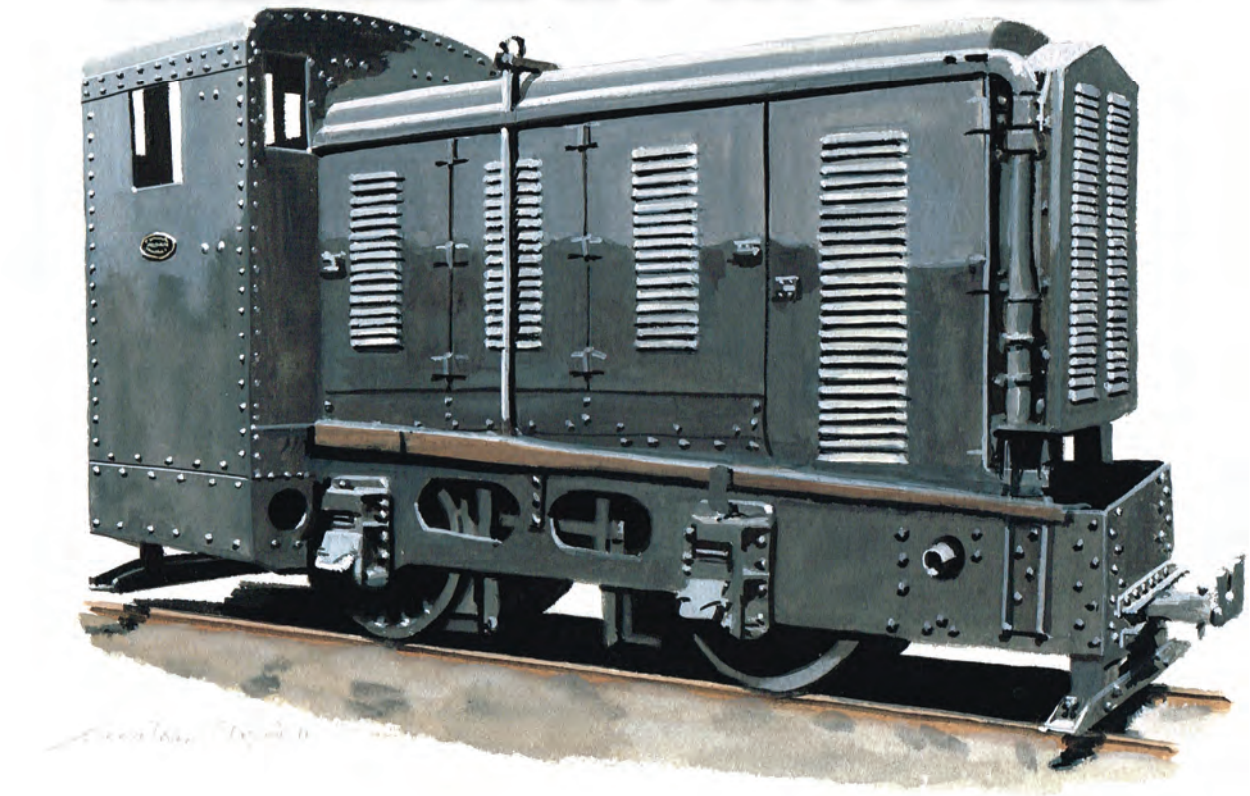
MERIDIAN MODELS



009 DICK KERR

History

These locomotives were ordered by the War Department in November 1916 for use on the 60cm railways being built for transporting munitions and other supplies on the western front. As built they were intended to be able to run powered by a 45hp petrol engine linked to generator and motor unit and also by picking, via trolley poles, traction current from overhead wires. The locomotives were ordered in two batches to speed up deliveries. One hundred were ordered from Dick Kerr Ltd and another hundred from British Westinghouse. There must have been a change of mind here, as all the supplies to construct the overhead trolley wires were cancelled. It makes you wonder quite why they even considered the notion in the first place due to the vulnerability of the wires and poles. The outcome of this cancelation left the locos with only parts of the trolley pole when delivered. There was also the facility to use the locos as mobile generators supplying 500 volts, and could therefore be used to power up one or two of the unpowered vans of the mobile workshop train or a mobile sawmill. They were a popular loco but had one fault that the drivers disliked and that was the slow speed. They had been fitted with very low gearing to presumably increase their haulage power but in a crisis no speed to get you out of trouble.

The Dick Kerr and the British Westinghouse locos were mechanically identical but had very different bodies.

The British Westinghouse will form the subject of a future kit from Meridian Models utilising the same chassis as the Dick Kerr.

The Dick Kerr locomotives were allocated War Department numbers 1900 to 1999.

Colour

Colour is a difficult subject and the experts will give you many and varied schemes. I believe all the internal combustion locos were painted green. Now when the Moseley Trust's protected Simplex was restored some original paint was found. Basing the new paint on this, the locomotive was repainted. I was fortunate to get a swatch of it as we were going to repaint the one at Leighton Buzzard and I matched it to Phoenix Precision Paints Southern Railway Maunsell Light Olive (P76) which I have used on all the WW1 internal combustion locos on my Willesden Junction layout. Strangely when this colour is weathered with a dark wash it dries looking like Humbrol Slate grey (31).

References

BIBLIOGRAPHY

Light railways of the First World War. WJK Davies. David & Charles. 1967.

Narrow Gauge at War. Keith Taylorson. Plateway Press 1987.

Narrow Gauge at War part 2. Keith Taylorson. Plateway Press. 1996.

The Light Track From Arras. T. R. Heritage. Plateway Press. 1999.

All these contain photographs which may be useful. Please be aware that the photographs in plate 55 of W.J.K. Davies' book are of prototypes and differ from the production machines in a number of respects

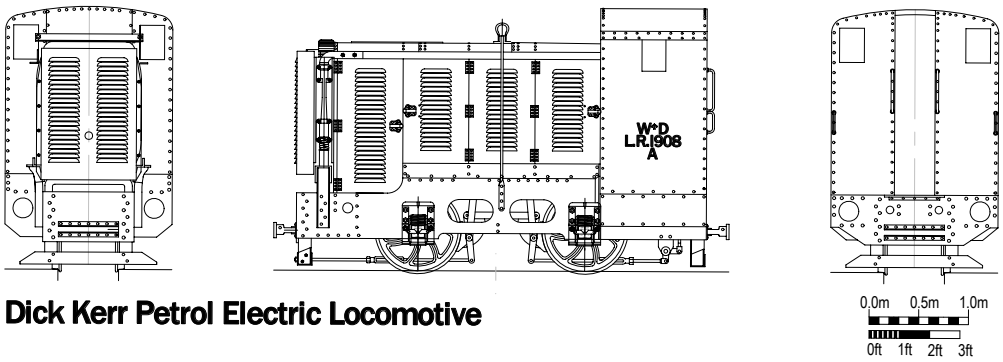
ONLINE

There are a number of photos from the Australian War Memorial Collection that may be viewed on-line:

