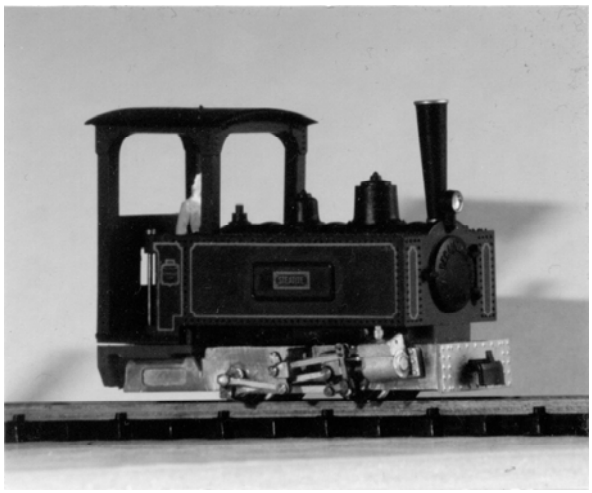
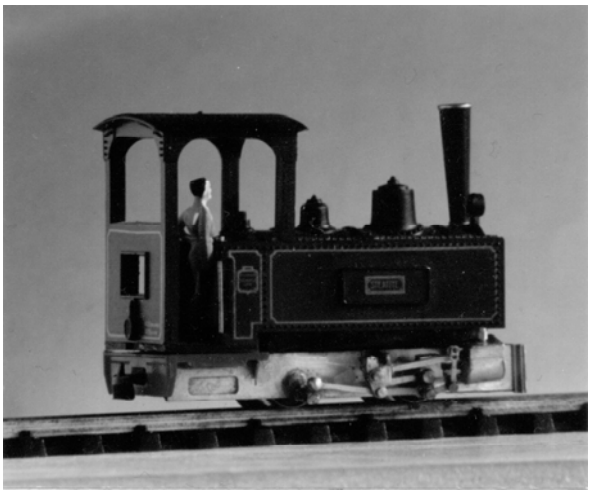
NONNEMINSTRE MODELS

INSTRUCTIONS FOR JOUEF/EGGER DECAUVILLE TYPE 1 0-4-0 CHASSIS KIT

This kit is designed to provide the correct outside frames and walschaerts valve gear for either the original issue Jouef Decauville Type 1 0-4-0 or the later re-issued Egger version which has many differences in chassis design. This kit can be used with either type.





PARTS LIST:

Etch fret containing:

1. Right hand frame 1x
2. Left hand frame 1x
3. Right hand motion bracket 1x
4. Left hand motion bracket 1x
5. Coupling rods 2x
6. Connecting rods 2x
7. Right hand crosshead 1x
8. Left hand crosshead 1x
9. Axle cranks – 4 req'd, 4 spare 8x
10. Return cranks – 2 req'd, 2 spare 4x
11. Expansion links 2x
12. Eccentric rod 2x
13. Combination lever 2x
14. Union link 2x
15. Radius rod 2x
16. Cylinder covers - from right:
    - Front covers 2x
    - Back covers 2x
    - Valve chest covers 2x
    - Mounting flange strips 4x
17. Footplate supports 2x
18. Front buffer beam 1x
19. Crankpin collars 8x

White metal parts:

Cylinder blocks 2x
Displacement lubricators 2x
Dome 1x
Chimney retaining block 1x

