Original article published in Model Railway Journal No 152 Pages 183/4

USING FULGUREX POINT MOTORS

NORMAN SOLOMON modifies a popular turnout mechanism to give reliable, unobtrusive operation:

Over the years I have used all sorts of devices to switch point blades. In the early years these were all based on the solenoid principle. When it came to building Neil Corner's huge 0 gauge layout, the idea of smacking around point blades and scale tie bars with a solenoid did not appeal - it would have been a maintenance nightmare. Fortunately, a new slow-acting switch machine had just been announced and duly a couple of hundred Fulgurex units were acquired.

Fulgurex units are supposed to be used with an operating arm above the baseboard. This was not going to be discreet enough for my intended use, so I set about developing a modification to suit my needs. The adaptation I came up with is the same as I still use today. Minor variations have made it easier to make and fit. My article on track laying (MRJ 144) mentioned drilling a 12mm hole in the baseboard and disguising it with a slot in the foam underlay where the centre of the tie-bar occurs. This modification is all about operating via this hole.

I use a scrap of 0 gauge rail approx. 20mm long with dressed ends. This is marked out as shown in the drawing *(Fig 1).* I use a centre punch jig and usually do twenty to thirty at a time. The two smaller holes are drilled 1.2mm and the larger 1.6mm. The piece of tube supplied with the motor is cut in half and the larger hole is reamed out until the tube fits tightly. The tube is soldered a third of its length into the piece of rail using a reasonable amount of solder and liquid flux. This is all the mod consists of.

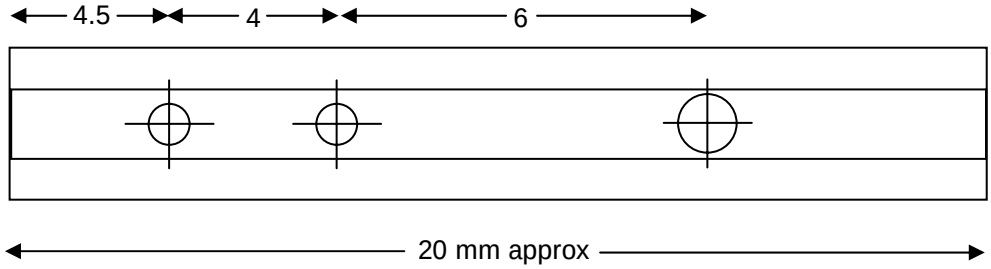

Figure 1

The motor can be sited in four positions around the operating hole depending upon the end to which you fix the mod *(Fig 2).* Decide which end of the operating arm is to be the driving end and run the motor until this

