

SDLoco4 - Victorian Railways T class diesel-electric Series 2B Blue and Gold era and V/line era.

Requires Bachmann S2/S4 loco or similar available separately.

Thank you for purchasing this kit and I hope you get many hours of enjoyment from it. Chris Pearce (Spirit Design)



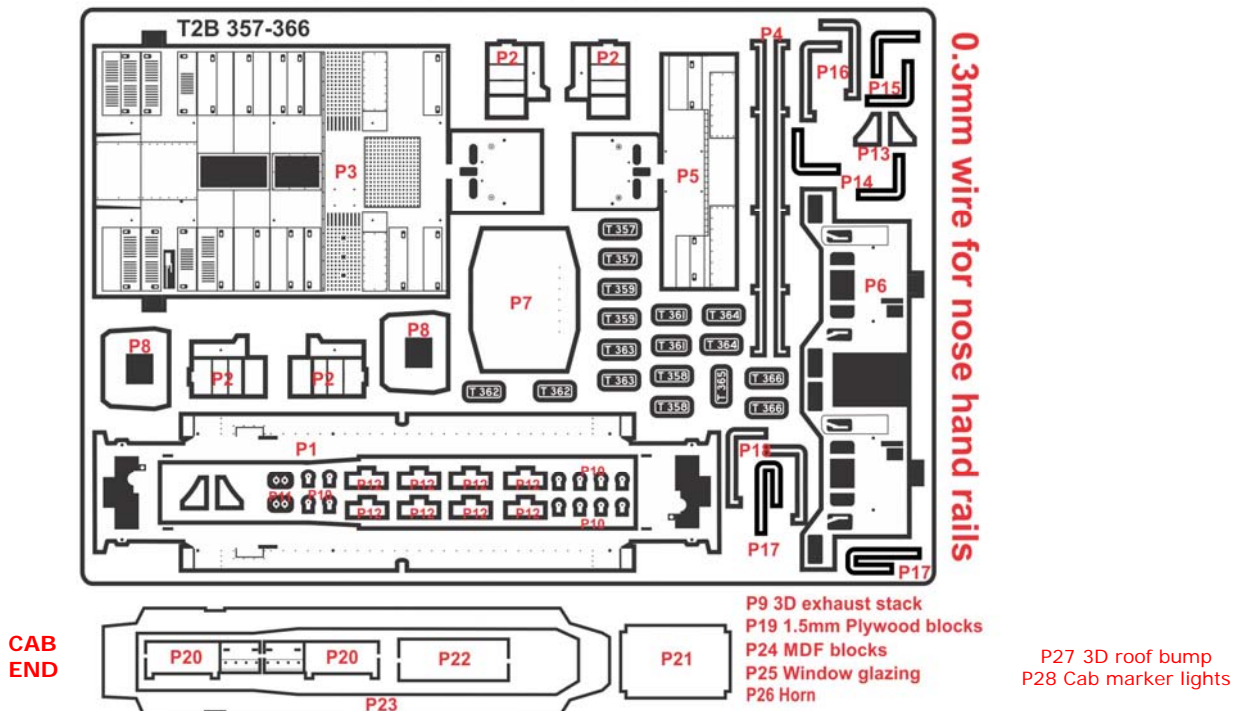
T362 at Nowa Nowa 20/08/1971. Photo courtesy of Peter Vincent

Basic history: The T class became the largest diesel class on the Victorian Railways and were built by Clyde's Granville workshops over 13 years from 1955-to 1968. As a consequence, there are 5 versions but the group is commonly called by the 3 versions of "Flat Top", "High Nose" and "Low Nose". They were purchased to serve the state's branch lines and to replace the ageing K's and the newly arrived J class steam locos. This the 2nd variation of the high nose entered traffic between December 1961 – May 1962 and were assigned all manner of jobs with other classes.

