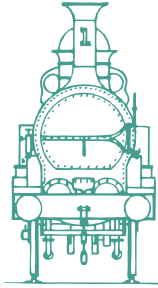


Railscale



NSWGR 'SIMPLEX' PETROL SHUNTER

A brass model in HO ie. 3.5mm to 1 foot.
Proudly designed and made in AUSTRALIA.

This Kit is NOT motorised owing to it's size. However, we suggest, as we did, to motorise a goods wagon such as a louvred van or an S Truck with a load, etc., and use that to push the shunter along, if you wish.

There are several ways you can have this model;

1. As it entered service as LO 44 in November, 1920, assumed without roof.
2. As LO 44, with the addition of the roof and air brakes as per the Railway's drawing dated March, 1921.
3. As last, only with 1924 number, 1065.

Note that this Shunter was obtained for use on the Clyde Wagon Repair Sidings.

Additional Items required.

You will need;

- a. Wheels of your choice. The original wheels were 8 split spoke of 3'1" diameter. It would appear that we cannot get split spoke wheels in 10.5 mm diameter, so we have to use ordinary 8 spoke wheels with 2mm dia. axles. I used Mike Sharman 10.0mm dia. wheels as they do not look oversize with model flanges. (The Sharman wheels have 3/32" dia. axles).
- b. Odd pieces of small gauge wire, 1/32" x 1/32" brass angle for the roof framing, and some 1/32" or 1mm dia. brass tube.
- c. Bits and pieces of timber, model plywood, or styrene etc., to make up the air compressor. You may be able to get hold of an old 12 Class air reservoir, but if not, you will have to make one up, as I did.

- d. Buffers. The prototype had a thin type of round buffer, but I ended up using an Alan Gibson sprung buffer Ref. No. 4967 (M.R./P.O.Wagon)

References.

The various sources of information used to design this model;

- a. Drawing No. 20778 from the SRA Archives. You WILL NEED one.
- b. "A Compendium of New South Wales Locomotives" compiled by Alex Grunbach, ARHS NSW Division. Page 300.
The top photo shows the shunter as LO44, and also shows the brake reservoir behind the driver, who is sitting at 90 deg. to the seat.
The bottom photo, as wrecked, shows a lot of underfloor detail.
- c. Mr. Bob Merchant, a mine of information.
- d. Mr. Brian Parkes of the Byron Bay Historical Society.
- e. Information from a trip to Byron Bay by Neil Cram and Eddie Garde to measure up and photograph the SIMPLEX Locomotive used on the Byron Bay jetty by the North Coast Steam Navigation Company.
The Byron Bay Locomotive was ordered in October, 1922, and delivered in May, 1923, landed in Lismore and driven to Byron Bay.
- f. A trip to the Bedford County Records Office in the U.K. by Neil Cram and Eddie Garde in September, 1997. This visit revealed that the locomotive was ordered through an agent, F. Saunders Limited, of Clarence Street, Sydney, in April, 1920, Works No. 2023. The Engine No. was 8414 and delivery was 7th September, 1920.

Railways in the U.K.; For those who read Model Railway Journal, there have been kits available in 4mm scale, but those models have enclosed sides and those sides are able to hide the motor. Our model is open, therefore we cannot hide the motor.

It would appear that the prototypes did not have any roof as supplied, as the Dept's drawing is for a roof mounted on top of the end castings. The Byron Bay Locomotive has a different roof, with the exhaust pipe going up through the roof and the silencer mounted on top. Bob Merchant's photos show the Byron Bay locomotive having roll down canvas blinds on the sides.

The Model.

If you have assembled brass kits before, and have basic soldering skills, you should be OK with this. It has been designed so that nearly all of the soldering is done from the rear face, so that none of the detail is spoilt, and I find it best to use just enough solder to hold it rather than to plaster it on. There is not much "Modeller's Licence" allowed, some of the parts are quite small and there have been spares of these small parts provided in the fret. (Sometimes you hold a small part in the tweezers and PING! it's gone).

I find an Engineer's scribe very handy, especially to run down a fold line prior to folding. A fibreglass brush, and a brass suede brush can be very handy for cleaning up.

Sometimes in the instructions there may be mention of folding the fold line back on itself, - this means fold it the OPPOSITE way. Generally a fold is made with the fold line on the inside of the angle.

These instructions were written whilst I was building a shunter, from the same batch of frets that you are using.

It's always best to read the instructions and study the diagrams a couple of times to get an idea of what it is about, before starting. Cut the pieces from the fret with a sharp knife on a block of timber. Cut out the parts you want at the time, leaving the rest until you need them, that way they do not get lost.

CHASSIS.

I opted for an inner frame (although the prototype did not) to make it easier to fix in the springs etc. on the inner side of the main side frames, when the wheels would be in the way.

Holes have been provided for 2mm dia. axles, but will have to be opened out to suit whatever axles (or bearings if you are going to use them) you are going to use.

C1. Take the inside frame (Part B) from the fret and clean off the tags. Carry out any work on the axle holes to suit your axles. You may wish to just run the axles in the frame, provide bearings (in which case you will have to open the hole further), or whatever. If you wish to have wheels removable, then you will have to cut out the bottom of the holes after you have fitted the bearings etc. and provide removable keepers. (I did, but now I think I should have just used the holes. If you wish to pull the wheels out, just pull them off the axle!).

C2. When you are satisfied with your axles and bearings, score the fold lines and fold down the sides.

C3. Take out the 'Inside Frame Braces' (Part c) from the fret. Before fitting, open out the small holes, say 0.020" - 0.022" (just over 0.5mm). (These are later used for the coupling hook rods). Fit these pieces between the turned down sides and solder in. over the top of the axle turn downs, (Ref. Diag 1), making sure everything is nice and square.

C4. If you are going to have removable wheels and axles. now is a good time to fix in the keepers. I used some 0.014" nickel silver wire (after some trial and error), soldered on the inside so that it can be sprung out of the way when removing and replacing the wheel set, but I now do not think it is necessary.

C5. If you wish, I have included the main drive sprocket wheel and bosses if you want to include them. Open out the holes and fit them to the axles. Make sure you line them up the correct way, as they are not in the centre. (refer SRA drawing. They are on the other side of centre to the engine and driver's seat). The large hole in the top of the inside frame is for the bottom of the brake stand, so use this as a reference point. Similarly fit the large wheel (Part K) for the axle driven air pump. (refer to the positions on the SRA drawing). I would suggest to make the wheels a sliding fit and finally Super Glue them in the correct position near the end of finishing the model.

THE END CASTINGS.

This is an easy bit.

E1. Remove the ends (Marked END) from the fret, score the fold lines and fold up. You will see what it looks like from the photo in the 'Compendium'. I assume that you have a mini-vice, or similar, so start by doing the little folds on the top, and ends, first. The oval recess for the builders plate indicates the outside face.

E2. Then fold over the top, not quite a full 90 deg.. Then fold around the ends, with pliers, which should be a tight fit under the top folded over section.

E3. Fold out the end bottom edges with pliers, then you can put the front edge in the vice and fold out. There you have it! a cast end.

E4. Do a couple of tack solder joints to hold it together.

E5. Now you will have to make a little adjustment. I took some "Modeller's Licence" here. The prototype did not have a floor in it at the ends, but I put a floor in this model to provide metal for tapping (which will come later) for the small screws that will be fixing the wheel chassis to the main floor. The brake stand end is OK, but I forgot a recess in the radiator end, so that the lug on the bottom support for the radiator, can attach to the main floor. So, before you fix Part D to the bottom of the end casting (at the radiator end of the model) you will have to cut out a small recess as per Diag. 2.

E6. Take the bottoms of the cast ends (Part D) and solder to the bottom of the folded up cast ends, the larger radius curved corners to the outside. You will find that when you folded out the bottom of the cast ends, that the bottom corners are missing, owing to the folding process. Do not worry, as when you are soldering on the bottom (solder from the inside), cut some little pieces, from between the used parts in the fret, and solder in for the missing corners. Make them a bit oversize, as they can then be filed back when cleaning up. Try not to solder the bottom (Part D) on the outside face, as this will simulate the packing piece under the cast end as per the prototype. The diagram will probably explain what is to be done, a little better than this. (Diag. 3).

E7. Do NOT fix in the Builder's plate yet, - this is done after you paint the model.

BODY.

Now we start to build up the model. The way the 'Main Chassis' (Part A) is in the fret is the way it goes, - Hole for the brake stand on the centre line, left of the word "Engine". and the slots for the radiator (which indicates the "radiator end"), on the right hand end.

B1. Remove "Main Chassis" (Part A) from the fret and file off the tags. Score the fold lines and turn down the sides and ends. Do the sides first in the vice, then the ends can be done by hand by just pressing down on your work bench. Final adjustments can be made with pliers. Do not solder the corners just yet. You will also note that by placing this piece over the wheel frame chassis and lining up the hole for the brake stand, that this is the reference point for the way it will go together.

B2. Carefully remove the side frame overlays (Parts M & N) from the fret. You will note that they are NOT the same, so be careful when fixing them. Part M has the crank handle hole in the centre, whilst Part N has two plates for the steps. Punch the rivets, marked on the back side, for the step plates. Solder the overlays on, carefully, by tacking one end, through the large holes provided in the main frame turn downs and around the horn guides etc. (Diag.4). Be careful not to fill the holes and slots with solder, - I didn't solder the top edge as it seemed strong enough and saves cleaning off solder from unwanted areas.

B3. Take three (3) of the small steps (Part SS), clean off the tags, clean up, fit in the slots provided and solder from the back.

