

## How to make your own CIE era 121 class loco B121

**TIP:** Do as much manhandling, drilling and plastic surgery work before painting or adding any detailing such as glazing, wire hand rails, etc

1. Get an Athearn SW1500 model on ebay. The later 3<sup>rd</sup> generation chassis which is DCC ready (8pin) quality motor drive + basic lighting board (directional head lamps) approx. €100 for a quality donor model via ebay. **Be sure to get a 3<sup>rd</sup> generation SW1500 model like the box below** as this is the smooth modern DCC ready chassis.



2. Get 3d Body shell from Shapeways approx. €65

**RAIL**  
3D PRINTS

MODEL SHOWN WITH FUD/FXD DETAILS FITTED



Irish 121 Class  
Scale: 00 (1:76)

DIGITAL PREVIEW  
Not a Photo

Render of the 121 Class with separately available FUD/FXD detail parts.

**Irish Railways 121 Class**

Made by  
Rail 3D Prints

**€64.98**

White Processed Versatile Pla...

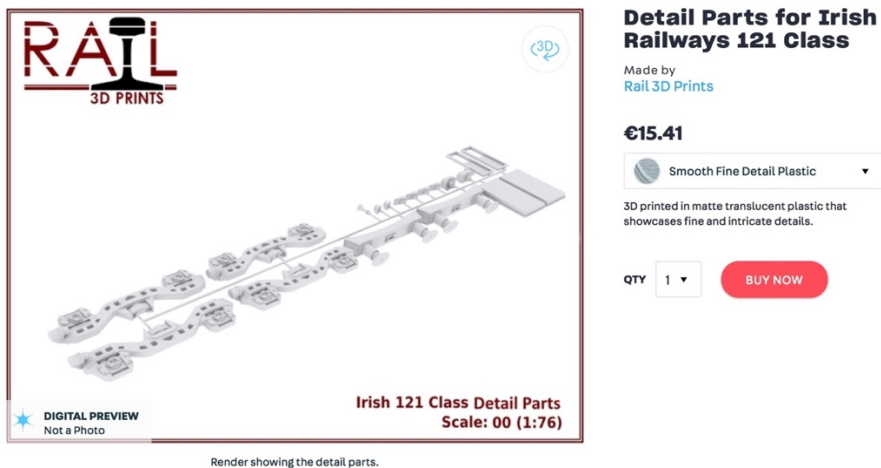
3D printed in white nylon plastic polished to reveal a smooth matte finish.

QTY  BUY NOW

<https://www.shapeways.com/product/S3QTQFYCT/irish-railways-121-class?optionId=57420082&li=user-wishlist>

3. Get the optional 3D FUD (Frosted Ultra detail) detail parts for 121 class (Bogies, buffer beam + Buffers, Horns, Light fittings, main side grille vents, Cab Doors, etc. Cost approx. €15

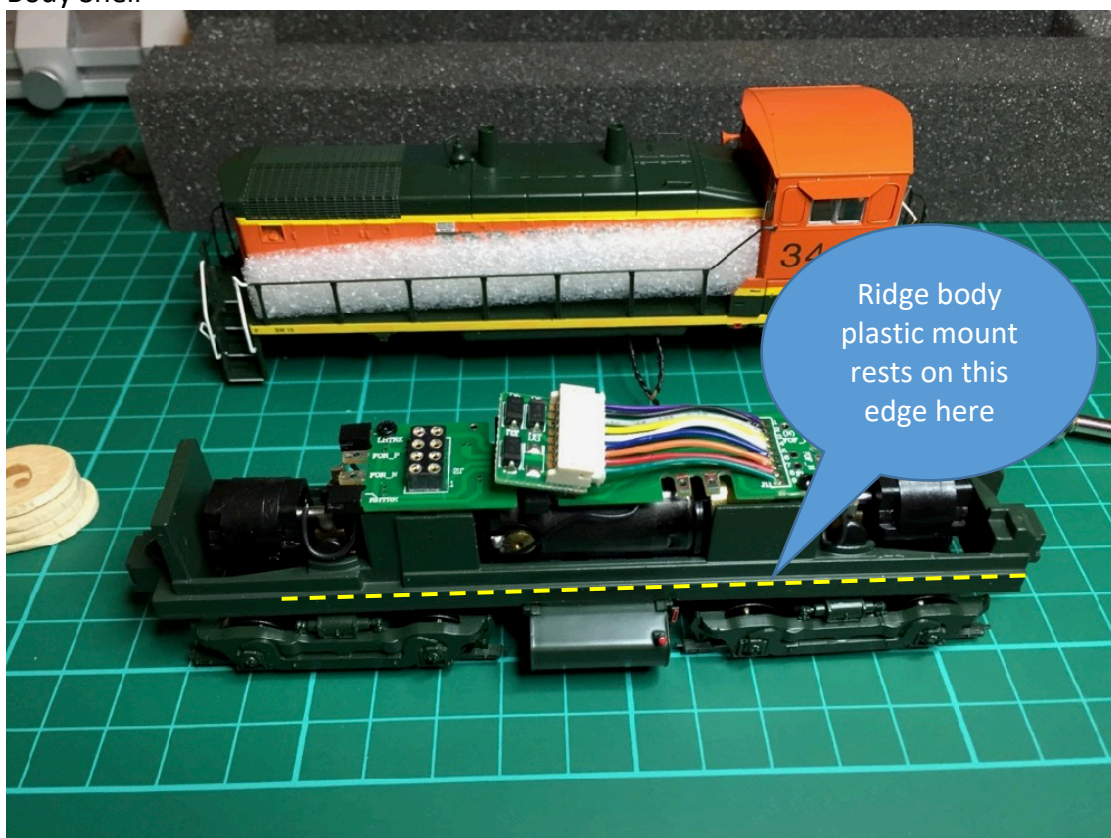
[http://www.derg.ie/albums/workbench/B121\\_3D\\_FUD\\_Detail\\_Parts.jpg](http://www.derg.ie/albums/workbench/B121_3D_FUD_Detail_Parts.jpg)