For the majority of their life, they were painted Blue & Gold of the Victorian Railways and then, later on, 5 were painted in the V/Line orange and grey. Towards the end of their working lives, they received the 'chopped' valance treatment which altered their appearance but maintenance was easier. With the arrival of larger locos in the form of G's and the aging B class being rejuvenated into the A-class most of the fleet was scrapped or withdrawn by 1989. Luckily 2 units have made it into preservation and currently 1 other is still earning their keep with CFCLA.

Road Numbers: T357-T366. **Model:** G8B

T357-366 Parts list



Soldering: Always clean up soldered joints as you progress, as it's easier in the long run. For an understanding of soldering it would pay to visit the following sites for information on soldering before attempting your first kit.

<http://themodelmakersresource.co.uk/articles/article012.html>
http://www.dccconcepts.com/index_files/DCCsoldering1.htm

I'm not the perfect solderer as I also end up with solder runs but I scrape, file and clean the general area so that it doesn't show as much. It may take a few minutes on some joints but the end finish on your model is worth it!

It is far easier to use the wire brush pictured below in the Dremel to clean parts just before assembly. Holding the unit at a slight angle and lightly letting the brush polish the next item to be soldered works very well. It is the simplest method I have found.

Tools needed: variable temperature soldering iron, solder, flux, small files, sanding sticks, fine grade sandpaper 800-1200 grit, Selley's Kwik Grip water-based, 'Duck Bill' (flat – no teeth) and long nose pliers, 'Hold 'N' Fold', superglue, Exacto knife, scissor clamps, weights, soldering aids, Kapton Tape, Blu-Tak, 0.3mm drill bit, pin vice, tweezers, the 'Wedge' by Spirit Design for handrail folding available separately from my website.

Other items: Bachmann S2/S4 loco for the mechanism, paint, modelling putty to fix up uneven soldering and weathering powders. These notes cover the Bachmann S4 mechanism only. If you plan to use a LifeLike chassis, a Spirit Design plywood chassis is available separately. It's easier than the Y class chassis to put together if you have done this kit in the past

Assembly Instructions: These instructions may seem long-winded but it's harder to describe and better for your understanding than just putting a few pictures in. Some steps require close attention and they are highlighted ***in bold and italics!*** Any text in ***Green you can use solder on superglue in the construction.*** Parts referred to in the text are marked **(P1)**, **(P2)** etc and there is a coloured picture of the parts to aid you. All brass parts and tabs holding the parts to the etch should be trimmed back and filed smooth after removal. ***Clean parts in the etch with 800-1200 grit sandpaper /emery before soldering a piece into your kit assembly or with a Dremel fitted with a small conical steel brush - see picture below***



Left: Small conical brush for polishing brass etches as needed.
Right: Drum sanding unit for frame grinding of locomotive mechs

More Reference photos:

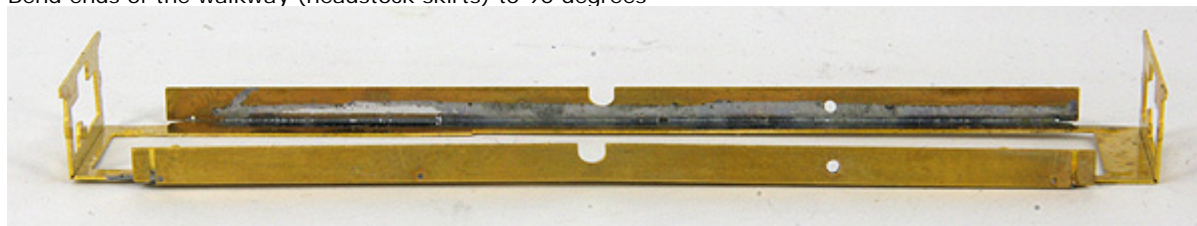
http://www.victorianrailways.net/motive%20power/t357_366.html <http://www.robx1.net/index/index.htm>
<http://www.pjv101.net/index.htm>

Train Hobby T class 2nd series 'High Cab' profile book

Assembling the kit:

Walkway:

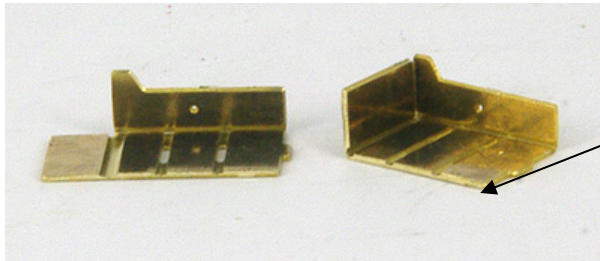
1. Cut the centre section holding the small parts away from the main walkway etch **(P1)**
2. Remove the walkway **(P1)** from the etch brass kit, clean edges and fold the valance sides up at 90degrees using a 'Hold 'n' Fold' or between 2 bars of hardened ground steel. You may need to take the slight curve out of the brass etch as the brass is manufactured from a sheet roll. Then ensure the walkway is flat and straight before the next step and solder the inside edge sides to add strength to the valance and walkway deck. Once soldered straighten and flatten the decks using pliers, steel blocks or whatever aids you have
3. If you are making the VR blue and gold era loco without the cutaway valances, you will need to fill the dotted line area with solder from the inside after placing masking tape along the front to stop excess solder leaking through. For the V/Line era gently remove the dotted area with sharp scissors or scribe through slowly at the rear along the fold line. Not all V/Line locos had the cutaway valance, see table listed later on for details
4. Bend ends of the walkway (headstock skirts) to 90 degrees



VR Blue and Gold era walkway shown here

5. Fold a staircase side **(P2)**, then the bottom of the step up to meet the side and solder. Repeat for all 4 **(P2)** staircases

To help keep items straight and to aid you in holding parts build the simple MDF solder board shown later. Make it whatever size you want but I made mine from 6mm and 3mm MDF boards



This edge up against the headstock end of walkway

6. At each of the valance ends of the walkway (P1), there is a small flap that should be bent towards the centre of the walkway at about a 45-degree angle. This angle is easy to follow as the flap bend should match the shape in the top of the walkway when viewed from above and should be soldered against the staircase after doing step 7
7. **Note the side part of the staircase is positioned away from the front/rear skirts of the headstocks on the walkway.** Test fit a staircase (P2) and once satisfied with the fit and squareness, solder it into the walkway making sure that the tab on the top slots into the hole provided in the walkway. Also, make sure the staircase is square and straight to the front/rear walkway and the headstock skirts. Solder the lower step edge of the stair casing to the headstock skirt. Where the tab of the stair casing (P2) comes through the walkway (P1), fill this with solder flush with the walkway. Solder the opposite side of the staircase to where the valance flap meets the staircase. Repeat for the other 3 staircase units (P2)



Walkway shown here

8. Clean up any excess solder on the completed walkway and make sure the centre area is free from any etch holding tabs
9. **Make sure that the walkway is straight and flat. If not it can be twisted by using pliers/steel bars to achieve a flat and square surface. You must achieve this as the entire superstructure relies on this being correct. Take your time to achieve the result.**

Long Hood:

1. (P3) Fold up the long hood into a U shape. With pliers bend the 2 side sections of the nose inwards against the fold lines so that the nose has an angle like the prototype. When looking from above the nose will have a gap at the top which is filled with solder. Solder the outer edges of the nose to the 'U' shaped body. Take your time here to achieve a result. File if needed any overhangs, under hangs to achieve the correct shape
2. Using pliers bend the angled nose section down so that the bottom edges of the nose are in line with the bottom edges of the main nose shaped and formed in step 2. The nose front should sit on the edges but not past the edges of the main nose sides and then be soldered. If it doesn't the nose section may need more or less bending to achieve this. Also, you may need to push the nose front up towards the roof of the nose body with pliers but take care. If it is too wide just file the excess off or remove the nose front and solder separately. When happy with the overall shape, fill the gaps between the nose and the nose main nose body with solder. Using a file radius the nose corners and sides to look similar to the real loco
3. Using the paper guides as spacers under each section, solder each of the long hood handrails (P4) into the holes provided. It will be easier if you solder the 3 longer legs of the handrail and then proceed to the others. The paper spacer should be placed between the handrail and the loco body which creates a gap when soldered the handrails stand proud of the body. Soldering should be from the inside of the long hood body. **Note if you are building T399 onwards see Adding Details step1**
4. Using pliers make a 2.5mm handrail using the 0.3mm wire provided and solder into the nose holes. Use a slither of paper to space the handrail from the body and then clean the body up of excess solder