B4. If you have any dabs of solder on the ends on the main floor, clean off and file flat as we will now fit the channel buffer beams. Take the channel buffer beams (Part E) from the fret, score the fold lines and fold up to form a channel. Turn the model upside down on a flat surface and solder the channel beams to the ends, lining up the buffer holes and coupling hook slot. This time you can put a little solder on the top, as it will be covered up by the cast ends that you soldered up earlier. You can fit the real timber buffer backing pieces later. The legs of the channel to the outside.

B5. The next bit could be a little tricky, ie. fixing the corner bracket at the junction of the buffer beam and side frame. It may be a bit awkward for solder, so this time I used Super Glue. Carefully remove four (4) corner brackets (Part F), clean up and fold, with the rivets on the inside of the angle, on the slotted line to form a right angle, and fix in at each corner. These brackets show up in the photos on page 300 of the 'Compendium'. You will have to file off the end rivets on the side frames to make these brackets sit down properly.

I suggest that you trim these pieces down, top, bottom and sides, then bend, fit and glue. There are spares if you do not get it right first time. I used Super Glue Gel sparingly and it has been OK. Clean off straight away if any oozes out.

B6. Go back to the cast ends that you have soldered up previously and get the one with the full bottom in it, ie. the one at the brake stand end (left end). Those little marked dimples you see will hopefully line up with those in the main floor, to make the drilling easier for the tapped threads to fix the wheel chassis, later. Fit the cast end to the main floor, the front of the bottom projection to line up with the outside legs of the channel buffer beam, and centrally, side to side. Make sure it is plumb and square, file the bottom to make sure, and when OK, solder to the floor. Solder at the back and a few little tacks at the front, but do not fill the whole joint if you wish to show the "layers" of packing as per the prototype. Then fix the other cast end.

B7. Now would be a good time to fit the petrol tank, before the other end goes (Radiator end with check out at the bottom) in. Take Part PT from the fret, clean up the edges, fold up and solder the bottom join on the inside. You will note that the tank has the metal straps around both sides and the top, and the filling cap goes towards the "Engine" side. I tried to solder in the tank ends, (Part PTE) but had some problems, so I decided to Super Glue Gel them in instead.

The tank ends are a little narrow, but that doesn't matter. Get a piece of balsa or whatever, and fix inside to a reasonable fit, so that when the ends are in, there is a slight recess in the ends. You will know, as I'm sure you will have seen similar tanks. Fit in the ends, put a dab of Super Glue Gel on the end of the balsa or whatever and push the brass end in. Wipe off excess glue and fill in the gaps around the edges. Put to one side.

B8. Take out the petrol tank stand (Part PTS) from the fret, fold up, solder the folds and clean up. You will notice that one set of legs is shorter than the other, that is so it will fix on top of the end casting bottom and the main floor. File the bottom of the legs carefully so that the stand sits correctly without any wobble. I put a touch of Super Glue Gel on the face of the shorter legs and fixed it in against the inside of the end casting, and then soldered the longer legs onto the main floor. Fix in the centre, ie. equal spacing both sides.

B9. You could fix the petrol tank to the stand now if you wish, but I would suggest to fix it after the painting has been done. If fixed now, it could be awkward to paint the model, so I left it off and fixed it with a little dab of silicone after I had painted the model.

FITTING OUT.

Begin with the Radiator.

F1. Remove 'RAD BOTTOM' from the fret, clean up, fold the ends down and make a trial fit to the floor. **DO NOT** solder in yet.

F2. Next, remove 'RADIATOR' and 'FAN BRACKET' from the fret. Turn the radiator over, ie. fold lines side up, and solder the 'FAN BRACKET' to the inside, behind the circle, making sure that the marked dot is in the centre of the circle.

F3. If you wish to have a fan that revolves, (I suggest you do, as it helps in painting) now would be the time to open out the hole in the fan, and the fan bracket, to suit the size of the pin you are going to use.

F4. Score the fold lines and before folding up, Super Glue a little block of styrene on the back of the radiator proper, opposite the hole where the fan bracket will be when folded up. Also glue a small piece of styrene, approx. 0.015" thick on the back of the fan itself. (Diag. 5).

F5. Solder the joint in the radiator. (The soldered radiator joint end goes towards the end casting piece). Then centre up the radiator on top of the RAD BOTTOM piece, and solder. Take the radiator top (RAD TOP) and solder to the top. Refer to **RADIATOR ASSEMBLY** Diagram. When soldering the top and bottom, solder from the fan side, do not solder from the front side in case you overrun solder onto the radiator grille.

F6. Drill through the fan bracket hole and through the styrene you glued in beforehand, and also through the styrene glued to the back of the fan. You can now also put a little twist on the fan blades. Cut and fit the pin to length. Open out the hole in the fan so that it turns quite freely on the pin. Apply some Super Glue Gel to the hole in the styrene glued in behind the fan bracket, then fix the fan and pin, making sure to keep turning the fan to prevent it from sticking.

F7. Shape up a piece of timber, say using a match, around 0.070" wide x 0.060" high x the length of the radiator core. Get a piece of wire around 0.040" (1.0mm) dia. and drill a hole in the timber to suit, approx. 7" (scale inches) from one end. Glue the timber to the top of the radiator, with the hole on the right hand end, looking at the fan. Cut a small piece of your wire, so that when glued into the hole, it projects about 0.035" (3 scale inches). Glue in the wire and clean up, and there you have the filler cap.

F8. Next, shape up a similar piece of timber, approx. 0.070" x 0.035" thick and glue to the bottom of the radiator.

F9. Before fixing the radiator to the floor, it may be wise to drill small holes, say 0.030" in the fan side of the top and bottom timber tanks, to locate the water pipes later, if you wish to fix them. Refer to the photocopied photos for the locations.

F10. Now fit the radiator into the floor and solder. I found that I could only solder the end near the engine cover, because of the thickness of the built up brass at the other end, so I used some ordinary Super Glue. When you solder at the "Engine" end, be careful not to fill the slots for the air brake stand and clutch pedal, to be fixed later.

Now we tackle the Air Reservoir.

I thought that I may have been able to use a standard spare part from 'Footplate Models', but found it too small. The S.R.A. drawing clearly shows the dimensions, so we have to make one, so, here goes:-

AR1. I would suggest to shape up a 12mm long piece of timber, about 6mm x 4.5mm and round off the top and bottom to the correct shape as per the drawing.

AR2. Square off one end, file and sandpaper, cut to length, about scale 1' 10.5" long (about 6.5mm) and again square off.

AR3. Now we will make a wrapper to give the recessed ends of the reservoir. Take a piece of 0.010" styrene and cut approx. 20mm x 8mm wide. A piece of card may do just as well. Square off one end and roughly bend to shape around a small screwdriver, file end or whatever.

AR4. Glue to the timber reservoir, starting half way on one "long" side of the reservoir with the timber in the centre of the wrapper with the overhang equal on both sides. Slowly work your way around, if using styrene, use Super Glue Gel, until you get to where you started, where you can then cut the wrapper to length, and glue to finish it off. When set, file or clean down both ends evenly until the tank is scale 2' 2.75" long (about 7.8mm). You should now end up with a tank 2' 2.75" long x 1' 11" high x 1' 6.5" thick.

Cut a piece of 0.025" styrene, 6mm long x 3mm wide and glue over the join on the back. This will strengthen the join and act as a spacer and gluing spot to attach it later.

AR5. Near the top of the fret you will find some '3" strips'. Take two of these, clean up and bend to suit, for the reservoir fixing straps, ending at the top and bottom of the spacing piece you have just glued on. When shaped, glue them to the reservoir at 1' 3" centres, as per the S.R.A. drawing, and put away to cure.

AR6. Now would be a good time to drill and tap the body for the screws to fix the wheel chassis to the main body. I'm using 14BA, but if you have metric screws, around 0.9mm is similar, or even 1.0mm. When you turn the body over, you will find two dots at each end. These should correspond with the two holes at both ends of the wheel chassis. Drill through these dots and tap, to suit the screws you are using, do it now as it may be awkward later with the reservoir in place. Do a trial fit with the screws, cut the screws to length etc., dismantle, and put the screws away in a safe place. You will note that the dots also appear on the bottom of the end castings, so if all has lined up, it should be an easy job to drill through. (0.75mm or 0.0295" for 14BA).

AR7. Before you glue the reservoir to the end, decide which end you are going to fix the air pipes. They are clearly marked on the S.R.A. drawing. 1" pipe scales about 0.015" (0.38mm) Drill the holes in the end of the reservoir, and you will also find two holes marked in the brass main floor, below where the reservoir is going to go. Clear these holes with the drill whilst you are at it. Fit the air pipes as per the drawing, the bottom one first, then the top one with the bend. Just let the bottom end poke through to the underside of the floor, where you can fix it with Super Glue, a little also where the pipes go into the reservoir will help.

The Engine Cover and Seat.

Before we fix the engine cover, it may be an idea to fix the bottom pipe to the radiator, as it may be awkward later. This is a bit of a "Grey" area, so here goes :-

EC1. Cut a small piece of about 0.025" styrene, say about 1mm wide x 2mm long, as a bearer for the pipe, and glue to the floor about 18" (5.5mm) in from the edge of the floor, in line with the centre of the fan / radiator. (Diag. 6).

Cut a longer temporary bearer to hold the other end of the pipe, but, DO NOT glue it to the floor. This is to hold the end of the pipe against the bottom tank of the radiator whilst the glue sets.

EC2. Cut a piece of about 0.025" wire, about scale 2' 3" long and turn down one end, turn down the thickness of your glued on bearer. Glue into place, a drop at the bottom of the radiator, the permanent bearer and to the floor.

EC3. Take the seat (Part S) and the Engine cover (Part EC) from the fret.

The seat is a simple folding job, the side bearers fold down and the back folds up. There you have it, a seat! The back slopes out slightly.