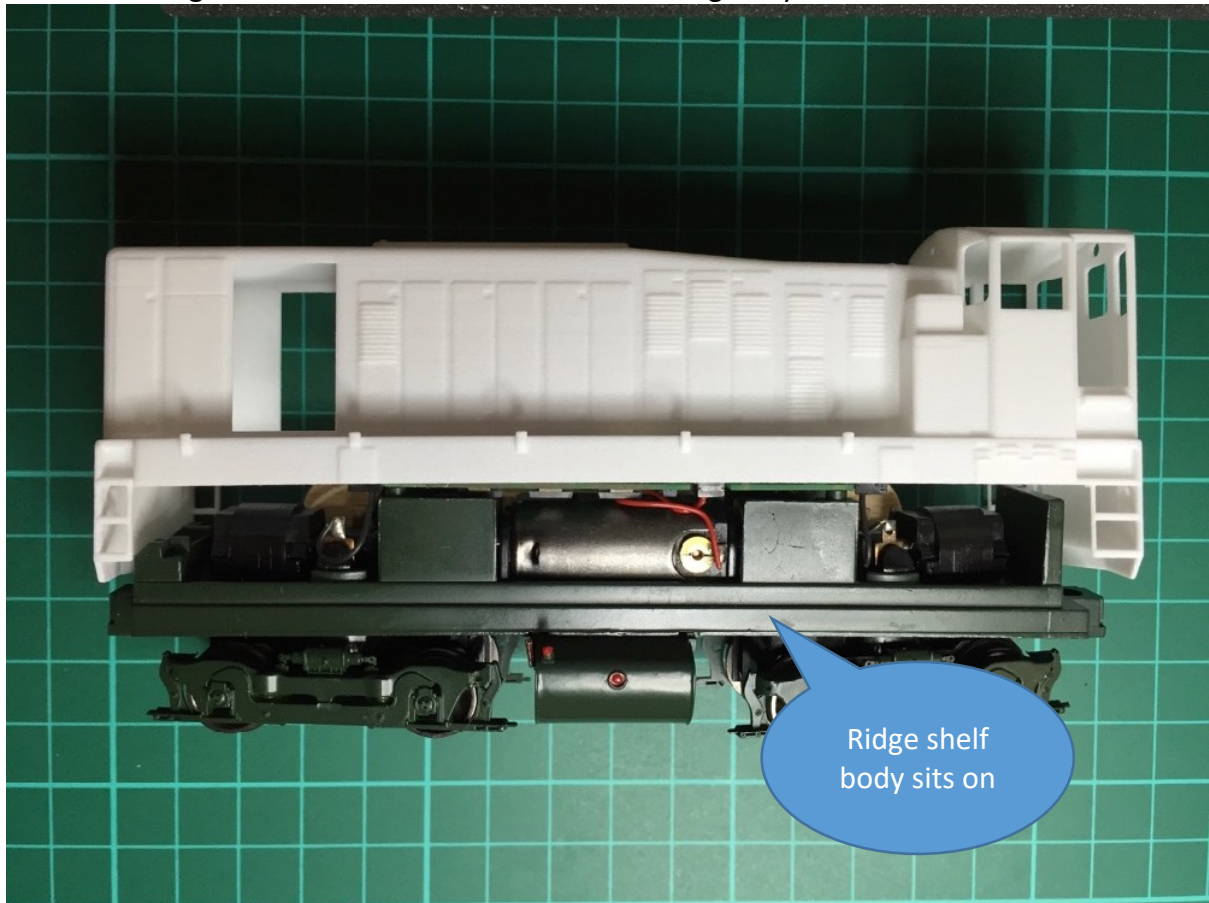
<https://www.shapeways.com/product/JW2L8UNNQ/detail-parts-for-irish-railways-121-class?optionId=57419115&li=marketplace>

4. Cut roof cover from plastic styrene sheet from downloadable template. Link below:  
<http://www.derg.ie/albums/workbench/121%20-%20Roof%20Template.pdf>

