

Cab.

In order to ensure that the cab and tender would actually look right, as what often appears on a drawing is not always reflected in the three dimensional end product, a card mock-up of the two units was constructed. The mock-up offered the opportunity to experiment with different window and door configurations and also the shape of the roof. The roof in particular offered several options; a simple curve, parabolic or a straight pitched form. In the end a parabolic curve was chosen which looked just fine and one of our dinner plates offered just the right profile!

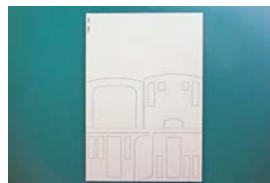


The parabolic roof was, in retrospect, a mistake. It proved difficult to obtain the correct curvature for the roof panel and if I were to build another cab I very much suspect I would opt for a straight pitched roof profile.

Having decided on the form the cab would take the four sides were marked out on a sheet of 0.080 styrene. An old 12" steel rule was used as a cutting guide with a fairly hefty blade in the craft knife in order to cut easily through the thick styrene. Once all the four pieces were cut out, including the window and door openings, each edge was given a gentle rub on the sanding board to ensure nice square cut edges. (The sanding board is a piece of scrap flat board to which are glued two sheets of medium grade aluminium sanding paper).



Plate as a template



Cab sections on styrene sheet & cut from sheet



Cab held with tape for a test fit

Having opted to model a cab and tender of steel construction it was thus necessary to simulate the rivet detail that would have held the panels together. 10mm long brass pins (Approx 0.40), frequently used by model boat builders, were chosen to simulate the rivet heads. These pins have smaller heads than the normal domestic pins and better represent scale rivets.

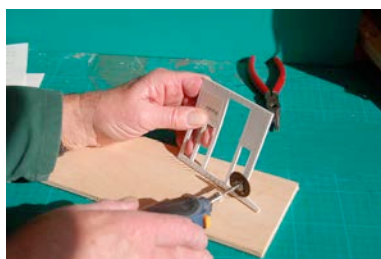
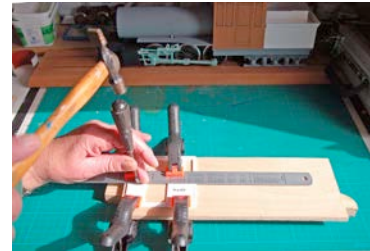
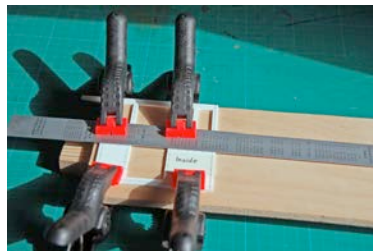
To avoid damage to the outer surface of each panel the marking off was completed on the reverse side of each panel. (A masking tape label to the inner side of each panel ensured that I didn't get confused as to which side was which!!!) The panels were marked out using a draughtsman clutch pencil to give a neat narrow pencil line, an engineers square and 45 degree set square to keep thing square, a 1/2" scale rule (The model was built to 1/24th scale) and a plastic ellipse template which produces gentler and more aesthetic curves than a simple circular template.

Rivet centres were marked off at 6" centres and placed 2" in from each panel edge and 4" below the window openings. The panel was then gripped onto a piece of soft flat wood with 2½" spring clamps with the reverse side of a steel rule uppermost to act as a guide for the centre punch tool to ensure nice straight lines of rivet centres. A gentle tap with a hammer on the centre punch at each marked location gave a set of positive centres for drilling the holes that would take the rivets. A #78 drill in a hand held mini drill produced holes that gave a nice firm grip to the pins – a little experimenting with small diameter drills will ensure you get a drill that suits the pins you choose use.

Once all the holes were drilled the panel was turned the over and given a gentle rub along the sanding board to remove the drill protrusions. The pencil lines were also removed from the inner surface of the panel with a little kitchen cleaner on a damp cloth.

A packet of the brass pins were tipped into a plastic container lid in order that they could be lifted easily with a pair of self closing tweezers. The styrene panel was placed on a flat board and each pin was gently tapped through with the line of holes overhanging the board edge. After each row was complete a sealing coat of styrene liquid cement was run along the base of the protruding pins to ensure they remained firmly in place whilst a large diameter cutting disc in a mini drill being used to remove the surplus protruding stem of each pin. (Before proceeding further all the cut-off pin pieces were removed with my shop vacuum – the pin cut-off's have a tendency to wander!!)