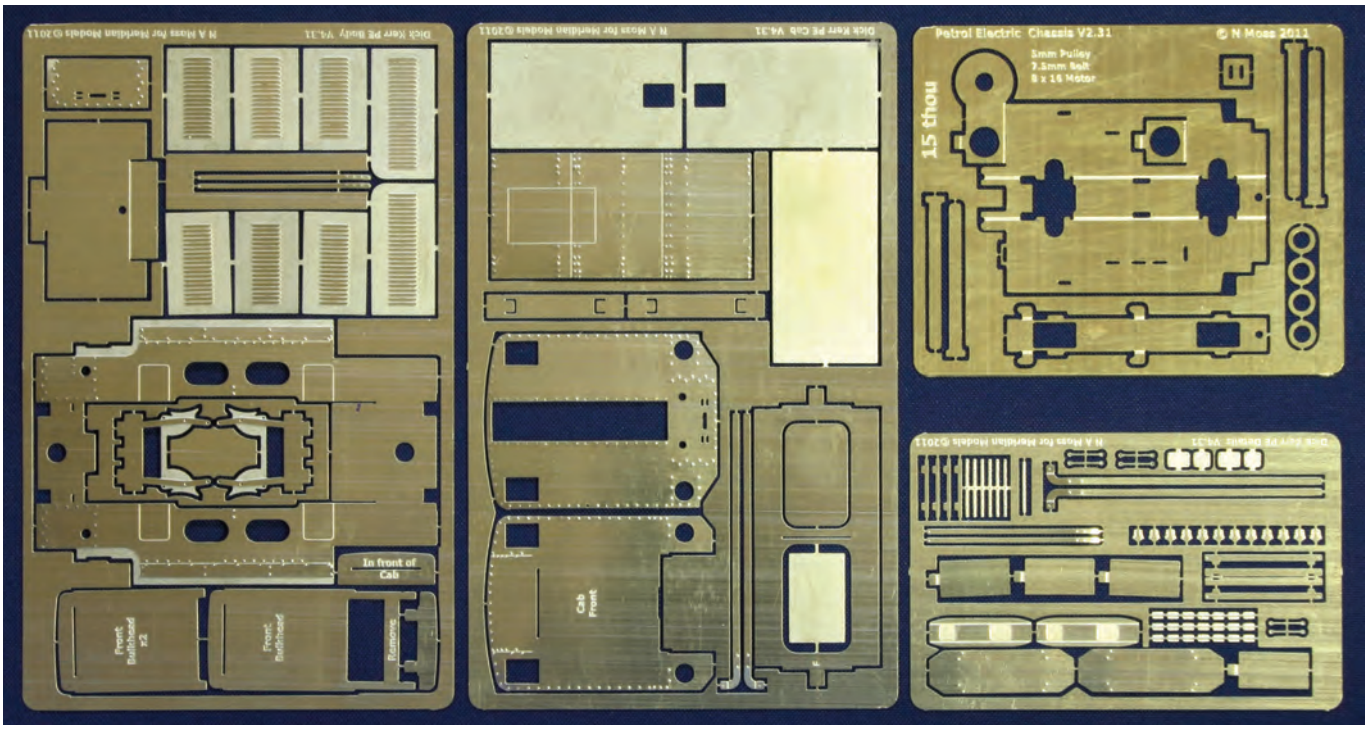
http://cas.awm.gov.au/item/P03608.005

http://cas.awm.gov.au/item/C01361

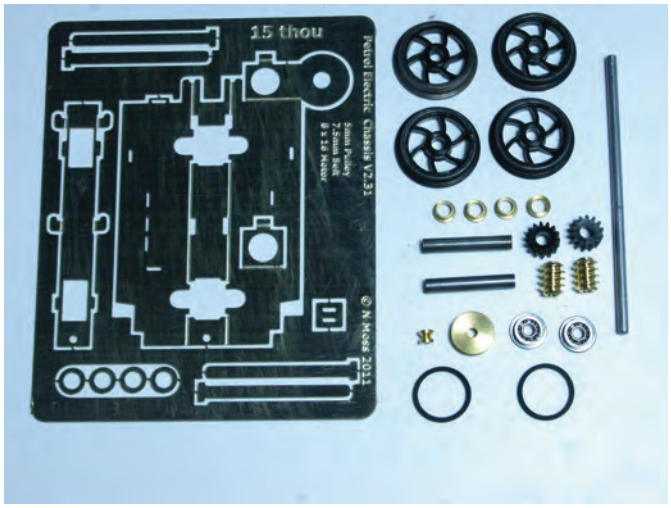
http://cas.awm.gov.au/item/C01365

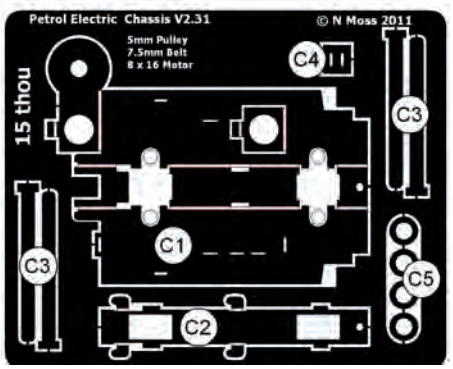


Dick Kerr Petrol Electric Locomotive



Building the chassis





Folding the chassis
Cut Part [c1] from chassis etch. Fold the left hand side through 90° (photo 1). Fold the motor bracket through 90° and then fold the bearing bracket through 90° (photo 2).

Fold the right hand side through 90° ensuring that the tabs engaged. Fold the tabs over. The motor bracket and the bearing bracket may be soldered at this point.

Remove the keeper plate [c2] from etch and fold up clips (photo 4). Trial fit. Tap the hole with a 10BA thread through both keep plate and chassis.

Assembling the lay shaft.
Place a worm gear followed by a roller bearing and then a worm gear onto the lay shaft and push the assembly into the bearing bracket. Then add the second bearing followed by the 5mm pulley as shown (photo 5) .

Assembling the wheel sets
Trim the axle to 12mm long. To ensure correct centring of the plastic wheels place the axle in a drill and file a slight chamfer on both ends.

Add a wheel onto one end and then in the following order:
1) washer [c5]
2) brass bearing
3) plastic gear
4) brass bearing
5) Washer [c5]
6) Wheel

Ensure that the brass top hat bearing is “brim” to the outside (photo 6), gear is central and trial fit into the chassis. It should be a tight fit. Assemble the other wheel set and trial fit.

Fixing the gear train
Arrange all the elements in their correct locations (photo 5).

Remove the wheel sets and fix worms and bearings with anaerobic glue (stud or thread lock) sparingly applied with a pin or cocktail stick.

Fixing the motor
Remove a pair of straps [c3] from the chassis etch and slide through the slots on the chassis. Locate the motor through the front bracket and wrap the straps closely around the motor. Slide the clip [c4] over both straps and tighten (photos 7 & 8).

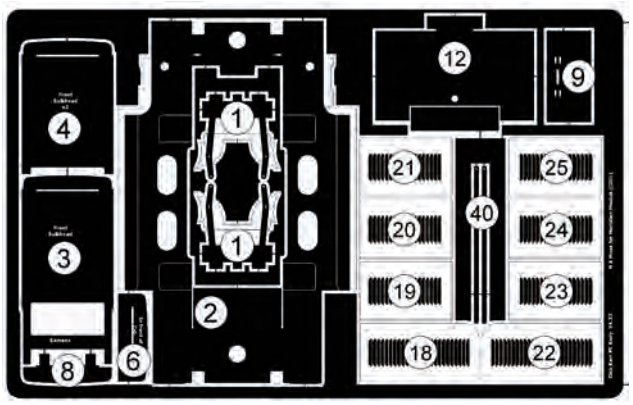
Slide the 1.7mm pulley onto the spindle and fix sparingly with anaerobic glue.

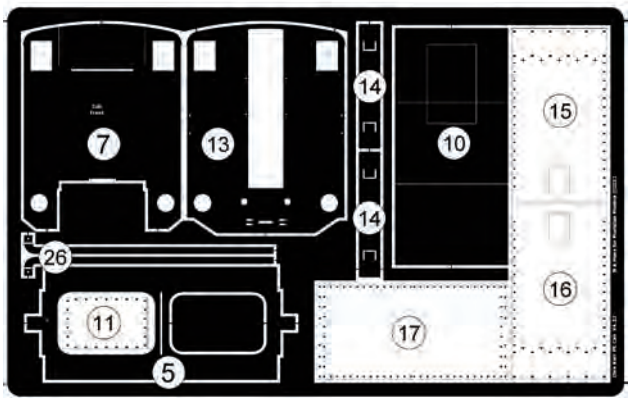
Assembling and wiring the pickups
Remove both brake assemblies [1] from the body etch. Fold assembly and solder into locating holes on the chassis (photo 9). Solder two 0.33mm brass wires between the brake assemblies (photo 10).

Pickups are assembled from 0.5mm phosphor bronze wire soldered to PCB and glued to the chassis above the brake assembly. Solder resistor to right hand side pickup. Solder the motor wires to the pickups (photos 11 & 12)

Place the 7.5mm drive belt around the pulleys and test run the completed chassis.

Building the Body





Punching Rivets
Before removing any pieces from the fret you must press out the rivets. This is carried out by placing the fret on a resilient surface (I use a cutting mat) and then pressing a sharp pointed instrument, such as a compass point, into each of the half-etch holes on the reverse side of the fret. Be careful not to apply too much pressure otherwise you will push the point right through. Don’t worry if some of the pieces curl slightly. They can be carefully straightened when removed from the fret.

Assembling the chassis sub-frame
Remove chassis sub-frame [2] from body etch and fold both sides through 90º (photo 13). Fold up chassis spacer and solder (photo 14).

Assembling the bonnet frame
Remove parts [3] [4] [5] [6] & [7] from the etches. They are laid out in the order of assembly (photo 17). Fold down 90º the sides of top frame [5]. Solder (sweat) parts [3] and [4] together and join to the top frame to this using the tab and slot ensuring that the top frame is the correct way round. Bend down the slot and solder (photo 18 & 19) .

Repeat for the Cab front [7] and false front [6] (photo 20). Fit the bonnet frame onto the chassis sub-frame passing the tabs through the slots at the front (photo 22). Ensure that the bonnet frame and chassis sub frame are parallel then solder (photo 23)

Add the bonnet support [8] using the tab & slot, then solder ensuring that its is perpendicular to the bonnet frame (photo 24).

Cab floor
Remove the cab floor [12] and fold up front of floor. This is required to clear the wheels. Securely solder a 10BA nut to the underside of the floor (photo 24). A cocktail stick is a useful implement for holding the nut while soldering.

Locate the cab floor onto the sub-frame and solder in place.

Remove the cab back [13] and carefully fit around the floor and locate it on the sub-frame. Solder in place.

Remove the two temporary spacers [14] and fold (photo 30). Locate them in the cab windows (photo 31) to hold the cab front and rear square whilst soldering on the cab sides.

Cab sides and roof
Remove the cab sides [15] & [16] and tin the inside edges with solder. Carefully locate each side on the body and tack solder to the cab front at top and bottom. Check that it is all square and tack solder to the cab back. There should be no overlap (photos 33 & 34). Complete soldering of sides.

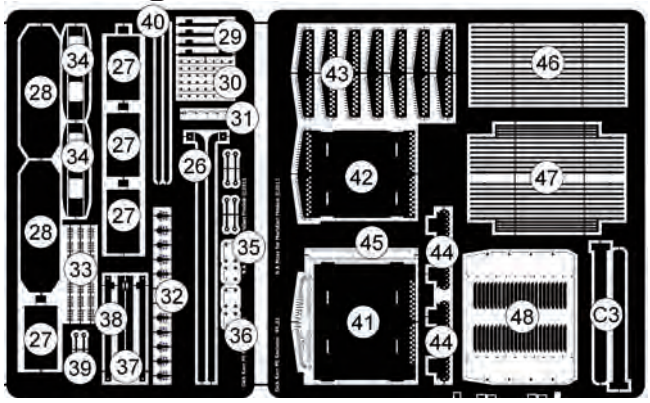
Remove the cab roof [17] and roll the edges around a 6mm bar then roll the middle until it is a good fit to the cab (photo 35). Tin all the inside edges with solder. Starting from one edge, tack solder to the cab (photos 36, 37, 38). Solder in place when happy with fit.

Bonnet top and sides
Remove the bonnet [10] and roll the edges around a 2mm bar and then roll the middle very slightly to fit around the formers. Solder to the sub-frame ensuring that the half-etch rectangle is to the front. Remove the access panel [11] and solder to the bonnet using the half-etch rectangle as a guide.

Remove the doors and panels [18] to [21]. Starting at the front, solder the panels to the sub-frame. Ensure that the first panel [18] is tight to the bonnet front and that the panels are the right way up i.e. rounded corner of ventilator to the top. Repeat for the other side.

Chassis front
Remove chassis front [9] and solder to the chassis sub-frame (photo 40). A neater fit can be obtained by chamfering both the chassis sub-frame and the chassis front.

Adding the details



Re-railing frames.
Remove Parts [27] & [28] and fold into channels (photo 41). Fit supports [27] into the front of the frame (photo 42). These are designed so that the tabs fold over to ease location. The holes may need opening up with a small square section file. Once soldered in place remove the tabs. Add the bottom channel [28] ensuring that it is carefully centred.

Repeat for the rear re-railing frame removing the temporary tabs before fitting (photo 46)

Front coupling angles
The coupling angles are assembled from two frames [29] and two rivet overlays [30]. Tin rivet overlay [30], before removing from etch. Insert frame [30] into holes on chassis front and solder. Then solder rivet overlay beneath (photo 44). The kit has been designed around Greenwich Couplings (photo 45) and these may be added now between the coupling angles.

