

ASSEMBLE INSTRUCTIONS

Accucraft Victorian Railways 'Na' Class 2-6-2T

Argyle Locomotive Works Pty Ltd. Australia

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Locomotives '8A', '7A', '1A'

Introduction

Accucraft first produced the NA model in 2014.

The 2025 production is an entirely new build with many improvements in both manufacture and features. This handbook is for the 2025 production and covers models of the preserved locomotives (6A, 7A, 8A, 12A, & 14A) and '1A', the first of the class delivered in 1898. '1A' represents the original Baldwin build, as it was delivered to the Victorian Railways and is without the various modifications developed by the VR for its Australian operations.

The kit is intended for modellers with at least some experience in building live steam locomotives. If you are a beginner in this hobby and wish to attempt the construction of this model, we encourage you to find an experienced modeller to help you along the way.

Before you begin each assembly section, complete an inventory of the parts listed in the Parts Table for that section. If any parts are missing, contact your dealer or Accucraft directly for clarification or replacement. To assist you, they will need the following:

Section or Page Number / Item Number or Part Number / Part Description

Special Notices are provided in information boxes with the subject in **red text**.

Locomotive 1A

These instructions cover both versions of the model and are intended to be used in conjunction with the Assembly Illustrations.

The assembly parts illustrations booklet for the Preserved NA models is labelled **AU001**.

The assembly parts illustrations booklet for the 1A model is labelled **AU002**.

These build instructions are written for the Preserved NA loco models.

Build variations between locomotive 1A and the Preserved locomotives start to occur from Sect 18 onward and are highlighted within the text when required.

Fasteners

The fasteners to use for each type and size on each illustration are shown once.

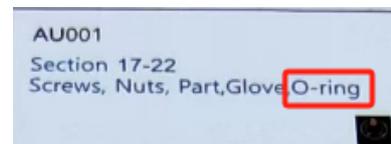
The last number shown in the box associated with the fastener description is the number of the fastener needed within the illustration.

M2-4	X4	Metric thread, 2mm thread diameter, 4mm long, Quantity 4 required
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Prefix

- M** Metric thread
- ⊕ Cross Head Screw (Phillips drive)
- C** Countersunk head. (Length is measured over the whole screw)
- H** Hex head Bolt. (Length is of the shank & threaded portion only)
- N** Nut
- P** Set Screw
- E** E Clip
- W** Washer
- SUS** Stainless steel

This box contains a selection of special Screws, Nuts & O Rings. Look here if the part you want cannot be found in the individual section box.



It is a good idea to have a few small bowls handy to hold the fasteners you are using. In most cases you will not be using all of them in one application and will need to return the remainder to the packet.

Assembly Parts diagrams

The sequence of assembly is basically the sequence that appears in the Assembly Parts diagrams. These assemble notes will provide guidance in particular areas.

- ⇒ Hollow arrows indicate Loctite thread adhesive is required.
- ➡ Solid arrows indicate Silicone packing compound is required.

When applying Silicone Packing Compound to threaded pipe joints, apply the sealant to the external threads only. Do not apply it to the internal threads as this will cause the sealant to be driven into the passage potentially blocking it.

O rings should be lubricated prior to installation.

Only unpack parts that are required for the stage of assembly on which you are working.

Work Area

You will be handling many tiny parts. Many of which are dark and hard to see. Spend some time getting organised. Prepare a clear area with good lighting and a soft work surface. A white towel is good. Small parts are easily lost on a carpeted floor. Build the kit in a room with hard floors. Screws and other small fittings are highly acrobatic and may bounce some distance if given the opportunity.

Tools

A basic precision tool kit for handling small parts is essential for assembling this kit. It is also an investment in your future enjoyment of the hobby.

Here is a list of recommended Tools & Materials. To find a supplier, enter these descriptions into your search engine:

- 8 Piece Precision Slotted and Phillips Screwdriver Set:
 - Slotted 1.0, 2.0, 3.0, 4.0 mm.
 - Phillips #000, #00, #0, #1
- 8 Piece Metric Nut Driver Set: 1.5, 2, 2.5, 3, 3.5, 4, 5 mm.
- Mini 6 Piece Metric Spanner Set: 4, 5, 5.5, 6, 7 & 8 mm.
- Hex Key Wrenches (Allen Keys): 0.9, 1.3, 1.5, 2.0, 2.5, 1
- Mini File Set
- Thread Taps: M1 M1.2 M1.4 M 1.6 M1.7 M1.8 M2.0 (for clearing paint from threaded holes)
- Vernier Caliper, Metric. Dial or Digital, inexpensive lightweight carbon fibre is OK.
- Gas Filler Valve Installing Tool.
- Gas filling adaptor.
- Compressed air supply: 30 psi / 2 Bar for air testing the chassis.
- Silicon gasket packing compound.
- Petroleum Jelly for lubricating O Rings
- Loctite 222 tread lock
- Sheet of 1200 Grit Wet & Dry.
- BluTac for holding items to screw drivers when installing into difficult areas.

Section 1. Frames

Orientation: Identify the front and back and the inside and outside of the frames. The sides with greater detail and the heavier rivets are the outside. The end with the shallower frames is the front, the end with the deeper section frames goes below the cab at the back.

- Fit the following items to the frames before joining the two frames together.
 - #22 Connection B
 - #19 Side Frames Qty 2
- Use for **+C-M2-5** Countersunk Screws securing Inner **Frame G #6**
- Install **Bracket #16** at the same time as installing **Frame Patch #3**. Bracket #16 may be incorrectly drawn. It actually has a plate attached with a cut out in it. #16 is held

to the frames by **Front Patch #3**. Position it on the frames with the notched plate on the underside of the loco and the notch facing backward.

- **Inner Frame 5 #11** is attached with +M2-4 x 2.
- The notches in the frames that accommodate **Frame Spacers # 6,7,10,11,12** may need to be filed slightly to allow their correct installation. They should be a firm fit but not loose. Do not try to force them into the locating cutouts. File the frame cut outs just enough to get a correct fit.
- Install **Fire Box #15** with HM2-5 x4 before fitting Inner **Frame #12** and before tightening #11. The detail around firebox #15 in Sect 1 is a little crowded and can be unclear. See images # 1 & 2 for more detail.
- **Rocker Arm Bush #26** is retained with **Special Nut LN6-8A**. This nut can be found in the box labeled **AU001 Screws, Nuts, O Rings**.
- **Frame Plates #17, 18**. Attach with +M1.4-3 Screws
- **Frame Patch A #24**. Attach with +M1.4-3 Screws.



Images #1 & 2 Installation of **Fire Box #15** and **Side Frames #20, 21**

Section 2. Deck & Motion Bracket

- All the bolts used on items #1 & #3 are HM2-3
- You might need to use an M2 tap to clean out the thread in **Front Deck #1** into which **Connecting Bolt #2** screws.