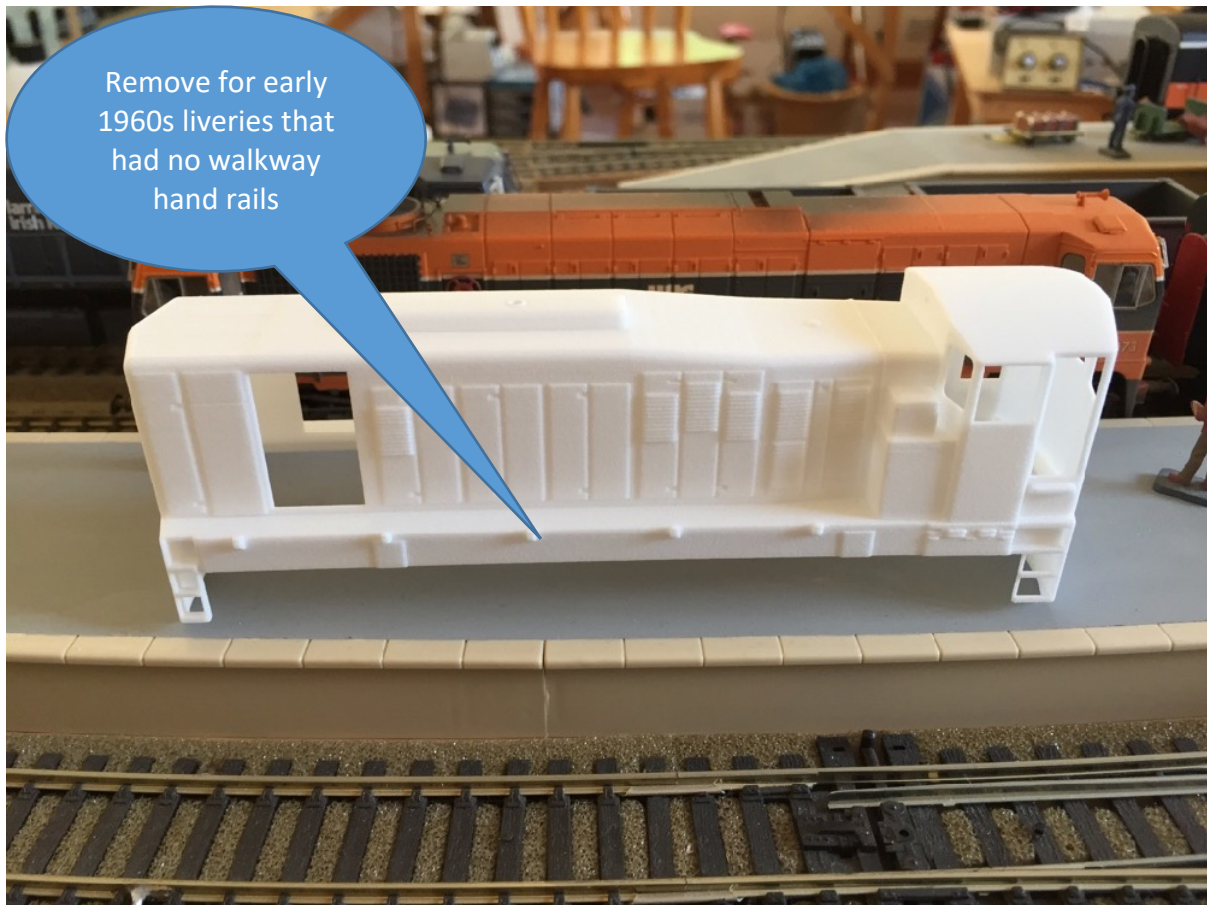
5. Remove The Athearn SW1500 Body Shell and keep for salvaging later parts like horns, rails, etc. Cut away body mounting lugs from each end of the metal chassis using carborundum cutting disc (mini drill) so that the chassis will fit length wise inside the 3d Body Shell