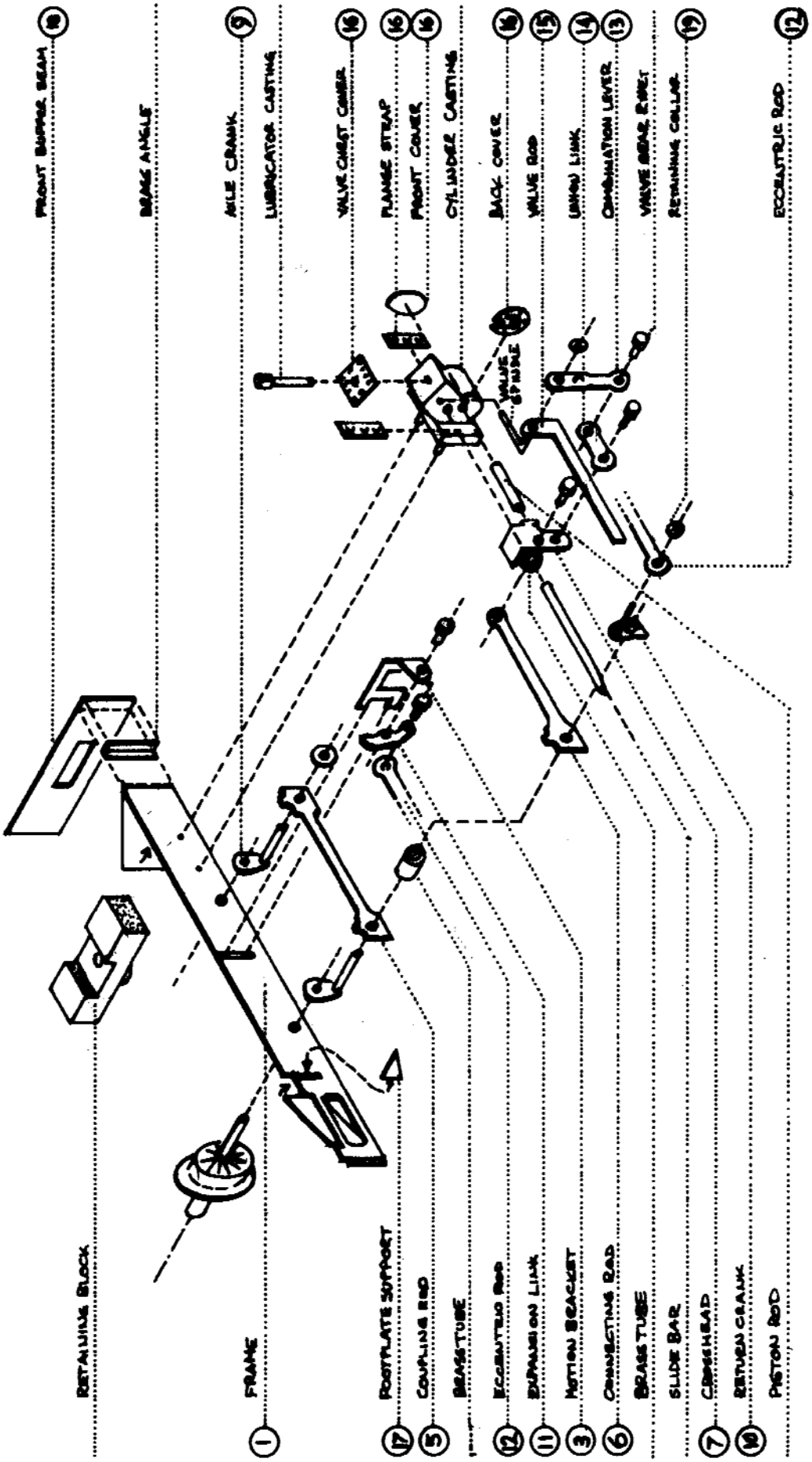
Sundry materials & Components:

Steel 0.80mm∅ valve gear rivets 14x (12 needed & 2 spare)
Brass rod 1.00m∅ x 60mm 6x (for axles, crankpins, piston rods, slidebars)
Phosphor bronze wire 0.50mm∅ x 30mm 1x (for valve spindles)
Brass angle 1.0mm x 1.0mm x 20mm 1x (buffer beam angles)
Brass tube 1.50mm∅ x 20mm 1x (for crossheads)

GENERAL ASSEMBLY NOTES: Before commencing construction, please read through the instructions and check through the parts. The construction is described for the right hand side only. When complete, the left hand side will be that much easier. This also allows for any difficulties you may have to be sorted out. Test the loco first before starting construction and if you have a current meter test current consumption. This will enable you to check as each stage progresses that some minor binding or stiffness has not occurred even though visually all seems to run ok. When 'adhesive' is mentioned this means twin-pack epoxy resin adhesive ('Rapid' versions are fine) or high quality cyanoacrylate (Superglue). If during assembly you damage any parts, then please contact us with an SAE or by email and we can sort things out.

TOOLS REQUIRED: Normal modellers hand tools, such as a square, scalpel/sharp modellers knife, pliers, small files, small drills and a pin chuck in which to hold them. Sizes of drills required are 0.50mm∅, 0.80mm∅, 0.90mm∅, 1.0mm∅ and 1.30mm∅. A sheet of finely squared graph paper can be helpful on which to check squareness as construction proceeds.

GENERAL ARRANGEMENT



MODIFYING THE JOUEF CHASSIS: There are basically two types of chassis used in this model. The 'old' one can be distinguished by having split brass frames and pick-up wipers to the backs of the wheels. The 'later' one has not got split frames but has pick-up wipers onto the top of the wheel treads and also has a different motor.