Section 3. Pilot Trucks

- **Truck Front Bolster #10** is 36mm long, **Truck Rear Bolster #3** is 43mm long and is not symmetrical. **See Fig 2** for correct installation.
- When removing **Truck Bolster #5** to install Pilot Truck axle, the individual bolsters should be reinstalled into their original position and direction as they are machined sets.
- When assembling the bolsters, leave all screws +M2-5 slightly loose until the axles are installed so that the final assembly can be adjusted to prevent binding of the axles in the bolster bearings. When tighten screws, check the Pilot Truck wheels spin freely without any binding.

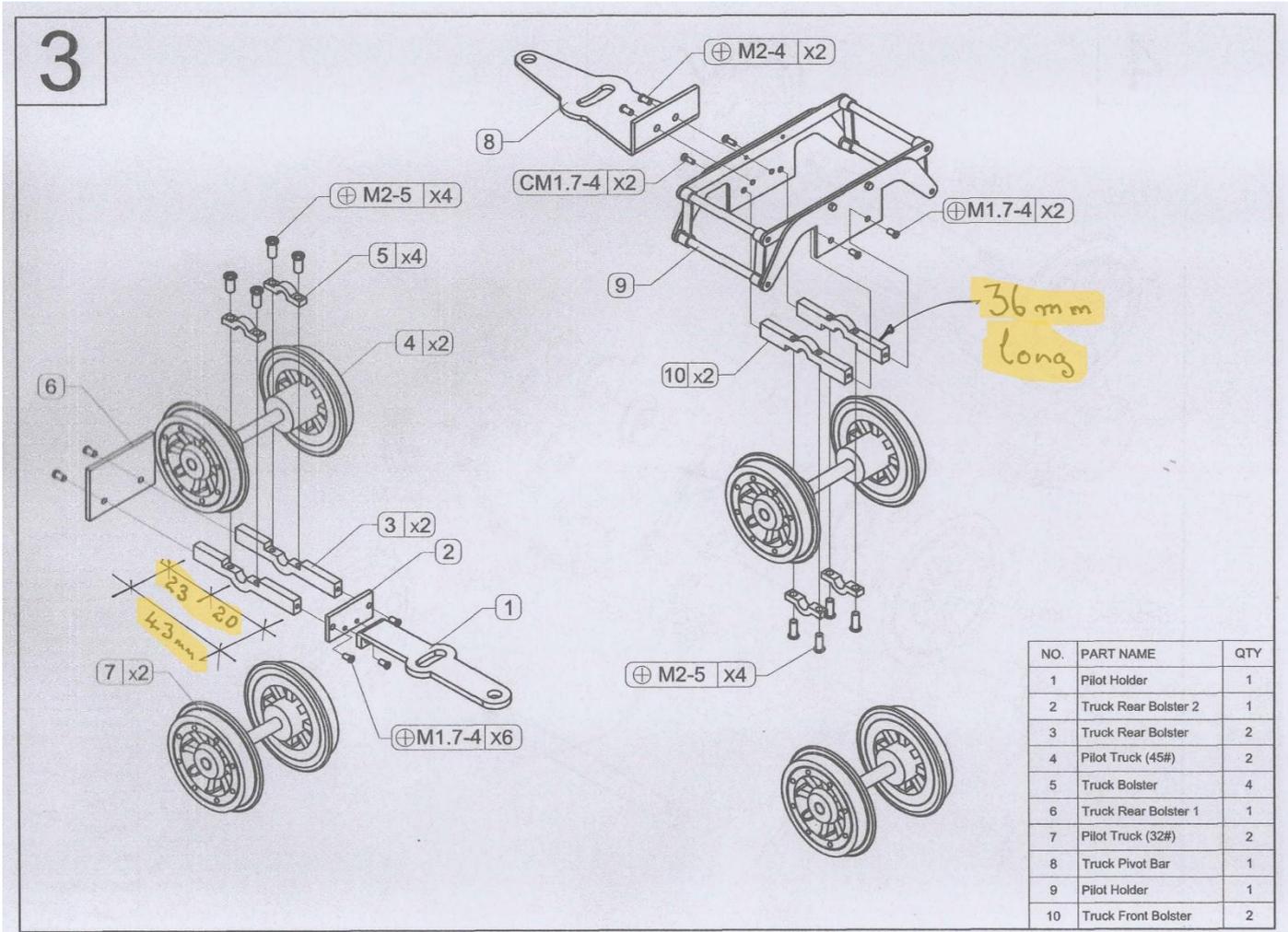


Fig 2: Installation of **Pilot Truck Bolsters**

Section 4. Wheels & Eccentrics

It will make your progress in Section 10-1 (Setting the Valves) much easier if you assemble the eccentrics as shown in this diagram, that is, with the axle in the position shown, assemble the first eccentric fully up, the next eccentric fully down the third eccentric fully back and the final eccentric fully forward.

Before proceeding with the build, check that **Expansion Links** #7 move freely within the clevis end of the **Eccentric Rods** #4 & 5. Use a piece of 1200 Grit Wet & Dry to polish both sides of the Expansion links to remove any residual burs. Insure that **Shoulder Bolts** #11 & 12 fit smoothly in their respective holes.

Install Set Screw **P-M3-3** into **Reversing Arm** #10 in readiness for securing to **Reversing Rod** #7 in Sect 8

You may notice that tightening the retaining nuts may cause the mechanism to lock up. Adjust the nuts to provide an adequate working clearance without excessive play then use Loctite to secure the retaining nuts in place. Use the Loctite sparingly to prevent it from entering the working surfaces. A toothpick dipped in Loctite should deliver a sufficient amount to the exposed thread. Put the assembly aside for several minutes then check that it still operates freely.

Section 5. Cylinders & Slide Bars

It is a good idea to check the movement of the **Cross Heads** (#6 & 8) inside the **Slide Bars** (#7 & 9) before assembling them. The inside surfaces of the Slide Bars can be polished to remove any machining marks with 1200 grid Wet & Dry placed on a flat ice cream stick.

Assemble these components carefully noting to orient them correctly. Lubricate O Rings with steam oil prior to assembly. Apply a thin film of silicon gasket packing compound to the front and rear surfaces of the cylinder block being careful not to allow any to enter any of the ports. On completion check that the piston and crosshead move without binding.

Cylinder Blowdown Pipes (#11) Do not install these items yet. They are delicate and can be damaged during construction. Fit these items at the end.

Section 6. Wheels, Axles & Cranks

When assembling the **Drive Cranks** on to the axles check that they are set opposite the wheel counterweights.

When assembling the connecting rods check that both the front & rear sections are facing the same way, that is, the large brass square bearing faces are on the same side and the brass oiler cups are both facing upward.

Section 7. Wheels & Frames

As you install each axle into the frames, check that the bearings can move freely up and down within the frames. A piece of Wet & Dry on an ice cream stick can be used to polish the frame cut outs.

The crank pins may have a burr or an enlarged diameter on their ends making it difficult to install the Connecting Rods. Use a piece of 1200 grid Wet & Dry to restore the diameter and allow the Connecting Rods to slide into position.

Section 8. Mounting Cylinders to frames

On completion you can expect the chassis to be a little stiff, but the wheels should not bind or lock up.

