

SDLoco2 - Victorian Railways T class diesel-electric Series 1 – Blue and Gold era.

Requires Atlas VO1000 loco to complete, available separately.

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



T337 rests between duties at Dynon loco depot – note the yellow handrails. Photo courtesy of Mark Bau's website



September 1983 sees T327 just a few months away from being converted into P17. Photo courtesy of Mark Bau's website

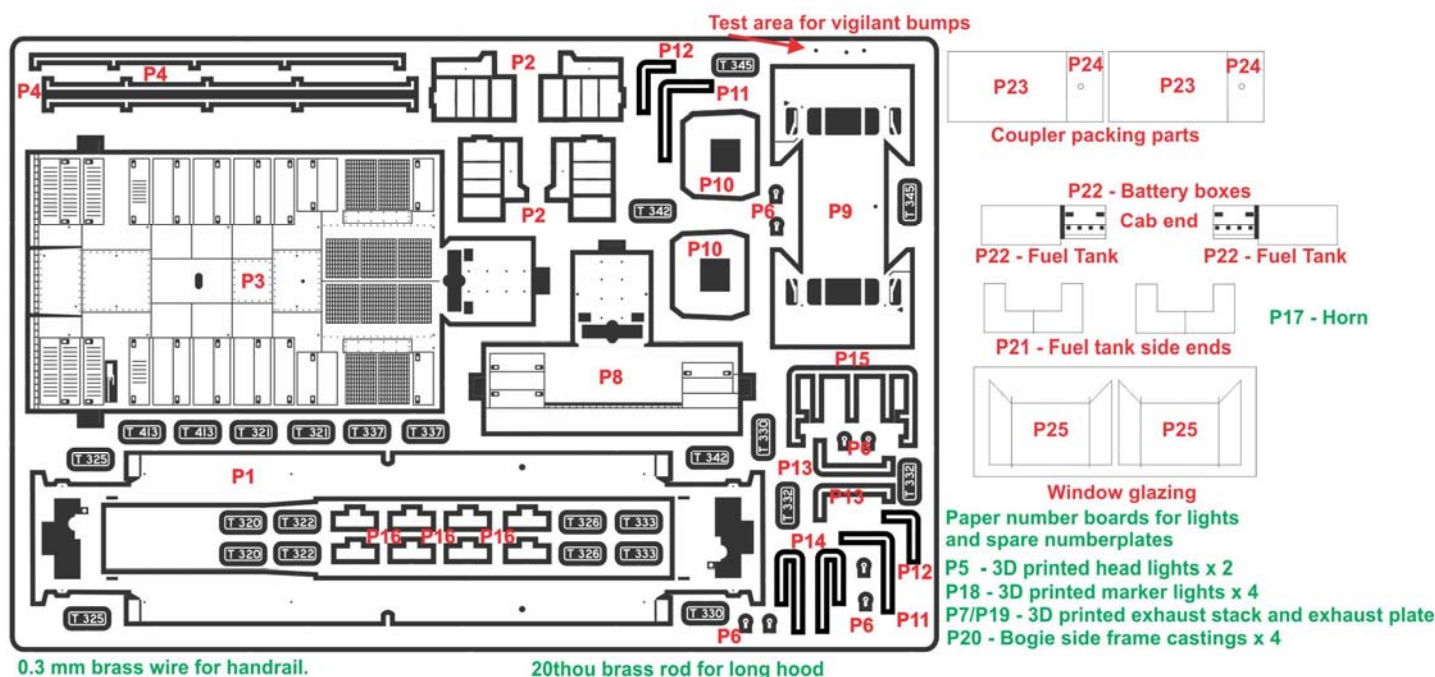
Basic history: The T class was the largest diesel class of the Victorian Railways and were built by Clyde's Granville workshops over 13 years from 1955 to 1968. Therefore, there are 5 versions but the group is commonly called by the 3 versions of "Flat Top", "High Nose" and "Low Nose". They were purchased to serve the state's branch lines and to replace the ageing K's and the newly arrived J class steam locos. As the branch lines closed rapidly, they were then seen in all manner of workings with mainline locos, a job they did very well. When required the venerable "Flatie" could be seen hauling lesser slower country trains around the state. The wheat season would see them lashed together with others of the class and usually a big engine would be the lead loco.