Rear coupling angles and rear step support
The coupling angles are assembled from two frames [29] and two rivet overlays [30]. Tin rivet overlay [30], before removing from etch. Insert frame [30] into holes on chassis front and solder. Then solder rivet overlay beneath (photo 47). The kit has been designed around Greenwich Couplings (photo 48) and these may be added now between the coupling angles.

Solder the rear step support [31] beneath the step (photo 47).

Bonnet door hinges and catches
Tin the door catches [32] & hinges [33] before removing from etch.

Using the photos 49 to 51 locate the hinges and catches and solder in place.

Bonnet details
Remove the trolley pole support [26] and solder tight above the doors (photo 54). Repeat for other side.

Trolley pole support
Tin the bolt overlays [35, 36] before removing from etch. Solder onto the support angle [34].

Solder the trolley pole to the support angle as shown (photo 56).

Lifting frame
Locate frames [38] into the slots in the base [38] and solder ensuring that the frames are perpendicular to the base (photo 64). Ream out the holes in the lifting frame and bars [40] to suit a 0.33mm wire. Clean the slot at each end of the frame to accept the bars [40]. Cut 5mm long 0.33mm wires and insert through frame and bars (photo 65 & 66). Holding the bars in pliers twist the bottom 4mm of the bar so that the rivets face out (photo 67).

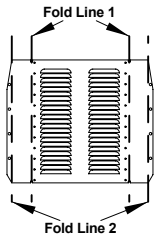
Solder the completed lifting frame to the body (photo 68 & 69).

Radiator
The radiator is designed to be assembled in a number of ways. The simplest version is suitable when the armoured cover is included. The majority of Dick Kerr locomotives shown in wartime photographs have an armoured radiator cover.

Simple version
Cut 32 pipes 4.5mm long from 0.45mm brass wire. Using two wires inserted into opposite sides of radiator elements [43] assemble the elements onto the radiator back [42]. Pinch all the elements together and solder together on the underside (Photo 55). Fold the sides of the radiator front [41] through 90° and add the other elements. Solder together along the sides. Add the remaining 30 pipes to the top of the radiator and solder in place. Cut a further 16 pipes and solder into the lowermost row of holes. All the horizontal pipes should be flush with the radiator back.

Solder both trolley pole assemblies to the sides. These are in the correct location when the top of the channel meets the bottom of the radiator fins. (photo 57).

Armoured cover
The armoured radiator cover is a half-etch and does not have half-etch fold lines. However the locations of the folds are easily identified. The first folds are indicated by tiny holes on the top and bottom. The second fold lines are the edge of the central rectangle (photo 59).

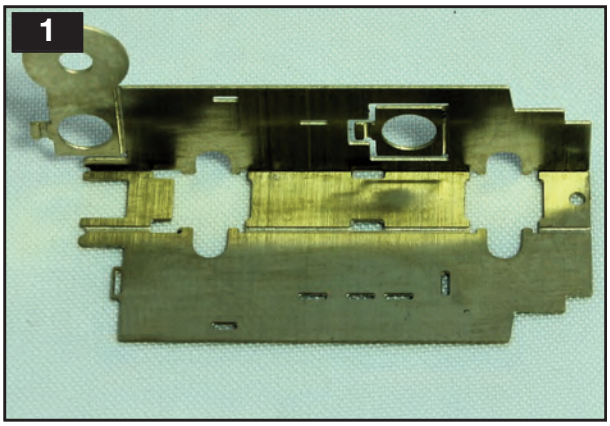


Complex version
Cut 64 horizontal pipes 4.5mm long from 0.45mm brass wire. Using two wires inserted into opposite sides of radiator elements [43] assemble the elements onto the radiator back [42]. Pinch all the elements together and solder together on the underside (Photo 55). Fold the sides of the radiator front [41] through 90° and add the other elements. Solder together along the sides. Add 30 horizontal pipes to the top of the radiator and solder in place. All the horizontal pipes should be flush with the radiator back.

Solder the pipe supports [44] in the slots on the radiator front [41] ensuring that they remain perpendicular. Cut 36 15mm vertical pipes from 0.33mm brass wire. Insert 16 vertical pipes into the pipe supports [44]. Insert remaining horizontal pipes into the bottom of the radiator and solder (photo 58). All the horizontal pipes should be flush with the radiator back. Lay 16 of the vertical pipes on the pipe support between the previous layer and solder. Solder an extra vertical pipe onto the side of the radiator.

Solder [45] to the centre of the radiator.

