

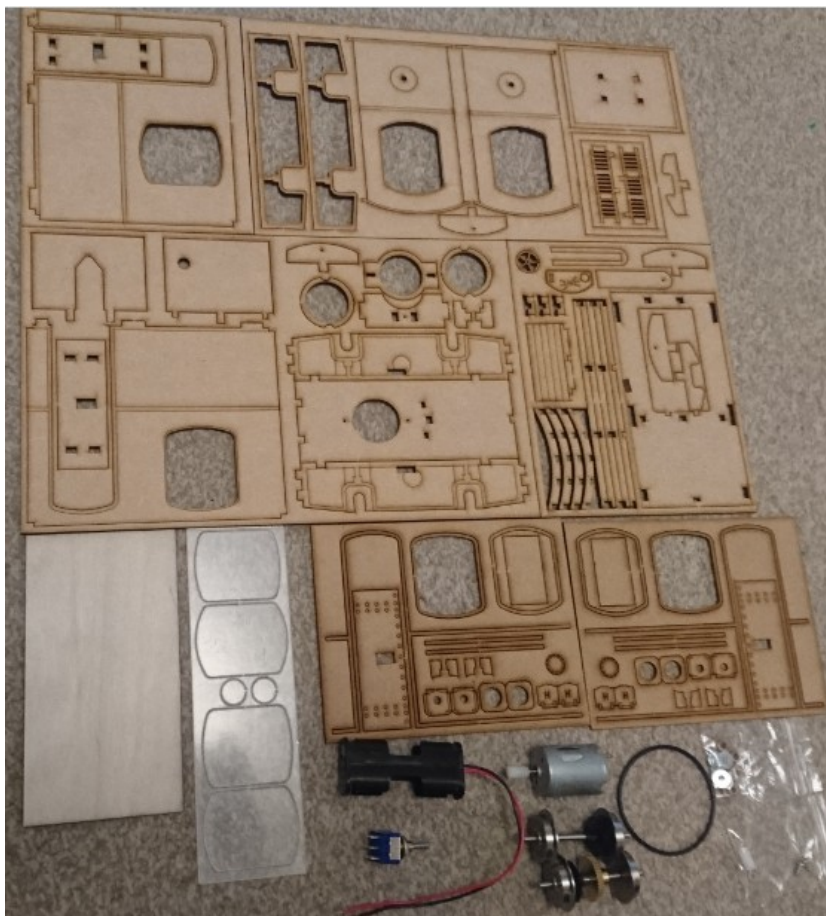
# Houstoun Gate Locomotive Works Witternberg – Schafer Loco Assembly Instructions

It is suggested that you read these instructions through before commencing the build.  
A minimum of tools are needed to assemble the kit. Sandpaper and sanding block, some strong rubber bands, household pegs or weights to hold parts in place while the glue dries.  
TOP TIP a file or rasp can be useful for removing the 'bips' from where the items were removed from the frets.

This kit requires glue and paint to complete. It can be built entirely with PVA (exterior type) or aliphatic resin. (Evostik Weatherproof Wood Adhesive is our current favourite easily obtainable glue, as excess glue can be wiped away with a damp rag before it sets).  
Superglue or other instant glues are not recommended for assembling the parts because some amount of positioning time is useful to ensure correct alignment of the parts. This is especially true of the external overlays.

MDF is not moisture proof and the model should therefore be painted or varnished before use. Either seal with an MDF sealer or automotive primer. The cut edges may need more than one application of primer to seal them. Acrylic or enamel paint can be used to complete the model.