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locos in the form of G's and the aging B class being rejuvenated into the A-class most of the fleet was scrapped or withdrawn by the mid-1980 with some surviving into preservation or conversions into the P class which altered their appearance radically. Throughout their life, they kept their Blue & Gold Victorian Railways paint scheme except for noted exceptions

of T334 (Ozride: pink) and T342 (APM yellow). T413 ex Portland Cement Company D1 class is the only T class fitted with dynamic brakes. The noticeable feature is the cooling grids on the short end.

Road Numbers: T320-T346 and T413 ex Portland Cement Company D1 class.

The parts list is below for your convenience.



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

Tools needed: variable temperature soldering iron, solder, flux, small files, sanding sticks, fine grade sandpaper 800-1000 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. The desirable tool is a handheld Dremel with a wire wheel for cleaning the brass etc.

Other items: Atlas VO1000 loco for the mechanism, paint modelling putty to fix up uneven soldering, weathering powders and a TCS VO 1000 DCC decoder if using DCC.

Assembly Instructions: Some steps require close attention and they are highlighted ***in bold and italics!*** Any text in Green can be done at this point or later on 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 below. All brass parts and tabs holding parts to the etch should be trimmed back and filed smooth after removing from the etch. The main mansard long hood has been performed to aid your construction. ***Clean parts in the etch with 800-1000 grit sandpaper /emery before soldering a piece into your kit assembly or with a Dremel fitted with a small conical steel brush***

All 3D printed parts should be washed in hotish water and detergent before painting your model to remove wax and oil from the printing process. I have pre washed them but please clean them again



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

More Reference photos:

http://www.victorianrailways.net/motive%20power/t320_346.html <http://www.robx1.net/index/index.htm>

<http://www.pjv101.net/index.htm>

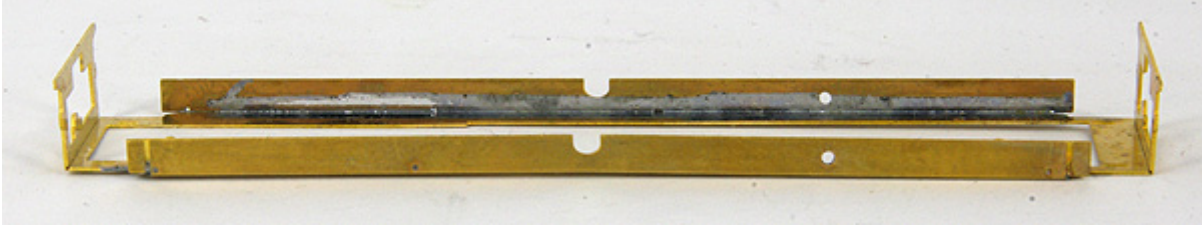
Train Hobby T class 1st series 'Flat Top' profile book

Assembling the kit:

Walkway:

1. ***Clean the walkway before soldering and bending and with all parts as you continue building your model***
2. Cut the centre section holding the small parts away from the main walkway etch (P1)

- Remove the walkway (**P1**) from the etch brass kit 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
- Bend ends of the walkway (headstock skirts) to 90 degrees



- Fold a staircase side (**P2**), then the bottom of step up to meet the side and solder. Do this for all 4 (**P2**) staircases
- At each of the valance ends (**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
- 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, solder it into the floor 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 in relation 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.



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

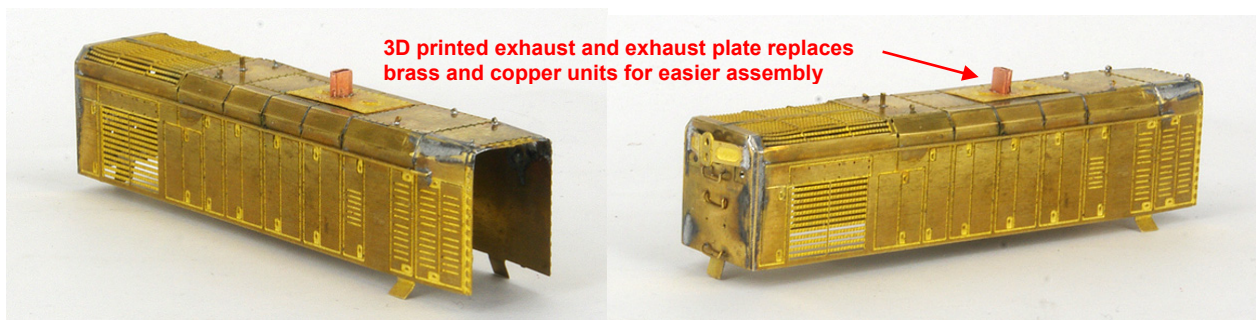
Completed walkway showing that I soldered the steps in at this point you can glue them in later on if you wish.



