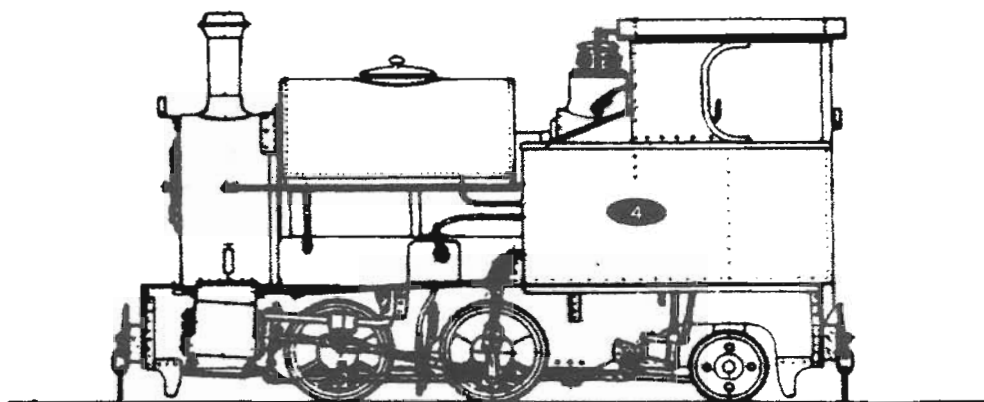


# CORRIS RAILWAY AND G.W.R. NO 4

KERR, STUART & CO. Ltd 0-4-2 SADDLE TANK

MM7



MM7

MERIDIAN MODELS 40. MORELAND AVENUE BENFLEET. ESSEX. SS7 4HB

# CORRIS No. 4 PARTS LIST

Whitemetal (W) - Etched Brass (E) - Lost-wax Brass (LWB).

- SMOKE-BOX BACK (W)
- CHASSIS EXTENTION (W)
- CYLINDER BLOCK LEFT HAND (W)
- CYLINDER BLOCK RIGHT HAND (W)
- CYLINDER BLOCK FRONT END X 2 (W)
- CYLINDER BLOCK BACK END X 2 (W)
- VALVE CHEST COVER PLATE X 2 (W)
- SANDBOX X 2 (W)
- BUFFER BEAM X 2 (W)
- BRAKE CYLINDER (W)
- SMOKE-BOX FRONT (W)
- SADDLE TANK TOP (W)
- SADDLE TANK BOTTOM (W)
- TANK FILLER CAP (W)
- FOOTPLATE (W)
- FIREBOX (W)
- DOME (W)
- CHIMNEY (W)

## MM7 - 1 NICKEL-SILVER FRET 'N' PARTS

- 1 - COUPLING ROD - LEFT HAND
- 2 - COUPLING ROD - RIGHT HAND
- 3 - CONNECTING ROD - LEFT HAND
- 4 - CONNECTING ROD - RIGHT HAND
- 5 - CROSS HEAD - LEFT HAND
- 6 - CROSS HEAD - RIGHT HAND
- 7 - RETURN CRANK - LEFT HAND
- 8 - RETURN CRANK - RIGHT HAND
- 9 - ACTUATING ROD - LEFT HAND
- 10 - ACTUATING ROD - RIGHT HAND
- 11 - DIE BLOCK - LEFT HAND
- 12 - DIE BLOCK - RIGHT HAND
- 13 - VALVE ROD - LEFT HAND
- 14 - VALVE ROD - RIGHT HAND
- 15 - SLIDE BAR - LEFT HAND
- 16 - SLIDE BAR - RIGHT HAND
- 17 - PONY TRUCK WASHERS X 2