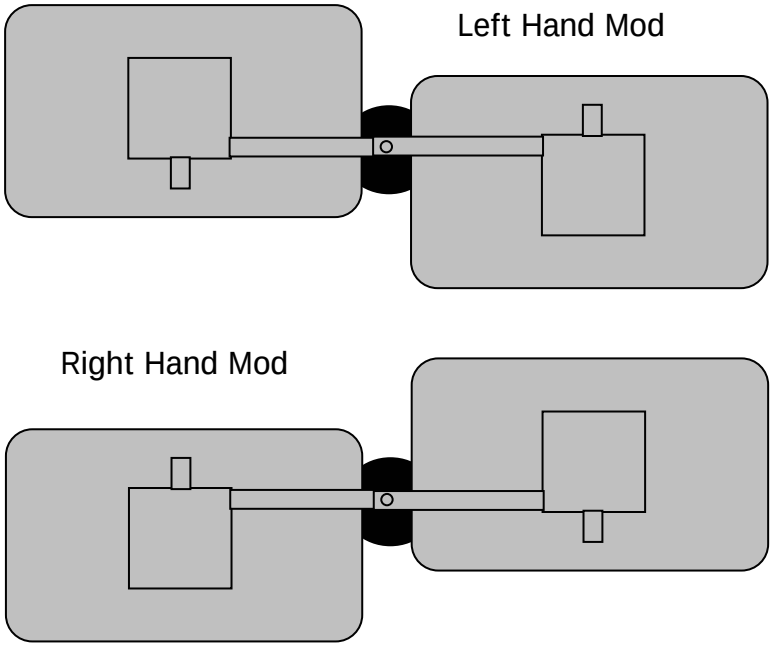

Figure 2

end protrudes the furthest. Older motors had a strengthening web on the underside of the operating bar, between the two holes. If this is present, it requires a slot to be cut or filed in the centre. The piece of brass wire supplied with the motor is bent into a U shape so it will fit into the two holes from the underside. It fits into the slot and must be flush with the bottom of the operating bar so as not to impede its movement. The prepared piece of rail is fitted over the two protruding bits of wire. I usually have the longer piece of tube facing up at this stage so it will be hanging down when the motor is installed. Using something appropriate to support the underside of the wire in the bar, solder the piece of rail to the two prongs. This must be tight; I slightly melt the rail into the top of the plastic bar. This completes the mod, and now comes the installation.

This is the easiest way I've found to install a motor. First of all, the electrical terminals are tinned with solder. This saves ages when you are wiring up underneath the boards later on. What will end up as the bottom end of the piece of tube is crimped shut and the motor is run to a midway position. The blades are held in this position with a short length of wire tucked in behind them. Then a length of 0.8mm spring steel wire is fed through the tie-bar from above; I use a piece of scrap foam threaded onto the wire to act as a stop. From below, the protruding spring wire is introduced into the tube and the motor positioned on the underside of the baseboard. This must be on the same plane as the tie-bar and with the wire vertical. I usually have a`pozidrive' selftapping pan-head screw waiting loaded on the driver at this stage. While holding the motor in the correct position with one hand, I use the other to screw the motor home by the hole at the same end as the operating bar but furthest away from it *(Fig 3).* After removing whatever is holding the blades midway, I run the motor back and forward with a temporary supply to make sure it is central. If it is uneven, you have some degree of adjustment due to the position of the fixing screw. When satisfied that it is operating evenly, I lock it in position with another screw diametrically opposite the original. To prevent the wire lifting out of the tube, I crimp the tube two or three times with a pair of end cutters, then the wire is cut to length on the top. Don't use fine cutters for cutting spring steel wire and watch your eyes. If there is any concern about the end of the wire dropping through the tie-bar, a small turn of fuse wire soldered to the top will prevent this.

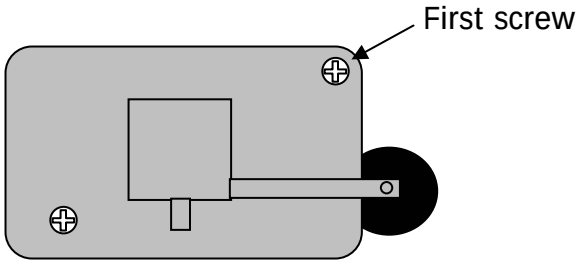

Figure 3

Occasionally the motor has more movement than is required. The blades must not be over-tight on the stock rail, but be able to be flicked away from it and spring back into position. If the springing is over-tight, I usually remedy this by moving the contact sets in. I made a little tool to do this, but it is quite easy to slacken off the screws and carefully move them in before re-tightening. Be careful not to allow the slack to lean away from the operating bar - alternatively a smaller gauge of spring wire can be employed. More contact sets can be retro-fitted as the nuts are retained but be careful not to disturb the springs.

I have used most of the other switch machines that are now available and for various reasons found they do not suit my needs. One make in particular, which everybody tells me I should be using, runs to a stall. This is fine when you only have a few on a layout but multiply that by 150 and you are talking serious power. I only use a 1.5 amp regulated supply and in most cases this has to run the LED display on the panel too. The other consideration is the amount of spare contact sets; these, apart from the crossing, I use to switch the power around on major junctions and provide signal detection.

This is not intended as an endorsement of the Fulgurex product but to date I have installed over twelve hundred of these units over the last twenty years or so. There have been very few problems, mostly due to my installation, but I have never had a motor burn out on me.