2 Portable Baseboards

2.1 Large Open Frame Baseboard Design (AMOGG)

The following baseboard design was produced by the Aberdeen Modern O Gauge Group for their layout Strathdon. *The design parameters were that it should combine light weight with rigidity and be erected quickly when attending exhibitions. The principles described can be adapted to suit a range of baseboard sizes for different layouts.*

2.1.1 Basic design

Open frame plywood baseboards combine lightness with ease of adaptability permitting ground relief to be shaped and contoured above and below track level. Construction details are shown in the accompanying diagrams.

Each board is basically a 1500mm (5ft) long by 900mm (3ft) wide open box made of 12mm thick plywood. The rear panel is 450mm (18in) high and the front and ends are nominally 225mm (9in) high. Plywood cross-members are added to increase the strength of the assembly and to act as supports for the track base. The front and end panels can be cut and shaped to follow the ground contours with an electric jigsaw, as can the cross-members where the contours fall below track level. (One of the attractive features of Strathdon is a 6.15m (20ft) long high embankment with a road underbridge which is easily achieved using an open frame design).

On the inner face of each end a 100mm (4in) high plywood panel is built across the full width of the board (Figure 2-1). The panel is held away from the end piece by means of four 50mm (2in) by 25mm (1in) timber blocks creating a vertical slot at each end to locate the support legs (Figure 2-2). To assist in maintaining the frame as a perfect rectangle, triangular blocks are attached to the end panels and large triangular plywood gussets are used to join the cross-members to the front and rear panels. These latter gussets are deliberately made quite large to provide base support for the polystyrene blocks which form the ground contours.

The support leg units are identical and fully interchangeable. They are constructed from 50mm (2in) by 25mm (1in) timber glued and screwed together but with the top cross member dimension increased to 50mm (2in) by 38mm (1.5in) to allow the adjacent baseboard to sit 'piggy-back' on it. The vertical posts are extended 90mm (3.5in) above the cross stretcher to lock into the slots in the end panels described above. The normal arrangement is to mount baseboard 1 on two leg units and the other units sit 'piggy-back' with support at the outer ends only and secured to their adjacent units by 10mm (3/8in) bolts and wing nuts. However, by having an end slot at each end of all baseboards, individual baseboards can be temporarily mounted on two leg units for maintenance or other work away from the rest of the layout.