- 18 - PONY TRUCK
- 19 - REVERSING LEVER (UN-NUMBERED)
- 19 & 20 - SCALE COUPLING BARS

## MM7 - 2 BRASS FRET 'B' PARTS

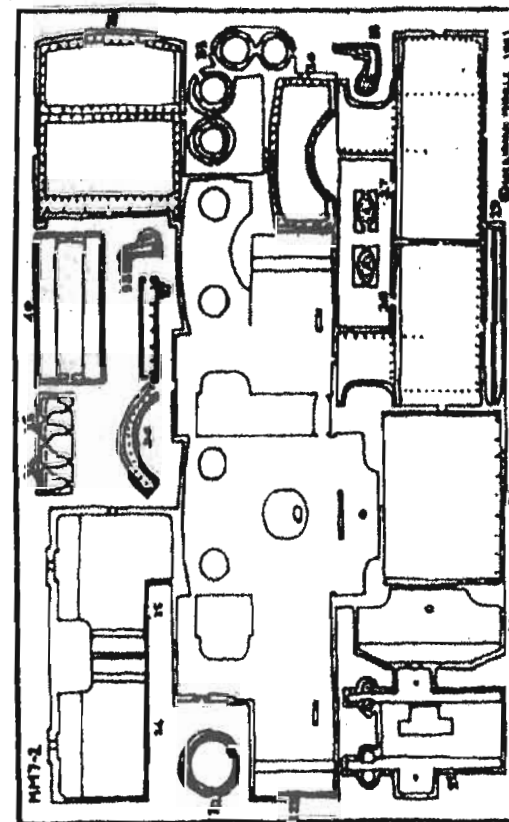
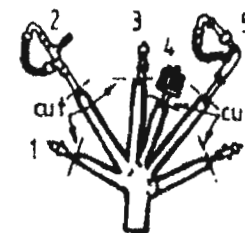
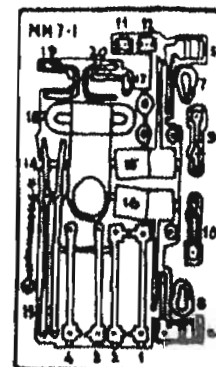
- 21 - SANDBOX AND VALVE GEAR BASE PLATE
- 22 - FRONT APRON / BUFFER BEAM
- 23 - CAB INNER FORMER
- 24 - BUNKER INNER FORMER - LEFT HAND
- 25 - BUNKER INNER FORMER - RIGHT HAND
- 26 - CAB SIDE AND BUNKER -
- 27 - CAB SIDE AND BUNKER -
- 28 - CAB BACK DETAIL OVERLAY
- 29 - CAB BACK SUPPORT ANGLE X 2
- 30 - CAB FRONT DETAIL OVERLAY
- 31 - CAB ROOF
- 32 - FIRE IRON ACCESS HOLE DETAIL
- 33 - CAB SPECTACLE RIMS X 4
- 34 - CHASSIS GUARD IRONS - LEFT HAND X 2
- 35 - CHASSIS GUARD IRONS - RIGHT HAND X 2
- 36 & 37 - SMOKE-BOX / TANK FITTING BRACKET
- 38 - STEAM BRAKE DETAIL
- 39 - SCREW HAND BRAKE DETAIL
- 40 - WATER DEFLECTOR X 2
- UN-NUMBERED - WORKS PLATE X 2

## LOST-WAX BRASS CASTINGS 'LW' PARTS

- 1 - CYLINDER LUBRICATOR X 2
- 2 - REAR VACUUM BRAKE PIPE AND HOSE
- 3 - WHISTLE
- 4 - SAFETY VALVE
- 5 - FRONT VACUUM BRAKE PIPE AND HOSE

## UN-NUMBERED PARTS AND SUPPLIES

- TRAILING WHEEL SET
- 3 X CRUSHABLE VALVE GEAR RIVETS
- 8BA CSK BOLT AND 8BA NUT
- 1 LENGTH EACH OF 0.7, 0.45 AND 0.33 BRASS WIRE
- 4 X PLASTIC WHEEL CENTRES



## HISTORY

This kit represents locomotive No.4 of the Corris Railway. The railway is a 2'-3" narrow gauge railway that ran originally from Machynlleth to Aberllefenni in the county of Merioneth, now part of Gwynedd, in Mid Wales. The line operated at first as horse drawn with steam traction from 1879 to 1948. This common carrier railways traffic was mainly slate and minerals from the quarries in the Dulais valley. General goods were also carried and a passenger service was operated from 1878 to 1931. steam locos' were introduced in 1883. NO.4 was built in 1921 by Kerr, Stuart & Co. Ltd. and allocated works number 4047/21. The design was an adaptation of the 'Tattoo' class of contractors locomotive and was delivered to the railway on the 10th of June of that year. At first the loco' was not a great success due to number of reasons, its shy steaming being a major factor leading to its re-boiling in 1928/29.

The line was closed in 1948 by the then Western Region of the nationalised British Railways. The remaining locomotives No. 3 and 4 were sold for further use by the newly formed Tallylyn Railway Preservation Society and moved to Towyn in March of 1951. No. 4 was to become 'Edward Thomas, and is still in use today (2001) in a slightly modified form. The Corris Railway Society, formed in 1966, have relaid a section of the original route from the locomotive shed at Maespoeth to Corris and intend to start passenger operations from 2001. A new locomotive is under construction based closely on the design of No. 4 and will become Corris Railway No.7.

## BIBLIOGRAPHY

Recommended sources of information :-

The Corris Railway - Lewis Cozens, 1949. Re-published Corris Railway Society.  
Narrow Gauge Railways in Mid Wales. J.L.C. Boyd, Oakwood Press.  
The Corris Railway Company. John Scott-Morgan. Gemini Publishing (O O P)  
A Return to Corris. Corris Railway Society. Avon-Anglia Publications.  
Great Western Corris. G. Briwnant-Jones. Gomer Press. ISBN 1 85902 079 8

## ABOUT THIS KIT.....

This kit correctly represents the locomotive in its 1930's to 1940's condition when the Corris had become part of the Great Western Railway network. Study of photographs will reveal that on delivery in 1921 the works plates fitted were standard builders pattern. Latterly the G.W.R. removed the works number and the build date and substituted these with a large number 4, also fitted were G.W.R. lamp brackets. With the exception of the works plates the kit may be built to in its as delivered state when passenger only trains ran. It's late 1920's condition with sheet metal deflectors under the tank and chimney damage prior to re-boiling may be the subject of the kit builders own modifications. Close study of photographs in the books recommended in the bibliography is advised.