Section 9. Valves

Air Valve # 6 will need to be installed on the Steam Chest but may not align vertically when tightened.

Use a Loctite thread lock to secure them in the vertical position.

Install **Valve Block Pins** #4 and tighten using mini vice grips or pliers being careful not to damage the valve face on the cylinder block.

Before installing the **Valve Chest** #5 to the cylinders, install **O Ring, Valve Chest Cover** #7 and secure with bolts **HM1.6-3** as access to these items will be difficult after the valve chest is installed. Lubricate the O Ring with steam oil prior to installation. Apply a thin layer of Sealant to the lower face of the Valve Chest. Carefully manoeuvre Valve

Chest over the Valve Block pins. The steam supply manifold is mailable and can be adjusted to allow alignment.

Temporarily install **Valve Chest Plate** Section 10 #19 and secure with **Nuts N-M2 SUS** to compress the sealant until it sets. You can assemble the plate work and air tank at the rear of the loco and start on sect 10 then return to install the remaining valve gear after the sealant has cured.

Air Tank #16 is installed with the drilling at one end facing up. The tail end of **Air Valve** #13 is inserted into this drilling.

Section 10. Saddle & Reversing Quadrant

Assemble the Saddle and install it in the frames. Fit the **Smoke Box Supports** #7,8 after the saddle has been installed.

Section 10-1. Setting the Valves

Preparation

- Treat the chassis as having two separate steam units, the RHS and the LHS. They will be set individually and separately, one after the other.
- If fitted, the **Valve Chest Plate** (sect 10 #19) needs to be removed to gain access to the valves.
- Check that **Crank** (Sect 1 #25) is In line with **Expansion Strap** (Sect 1 #27). When one is vertical, the other should also be vertical.
- With the **Johnson Bar** 'JB' (sect10 # 12) is in mid gear (vertical) the **Reversing Arm** (sect 4 #10) should be horizontal.

Johnson Bar Over Travel

The JB may be capable of travelling beyond the gated range. Operating beyond the gated range may move the Expansion Links beyond their designed position and cause the Shoulder Bolt (Sect 9 #1) to impact the end of the Expansion Link. Operating in this manner must be avoided as it will stress the valve gear and damage your engine. Checking the correct JB operating range is included in the Air Test procedure. If you are fitting **Remote Control** to your model is important to limit the servo travel to only operate within the correct range.

Eccentrics

- Check that the **Eccentric Rods** (Sect 4 #4 & 5) are not crossed over each other and that the inner Rods are connected to the lower ends of the **Expansion Links** (sect 4 #7) and the outer Rods are connected to the upper end of the Expansion links.
- The **Outer Eccentrics** (the straight ones) primarily control valve travel when the loco is in full **Forward gear**.
- The **Inner Eccentrics** (the bent ones) primarily control valve travel when the loco is in full **Reverse gear**.

- **Both eccentrics** provide input to the valves when the **Johnson Bar** (sect10 # 12) is set at a position other than full forward or full reverse.
- The correct initial positioning for the eccentrics is to have them set at 90 degrees to the Axle Crank as follows. When either of the **Axle Cranks** (sect 6 #4) are in the down position, the adjacent outer eccentric should be fully forward, and the inner eccentric should be fully back. These positions will be adjusted as you proceed in setting the valves.

Setting the Valve timing

The objective of setting the valves is to have the steam admitted to the cylinders at the optimum moment during the cycle and to balance the steam admission between both sides of the piston.

When setting the valves for a particular direction, rotate the wheels slowly in that direction to preload the linkages.

You will be adjusting the following.

- The position of the **Slide Valve** (Sect 9 #8) on the **Valve Rod** (Sect 9 #10).
- The position of the **Eccentric Discs** (Sect 4 #3) on the **Drive Axle** (sect 4 #1)

Underneath the Slide Valves are the three narrow ports into the cylinder. You will be observing the front and rear ports only as these are the ports that admit steam into the cylinder. The middle port is the exhaust port and is not visible and is not of a consideration.

Move the Johnson Bar to the full forward detent.

While observing the slide valves in their chests rotate the wheels. Check that they are not hitting the chest walls. Adjust them to give an equal travel over the two ports. This is an initial setting that may be adjusted later in the process.

Setting Forward Motion

Choose a side of the loco to do first.

Move the Johnson Bar to the full forward detent on the quadrant. Rotate the wheels in a forward direction until the cranks are fully forward. Check if you can see the forward admission port in front of the slide valve.

You are aiming to have the valve commence opening just after the crank is at the fully forward position. The port should just start to become visible about 2 degrees of rotation after the crank has passed the fully forward position.

Adjustments to this setting are made with the forward motion eccentric (outside eccentric) by making small rotational changes to its position on the axle.

Adjust the eccentric as follows.

- a. When the eccentric is in the fully up position access can be made to the Set Screw securing it to the axle.
- b. Use the Hex Key Wrench (Allen key) to release the set screw. Keep the Allen key engaged in the set screw to prevent the eccentric from turning while the following adjustments are made. Adjustments should be minute.
- c. While holding the eccentric steady with the Allen key move the axle as follows.
 - **Rotating the wheels in the direction of travel will cause the valve opening to occur later.**
 - **Rotating the wheels in the opposite direction of travel will cause the valve opening to occur earlier.**
- d. When satisfied with the setting lightly tighten the set screw then rotate the axle 180 degrees to check the valve opening at the other end of the piston stroke. If the opening positions are different, check that the slide valve is travelling equally over the ports in both directions. Adjust accordingly using the slide valve set screw.

Setting Reverse Motion

Having completed the Forward motion setting on the outer eccentric, repeat the procedure on the **Inner Eccentric** to set Reverse motion. Set up the chassis as follows. Move the JB to the rearmost detent.

Rotate the wheels in a reverse direction to set the axle crank in a fully rearward position. You will now be setting the opening event on the rear port. The port should just start to become visible approximately 2 degrees of rotation after the crank has passed the fully rear position when turning in reverse direction.

The adjustment technique for the Reverse direction is the same as for the Forward direction.

Recheck the opening position of the valve and that the valve is travelling equidistantly over the valve ports. Adjust accordingly. When both Forward and Reverse settings are complete and the slide Valve travel is correct, secure the setscrews on the Eccentrics and the Slide Valve.

Having completed setting the valve motion on one side of the model it is time to repeat the process on the other side of the chassis. When complete, fit the **Steam Chest Covers** (Sect 10 #19) using a thin film of sealant between the surfaces.

Now that you have a complete chassis with all the working components set correctly, check that all the moving parts are free to travel without striking or interfering with adjacent parts. (See note below regarding Lifting Arm Clearance).

Rotate the wheels in both directions, in the various gear settings to check for binding or stiffness. It is normal for a new chassis to be a little stiff but if there is binding, tight spots or clicking these should be investigated before proceeding.

Check tighten all screws, bolts and nuts.

Apply a thin film of sealant to the **Valve Chest Plate** (Sect 10 #19) and install. You are now ready to air test the chassis.