A gentle rub with a 6" flat file ensured the pin stubs were flush with the inside of the panel. A final run of liquid along the inside of the pin rows (Now rivets!) ensured they remained firmly in place.



Procedure for using pins to simulate rivet detail

It was at this stage that I made a major mistake. I decided to glue 0".080 acetate to the wall's before proceeding further and thus have the window frame butt against the glazing. Unfortunately the glazing became a little scratched and my first attempt at spraying the cab walls proved my masking was not perfect – I had overspray on the glazing.

It was back to the work bench and time to build a replacement cab with glazing that would be fixed with 14BA set screw and nuts after painting.

With all the rivets in place it is now time to fit the window frames and doors.

The window frames consist of 0".040 x 0".125 square styrene strips (Scale 1 x 3"" in 1/24th scale). These were cut in situ using a chisel X-acto knife blade to give a good square cut. Each piece was held in place with styrene liquid cement applied with a fine brush. This technique ensures each side of the frame fits snugly into place. The panels were held down flat on a board whilst the strips are glued in place.

The door is constructed with the cab side panel held flat against a back board. A piece of 0".030 styrene sheet was cut to fit the door opening and glued in place flush with the inner surface of the panel. A strip of scale 1" x 4" forms the top frame piece, 1" x 6" forming the bottom piece with 1" x 3" strips forming the sides and a final 1" x 4" strip forming the centre bar. The window opening was then cut out and 1" x 1" framing added.

The cab grab handles were now formed from 1/16" brass bar being simply bent in a pair of pliers and the legs trimmed with a mini drill cutting disc. Once fitted masking tape labels were attached to each grab handle to indicate its location (Left side front etc) and the handles set aside.

A length of 0".080 x 0".125 (2" x 3") styrene strip was added along the cab sides beneath the window openings as an elbow rest and to add some relief to the plain panels.

The outer surface of the panel was then given a spray coat of automotive gray primer and set aside.

An inner covering of 0".080 styrene was now added to the front and side panel for several reasons: it gave a firm structure, provided a landing onto the original cab floor, provided a rest upon which to place the glazing and also provided a solid guide and location for the new cab floor.

The glazing is clear 0.080 acetate secured by five 14BA set screws and nuts to the front panel and four in each of the side panels. The hexagon heads are in no way obtrusive and blend in well once painted along with the cab walls.

Strips of 0".080 square styrene along the vertical edges of the cab ensured a solid location for the side walls.

Two short lengths of 0".156 (4" scale size) angle were fixed to each inner cab wall (the gap being for the cab door). These angle pieces provide an inner elbow rest but more importantly they form a gap into which the 0".080 clear acetate glazing can be slipped.

With all four cab sides now complete externally it was time to consider the assembly and interior finishing of the cab.

Using a set of miniature sash clamps to hold the four cab panels together a test fit of the unit on the loco chassis showed no modifications were required. The assembly was removed from the

chassis a floor plate was cut from 0".080 styrene and then sides and floor were joined with liquid cement, the floor plate ensuring the corners remained square.

Turning the cab upside down a gentle rub on the sanding board ensured the curve of the roof extended over the side walls to ensure a snug fit for the roof.

The cab and floor were removed from the loco and side strips of 1/4" x 1/4" styrene were cemented in place along each inside wall to offer added strength to the wall / floor joint and a sound location for the set screws that would hold the cab to the chassis through the extension plate. The strips were also extended along the inner front panel for 1/2" from the cab side wall..



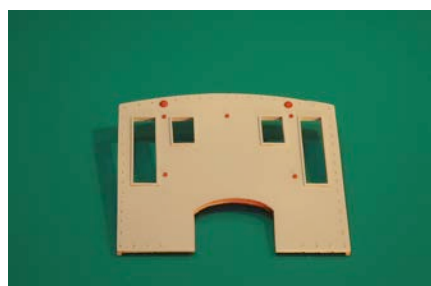
Cab sides with supports highlighted



Cab wall and floor plates



Side panel showing 14BA glazing set screws and wire grab handles



Front panel with five 14BA glazing set screws and two estucheon pins to secure roof in place.



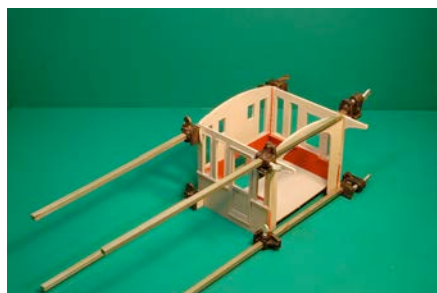
Cab grab handles referenced to ensure correct re-location.