We are grateful for the assistance with the preparation of this kit to fellow members of the Tallylyn Railway Preservation Society, Roy C. Link, John Scott Morgan and Cliff Booker.

## FURTHER INFORMATION

Corris Railway Society  
Corris Railway Museum  
Station Yard  
Corris  
Machynlleth  
Powys  
SY20 9SH

Tallylyn Railway Company  
Wharf Station  
Tywyn  
Gwynedd  
LL36 9EY

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## BEFORE YOU BEGIN

Please read and study thoroughly the instructional notes, exploded diagrams and the recommended order of building. Try to become as familiar as possible with all the parts and components supplied and their purposes before commencing building. Check the assembly at each stage to ensure accuracy.

Apart from a few times when it is needed during construction keep the motor and chassis away from the work area. This avoids contamination from metal filings.

Work on a clear area under a good light source. Have all the recommended tools to hand before starting. Do not rush the assembly stages or attempt them out of order. All etched parts are numbered (see parts list) the diagrams are drawn to indicate and facilitate location of castings and parts, this is NOT an assembly sequence. Clean any 'flash' or moulding lines from castings only after checking that to do so will not interfere with the fit or appearance of the part. A sharp knife will remove most flash. Only use files on parts with care as the white-metal is easily marked by careless or overzealous work with cutting tools. Use wet and dry paper wherever possible and a final polishing with a fibre-glass pen or scratch stick.

Use a filler, epoxy putty ( Milliput ) if any gaps are present, smoothing filler with wet and dry paper ( 400 grit or finer ).

## TOOLS REQUIRED

We recommend that you have a good quality set of Swiss needle files, wet and dry abrasive paper of various grades, Sharp knife, pin chuck, small drills and fine long nose pliers. A square of flat thick card or wood is a useful surface to work on.

The primary, and strongest method, of assembly for this kit is by soldering - the whitemetal parts using low-melting solders and matching fluxes - the etched brass parts of the cab and bunker really can only be built successfully by soldering - preferably applied using a temperature controlled electric soldering iron or a 12 volt iron with the temperature regulated via a power controller. Soldering gives an uncompromisingly quick and robust result and is a technique well worth mastering and is not such a daunting method as is imagined by some. With the whitemetal parts an additional bonus is that the searching action of properly applied solders acts as filler. Some components will still need to be glued in place particularly the small details etched and cast detail parts, thus preventing possible damage through excessive heat. The interface of the side tanks to boiler unit may also be joined with an epoxy resin of the slow curing variety.

If you insist on a wholly glue assembly of the whitemetal structure quick setting epoxy resins, five or ten minute, may be used or a cyanoacrylate 'superglue' variant

but not of the instant stick type. A gap filling variety such as Zap - a - Gap with a slower grab time gives some adjustment during setting - oh ! and make certain to get some of the de-bonder at the same time as it may come in useful - make certain that all parts are clean and free of dust and grease before fixing.

## ETCHINGS

The etched frets supplied with this kit in 12 thou' and 15 thou' nickel-silver. The brass etch provides parts for the cab, coal bunker and numerous small details. Half etched overlays provide raised surface detail, rivets, bolt heads and beading. The nickel - silver etch provides mainly the valve gear, connecting and coupling rods. The etching process leaves a fine raised lip or cusp on the edge of parts which can be removed with gentle strokes of a fine cut CLEAN file. But do this before bending up of any parts.

Remove parts from frets only as and when required. This not only keeps them flat but helps to prevent part loss. Parts should be cut out using a SHARP craft knife cutting onto a wood board ( plywood or chipboard ) Hold gently with hand pressure and cut away from fingers ! We can replace kit parts but not digits.

**NOTE :-** When cutting out etches your eyes should be protected, use safety glasses or eye shields.

Bending up of etched parts requires hand and finger pressure only. Holding parts with tools if needed with packing, card to protect raised detail.

## SOLDERING

Ye black art of the alchemist used since times ancient to transform flat-packed kits into fine working models (as practiced in the northern Backwoods of England).

### Etched brass parts :-

Carr's 145 C melting point solder with Green Label flux.  
15 - 18 Watt electric soldering iron 1/8th inch bit max.

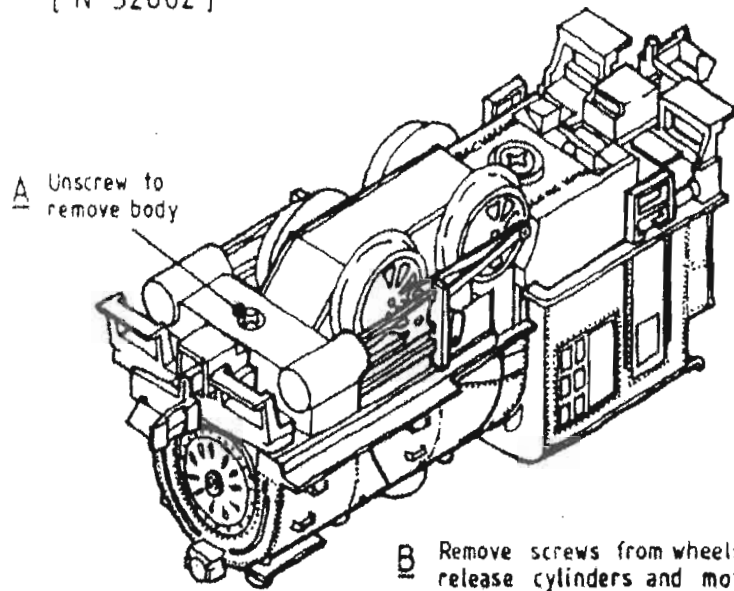
### Whitemetal parts:-

Carr's 70 C melting point solder with Red Label flux  
12 volt or temperature controlled electric soldering iron

Soldering etched parts. Tin, a thin layer of solder, the etched parts first with 145 C solder - place in correct position and apply heat to etched parts to 'sweat' together.

