The BTR – MACK by HLW, modified for “drop on” Steam Locos Bodies.

While diesel bodies were considered, the BTR already has plenty of diesels, large and small.
Consequently, only Steam Loco bodies will be dropped over the base unit.
This allows for a steam ‘chuff’ and steam ‘whistle’ sound only which will be in each body unit.

JR in Tawa NZ, “Otto”, I really like this Loco.

Trawbreagabay Light Railway UK, No.3 will be replicated.

Another contender is this Loco which has lots of character and fits well with some of the BTR rolling stock.

Close up of water tank, engine and the vertical boiler.

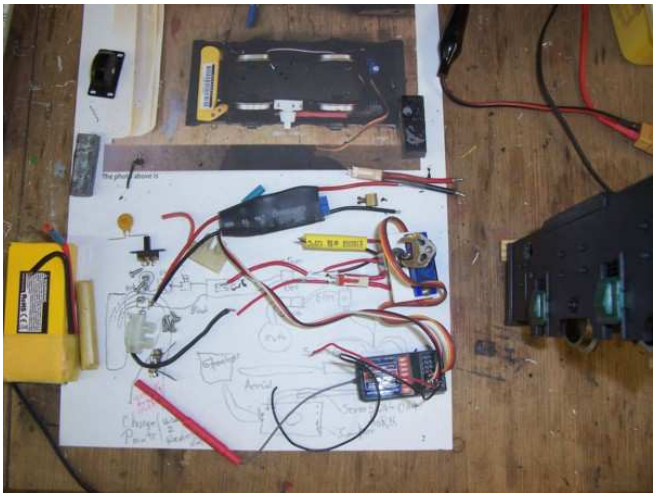
This build my version of this Loco, with bits in stock.

The BTR – MACK by HLW, modified for “drop on” Steam Locos Bodies.

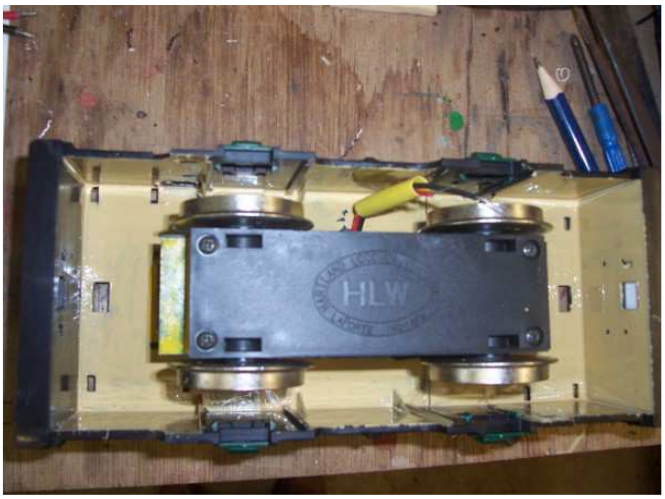
The Mack as manufactured was stripped down to the base box and the motor block was removed.
There was a need to see what we were dealing with and to plan how the components would squeeze in around the motor block. The intention being to get all the RC gear and Battery within the base box, unseen.

End “A” is match marked YELLOW.

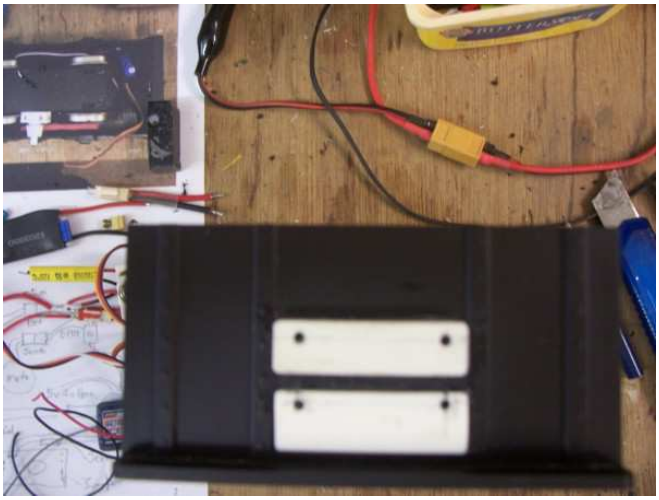
Trial fit of components, it was ‘dark’ down in there.