## Kit Contents



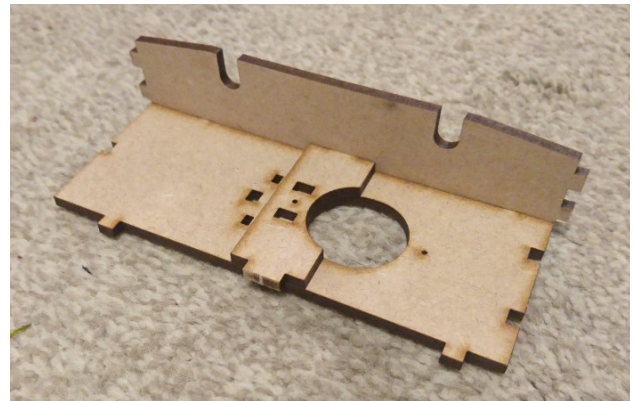
## Assembly notes

Carefully separate the parts from the frets. Wriggling them lightly is normally enough to break the retaining tab. You can also cut the tabs with a sharp modelling knife. Sand or file the retaining tabs away on all parts before assembly. Be especially careful with the thinner sheets of material to prevent tearing the parts.

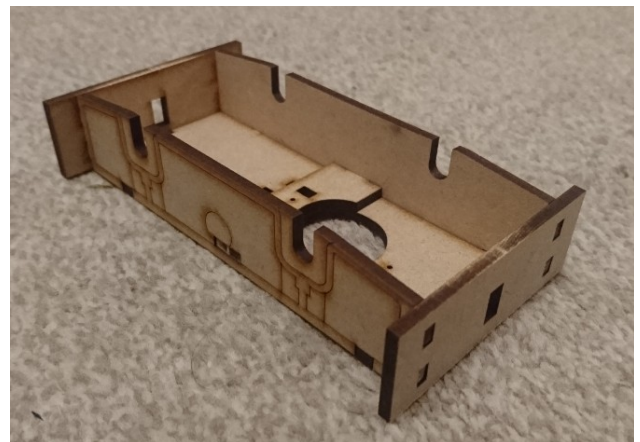
It is worth trial fitting the parts of the loco together first to get an idea of how it goes together. If you intend to paint the inside of the cab then it is a good idea to do so before you add the roof or windows. For the external paint finish it is worth considering if it is worth painting any parts before assembly to ease painting your desired paint scheme.

## Chassis Assembly

Attach the chassis cross-member and one chassis side to the chassis base plate. Ensure the scallop on the cross member aligns with the hole in the base plate

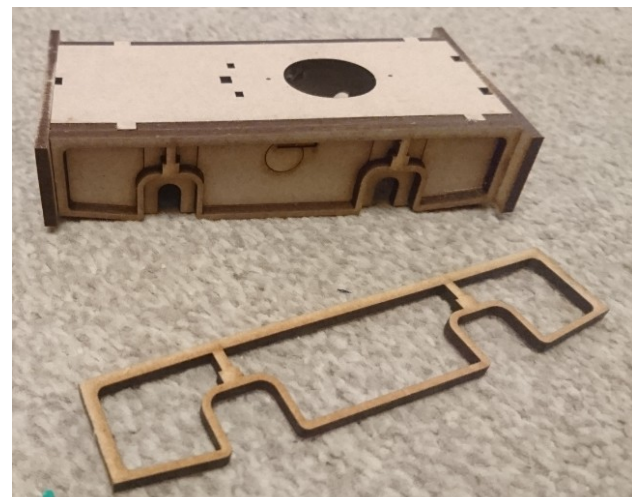


Add the second chassis side assembly into the chassis base and fit the buffer beam backing plates to the chassis ends. Note, the central hole in the backing plates is towards the chassis base plate



Glue the raised chassis frames to the outside of the chassis.

Tip - Use a damp cotton bud or similar to remove any excess glue that squeezes from under the raised frame (especially from around the axlebox holes)



Assemble the three parts for each of the drawbars/couplers  
(Feel free to substitute your preferred coupler to the loco).



To assemble the axlebox first glue the components together as shown, big hole on the inside, smaller hole in the centre layer, 'H' caps on the outside.

Then fit large flange end of the bearing into the big hole as shown - no glue required.



Fit the two motor mounts so that they over hang the motor hole.