'OLD' TYPE CHASSIS: **Beware!** On most chassis, immediately behind the rear driving wheels is a slot which almost goes the full height of the frames, and in its thinnest part is the end of the lengthwise worm shaft. It is very easy to break the chassis here and a problem to mend. Tip: cut a piece of plasticard or thin plywood and use adhesive to fix into the slot, but not too thick or the frames will distort upwards at the rear and later distort the bodyshell. Eventually the new outside frames will strengthen the whole thing up. Remove the body by unscrewing and withdrawing the chimney, and then slide the body rearwards to clear the tags, then up and off. Remove the cylinder block and pull out the connecting rod crankpins. Unsolder the suppressor wires, unscrew the brush holders (watch out for the springs and brushes pinging out!) and lift the motor upwards and out. Remove the four driving wheels by very gently levering each one off – the other way of pushing the axle right through is prone to distort the gear wheel inside. Use pliers to pull out the axles. Unscrew the two nuts retaining the pick-ups on one side only then slide them out – keep all the plastic bushes. The brass frames will now drop away. Lift the worm shaft out and then the two axle gears now lying in the bottom of the chassis. Lift out the weight from the rear of the footplate and remove both front and rear couplings. The chassis is now at its most basic state. Check the axle gears to ensure they have not split between teeth otherwise you will have problems getting a smooth running chassis.

Take one of the 1.0mm∅ brass rods, cut in half and gently round off the ends. Insert through one side of the chassis, drop in an axle gear, then push out the other side with equal projection. Repeat for other axle. Drop in the worm shaft then replace the brass frames and pick-ups, assembling with the small studs as before. Now place a wheel on each axle and bring in to correct back-to-back (7.50mm if you haven't got a back-to-back gauge). If the chassis rocks on a level surface slightly loosen the pick-up wire nuts and gently twist. Refit motor and test – it should be as good (or as bad!) as before. Make sure you are absolutely happy before continuing. Cut away the triangular bracket from the rear of the frames to the underside of the front of the footplate with a sharp knife.

'LATER' TYPE CHASSIS: On these the chassis has two strengthening pieces across the gap behind the rear driving wheels. Remove body by unscrewing chimney and removing, then sliding the body backwards and up. Remove cylinder block, front and rear couplings, and the weight inside the rear footplate. Now the easy part! Turn upside-down and gently prise apart the two clips on the black motor plate just where it says 'MADE IN FRANCE' and the whole lot will fall apart. This chassis is much easier to convert than the original version. Remove the connecting rods by pulling out the crankpins. Remove the wheels and gears from the axles.

Cut a length of 1.0mm∅ brass rod in two, round off then ends and reassemble the gears and wheels, with equal projection of axle (7.50mm back-to-back). On the underside of the footplate is a cross-hatched area (used to be open on the old type) – cut through this, not too tidily but still flush with outside face (this is to be able to glue the new frames to the ballast weight inside as the original chassis doesn't like adhesives). Twist the ends of the pick-up strips through 90º as they may touch the inside of the new frames (keep a watch for this later). Reassemble chassis now and check running. Cut away the triangular footplate support bracket.

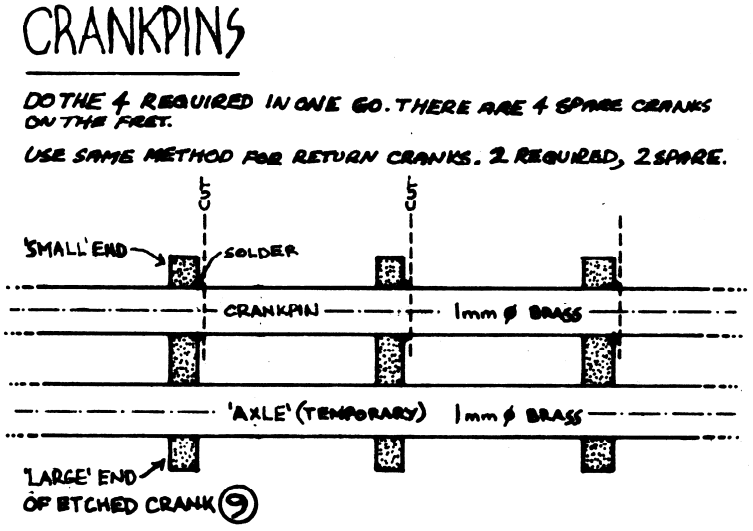
CHASSIS CONSTRUCTION: Complete construction of the right hand side is described. Repeat for the left hand side which will be much easier.