Remember to thoroughly clean the finished soldering work up as you go as the mildly corrosive action of fluxes can tarnish the metalwork in short time. A solution of domestic scouring powder, Ajax etc., and warm water applied with an old tooth brush is quite effective. Rinse well and leave to dry.

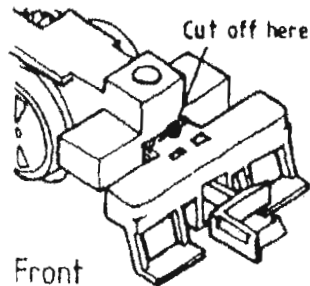
BACHMANN 0-4-0  
[ N°52662 ]



A Unscrew to remove body

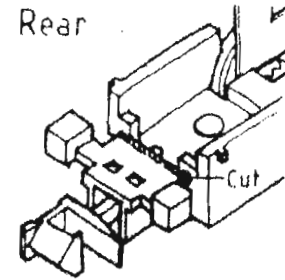
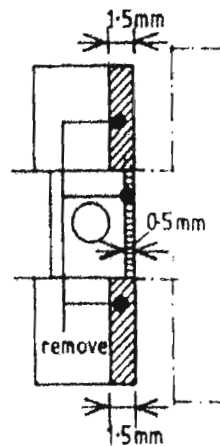
- B Remove screws from wheels to release cylinders and motion. Keep the 4 screws for reuse.
- C Remove motor put screw back in motor for reuse.
- D Wrap Clingfilm round chassis to stop bits getting into gears.

Chassis

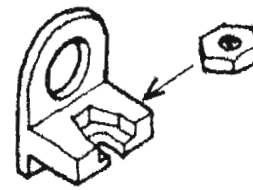
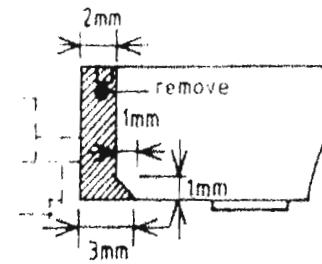


Front

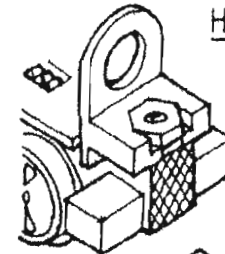
E Cut the coupling off, then remove areas as shown on large detail.



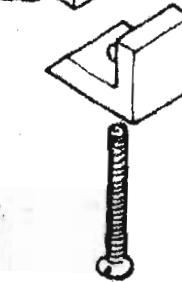
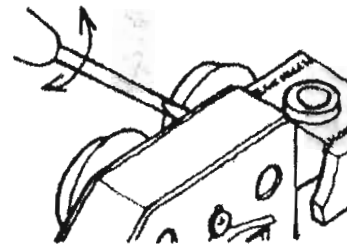
F Cut off coupling, then remove area shown on detail above.



G Solder nut to smokebox back, file nut if it projects in front of casting

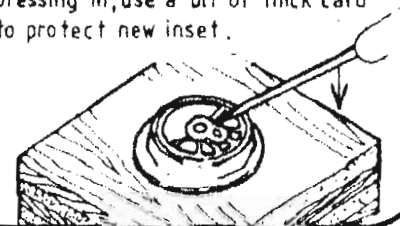


H Fit smokebox back and chassis extension, try smokebox front for fit the hatched area may need filling.

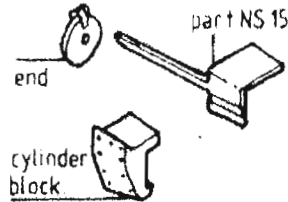


I Hold wheel on a piece of wood with a 3mm hole to take stub axle. Remove plastic inset by cutting spokes and ease out. Fit new inset by tapping or pressing in, use a bit of thick card to protect new inset.

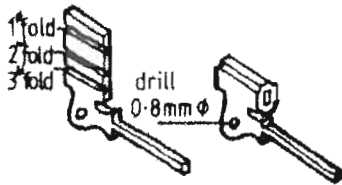
J Remove Clingfilm from chassis and ease wheels out DO NOT REMOVE SCREWS HOLDING PICK-UPS, GEARS WILL GET OUT MESH. Rewrap chassis



L Remove parts 15 & 16 from fret MM7-1. Slide bars may have burrs these must be removed. Note cylinder blocks are handed.