Test fit for length to ensure ends of chassis do not snag body

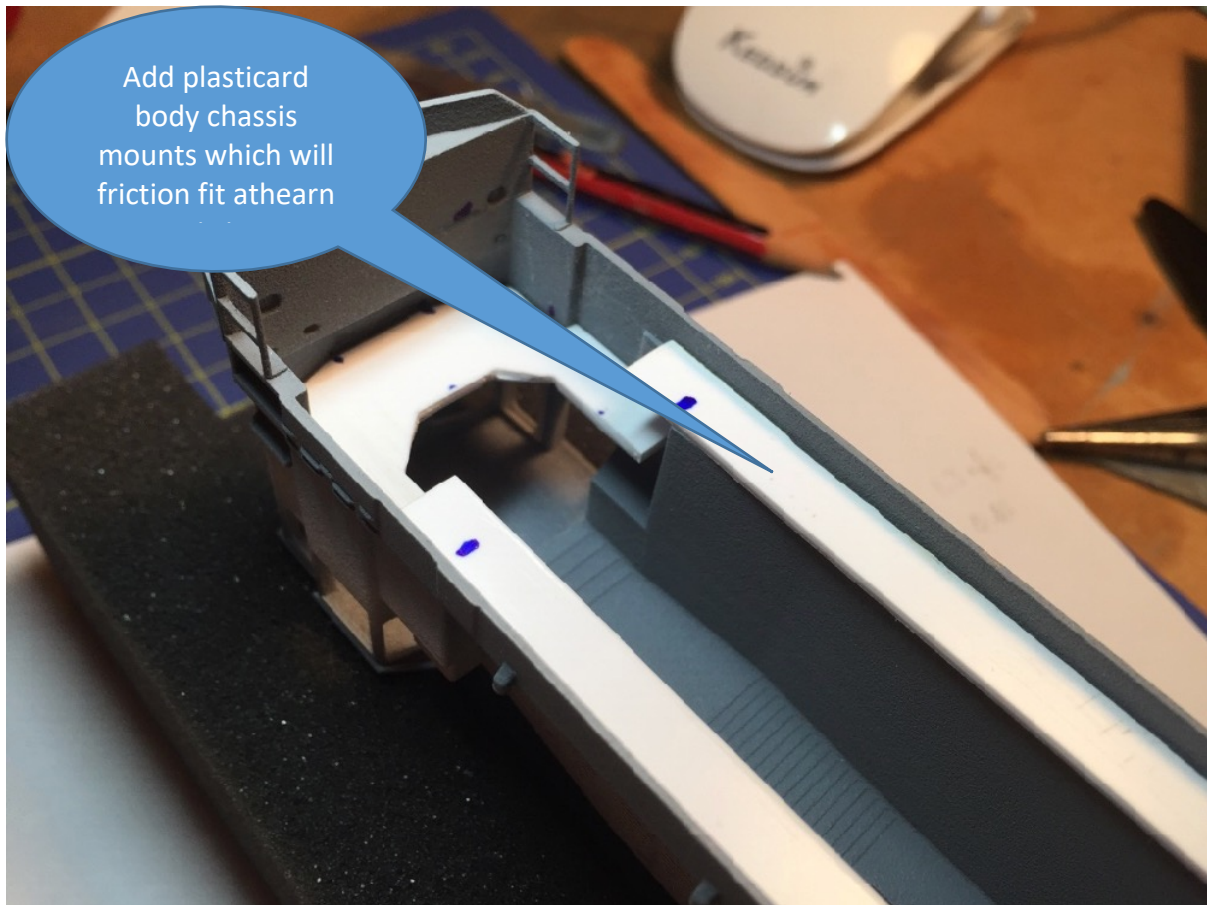


5. If doing earlier CIE variants that did not have the walk way rails cut away the mounting lugs on the side where the vertical stauncauns would have been fitted

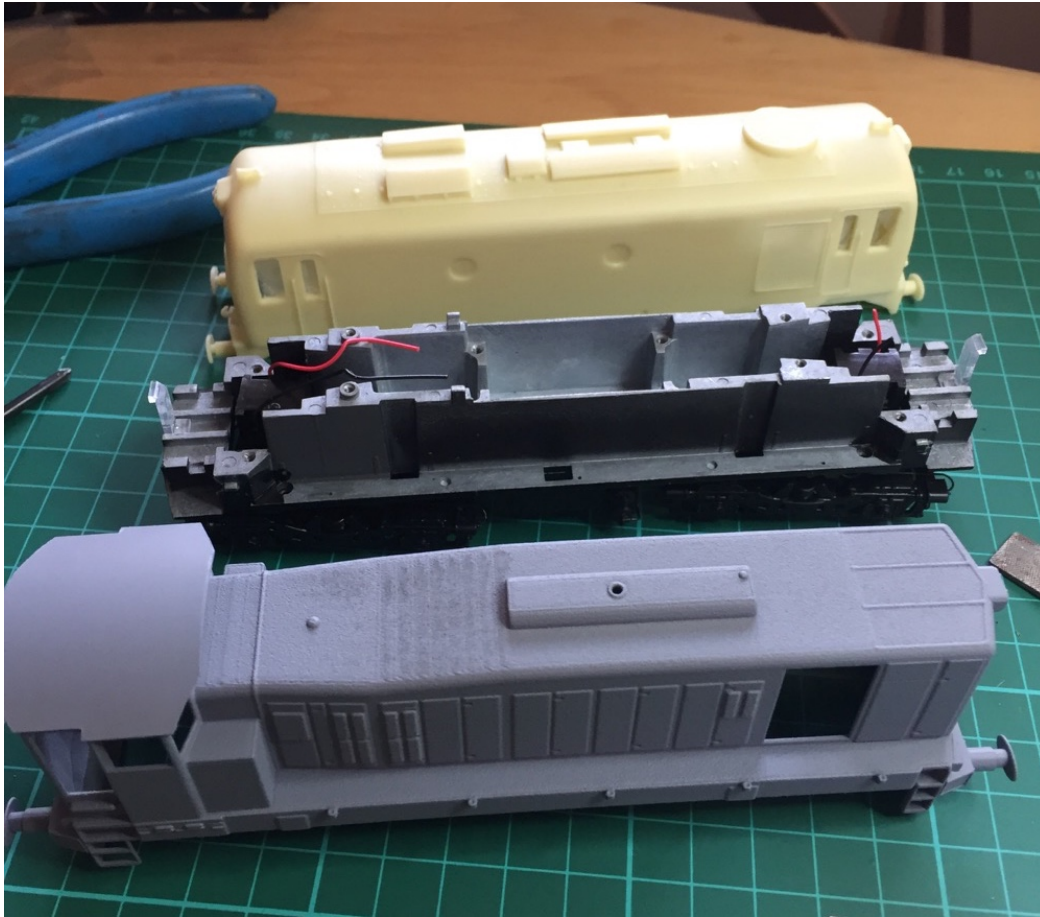


6. Make and test fit plasticard styrene chassis mounts. These will be used to friction mount and plug the Athearn metal chassis into the 3D plastic body shell. The Metal body chassis has a nice little shelf all along the sides which can be made to sit snugly between the plastic chassis mounts with just enough friction to hold the body in place at the correct height. This is also a good time to drill, cut file a suitable NEM size hole or pocket in the valance at the cab end. This can be used to hold the tongs of either a standard tension lock coupling or a kaydee NEM coupling (eg no 19). The coupling protruding through the valance can also be used indirectly as a body mounting lug that stops the body pulling up away from the chassis. Making the NEM hole is time consuming and requires precision. Start by drilling and then use suitable shaped micro files.

