

MODEL SIGNAL ENGINEERING



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SCALE	CODE	
7mm	S03/1	

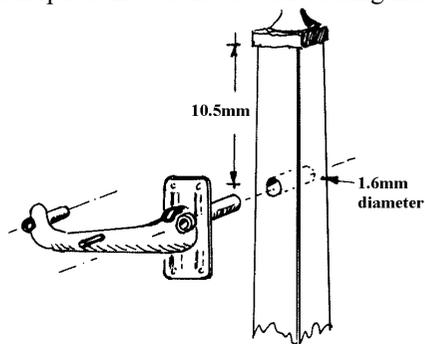
McKENZIE & HOLLAND SOMERSAULT SIGNAL OPERATING MECHANISM

Cast brass parts for use with signal arm frets S03 and S03/3.

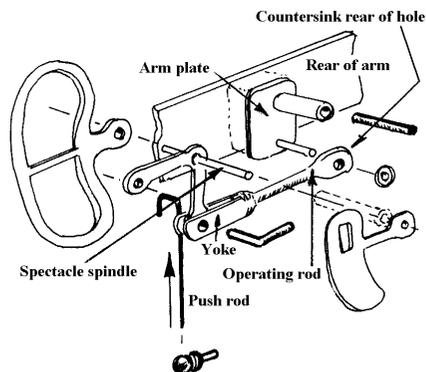
The principle of the somersault signal is that the arm is pivoted at its centre, usually from a point above the centreline. It is operated by a linkage from a crank carried on the spectacle spindle. The arm is placed slightly in front of the spectacle. When the crank is operated by the balance lever and push rod, the spectacle turns to show the clear aspect and the operating rod pulls on the bottom spigot of the arm plate and tilts the arm from horizontal to between 55° and 80°. The counterweight on the balance lever returns the arm to normal when the wire is released.

Assembly instructions:

Before separating the parts, drill out all holes with a no.69 drill or use a tapered broach to clear the holes to fit 0.7mm or 0.9mm wire as the case may be. On the J-bracket, remove the two pips on the back of the mounting baseplate. Leave the tubular bearing intact.

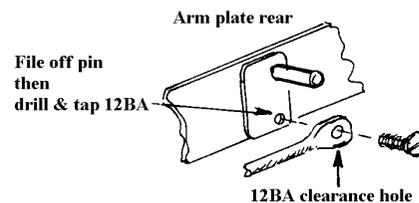


Offer up the J-bracket to the post. The mounting hole for the tubular bearing should be 1'6" (10.5mm) down from the top of the post (i.e. at the base of the finial), on its centreline, at the front. Drill 1.6mm diameter and Araldite the tube into the post. The arm stop on the middle of the J bracket, may be cut back to clear the operating rod if it interferes with the free movement of the mechanism at a later stage.



Study the assembly drawing, as viewed from the back of the arm. Clean up the operating rod and crank whilst still on the sprue. Methods of operation seem to vary in some photographs, with the rod driving above or below the fulcrum. For modelling purposes, it has been found that the best method is to

dispense with the drive pins on the back of the arm plate, using instead the tubular bearing at the top. Solder the drive plate on to the back of the arm, equidistant from each end. A hole can then be drilled in the arm and drive plate, immediately below the tubular bearing as shown:



If you make the pin a force fit into this hole you can later retain the operating rod onto the pin with a small wire ring washer soldered on, with a tear off paper washer underneath to prevent the works being soldered up.

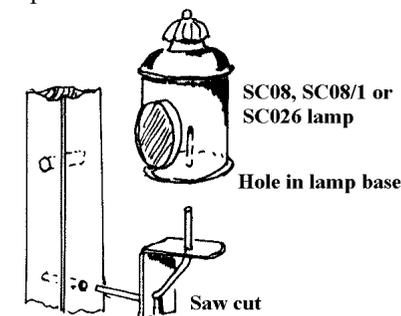
An alternative is to drill and tap the arm plate and use a 12BA screw to act as the drive pin and securing head at the same time. Open out to 12BA clearance the hole on the operating rod end and lightly countersink the operating rod holes to prevent any binding later.

The top and bottom of the drive plate casting may need to be filed down to match the depth of the signal arm, which in this instance should be the 4'6" type. The bell crank needs to be fitted so that the spindle is in the bearing in the post, with one leg of the crank horizontal and pointing away from the arm, and the other leg hanging downwards. Fit the yoke of the operating linkage to the crank before you fit the crank and its spectacle spindle to the bearing in the post. This can either be a wire peg, force fitted into the yoke, or an L-shaped wire popped through and soldered on the back of the yoke.

Take a length of suitable wire (ideally 0.45mm diameter straight brass) to serve as a push rod from the balance lever and weight

up to the crank. Form a U-bend on one end of the wire and secure this on the crank. Thread one or two handrail knobs onto the wire and put in a temporary bend at the bottom.

With the arm horizontal, solder the spectacle plate to the spindle in front of the crank, with the upper aspect in line with the lens of the signal lamp. A simple bracket can be made up as shown:



Drill holes in the side of the signal post for the handrail knobs to act as push rod guides, aligning them with the balance lever drive hole. With the arm horizontal and the balance lever inclined downwards, bend the operating rod to coincide with the hole in the balance lever. Make secure and when satisfied, rotate the arm to the off position and solder a small wire stop to the push rod, just one side of a handrail knob. This will act as a stop for the arm. Lightly oil all of the working joints before painting.

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