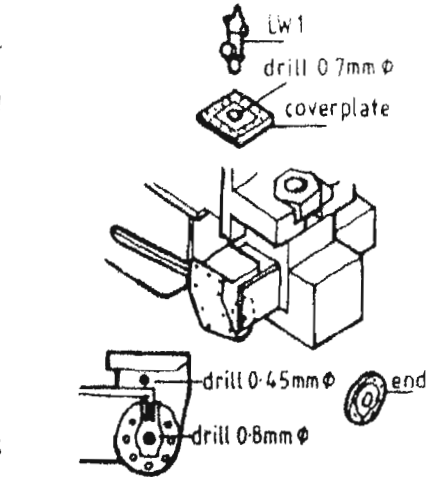
PARTS NS 5 & 6 FOLD ETCH LINES ARE ON THE OUTSIDE.



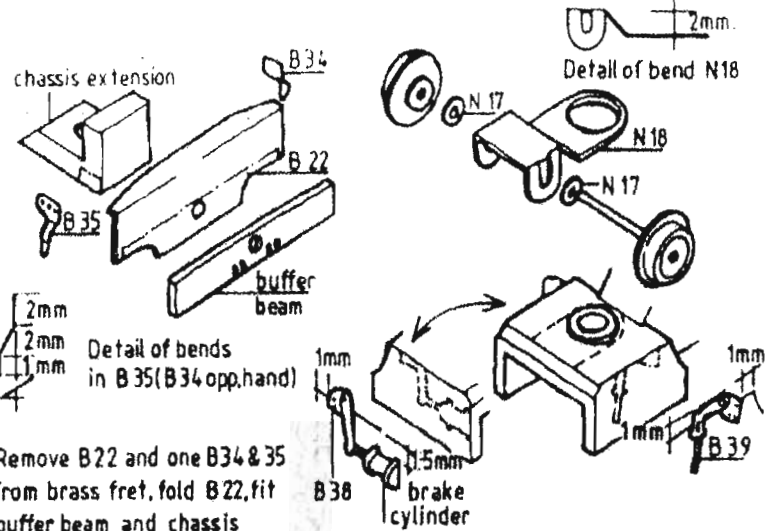
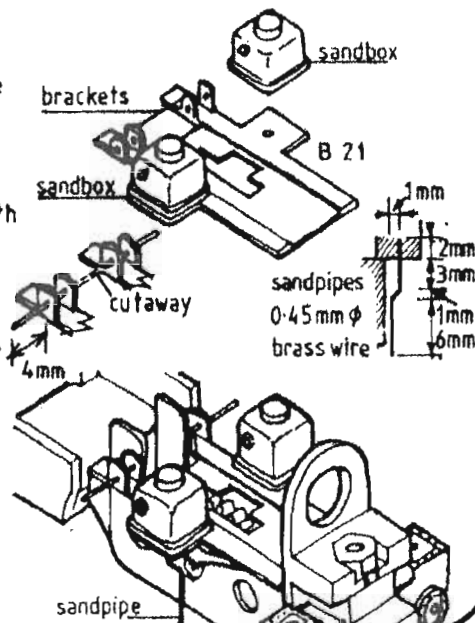
N Fold up crosshead as shown also remove any burrs and drill hole 0.8mm  $\phi$ .

O Remove part 21 from fret MM7-2 fold up and fit sandboxes drill the 4 brackets & 2 sandboxes with 0.45mm  $\phi$  drill. Put 22mm long piece of 0.45 wire in brackets and solder then cutaway centre part, (see sketch) and trim ends to 4mm projection.

Form sandpipes (see sketch) fit in position. When complete fix with ACC to chassis with 0.25mm gap at back of smokebox back.



M ACC. the sub-assembly to chassis before fitting end coverplate and drilling (Opp. side handed).

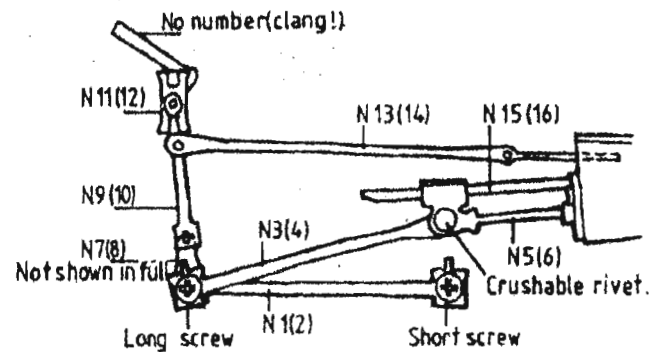


P Remove B 22 and one B 34 & 35 from brass fret, fold B 22, fit buffer beam and chassis extension, Bend B 34 & 35 as detail and fit as shown.

Q Remove N 18 and both N 17s from N/S fret bend N 18 as detail fix to chassis with ACC mount wheels with washers. Fit the small parts as shown with ACC.