File away the slot of a 10BA bolt, cut of the head and solder onto the centre of the radiator top to form the radiator cap.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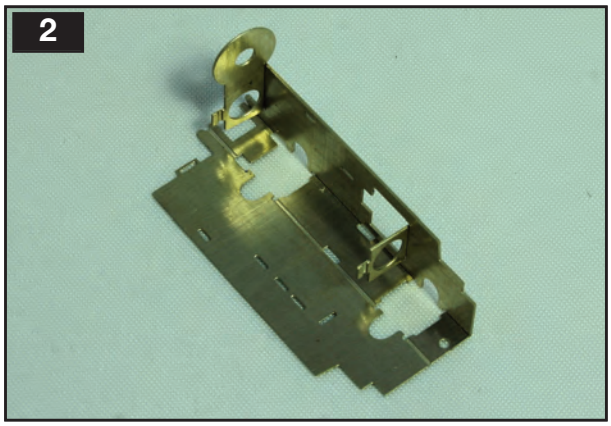
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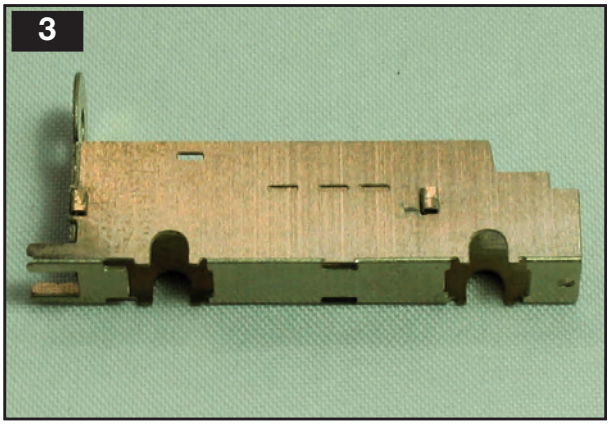
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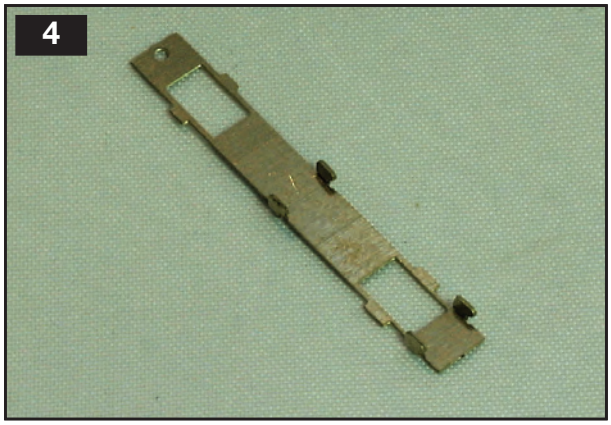
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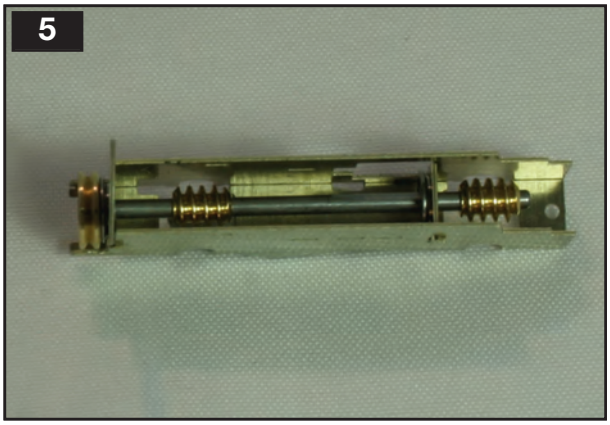
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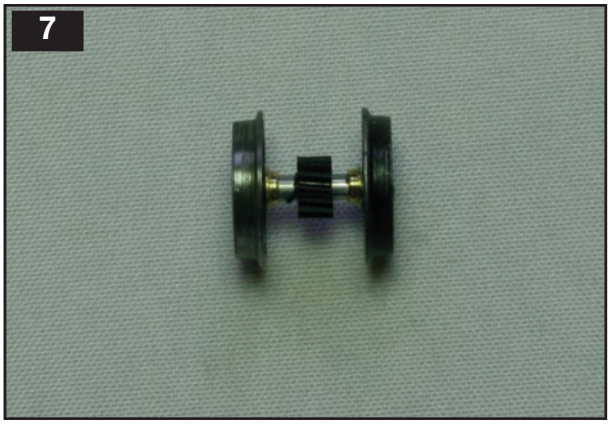
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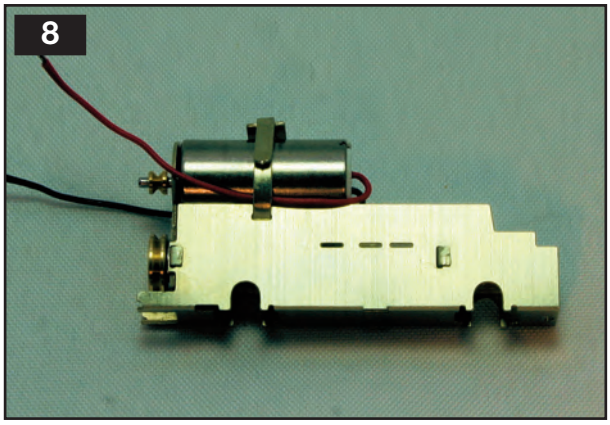
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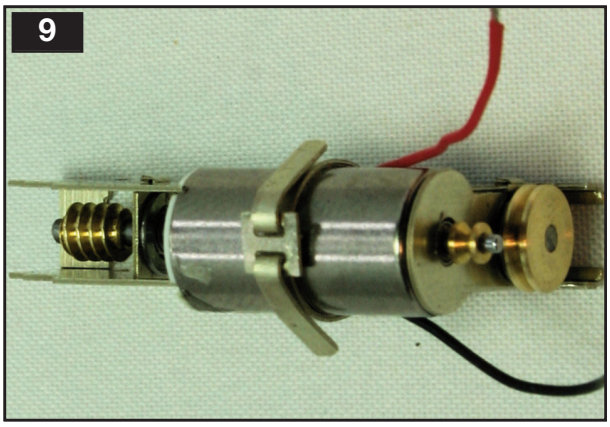
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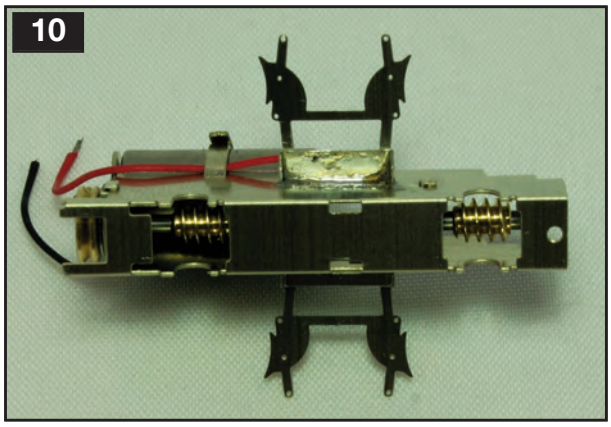
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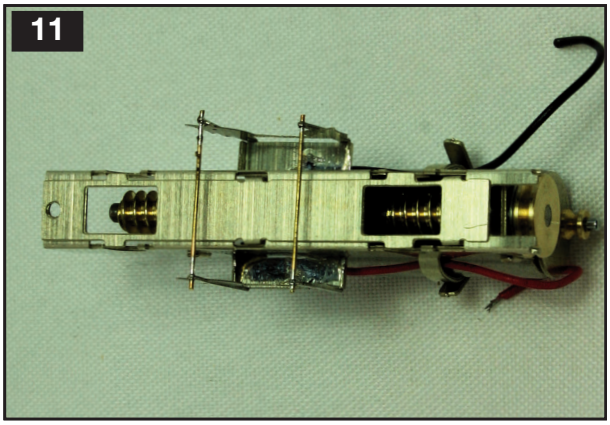
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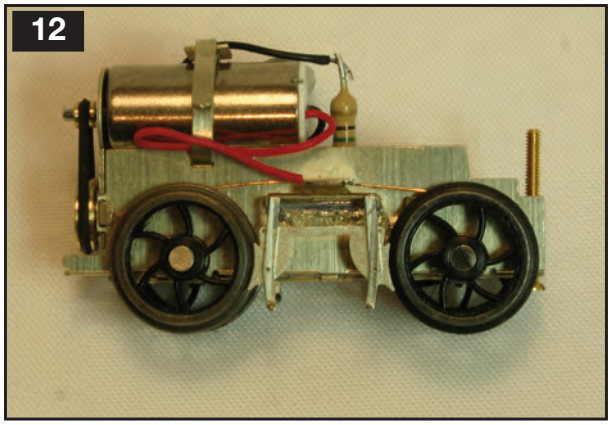
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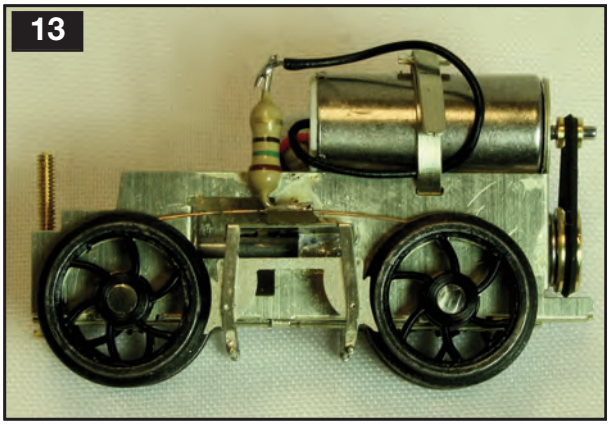
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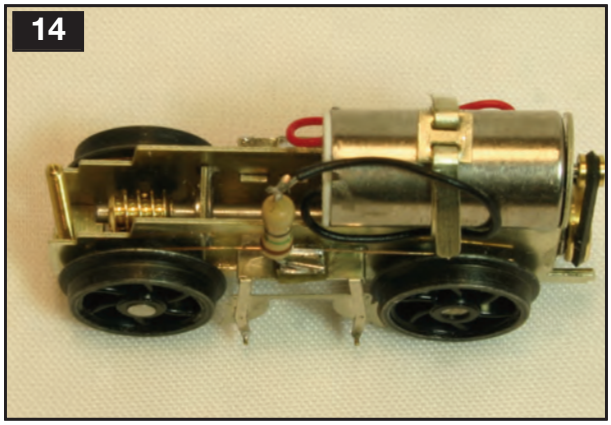
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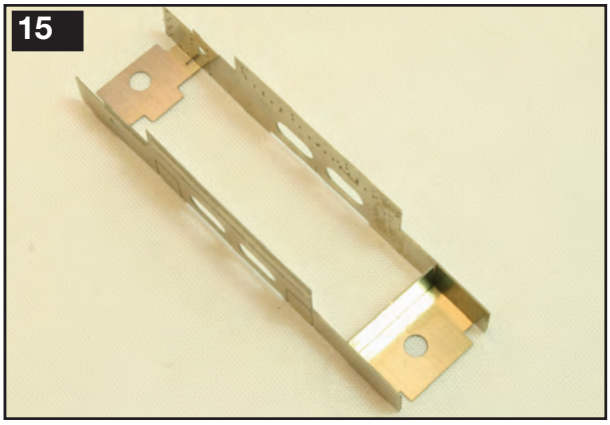
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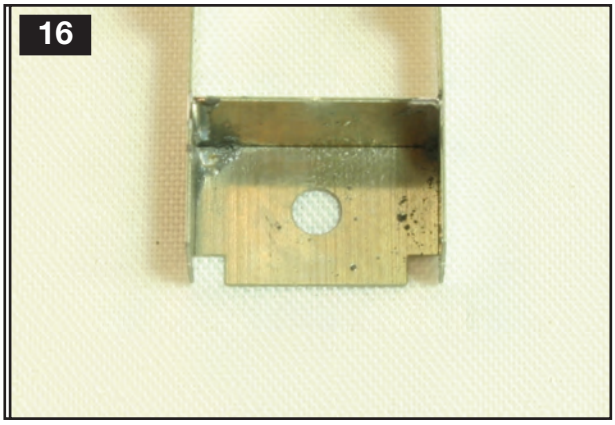
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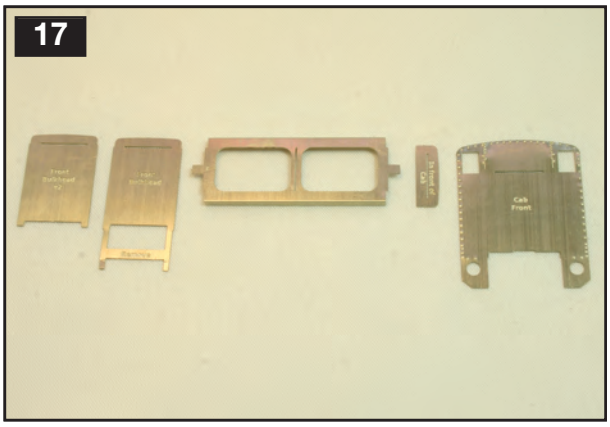

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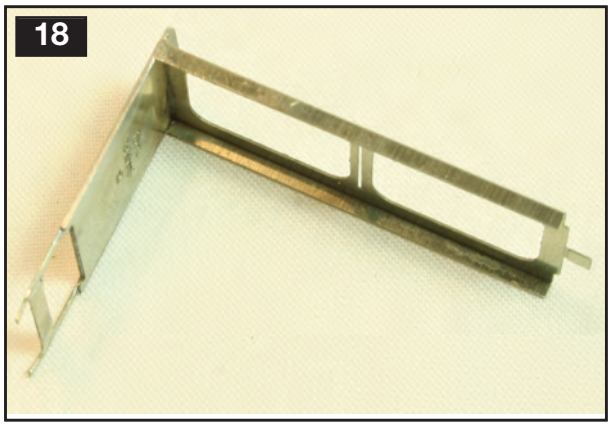

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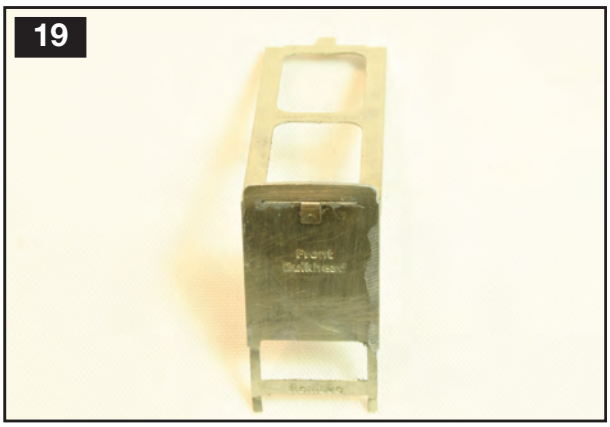

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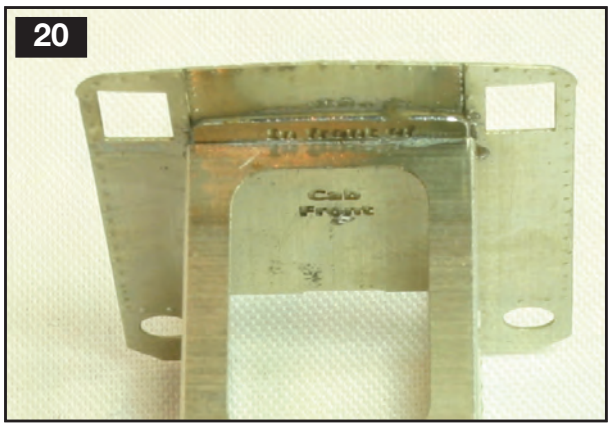