The Engine cover is not quite the same, the fold down is really a curved fold to suit the turned down end, so good luck. The folded down end goes to the centre of the floor, the open end to the outside. The little etched rectangle is a brass plate, (On the prototype, information about the motor), so after you have painted the model, you can scrape off the paint. I've also taken a little 'Modeller's Licence' here, the Byron Bay locomotive has an opening in the Engine cover on the fan side, but I've decided to have it all enclosed to simplify things.

EC4. After you've folded up the Engine cover, solder the inside of the turned down end. then place the seat on top, facing to the centre of the model and solder the tabs from underneath.

Also solder the bottom of the fold of the seat backrest. Do a trial fit to make sure the Engine cover fits and sits properly on the floor. You will notice a little dot on the right hand side of the cover near the front of the seat. Open this out to approx. 0.015", a little gear lever goes in here later.

EC5. Now I'll have to ask you to drill a hole. With the engine cover in place, on the side adjacent to where the bottom radiator pipe is glued to the floor, mark a hole, 6" (scale) up from the floor, and drill a 0.025" hole for the top radiator pipe. You'll get an idea from the photo-copied photos attached and Diag. 7.

EC6. When everything is OK, place the Engine cover, with seat, in it's slots and solder to the floor. I found I could do this by holding it down with a small piece of timber on the seat and poking the soldering iron in through the outer open end. I'm trying not to solder on the outside of anything wherever possible.

EC7. Now take the Outer Engine cover (Parts U and V) from the fret. Fold up part V to the profile of the top edge and sloping sides of part U, so that it sits at the back of part U, flush with the top and with the little lugs to the rear. Solder it carefully when satisfied. It should fit, but I found that I had to file a little off the top and rounded edges of the main Engine cover, and a little bit from the underside of the top of the Outer Engine cover to make it fit properly.

EC8. I then decided it may be best to fix the top radiator pipe before soldering or gluing on the Outer Engine cover. This can be tricky, owing to it's size. Refer to the sketch, but you will have to check your own measurements. (Diag. 7). If you are in doubt as to the pipe's stability, you could put a block under it. - who knows ? Then fix on the Engine cover, glue or solder, whatever you prefer, but do not solder the bottom yet, - you may fill up the handrail holes, so I think it may be better to solder the handrails and the lugs/tags later, at the same time.

Now may be a good time to attempt the springs and axle boxes etc., instead of the handrails, in case we bump and bend the rails.

S1. Carefully remove the springs, and separate Part H from Part J. Please note that Part H is "H" shaped. Now, this is going to be tricky. I reckon do not clean off the tags just yet. First straighten up any bends that may have occurred when you cut the pieces from the fret.

S2. Take Part H (ie. the "H" shaped piece) and fold it back on itself, the fold line on the outside, with the marked spring leaves to the outside, and at the same time, slip Part J between the folded up pieces. When OK, apply a touch of solder, and there you have a spring, scale 3" thick. Then you can clean up the ends, back to the little diamond shaped shackles on the ends of the inner side of the spring, (The grooved side showing the spring leaves goes to the outside), and file off the rounded folded piece from the bottom in the centre of the spring. (Refer Diag. 8).

S3. I had a little difficulty fixing the springs to the rear of the horn guides, so I glued them on at the ends with a little Super Glue Gel, then, when set, soldered sparingly to the rear of the horn guides. I have a little spring loaded "heat sink" which I purchased from Dick Smith's many years ago, and found it helpful, by it's holding one side while I soldered the other. Maybe I should have used it first off, so I could solder the ends at the shackle.

I'll try that on my next "Simplex". After soldering, file off any excess solder under the spring and horn guides and leave ready to receive the axle boxes.

S4. Now we come to the axle boxes themselves. (I'm glad I provided a spare, because "Ping", I lost one !). Remove four Parts AB1 & AB2. Fold up the AB2's as per the sketch, insert AB1 into the top, and solder sparingly at the rear. You will need small long nose pliers for this job. (Diag. 9).

S5. Clean up the axle boxes, make sure they fit up under the spring and are not quite flush with the bottom of the horn guides. When OK, solder to the back of the horn guides, again using the spring loaded heat sink, one at a time. File and clean up any visible solder from the outside face of the horn guides.

S6. Remove Part AB3, clean off the tags, file, clean the back, file clean the face of the axle boxes you have just soldered, apply a little 'Super Glue Gel' and glue the front of the axle box onto the main axle box already soldered in.

Now we'll fix, for want of a better name, the axle box tensioners.

S7. Remove four off Part O from the fret, in pairs, and at least clean up the tags. Fold the top over, do not bend it right round because after it has been soldered, we have to fix a piece of 0.018" wire at the bottom. It is awkward to solder, but solder it the best way you can and clean up afterwards. (Diag. 10/A).

S8. This is where you need the 1/32" or 1mm dia. tube and 0.010" wire. Cut the tube to scale 5" (0.058" or 1.47mm) and clean up. Make sure your wire passes through the hole in the tube, and cut the wire to a min. of 2'6", ie. 0.345" or 8.8mm., place the small piece of tube onto the wire and tack solder 1'3" (0.172" or 4.4mm) from one end. (Diag. 10/B).

S9. You will now have to fit these pieces in, as per the photos and Diag. 10/C. Squeeze the bottom of the brackets so that they will hold the wire in place, then gingerly solder. -You can also put a small spot of solder on the end of the wire where it goes through the horn guide. When done, cut off the surplus wire so that it projects 6" beyond the tube. Be careful of the Driver's seat in case you bend it back (Like I did).

Before we fix the brake rigging, it may be an idea to fix the engine cover hinges and side handrails.

ECH1. Remove two off Part L from the fret, - they are very tiny and between Parts A and M. Before you fold down the end with the fold line, poke the other end into the holes in the main side, just under the end of the engine cover. You may have to open out the holes slightly. Alternatively, it may be better to cut a scrap piece from the fret, to a point, and poke it into the hole to clear it for Part L.

ECH2. When you have it right, carefully bend down the end of Part L, and insert the other end into the hole with the folded down part facing downwards. (Diag. 11). Before soldering or gluing from underneath, place a piece of 0.008" wire under the down turned pieces, as the hinge.

When OK, solder or glue the legs under the floor. You may also have to apply a touch of solder to the down turns on the front side to hold the wire in place.

I chickened out for 'Super Glue Gel' on the inside, so that the heat of soldering would not undo anything, and a touch of ordinary 'Super Glue' to fix the wire hinge into place on the outside. Clean off excess bits of glue later, after it has set.

Now for the handrails and other small bits and pieces.

SH1. Start with the handrail behind the Driver's seat. I suggest you use a hard 0.018" wire (around 1 1/2", - 45mm dia). Open out the holes provided in the edge of the main floor, to suit the wire you are going to use. Bend up as per the drawing and fix in the holes. (Diag. 12). Turn the model upside down, place a piece of cardboard under the cast ends, but hold down the wire to your working surface, and solder. (Or glue. But if soldering, turn up the iron a bit as you are soldering to a lot of metal to heat up. I found that it did not affect any of the 'Super Glue'd parts.

SH2. I think, that before soldering in the handrail to the other side, it may be advisable to finish off the other internal bits and pieces whilst there is still room. It is getting tight isn't it ?

SH3. Take the clutch pedal, Part T, and the brake stand Part BS, from the fret. Clean up the clutch pedal, fold the foot pedal around, and the top up at 45 deg., not the full 90 deg., and solder the folds. You will notice from the SRA drawing, that I should have put a slight bend in the air brake stand, but it will bend over to shape. You will notice two slots in the floor at the end of the radiator (I hope that you haven't filled them in !), near the end of the inside end of the engine cover. One is for the air brake stand and the other for the clutch (Diag. 13). I glued these pieces in rather than soldering, in case I melted the joins in the radiator. Note that the clutch goes in at about 45 deg.

SH4. Next I put in the hand brake column. Turn up the column (Or have someone do it for you) as per the drawing (Diag. 14). I soldered this in from the top, as I had no way of holding it plumb if I had soldered it from underneath, so I had a lot of cleaning up to do. It may have been best to glue it.

SH5. Next I soldered in two little gear levers, out of 0.0135/0.014" wire that I had. You will note a small hole (Which needs to be open out) in the side of the engine cover opposite the hand brake column, for the first one. Bend a piece of wire at right angles, stick it in the hole, or if filled, solder it to the side. Snip it off level with the top of the engine cover.

SH6. The other lever goes in the hole in the floor (Which may also have to be opened out), about 2mm away from the engine cover near the hand brake column. The top of this lever is in approx. line of the top of the Driver's seat. After cleaning up, apply a small dab of 'Super Glue Gel' to the top of both pieces of wire, to simulate the little knobs on top.

SH7. Take the main gear lever, Part W, and the quadrant Part X, from the fret, clean up and solder 'W' to the face of 'X', leaving the little tag on the bottom of 'X' to fit in the remaining floor slot, in front of and between the engine cover and the outside edge of the floor. Clean up, round off the lever a bit, then glue it into the floor.

SH8. Take the brake wheel from the fret, clean up and open the holes out to about 0.015", or whatever size wire you have. Turn the wheel over and solder in the main spindle wire. Then holding the wheel in the heat sink clamp, solder in the hand grip rod to the outside hole. Snip off and clean up the hand grip rod to about 4" long (0.046" or 1.15mm), and snip and adjust the main spindle rod so that the hand wheel sits about 2 or 3" (Up to 0.035" or 0.88mm) above the column. When OK, apply a small drop of ordinary 'Super Glue' to the top of the column and fix in the hand wheel.

Have a clean up before you fix the other side handrail, as it may / will be awkward to do it later.

SH9. Make up and fit the other side handrail, as before in SH1.