Pop two washers on each end of the axles and put the drive band over both axles

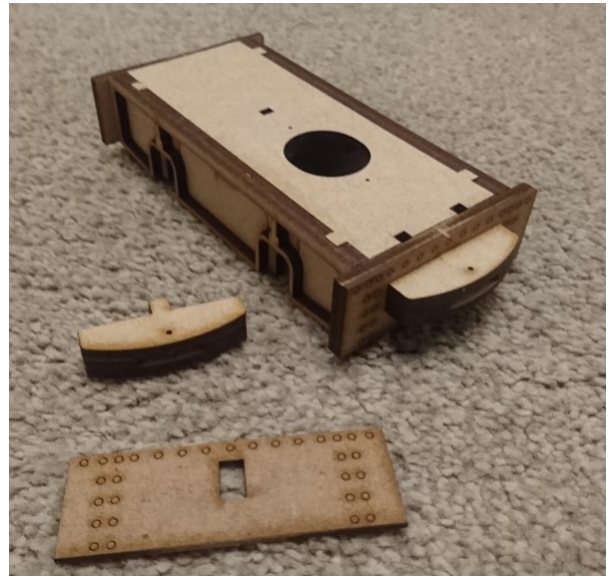
Glue the assembled axlebox/bearing combinations onto the axle ends taking care to avoid any glue on the axle or bearing faces

(Note, axleboxes omitted from this view to show the bearing/axle/washer assembly)

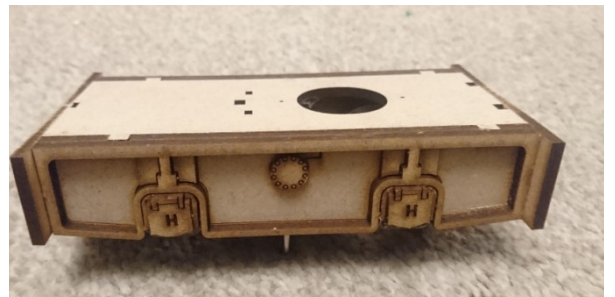




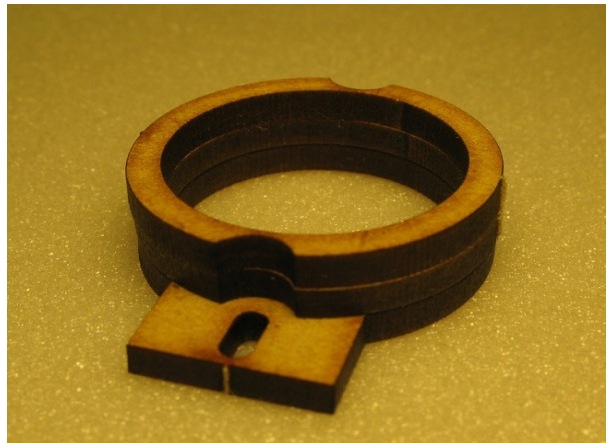
Attach the thin buffer beam overlays and insert the couplings



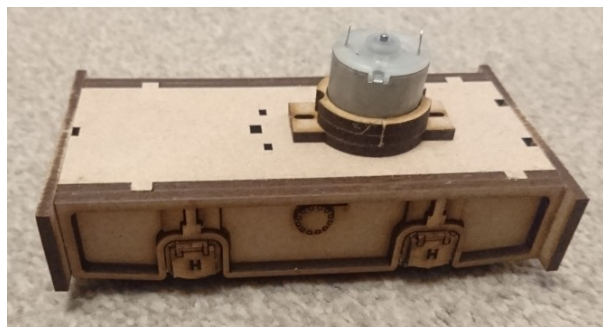
Fit the thin detail parts to the chassis, central bearing cover and above the axleboxes



Glue the three motor holder hoops together as shown in the picture. You can use the motor to assist aligning them but remove the motor before the glue sets.



Once the glue on the motor holder is dry place the motor in the holder and insert it into the chassis so that the motor rests on the motor support lugs. The motor should now be glued to the holder. Wood glue will have sufficient grab on the motor to keep it in place. However a couple of drops of cyano glue will also do the trick. Alternatively you could use hot-melt glue if you have a glue gun. Take care not to glue the motor assembly to the chassis.