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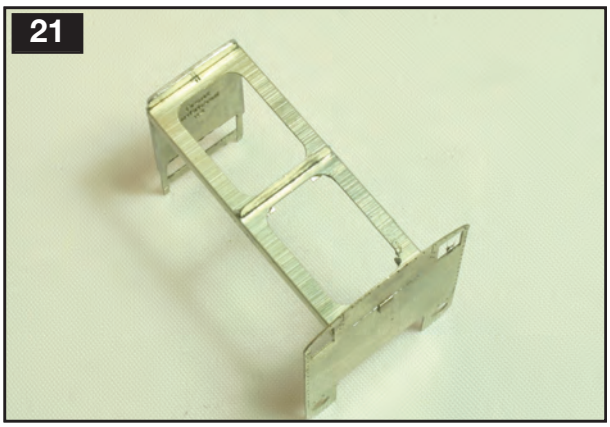

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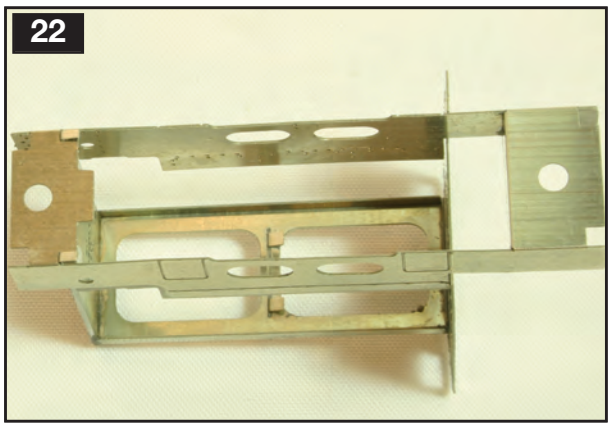

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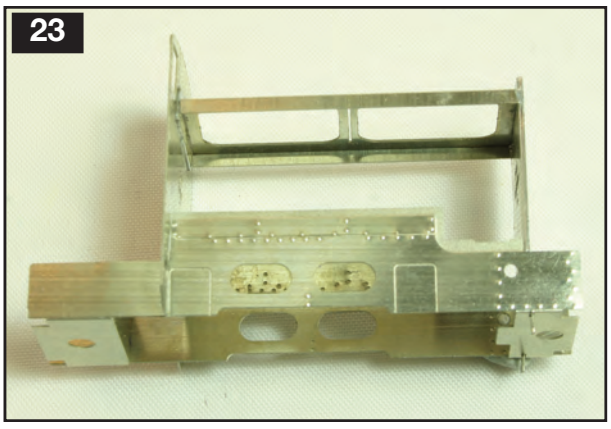

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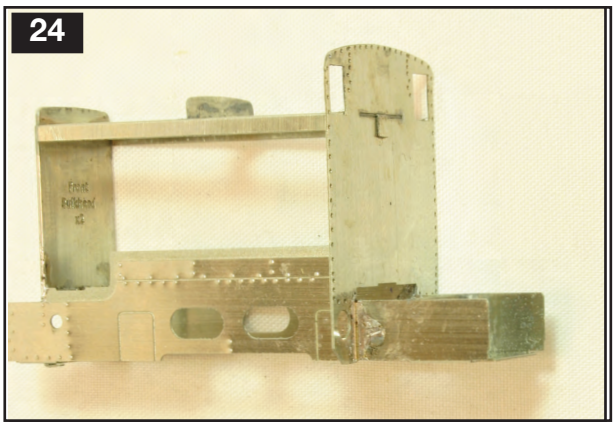

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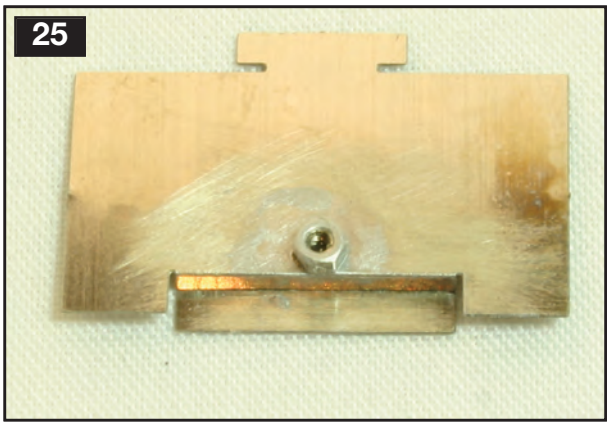

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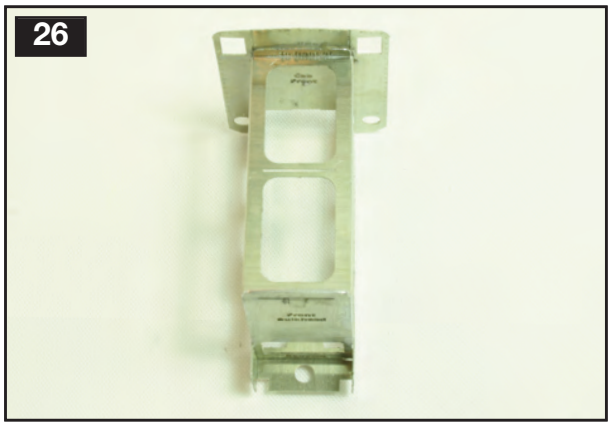

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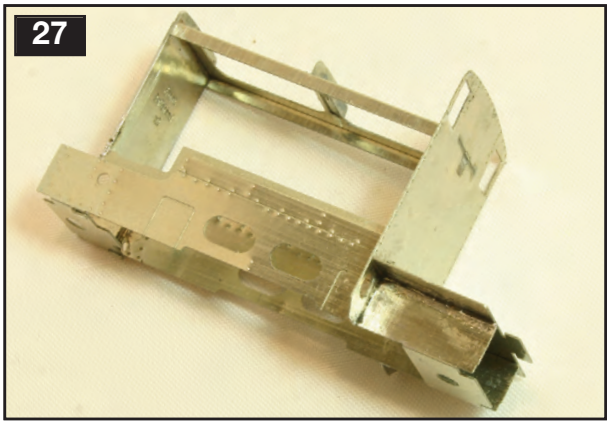

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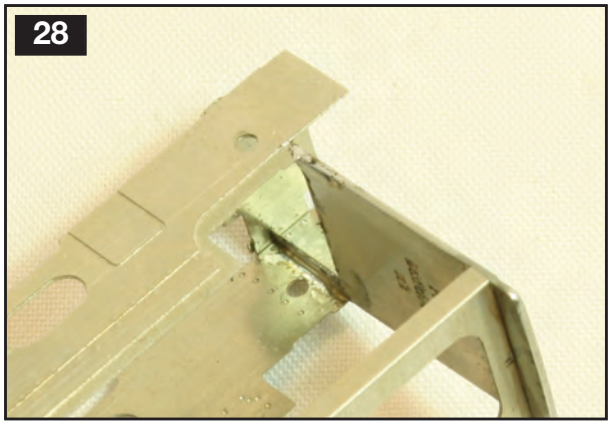

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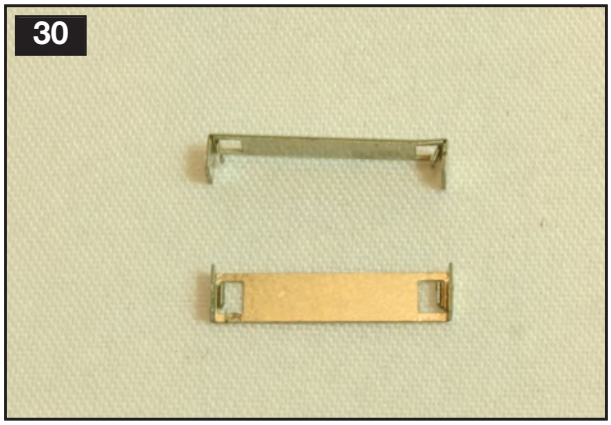

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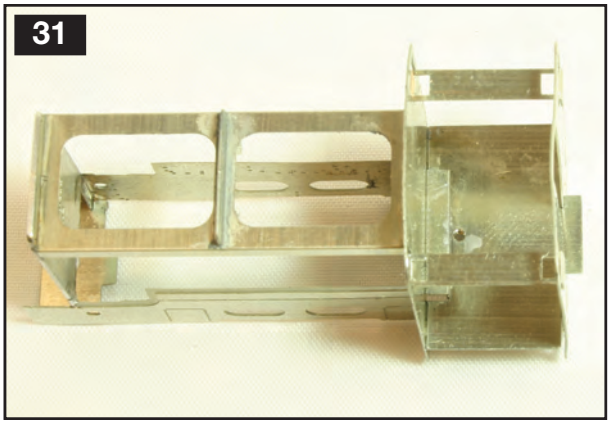

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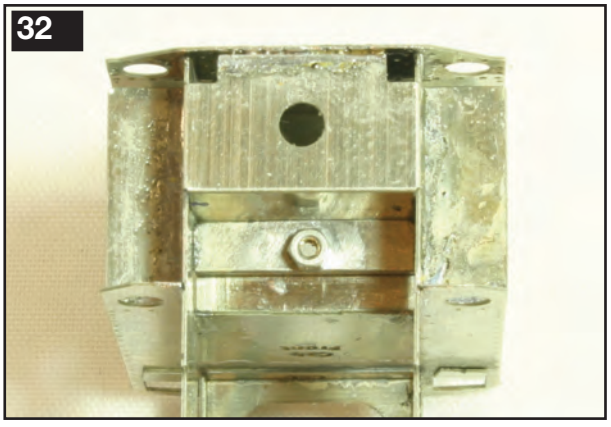