Lifting Arm Clearance

When in full Forward gear, the heads of the **Shoulder Bolts** (Sect 9 #1) travel close to the **Lifting Arms** (Sect 4 #9). Check that these items do not strike each other during operation. If necessary, adjust the position of **Reversing Arm** (Sect 4 #10) to give equal clearance to both Lifting Arms.

Air Test

Preparation

- The chassis is best set on timber blocks over a large metal tray to collect run off oil.
- You will need a source of controllable compressed air (30 psi / 2 Bar) and some suitable plumbing to connect the inlet manifold on the model to the air source.
- Be sure all moving parts are well lubricated. Inject a small amount of **Steam Oil** into the steam inlet manifold to lubricate the slide valves and cylinders. Motor oil can be used on the external items.
- It is important to look, listen and feel what is happening to your chassis as it is running. This will tell you a lot about its performance. Ideally the chassis should run smoothly without jerkiness and the exhaust beat should sound even and smooth.

Operation

- Open the cylinder drain cocks.
- With the air supply connected, start with the JB in the mid position then ease it forward to start the engine running.
- Test the cylinder drain cocks and become familiar with the Open and Closed settings. Close the cylinder drain cocks after the wheels have rotated a few times.
- Test the JB for overtravel. While holding the handle latch lever open, gently move the JB towards full travel in both directions. If it starts to jerk sharply it is likely that the **Shoulder Bolts** (Sect 9 #1) are impacting on the end of the **Expansion Link**. You have reached the limit of the correct operating range in that direction. Make a note of the nearest gated position before this occurs and avoid operating beyond this point.
- Make any final adjustments.
- After initial testing the chassis can be left running for up to ½ an hour to run in. During this time lubricate the moving parts thoroughly to flush away any debris released during running in.

Section 11. Cab

Your model does not have tinted windows, they have protective film on the inside. Now is a good time to remove this. You might like to think about removing the glazing from the cab side windows and doors. It will give you better access to the lubricator and will make it easier to check the boiler water glass and the pressure gauge. To remove the glazing choose a corner of the window and press from the outside.

The threads in **Headlight** #4 an **Lamp Bracket** #3 may need cleaning out with an M2 thread tap

Section 12. Boiler

The boiler Serial # is located on the underside of the boiler, at the front. It should be the same as on the Boiler Test certificate. Record or photograph the number now as it is not visible when installed.

- O Rings should be lightly lubricated with a thin smear of **Petroleum Jelly** to assist in installing, seating and sealing.
- Take note of the solid arrows indicating the application of Silicon Gasket Packing Compound.
- The **Pressure Gauge Syphon Tube** #5 may need to be manipulated so the gauge can be seen through the cab window. Do not use pliers or hard objects to bend the tube. Fingers are the best tool for this.
- When installing the O Ring over the **Steam Regulator Spindle** #7, a couple of toothpicks can be used to ease it over the spindle. Install it from the handle end, not the tapered threaded end.
- When installing the **Gas Jet Nozzle** #11, you can apply a very thin smear of Silicon Gasket Packing Compound to the threads closest to the hex body. The tiniest contamination will block the jet so keep it very clean and do not let any sealant enter the gas path.
- Assemble the **Sight Glass** #17 into the **Sight Glass Bracket** #15 with **Water Gauge Fittings** #14 and the associated Nuts and O Rings. Lubricate the gauge glass O rings with Petroleum Jelly to aid installation and sealing. A toothpick dipped in Petroleum Jelly can be used to nudge the O Ring into the end of the gland nut. Check to see that the O Ring is not pinched before tightening the Gland Nuts. A light smear of Silicon Gasket Packing Compound is required to seal all metal-to-metal joints in this assembly.
- **Boiler Bands** #19 can be held in place with a strip of masking tape while aligning and fitting them.

Section 13 & 14. Boiler Mounting, Fittings and Gas Tank

Mounting the Boiler

Before mounting the boiler on to the chassis, you might like to loosely connect the **Lubricator** (#1) and the Gauge **Glass Blow Down Pipe** (#3) from **Sect 14**. Installing these items will be difficult once the boiler is fitted to the chassis.

Loosely install the Lubricator at both ends and fit the Gauge Glass Blow Down Pipe to the base of the gauge glass.

The drawing shows **Washers** (W-05) installed under each of the above items, however installing the washer for the boiler **Blowdown** on the underside of the footplate will lower the blowdown valve giving better access to the **Handle** (#7) when the **Dummy Air Tank** (#8) is installed. The Handle may also need to be bent down slightly to clear the Dummy Air Tank.

When fitting the boiler onto the chassis, the **Gauge Glass Blow Down Pipe** is installed under the **Reach Rod**. (sect 10 #16). Temporarily removing the reach rod will make this easier.

Securing the Boiler

Until the Smoke Box is fitted, the boiler is only held in place by one screw at the back. Do not lift the model by the boiler. A suggestion is to thread a large cable tie through the front of the chassis and around the boiler to secure it to the front end.

Place the Johnson Bar into full reverse and turn the model upside down. Check that the **Reversing Arm** (Sect 4 #10) does not strike the securing screw for **Front Boiler Band** (Sect 12 #19).

When installing the **Fixed Seats** (Sect 14 #4) apply silicon gasket packing compound to seal the threads and tighten with a 10mm spanner.

Air Test

The boiler installation and associated plumbing is now complete. It is time to check for leaks.

Prepare a weak solution of dish washing liquid in water and have an artist's paint brush ready to apply the liquid to all the steam joints.

Mount the model on blocks so the wheels can turn freely. Remove the Goodall Valve/Filler Plug and connect a controllable compressed air supply (30 psi / 2 Bar) to this location. Close the Steam Regulator, the Cylinder Drain Cocks and put the JB into mid gear.

Introduce the compressed air and apply the leak testing liquid to all the joints. You will need to open the steam regulator to test the steam joints down stream of it including the superheater connection.

Gas Feed Line (Sect 13 #17).

Note that the nipples **D2 Pipe Joint** #18 have different size ends.

- The 3mm diameter end goes through the shoulder of GN5-3 nut.
- The 2.5mm diameter end goes into the Gas Tank & Gas Jet Holder.

Thread a nipple onto the gas pipe and adjust so that there is 2 -3 mm of gas pipe projecting beyond the smaller end of the nipple. Mark the gas pipe where the longer end projects from the nipple to indicate the correct setting when swagging the nipple onto the gas pipe. Insert into the gas jet holder and move the pipe to the marked position. Nip up the nut until the pipe is secured within the nipple. Final swaging can occur when the pipe is installed. Instant both nuts onto the pipe facing the correct direction (open end outwards and repeat the swaging procedure for the other end of the pipe.

Gas Control Valve (Sect 13 #14)

Use a Gas Filler Valve Tool to screw the **Charging Valve** #13 into the gas tank.

Lubricate both O rings and insert over the **Gas Needle** #14. Do not install over the threaded portion of the spindle. Loctite the **Needle Handle** #16 into the **Handle Joint** #15. Secure onto the valve spindle at the 2 O'clock position.

Section 15. Cab and Pony Trucks

The six threads in the cab base might need cleaning with a 2mm Tap.

