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One of our younger members, Zeno
with his Flying Scotsman

January 2015

THE SILVER JUBILEE

The Newsletter of the 00 Live Steam Club

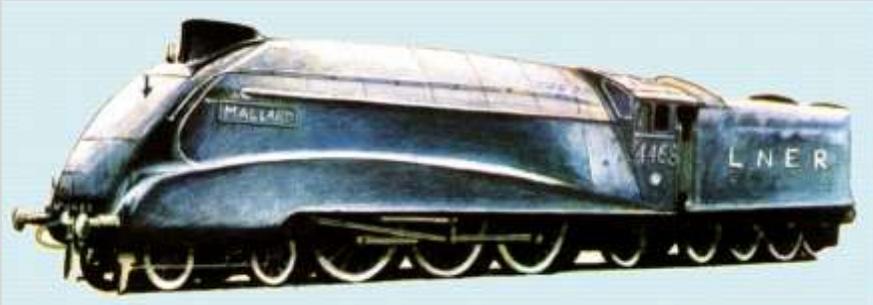
NUMBER 8

The first issue of 2015!

80 years since the LNER express of the same name first ran



The Newsletter of the OO Live Steam Club



The OO Live Steam Club is dedicated to the collection and operation of the Hornby OO Live Steam range of locomotives. The name Hornby and the use of the Hornby Live Steam logo are with the kind permission of Hornby Hobbies Limited. All opinions expressed within this Newsletter are those of the contributors, and any information including technical subjects is provided in good faith. The OO Live Steam Club cannot be held legally responsible for any errors whether real or implied.

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Editorial

Welcome to the first edition of The **Silver Jubilee**, of 2015. It is also the first edition produced by the new editorial team. Thank you to Chris Cairns who has guided and edited the previous editions. He will be a hard act to follow.

By way of a short introduction, I have only come to Live Steam in the last 5 years, having been living outside the UK since 2002, first in a country without railways, model shops or access to the modelling press. I have had Hornby from the days of clockwork 0 gauge, through 3 rail, Dublo, Triang-Hornby and latterly Hornby Railways.

I happened to be in London on business and visited ModelZone to stock up on essential supplies, saw the Mallard starter set and bought it. Here running with a rake of 13 teak coaches and vans.



I now also have a Golden Fleece too.

Now I live and work in the Adriatic, near Dubrovnik, so will not be likely to attend many UK shows.

Richard is a semi-retired service engineer for an industrial printers. They who put 'best before' dates on perishable products.

He has been interested in railways all his life, from full size to Z gauge. He builds ride on steam locos 3.5inch to 7.25inch and is a member of a local railway club, which has a triple ground level track of about 1km in length.

He has owned a Hornby 'live steam' A4 loco the for about 5 years and runs it from time to time, but not on a regular basis.

Richard has also built but not finished an N gauge layout and is a member of a museum that has an old fashioned way of printing which he also enjoys.

Richard lives in Kent.

Our email contact is:

[silverjubilee 'at' hvar-digital.com](mailto:silverjubilee@hvar-digital.com)

Just click on this link to send us an email.

The Newsletter of the 00 Live Steam Club

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An Appeal For help

We need articles! Lots and lots of articles. They don't have to be long and they don't have to be perfectly written. That is the job of the editorial team. We take material, germs of ideas, prose and verse and turn them into something that can be included in the newsletter.

We take your material and only if necessary, amend it make it fit the layout.

Photographs are good. Just have a look at the article by John Liming that starts on the next page. Don't the photographs tell you the whole story? They make me want to do that mod myself. It's just my time deficit in the work/life balance equation that is defeating me at the moment.

The articles can be about anything. A neat idea you have had for making Live Steam better, an operating session with some other fans. Anything at all.

80 Years ago this year

In late 1935, the first four LNER 4-6-2 A4 Class locomotives left the Doncaster works and began to haul the **Silver Jubilee** express between London, Kings Cross and Newcastle.