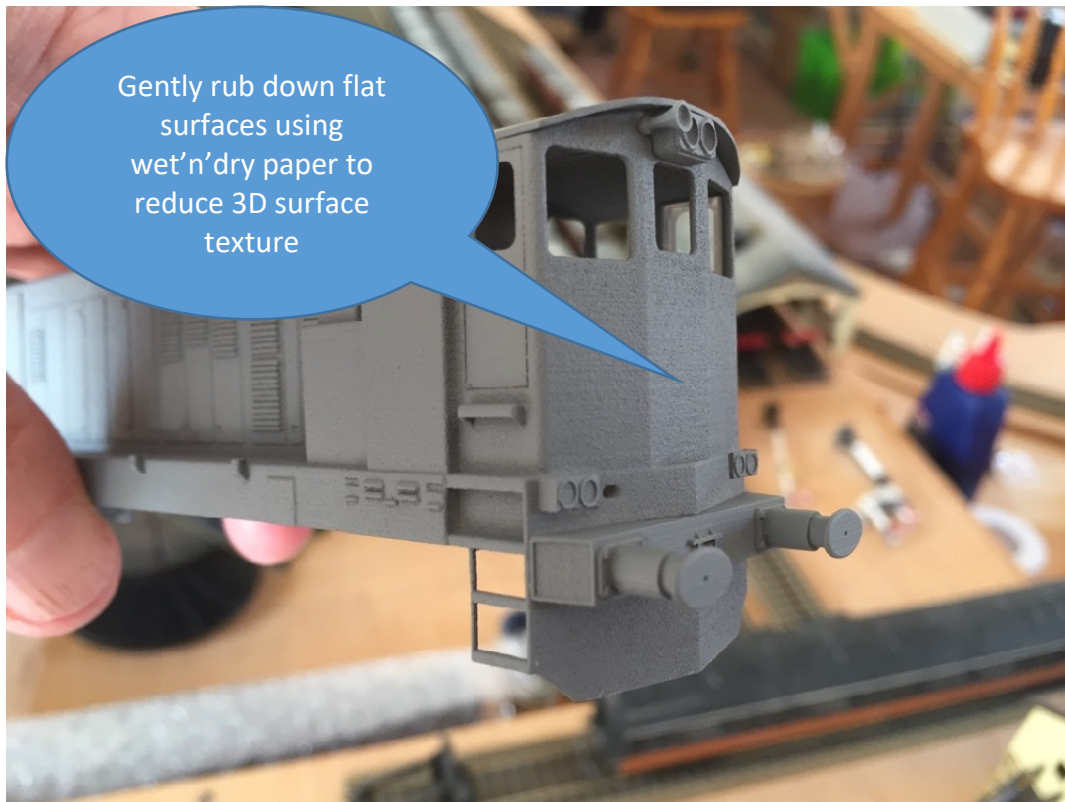
[http://www.derg.ie/albums/l278/OceanFroggie/model%20rail%20painting/IMG\\_1652.jpg](http://www.derg.ie/albums/l278/OceanFroggie/model%20rail%20painting/IMG_1652.jpg)



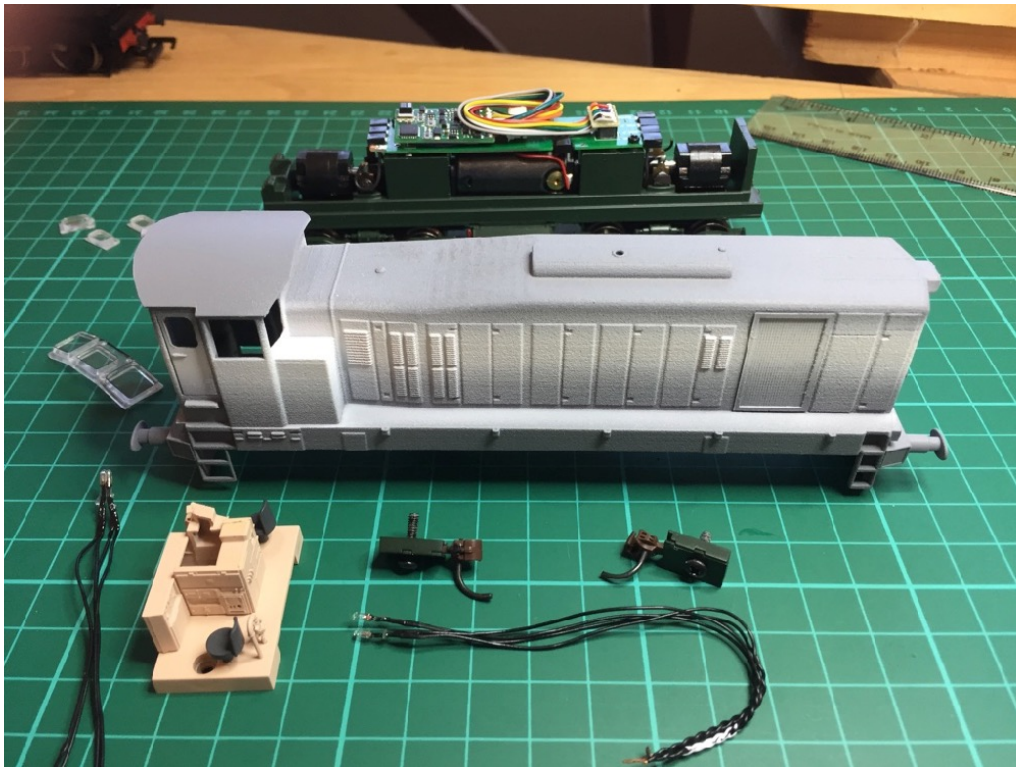
7a. Wash the 3D body with warm soapy water and allow to dry thoroughly before priming with Halfords get primer. **The 3D FUD Detail parts will need to be cleaned with mild Isopropyl Alcohol** to remove the 3D binding agent otherwise pulling masking tape later will pull the paint away from FUD components. Halfords plastic grey primer applied thinly at a distance in a warm dry environment best