When all glue is dry it is time to secure and align the motor. Place a washer onto each self-tap screw and carefully screw the motor/holder onto the base. Don't tighten the screws fully yet. Slide the holder around until you have the perfect mesh between the worm and the spur gear. The worm must not be tight against the gear but should have a tiny gap. Now tighten the screws but be careful not to overdo it as this may damage the base.

To minimise wear ensure that the brass gear is central to the worm gear on the motor shaft when run in both directions. Adjust the on the axle if necessary until there is equal play either side. A spare worm gear is supplied to allow you to set up the gears. Once set correctly the nylon brass gear set up will last for years. If the nylon is shredding you have an alignment issue.

Note: The gears should not be lubricated, oil or grease tends to be pushed off the worm anyway so only serves to attract dust and dirt and nylon is self-lubricating. The chassis top-hat bearings do already contain oil but a **tiny** drop may be applied after extended running.

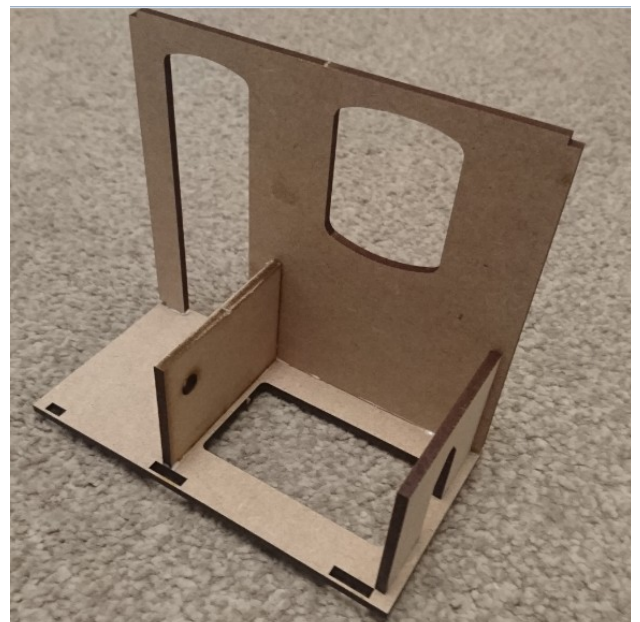
## Body Assembly

Glue one side panel to the body baseplate and glue the front and rear of the motor box in place. Ensure these are set at right angles to the baseplate

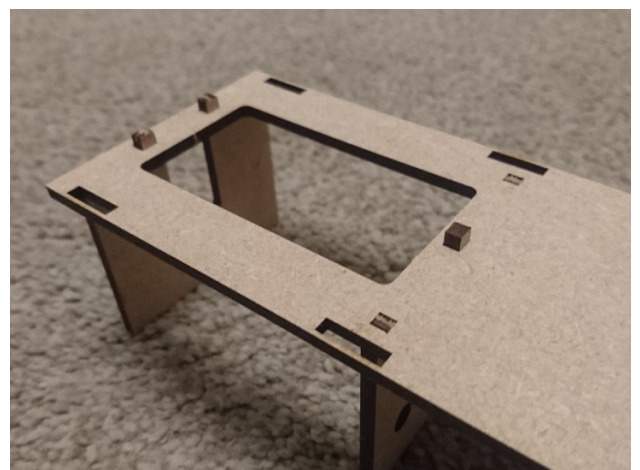
Tip – A Lego block makes a good temporary 90deg jig

The offset hole for the switch is in the front sheet of the motor box, the central slot is in the rear sheet