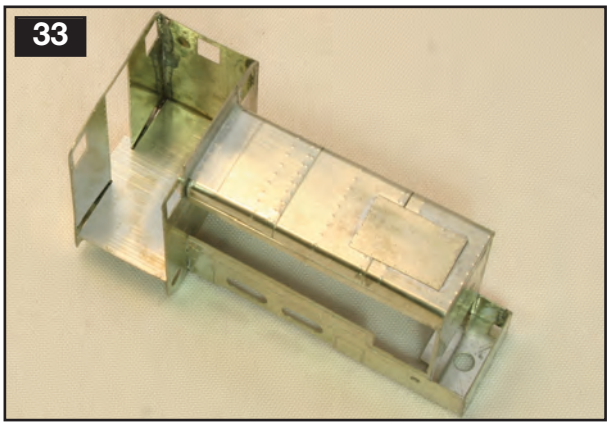
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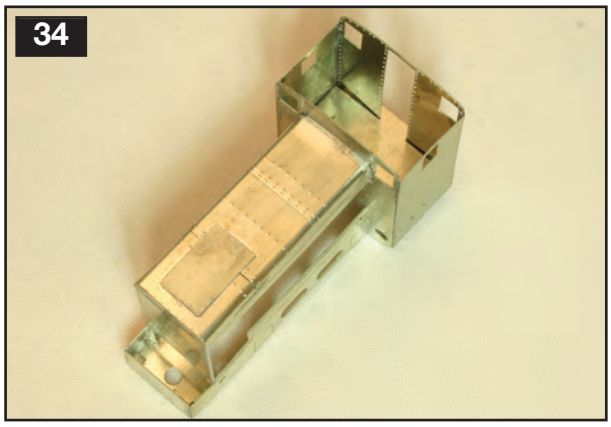
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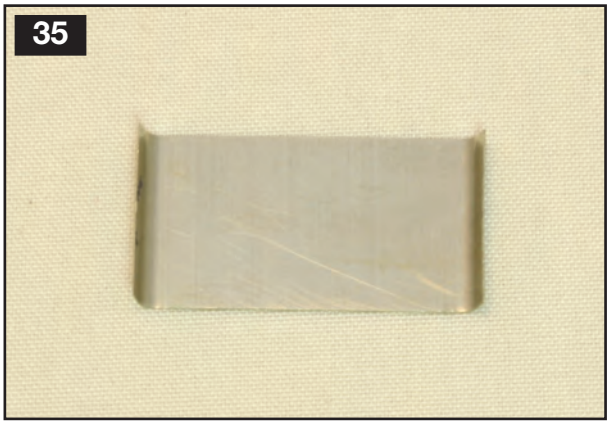
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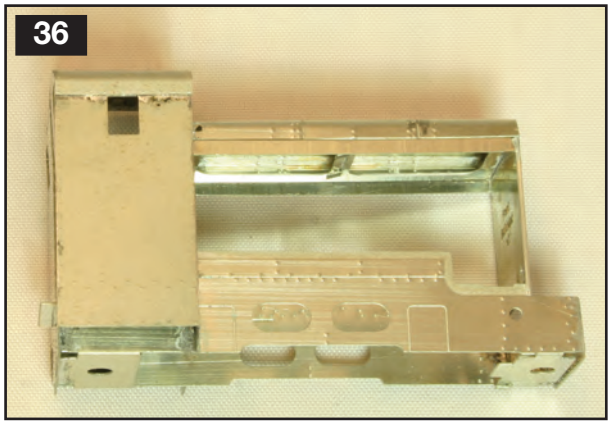
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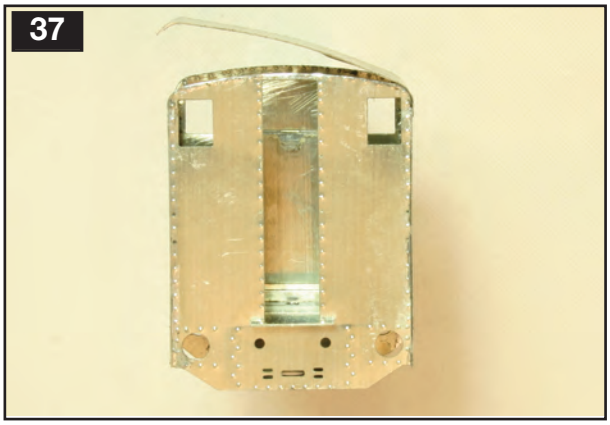
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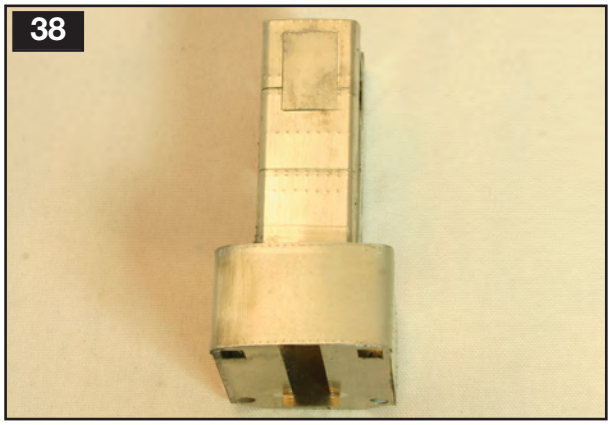
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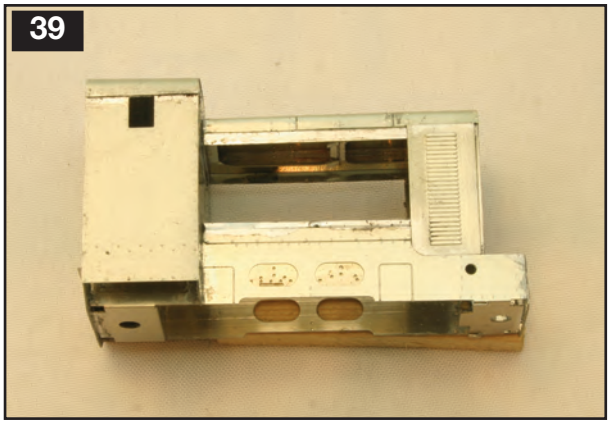
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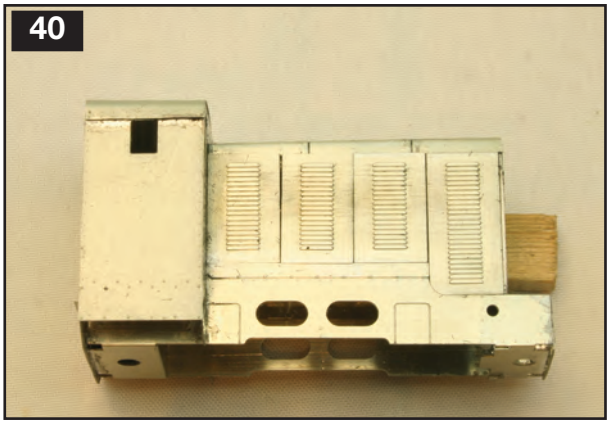
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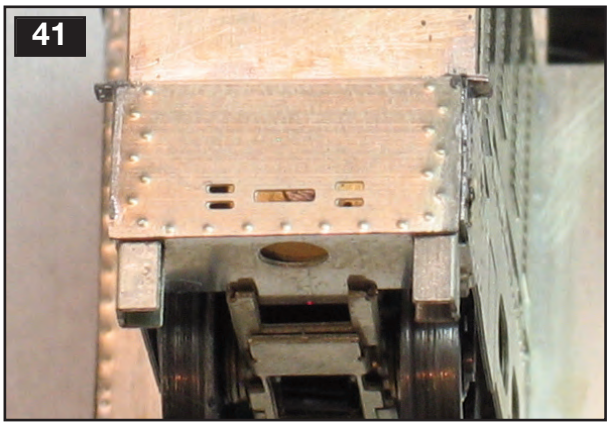
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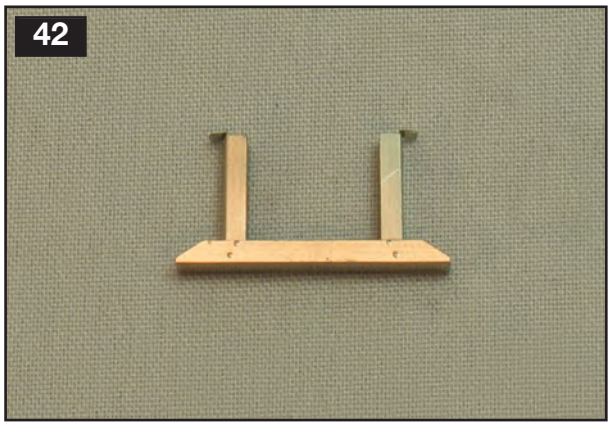
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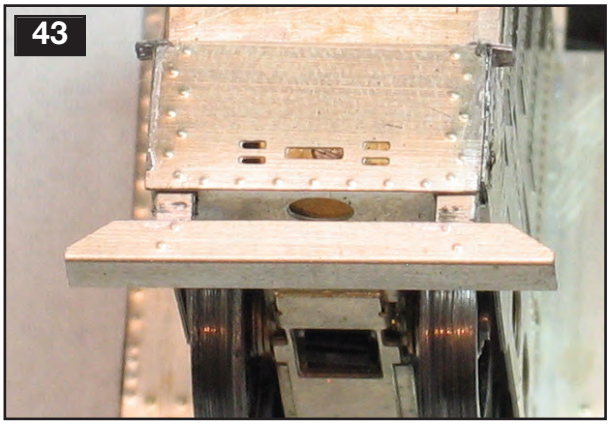
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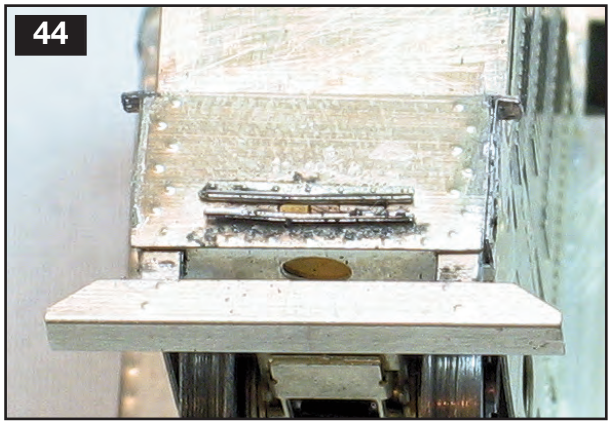
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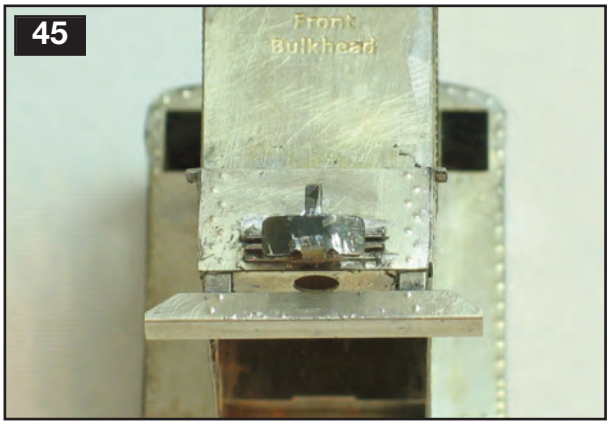
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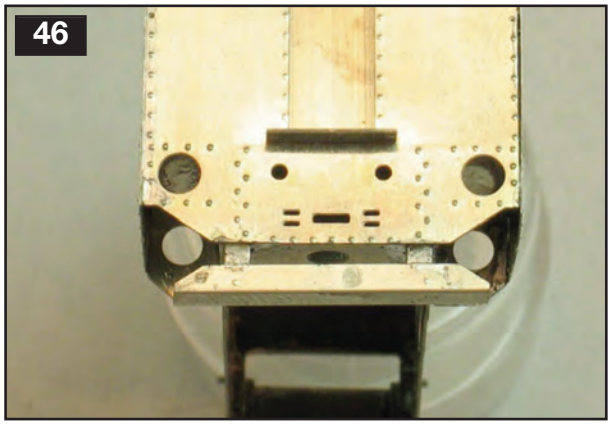
Front
Bulkhead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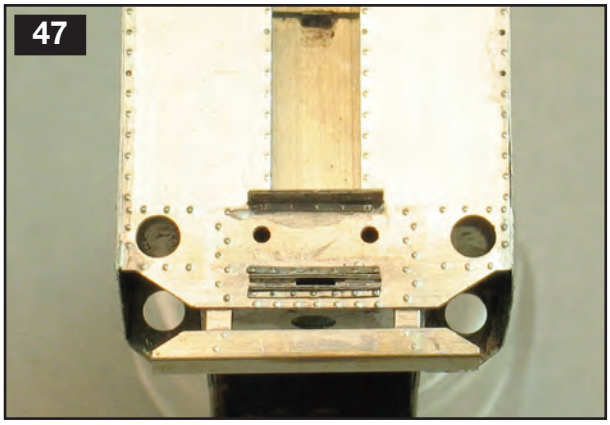
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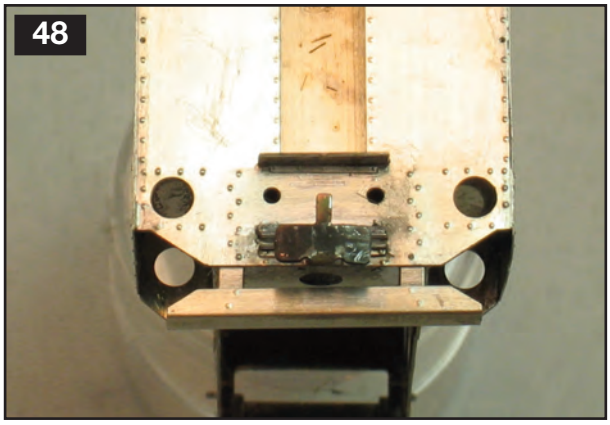
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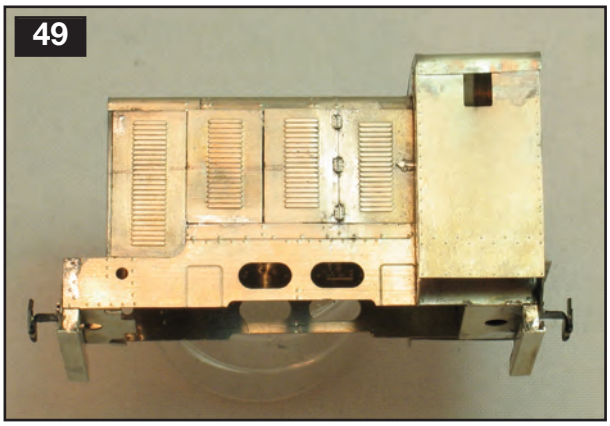
