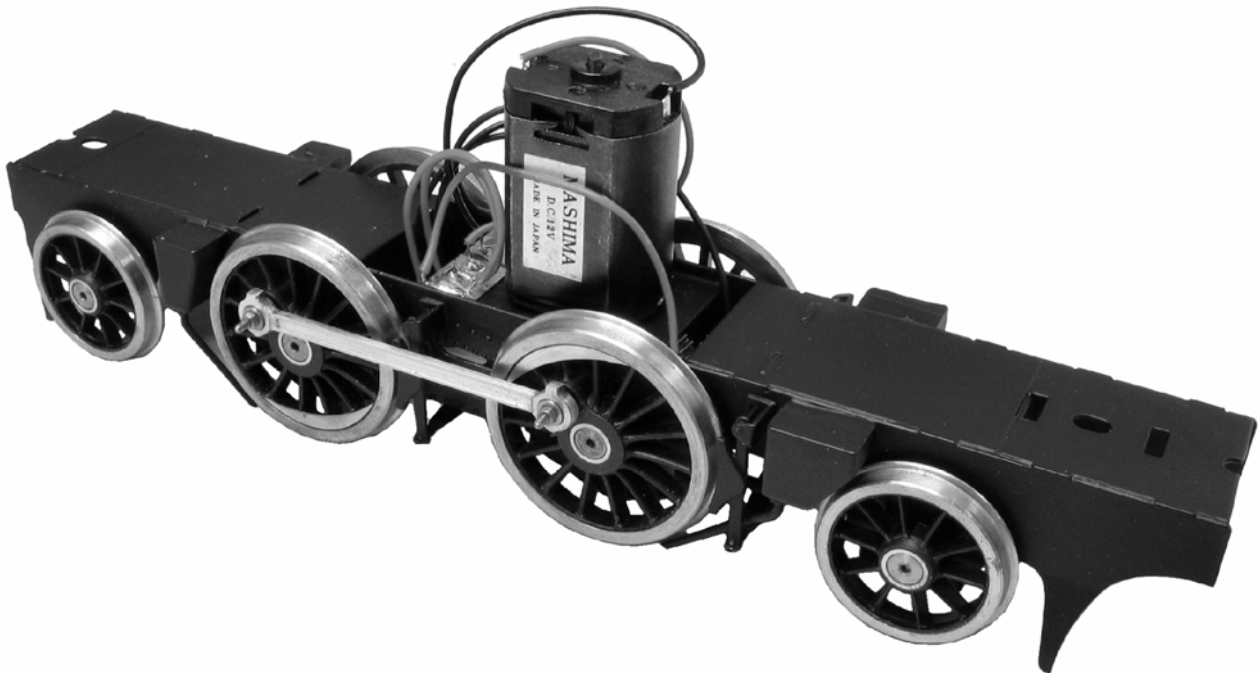


# CONNOISSEUR MODELS

- 0 Gauge -

## LNER Class F7 Crystal Palace Tank Chassis Construction & Parts Identification



I would recommend constructing the body to the fitting of parts 25 before starting chassis construction. As the basic body with boiler & smoke box removable will enable wheel clearances and motor position to be checked and adjusted with ease.

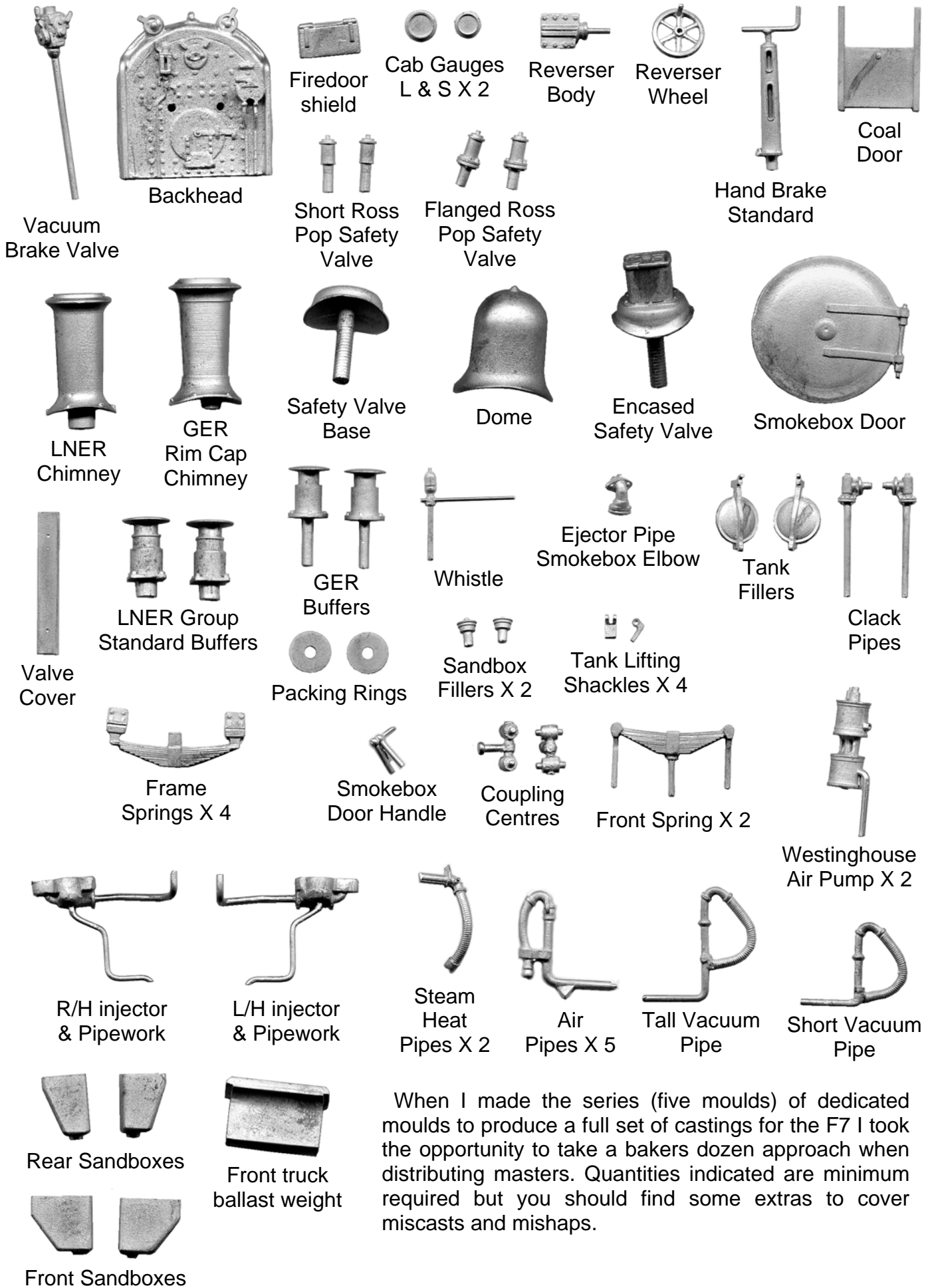
With the basic body available the chassis can be fully completed if desired before returning to body construction.

### Parts Required To Complete

2 Sets 4' 10", 15 Spoke Driving Wheel (Slater's Catalogue Number 7858GE)  
2 Sets 3'6", 10 Spoke Bogie Wheel (Slater's Catalogue Number 7842)  
Plunger Pickups if desired (Slater's Catalogue Number 7157)  
Available From Slater's Plastikard, Old Road, Darley Dale, Matlock,  
Derbyshire, DE4 2ER, Telephone 01629 734053.  
Mashima 1833 Motor and 40/1 Gear set, *available from Connoisseur Models.*

**Jim McGeown, Connoisseur Models, 1 Newton Cottages,  
Nr Weobley, Herefordshire, HR4 8QX, Telephone 01544 318263**

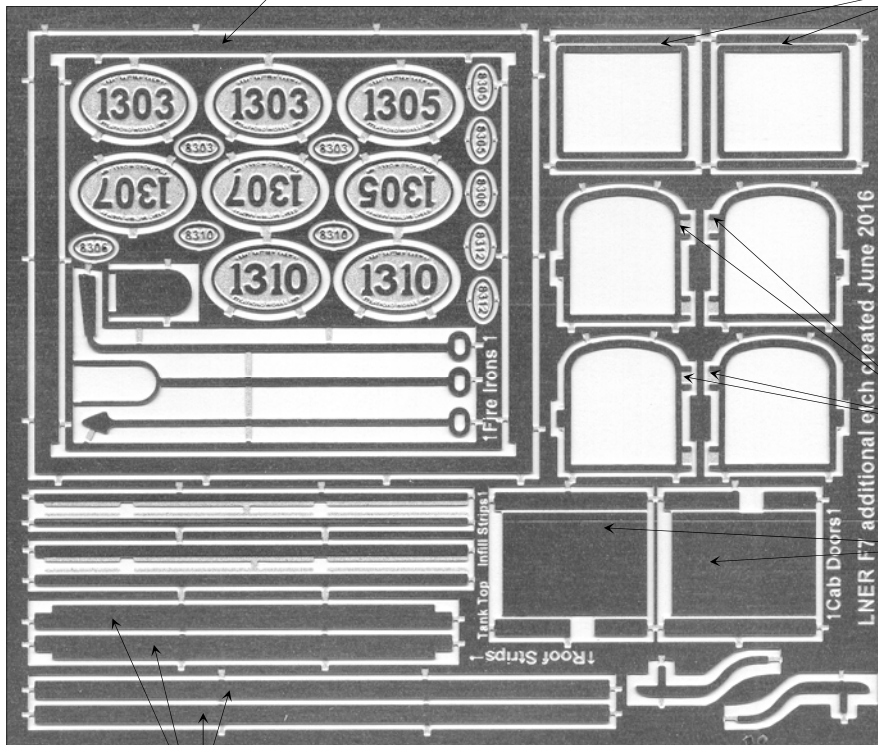
# LNER Class F7 Casting Identification & Parts List



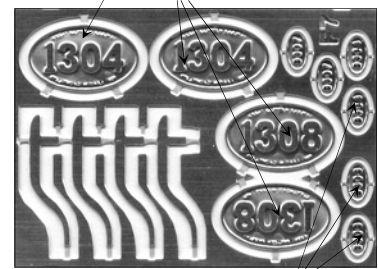
When I made the series (five moulds) of dedicated moulds to produce a full set of castings for the F7 I took the opportunity to take a bakers dozen approach when distributing masters. Quantities indicated are minimum required but you should find some extras to cover miscasts and mishaps.

For fitting to underside of cab roof to represent projecting batterns (see *body instructions, stage 9, page 11*).