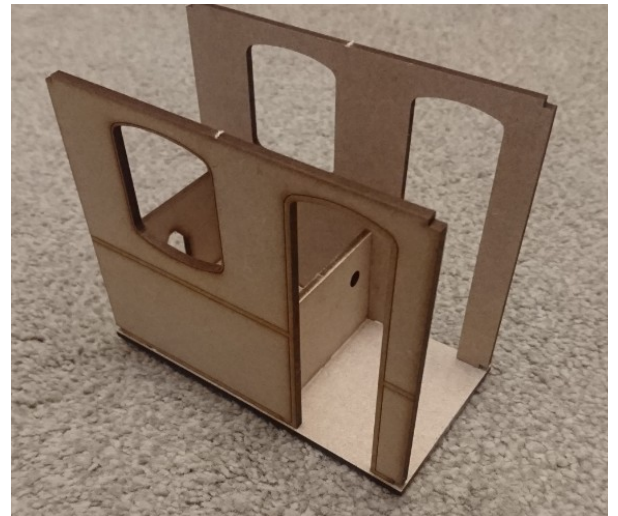
If your fingers are not too nimble you may wish to fit the switch and wiring at this point!!



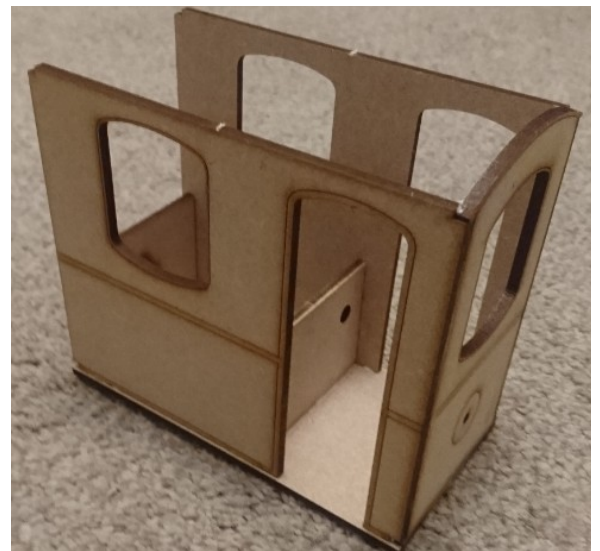
Note that there are three locating pins that protrude through the baseplate which will go into the chassis top plate later



Fit the second side to the body

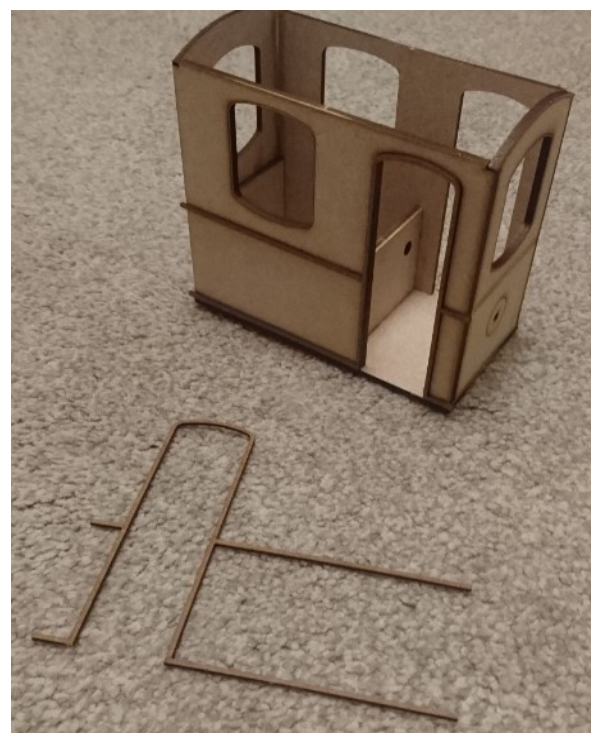


Fit the front and back to the body  
(These parts are both the same. Either will fit either location)



Carefully fit the side overlays. They are designed to be longer than the body side – DO NOT TRIM THE OVERLAP.