Long Hood:

The long hood (**P3**) (Mansard sections) has been pre-formed and tack soldered to make construction easier for you

- Complete the soldering around the nose of the loco the arrived tack soldered
- Using the paper guides as spacers under each section, solder each of the long hood handrails (**P4**) into the holes provided. The paper should be between the handrail and the loco body thus creating a gap so when soldered the handrail stands proud of the body. It is easier to do the three legs that were supporting the handrail in the etch first and then proceed to the others in turn. A spare handrail is provided
- Using the Spirit Design Wedge or pliers bend 4 handrails each 3mm long using the 0.3mm wire provided. After each handrail is formed grip the end loop in about 1mm and then bend the remaining legs down at 90 degrees. **See prototype photos.**
- Solder the top two and the bottom one into the long hood nose (**P3**) making sure they stand proud as per prototype photos. The handrails can be glued in after decaling rather than soldering in if you like. Do not solder or glue the 3rd one now as this is glued in after painting and decaling the model.
- Using the 20thou wire provided solder or glue it into position on the long hood, on the centre line and just forward of the radiator exhaust vents, with it protruding 1.0 – 1.25 above the mansard long hood roof. Bend a small "L" into the end to allow it to sit on the inside of the loco to aid positioning through the roof
- Trim the excess legs of wire from the handrails inside the loco body as required



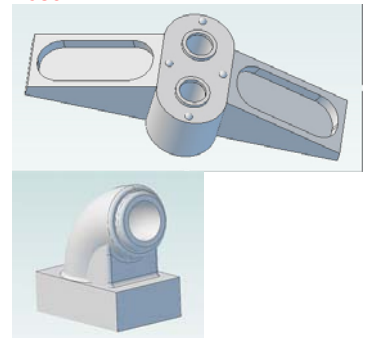
Short Hood:

1. Using the Spirit Design 'Wedge' or pliers, bend 4 handrails each 3 mm long using the 0.3mm wire provided. After each handrail is formed grip the end loop in about 1mm and then bend the remaining legs down at 90 degrees. See prototype photos above
2. Solder the top two and the bottom one into the long hood nose making sure they stand proud as per prototype photos. The handrails can be glued in after decaling rather than soldering in if you like. Do not solder or glue the 3rd one down as this is glued in after painting and decaling the model.
3. Fold up and solder the short nose (P8) into a box making sure the front sits next to the side panels and not within them to achieve a straight and vertical front. Fill the gaps along the edges where the nose meets the sides with solder. If you fill the handrail holes in by accident just clear them out with a drill bit in a pin vice
4. Trim the excess legs of wire from the handrails as required

Note your nose of your T class will have 3 tabs instead of 1 shown on my unit here

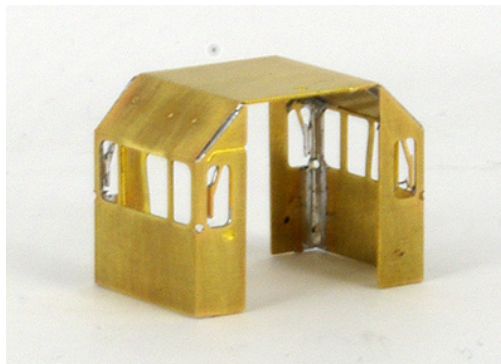


3D printed headlight (P5) and marker lights (P18) are glued to the nose



Cab:

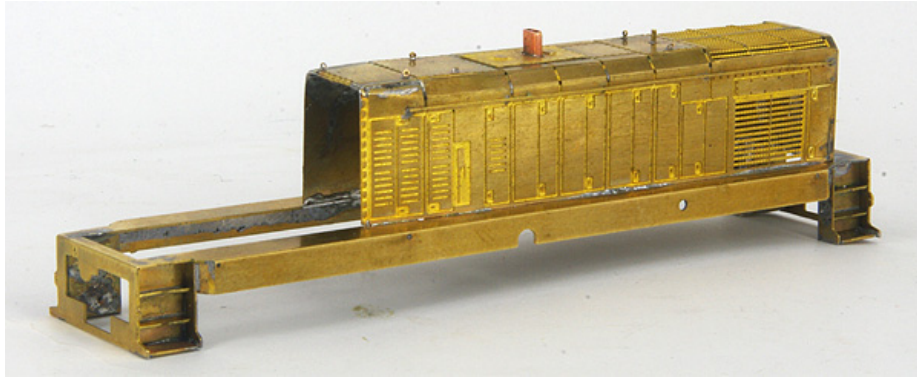
1. Depending on the era being modelled you can opt to have vigilance bumps on the cab roof or not. To create them, whilst the cab is in the etch use a small blunt nail and push the 3 vigilance bubbles on the underside of the cab where the fold lines are etched. There are 3 trial bumps for you to test your technique in the main etch just below one of the cab
2. Fold the small sides of one end of the cab (P9) to 90 degrees and solder along the fold line, which should be on the inside 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
3. Repeat the same for the other end of the cab
4. Fold the lower portion of the cab roof so that it fits within the 45-degree shape of the small cab sides. When happy with the shape solder it with the outer edges of the cab profile
5. Repeat for the opposite side



Assembly of the main components to the walkway:

1. Bend the small brass tab on the nose of the long hood (P3) 90 degrees. Insert the long hood into the walkway with the nose tab against the wider end of the walkway but gripping the underside of the walkway. Fold the 2 side tabs 90 degrees so that they grip the underside of the walkway, as this will aid in setting up the long hood for soldering into the walkway
2. Solder the nose section on either side of the tab making sure that the nose is hard up against the edge of the walkway cut out
3. Push aside the tab of the long hood against the walkway again making sure the tab fold is on the underside of the walkway and when happy solder a small dab on either side of the tab itself but DO NOT solder the tab area to the walkway as this and the others will be broken off once the walkway is soldered into place

4. Repeat for the other side tab
5. Push the long hood sides to the shape of the walkway opening and solder the remaining edges to the walkway
6. Bend the three tabs back and forth until they snap off cleanly as we don't want them interfering when the completed shell is placed on the loco mech



7. Repeat the same procedure for the short end nose (**P8**) section
8. Check the shape and alignment of the completed long hood and small nose section and twist them if need be to be true vertical but also make sure you don't twist the walkway. Place completed unit on a flat surface and check that the loco is not twisted
9. Using the photo below, the cab's vigilant bumps face towards you. Test fit the cab (**P9**) into the gap and if the necessary file the 'Long hood' edges only if it's too tight a fit. When happy with the fitting pre-tin the cab and walkway and then soldered it into place. See the photo below of completed main body components as a visual aid
10. Solder the cowcatchers (**P10**) to the headstocks - the fold line faces to the inside of the loco and are at the bottom. 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

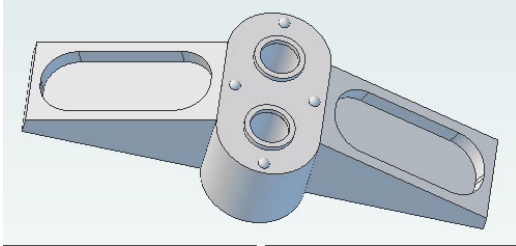


T333 takes shape after solder cleanup

12. Solder the short nose cab handrails (**P11**) (6 x 10 mm) to the walkway and cab. There will be a small section left hanging below the walkway. Trim the excess handrail below the walkway
13. Solder the rear cab handrails (**P12**) (5 x 6 mm) to the cab and walkway. Make sure the look square and correct
14. Solder the short nose handrails (**P13**) (4 x 10 x 1.5mm) to the walkways 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

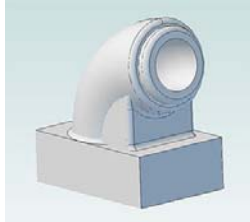
longer arm to the staircase. Note this will necessitate the handrail to be slightly bent to achieve this. See photos of the model and prototype