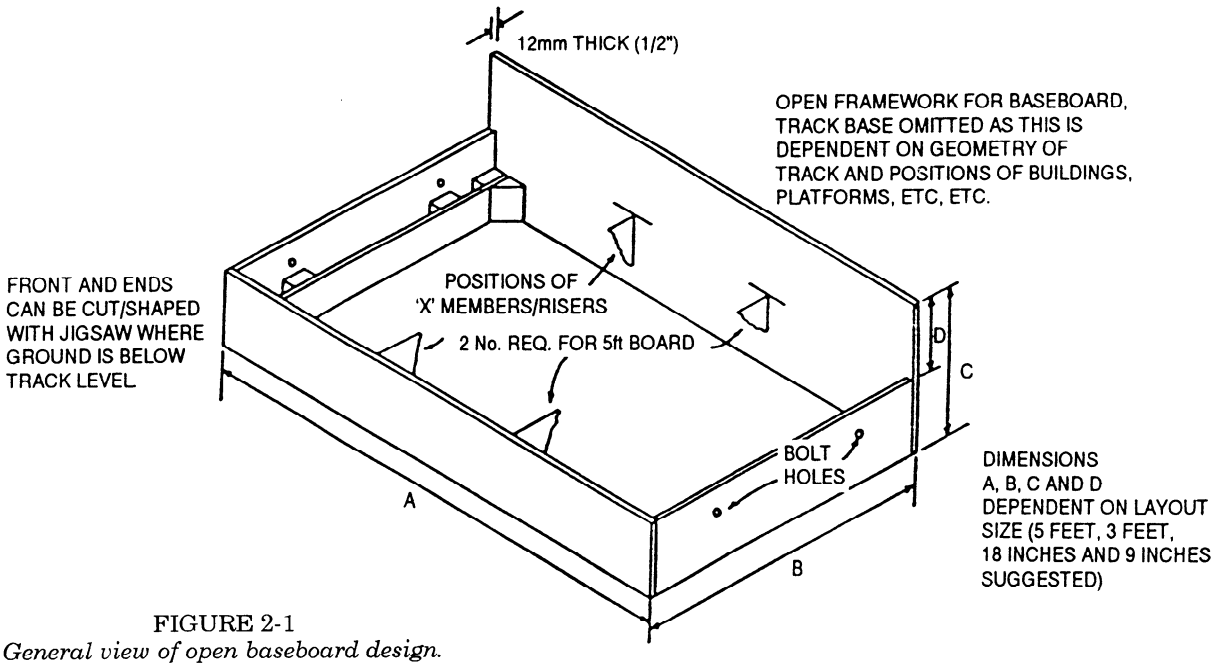

FIGURE 2-1
General view of open baseboard design.

The design and drawings supplied by Robert Humphry, Michael Ogston and Tom Simpsom of the Aberdeen Modern O Gauge Group.

50mm (2in) by 25mm (1in) diagonal braces are fitted to every pair of end support leg units and are attached by metal plates called flush mounts (see Figure 2). These are used in Art Galleries to hang heavy pictures on walls and are also used in the kitchen installation trade to suspend wall cupboards. One plate is attached to the vertical post of the end support leg unit with its tongue facing upwards while the corresponding plate on the diagonal brace is fitted with its tongue facing downwards. As the brace is pushed downwards the two tongues lock together to give a rigid assembly. The group also use these flush mounts to attach the vertical posts of the overhead lights, control panels and various accessories. Their use makes the erection of the layout extremely simple and rapid.

The track base is also made from 12mm plywood, its shape varying depending on the geometry of the track and the position of buildings, platforms, etc.

2.1.2 Rotating stock turntables

To provide storage at each end of the layout there are two large rotating stock turntables. The dimensions of the turntables can be varied to suit individual requirements but in the case of Strathdon the frame is 2750mm (9ft) long by 900mm (3ft) wide and the rotating decks are 2450mm (8ft) long by 900mm (3ft) wide. Each deck can take 10 roads. An earlier design 600mm (2ft) wide could carry 6 roads.

The general construction details are shown in Figure 2-3. The main frame is made from 50mm (2in) by 25mm (1in) timber with cross-bearers from the same material. Slots for the leg units are similar to those of the main layout boards and are located at each end and in the centre. The latter is to compensate for the additional weight of the rolling stock. Diagonal braces fitted with flush mounts complete the supporting unit. A 2750mm (9ft) by 900mm (3ft) sheet of 15mm plastic faced chipboard (Contiplas or similar) is glued and screwed to the base. A second sheet of 15mm plastic faced chipboard, 2750mm (9ft) by 900mm (3ft), is clamped to the first and, by means of intersecting lines, the centre point of the rotating deck can be located and drilled 10mm (3/8in) through both sheets for the centre pivot hole. (Because our turntables are only connected at one end the pivot hole is slightly offset from the true centre to give a longer lead onto the table). A bolt with a 1200mm (4ft) length of string attached is dropped into the pivot hole and, with a pencil held at the outer end, the curved ends of the rotating deck can be marked off. The second sheet is then unclamped, lifted clear and cut along the pencilled curves with an electric jigsaw. The rotating deck is replaced on its pivot and the surplus end pieces are glued and screwed on top of the first sheet of plastic faced chipboard to align with the surface of the rotating deck. It may necessary to sand the curved edges of the rotating deck