Miniature sash clamps



Walls held in place whilst floor is slid into position.



All ready for glueing.



Completed unit

Cab Roof.

Using the cab end panels as a marking guide six roof support beams were cut from 0".080 styrene. Four of the beams were cemented together in pairs as these would rest inside the panels and accept two escutcheon pins each as the means of holding what would be a removable roof firmly in place. The support beams also ensure the roof maintains the correct curved form.



Forming curve of cab roof using a barrel and heat gun.



Roof with internal supports



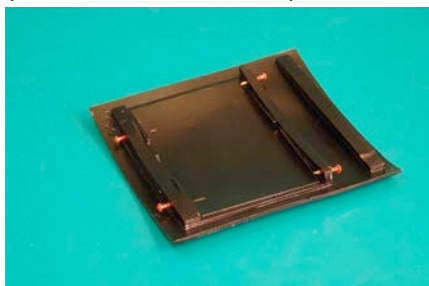
Completed cab with roof held in place with four estucheon pins.



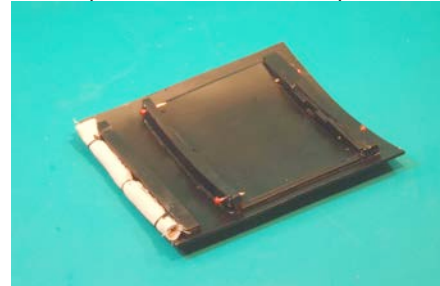
Cover plate, boiler and cab in place.



Selection of spray cans used.



Sprayed roof with four locating pins



Weather tarp added to rear of cab roof.

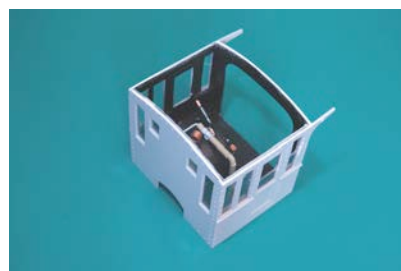
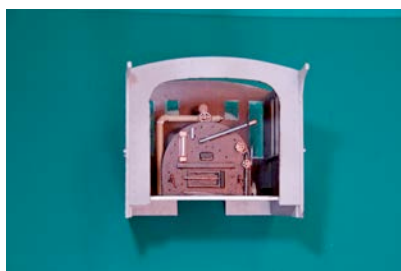
Cab Boiler Extension and Back-head.

The cab boiler extension and back head are formed from a section of pipe as used for the boiler itself. Front and rear panels of styrene, cemented to the pipe section, are extended down ward to form vertical sides for the unit and filed to the circular form of the boiler top. A thin piece of styrene sheet wrapped around the pipe and the added panels needs to be well cemented into place before being cut off to give a flat seating for the boiler to the cab floor.

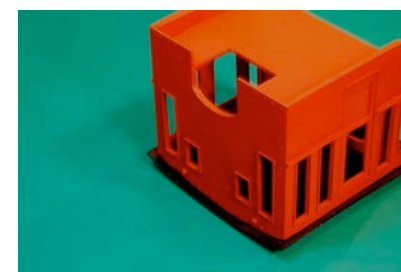
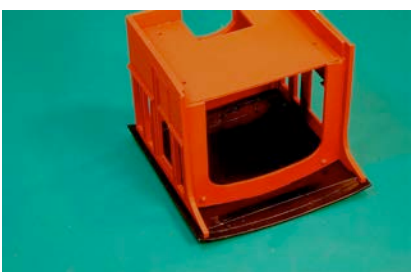
Firebox door, valves, water gauges, piping, control and brake levers can now be added as you choose. I am not a steam expert but the fittings I chose give the cab firebox / boiler unit, at least to me, an original and unique appearance – one has to stamp ones identity on a model somewhere!!