Side window (droplights) Frames



GER Number plates



LNER Number plates

Front & back window frames

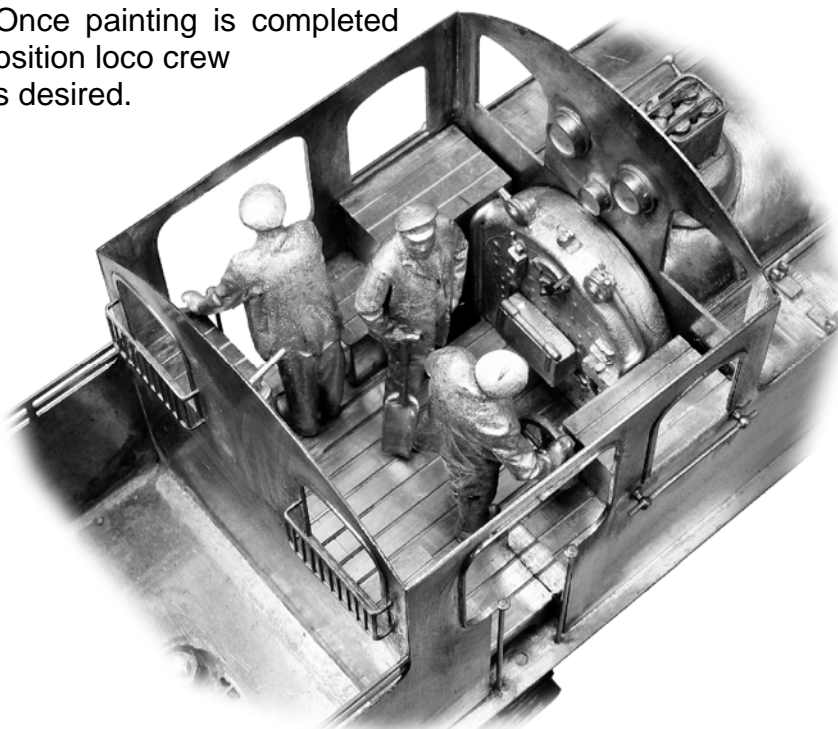
Cab doors appear in some photos. Fold side strips and fit into cab doorways if desired.

Alternative individual strips for fitting to underside of cab roof to represent projecting batterns (see *body instructions, stage 9, page 11*).

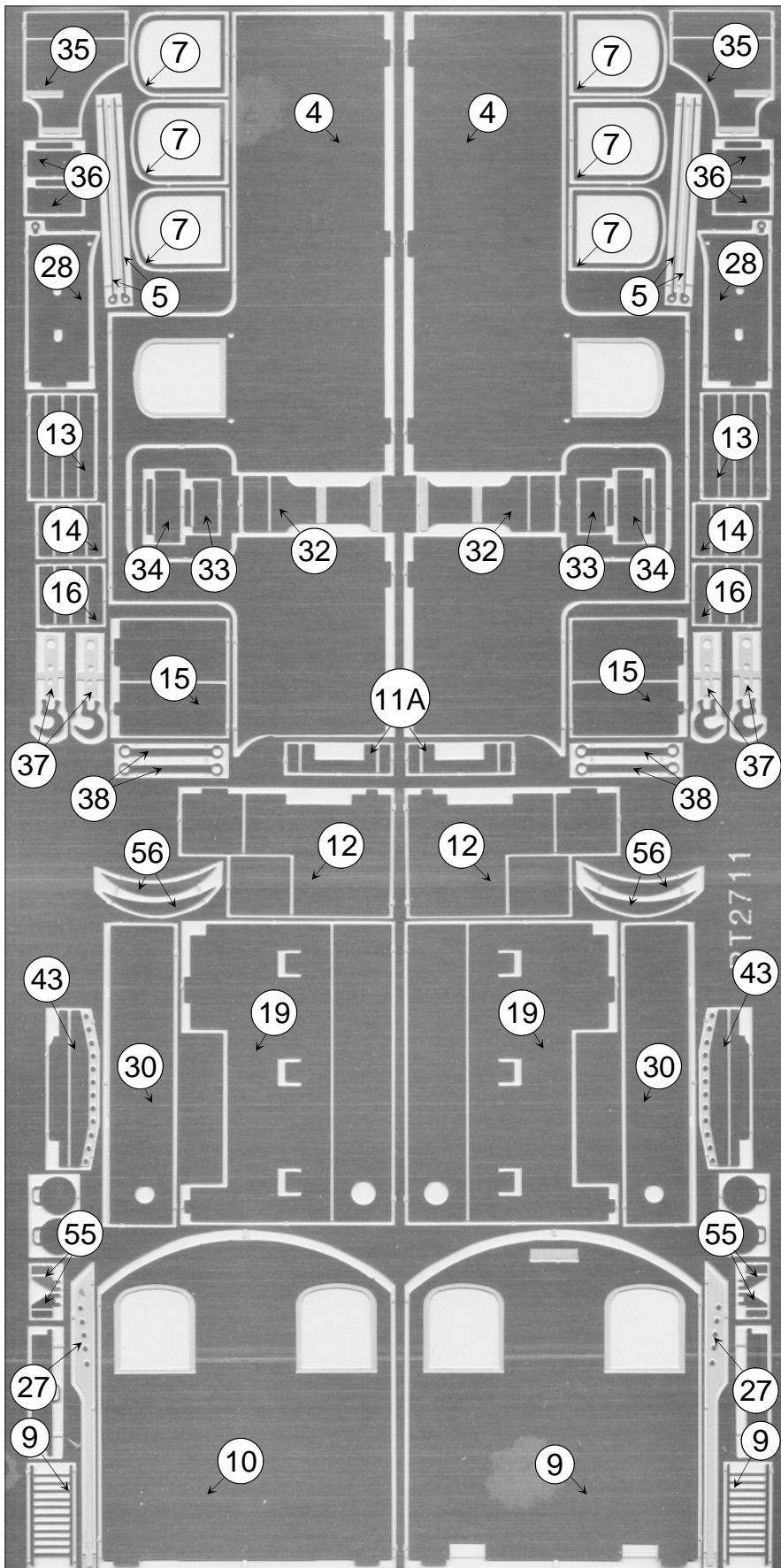
After painting the cab the brass window frames can be fitted. I glue them to a glazing sheet using 3M Photo Mount spray adhesive. You can use clear plastic glazing sheet but I prefer to cut flat sheets from the clear blister packs that many items are packaged in nowadays. This has a textured surface probably caused by the moulding process, which gives it a slightly opaque quality that I think represents dirty windows just right.

I then trim around the window frames and glue them into the cab using Zap Canopy Glue (*try model aircraft shops*) as this will not cloud the clear glazing.

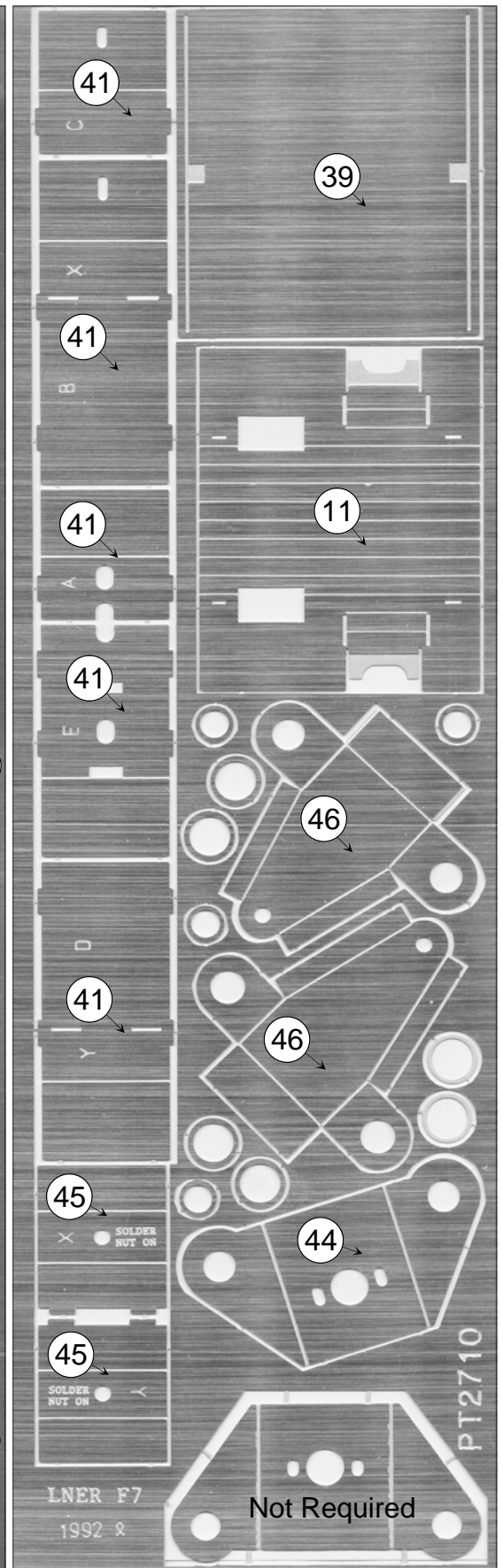
Once painting is completed position loco crew as desired.