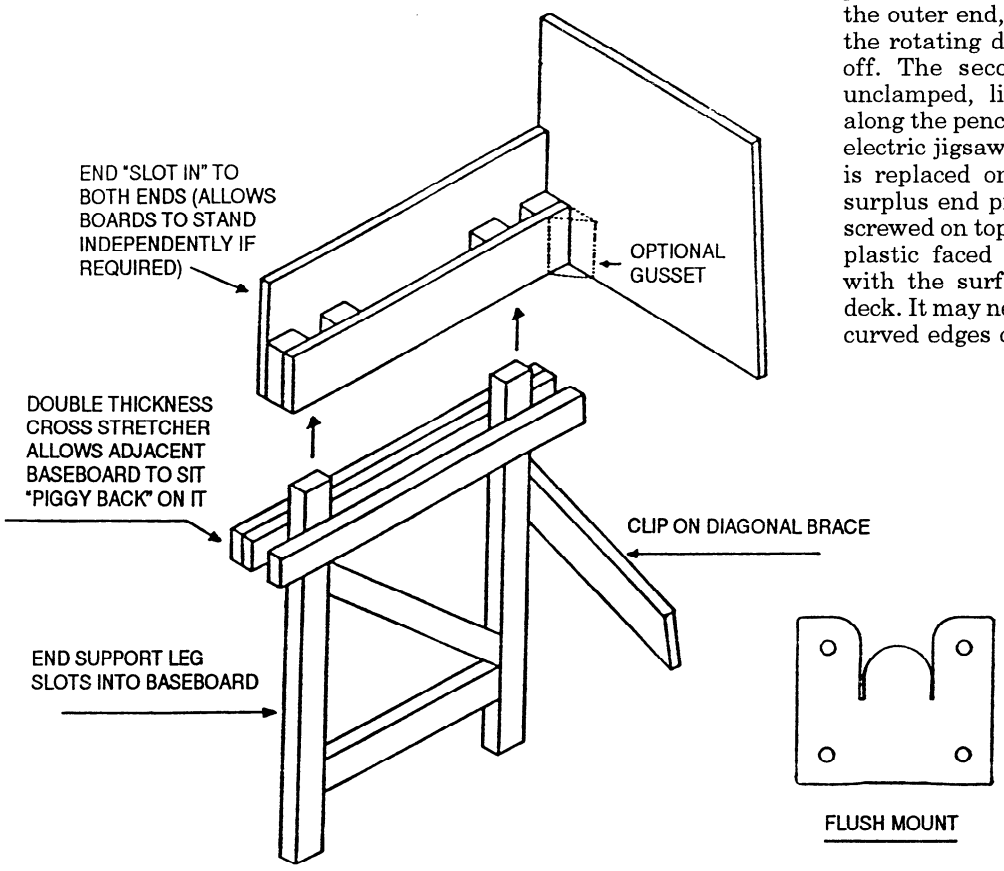

FIGURE 2-2
Exploded view showing end frame and leg unit.