1. Take the whitemetal casting which replaces the cylinder block, drill through 1.30mm∅ and then screw in the chimney to re-cut the thread right through. With the body back on the chassis, use adhesive on the top and sides of the block (keep the slot for the coupler to the top and clear) then screw up tight and leave to set. The plastic doesn't like adhesives much but they will hold it long enough for construction to proceed. Rough scratch all over the ballast weight that goes in the rear footplate and secure with adhesive, leaving the coupler area clear. When set, use a file point or similar and scratch all over the rear weight through the chassis and the front block at the chassis sides to provide a good key for the adhesive.

2. Remove frame sides (1.) from the fret. Bend the two ends BACKWARDS almost through 180º, coat with solder paint then close and apply heat. Drill out the two axle holes slightly and position the frame over the axle ends. Check that at the front the top of the new frames line up with the top of the chassis and that at the rear it neatly follows and fits to the underside of the footplate. Don't fix to the chassis yet. Drill out the hole in the motion bracket (3.) 0.80mm∅, remove from the fret, fold ½ etch up to 90º and use a small amount of solder to reinforce the seam – not too much or it will prevent the expansion link from moving. Drill both holes in an expansion link (11.) 0.80mm∅, remove from fret. Drill one end of an eccentric rod (12.) 0.80mm∅, the other 1.0mm∅. Remove from fret.

3. Push a valve gear rivet through from the outside of the motion bracket (3.) and then through the hole in the middle of the expansion link (11.) making sure the other hole is to the bottom. Use pliers to gently squeeze the rivet – not too much or the assembly won't move. Then repeat the procedure adding the eccentric rod (12.) by its smaller hole to the inside of the bottom of the expansion link. Always remember to keep the heads of the rivets to the outside. Insert the motion bracket into the slot on the frame sides and solder. Take a footplate support (17.) and solder into its slot in the frame by the shorter side and in line with the top edge – this replaces the plastic moulding as part of the chassis. Drill through the two cylinder block fixing holes 0.90mm∅. Now glue the frame to the chassis and ballast weights with plenty of adhesive and give plenty of time to properly set and cure – the last thing wanted now is for anything to come apart! Also, if an 'old' type chassis, smear some adhesive along the top edge of the frame to prevent it making electrical contact with the main chassis.

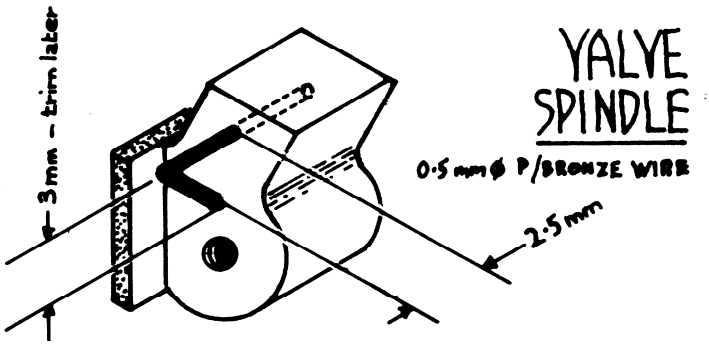
4. Drill through each of the two holes in the four cranks (5.) 1.0mm∅ or very slightly under (easier to do multiple items for both sides at the same time). Also very slightly countersink one side of the top hole with a larger drill to make a rebate for the solder. Now set up the four cranks using two pieces of 1.0mm∅ brass rod as shown in the sketch, using high melting point solder the back of the smaller end of each crank to the rod. Cut through just behind each crank, slide off the dummy axle rod and you have four cranks with soldered pins. Clean up the backs of each but don't file flush to the crank back or else the tiny amount of solder left won't hold the pin for long. Place a thin piece of card or a Peco fibre washer if you have them on each axle to distance the cranks a bit from the frame sides. Slide one crank down an axle and solder with a lower melting point solder (say 145º) – just enough heat to get the solder to run then off with the iron. Cut away the projecting axle almost flush with the crank face. Turn the motor shaft and get the fixed crank at bottom dead centre. Gently rock the wheel to and fro to check that bottom dead centre is central to backlash. Now fit, by eye, the other crank, and check the backlash (using the original gear driven chassis means that the coupling rods yet to be fitted don't transmit power, they just go round for the ride!). Solder the crank and cut off the axle protrusion as before. Remove the distance washers from behind the cranks. Take a coupling rod (5.) and drill out the holes in each end 1.0mm∅. Loosely place over the crankpins and try the chassis – it'll probably bind. Open out the holes very slightly until it runs fine in both directions. Also check that when at top dead centre it doesn't touch the motion bracket – if it does use a file to just kiss off the underside of the bracket. The same also applies if it seems the rod is too close for comfort to the back of the bracket – don't forget there is some sideplay in the wheelsets. Place the rods aside for now.



