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Instructions on how to operate Märklin trains

A little history

Märklin is a German manufacturer, who first started making toys in 1859. They were pioneers in miniature trains, and even today, Märklin is still at the forefront of developments in the industry.

During the 1930's, Märklin developed a 00-gauge (later to become H0) table railway, roughly half the size of traditional 0-gauge trains. Its heyday came after WW2, when the world economy boomed, and people had more money to spend spare time to fill in.

The three-rail alternating current system chosen proved to be very reliable and simple in operation. To this day, Märklin still uses the same principle, albeit far more advanced than in the past.

Electrics:

The Märklin electrical system operates on 16 Volt alternating current (AC), and power is supplied by means of a mains transformer equipped with a thermal overload switch. This switch will automatically interrupt power to the mains coil, if the low voltage circuit is overloaded. There will be an audible “click” sound, and the red control light will extinguish. An overload will occur, if there is a short circuit, or if there are too many items drawing power and the consumption exceeds the transformer rating. The cause of the overload must be determined and rectified immediately. The thermal switch will automatically reset itself after a short period of time, and the control light will illuminate once again.

The connections are colour coded as follows:

Red cable and plugs = Live terminal for track (centre rail)

Brown cable and plugs = Neutral terminal for track (outside rails) and accessories

Yellow cable and plugs = Live terminal for lighting and accessories

Blue cable and red or green or orange plugs = Neutral terminal for electromagnetic accessories (connected via control box)

The red cable from the feeder track (attached to the centre rail) must be connected to the red (B) terminal of the transformer, and the brown cable (attached to the outside rails and road-bed) must be connected to either of the two brown (O) terminals of the transformer.

The yellow cable from lights or electro-magnetic accessories (points, signals, etc) must be connected to the yellow (L) terminal of the transformer. The blue cables with the red, green or orange plugs must be connected to a suitable control box, which in turn is connected to the Neutral (0) terminal of the transformer. In the case of lights, these may be grounded to the Neutral (0) terminal via the track (outside rails)

Power should be fed into the track at intervals of approximately 3-5m, to overcome loss of current due to the resistance in the track.

The locomotives operate on 0-16V, and the direction is altered by means of an on-board relay switch. This switch is actuated by a short burst of 27V, supplied when the control knob of the transformer is turned briefly to the far left (beyond the 0 mark). It is important that

switching be done quickly, as the locomotive must never be supplied with the switching current for extended periods of time.

Maintaining the locomotive:

The locomotive should be inspected for dirt and damage regularly. Use a brush to remove dust and fibres from the moving parts. Lubricate gears and bearings after every 40 hours of operation with a drop of oil. Be careful to keep oil away from the wheels, collector brushes of the motor and the reversing unit.

Check the ski pick-up for wear or damage. Make sure it is not crooked or bent.

Check that the collector brushes of the motor are in good condition, replace if necessary. When replacing brushes, insert the carbon brush in the socket with the straight spring, and the copper

brush in the socket with the angled spring.

The wheels must be kept clean at all times to ensure proper current collection. Remove dirt on wheels with a rag dipped in a little "Shellite" if necessary. The traction tyres on the driving wheels should fit well and be free from grease and oil. For locomotives fitted with connecting rods, these must first be removed when replacing traction tyres.

Should the relay switch fail to engage when required, the locomotive will move at high speed. This may be caused either by the locomotive being located too far from the nearest feed point (resistance in the track), or the return spring on the reversing unit may be too strong. If the relay switch engages when the locomotive is moving at full speed, then the return spring on the reversing unit may be too weak.

This problem may be rectified by carefully bending the spring hook of the reversing unit one way or the other. Please note that even a small adjustment will have a great effect.

Maintaining rolling stock:

All rolling stock should be checked regularly for dirt on wheels (follow cleaning instructions above). Lubricate the axle bearings with a drop of oil. Also inspect the couplings to make sure they are not damaged or bent.

Setting up the track:

Connect the track sections by carefully aligning the rail connectors and pushing the pieces together. The centre rail lugs should make firm contact. Never force sections together, as this may cause damage. Connect the cables of the feeder track to the transformer (see instructions above). Test the circuit by running

a locomotive on the track. Should it stop on any section, it is likely that the centre rail lugs are not making proper contact. Pull the affected track sections apart, and re-connect switching the positions of the centre rail lugs. Track sections must always be disconnected in a straight line. Never lever the pieces apart at an angle, as this will bend the rail connectors out of shape. Should the connectors become bent or loose despite all care taken, they may be carefully bent back into shape with a pair of pliers.

Maintaining the track:

The track is made from tin-plated and printed steel sheet. Clean the rails using a special track cleaning rubber and/or 1000 grit wet-or-dry emery paper, and remove dust and other debris with an old toothbrush. From time to time, coat the track with a thin film of WD40, applied with a brush and wiped off with a rag. This will prevent rusting, and

should be done before placing the track in storage for an extended period of time.

Proper care and maintenance will ensure many years of enjoyment form your vintage train set, just like it has provided for its previous owners!