

The BTR – OTTO by LGB “Toy Train”, modified with improvements.

The BTR first modified this Loco in 2024 by cutting off the top half of the Cab, repositioning the sand box, changing the steam dome and a changed chimney. Further, it included a model car Hand Trigger Tx and Rx. In the boiler space there was a LiPo battery, a two-way ESC and a whistle sound card with a speaker.

I prefer the traditional Tx [bulkier] format and so set about this conversion with better sounds, lights, a more robust, one-way 30 Amp ESC, forward/reverse via DPDT Ctr Off direction switch actuated by a standard servo.

There is a Whistle actuating servo electronic switch and wiring to sound system. A standard servo sets direction (forward, neutral & reverse) it has a CAM that trips the toggle arm of the DPDT switch.

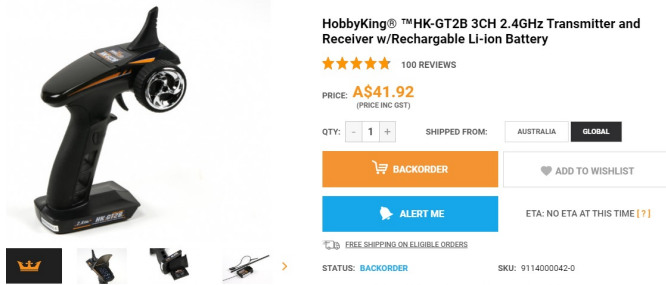
The CAM is made of brass. The DPDT “centre off” switch and the servo are mounted on a styrene base plate. Sound cards; Chuff (forward/reverse) Toot (whistle), plugs & sockets allow easy removal.



A check to see if all components were to hand.



OTTO photo as initially modified with short side tanks, open cab, zero lights & trigger type Tx/Rx.



This second modification work begins by removing the earlier electronics.

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This modification meant an acceptable external appearance of the Loco plus all the extras mentioned on page 1. The new external shape will reveal voids that can be taken up where key electronic components can be fitted within the boiler and extended side tanks.



Side tank extensions were made of 2mm styrene. To accommodate these, any unneeded boiler protrusions were cut off. This meant that openings were produced as seen in this photo.



These openings revealed how much room was available above the motor block within the boiler.



First of many trial fits.



First trial fit showed work so far to be successful.

Numerous checks, – body on – body off, were repeated to trim & get height and proportions to look acceptable.

Happy with the appearance of the Loco, it was time to start putting in the desired improvements.

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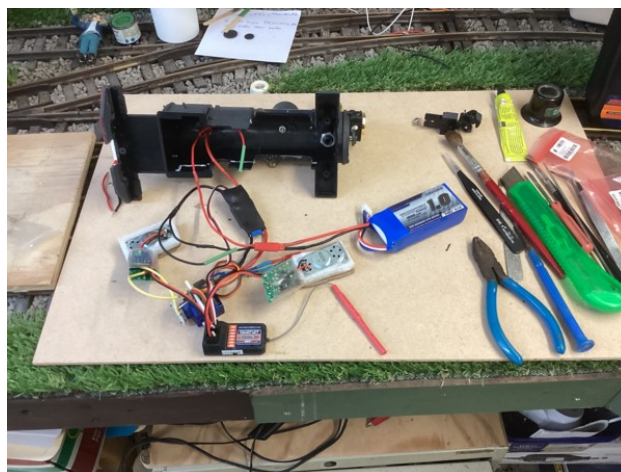
The whole idea of extending the side tanks was to find more space in which to hide electronics.



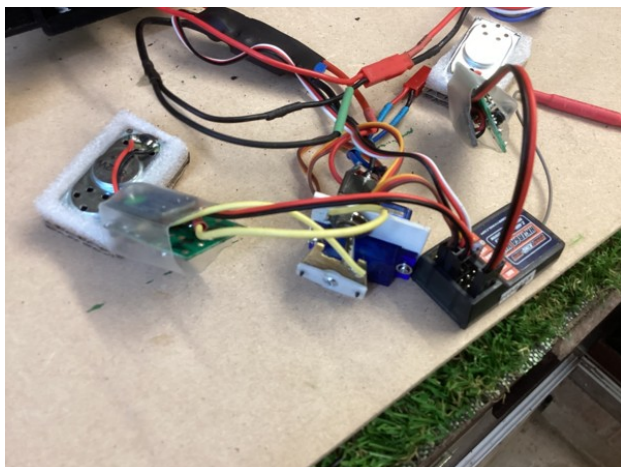
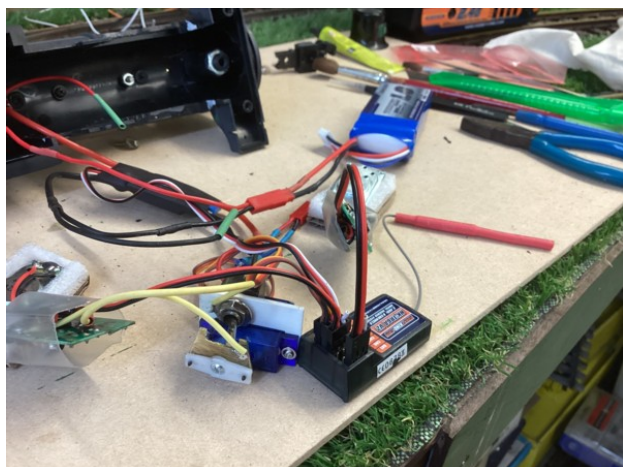
The 'look' is just as required.