Next I thought I would try the roof canopy. I was thinking of making it a fixture, but I thought it would be better to have it as a separate piece to aid painting, so, here is how I went about it. Also, the angle framing is shown as 2" x 2" angle, but unfortunately, the 1/32" brass angle scales at just under 3", but it will have to do. You may file it down if you wish.

R1. Remove the ROOF from the fret, clean off the tags, mark the centre and slightly bend it over a 1/4" (6mm) drill, or whatever, to get the slop on both sides, with a "rounded" bend". Somehow a dot appeared on the roof piece in the etching process, - make the "dot" side the underside, say on the petrol tank end.

R2. Scribe a line, say 4 1/2" (0.052" or 1.30mm) on the underside, in from the edges down both sides. Cut two pieces of angle, say 11'0" (approx. 40 mm), file a few "nicks" in one leg of the angle in the centre, and bend to match the shape of the underside of the roof. You may have to have a few goes at it as the angle does not like bending. Solder the angles to the roof, with the "down" leg on the scribed line and the side leg facing inwards. trim the angles to length and round off the ends as per the SRA drawing. (Diag. 15).

R3. Make up the four legs (Two left hand, two right hand), from the brass angle. File a "nick" with a three cornered file about 12" (0.138" or 3.5mm) from one end, bend around to suit the sloping angle of the top of the cast end, ie. not 90 deg. Cut off at about 3'3" (0.450" or 11.0mm). When OK, slightly solder the folded corner.

R4. Trim the bottom leg to 9 1/2" (0.106" or 2.70mm) long, and the vertical leg to 3'0" (0.413" or 10.5mm) with the top sloped to suit the roof slope.

R5. As I wanted a removable roof, I decided that I would fix little wire pins to the bottom of the legs and fit them into small holes drilled into the top of the end castings. So, if you wish to do the same, then, drill small holes say 0.0135" (No. 80 drill or 0.35mm) or next size of wire larger, to take the small wire pins as noted on the drawing. It is very easy to break these small drills, especially on a Sunday afternoon. I ended up making a small hole on the underside of the bottom of the leg, with a small dental burr in the DREMEL, then finishing the hole with a No. 80 drill, by hand. I drilled these holes now, before I soldered the legs to the roof.

R6. The problem arose as how to fix the legs to the roof so that they would be plumb. I came up with the idea of a simple jig. (Diag. 16). Make the width of the jig to suit the overall dimension of the turned down legs of the roof angles. Cut out a little "nick" in the timber at the ends, so that the roof and angles sit in comfortably. Glue on a piece of 1/32" plywood or cardboard with the ends absolutely square with the bottom, to the face of the timber block on one side and in the centre.

The length of this ply or cardboard piece to correspond with the overall face of the turnups on the top of the cast ends. (Should be around 7'6 1/2" as per the SRA drawing).

R7. Sit the roof in, lay the whole lot on it's side against a stop, or a heavier piece of timber, to stop it from sliding around on the bench, and pack it up level. (I found the metal weight from a Lima carriage, just right). Make sure that everything is centred up, place a leg against the former glued on the side of the block, and solder to the top, - not too much or you will spoil it. Do the other end, take the roof out and turn it around and solder the legs on to the other side. Check that this assembly sits evenly on top of the cast ends. you may have to file the bottoms, or twist the roof slightly to get it right.

R8. Take four of the roof gussets, Part RG, from the fret and clean up. I put these on the outside because they are easier to fix that way. Clean out any solder between the leg and the roof angle, fit the gusset and fix in with a little 'Super Glue Gel', that you can then follow up with ordinary 'Super Glue'. Clean off any excess glue when cured, and any excess solder from the ends of the angles.

R9. The end bracing to the canopy is shown on the SRA drawing as 1 1/2" x 3/8". I thought that this would be very fragile in HO, and made it 2.5" in the fret. It doesn't seem to spoil the model. So, take out four of the 2.5" strips from the fret and clean up. File these down in thickness and width if you wish. mark the four legs, say 12" up from the underside of the bottom, fit the top of the brace into the roof angle. Fix with a spot of 'Super Glue Gel', then line up the mark towards the bottom of the leg on the opposite side and touch solder. Do the same to the opposite side, and touch solder where the braces cross. Do the same to the other end, snip off the overhanging ends and clean up.

R10. The drawing shows the pressure gauge just above the air reservoir, but the photo shows it on the opposite side up near the roof between the bracing, so I put it there. Make up a small bracket from about no thicker than 0.005" brass (I have some 0.0025" shim, so I used that). Then I cut a piece of aluminium tube that I had, 3/32", (about 8 scale inches), about scale 2" long (say 0.025" or 0.75mm), and glued it to the bracket.

R11. When everything is OK, place the roof on the ends and set out the fixing holes on the cast ends to correspond with the holes in the bottom of the canopy legs. Now you can note which end is which by that small "dot" on the underside of the roof, so that it always goes back the same way. Drill the holes in the top of the cast ends, as before. When OK, solder into the legs, some fine wire to suit your holes. Say 0.013", or whatever, and snip off to about 1mm long. If everything has gone well, the canopy structure should clip into the ends. Mine did, but if not, bend and adjust the pins, open out the holes etc.

Before we leave this area, we had better fix in the air brake valve. The drawing states "Driver's Brake Valve No.6". I have no idea, nor I could I find out what one looked like, but my good friend Ron Preston helped me out with details of a No. 4 Valve. Anyhow, being that small, I do not think it will matter much if it isn't quite right, so I made up my own simple version.

AB1. Take a piece of tube that you used for the axle box tensioners, cut to 6" long (0.069" or 1.75mm). Cut a piece of say 0.015" wire (0.38mm), about 6'0" (scale) long. Feed through the tube, leave about 12" through on one end and solder. Bend the top over to the shape of a brake handle and snip off any surplus over 6 1/2" (0.075 or 1.9mm) from the centre line. (Diag. 17).

AB2. Bend the bottom to shape as per the SRA diagram. Open out the hole in the floor, alongside the engine cover (On the radiator side), to suit your wire. When OK, feed the bottom leg through the floor, sit the brake valve on the top, or to the side, of the brake stand, and glue in with a drop of 'Super Glue'. I tried to solder the wire (Through the hole in the floor), but everything started to get too hot and I didn't want anything coming undone at this stage, so I glued it in.

AB3. Snip off under the floor and clean up. This part is now finished, so we get onto the brake gear.

I didn't realise just how tiny this model was going to be whilst drawing the artwork at about four times the size. At this stage, I decided to fix in the wheel chassis, just in case I cannot get it out again, once the brake gear has been fixed. So, various pieces are to be painted in case they cannot be reached later. I etch primed and painted semi gloss black, the sides and under ends of the wheel chassis and down both sides of the main floor and turned down side frames and the rear of the buffer beam channel.

Whilst that was drying, I cut the fixing screws to length, about 1.5mm. Then when the paint is dry, screw the wheel chassis to the main floor.

Brakes.

BB1. Carefully remove the Brake shoes and legs, Part P, and the brake block overlays, Part Q. Clean the tags from the overlays and solder to Part P in PAIRS, ie. two right hand and two left hand. Clean the tag at the top of the legs, making sure that the slight angle remains. It is NOT 90 deg.

BB2. Drill through the overlay and brake block, where marked, to provide a hole for about 0.015" (0.38mm) wire, or close to whatever wire you are using, for a nice easy sliding fit.

BB3. When OK, tip the model upside down, and using a cardboard spacer of approx. 0.015" (0.38mm), or whatever you wish to use to space the block away from the wheels. Carefully line up the brakes and solder the top of the leg to the underside of the buffer beam channel.

BB4. Carefully remove the brake beams, Part R, from the fret, and clean up where the tags were on the ends. Now, this has to be folded back on itself, ie. the fold line on the outside. (Diag. 18). Squeeze together, using a scrap piece from the fret, as a spacer.

BB5. Take a piece of 0.015" (0.38mm) wire, or close to it, (to suit whatever holes you drilled in the brake blocks), insert about 6" (0.070" or 1.75mm) into the end of the folded over beam, and solder. Snip off at 9" (0.103" or 2.65mm). Do the other three ends.

BB6. This will make the brake beam unit approx. 5'6" overall. Check your model, overall the brakes should be around 5'4" / 5'5". The 5'6" allows a little bit of the wire to poke through on both sides. Clean up the brake beam, round off the end of the wire, thread it through the hole of one brake block, then back through the other. Turn it around so that the full gap in the beam is facing towards the outside ends, then glue or solder into position. Again I chickened out and glued it. You will note that there is not much more to go.

Buffer beam etc.

This can be real timber, as the prototype.

BF1. I had a piece of 12" x 2" Northeastern timber, so I used that, although it was not quite thick enough, but will fill the ends when I paint it. Fit the piece of timber in the end buffer channel, leave slightly long and trim off afterwards. Glue in with 'Super Glue Gel'.

BF2. Find the centre of the buffer beam and drill a 1mm dia. hole, where the drill should find and line up with square hole in the buffer beam channel. Then open out with a 2mm dia. drill through the timber only.

BF3. Carefully remove the "Draw Hooks" from the fret and fold them over on themselves, ie. with the fold line on the outside. This will make the hooks 2" thick. With the hooks, run a test of the hole just drilled in the buffer beam, to get a nice sliding fit with the hook. Adjust the round hole and the rectangular hole at the back if it doesn't. It should be OK.

BF4. Carefully remove two "Draw Hook Plates" from the fret and clean off the tags and roughen up the back. When OK. glue to the buffer beam, lining up the rectangular holes with the one at the back. Just a touch of 'Super Glue Gel' in two opposite corners to position it, then follow up with ordinary 'Super Glue' around the outside.