### Brass Etch



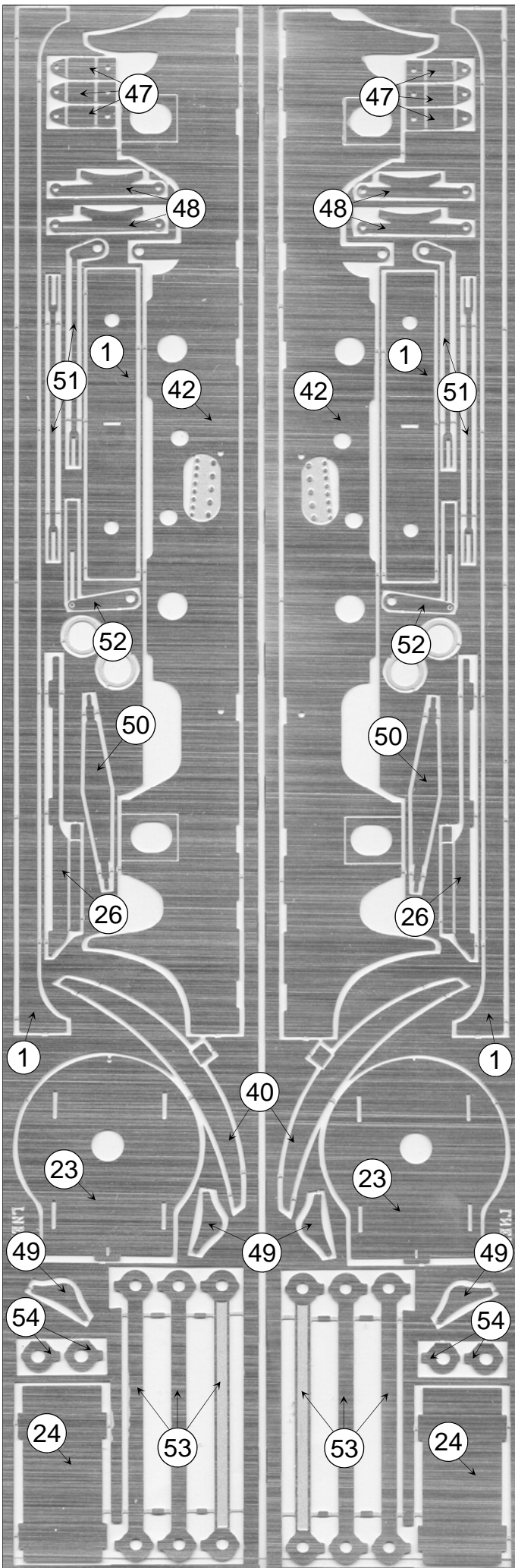
### Nickel Silver Etch



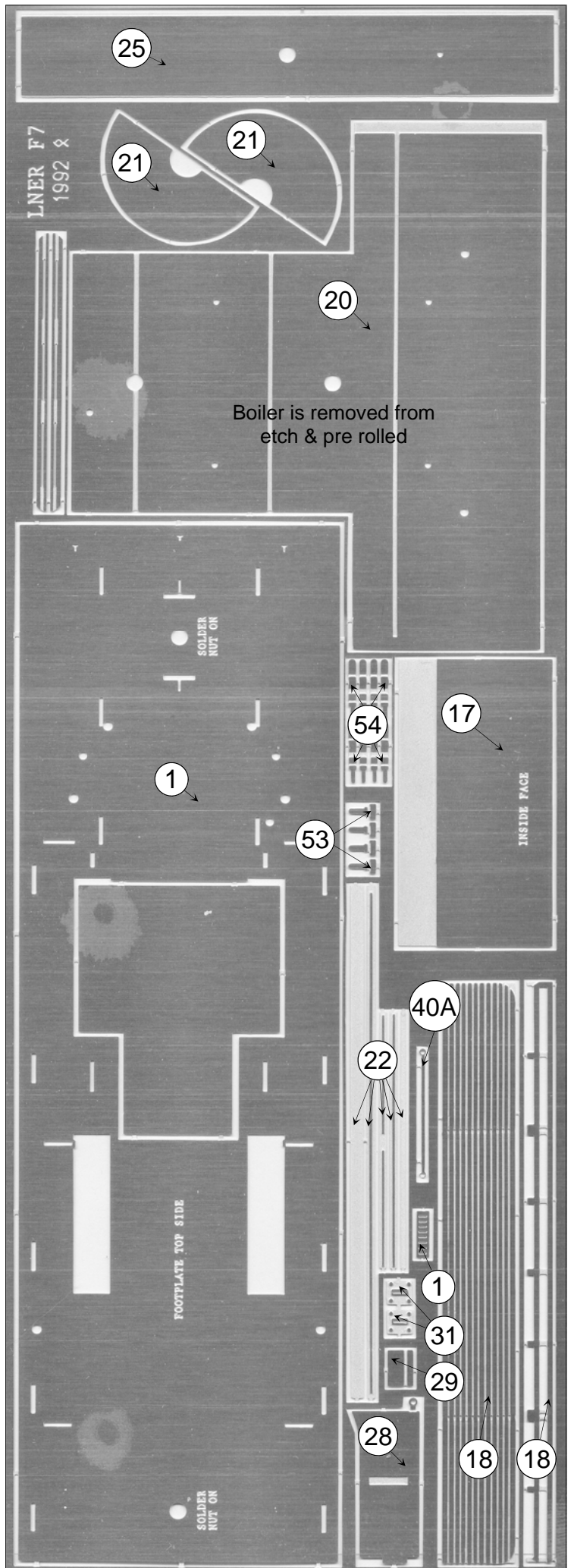
**Wire & Rod:-** 5"X half round wire, 8"X 1.6mm brass rod, 12"X 1.4mm copper rod, 2 X 0.45mm brass wire, 4 X 0.7mm brass wire, 3 X 0.9mm brass wire, 4 X turns 20swg, 2 X turns 22swg & 2 X turns 29swg tinned copper wire.

**Sundry Parts:-** 3 X pieces copper clad PCB & 2 X electrical wire for pickups. 8 X axle bearings. 2 X 6BA short screws, 2 X 6BA long screws, 4 X 6BA nuts, 4 X 6BA washers, 2 X springs. 2 X track pin. 4 X long (3mm) & 9 X short handrail knobs, Regulator & Hand wheels etch, S/V lever & number plate etch, Additional components etch.