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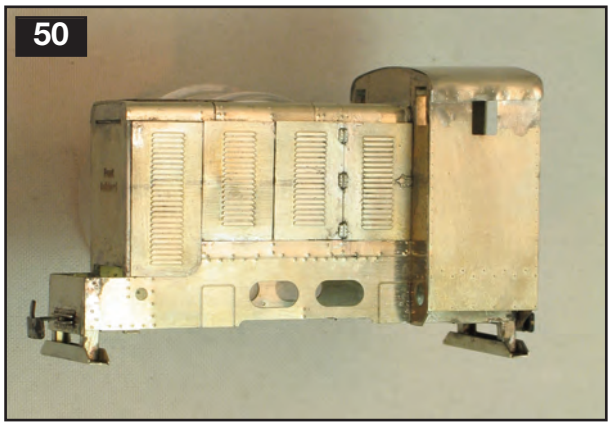
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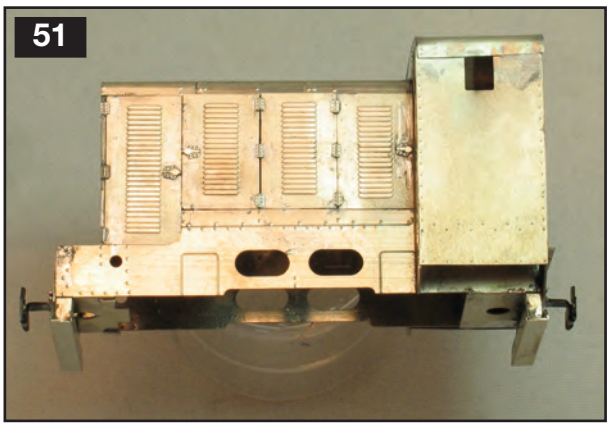
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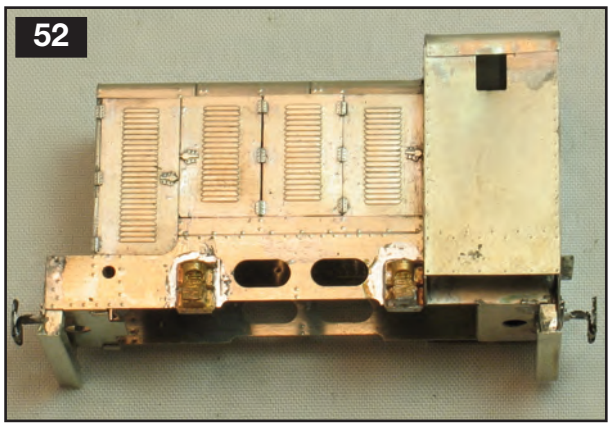
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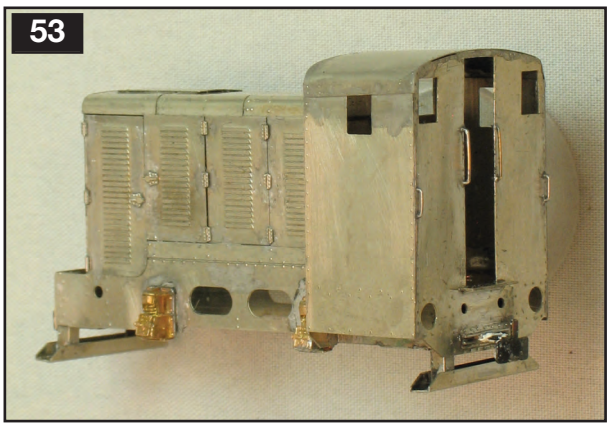
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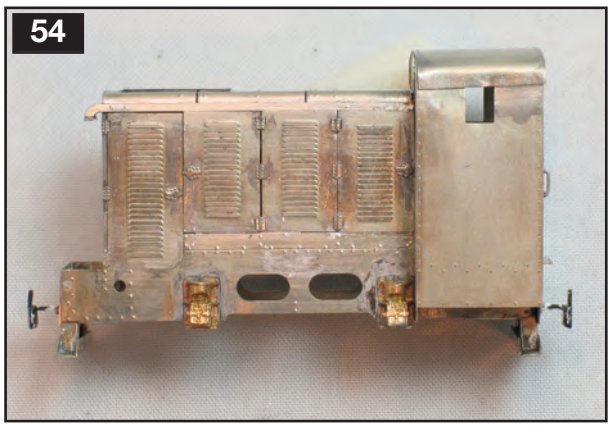
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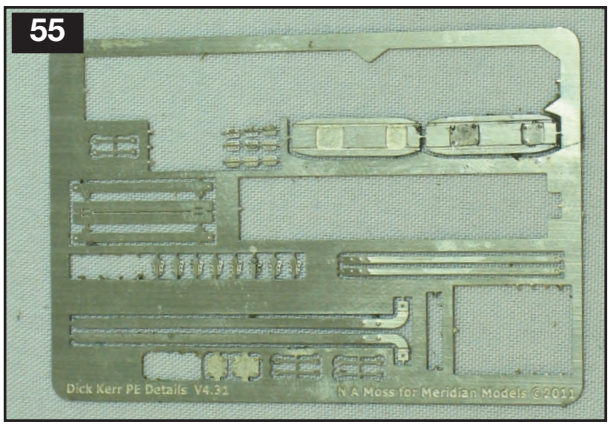
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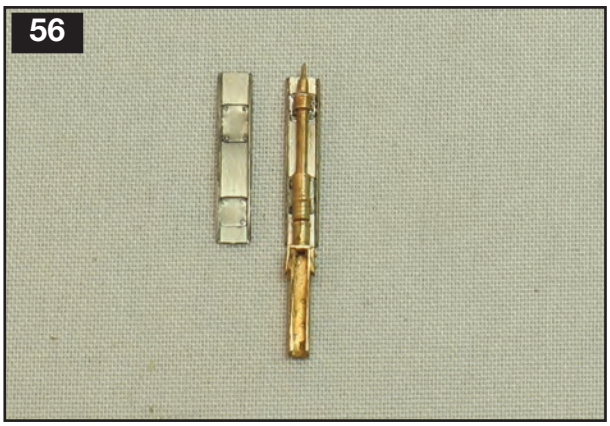
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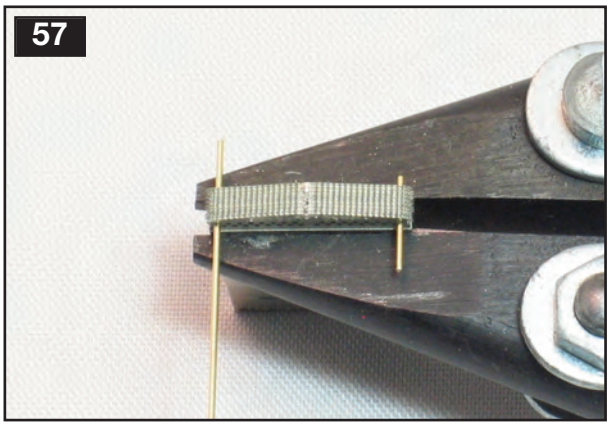
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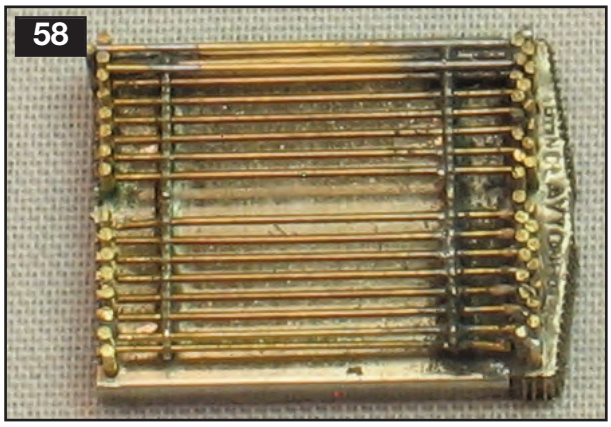
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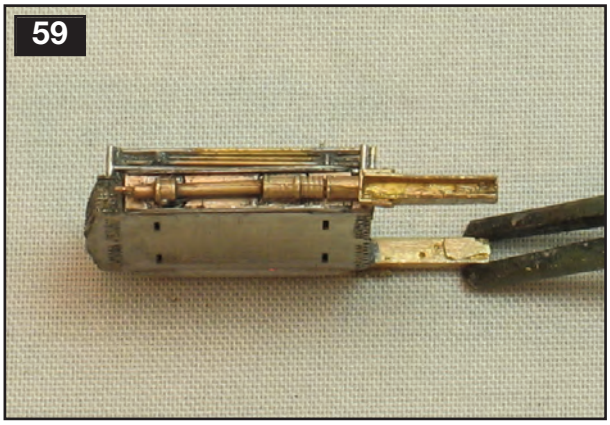
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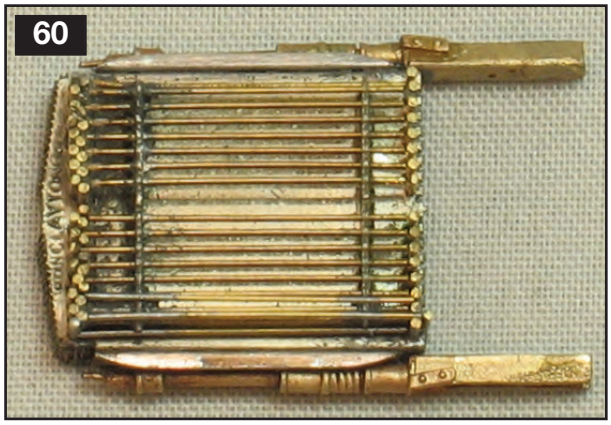
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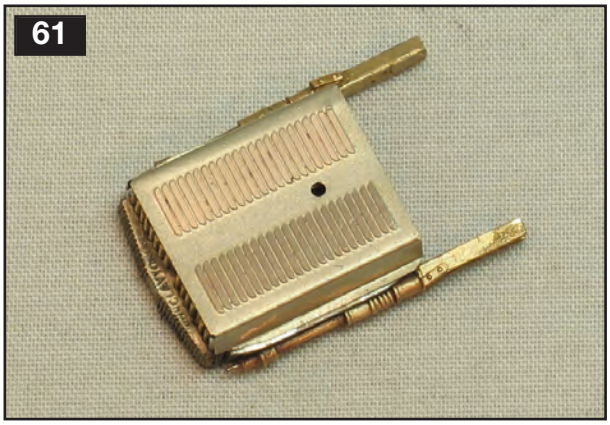
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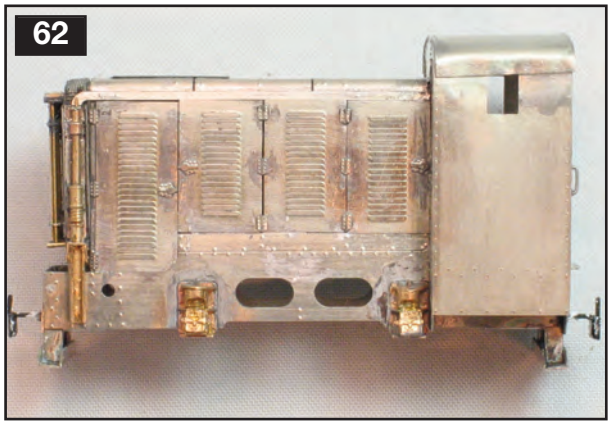
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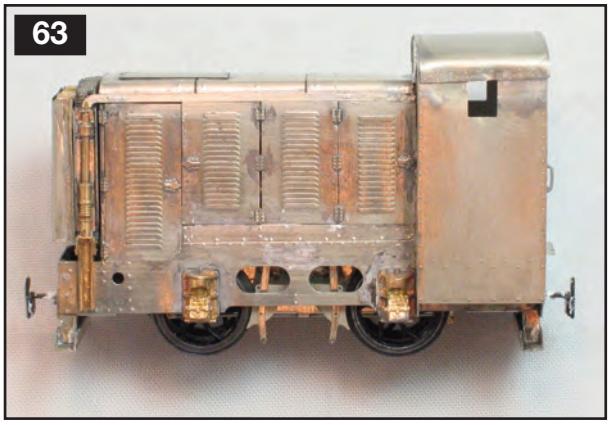
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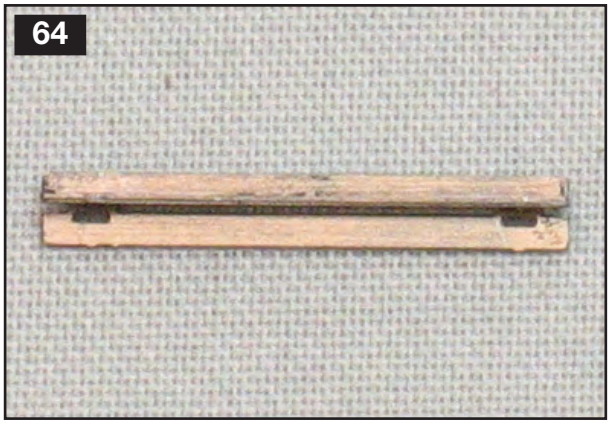
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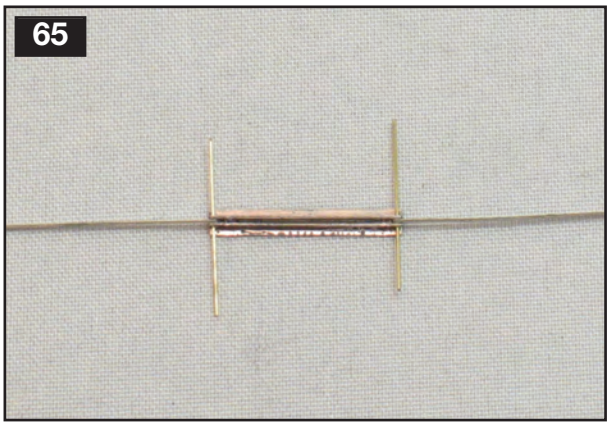