BF5. You may wish to use the cast hook and screw couplings available from "Casula Hobbies" or "Stephen Johnson Models", or continue on and use the ones in the fret, but you will have to get commercially available links and/or chain.

If you use the commercial couplers, you will have to go your own way to fit them in.

If using the ones in the fret, carry on. Take a piece of 0.019" wire (0.50mm) and solder into the slot in the end of the draw hook and around the hook itself. (Diag. 19).

Cut the wire off at around 3'6" from the rear end of the hook. Clean up and shape the hook. Depending on the coupler, if using links or screw coupling, now is a good time to fit them to the hook. Fit the hook and rod to the model, making sure it slides smoothly, take it out then fit your selected coupling, or links to the hole in the hook. Also make sure that the hook itself has clearance to receive the couplings from the wagons.

BF6. I forgot to etch a washer for retaining the spring for the draw hook rod, but it is easy enough to make two. I used a piece of fret between Parts "O" and "R", drilled and open out a hole to slide over the rod on the end of the hook. You will need a little spring, sometimes I use a 'Kadee' spring, slide over the rod, put the washer on the end, put a little compression on the spring and solder the washer to the rod. Then do the other end.

BF7. We can now fix the buffers. It appears these were a special type and I doubt whether any similar model buffer are available, so I used "Gibson" sprung buffers type M.R./P.O. Wagon Ref.4967. You will have to file off the top and bottom of the buffer body flange, to suit the buffer beam, and that will be very similar to the prototype. Drill 2mm dia. holes in the buffer beam, lining up with the holes provided in the buffer beam channel, and clear the hole to receive the buffer body. Assemble the buffer in the usual way and glue to the buffer beam. NOTE! Beware of the instructions. Although they are turned brass buffers, the instructions are for white metal buffers. I've had problems with Gibson's stuff before, but this is ridiculous. De-burr the holes in the turned buffer body and solder in the small rear brass bush, not glue.

BF8. If you wish to fit the air hose, shown in the photo, do so now. These are commercially available, "Calscale", "Kadee" and the like, - try you hobby shop. The SRA drawing shows the pipe ending on the bottom of the buffer beam, 7 1/2" from the centre of the loco. I did not wish to solder any more to the underside of the buffer beam, so I drilled a hole in the joint between the bottom of the timber buffer beam infill and the brass flange of the backing channel, and glued it in. I bent the hose around and fixed a little bit of 0.008" wire to tie it up. If you fit one, do not let it dangle.

Before we tackle the remainder of the underfloor stuff, it may be an idea to fix the long side steps.

The photo of the wreck shows (Gear level side) one long step approx. centrally between the two smaller steps, whilst the photo of the loco on it's wheel indicate the other side is diagonally opposite. The Byron Bay locomotive has steps in a similar location, but I think that may have been modified as the legs on the steps are shorter and their loco has been fitted with a running board on one side, fixed to the horn guides.

S1. Carefully remove two of the long steps from the fret and clean off the tags. Turn them over and punch the rivets, being careful of the ones at the top of the legs. Fold up the bottom of the step (Diag 20), solder the fold, and solder the steps to the main frame, below the side overlay. You may have to sweat solder the pieces first.

Now onto the final bit if you want to finish it off.

The only thing we have to go on is the "wreck" photo, and a couple of lines on the SRA drawing, of the engine, sump and gearbox which hangs down below the side frames.

E/G1. I would suggest to shape a small piece of timber to the back to back of the wheels, ie. about 15mm long x 7mm (2'0") wide x say 3.5mm (12") deep, and round off the corners on the underside as per the photo, leaving the engine sump square, but with rounded corners.

Fit to the chassis with a couple of saw cuts and adjust so that the flat part of the sump is no more than 12" below the side frame. When OK, glue with 'Super Glue Gel'.

Now the Air Pump.

This seems to be a bit of a mystery as it is shown on the SRA drawing (Although the dimensions are crossed out), but I cannot find any bits of it in the "wreck" photo, not even the axle pulley. Was it actually fitted?

AP1. Remove the top and bottom plates, Parts AP, from the fret and clean up. Take a piece of about 0.040" styrene and cut to the same length, but slightly narrower in width of the plates and glue them all together, like a sandwich.

AP2. Take the small pulley wheel, part of Part K, drill through for a pin. Drill a corresponding hole in one end of the air pump and with the pin, fix the pulley wheel.

AP3. Then glue the whole lot to the sump. - Follow the SRA drawing.

AD4. Line up the large air pump pulley on the main wheel axle and glue into place. You can now also line up the other gear wheels and glue into position.

AD5. Take the remaining 2.5" strips from the fret. Bend up as support bracket for the air pump and glue into position. Be careful of the inner one that it does not foul the coupling hook rod and spring.

AD6. You could also drill into the timber gearbox, on an angle, and fix in a piece of wire about 0.018", so that it rests on the axle gear wheel to simulate the chain. It can be seen when looking square on through the wheels, and solder a piece of around 0.012"/0.013" to the air pump pulley, resting on the axle pulley.

Muffler and Exhaust Pipe.

if you want to put it on, we have only the photo to go by, as the Byron Bay locomotive has a different set up. It's exhaust goes up behind the Driver's seat, through the roof and into a muffler sitting on the roof.

It looks like our model has the muffler running longitudinally, coming out under the "O" in LO 44, and then has a short tail pipe ending at the outside frame. Made it up from pieces of wire, tube or whatever, and glue it on.

Hope you like the model.

Eddie.

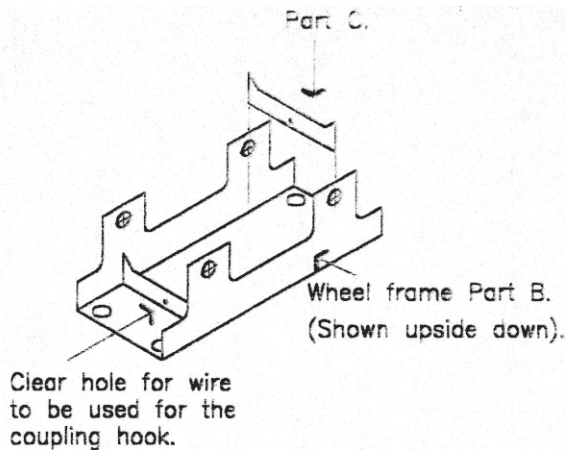
OOPS!

~~FORGET BUILDER'S PLATE. "BP." 17.~~

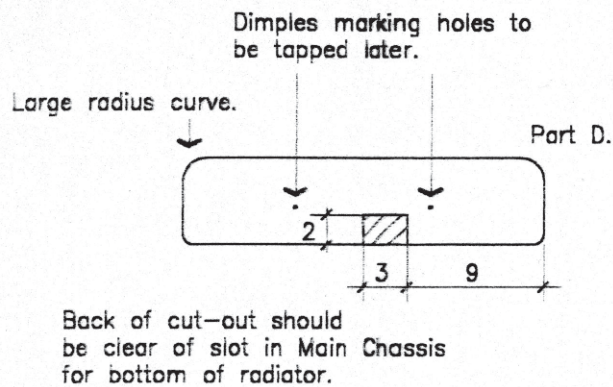
PAINT RED & SHAPE OFF WHEN DRY
LEAVING BRASS UNDERNEATH, AND GLUE
ON AFTER PAINTING MODEL.

I PAINTED MINE GREEN, BUT COLOUR IS
YOUR CHOICE.

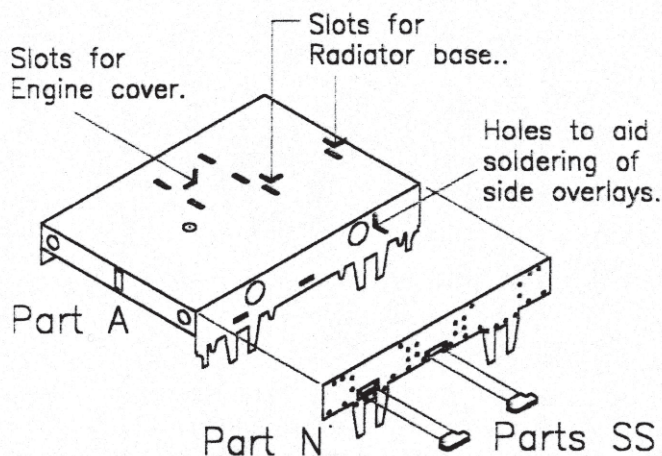
✱
O.