My preferred traditional Tx in background.



O.K. so far, so time to start fitting all the electronics inside boiler and side tanks.

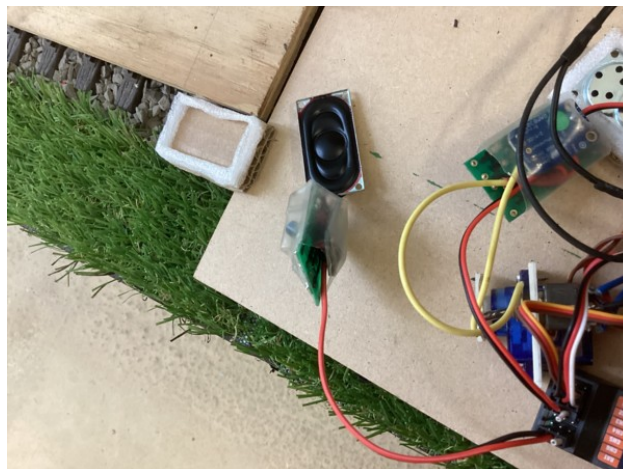
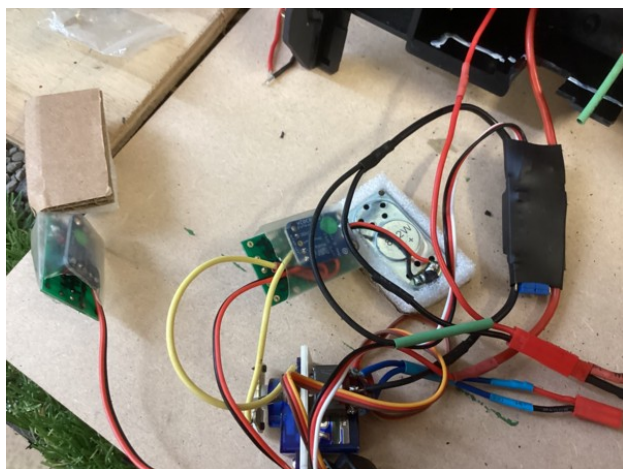


From the Rx, leads power and trigger the sound cards, select direction, speed and lights.

- In one side tank there will be Whistle Toot sound card, amplifier and speaker.
- In the other tank there is Chuff sound card, amplifier and speaker.

A tangle of wires means some were to be shortened or folded to fit ready for periodic maintenance.

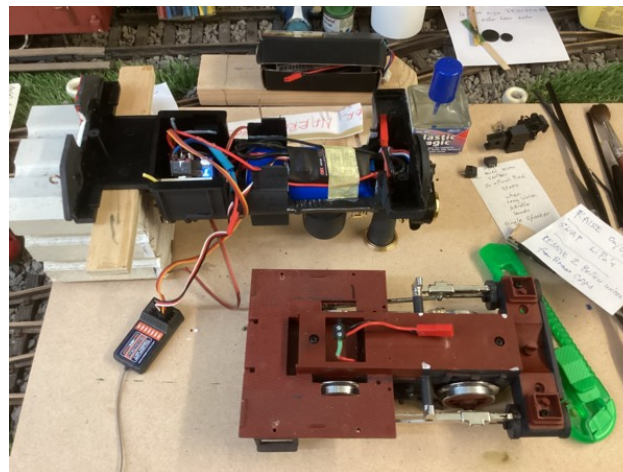
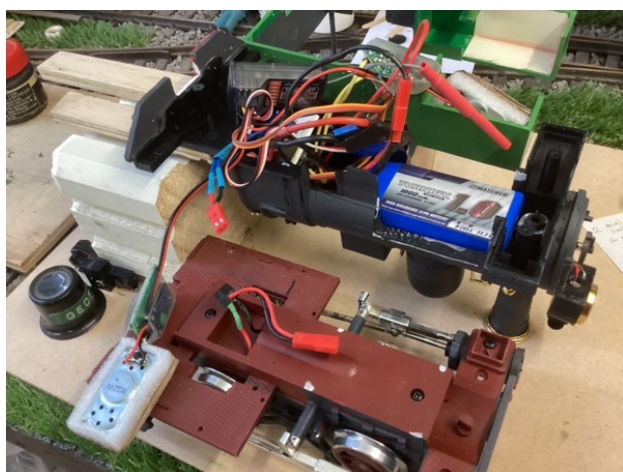
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At first the whistle was triggered off CAM and DPDT toggle arm, clumsy, high maintenance so went for an electronic switch that feeds 5 volts out of RX, see page 5.