Nickel Silver Etch

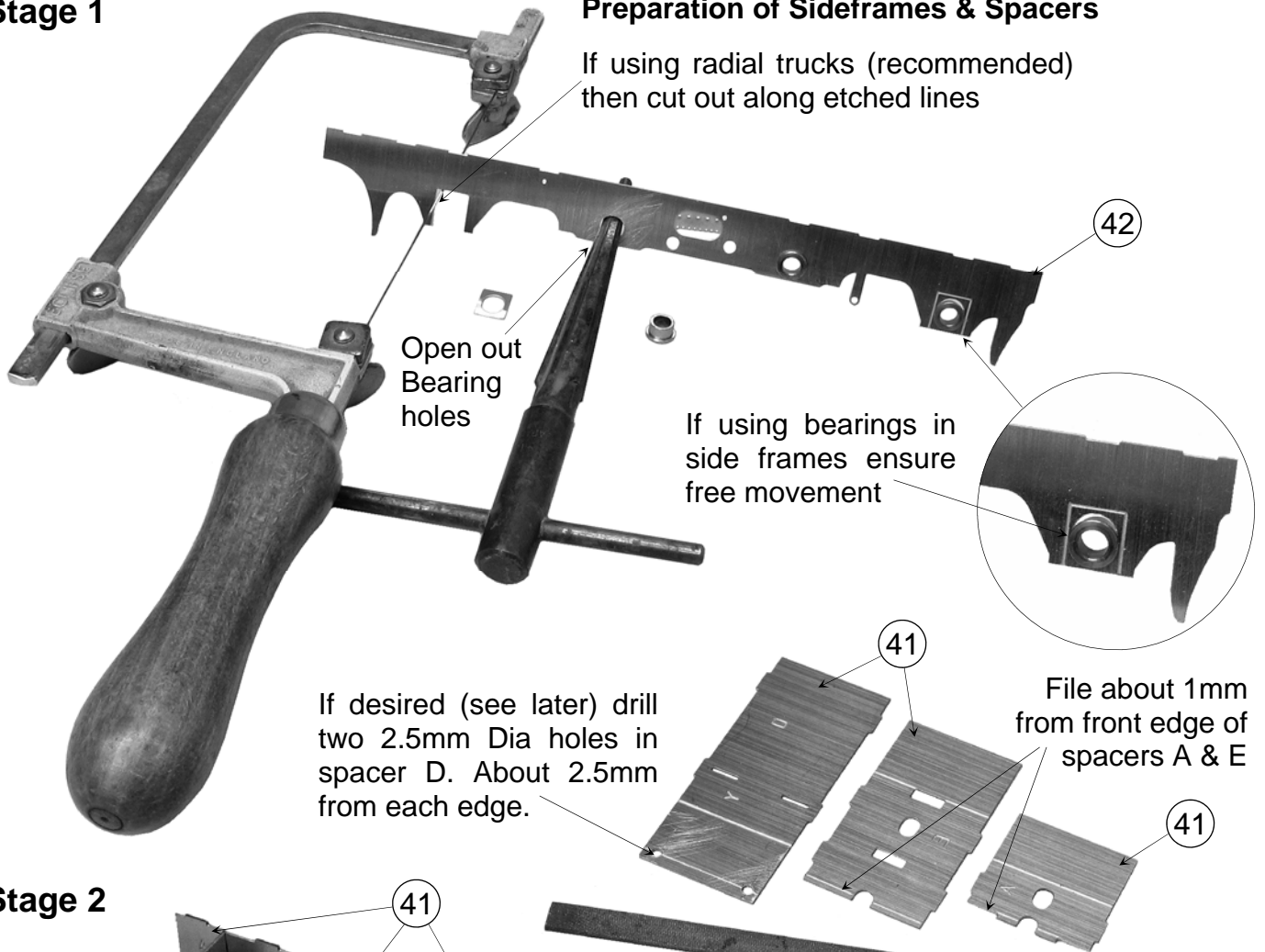


Brass Etch

## Stage 1

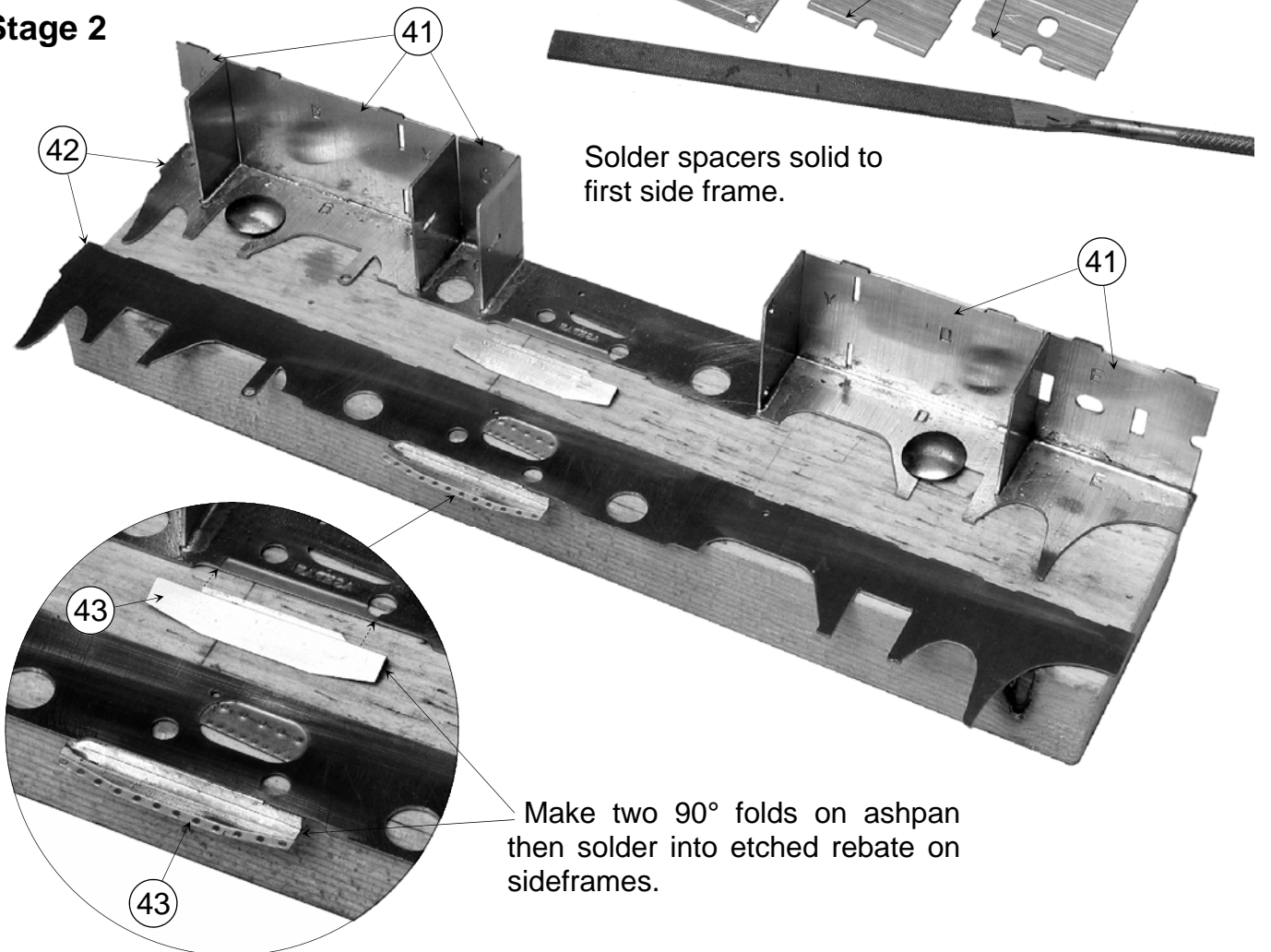
### Preparation of Sideframes & Spacers

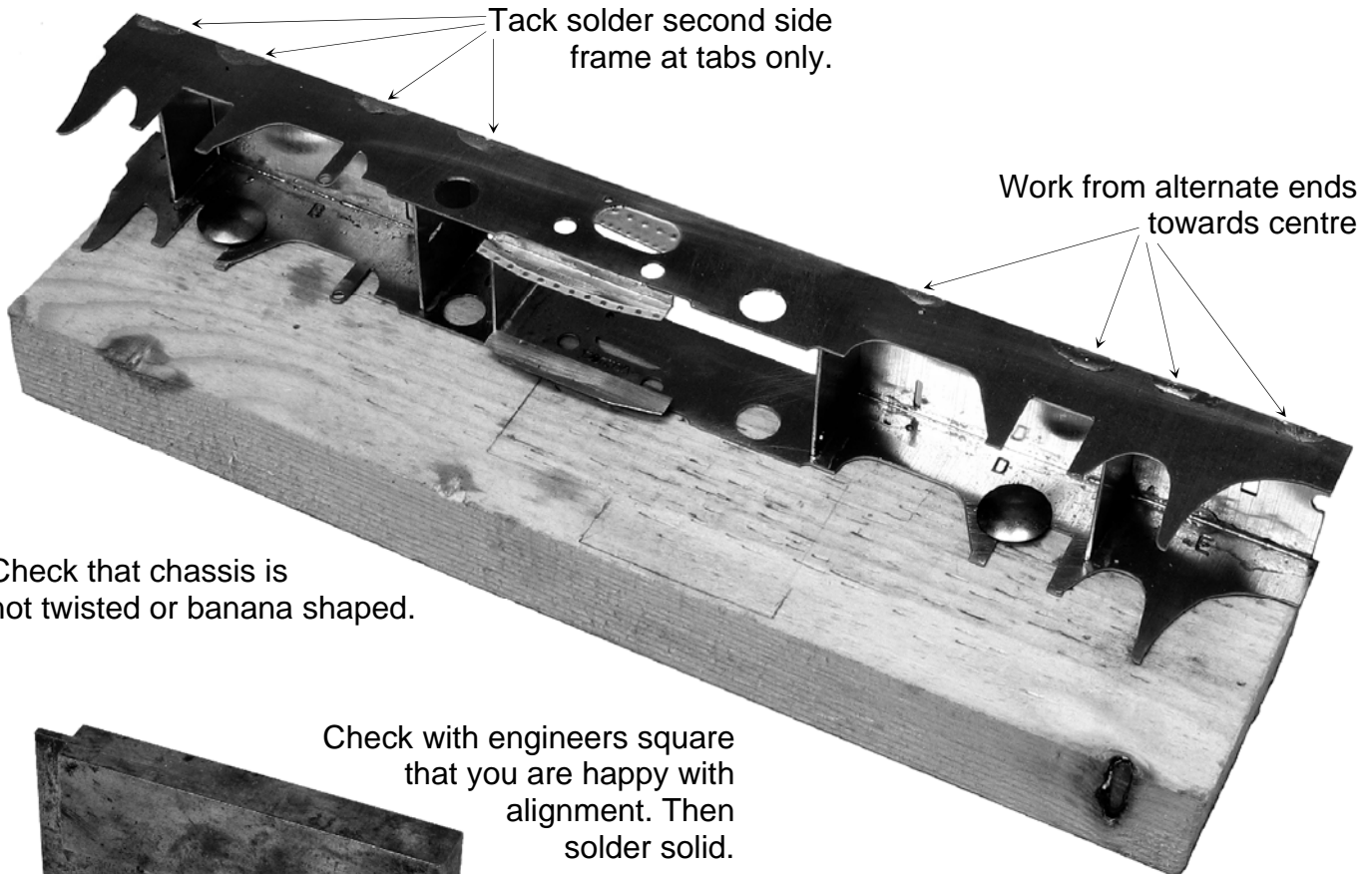
If using radial trucks (recommended) then cut out along etched lines



## Stage 2

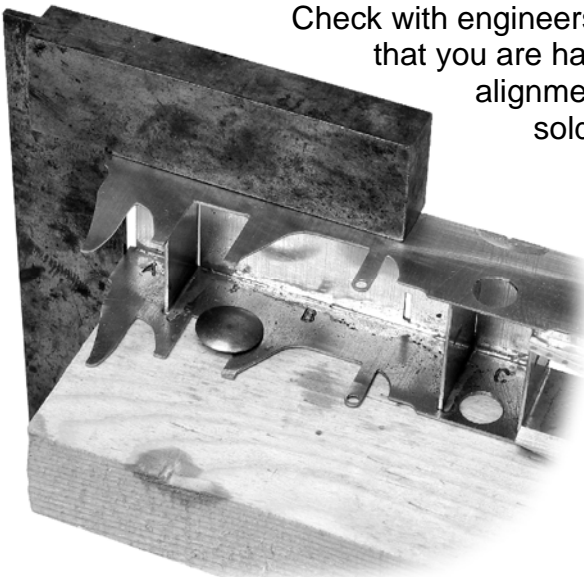
Solder spacers solid to first side frame.



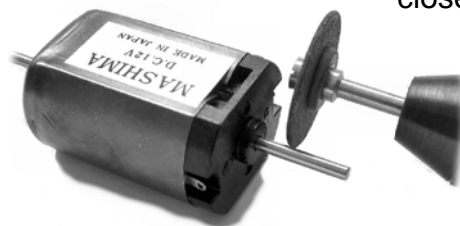


Check that chassis is not twisted or banana shaped.

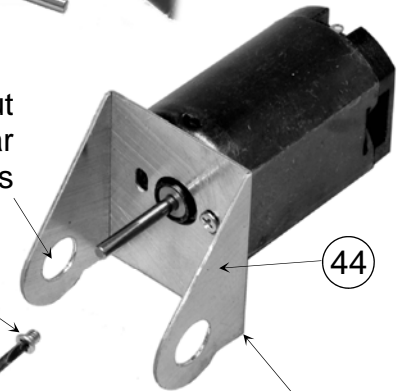
Check with engineers square that you are happy with alignment. Then solder solid.



Cut off back shaft of motor close to rear bearing



Open out to clear bearings



I find a magnetised screwdriver very useful



Make folds as sharp as possible as mount is a little wide. With sharp folds I found the mount could be pressed down between frames without distorting them outwards significantly.

Locate motor & mount between frames using loose bearings. Offer to body with boiler removable and check clearance. Then tack solder mount to frames before removing motor.



**Stage 3**  
Motor Mount  
Positioning

**Stage 3**  
*continued*  
Bearings &  
Motor Mount  
Fixing

**Stage 4**  
Radial truck  
mountings

Solder in bearings then solder motor mount to frames. Solder everywhere you can to make it as solid as possible.

Use oiled axle to help align bearings during soldering

Solder 6BA nuts

Deepen to ensure tight folds

Set bearings slightly away from frames to reduce wheel sideplay to around 0.5mm. Some etched packing washers are included as an alternative to just sliding bearing outwards slightly on axle before soldering

Note bearings set slightly away from side frames

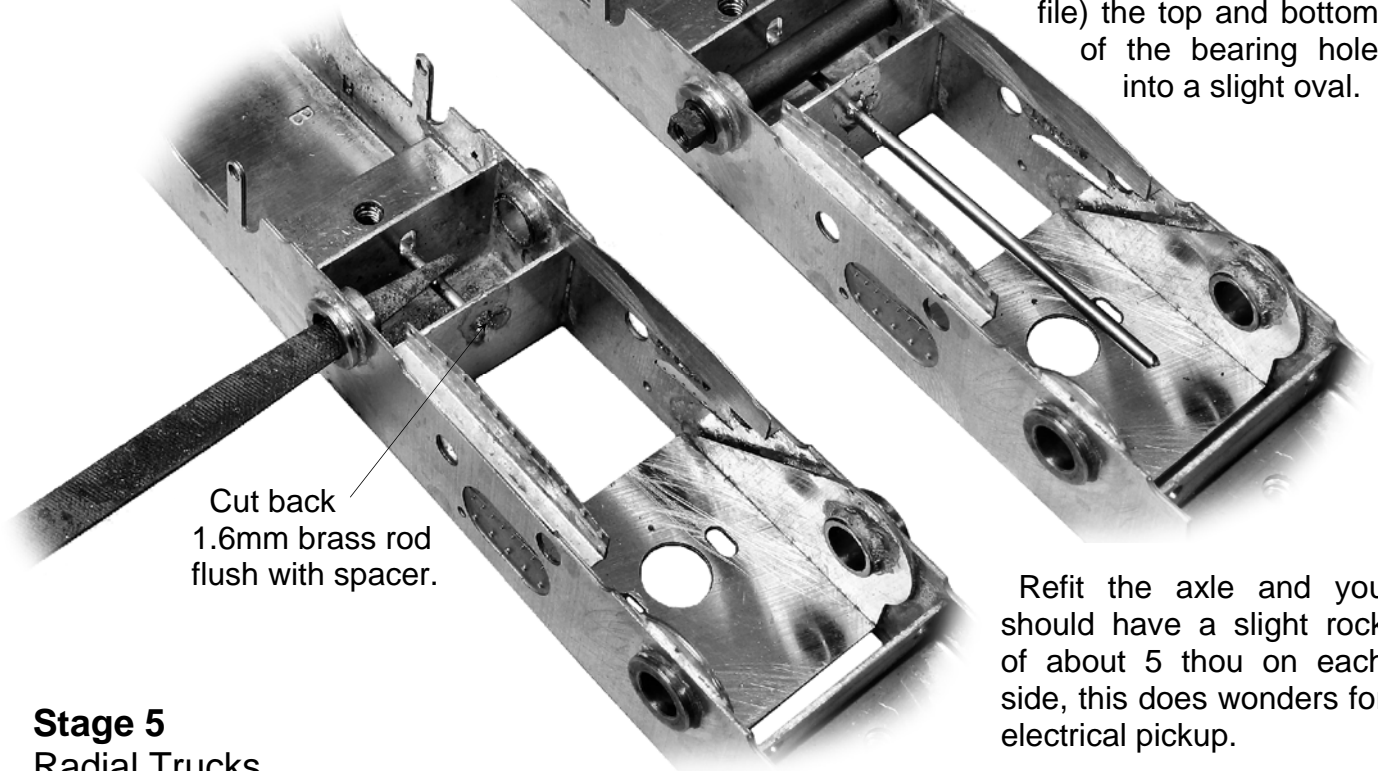
Tight clearance on hole. If required gently work in 0.95mm drill to clear and elongate hole. To ensure that a length of 0.9mm brass wire will pass easily across chassis.