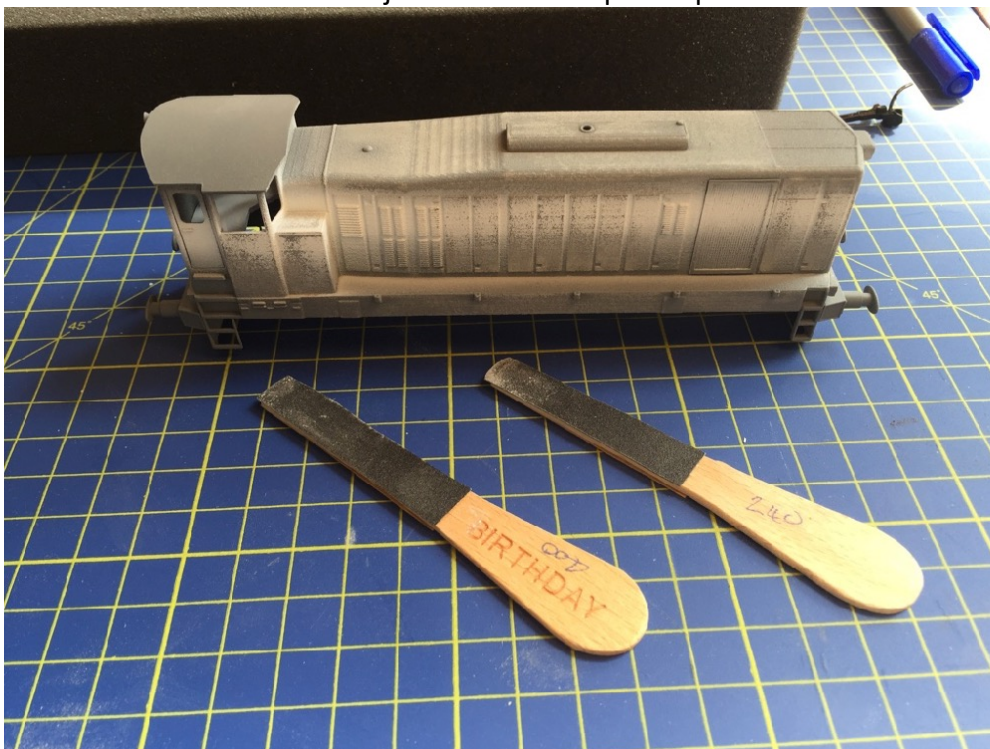
7b. Fit detail parts before priming (horns will be removed for hand painting later). Drill out any holes in the light fittings for future micro LED lights or fibre optic cabling for LEDs located inside the bodyshell.



8. If doing CIE era Black'n'Tan variant. Airbrush white paint approx. where the white bands will exist (in preparation for reverse masking later). Salvage any parts of the SW1500 body inards that may be useful later (eg for cab interior, lights). I choose not to use the incandescent lights that come with the Athearn model to avoid heat buildup, prefer LEDs lower operating lighting temperature when in close proximity for plastic body parts (eg head lamp enclosures). Drill out by hand any light bulb or LED apertures that will be needed in the future rather than after painting to avoid paint damage later.



9. after priming gently rub down the 3D body shell to smooth out the 3D finish and reduce the 'toothpaste' surface effect. This is not necessary for any 3D FUD detailing parts as they are as smooth as fine scale injection moulded plastic parts.



9a. hand drill any holes that will later be need to fit any of the metal gap rails (ie to avoid drill damage after painting).



10. Mask and airbrush the model as required for the livery of your choice. My example is Black and Tan 1960s livery which did not have full length walkway hand railings.

[http://www.derg.ie/albums/l278/OceanFroggie/model%20rail%20painting/IMG\\_1721.jpg](http://www.derg.ie/albums/l278/OceanFroggie/model%20rail%20painting/IMG_1721.jpg)