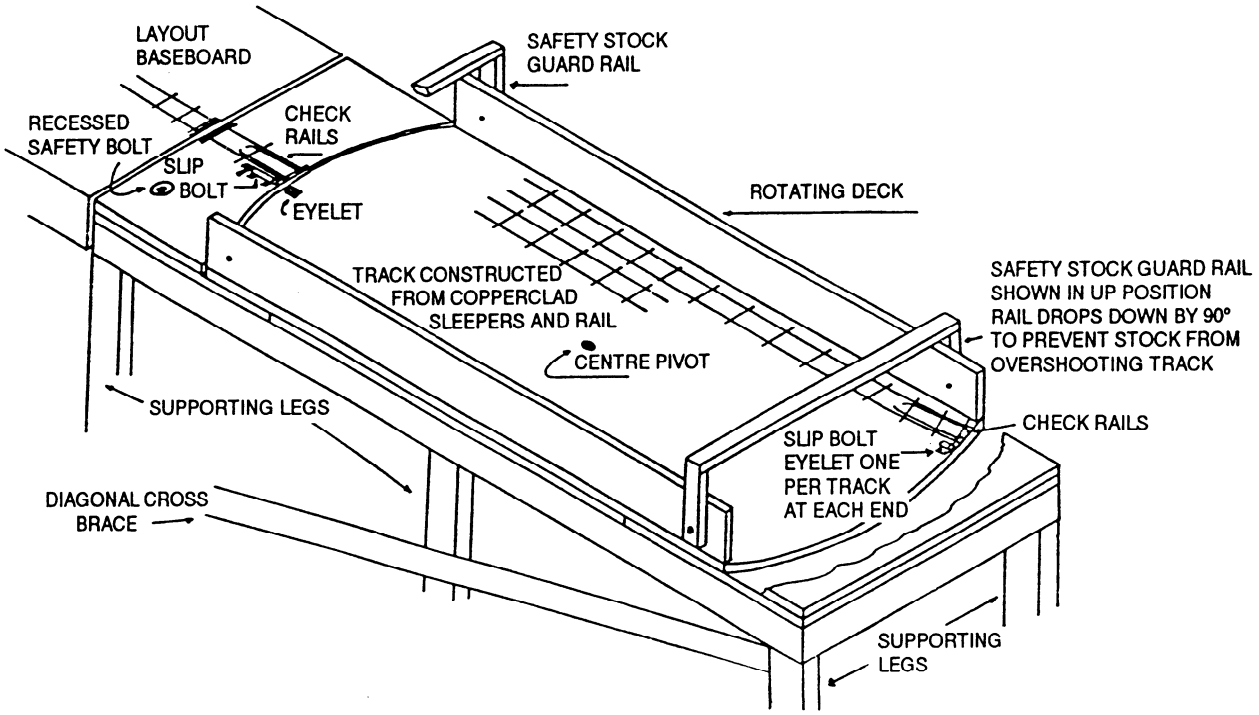

FIGURE 2-3
General arrangement of the rotating stock turntable.

and make minor adjustments but the deck should revolve freely, assisted by the occasional application of furniture polish as a lubricant.

On the original six track turntable the 10mm (3/8in) bolt arrangement was quite satisfactory but the heavier ten track version caused the hole to become enlarged. This was overcome by reinforcing the pivot holes with two pieces of machined steel plate with central sleeves which were recessed into the plastic faced chipboard. These were made very quickly by a local light engineering firm. (See Figure 2-5).

The vertical sides of the rotating decks are made from 18mm thick by 100mm (4in) high strips of blockboard. It is advantageous to slightly plane and shape the LOWER edge of the blockboard strip so that it is 100mm (4in) high in the centre but 97mm (3 7/8in) at each end. When screwed and glued to the rotating deck, the slight shaping will make the deck rotate even more smoothly. At each end of the deck stock safety guard-rails made from 50mm (2in) by 25mm (1in) timber are fitted to the blockboard strips. They are arranged to swivel from the vertical to the horizontal to prevent stock from overshooting the outer end of the track.

At one end of the turntable base along the centreline a length of single track is attached. From this point it becomes a matter of aligning the tracks on the rotating deck. Note that on Strathdon we managed to attach ten tracks with the ends curved to allow smooth alignment to the single entry track but the curves on tracks 1 and 10 are quite tight. Diesel locomotives with short length bogies negotiate these tight curves easily but visiting steam locomotives have often been unhappy using them.

2.1.3 Electrical connections

With the rotating deck removed, two steel ball catches are recessed into the lower sheet of plastic faced chipboard, 50mm (2in) from the end of the entry track and in line with the two rails. Dropper wires from the incoming rails are bonded to the lower ends of the ball catch units, one wire being diverted via a recessed push-to-make button. Drilled through from the lower face of the rotating deck, brass screws are inserted which are long enough to emerge through the rotating deck adjacent to each rail. A bonding wire is led from each screw to its adjacent rail so that current is passed from the entry track via the ball catches to the screws and thence the rails of the appropriate track only when it is lined up with the entry track and the push button is pressed. Figure 2-4 shows the system schematically.

2.1.4 Track alignment

A slip bolt is placed alongside the entry track on the main frame. A slip bolt eyelet is placed alongside every track on the turntable to guarantee the physical alignment of the tracks. With one eyelet per track

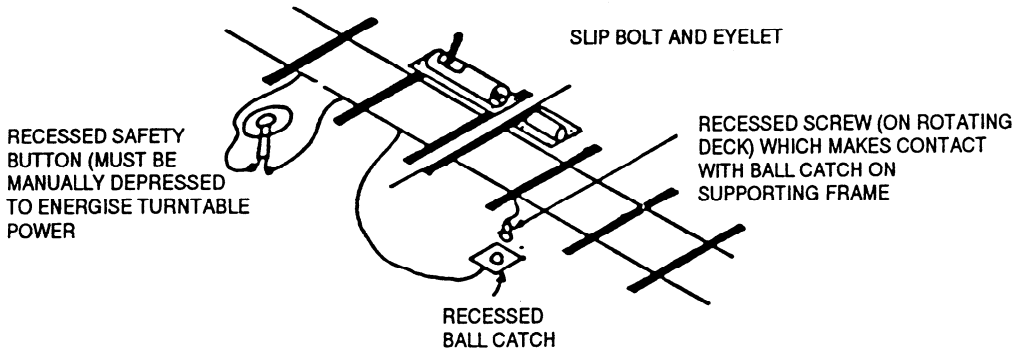

FIGURE 2-4
Schematic of the electrical connections.