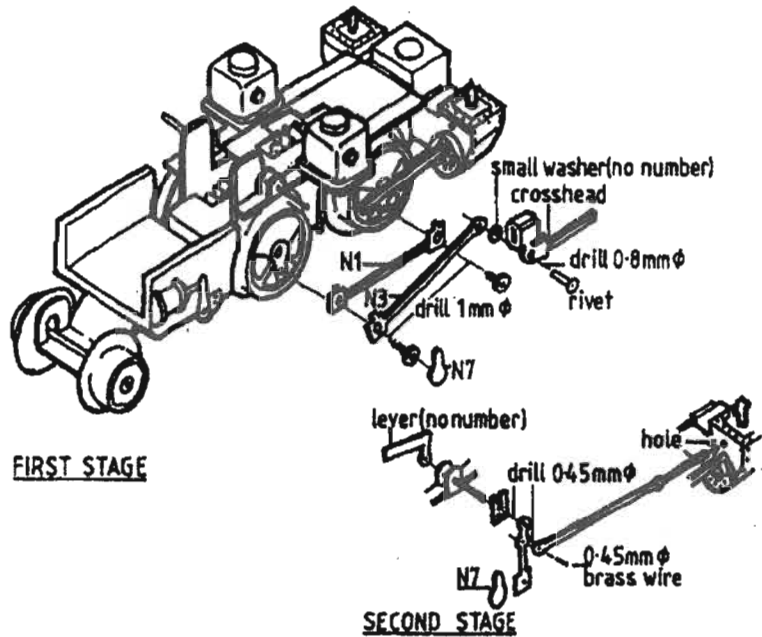
### R HACKWORTH VALVE GEAR

Left hand side, parts for R, H side in brackets. ALL parts are on N/S fret MM7-1



### NOTES

Close with pliers crushable rivets with washer between N5 and N3. Screws from Bachmann valve gear. N7 solder to long screw. See next stage. Drill holes for screws out with 1mm  $\phi$  drill. Drill hole for rivet with 0.8mm  $\phi$  drill.



FIRST STAGE

SECOND STAGE

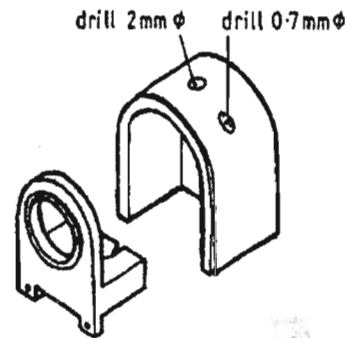
**S1** Having read step R insert 2 wheels into chassis (1 side), make sure boss for screw is vertically below axle on both wheels. Join connecting rod (N3) to back of crosshead with washer between (on the fret but no number) burr end of crushable rivet gently with pliers or by tapping using a hammer and punch. Slide crosshead onto guide and check for free movement. Using long screw, fit coupling and connecting rods in that order to the rear wheel now using short screw fit coupling to front wheel.

REPEAT for other side but do not forget to quarter wheels.

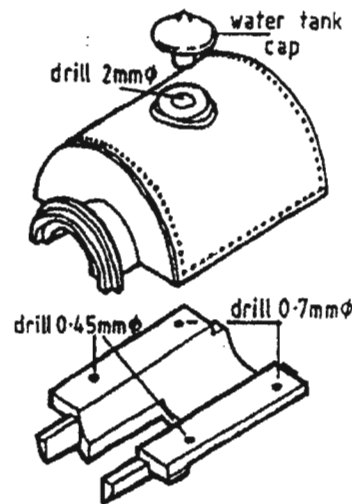
**NOW TEST RUN CHASSIS**

**S2** Remove long screw from rear wheel and solder crank (N7) to it replace and adjust so that the end of crank is over axle. Fit lever arm (no number) to back of inside bracket (LH side only) Fit slide (N11) and actuating rod (N9) to end of rod ensure that the bottom end is over axle and crank (N7) Fit valve rod (N13) into hole in valve chest and fix other end to centre pivot of N9 with a short length of 0.45mm φ wire. REPEAT for other side.

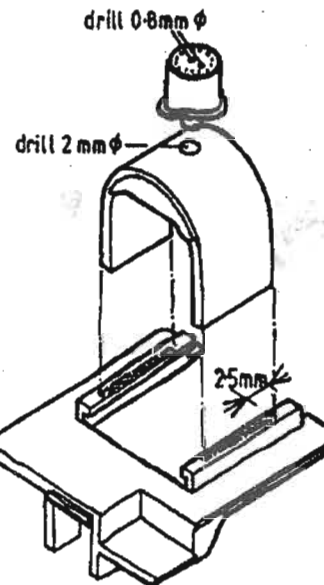
**BODY**



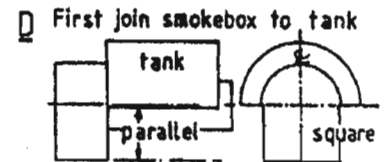
**A** Join front and back of the smokebox together



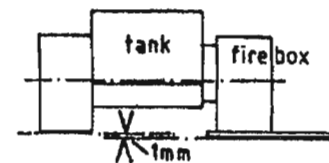
**B** Join top and bottom of the saddle tank together and fit cap. Note boss's for holes on underside of tank bottom.