To celebrate, Hornby are to issue an 80th Anniversary Limited Edition set of the four named locomotives, Silver Link, Quicksilver, Silver King and Silver Fox.

They are available for pre-order now



[\(Image courtesy of Rails of Sheffield\)](#)

There is no mention of a set of the articulated **Silver Jubilee** coaches to go with the locomotives. Now they would be something that would be a really useful addition!

The Website

Have you looked at the website recently?

Not everyone is really clear about what the website is for, how to navigate it and how to find your way around.

In the next issue of **The Silver Jubilee** there will be an article about the website and what you can get out of it.

Apart from all the past issues of the newsletter, there is a wealth of detail, great instructions and "How to's"

If you have any questions, now is the time to ask the team and we will provide the answers.

We would like to publish more often – but to do that we need something to publish! Contact the team or send material to [silverjubilee 'at' hvar-digital.com](mailto:silverjubilee@hvar-digital.com)

The Newsletter of the 00 Live Steam Club



BUILD YOUR OWN..... Remote Control Controller

By John Liming

In terms of difficulty, this task is complex and is included more to tell the story of one man's journey to "a better control system" rather than as a straight forward "here's how to do it" article.

Any modifications to controllers should only be undertaken by those with a clear understanding of the risks involved in modifying electrical items.

Overview

The concept was to create a controller that has the advantage of both being controlled from a distance and gives greater control over the opening and closing of the regulator.

This required modifications to be made to the original Hornby control unit case to install replacement switches, readouts and ventilation.

What the finished controller looks like now



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Parts used:

- A Hornby controller unit case or other suitably sized case.
- Tools to create big holes in both end castings + cut the square hole in the top cover for the volt/amp meter
- A Volt/Amp meter
- 4 Relays
- 4 variable power supply boards
- 4 way rotary switch
- Fan and heat sync
- 3 Pre-set potentiometers
- 2 potentiometers with shafts and knobs
- Tools to create a stepped washer for an oversized hole
- 2 extra relays to isolate the 2 servo power supplies from the heater P/S.

- The one amp controller supplies the digital volt/amp meter as well as the radio receiver and the cooling fan.

The modifications

The top rotary control knob replaces the original wheel with the peg on it. It has four switch positions that enable four different voltages to be output to the track.



- 1.1volts (practically zero)
- 12 volts
- 13.5 volts
- 14 volts.

Digital readout - the blue reading underneath the red volts readout is the amps being drawn. As you can see the loco is drawing 6.7 amps at 14 volts.



When you press the R/C transmitter button the voltage is set to 6.97 volts which is the pre-



set voltage for reverse. Unfortunately pressing the forward button results in a digital volt/amp readout of zero. Unlike my bench meter it only reads one way and will not give a readout on reverse polarity.

Forward control volts are variable by turning the lower knob, and as set it outputs between 4.2 and 7.5 volts, giving plenty of variation of the servo speed.



The servo motor reliably starts 100% of the time on 4.2 volts, probably due to it being supplied from a pair of 5 amp constant current power supply controllers.

A 7.5 amp power supply is used to provide the 12v, 13.5v, and 14 volts for the heater. If the line is short circuited the voltage drops to 1.1 volts.

A one amp controller is used to supply the digital volt/amp meter as well as the radio receiver and the cooling fan.

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Testing the unit

The unit is nearly finished but I haven't yet wired up the forward and reverse LED's and I think a graduated 4.2 - 7.5 volt dial under the second knob would look good.

I have been playing with the controller for the first time this afternoon and I have to say I am as pleased as punch with it. I haven't driven a loco for at least 6 months and I have never been an expert anyway, but these modifications make the unit seem so much more responsive than when using lever flicking. It shouldn't be but when you flick the lever you get a measured "fixed" amount of servo movement. You can hold the lever across and get more, but you can't get less than the measured amount.

With the modified controller the servo movement is no longer has a "fixed" minimum and you can hold on for as long as you wish or you can give the button a fraction of a second jab, with the servo movement responding accordingly.