## Stage 4

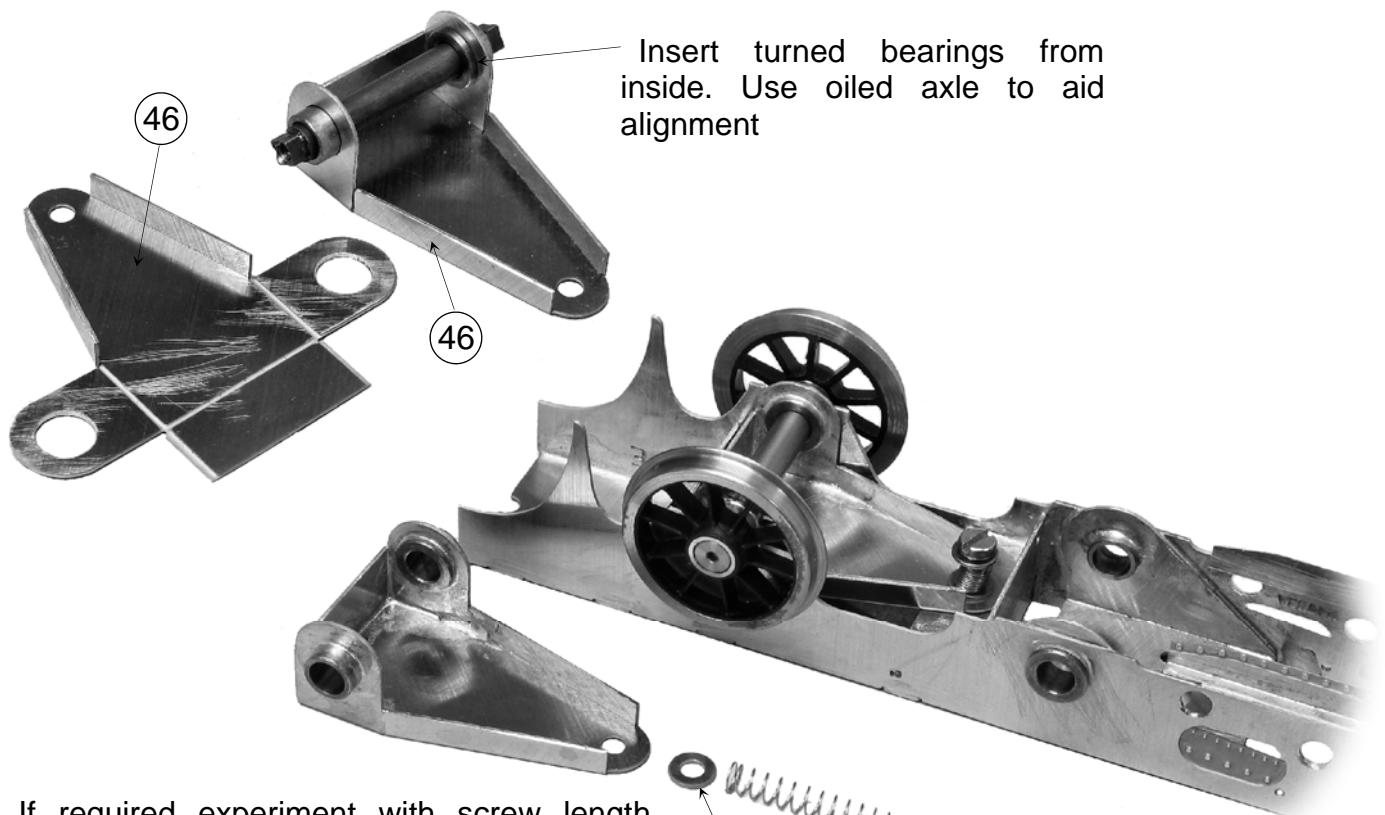
An optional refinement is to introduce a little sloppy axle compensation.

With an axle passing through bearings solder a length of 1.6mm brass rod so that it bears down on the axle. Remove the axle and file (use a round or 1/2 round file) the top and bottom of the bearing hole into a slight oval.



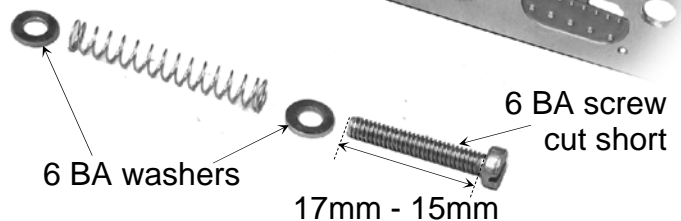
Refit the axle and you should have a slight rock of about 5 thou on each side, this does wonders for electrical pickup.

## Stage 5 Radial Trucks



Insert turned bearings from inside. Use oiled axle to aid alignment

If required experiment with screw length between 17mm and 15mm. The shorter the screw the more spring pressure. Start at 17mm and hopefully the radial trucks will tickle along through your point work nicely.

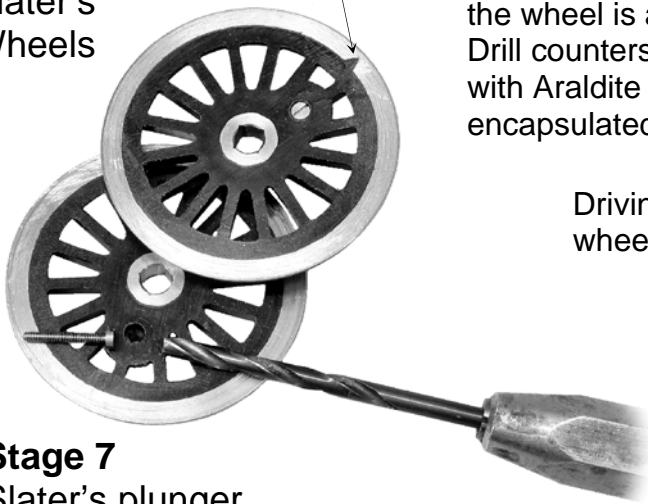




**Stage 6**  
Slater's  
Wheels

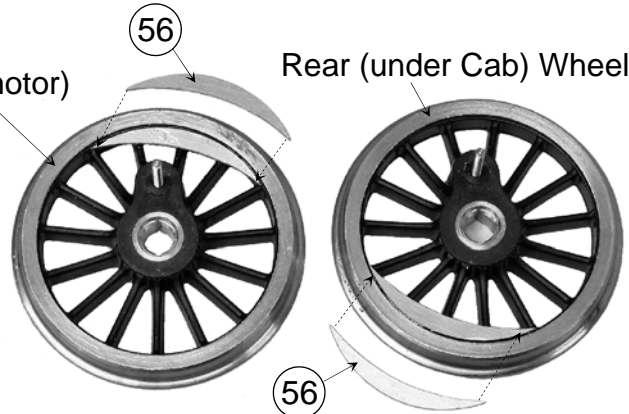
Note notch

Prepare the Slater's wheels. Dress square axle end so that the wheel is a gentle push on & (*more importantly*) pull off fit. Drill countersink hole for crankpin screw head. I fill this hole with Araldite when fitting crankpin so that the screw head is encapsulated.



Driving (motor) wheels

Rear (under Cab) Wheels

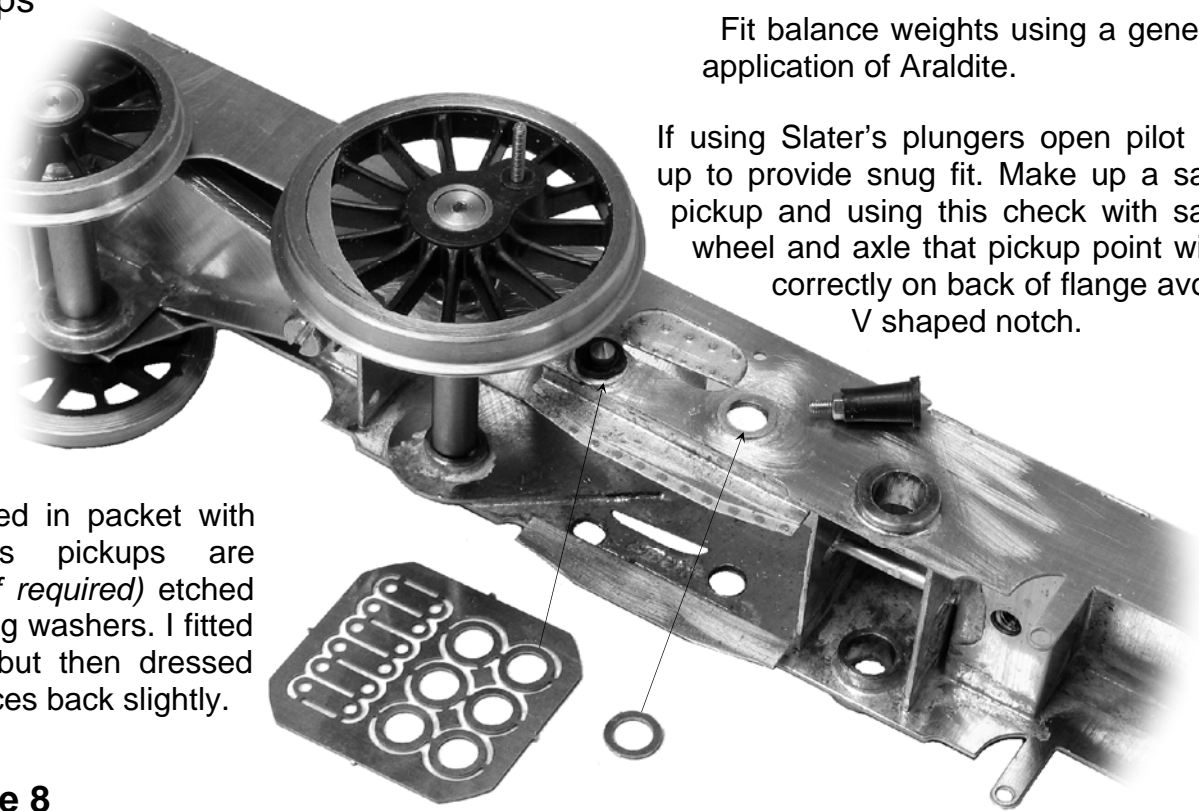


**Stage 7**  
Slater's plunger pickups

Fit balance weights using a generous application of Araldite.

If using Slater's plungers open pilot holes up to provide snug fit. Make up a sample pickup and using this check with sample wheel and axle that pickup point will run correctly on back of flange avoiding V shaped notch.

Included in packet with Slater's pickups are (*use if required*) etched spacing washers. I fitted them but then dressed the faces back slightly.