Top tip - to remove thin parts from the fret it is often easier to cut/break the surrounding material away from the part to ensure you do not damage delicate components





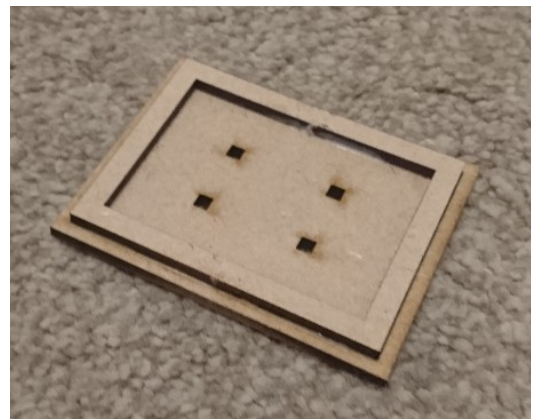
Top tip - It is easiest to apply the overlays with PVA glue applied with a sponge to the back of the overlay. PVA glue allows you a little 'slide' time to ensure correct positioning. First ensure it fits around the doorway and then ensure the horizontal parts are level.

Fit the opposite side overlay using the same care. Again do not trim the overlap

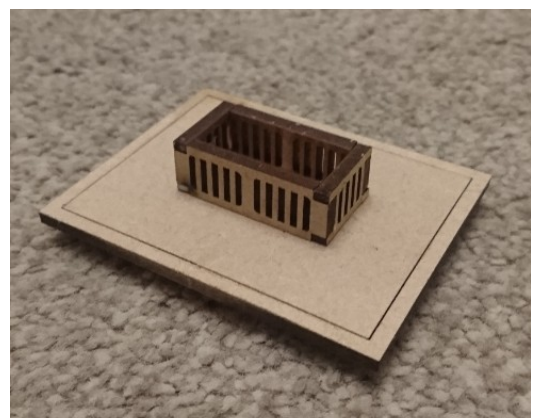
Fit the front and rear trim lines. These fit between the overlapped arms of the side overlays



Glue the locating rectangular frame to the underside of the engine cover. Take care to mount this inside the etched line to ensure the cover fits in the loco body

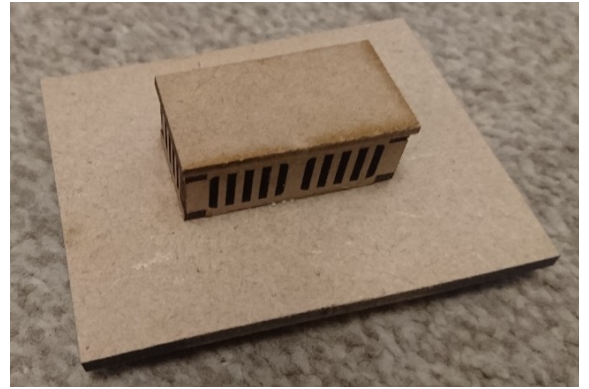


Insert the two side grills to the top vent of the engine cover, then attach the two end pieces.

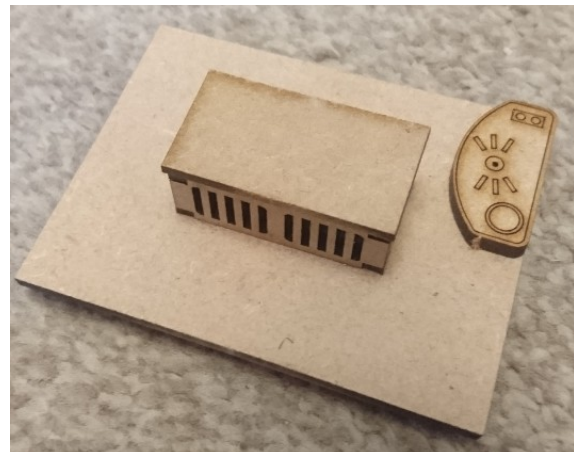


Glue the 1.5mm covering rectangle plate centrally over the top vent ensuring an equal amount overlaps the sides and ends

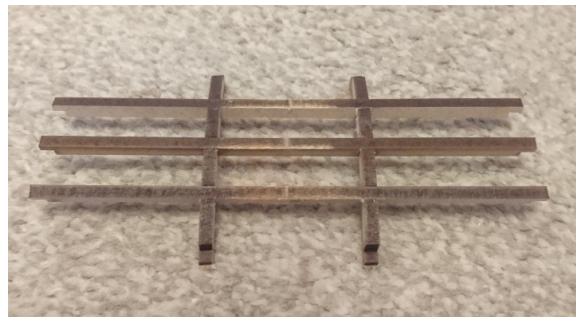
Do not glue the cover in place. You will need this to be removable to access the batteries.