One of the reasons that the unit is more responsive is the servo voltage I have ended up using. I find 4.2 volts is plenty fast enough for me and I can't use 7.5 volts, it's just too

fast and I over control. I might experiment further and wind the lower voltage down to 3.5 volts. I haven't tried it yet but expect the servo will still start ok.

I believe low voltages don't work too well when the servo motor is resistor feed but these 5 amp constant current controllers seem to be perfect, for the job. Over time I will experiment to see just how low a voltage can be before starting becomes unreliable with them and let you know.

Although the Hornby power supply is marked as 17 volts there is only a 15 volt switch mode power supply inside the box. My highest heater voltage is 14.1 volts whereas the Hornby controller is outputting 14.5 volts, so I am loosing 2.8 watts of heating but I don't think that small loss will matter. However, if I am wrong I will find a way of improving on it. It's down to the internal resistance of the power transistor used but I could use an extra volt from the power supply and that would fix it.

There have been no overheating problems at all and I think I could get away with a smaller heat sink but defiantly still



need a fan.

First Observations

It's interesting that I am running such low servo volts. It's a fact that I am old so my reactions will have slowed but with my set up I can't handle 7.2 volts to the servo motor as it's much too quick.

There is absolutely no voltage drop on the track. The current drawn by the servo motor is exactly the same whether the loco is right next to you or 14ft away.

As I run more locos and get more used to the controller I find I can stand more servo volts, so it's a learning curve.

I like the top button on the remote transmitter to be forward but currently its reverse, so I need to swap over some wires.

The centre heater voltage has shifted up by 1/2 a volt. These miniature pre-sets are a bit of a devil, invariably they have bad track just where you need it to be good. I spent hours trying to find fixed resistors to do the job but it will take for ever so I had to use pre-sets.

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Further Observations (in the light of experience)

Running my first two mallards on 4.2 servo volts was ok (first engine a bit faster response the servo voltage to the particular engine is a must have with this modification

Reference to my remarks about heater voltage, 14 volts is more than enough. I just ran the same loco on middle heat (85 watts) for over 20 minutes with 13 coaches (that's all I have got) as fast as I felt it should go (much faster and I could see a disaster happening).

For the record my 3 heat positions are giving:

68 watts

85 watts

93 watts.

I can't see that you will ever need 93 watts and on 68 watts an engine with no load will run at a fair speed, blowing the safety valve twice or three times a lap for ever.

The amp readout on heat can tell you if you have dirty track , bad connections between sections or even if you have been too economical with the bus wire gauge, and on commands of course it tells me exactly what voltage I am giving the servo motor.

than the second one) but I have just run the third one and though I could hear the servo running (engine stationary). With 4.2 volts on the servo it was nowhere near fast enough and I ended up using 7 volts on that engine to achieve the same results as I was getting with 4.2 volts on the first engine. The ability to tune

Conclusion

Converting a Hornby controller did not work for me. The protection circuitry was more than I could deal with as it would cut in reverse even though the pair of control relays had the Hornby board isolated. In the end the Hornby board went AWOL but I don't know why, so I wasn't going to risk trying another controller and as a result I have replaced everything.

I am not going to draw a circuit diagram but I can tell anyone wanting to copy what I have done what to do. Originally I used quite a big heat sync for my heating power supply output transistor but in the light of experience I can say that the heat sync supplied with the controller kits I buy would be big enough for the job. You will still need a fan and big enough holes in the controller side panels to let the fan breathe.

I had occasion to use the Hornby controller closely followed by my new one. There is a very noticeable difference between "the one

size fits all" approach of the Hornby controller and the more "tuneable" adjustment available after the modifications.

I was able to compare the Hornby unit where, when the loco is not quite going fast enough but one more prod and it's too fast and you have to back off against the little commands I can give with my controller to sort of feel it along. It is also much easier to back off too if you go too far and the digital volt and amp readout for heat and control is a must.