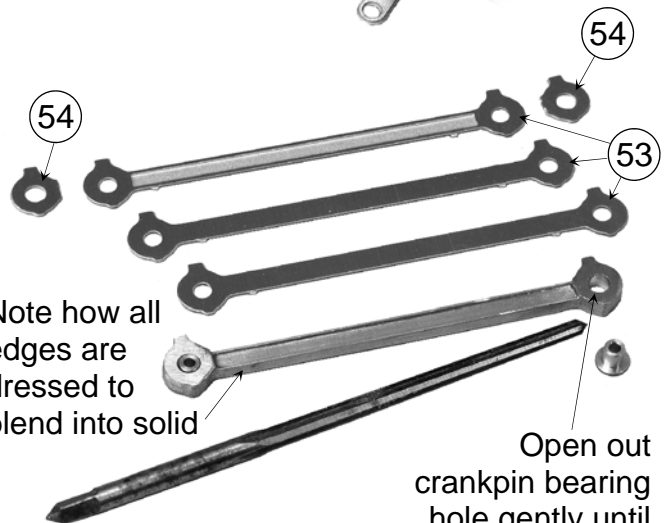
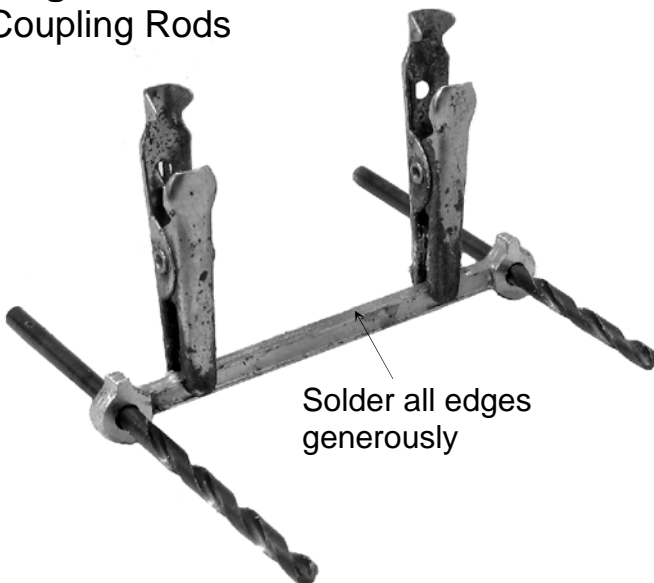


**Stage 8**  
Coupling Rods

Solder all edges generously

Note how all edges are dressed to blend into solid

Open out crankpin bearing hole gently until sufficient clearance achieves sweet running



Fit rods & check for free running then remove for fitting brake gear

Lengths of 0.9mm brass wire fitted across chassis

Thread blocks & hangers onto wire & solder to align with wheel

Excess crankpin screw will only be cut off after chassis is finished and painted.

### Stage 9 Brake Gear

Note that pull rods (parts 51 laminated) are offset from centre line to clear gear wheel

Assemble blocks & hangers into L/H & R/H pairs

1.6mm brass rod

Trim off & dress down excess wire

Laminate pull rods together

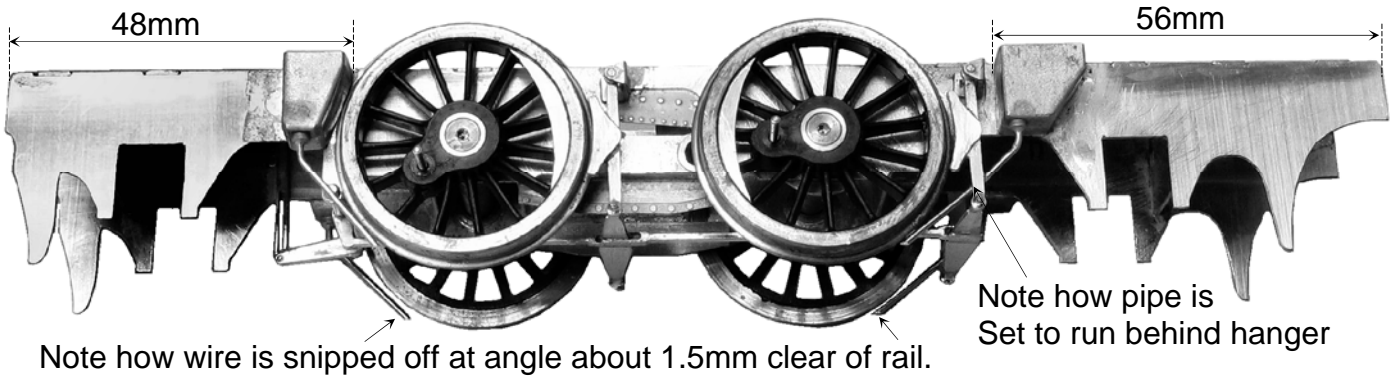
**Stage 10**  
Sandboxes  
and Pipes

0.9mm brass wire sand pipes  
fit over length & trim to  
clear rail top

Sandboxes  
set slightly  
below top  
of sideframe

Drill out 0.95mm holes  
then fit sand boxes

Use over length of wire to make  
manipulation and positioning easier.



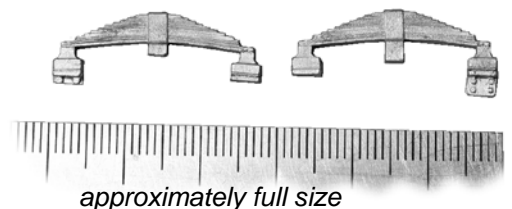
**Stage 11**  
Cast Springs

Check that wheel backs clear castings

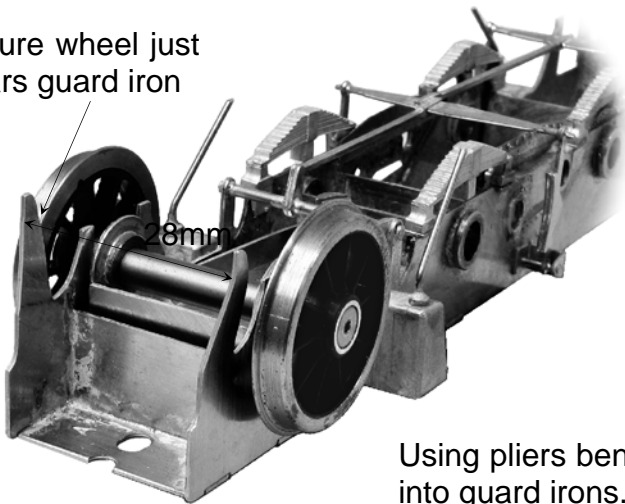
This spring end fits back  
against ash pan

The springs are standard  
castings and each end  
will require trimming for  
its specific position.

This spring end fits behind side frame

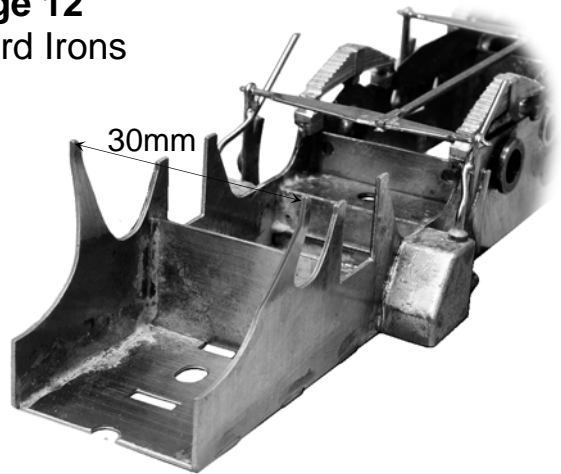


Ensure wheel just clears guard iron



Rear about 28mm apart.

### Stage 12 Guard Irons



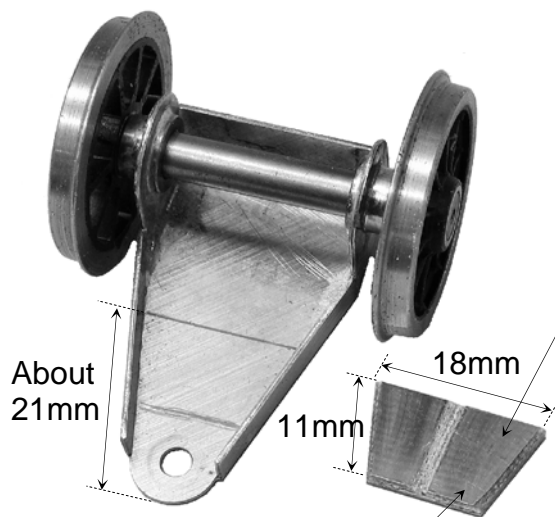
Front about 30mm apart.

Using pliers bend sets into guard irons.

### Stage 13 Optional additional pickup

The four plunger pickup points on the driving wheels will provide effective electrical pickup but a refinement that you may wish to consider is the fitting of additional wiper pickups to the front radial wheels. This is how I did it.

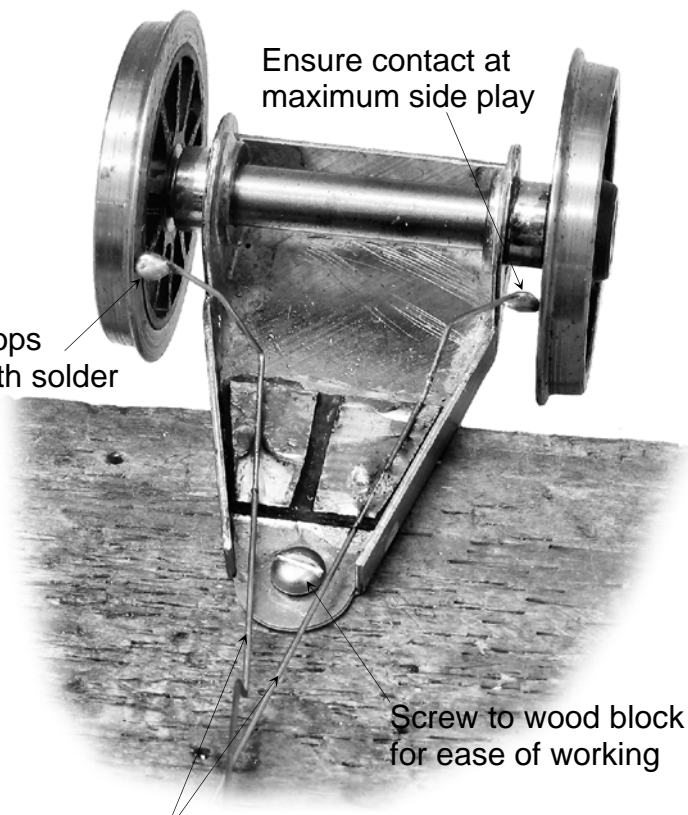
Cut PCB to match radial truck profile. Chamfer edges to prevent short circuit by touching sides. Cut central insulation gap then tin surface with electricians Multicore 60/40 solder.