Yet another trial fit, the nest of wires is an issue.

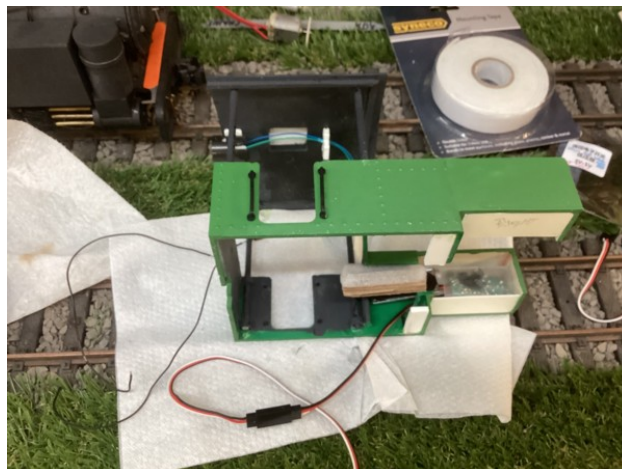
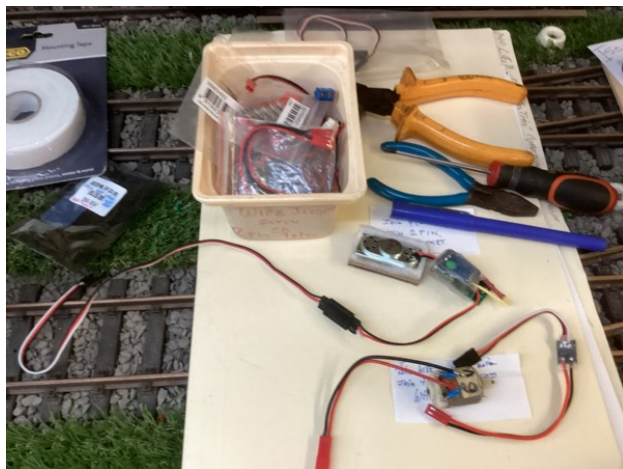


NanoTech LiPo 3S 1000 mAh in place.

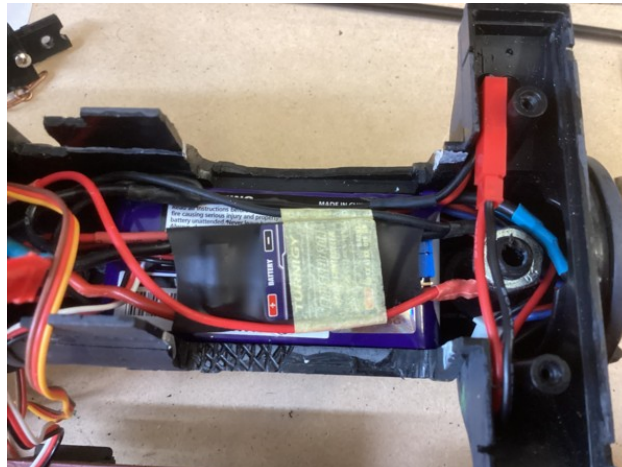
ESC sticky taped to LiPo.

This photo shows a thicker battery which was replaced at last minute to ensure a free fit of servo wires inside the boiler. The newer NanoTech battery is much thinner and a better choice here.