You will need to remove the **Air Tank** (Sect 9 #16) to install the rear cab screws.

Section 16. Side Tanks & Generator

- **Water Lid** #4 is attached with M2-3 screws. The holes may need to be cleaned with an M2 tap to allow full screw penetration.
- If the cab roof strikes the generator **Exhaust Pipe** #9, the **Generator** #8 can be reversed on its mountings to move the exhaust pipe forward, away from the cab roof.

Section 17. Smoke Box and Chimney

Sequence of assembly

1. Assemble **Smoke Box** #1 & **Smoke Box Patch** #2
2. Fit **Stanchions** #3 and **Pipe** # 4 to Smoke Box assembly. Once installed, the threaded tails protruding internally beyond the nuts can be trimmed to make it easier to install the ceramic sheet and the internal heat shield.
3. Fit Smoke Box assembly onto the Loco with Screws M2-6 and nuts M2. The screw securing the rear of the boiler to the chassis can be loosened slightly to help align the smoke box. Retighten on completion of this step.
4. It is now time to install the **Ceramic Sheet** into the **Smoke Box** #1.

When inserting the sheet, position it to maintain the gap in the bottom of the Smoke Box. Ceramic sheet is quite brittle and will easily tear. Find a piece of tubing that is around 30 – 35mm outside diameter (vacuum cleaner pipe) and carefully form the Ceramic Sheet over it. While holding the sheet to the pipe, insert it into the smoke box, then withdraw the pipe allowing the sheet to expand to the shape to the smoke box. Use your fingers to press the sheet into shape, especially around the screws and nuts within it.

5. The **Smoke Box Heat Shield** #5 will need to have its diameter reduced while you install it to prevent tearing the ceramic sheet. To allow it to go the full depth inside the smoke box, mark the end of the liner where it is likely to catch on the Stanchion and Saddle screw tails. Then bend those spots inwards slightly to give a small ramp that will ease the liner over the screw tails **See Image #5**.
6. Check that the chimney hole on both the liner and the smoke box align then remove the ceramic sheet from the hole.
7. Install the **Chimney** #9 then the **Exhaust Pipe** #7



Image #5 Smoke Box Heat Shield

Locomotive '1A'

These build instructions are written for the Preserved NA loco models. Build variations between locomotive 1A and the Preserved locomotives start to occur from Sect 18 onward. Refer to images for both versions to assist with placement of detail parts.

Section 18. Pilot, Coupler & Toolbox

Sequence of assembly

1. Fit **Ash Scoop** #8
2. **Toolbox** #1
3. If **Knuckle Coupler** #5 is difficult to install into **Coupler Holder** #4, or if it binds when installed it might be that the coupler is hitting the back of the Holder pocket or Pin #6 is too tight. Use a small round file to clean up the 5mm hole in the coupler and remove a small amount of material from the back of the coupler. Secure with **E Clip** 4mm dia.
4. The small length of chain to connect the release link within the coupler to the coupler lift lever is **Chain Link Ring** in Sect 19 #5

Section 19. Air Compressor and Pipe Work

Some of the dummy pipes will need trimming to length and their angles adjusted. When they terminate inside a casting they can be secured with Loctite

Before fitting **Air Compressor** #1, prepare the end of **Pipe 7** (Sect.16 #17) to marry up to the steam inlet valve on the Air Compressor. A tiny piece of tubing over the end of both items will help hold them together.

The front end of **Pipe 9** (#11) needs to be under the coupling release bar on the front buffer beam. If necessary, the coupling release bar can be gently deflected up to allow the hose section of Pipe #9 to be passed under it.

Pipe 18 (#2) and **Pipe 16** (#3) should both be brass. If not already painted you might like to paint these before installing them.

Section 20. Pipe Work and Brake Gear

Some of the dummy pipes will need trimming to length and their angles adjusted. When they terminate inside a casting they can be secured with Loctite

Section 21. Pilot, Coupling & Air Pipe

Note that the rear **Coupler** #4 is installed upside down with the release eye on the underside. Check that it has full and free movement within the **Coupler Holder** #2. If it is difficult to install into the Coupler Holder, or if it binds when installed it might be that the coupler is hitting the back of the Holder pocket or Pin #3 is too tight. Use a small round file to clean up the 5mm hole in the coupler and remove a small amount of material from the back of the coupler. Secure with **E Clip** 4mm dia.

Manipulate **Coupler Cut Lever #5** to align with its support brackets #5 & 7 and the Coupler release eye to give a smooth action that does not restrict Coupler movement or cause the coupler to release inadvertently.

Section 22. Smoke Box Door and Front

You are supplied with two **Magnet D4-2** to hold the smoke box door closed. Note that each magnet has a North Pole and a South Pole. Be sure to assemble them so that they attract each other, not repel.

The threads in **Headlight #6** may need cleaning out with an M2 thread tap

Detail Images

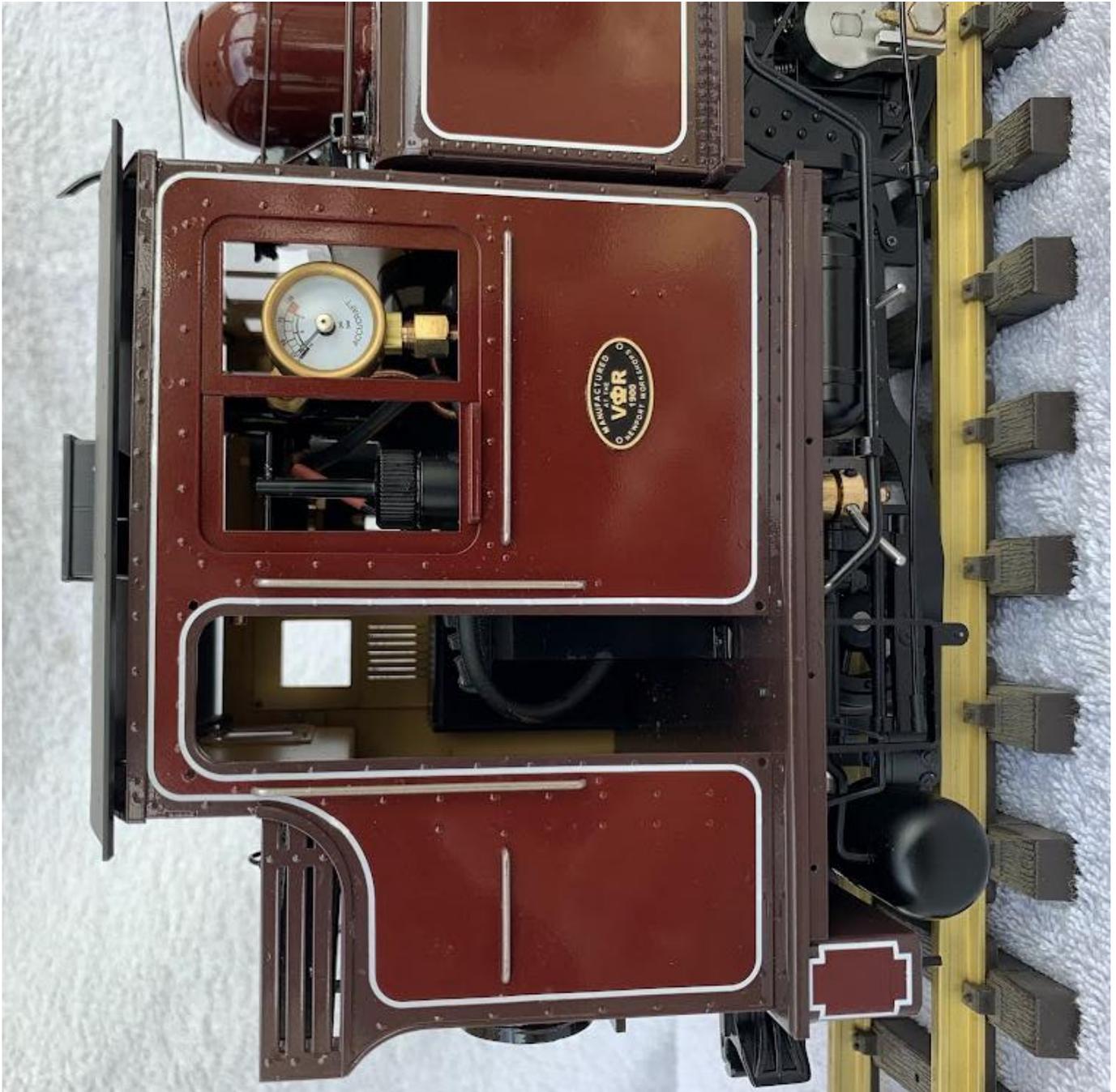
See images below for placement of external detail items