Copper Clad PCB

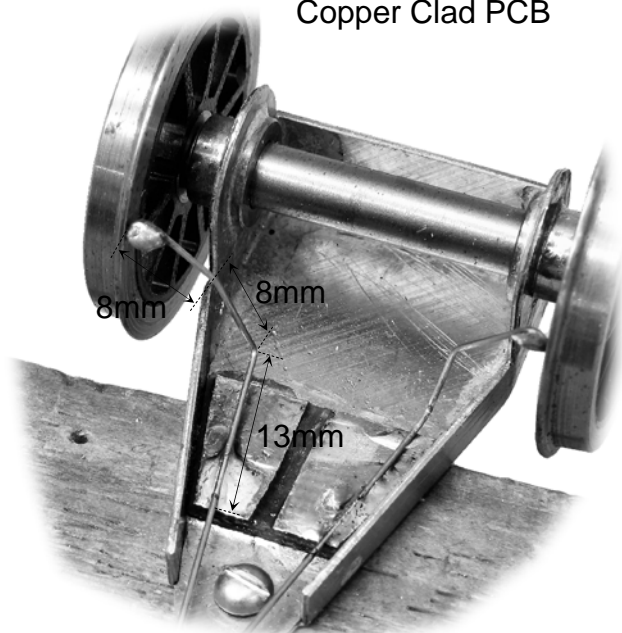
Wire loops filled with solder

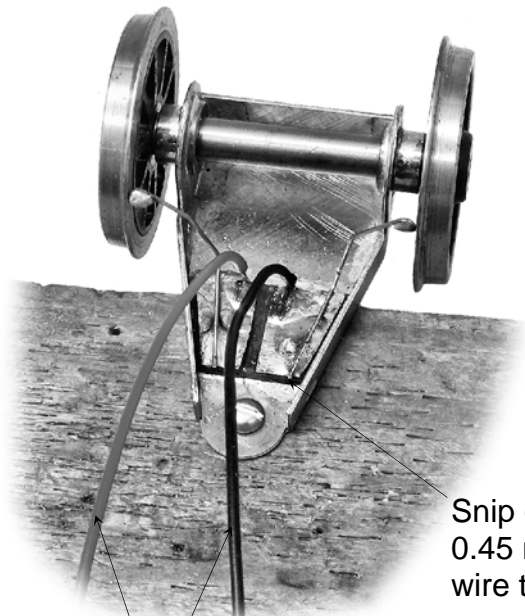
Ensure contact at maximum side play



Screw to wood block for ease of working

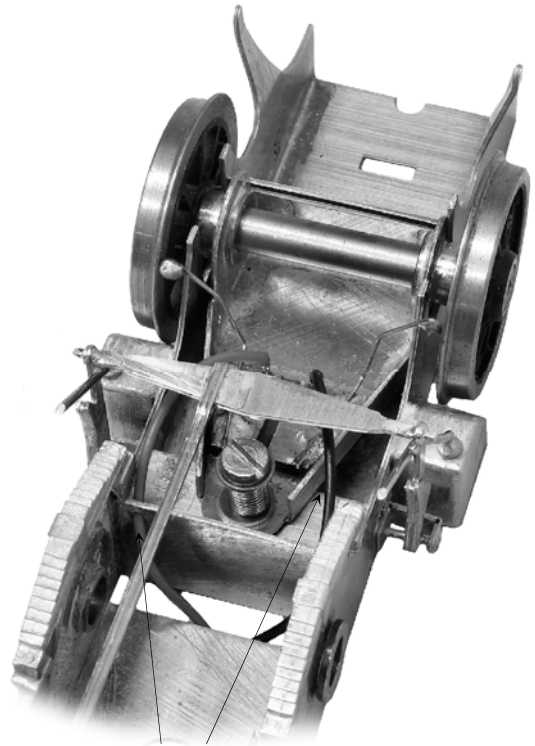
0.45mm spring brass wire. Fit over length to aid positioning & application of slight spring tension on wheel back. Then spot solder into position





Electrical wire

Snip off  
0.45 mm  
wire tails



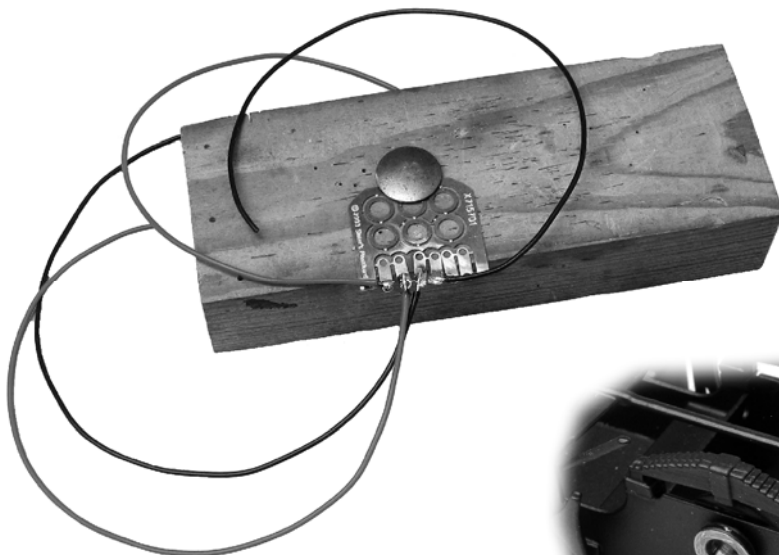
Electrical wire runs back in a gentle arc (*to maintain flexibility*) through 2.5mm holes drilled in spacer at stage 1.

### Stage 14

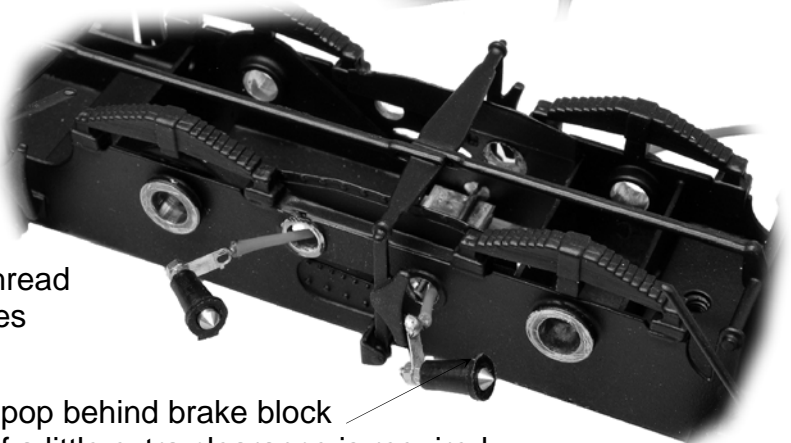
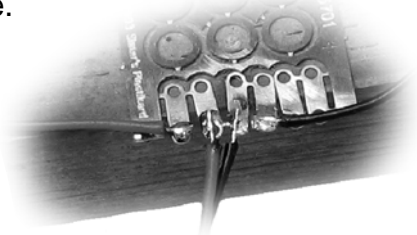
I would now strip down and paint the chassis. During reassembly I would fit the Slater's plunger pickups and wiring. An alternative is to fit wire wiper pickups fabricated from the PCB and the spring brass wire supplied. I have assumed that you are familiar with the techniques for fitting pickups, motor & achieving a sweet running chassis.

If this is your first loco then on my website ([www.jimmcgeown.com](http://www.jimmcgeown.com)) downloadable detailed help sheets cover these operations in full detail or please contact me for a free copy of my hints and tips booklet.

Solder lengths of wire (around 90mm long) to the tags included with Slater's pickups. Two at right angles & two in line. Then snip out of fret to separate.



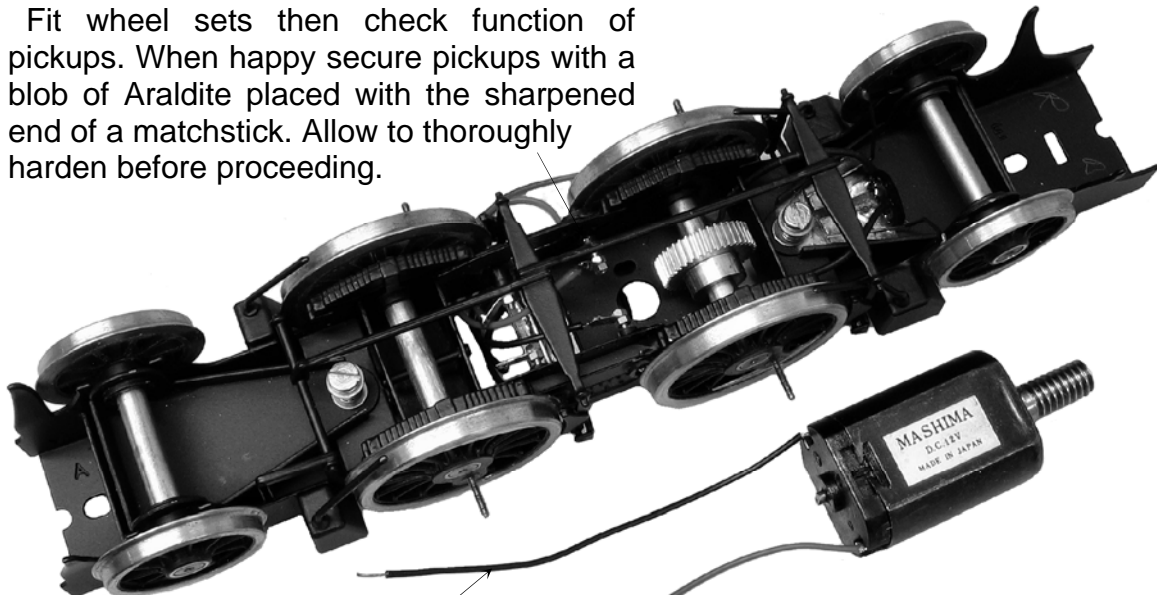
Assemble pickups and thread through holes in side frames



Get angle right & this pickup should pop behind brake block with gentle pressure, cut flat on rim if a little extra clearance is required

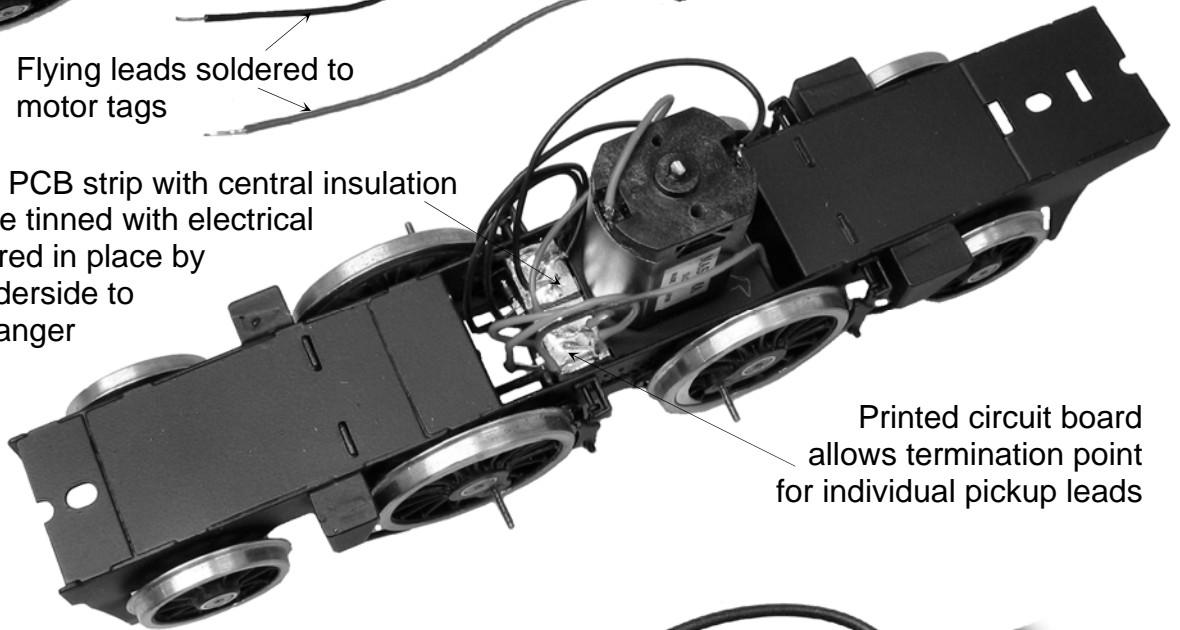


Fit wheel sets then check function of pickups. When happy secure pickups with a blob of Araldite placed with the sharpened end of a matchstick. Allow to thoroughly harden before proceeding.