Components set out over sketched circuit diagram.



Painted interior as it was hard to see where to affix bits.



End plate, infills to accept KADEE # 905 couplers. Couplers fitted and ready to start painting the Base.

Near journal box (green) is On/Off switch and Charge Points.
These were subsequently found to be too high and are since relocated closer to the bottom charge point.

The BTR – MACK by HLW, modified for “drop on” Steam Locos Bodies.

View of underside with all electronics in place.

Underside reveals, clockwise from LiPo 3S, Turnigy 30 amp ESC, servo direction switch, Rx & aerial [red tube].

Decided to build my version of the JR in Tawa NZ, “Otto” first.

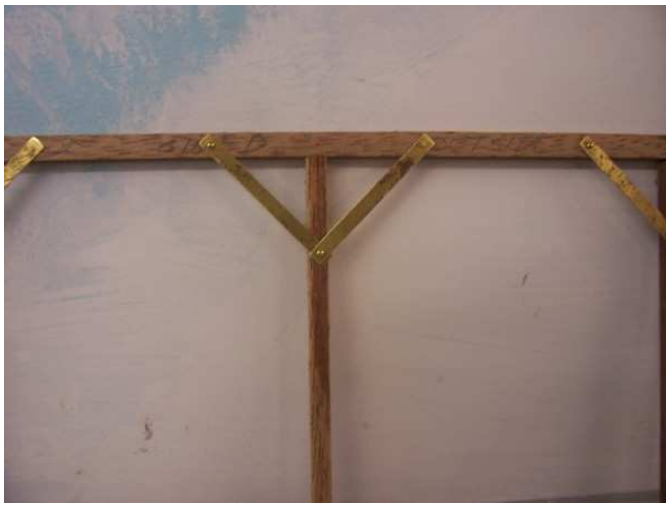
While this model could be referred to as a Dunkirk, I will call it a **Class A Climax 0-4-0**

Floor planks will only be seen at solebar edges so the “drop on” body straddles the base unit.
Over the base unit there is a false floor.

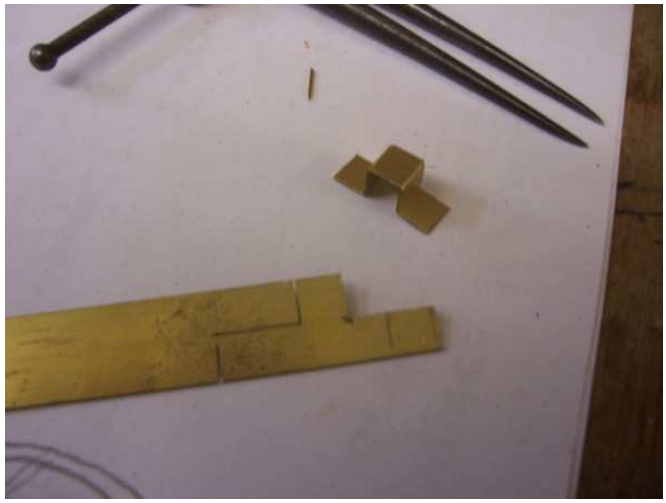
The BTR – MACK by HLW, modified for “drop on” Steam Locos Bodies.

The posts and fascia beam were fabricated from 4mm square wood.

0.5mm x 3.0mm brass braces for posts.