**C** Fix firebox to footplate and mount dome on firebox

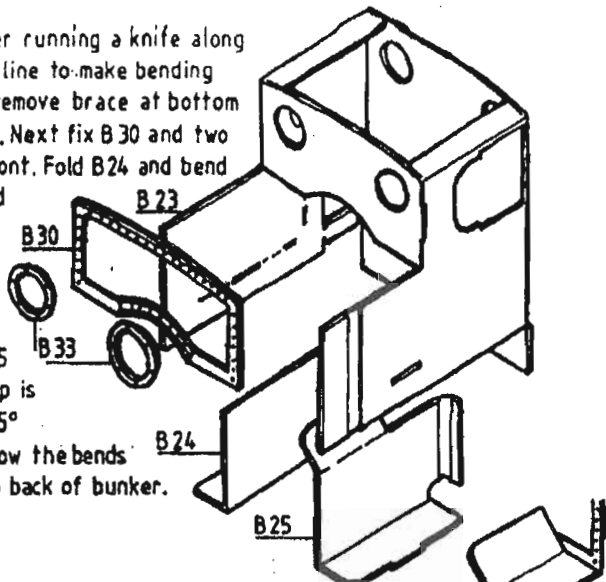


ensure the parts line up before final fixing. Next fit firebox



ensure parts square and in line before final fixing. Then test fit on chassis.

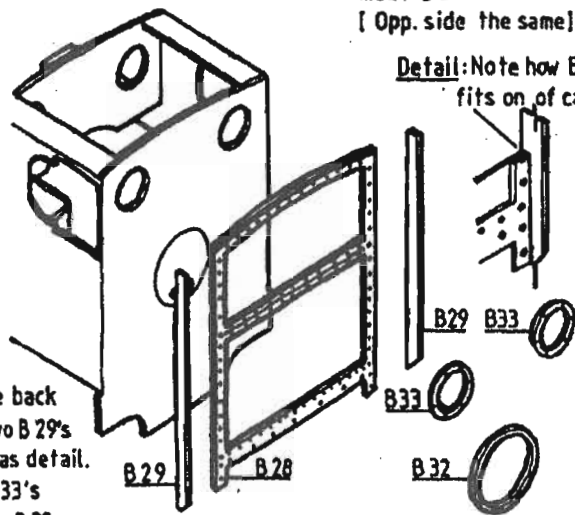
**E** Fold up B23 after running a knife along roof fold etch line to make bending easier, do not remove brace at bottom of cab opening. Next fix B30 and two B33's to cab front. Fold B24 and bend the back round to meet the cab side, the radius is 2mm. then fix. Repeat for B25 the guard on top is bent over at 45° See detail of how the bends round to fix to back of bunker.



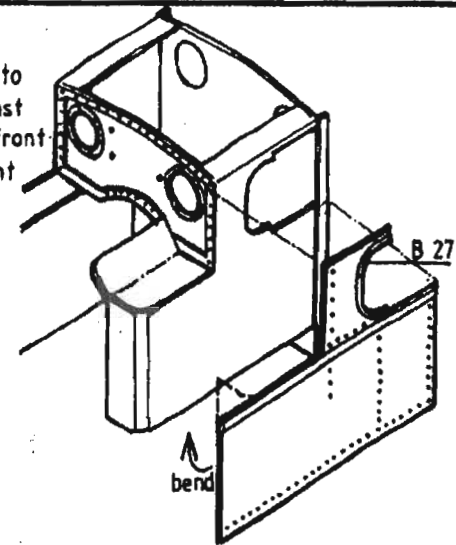
**Detail:** Showing how B23 bends round to meet B25 [Opp. side the same]

**Detail:** Note how B29 fits on of cab back

**F** Fit B28 to the back of cab and two B29's to the sides as detail. Next fit two B33's together with B32.

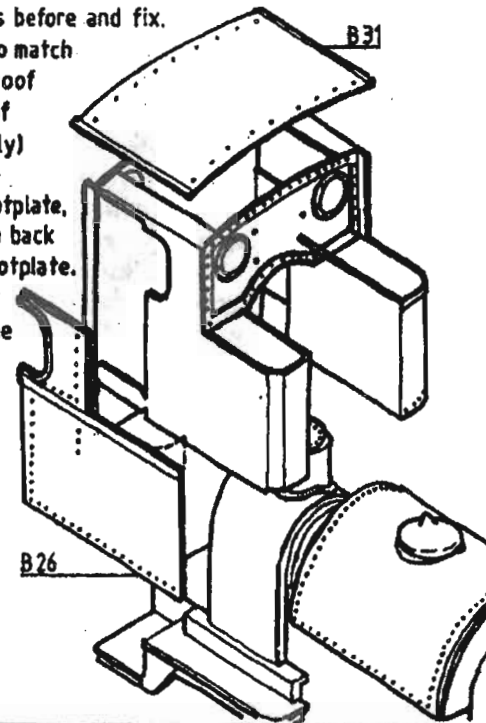


**G** Shape and test fit B27 to cab, it should butt against B29 and project 1mm in front of cab front, bend front round bunker when correct fix.