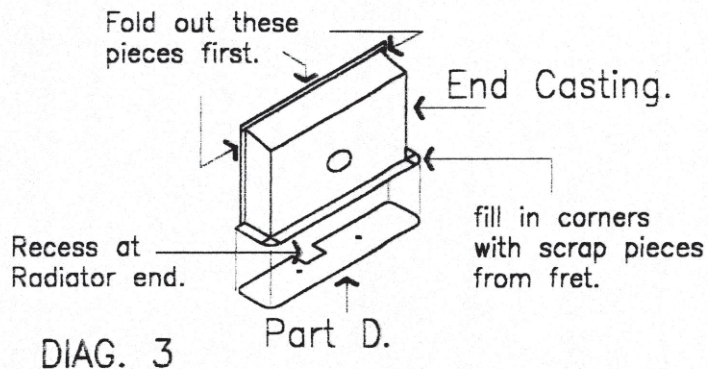
DIAG. 1



DIAG. 2

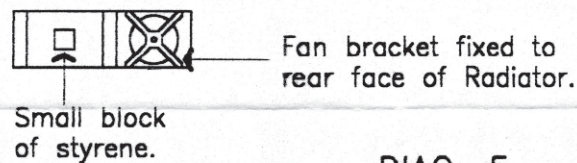


DIAG. 4

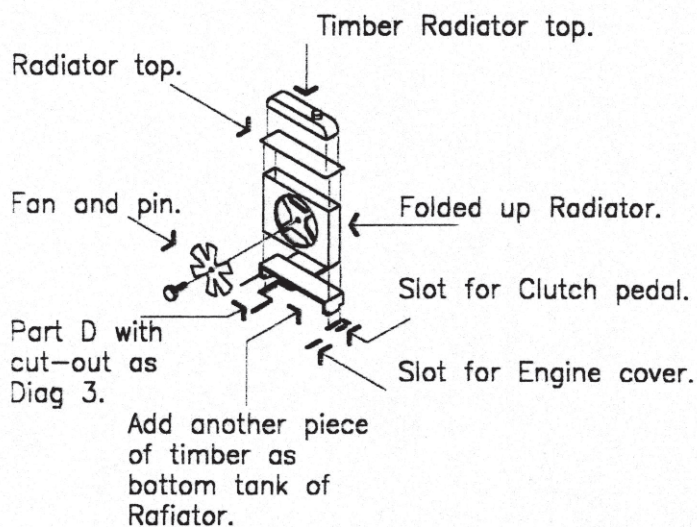


DIAG. 3

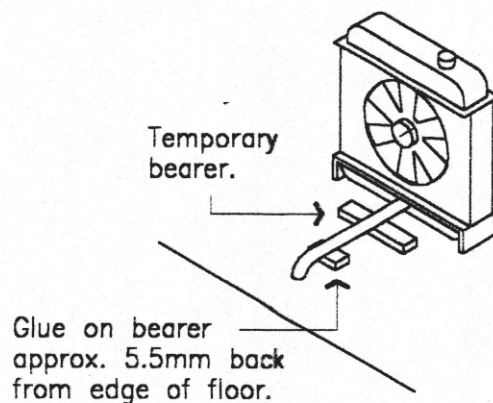
Rear side of
RADIATOR.



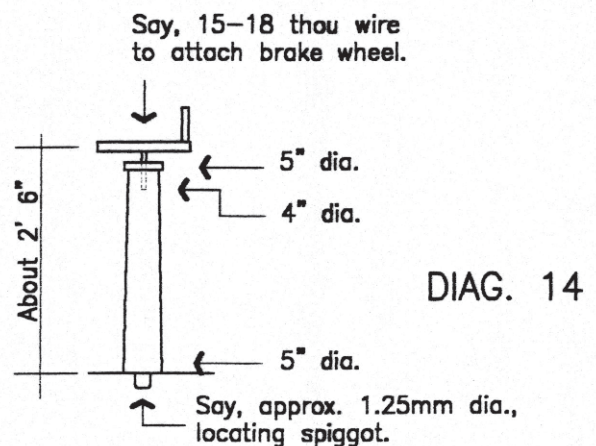
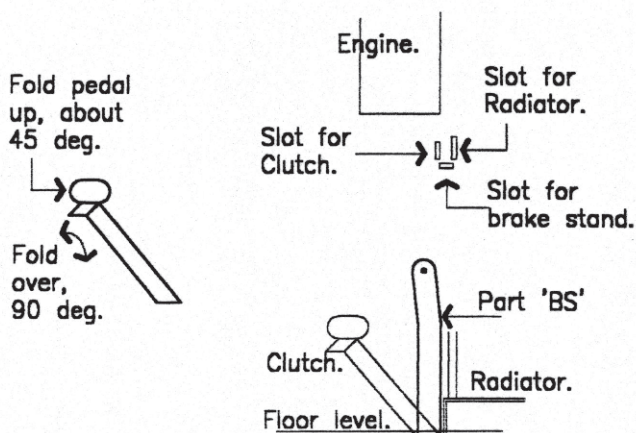
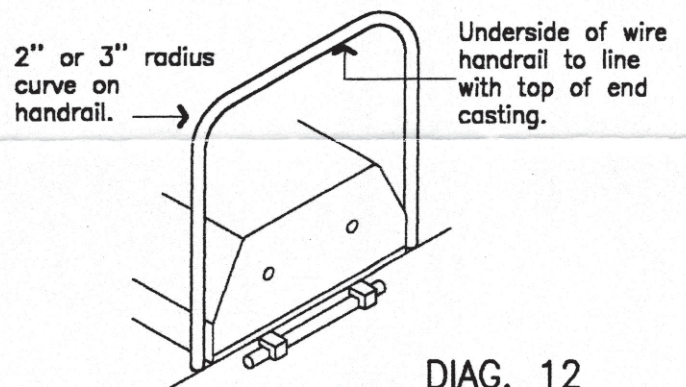
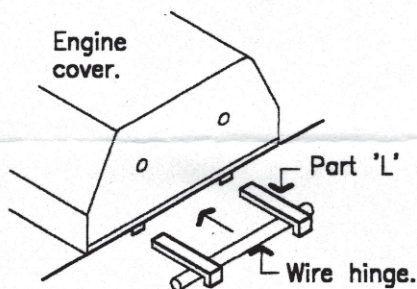
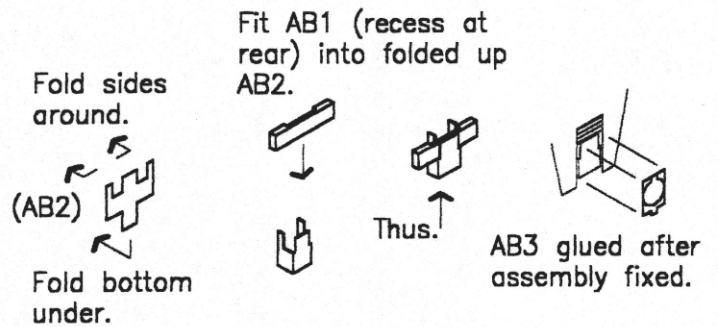
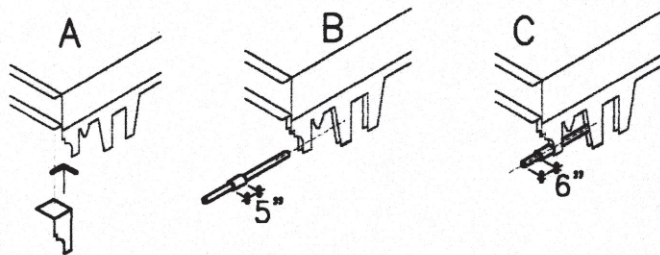
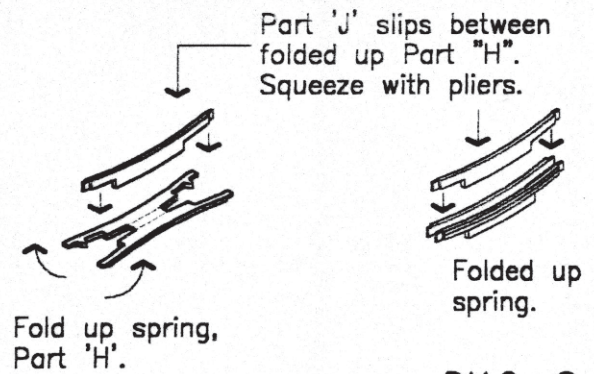
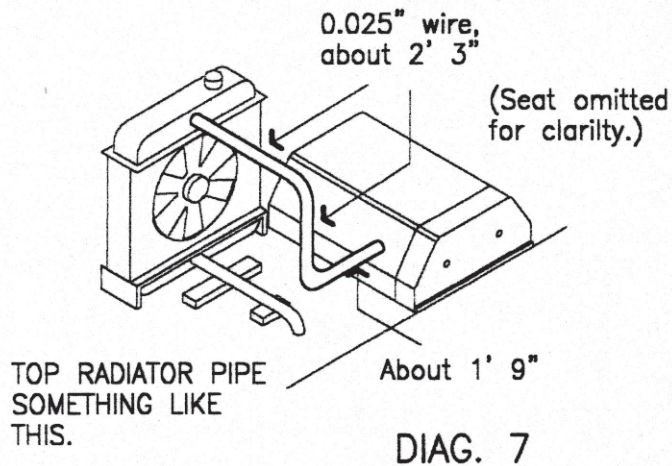
DIAG. 5