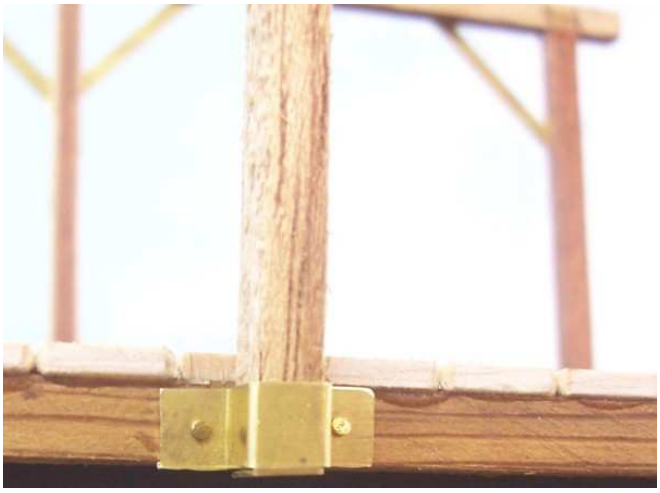


Attached with brass plated pins.



Sill sockets for the posts 0.5mm x 10mm brass cut to and folded and drilled for pins to attach to sill plate.

Side posts and fascia beam sub assembly.



Close up of a fitted post socket and pins.

Side sub assembly finished & ready to fit rafters.

The BTR – MACK by HLW, modified for “drop on” Steam Locos Bodies.

Assembling the basic elements of this “drop on” body.

Roof arc rafters were fretted from 7mm thick 7 ply.

1.5mm balsa side and roof sub strata ready to fit.

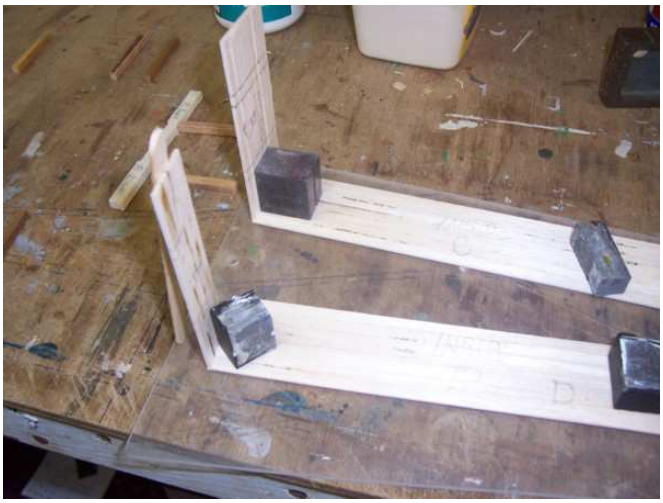
Sides and ends 7 plank ‘fences’ are glued and drying, roof arc sub strata is glued pressed and setting.

Trial fit to check that body clears base unit.

False floor planking, water tank, cylinders & boiler.

The BTR – MACK by HLW, modified for “drop on” Steam Locos Bodies.

Assembling the side & end “fences” of this “drop on” body.



Stanchions are 5mm x 5mm, seen here under each fence panel, planks are 1.5mm x 5mm Balsa.

Numerous checks, – body on – body off, are repeated to trim & get height and proportions to look acceptable.
The side and end slats were edge glued and do not ‘show’ as much as I had hoped, may have to “scribe” them.

Sound system will be inside the vertical boiler with the speaker facing up into the underside of the roof.
This Loco is a wood burner so cut to length pieces of split fire wood will be stacked on floor behind driver.
Whistle actuating servo switch and wiring to sound system will be in a hollow within the stacked fire wood.

The BTR – MACK by HLW, modified for “drop on” Steam Locos Bodies.