Attach the drivers console on the motor/battery compartment top



Assemble the roof frame  
It is easiest to start with the centre arched ribs and roof beams



It is useful to use pegs to clamp this together while the glue dries





Once the frame is dry attach the ply roof centrally to the frame with equal overlap on all sides.  
Again use pegs to hold it in place until the glue dries.

Top tip – Initially use PVA to attach the roof to the frame. This allows you to slide the roof around until you have it mounted centrally then once you are happy with the position of the ply run thin superglue around all the frame, THEN LEAVE IT OVERNIGHT TO DRY

Trial fit the roof assembly to the body. It will probably be oversize at this point depending on any paint on the inside of the body and the tightness of your roof frame. Don't worry! Sand the frame sides and ends to fit the body. It is designed to be a tight fit. Note - Do not glue the roof in place so that you can access the battery compartment top to access the batteries.



Before fitting the windows remove the protective film from each side of the glazing. Fit the glazing from the outside of the body, both the glazing and the window cut outs are very slightly tapered. If the window seems tight turn it over and try the other side. Glue the window surround on the outside of the body to retain the glazing.

Top tip – The front and side glazing, and associated window surrounds are slightly different. Trial fit them before applying any glue to ensure you have selected the correct pairs.



Clip the lamp glazing in place...



... then glue the lamp onto the outside of the body over the etched circle



Fit the elongated 'U' to the inside of the front of the drivers compartment centrally over the hole in the front sheet. If you desire to fit LED lights to the lamps this would be a good time to fit them before fitting the brake stand and brake wheel over the elongated 'U'. There is a hole through the floor to take any lamp wires and corresponding holes in the chassis and back up into the battery/motor compartment

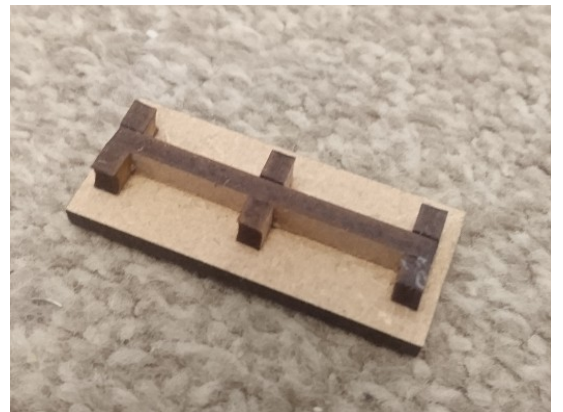


Fit the brake stand and wheel over the inverted 'U'



For the finishing details it depends how you 'imagineer' the history of your loco.

The provided roof platform may be placed centrally on the roof, left as a relic of the loco's history, or used as a base for an overhead pylon, pantograph or bow collector base or omitted.



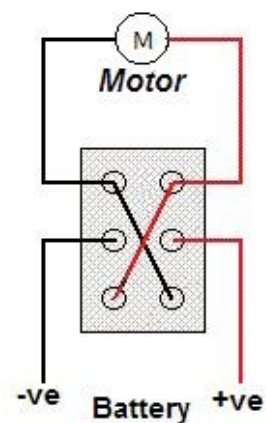
There is also an exhaust pipe which can be located on the roof to indicate a replacement diesel engine has been fitted at some time.





The loco is provided with a simple forward/off/reverse switch. Wire this as per this diagram.

Should you wish to add radio control the motor is rated at 1.5v-6v,



**How to wire the motor and switch**

We hope you enjoy your kit, but if you have any problem with construction email our technical help line at **[techhelp@hglw.co.uk](mailto:techhelp@hglw.co.uk)**