too many terminal points, providing all the connecting wires are attached the correct way round, but it does matter if there are too few. Simple isn't it?

Basically, wiring as described above is all you need to operate one train over nearly every type of layout, and this is equally true for flexible track or Tri-ang Hornby. Where Cab Control wins is when more than one train is involved, for then the layout can be sectionalised as shown in figure 3. For simplicity, I have shown the layout in the form of just a straight section of track, with gaps in both rails cut at intervals with a fine tooth saw. Each section is then dealt with individually and a power feed and return clipped or soldered to each rail. This means that, theoretically at least, a separate controller can be wired to each section, enabling a separate locomotive to operate over each of those sections. In theory, this is all very fine, but in practice it would be most inconvenient to have to switch in different controllers as a train made its way along the track. There would be the difficulty too of keeping the train running at a consistent speed from section to section. It is obvious, therefore, that there are many distinct disadvantages to this system. Much better if each of these sections can be coupled up to EACH of the controllers, so that by using just one controller, it is possible for the train to run through each of the sections without any change of speed.

Where Cab Control is concerned, the answer lies in suitable switches positioned between the terminal points on the track and the terminals on the controller, as shown in figure 4. With the aid of these, each section can be switched on before a train reaches it, and switched off after it has passed. If therefore an additional controller is available, a separate bank of switches can be added and attached between the second controller and the terminal points on the track. I show this in figure 5, and you can see two separate banks of switches, one for each controller. With this arrangement, it is possible for a train under the control of one controller, to travel along the section of track at the right hand end, whilst a second locomotive operates along the left hand end. All that it is necessary to do is for the operator to switch on the appropriate section, making sure that the switch on the other control panel is off.

Basically, those are the principles of Cab Control. Certain rules must however be observed where the power units are concerned, for because the return wires from each section are connected directly to every



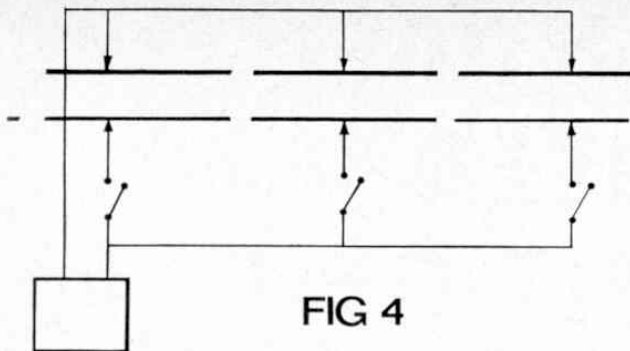


FIG 4

controller, the power units involved must be either completely separate in that they should be plugged in directly to a mains power supply and not connected to another power unit. The only circumstances where a second controller can be connected to the first unit is when this has a triple wound transformer. If you are in any doubt about this point, simply buy units that plug directly into the mains supply. Secondly, it is a good habit to see that all section switches are in the "off" position whenever they are not in use. If more than one controller or power unit is accidentally switched in to the same section, the result will be that the overload cut-out fitted to all units these days, is actuated, cutting off power temporarily.

On nearly all average size model railways, it will rarely be necessary to fit more than one controller, especially if only yourself and possibly one friend are likely to be the sole operators. Let's face it, you cannot control more than one train and operate one bank of section switches at any one time, so do try to avoid dreaming up more "cabs" than you think you have operators for.

Where Cab Control is concerned, you do of course have to build a control panel to go with your power unit. If the number of sections on your layout does not exceed six, then the answer may be to buy the "Powermaster" unit made by Hammant & Morgan which has, built in, a panel of six section switches. Terminals for connecting these up to the track are provided at the back of the unit, although if costs enter into the argument, it would be cheaper to build your own unit, using S.P.S.T. toggle switches, or indeed any on/off switch available from any electrical supplier. For maximum cheapness you could even use ordinary light switches, although I must admit that toggles can be bought for as cheaply as 2s. and they do give a much more professional appearance.

Our figure 6, shows how a typical section of layout would be wired, complete with controllers and two panels of section switches. Notice that it is really quite simple and nothing like as much of a problem as some people would have you believe.