Operating your Model

Refer to the **OPERATING INSTRUCTIONS HANDBOOK** for information on preparing and operating the model.

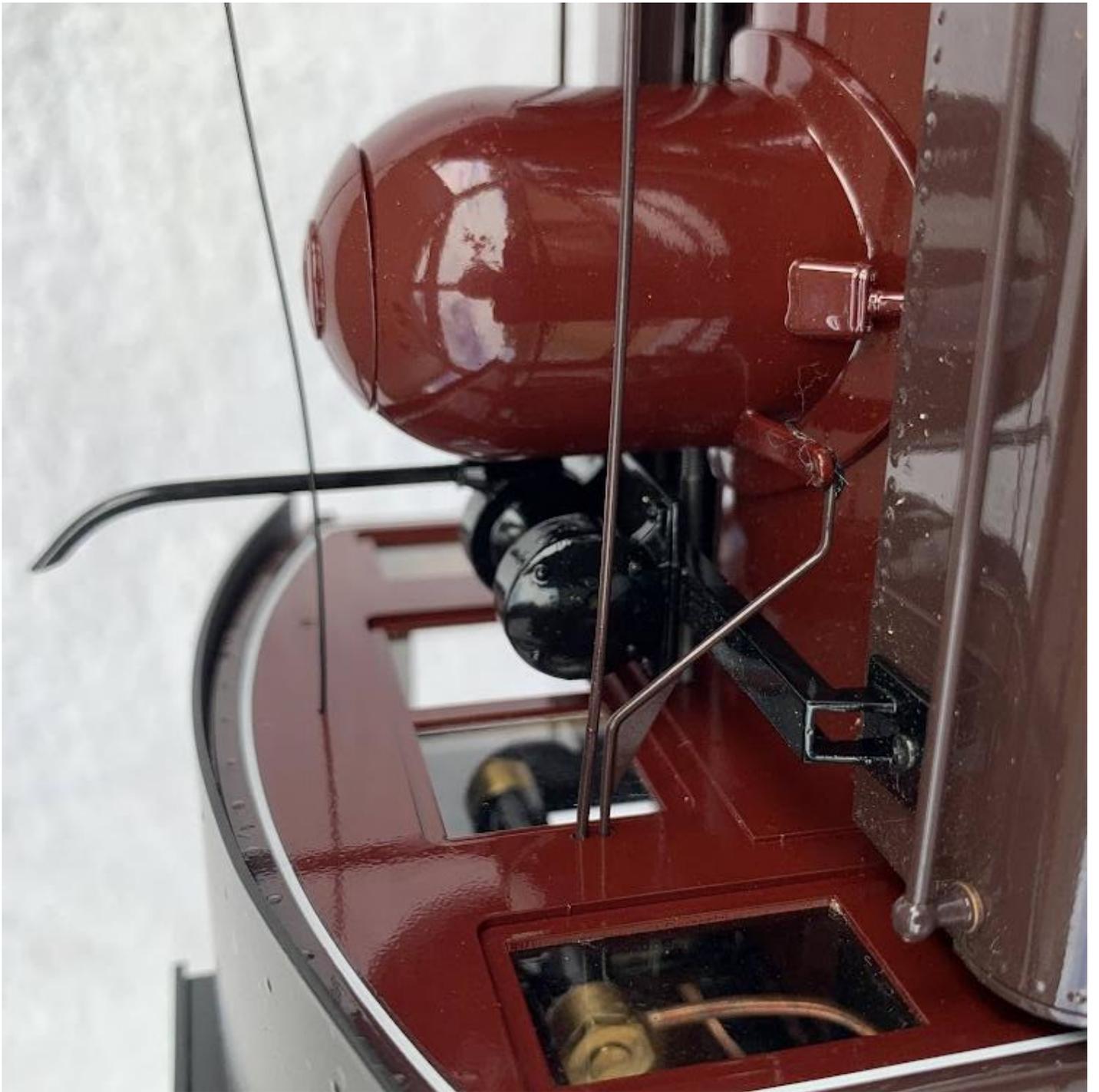