Nose:

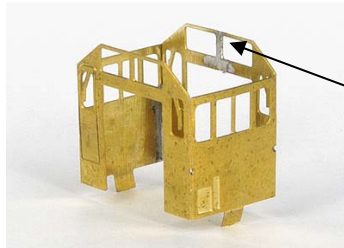
1. (P5) Fold the nose sides (but not the front) into a 'U' shape and solder inside along the main fold lines. The nose front panel will be at 90degrees to the sides
2. Using pliers bend the two side sections of the nose slightly down so they match the T class nose shape

- Using pliers bend the angled nose section down so that the bottom edges of the nose are in line with the bottom edges of the main nose shaped and formed in step 2. The nose front should sit on the edges but not past the edges of the main nose sides and then be soldered. If it doesn't the nose section may need more or less bending to achieve this. Also, you may need to push the nose front up towards the roof of the nose body with pliers but take care. If it is too wide just file the excess off or remove the nose front and solder separately. When happy with the overall shape, fill the gaps between the nose and the nose main nose body with solder. Using a file radius the nose corners and sides to look similar to the real loco
- Using pliers make a 2.5mm handrail using the 0.3mm wire provided and solder it into the nose holes provided using a paper spacer between the handrail and body



Cab:

- Fold lines are on the inside of the cab (**P6**). The main front of the cab has 2 high windows side by side and this goes towards the short nose. Fold each of the sides 90 degrees and work around until the 2 high windows of the cab rear meet squarely in the centre. But solder the back 2 high window halves together forming the cab into a box shape. Solder along the internal fold lines of the cab. Try not to fill the handrail holes in the fold line of the cab, which are just below the window line. If you do just drill them out slowly with a pin vice



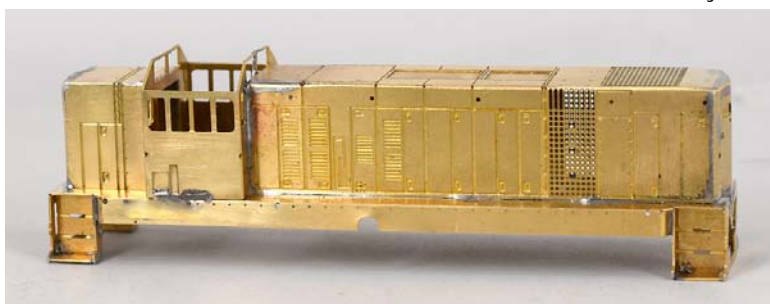
Rear of
loco cab

Cab roof:

- Depending on the era being modelled you can opt to have vigilance bumps on the cab roof (**P7**) or not. To create them, whilst the cab is in the etch use a small blunt nail and push the 3 vigilance bubbles on the underside of the cab where the fold lines are etched. There are 3 trial bumps for you to test your technique in the main etch just next to the cab
- Bend each side of the cab roof to match the cab formed in the previous steps. Fold lines are on the inside of the roof. **Do not solder** the cab roof on as it glued on last after painting and windows have been inserted into the cab

Assembly of the main components to the walkway:

- Make sure that the staff exchanger recesses in the cab (P6) are pointing towards the small nose end of the walkway**, insert the cab tabs **centrally** into the slots provided in the walkway. With care solder one side to the walkway whilst keeping it square and then repeat for the other side. Fill the remaining seams with solder
- Adjust and twist the long hood shape to be square and true before proceeding to the next step
- The long hood has two brass tabs that should be bent to approx. 60 degrees. Slide the long hood into the walkway so the nose middle flat section sits almost flush with the end of the walkway
- Note the long hood will sit on top of the walkway when soldered but also inline and flush with the inside etched hole through the walkway. Using the MDF soldering aid push the upturned walkway with long hood assembly into the corner so that the tab butts up against the walkway stop and will not go any further. Solder a small section and check that everything is good
- Repeat for the other side tab and gradually push the loco body sides to match the cut-out profile of the walkway etch and solder in place but **DO NOT SOLDER the tabs**
- Make sure that the staff exchanger recesses in the cab (P6) are pointing towards the small nose end of the walkway**, insert the cab tabs **centrally** into the slots provided in the walkway. With care solder one tab slot hole to the walkway whilst keeping it square and then repeat for the other side. Fill the remaining seams with solder and crimp the cab tabs flush with the walkway's shorter edge
- Now that the long hood is solder all around bend the tabs back and forth until they snap cleanly off and discard
- Repeat a similar procedure for the short end nose (**P5**) section
- Place the completed unit on a flat surface and check that the loco is not twisted. Gently straighten if twisted



Checking for squareness before adding the cowcatchers

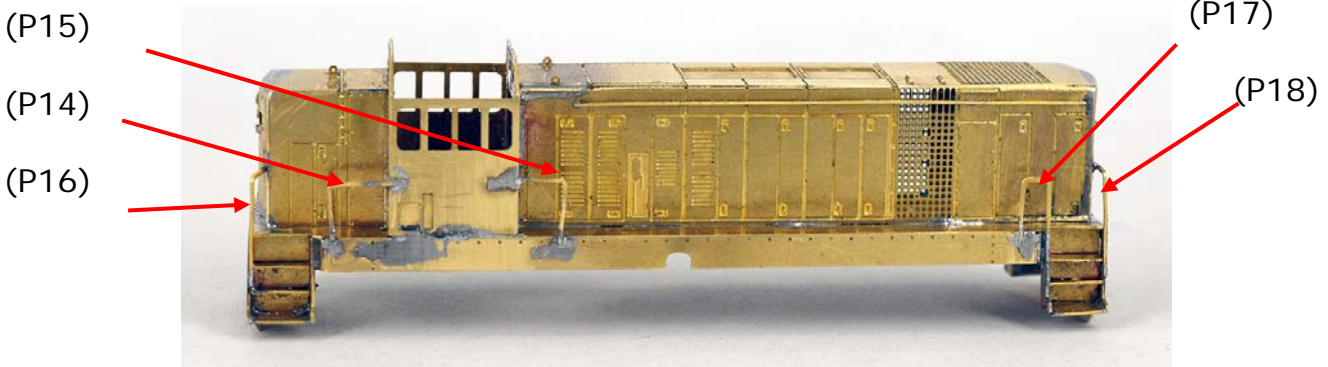
10. Adjust/trim if necessary after trial fitting the cowcatchers (P8) to the headstocks - the fold line faces to the inside of the loco and are at the bottom. Use Super Glue Gel for this procedure if your soldering skills are new. With pliers gently bend the lower portion at 30 degrees. See prototype photos above or model below
11. Thoroughly clean the loco shell of any **excess** solder before attempting the handrails as its easier at this stage than later

Adding details:

1. Glue (P9) 3D print exhaust into the ½ etched depression on the long hood matching the exhaust over the hole
2. Glue or solder the lift rings (P10) into the holes provided in the long hood
3. Glue the headlights (P11) into the depressions on each of the noses
4. Glue or solder the step treads (P12) onto the holes provided in each staircase and trim the tabs protruding through the rear
5. Depending on your era cab valances (P13) are glued at each of the corners of the cab where it meets the walkway
6. Depending on your era you may need to fill the depressions in the cab sides representing the staff exchanger holes
7. Horn (P26) should be trimmed to one forward and one aft-facing unit from the 3 trumpet part supplied. Use the smallest 2 units from the set
8. Glue (P24) two small 1.5mm thick wooden blocks in front of each cab door to the walkway

Walkway handrails:

1. Solder the short nose cab front handrails (P14) (6 x 6 mm) to the walkway and cab. There will be a small section left hanging below the walkway. Trim the excess handrail below the walkway
2. Solder the rear cab handrails (P15) (4 x 6 mm) to the cab and walkway. Make sure they look square and correct
3. Solder the short nose long handrails (P16) (4 x 10 mm) to the walkway paying attention to the orientation of the units relative to the body as per the prototype. You will find it easier if you solder the nose first and then proceed to solder the longer arm to the staircase rear face. Note this will necessitate the handrail to be slightly bent to achieve this. See photos of the model and prototype
4. Solder the "U" shaped handrail (P17) to the walkway and then solder the longer leg to the lower step. Twist handrail to shape after securing. Repeat for the other side
5. 'Pre Tin' the headstock rear face with solder where the rear large handrail (P18) will attach. 'Pre tin' the back of the handrail where it will attach to the headstock. Clean any lumps from the faces of both units and sweat the handrail into position
6. Glue the 2 plywood steps (P19) outside the door etch at both front and back of the cab against the walkway



My original prototype. Note the cab roof is not yet glued on or 3D parts added

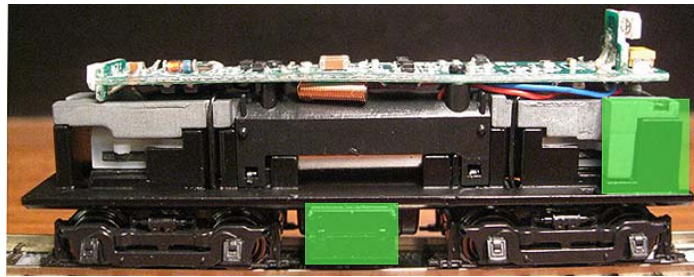
Fuel Tanks:

1. Glue (P20) into the notch of (P21) Fuel tank/Battery box and repeat for the other side
2. Glue (P22) battery box bottom across between the 2 battery boxes to fill the space. When dry radius a small amount with a file on the bottom to form the fuel tank and battery box curve which is a feature of the real unit. Set this aside and alter slightly depending on which chassis you choose for your loco

Bachmann S2/S4 disassembly and modifications:

Hint: Use a camera or phone to take photos of the disassembly procedure if you don't feel confident of where all the parts come from.

3. Remove the body by inserting a small screwdriver between the chassis and the side sill and then gently pry the shell upwards. Once it is raised from the base of the chassis, the shell should pull off readily. There are 4 dimples that grab the inside of the body. Located 21mm on either side of the long hood and 21mm back from the front of the cab. Insert your screwdrivers around these areas to free the body
4. Remove the screws securing the two weights above the bogies
5. Remove 2 screws securing the DCC board
6. Unsolder the four wires that are attached to the bogies at the DCC board end. With the tip of a small screwdriver scratch a line on one bogie underside face and also on the walkway face where it is housed. This will aid the correct bogie going back in its correct spot although it shouldn't matter we know this configuration was done at the factory worked well
7. Remove the bogie worm drive covers by gently prizing them off at the long end near the face of the weight towers. Take your time as this is fiddly
8. Using the photo below as a guide file/grind the Fluro green area with the weight that has two screw holes to the width of the running board of the chassis



9. Trim the weight to match the profile just created in step 8
10. Grind off the battery box faces flush with the walkway sides
11. Grind away the area on the chassis walkway side edges so that slides into the body freely
12. At each corner of the Bachmann chassis, running board remove a 2mm x 2mm section as per the photo below



Bogies:

1. Trim the brake block shoes and clasp extensions flush with the bogie side frames
2. Using a small screwdriver and at one end of the bogie insert it and gently twist so that the bogie frame separates from the bogie mechanism. Note the orientation of the wheels and gears are before total removal
3. File the bogie sides down so that the raised detail is flat with the background main shape
4. Trim the excess flash from each of the T class cast bogie side frames and glue these to the face of the bogie side frame. See the photo below of the model or prototype pictures to gauge placement

Chassis Mechanism re-assembly:

1. Using any notes or phone /camera shots, reassemble the chassis with bogies, grease the gears and install the DCC decoder board. Resolder the bogie wires to the board
2. Glue (**P23**) wooden walkway to the top of the Bachmann chassis so that the cab end is placed over the original cab end of the chassis. I.e. the area where the weight with the 2 screws was originally
3. Adapt/trim the light from the DCC board as it will foul the body at its normal height
4. Glue the battery box/fuel tank to the chassis so the battery boxes are facing the cab end
5. Glue the 2 wooden coupler spacers to the underside of the chassis in front of the bogie towers

After 12 months my original Bachmann DCC board died so I replaced it with DigiTrax DZ126

Original
Bachmann cab
end weight now
becomes the long
hood end



New Cab end

Painting:

The brass body: The whole etch needs to be cleaned before priming and final colour application. All excess solder should be minimised. There are several ways of cleaning brass but to bathe the brass in warmed Vinegar for 20 minutes is recommended, then wash with fresh water and then air dry before applying an etch primer. Some people skip the priming stage if they are using water-based acrylics or use a sandblaster.

VR Blue and Gold era: - Steam Era diesel blue: Cab roof, loco shell and exhaust stack depending on the era. **Black:** Underframe, bogies, air tanks, handrails and associated gear. **Silver:** Exhaust stack depending on the era, fuel sight gauges, windscreen wipers, central side window pillar and horns depending on the era. **Red:** Horn trumpet ends depending on the era. **Steam Era diesel yellow:** handrails depending on the era, nose face and the long hood face ends as per prototype photos

V/Line Orange and Grey era: - Steam era V/Line Orange: valance sides, nose faces and nose handrails, cab sides only and headstocks/pilots. **Steam Era V/line Diesel Grey:** All other areas except staircases. **Black:** staircases, fuel tanks and bogies. **Silver:** exhaust and middle bar of the cab window. **White:** all walkway handrails only

Numberplates and number boards in lights: Depending on your era the numberplate background will be either diesel blue or black, which is the most common. If painting a blue background polish the plate first before coating. Once the paint is applied carefully wipe away the paint on the raised numbers, class letter and border. For black numberplates repeat the steps above. Then

lightly paint a round toothpick in a small section with white paint and then gently roll this across the raised sections of the numberplates to paint the detail.

The paper number plates are best trimmed as close as possible to their respective white edges and applied to the loco using Microscale clear water-based topcoats as this acts as a glue as well as allowing you to put a water-based topcoat over an existing enamel or water-based VR Royal Blue

Decals:

The Blue and Gold era chevrons and stripes are the highest quality decals on the market and have been especially screen printed for Spirit Design to match Steam Era Diesel Yellow. They also feature a unique border fractionally wider than the artwork work. This means you can cut away from the decal and when soaking off, only the artwork with the small clear border will come away. No more having to trim as close as possible as the special mask does this for you. V/Line era: using photos as a guide place the decals as per the prototype on the sides and noses of the loco

Final assembly:

Glazing:

Where there is a score line on each window section, bend this down 90 degrees from the scoreline. Do a test fit into the cab of each window set (**P25**) and trim where necessary as the design allows for a snug fit. Using a couple of small dabs of water-based Kwik Grip apply below where a window opening is to attach the windows

Roof: Using water-based Selley's Kwik Grip apply a bead of glue around the top edge of the cab and then centre the cab roof into position making sure the etch line and rivets are pointing towards the long hood. Use photos as a guide.

Couplers:

1. Test fit the chassis into the body and open out the coupler access in the pilot enough so that the coupler can be pushed from the front into its final position on the loco
2. Drill 0.8mm holes for the coupler screws and attach the couplers which will then lock the body to the mechanism



T362 courtesy of Mark Bau's website



Above T364 at Dynon. Photo courtesy of Mak Bau



Above T357 unwashed in normal working condition. Photo courtesy of Mak Bau



Brand new T366 at Spencer Street station 16th July 1962. VR photo



Finished model before glazing, cab number plates and marker lights. Note roof is not glued down yet and is only resting in place for the photo. I weather all my locos so this one will get the usual weathering details