15. Solder the "U" shaped handrail (**P14**) to the walkway and then solder the longer leg to the lower step. Twist handrail to shape after securing. Repeat for the other side
16. 'Pre Tin' the headstock face with solder where the rear large handrail (**P15**) 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
17. Solder or glue the staircase steps (**P16**) into the staircases and trim the excess tabs protruding through on the inside
18. Horns 3D printed (**P17**), the small horn is glued into the hole closest to the vigilance bumps in the cab roof and the trumpet points towards the long hood. The larger one is glued into the other hole and points towards the short nose
19. Glue the 6 lift rings (**P6**) into the holes provided in the long hood roof
20. Glue a 3D printed light housing (**P5**) into the recess matching its shape on both noses



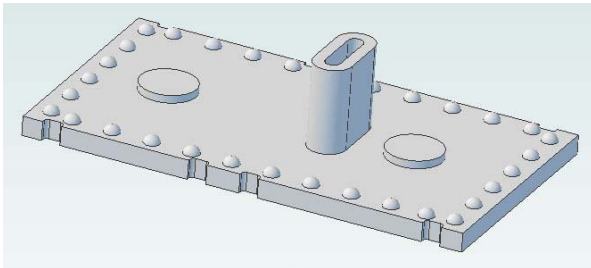
****** All 3D printed parts should be washed in hotish water and detergent before painting your model to remove wax and oil from the printing process ******

21. Using the 3D printed maker lights (**P18**), glue into each of the small rectangular depressions below the nose headlight. The light faces away from the centre of the nose. Use prototype photos above for clarity



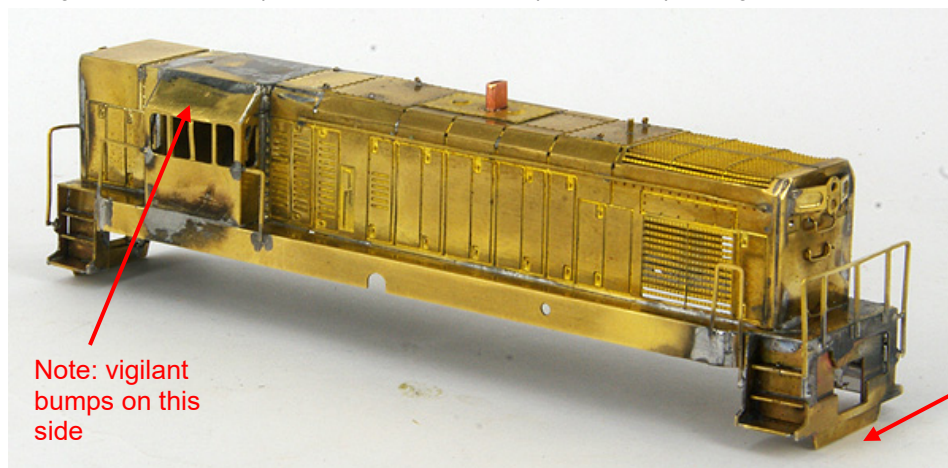
****** All 3D printed parts should be washed in hotish water and detergent before painting your model to remove wax and oil from the printing process ******

22. Glue the 3D printed exhaust and exhaust plate (**P7/P19**) to the mansard roof matching for the exhaust to the hole in the hood roof



****** All 3D printed parts should be washed in hotish water and detergent before painting your model to remove wax and oil from the printing process ******

23. Glue any remaining handrails in except the ones that must be put in after painting

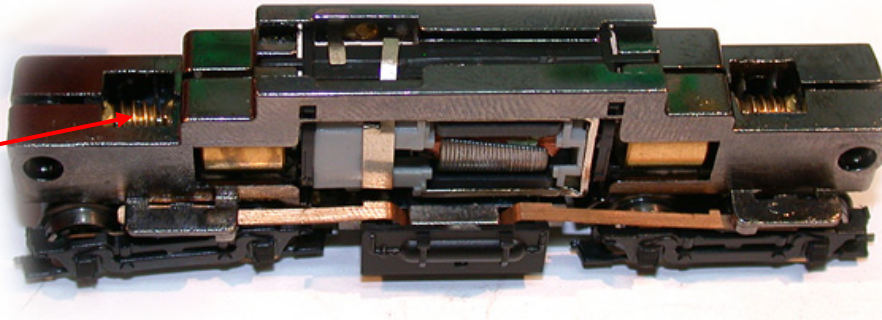


Atlas VO 1000 disassembly and modifications:

Chassis Mechanism: *Pay attention to the disassembly, as you need to be able to put it back together later on. Use your phone or camera to take sequence shots as a visual aid for later reference*

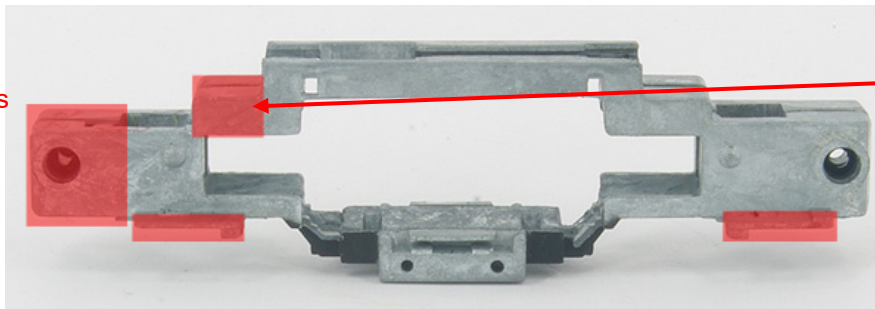
1. First, remove the shell by squeezing it on either side of the locomotive and gently rocking it back and forth until it slips off the frame
2. Mark the cab end in relation to the photo below. There are two chassis types by Atlas. The black anodised and a die-cast grey unit that is fitted with a DCC decoder
3. Remove the 2 screws securing the chassis sides and using a screwdriver inserted in between the frames at the screw points gently prize sides apart a bit and remove the original light board. If converting to DCC the light board is not needed

Note: as picture is shown here the cab end is on the LHS



4. Unclip fuel tank sides by pulling them straight towards you, wiggling it a bit side to side. Try not to break the two tabs that hold it to the chassis half
5. Remove phosphor bronze pickup rails
6. Remove motor, its cradle and associated universals and bushes, and the bogies
7. Re-assemble to the two bare chassis halves with the screws and nuts
8. File each side down in the coloured area by about 0.5mm to 0.75mm. Test fit the chassis in the body from time to time. Note the chassis must slip in very easily as we will also have Kapton tape wrapped around it and there has to be enough space to avoid shorting of the 2 sides when powered on the track. If necessary grind away some of the walkways hidden by the cab and cab inside edges to ease installation

File the areas marked with red as per instructions



This area here is easier to file down using a Dremel fitted with a stone or drum cylinder-sanding unit approximately 6mm wide. See the picture of the drum sander near Dremel at the start of instructions

Bogies:

1. Gently pull the keeper plate and sides, which is one unit from the bogie. You may need to insert a small screwdriver in the clips holding the parts together opposite where the gears are showing through the baseplate. The alternative is to cover the area where the gears are to stop plastic filings and crud entering the gear towers as you file the sides down. Pay attention to the orientation of the phosphor bronze pickups in the bogies
2. On each of the bogie side frames file flat the axle boxes and other details until the side frame is one flat surface
3. Clean the castings as necessary and then glue a side frame casting (**P20**) to each of the bogie side frame faces. Make sure that they don't sit too low in relation to the sides when viewing the bogies/frames on a bit of track

Fuel Tanks:

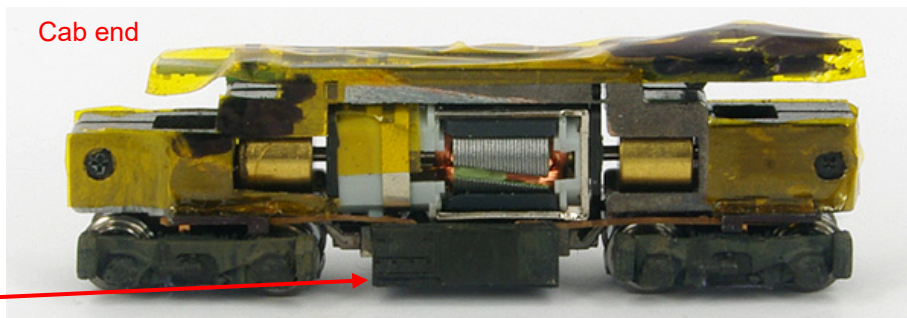
1. On each of the two fuel tank halves, file the side details flat to the background
2. Snap 'U' shaped (**P21**) part along the black central line into two 'L' shaped 0.8mm plywood parts. Glue these to the fuel tank side ends. The longer skinny leg matches closely the fuel tank ends when looking at them side on
3. Glue each of the battery box and fuel tank 0.8mm plywood units (**P22**) to the fuel tank side faces noting the battery boxes are towards the cab end