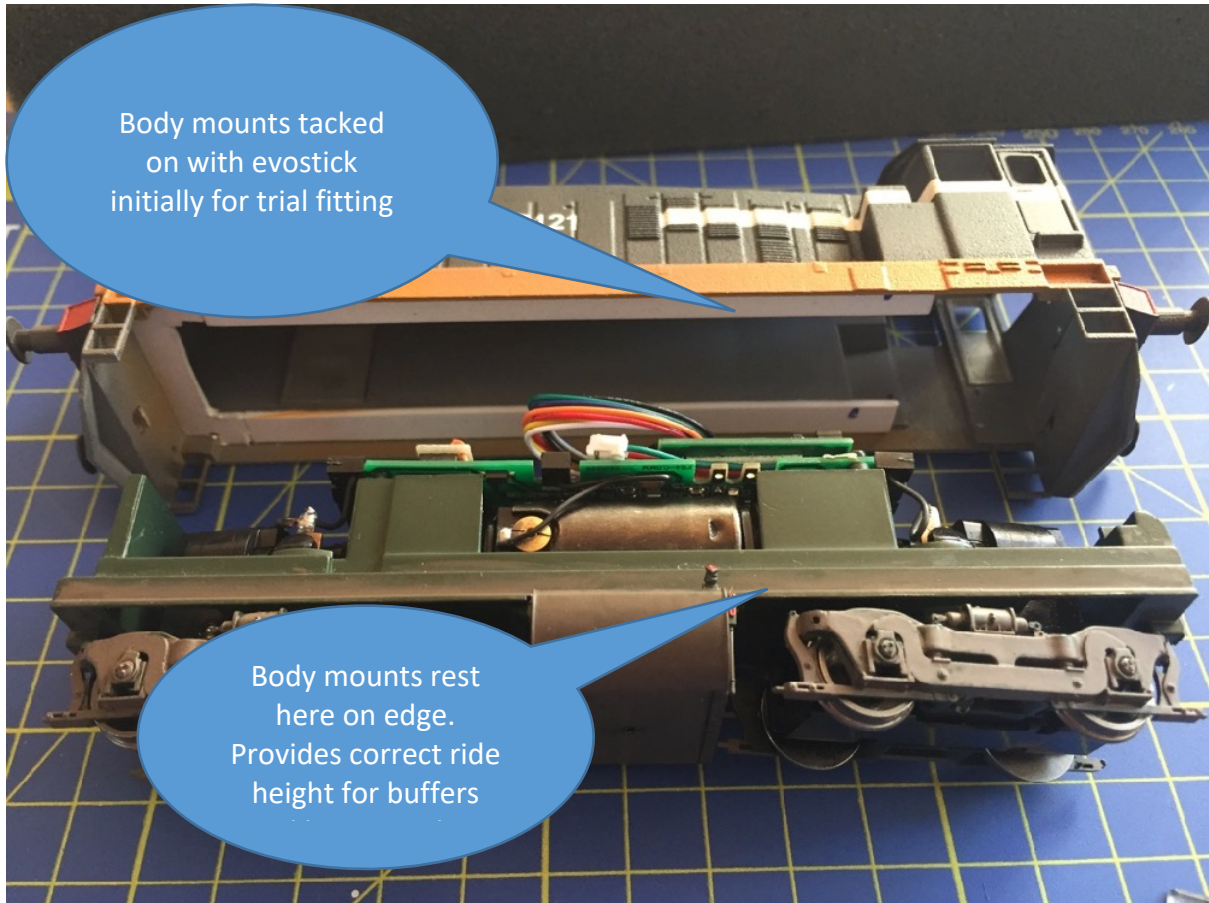
[http://www.derg.ie/albums/l278/OceanFroggie/model%20rail%20painting/IMG\\_1757.jpg](http://www.derg.ie/albums/l278/OceanFroggie/model%20rail%20painting/IMG_1757.jpg)





11. Test fit body to chassis. If internal plastic body mounting spacers were neatly cut the body should friction fit nicely (later you can add internal plastic body mounts and screws). I used the Kadee coupling tongs or Tension lock coupling tongs as a means of stopping one end of the body slipping off.

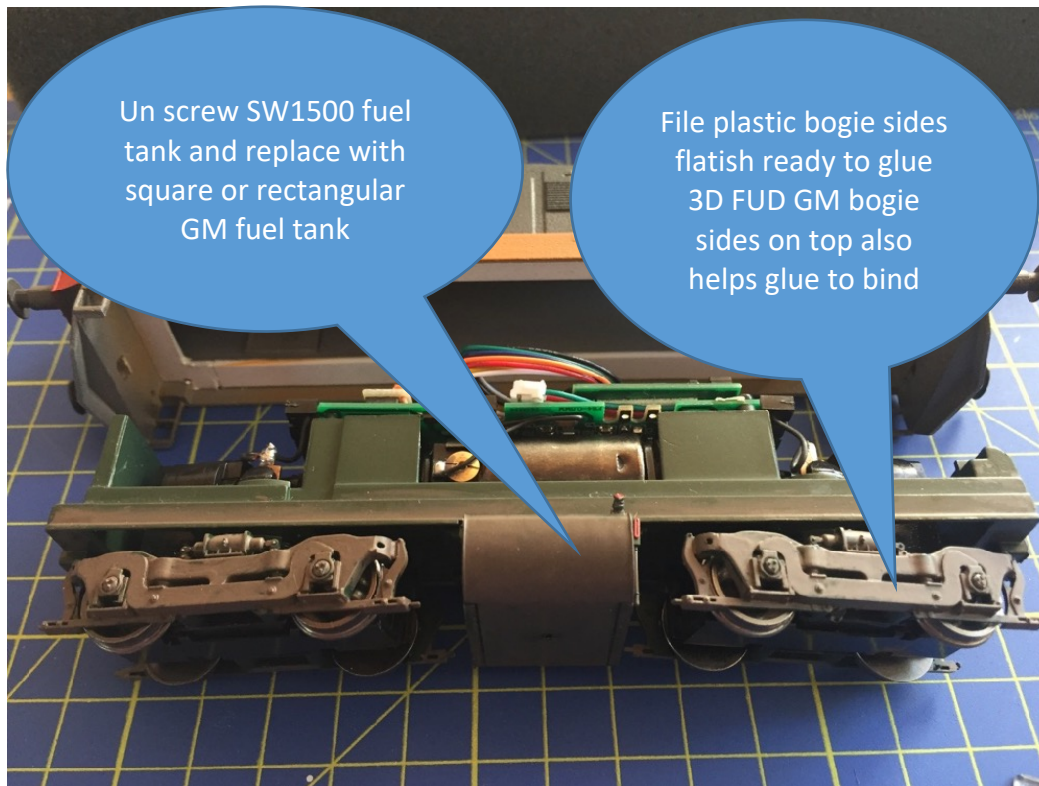
[http://www.derg.ie/albums/l278/OceanFroggie/model%20rail%20painting/IMG\\_2053.jpg](http://www.derg.ie/albums/l278/OceanFroggie/model%20rail%20painting/IMG_2053.jpg)