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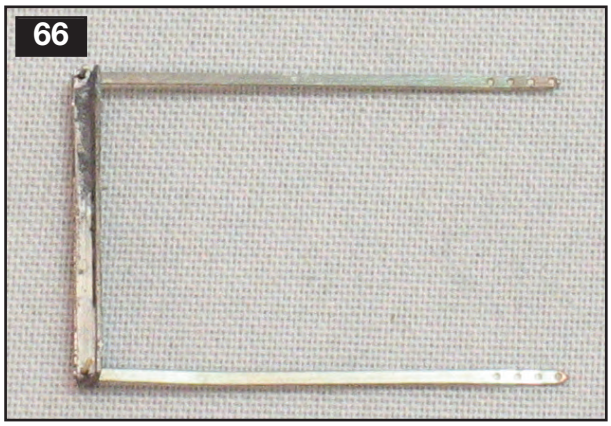

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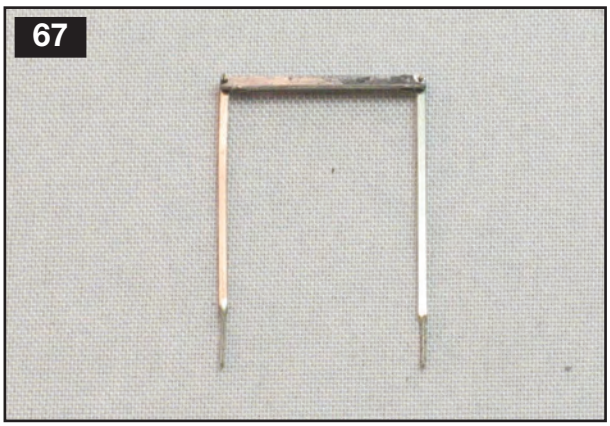

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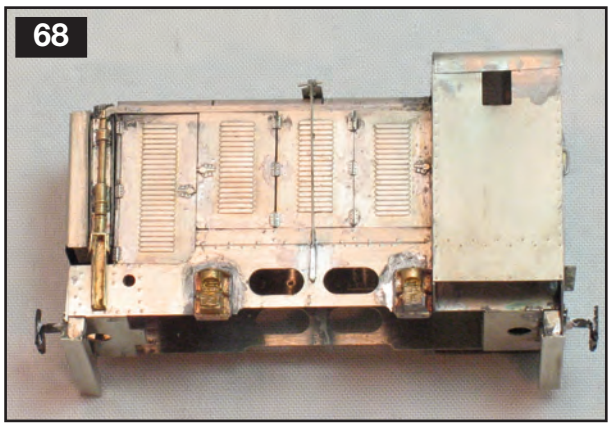

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