Detail Images – ‘Preserved’ Locomotives

Right Hand Side



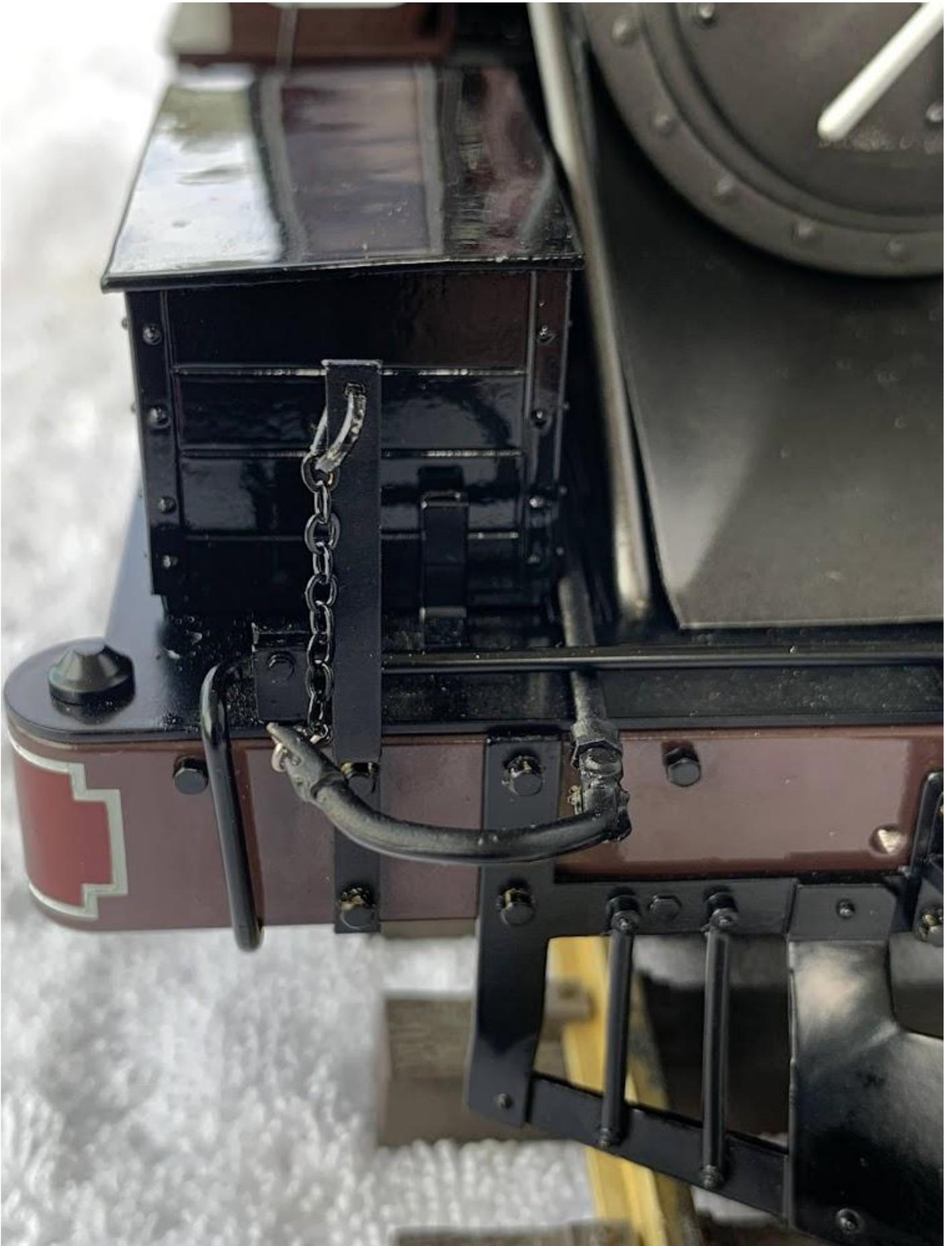






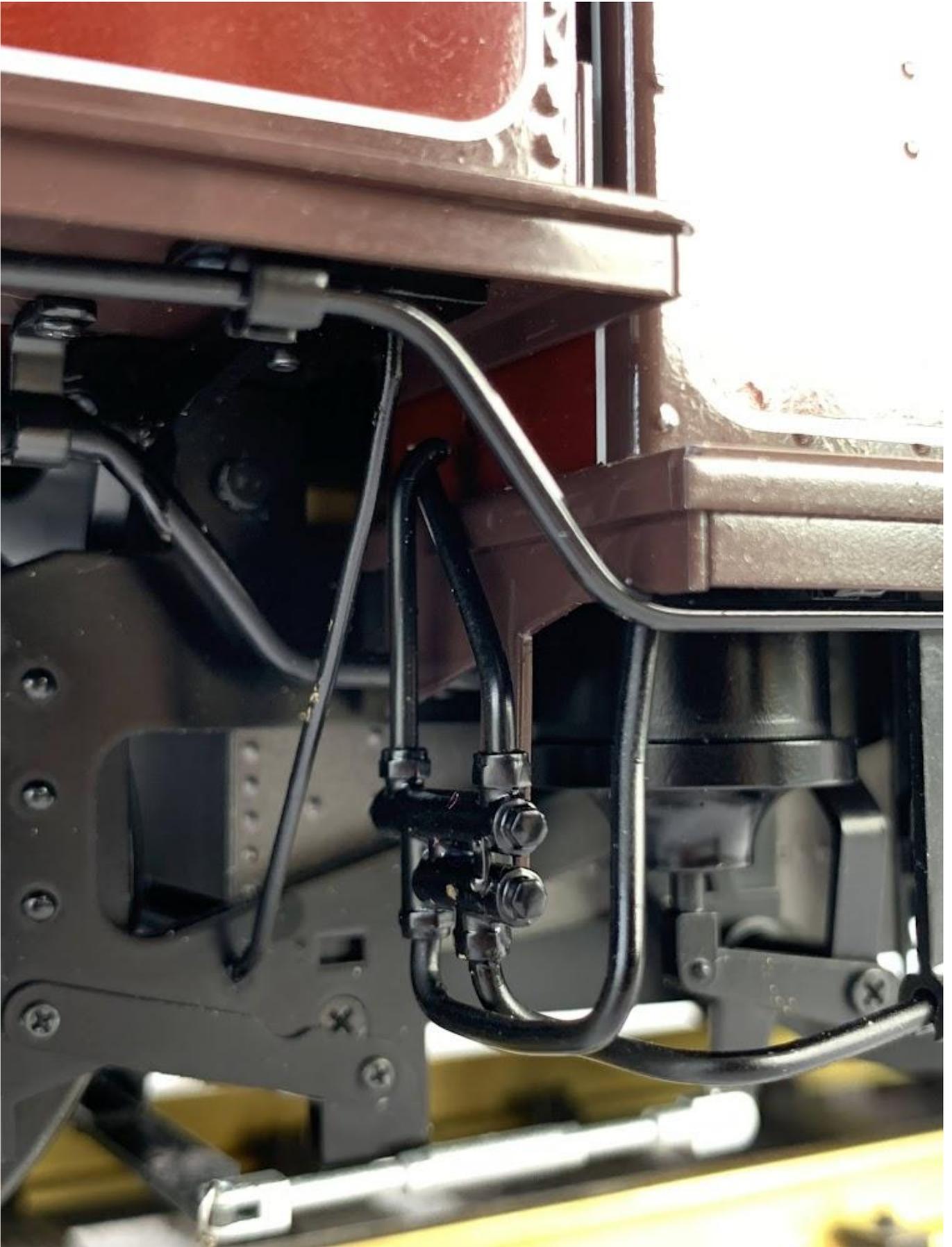