Chassis Mechanism re-assembly:

1. Using any notes or phone /camera shots, reassemble the chassis with bogies and DCC decoder board installation
2. Install the fuel tank/battery box sides to each chassis half
3. Using the picture below cut Kapton tape and apply it to the areas in yellow
4. Test drive the completed chassis

Cab end

Battery boxes both sides towards cab front



Completed anodized black chassis with Kapton tape and TCS DCC decoder installed. Note weathered bogies and fuel tank.

Couplers:

1. Glue the MDF block (**P23**) into the small nose near the cab vertically using a water-based Kwik Grip. The smaller block (**P24**) is glued onto the underside of the walkway area behind the headstock skirt on the long hood end.
2. When dry drill the vertical block with a 0.8mm drill bit for a coupler screw. Fit the original couplers through the headstock skirts of the donor loco or fit Micro-Trains 1015's

Painting:

Steam Era diesel blue: Cab roof, loco shell, 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. **Weathering:** is up to the builder to decide upon.

The brass body:

The whole etch needs to be cleaned before priming and final colour application. All excess solder should be minimised. Modelling putty should be used to fill any imperfections in any soldered joints. 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. Steam Era Diesel Blue and Diesel Yellow are the recommended paints as the decals are matched to the yellow. Paint the nose fronts as per the prototype as the decals are only the stripes and VR chevron wings.

The bogies, fuel tank and battery boxes:

These are painted flat black, Floquil Oily black or equivalent and then weathered with powders

Numberplates:

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 a black numberplate repeat the above steps. 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 model after main painting and test fitting on the mechanism. Just need to add red for the horn ends and glazing

Decals:

The 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. Also, they 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.

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. Five of each number plate for the entire class are included

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 but the design allows for a snug fit. Using a couple of small dabs of water-based Kwik Grip apply below well below where a window opening is and install.

Final assembly:

There are several paper number plates for the cab sides if you wish to choose these over the brass etch ones as well as the nose sight board units. 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 like glue.

Glue selected number board nose lights numbers to the cab using Microscale water-based clear. The brass numberplates can be glued using water-based Kwik Grip or Superglue sparingly.

Glue the remaining two handrails into the nose at each end of the loco



T325 has been lightly weathered using an airbrush and powders before being fitted with the mechanism



My finished model of a loco I kept seeing around the state during my main photographic years – T333.

Prototype reference photos:



Classic shot of T335 hauling a string of QR's.

Photo Courtesy of Geoff Winkler



T338 rattles over Cobden creek, running a light engine to Timboon. There it will join K184, which had previously headed down the branch with its enthusiast special, and assist it returning up the grade, back to Glenfyne and on to Camperdown. Sunday, the 20th of May 1979.

Photo Courtesy of Geoff Winkler



T336 slogs its way to the top of the grade at Corio, and is about 12 minutes late, as it contends with the extra weight of "new" X46, attached to the midday, Geelong train from Spencer St. I have no recollection of why the X was being transferred "dead" or "offline" this way, but during this era, "the powers that be", didn't seem to place "on-time running" high on their priority list.
1:12 pm on Monday, the 23rd of January 1978.

Photo Courtesy of Geoff Winkler



After assisting T338 up the hill to Warrenheip, X42 is detached and heads back to Ballarat. From here the diminutive T will operate solo, in charge of the nearly 1000 tons of grain, loaded into the 43 GY's. For the descent of some 500 meters over the 76km to North Geelong, the loco is only needed for its compressor and a place for the crew to sit.

Photo Courtesy of Geoff Winkler



T413 dynamic brake fitted T class and sister low nose rest at Dynon Loco. Note the chopped valance which it acquired later on in its life. Photo courtesy of Mark Bau's website. T413 is currently preserved with sister locos T320, T333, T334, T341, T342 and T345.