Internal machinery sub assemblies;

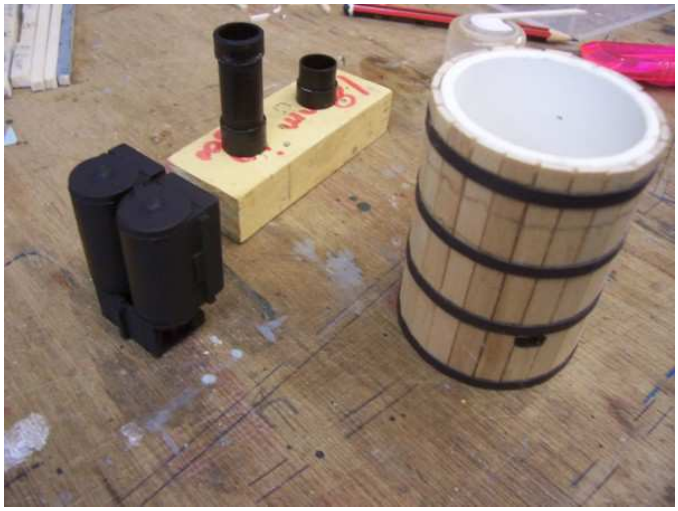
Two cylinder vertical engine pre cut down.

The vertical boiler is 40mm N.B. PVC pipe.
This allows clearance for barrel lagging and driver/fireman walk around clearance.

This chimney is for my version of JR in Tawa NZ, “Otto”.

Tall chimney is for Trawbreagabay, No.3
Using bits of tubing and an LGB light Colet.

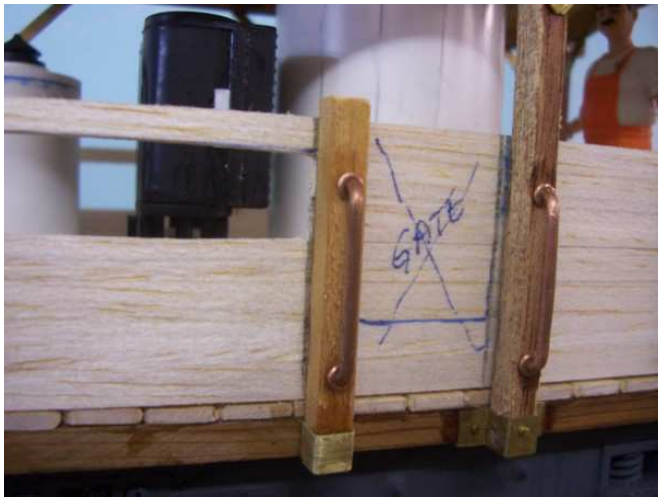
The water tank and cut down cylinder sub assembly.



Sub assemblies painted and ready to fit.

The BTR – MACK by HLW, modified for “drop on” Steam Locos Bodies.

Grab Irons are actually 1.6mm copper wire with 0.8mm copper wire ‘rings’ fitted.



The 0.8mm thick ‘rings’ push fit onto the bent 1.6mm wire. These are pushed into 1.6mm holes in stanchions.

Hooks, false bolts and grab irons fitted and glued.

“U” bolts around saddles, gate frames with diagonal braces and brass gate handles.

Next step is to fabricate step irons.

The BTR – MACK by HLW, modified for “drop on” Steam Locos Bodies.

Base coat paint, thin washes to follow.


Boiler lagging & barrel bands, holes for feed water, steam pipe, water gauge, wash out plug & fire door.


First coat of paint, thin washes of sooty black will bring out details, dry brush of white for highlights.

Water tank, steam engine, boiler and chimney.

Our driver/fireman, Mr Hugh Kidding is ready.

Roof covering is corrugated cardboard laid over 1.5mm thick Balsa cladding curved over the rafters.

Weathering is next applied, there are several pipes, gauges, taps etc etc. to be added in the Cab.

The BTR – MACK by HLW, modified for “drop on” Steam Locos Bodies.

Nearing completion, just have to make the sound system triggers.

Inside on the right, see wires for the sound system yet to be disguised within the cut firewood stack.