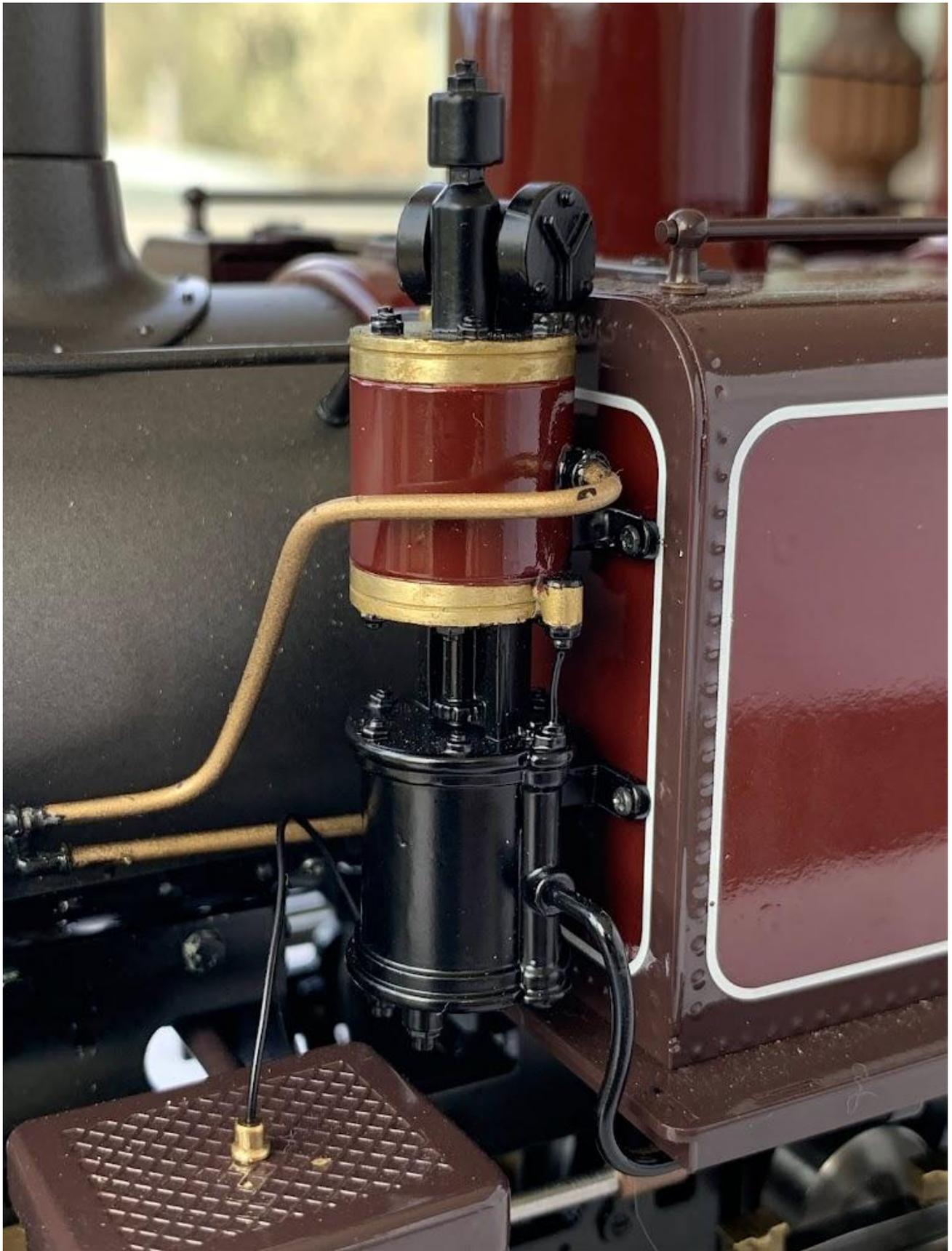


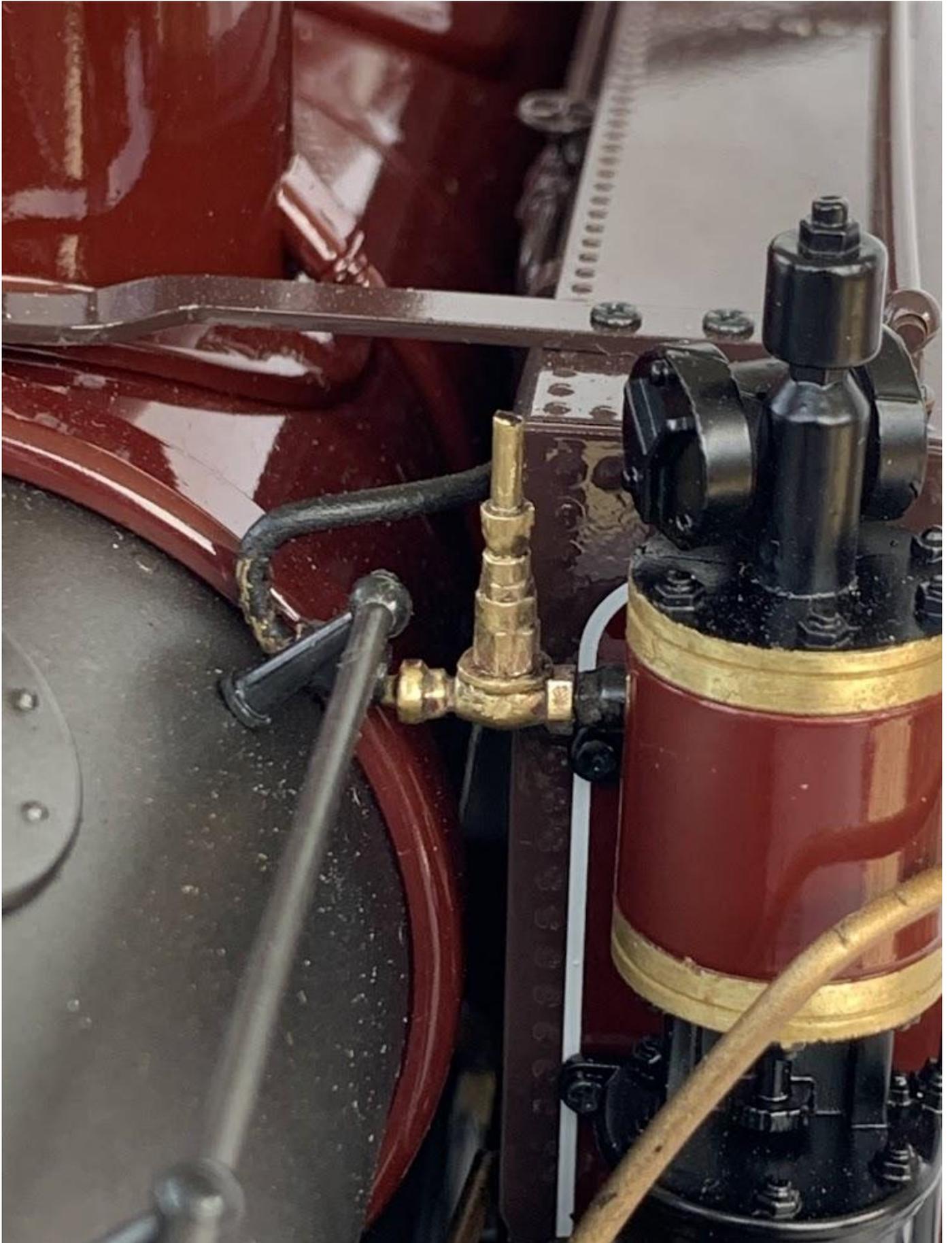


Left Hand Side









Detail Images – ‘1A’ Locomotive