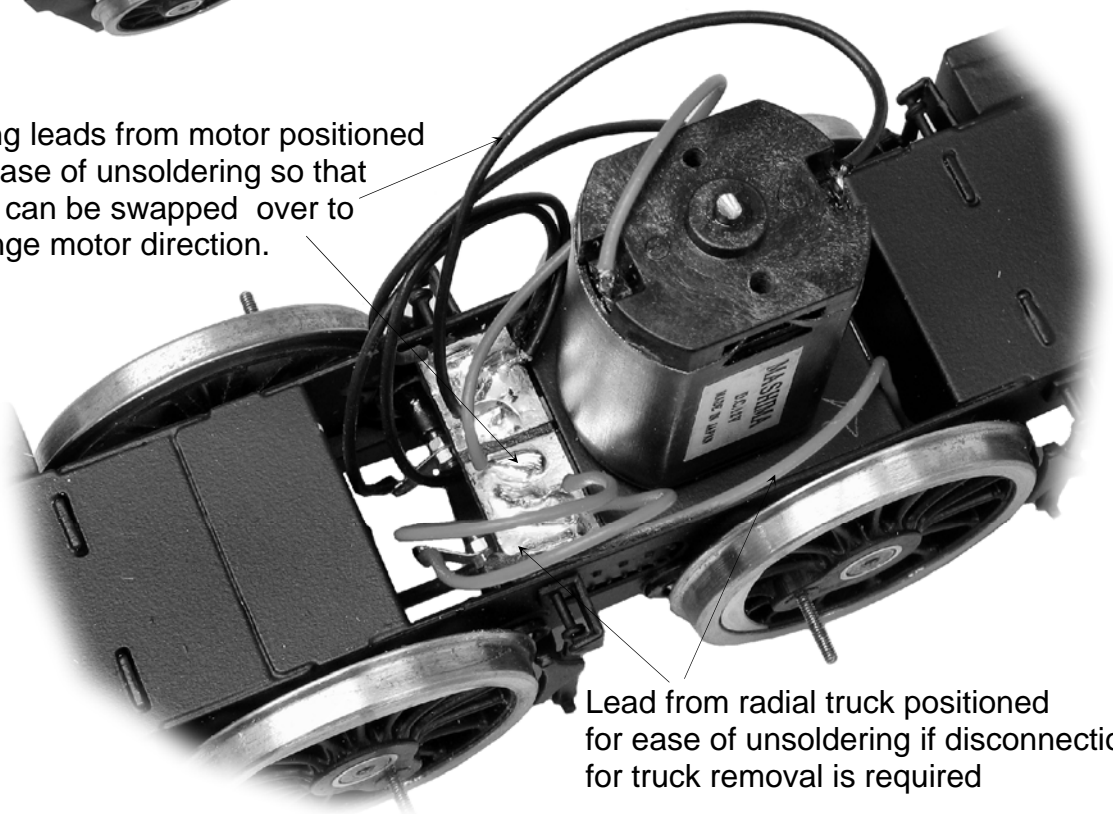
Flying leads soldered to motor tags

Copper Clad PCB strip with central insulation gap & surface tinned with electrical solder. Secured in place by soldering underside to wire brake hanger



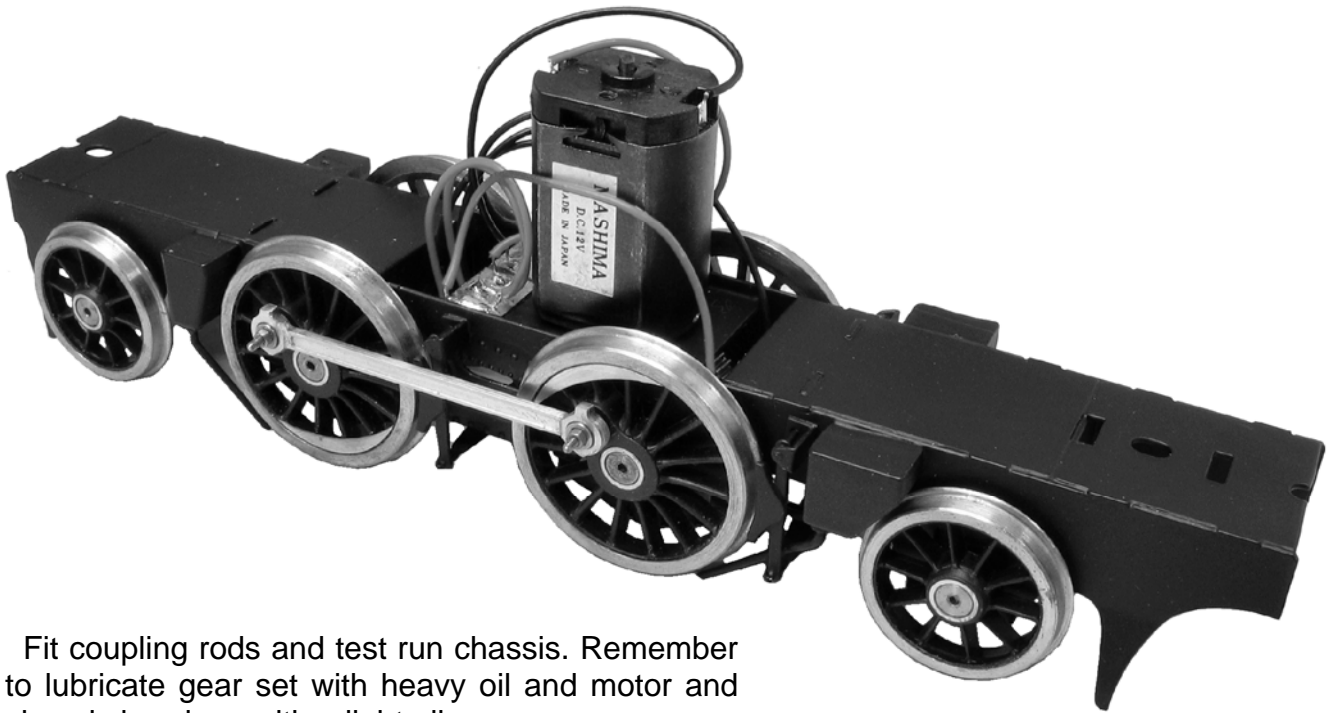
Printed circuit board allows termination point for individual pickup leads

Flying leads from motor positioned for ease of unsoldering so that they can be swapped over to change motor direction.



Lead from radial truck positioned for ease of unsoldering if disconnection for truck removal is required

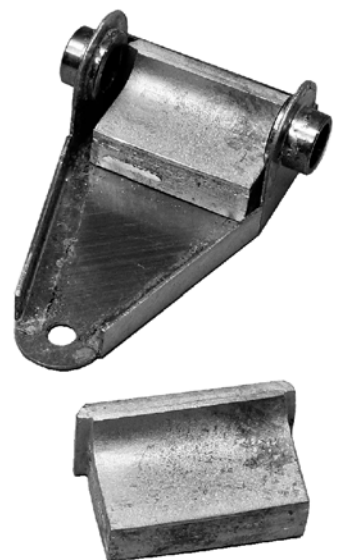
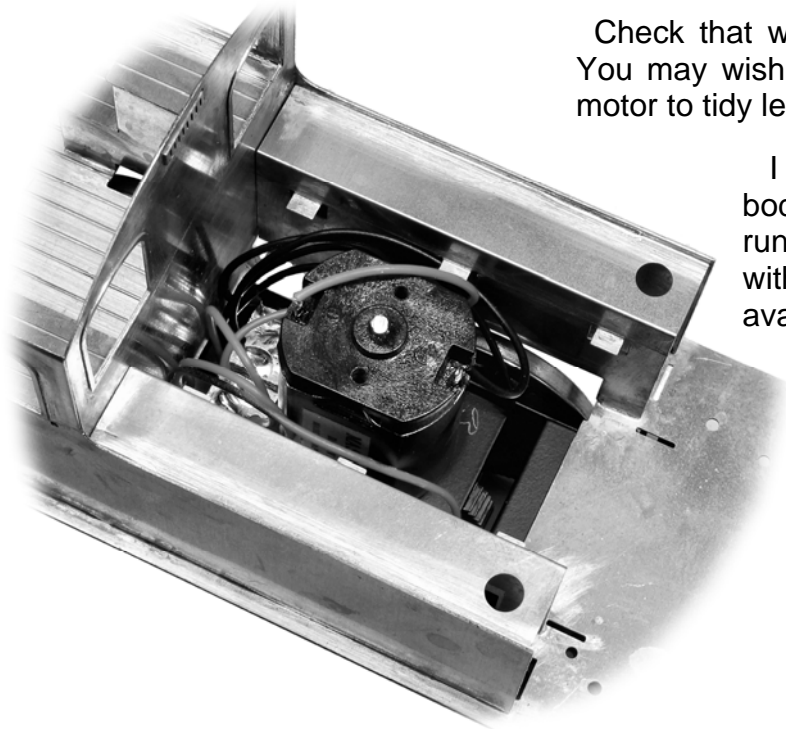
This is how I fitted & wired up pickups & motor. But pickups are like gentleman's underwear, very much a matter of personal preference. So I hope my way provides guidance and inspiration but feel free to experiment.



Fit coupling rods and test run chassis. Remember to lubricate gear set with heavy oil and motor and chassis bearings with a light oil.

Check that wiring will nestle nicely within the body. You may wish to use electricians tape moulded over motor to tidy leads away.

I would now recommend completing the body construction. Final adjustment and running in of the chassis is best achieved with the full weight of the completed body available.



On running the loco I found that the extra pickups on the front radial truck slightly impeded the free movement of the wheels. I cast a ballast weight and found that fitting this made all the difference. The front truck now tickles along the track just like the rear truck.

Running the loco on my small layout I found that the trucks ran reliably through 4'6" radius points but popped off in one direction through the slightly tighter 4'3" radius. So think of 4'6" as the tightest practical with care taken setting clearances and 5' as more certain.