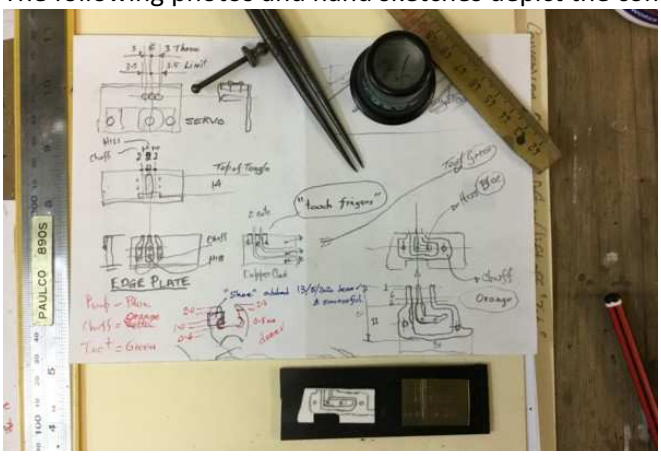
The BTR – MACK by HLW, modified for “drop on” Steam Locos Bodies.

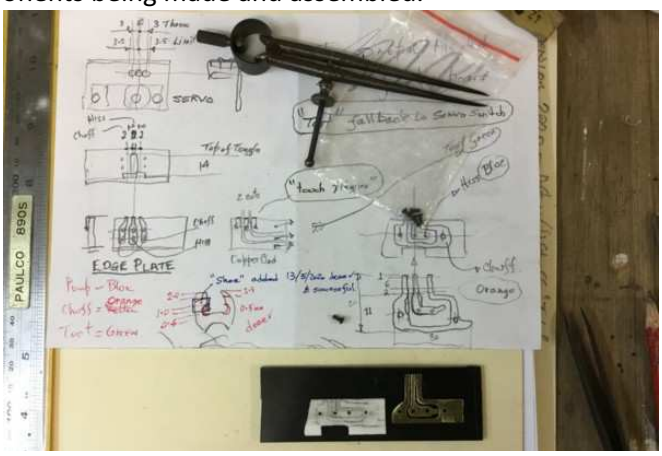
The sound system TRIGGERS are next to be fashioned.
A servo sets direction (forward, neutral & reverse) it has a CAM that trips the toggle arm of the DPDT switch.
The CAM is made of brass. The DPDT “centre off” switch and the servo are mounted on a styrene base plate.

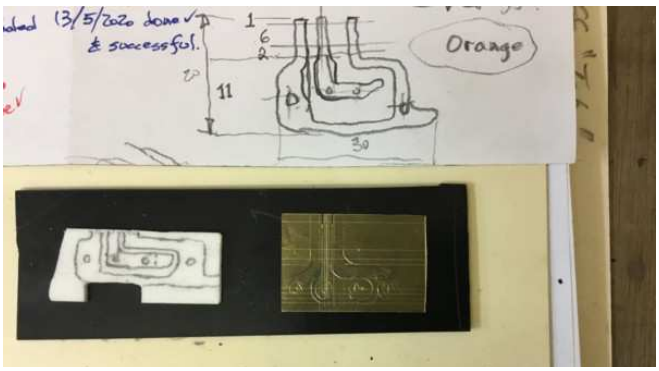
The metal casing of the DPDT switch [and hence the metal toggle arm] is connected to +5 volts from the Rx.

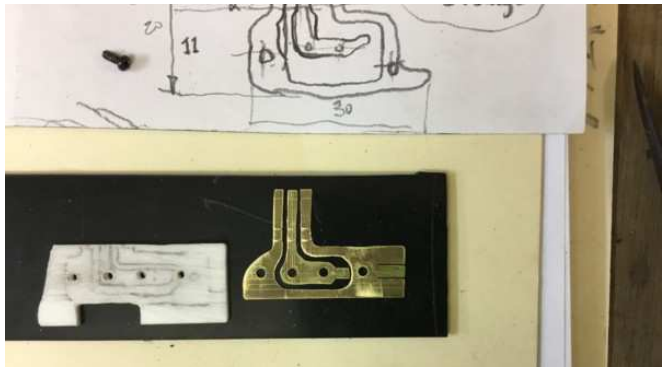
- When the DPDT “centre off” toggle is in the neutral position a ‘touch finger’ is in contact with the tip of the toggle and sends the +5 volts to the Pump/Hiss sound card. The voltage returns to the Rx via a common -5 volt wire.
- When forward or reverse are selected, the CAM moves the toggle to make contact with an adjacent ‘touch finger’ that sends the +5 volts to the Chuff sound card.
- When the forward or reverse selection is held at the limit of toggle travel for 1 to 2 seconds, the brass CAM is in prolonged contact with the toggle and the +5 volts is sent along a wire soldered to the brass CAM out to the Steam Whistle sound card.