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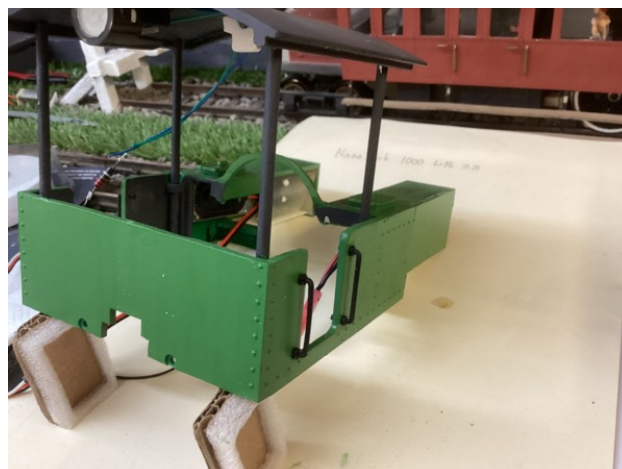
Decided to leave some Rx wires at the length they were acquired at, they are folded and bunched up. The excess wires in the firebox were fouling with the servo action so that unit was enclosed as below.



Enclosed standard servo with a CAM which selects forward neutral and reverse direction. ESC on LiPo.

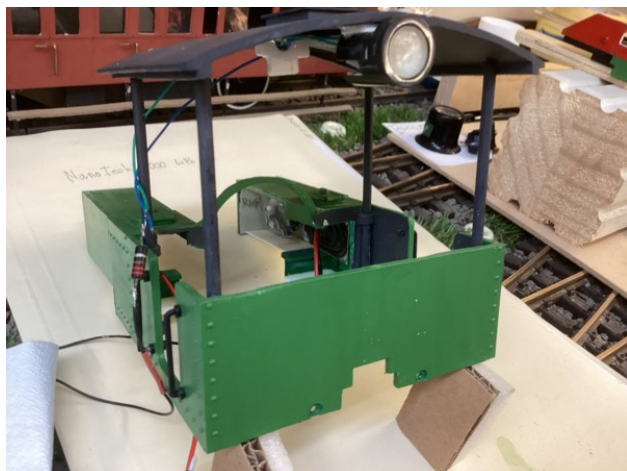


The Toot feed is 5 volts & On/Off switch out of Rx. These are available through Alibaba Singapore. [Aliexpress]



Ready to fit sound system units; Chuff and Toot.

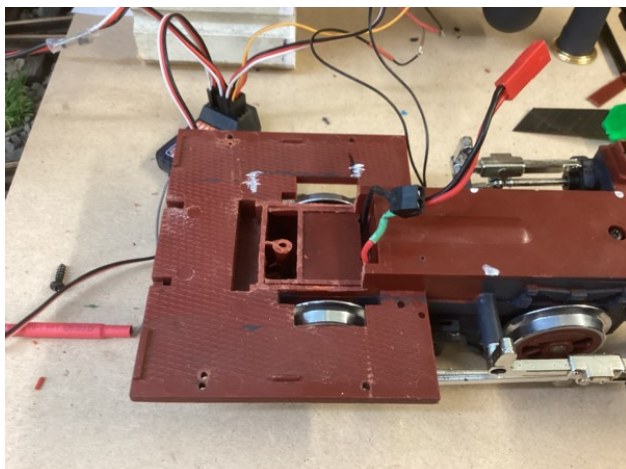
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Sound cards, amplifiers and speakers subassembly units are attached with double sided sticky tape.

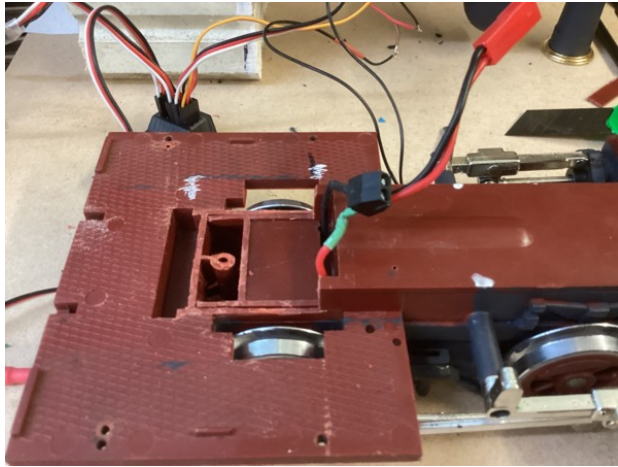


The Tail light wiring is in place ready to join to the motor feed wires.



The standard servo, CAM and DPDT switch was fouling with wires in firebox so it was enclosed. This presented a new fouling location where the firebox straddled the brown plastic motor block. The enclosed direction servo unit was now somewhat bigger and needed to be flush with footplate, So, some material was cut away at the rear of gear/motor box.

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Close up photo of cut down ready to seat the firebox flush with footplate. Then wires were tucked into place and GREEN tank & cab fitted snugly over boiler then all screws were refitted.



Couplers & driver were refitted and the Loco began trial running for sounds, lights, forward & reverse.

A very satisfying project despite all the wrestling with wires and numerous trial fittings.