The back-head unit was glued to a 0".040 styrene base which enables the unit to be slipped into the cab, between the elbow rest angles, once the cab is in place. Two 6BA screws pass through the back head and cab floor and secure them to the original chassis and extension plate

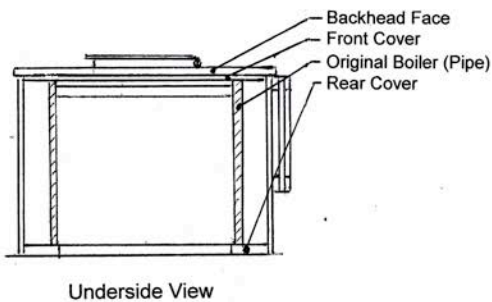
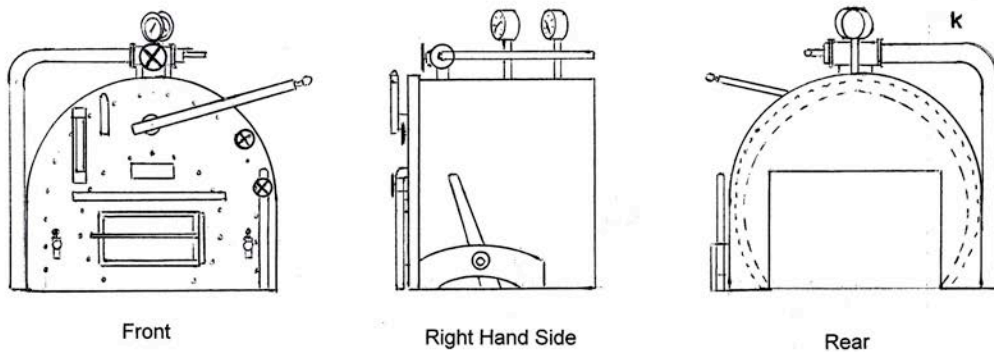
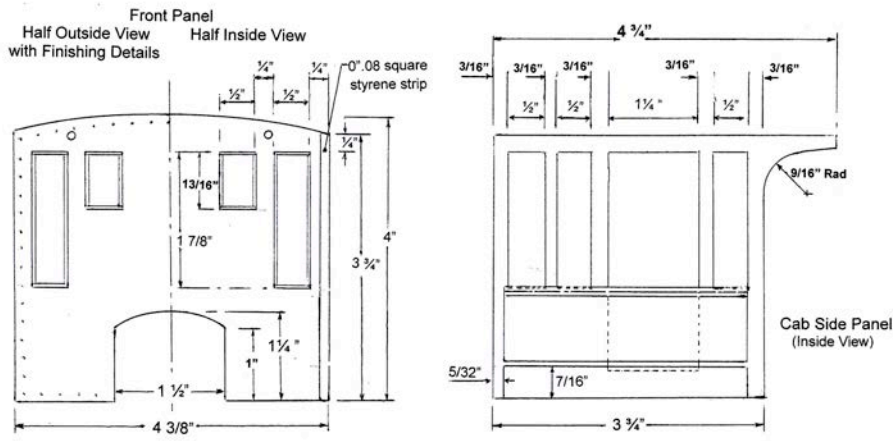
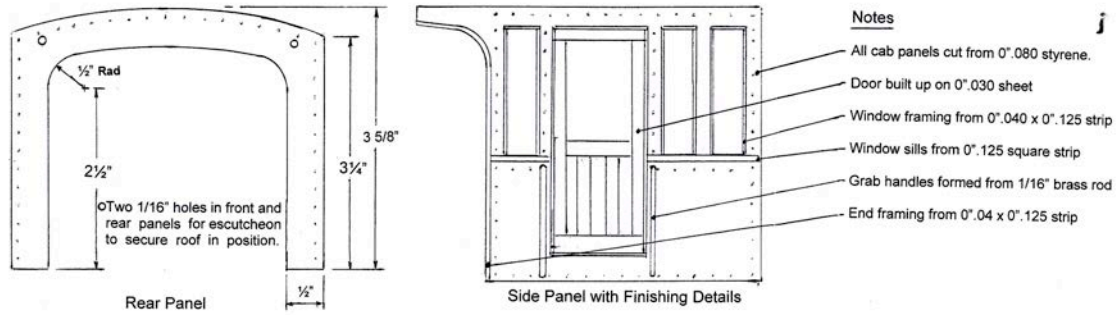
Construction and detailing of cab back head and boiler extension.



Final assembly of cab



Final assembly of cab



Front (Backhead face) and rear covers cut from 0.08" styrene and then whole unit is wrapped in a covering of 0.02" styrene.

Valves, gauges, pipe work, firebox door & water gauges to suit.

Opening on rear cover permits stowage of wiring inside cab boiler shell

Boiler and Backhead Details