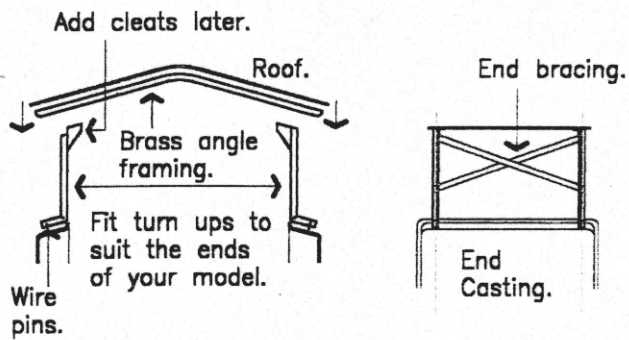


RADIATOR ASSEMBLY

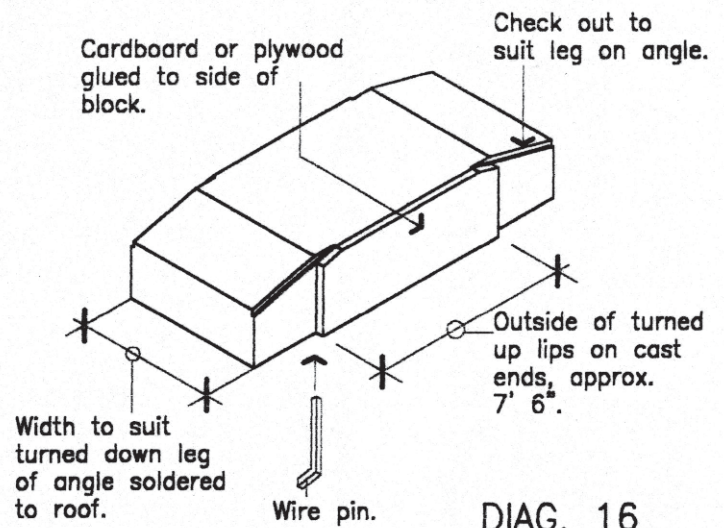


DIAG. 6

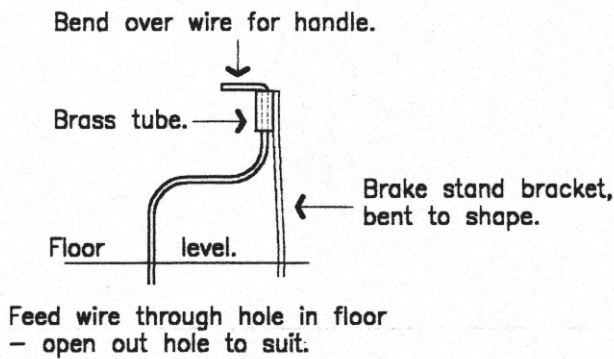




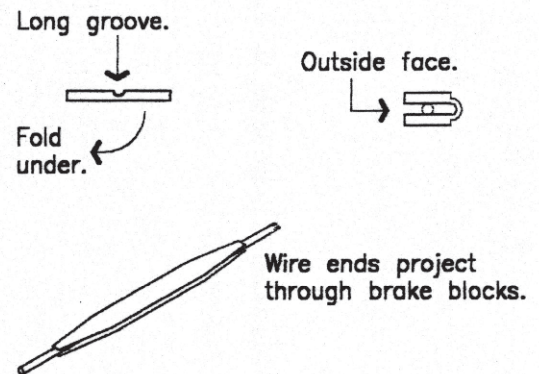
DIAG. 15



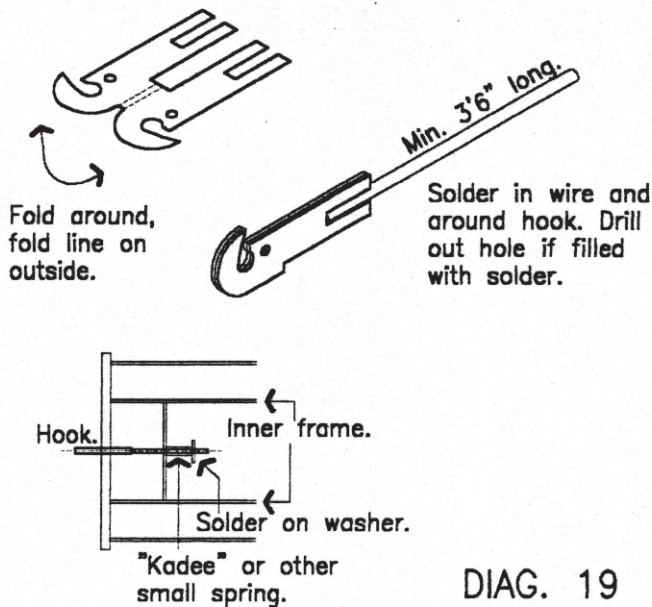
DIAG. 16



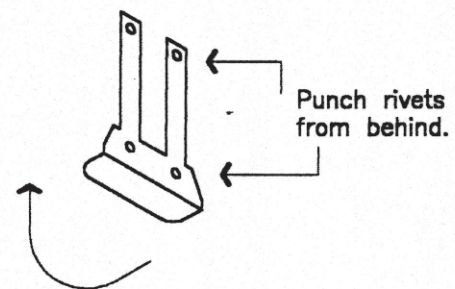
DIAG. 17



DIAG. 18



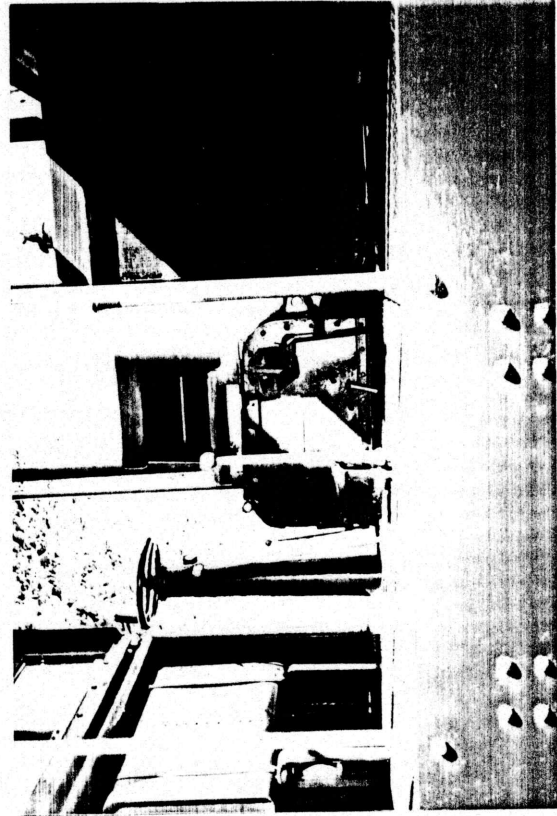
DIAG. 19



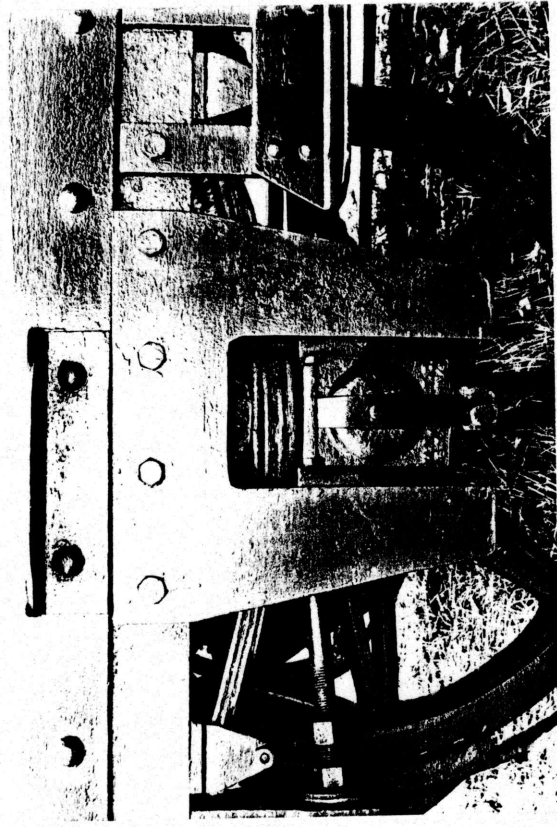
DIAG. 20



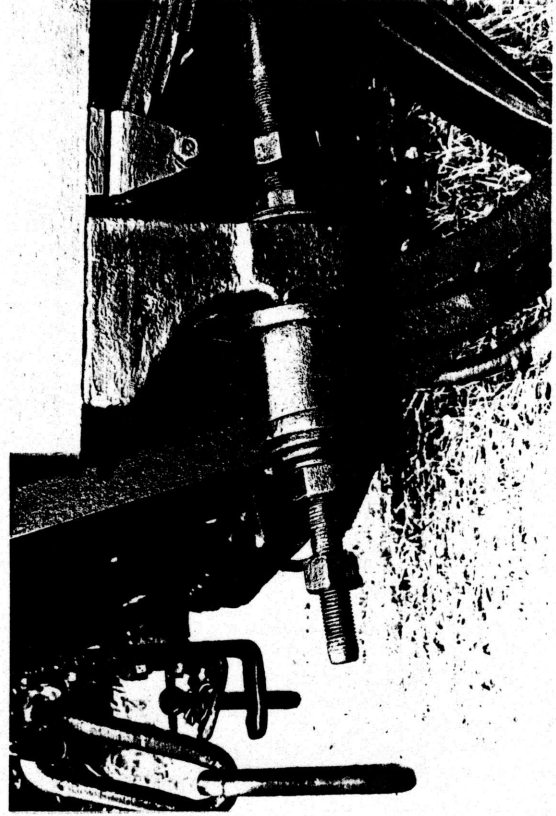
BYRON BAY
LOCOMOTIVE
(DIFFERENT ROOF
TO NSWGR)



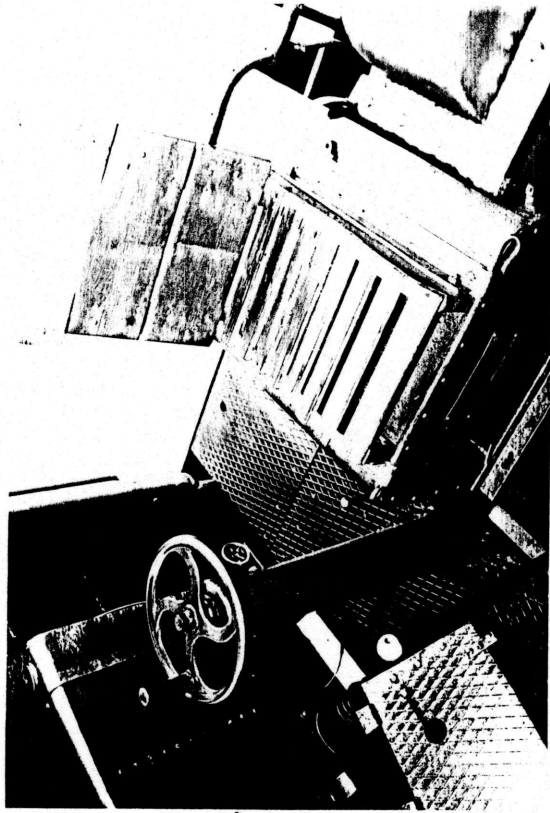
↑ PETROL TANK.
↑ HAND BRAKE
↑ GEAR LEVER
↑ CLUTCH
↑ RADIATOR



AXLE BOX, SPRINGS, ETC.