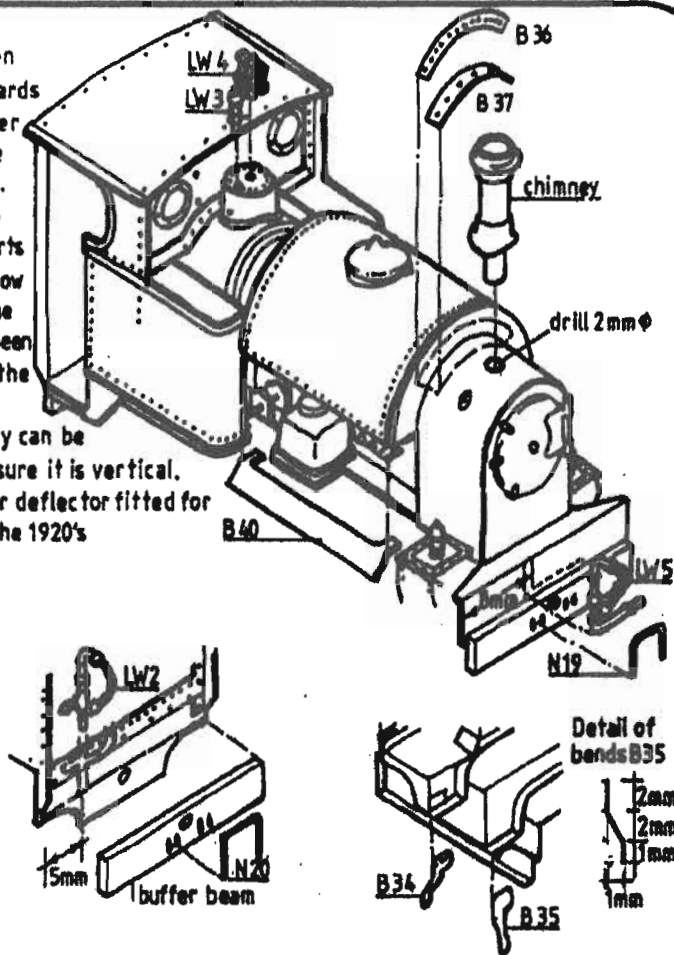
**H** Shape B26 to cab as before and fix.

Bend B31 gently to match roof curve (Note: roof projects in front of corner angles equally) and fix. Test fit cab to footplate, the slot in the cab back fits over nib on footplate. the cab front may foul the top of the firebox ease as required then fix.

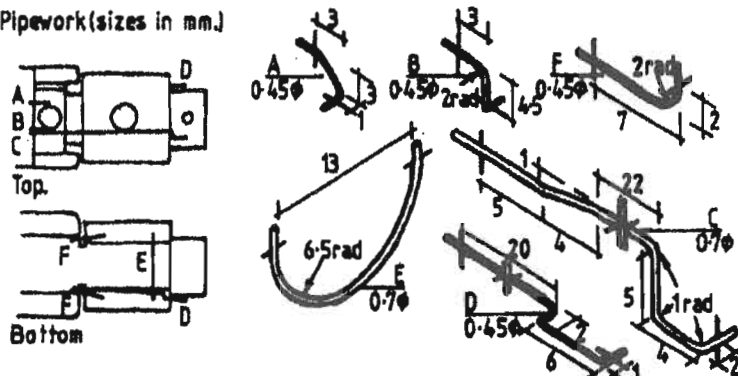




J Fit B37 then  
 B36 afterwards  
 fit the buffer  
 beam to the  
 back of cab.  
 Next fit the  
 lost wax parts  
 2,3,4 & 5. Now  
 check all the  
 holes have been  
 drilled for the  
 pipework  
 The chimney can be  
 fitted ensure it is vertical.  
 B40 is water deflector fitted for  
 a time in the 1920's



K Pipework (sizes in mm.)



## PAINTING AND FINISHING DETAILS

A study of what references there are as to livery and paint schemes applied to No.4 in the books in the bibliography suggest 'Indian Red' as a paint finish. The actual shade of this is open to debate. It is stated as ranging from red through red-brown to chocolate (G.W.R. Carriage Brown) This may take into account the effects of pigments in the paint changing the colour due to weathering or the memory of the source. Samples of paint from former Corris locos' on the Talylyn Railway seem to indicate a bias to the red end of the opinion spectrum!

As delivered to the Corris in 1921 the loco was lined in a square corner panel style. Close study of the photographs on pages 13 and 15 of 'Corris - A Narrow Gauge Portrait' shows this. Note that the cab/bunker side and the bunker front have separate panels, also that the cab interior is painted in the same style. Photographs taken towards the end of locos' working life and after withdrawal show the lining or a least the remains of it still in place indicating, perhaps, that no complete re-painting was carried out during its Corris days.

Corris 'Indian Red' :- Tank, cab, bunkers and sides.

- Lining:- Black panel bordered with yellow lining.
- Black:- Smoke-box, chimney, cab roof, footplate, front apron, cylinders, sand-boxes, raised beading and external framing on cab / bunkers, fire-box, dome, infill on works plate and vacuum pipes.
- Red:- Buffer beams.

We highly advise the use of an air-brush for painting, even the most basic of which will give a much better finish than hand brushing and will avoid that 'just dipped in a tin' look. Thinly air-brushed coats of acrylic paint will also not obscure the fine surface detail on castings and etched parts.