Even with a commercial track system like Tri-ang Hornby, it is possible to use this system of control by dividing the track layout into individual sections, using the isolating rails included in the Tri-ang system and cutting through the other rail with a fine hack-saw or back-saw, or by using a normal piece of Tri-ang Hornby Rail and cutting both rails through. With flexible track you do have more freedom in that sections are easier to position and gaps can readily be sawn in the rail more-or-less anywhere. Flexible track does of course allow you to use curves of whatever radius you like, and also rails of whatever length you please. All

FIG 7

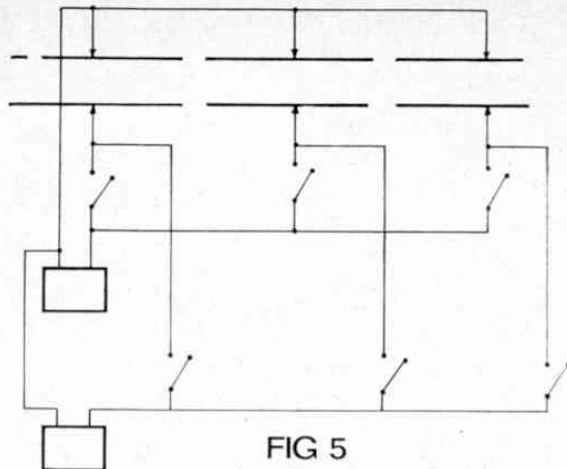
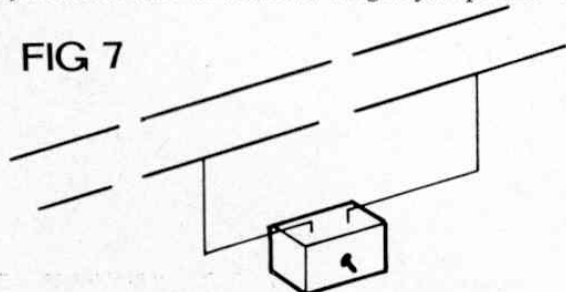


FIG 5

you have to do is to saw off the 3 ft. lengths to suit. Naturally, when you are able to do this, the design of your layout is limited only by the space available, and so to those interested in the do-it-yourself aspect of model railways, this is something really worth considering.

I said above that cuts must be made in both rails for sectioning the layout. In fact there are exceptions to this, the most important of which, as far as we are concerned here, being the dead ends which it is sometimes wise to include on sidings in, for example, locomotive sheds, or platform bays. This is easily done by cutting a single gap on either rail of the track and connecting wire from each side to an ordinary on/off switch. I show this in figure 7, and like the other wiring connections that have to be made, it is desirable to solder these if possible.

Finally, I should perhaps say a few words on the subject of points. Those readers with old Hornby Dublo points will know that these required Double Isolating Rails to avoid short circuiting when power is fed into the "frog" end of the point. A "frog", I should explain, is that section of the point that forms a "V", and this, at least on the Hornby Dublo point has caused a great deal of difficulty. If you have to use points with this type of "frog", you will need to ensure that power is not allowed to feed in at the "frog" end, by using rails with two gaps cut in them. Most commercial points today however use a different kind of "frog" that is completely self-isolating, and all that is necessary, is for the track feeds to be positioned to both ensure that power reaches every position on the layout, and also for convenience as far as the positioning of sections are concerned.

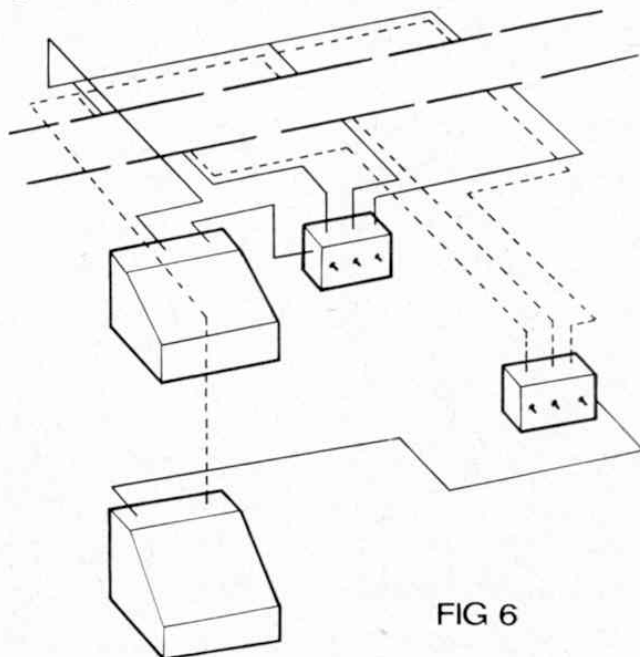


FIG 6