The following photos and hand sketches depict the components being made and assembled.





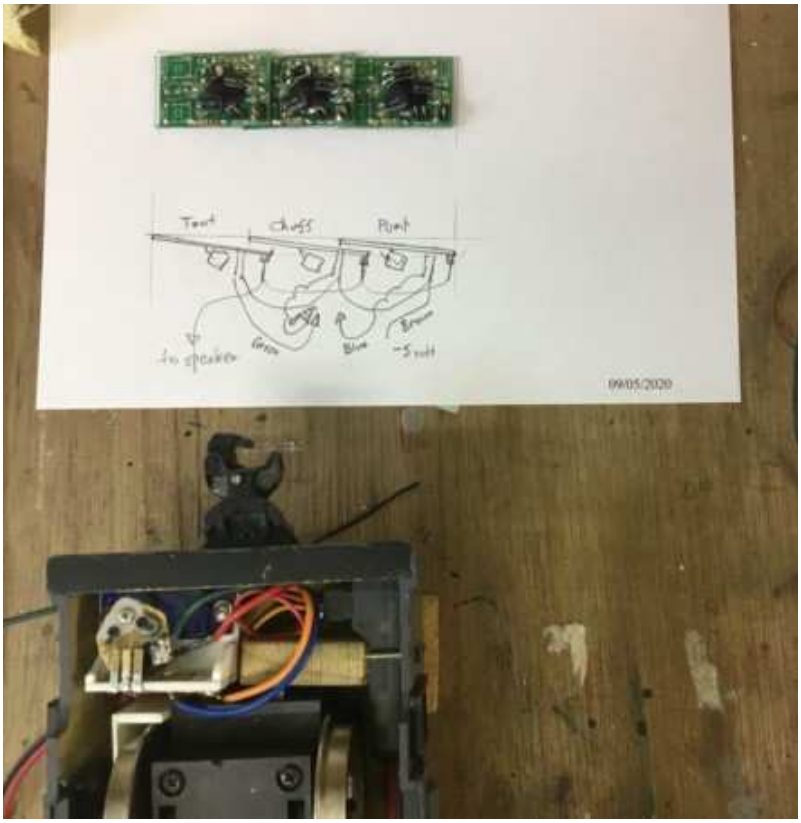




Brass plate, fretted out with a Jewellers 4/0 saw blade, solder tags are on right of both pieces & will be bent up.
This plate is screwed to the 2mm thick styrene EDGE PLATE which is glued ‘on edge’ to the styrene base plate.
The three (3) ‘touch fingers’ are bent over the top edge of the edge plate to contact the tip of the toggle arm.

The BTR – MACK by HLW, modified for “drop on” Steam Locos Bodies.

The three (3) sound cards have been loaded with the sound files.



The wiring above footplate is next thing to be done as seen in the sketch above.

Sound cards; Hiss (neutral) Chuff (forward/reverse) Toot (whistle), plugs & sockets allow easy removal.

Hollow wood stack fits over sound cards sub assembly to conceal it from view.

The BTR – MACK by HLW, modified for “drop on” Steam Locos Bodies.

Now we can “Drop-On” the body for the base box / motor block

JR in Tawa, NZ – “Otto”

BTR version, ‘drop on’ body, on Mack base box.