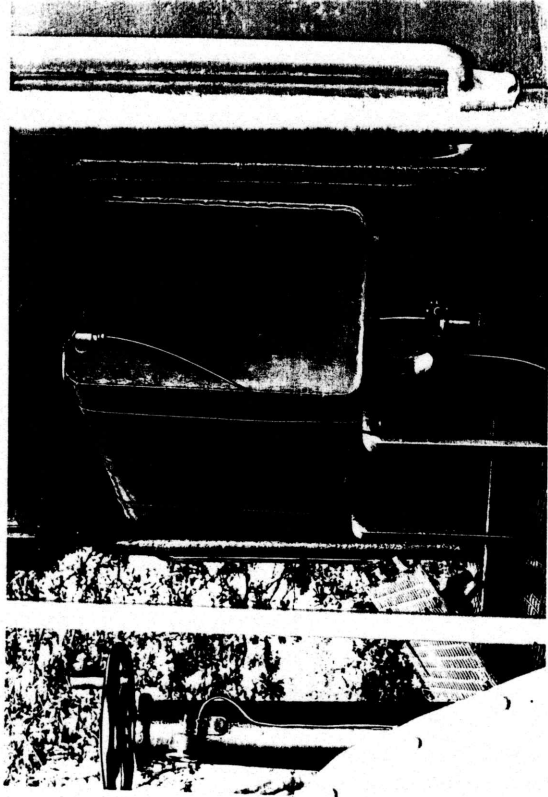
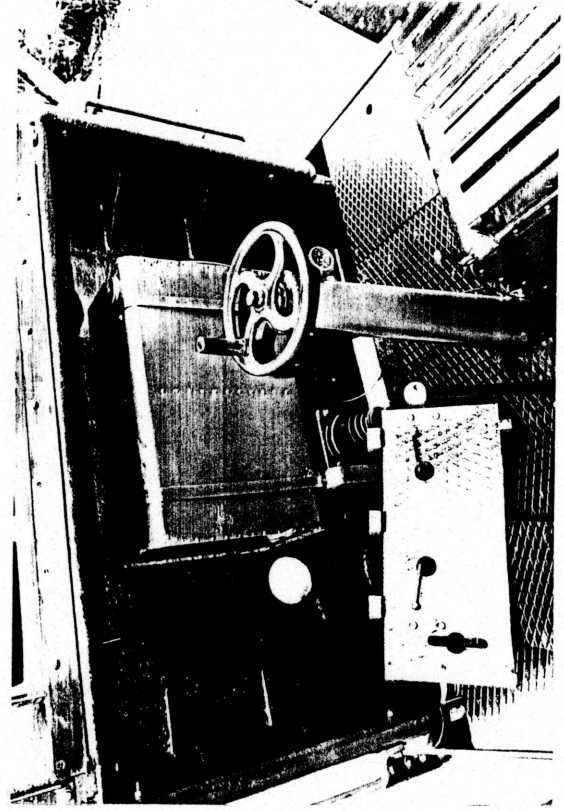
TENSIONER ? SHOCK ABSORBER ?



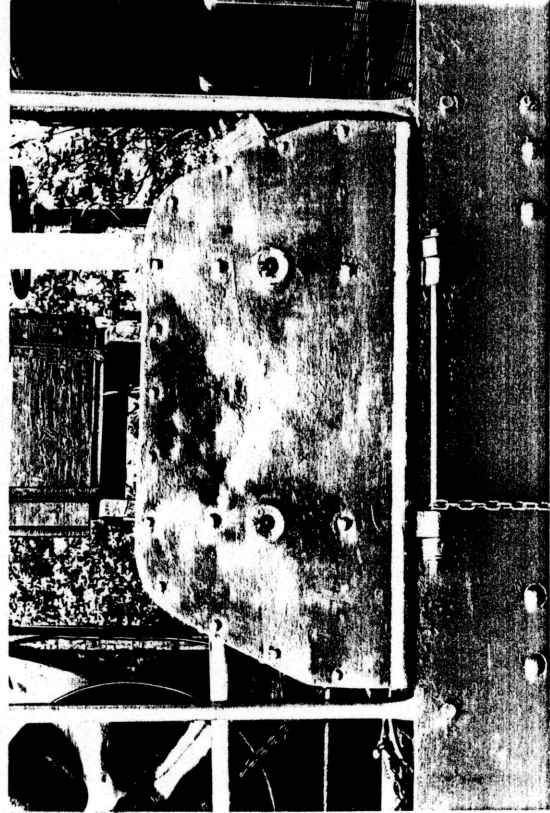
↑ DRIVER'S SEAT ON TOP OF ENGINE COVER.

↑ HAND BRAKE

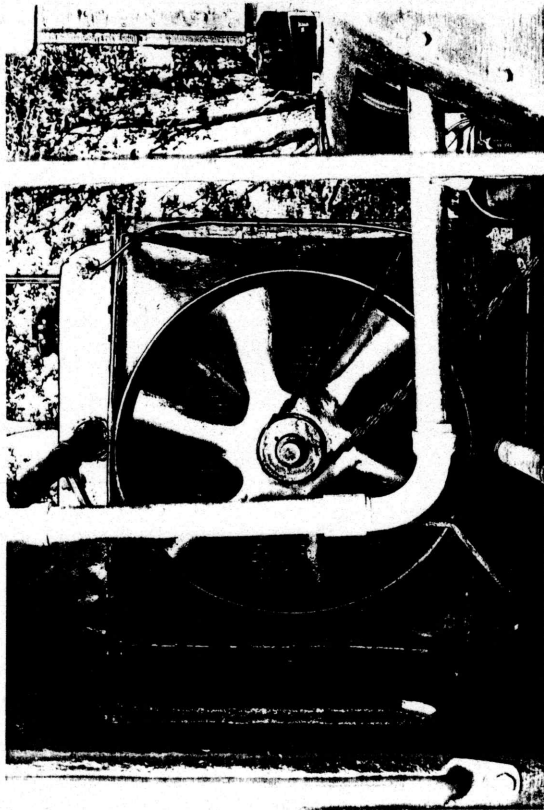
↑ PETROL TANK.



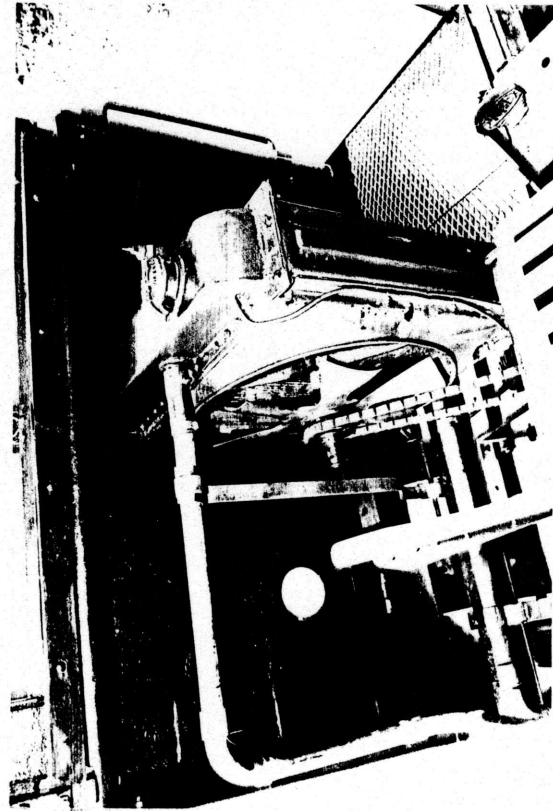
PETROL TANK



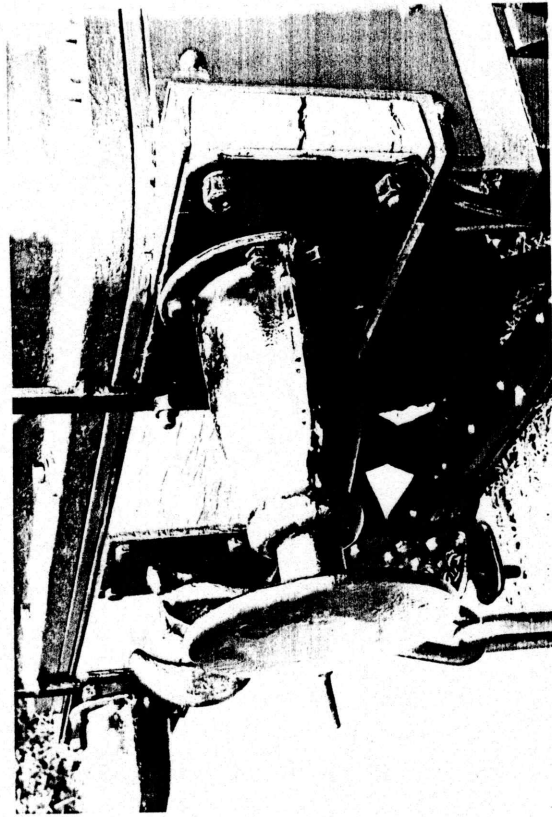
OUTSIDE FACE OF ENGINE COVER WITH ROD HINGE. (BACK OF SEAT ON TOP)



RADIATOR FAN AND PIPING.



RADIATOR
(OURS HAS THE AIR TANK AND THE
AIR BRAKE VALVE ADDED.)
CLUTCH



BUFFER.
↑
BRAKE BEAM.
↑
BRAKE ATTACHED
TO BUFFER BEAM.



MAIN GEAR
LEVER.
↑
CLUTCH
↑
RADIATOR