5. Take a cylinder block casting and remove any flash or sprue remains from the top and rear of the valve chest. Drill right through the block for the piston rod 1.0mm∅ using the dimples at each end as a guide – go in from each end slowly. Wet the drill and remove the swarf regularly. Also drill the rear end (from here on in the block is handed to the side being worked on) 1.0mm∅ for the slidebar using the dimples as a guide, about 2.0mm deep, and the dimple above it 0.50mm∅ deep for the valve spindle.

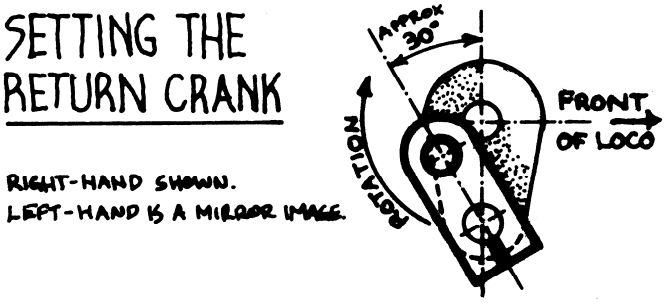
6. Drill the holes in the crosshead (7.) 1.0mm∅ for the piston rod (at the top of the fret), and 0.80mm∅ for the other two. Remove from the fret and fold up the front and top 90º but don't reinforce with solder yet. Cut a piece of the 1.50mm∅ tube about 6.0mm long and clean up the ends. Push a longish piece of 1.0mm∅ brass rod into the slidebar hole in the cylinder block with a projection of approx. 13.0mm. Cut a piece of the same about 12.0mm long to form the piston rod. Working from the back, put the piston rod down the hole, push the crosshead over the end with almost no projection otherwise it will foul the connecting rod later, then slide the brass tube down over the slidebar. The tube should nestle nicely in the angle of the crosshead – go quick even with 145º solder or else the heat will melt the block. Now slide the crosshead in and out – all should be ok. If not adjust and keep checking. Any binding here cannot be allowed. Remove crosshead assembly from the cylinder block and trim the brass tube to match the end of the crosshead. Solder (using low-melt) or glue the slidebar into the cylinder block – again double check the crosshead for a good slide.

7. Use a piece of 0.50mm∅ phosphor bronze wire to make the valve rod as per sketch and insert into the block. At this stage ahead of fitting the block to the frame, attach a flange bolt strip (16. far left) and open out the holes to clear. The other cover can be fitted later. Drill the large end of the connecting rod 1.0mm∅ and the smaller end 0.80mm∅. Rivet to the inside of the crosshead making sure the oil reservoir on the larger end will be to the top. Rivet the anchor link (14.) to the outside of the crosshead after drilling both ends 0.80mm∅, then rivet the combination lever to the outside of the other end after drilling the bottom hole 0.80mm∅. Drill the top one 0.50mm∅ (this goes on the bent-round valve spindle later). Cut a tiny collar 1.0mm wide from the brass tube. Drill the holes in two pin retainers (19. use the ones to the left) then remove from the fret and make sure there are no rough edges or faces. Place the coupling rod over the crank and slip a retainer onto the front one, then a drop of solder to secure. Cut off the excess pin – this goes behind the crosshead but there is no need to cut the pin back so far that the retainer will come adrift. Loosely fit the cylinder assembly and mark where to cut back the slidebar so it lines up with the back of the motion bracket – it actually goes under the top. File a flat on the underside.



8. Place the tube collar on the back crankpin, then the end of the connecting rod, slowly rotate and check all seems ok – watch that the connecting rod top edge doesn't clout the underside of the slidebar. Now mark the end of the piston rod where it projects from the front of the cylinder and cut off about 0.50mm shorter and gently round off the end to ensure it doesn't snag in the bore. Don't try for too tight a fit here or else you will end up with a very efficient air compressor when the front cover is on – we did this on the prototype and blew the cover off! The answer here is to file a flat along the inside face of the piston rod to allow air to escape. Now make up two return cranks (10.) using the same method as for the main axle ones. Again 1.0mm∅ holes. Fit the cylinder assembly complete with crosshead etc., permanently – a drop of adhesive on the back of the block and also between the top of the slidebar and the underside of the motion bracket. Don't forget to put the spacer tube on the rear crankpin between the coupling and connecting rods.