12. Test run the chassis after test fitting the body (before modifying bogies)



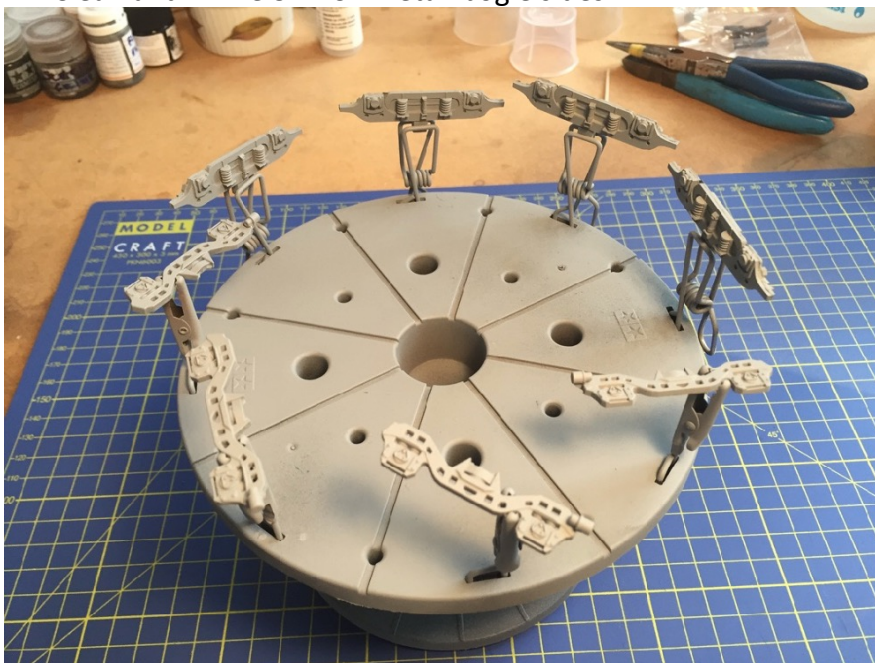
13. Remove Athearn SW1500 fuel tank and replace with plasticard one or modified salvage. Carefully ensure bogie clearance after the GM bogie sides have been added (especially checking the single brake cylinders clear the fuel tank and the front of the bogies clear the ladder and valance).



Check clearances by test running through points and curves. Its easier to make corrections now changes now before detailing has been added that would be vulnerable to accidental hand pressure



#### 14. Clean and Prime 3D FUD Detail bogie sides



15. Carefully File the existing plastic bogie sides flat ready to glue the 3D GM bogies sides on top of.

16. Paint, apply decals, and varnish and weather in the usual manner. Do not fit glazing until after the body has been sealed with varnish otherwise the windows will go milky and opaque. Be very careful when removing masking tape from any of the FUD components (eg forward engine grills, cab doors, etc)

[http://www.derg.ie/albums/l278/OceanFroggie/model%20rail%20painting/IMG\\_1734.jpg](http://www.derg.ie/albums/l278/OceanFroggie/model%20rail%20painting/IMG_1734.jpg)



Reverse masking helps get the white bands level with well defined edges.

[http://www.derg.ie/albums/l278/OceanFroggie/model%20rail%20painting/IMG\\_1725.jpg](http://www.derg.ie/albums/l278/OceanFroggie/model%20rail%20painting/IMG_1725.jpg)



17. Form and Add grab and hail rails around cab door, cab windows, end of bonnet walkway, face of cab. These can be later hand painted. I used a simple needle nose pliers and a tweezers to for the various metal grab rail components for strips supplied by eileens emporium.





17b. Hand paint any wire grab rails (I used Tamiya Acrylic paints as they seemed to stick to the metal without primer quite well).

17c. Add and weather buffer beam details such as coupling hook, 3 link screw coupling, lantern tail lamp, vacuum pipes, etc.

17d. Add glazing using clear plastic sheeting using Glue'nGlaze glue which avoids milky edges around the windows. Some of the external wire grab rails may protrude into the inside of the cab and some glazing may need to be hand drilled to accommodate same. Suggest leave one window open.





18. For **DCC sound** create mounting cradle for sugar cube speaker that will sit under front of bonnet using small pieces of plasticard. Use an 8 pin DCC sound decoder and stick to motherboard using double sided tape to ensure no contact between decoder and any components on the locos PCB board. I used a LokSound V4 8 pin decoder programmed by [Wheeltappersdccsound.co.uk](http://Wheeltappersdccsound.co.uk) with a modified 141 sound project (ie walkway direction change removed, wheel clank, better short horn, auto uncoupling function for kadee magnets, etc).



Wipers and tablet catchers were salvaged from former Bachmann loco donor bodies from past projects (e.g. Silverfox C classes).

19. Finito and enjoy. The Athearn is a super smooth chassis all wheel drive, all wheel pickup, centre drive double flywheel motor chassis and nice and heavy for traction. Can crawl over insulfrog point without jerking at low speed.



End result looks rather like the iconic 1960s CIE Black'and'Tan Livery GM 121 class that started service on Irelands railway network. Note one of the cab windows was glazed open for interest and the edge painted grey to simulate window frame edge. On hot days the cab was very warm and like a green house so drivers often ran with the cab windows open except when blowing horn (ie for their ears)

## Finished



Have fun and enjoy. Patience pays, one step at a time and just sequence the work so when fine detail parts are added near the end like grab rails, horns, etc they wont get damaged or knocked off by undue pressure when handling the body.

Template for body mount parts