at each end this is a total of 20 eyelets. (As one is left with 19 spare slip bolts it is useful to try and purchase in bulk from a wholesale ironmongers to minimise the cost).
The track can be rail soldered to copper-clad printed circuit board sleepers spaced at 100mm (4in) intervals as appearance is not too important. The entry rails and the ends of all the turntable tracks are fitted with check rails to give smooth passage over the joints and make derailments almost unknown.

2.1.5 Layout transportation

The layout consists of six baseboards which are assembled into two large 'crates' each containing three baseboards. Each crate requires two 12mm thick chipboard ends, 1350mm (4ft 6in) by 900mm (3ft), with 10mm (3/8in) diameter holes drilled to match the bolt holes in the end panels of each baseboard. To form the crate, three baseboards are placed with their rear panels on the floor with the top edge of one in contact with the lower edge of the rear panel of the baseboard above. The end sheets are placed in position and attached to the baseboards by bolts and wing nuts which when fully tightened forms a strong rigid crate. The end boards have carrying slots cut into them and when the assembly is rotated 90°, with the three baseboards stacked vertically, it can be carried easily by four men. The two crates, when lying on their backs, fit into the majority of light delivery vans, e.g. Ford Transit or similar.

Because of their size and weight, the stock turntables are loaded individually but are able to rest on top of the baseboard crates without damage to the baseboards.

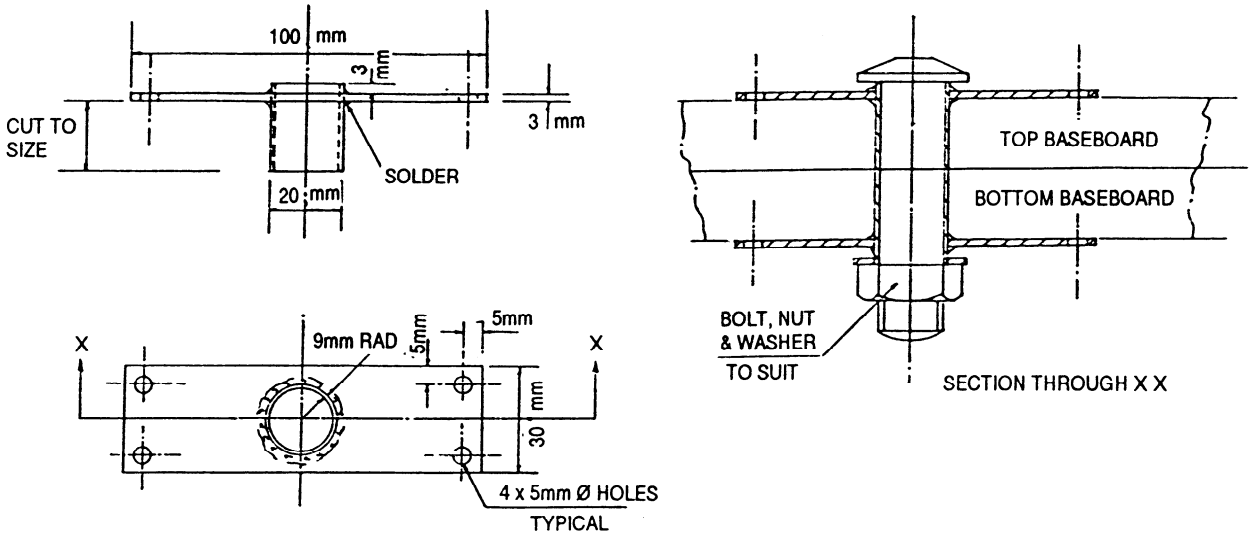

FIGURE 2-5
Turntable Pivot Assembly.