9. Temporarily fit the return crank (see sketch) for ideal position and drop the eccentric rod over the pin. Slowly turn the chassis wheels and check that the expansion link doesn't bind on the motion bracket. When ok, slip a retaining ring (19.) over the end of the pin – don't have everything too tight, a bit of slop will work wonders! Put the top of the combination lever onto the bent round part of the valve spindle. Now is the time to exhaustively run

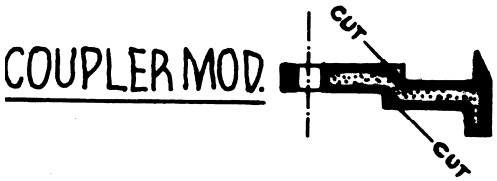


the chassis with the one side built up to check. When happy, slip off the combination lever. Drill the hole in the end of the valve rod (15.) 0.50mm∅ and fit onto the valve spindle – trim the plain end to fit against the motion bracket. Aim this end at the middle of the expansion link and secure so that it is parallel to but not touching the crosshead. Now slip back on the combination lever and retain using one of the right hand rings (19.) after drilling through 0.50mm∅. Now fit a flange strap (16. far left) to the front flange of the cylinder block, followed by a front cover (16. right) with bolts at 12 and 6 o'clock, and then a valve chest cover (16. second left). Drill down through the centre boss on the cover 1.0mm∅ and about 2.0mm deep. Keep the drill vertical in both plains, not square to the cylinder block. Insert a lubricator casting so that the body touches the top of the boss. When ok, remove and glue in permanently.

10. Breathe a sigh of relief – the worst is over. Run up and down and enjoy the delights of walschaerts valve motion! A simple instruction now, repeat all this for the other side!

11. Cut two pieces of 1.0mm x 1.0mm brass angle the same depth as the front buffer beam. File back the front edges of the frames to the raised edge around the original front buffer beam. Remove the buffer beam etch (18.) from the fret and fix over the front with plenty of adhesive. Use the top edge to align with the top of the frames. Fit the brass angle behind the buffer beam.

12. It may be necessary to slightly trim the front coupler before it will waggle through the slot in the new buffer beam – see sketch.



THE DOME: The dome as moulded is rather small and has incorrect safety valves. The dome supplied in the kit can be fitted by cutting away the moulded one almost down to the ring of fixing rivets – leave about 1.0mm above this. The new dome will fit just inside the rivet ring. Clean up round the outside of the dome – we moulded it this way so as not to have a mould part line up the side of the safety valves which would be very difficult to clean up tidily. Secure with adhesive – put a large dollop up from the inside. Gently kiss off the top of the safety valves with a fine file – not too heavy or you'll break the valves off!

FITTING THE ANCHORIDGE DS10 MOTOR TO 'OLD' TYPE CHASSIS: It is relatively simple to fit a DS10 (and probably other similar open frame motors). Remove the original motor and pull off the gear wheel. For some obscure reason the motor shaft is 1.85mm∅! Make a bush 1.85mm o/d x 1.50mm i/d about 2.0mm long. File the gear wheel down so it is 1.50mm thick and fit the bush with adhesive. File off the excess. Take the DS10 and from the rear (the end away from the brush gear) remove the smaller portion of the plastic boss with a sharp knife, then cut the shaft flush – easy with a grinding disc in a minidrill but wrap the motor to prevent metallic particles entering. The shaft is hardened so won't cut with a saw or file. Fit the gearwheel to the front of the motor and bring it right up to the body – just leave a tiny bit of endfloat. Secure with adhesive then cut off the front shaft flush with it.

Fold over the two brush tags and put some paper along the motor frame to prevent stray contacts. Fit the motor and tack solder the tags on the motor to the old square-with-a-hole brush brackets. Check that the body drops on and off ok without straining. Test. These motors are often used in large 4mm scale locos so having one of thee little jobs can only give more oomph, subject to the lack of adhesive weight in the model!

NONNEMINSTRE MODELS, 46 HIDE GARDENS, RUSTINGTON, WEST SUSSEX. BN16 3NP

enquiries@nonneminstre.co.uk