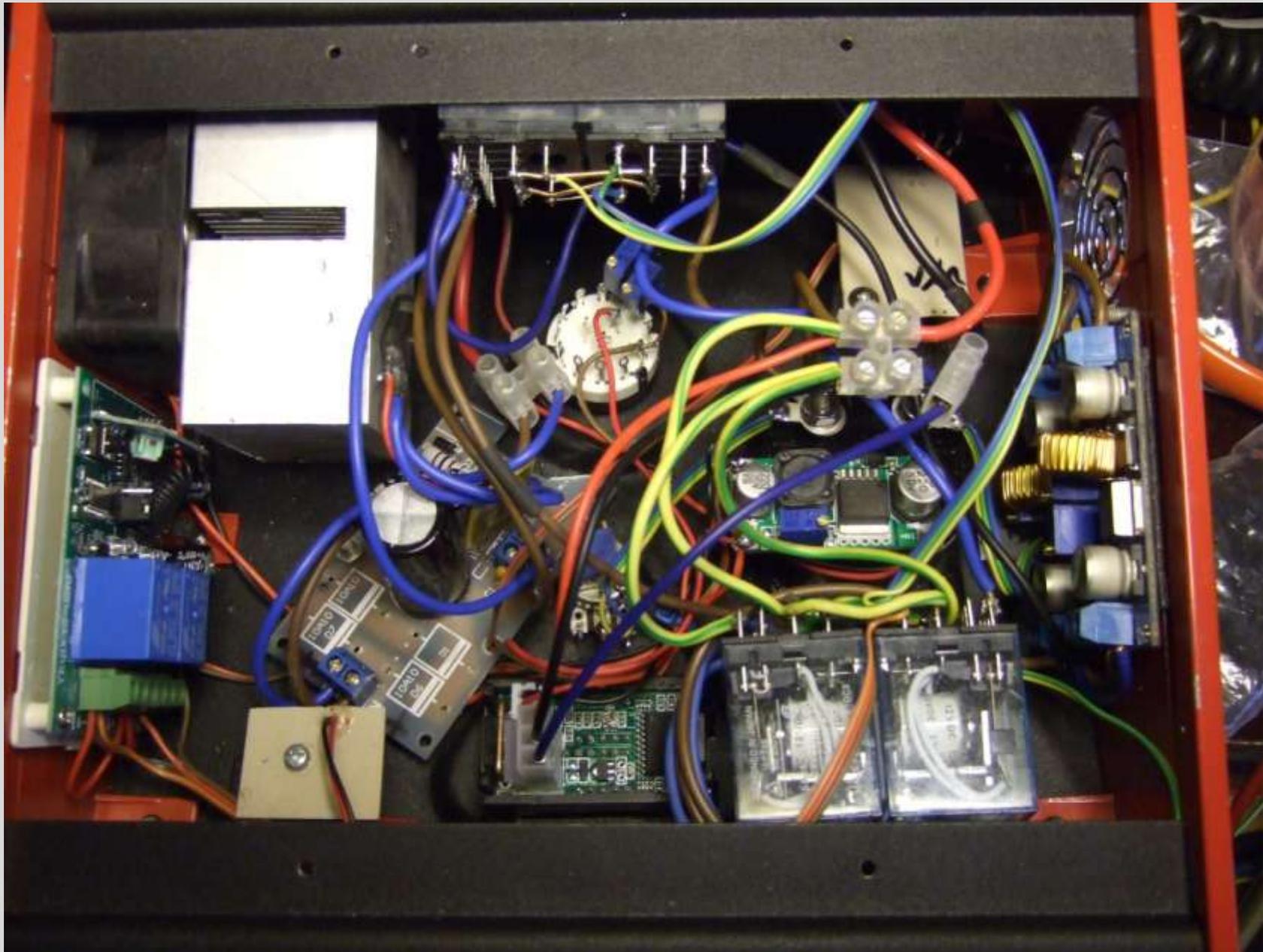
This is defiantly the way to go, by whatever means that you can achieve. I am well pleased with what I have here and it's difficult to see what I could have done to improve on what I have ended up with, but it has taken a lot of effort and is not practical for "mass production".

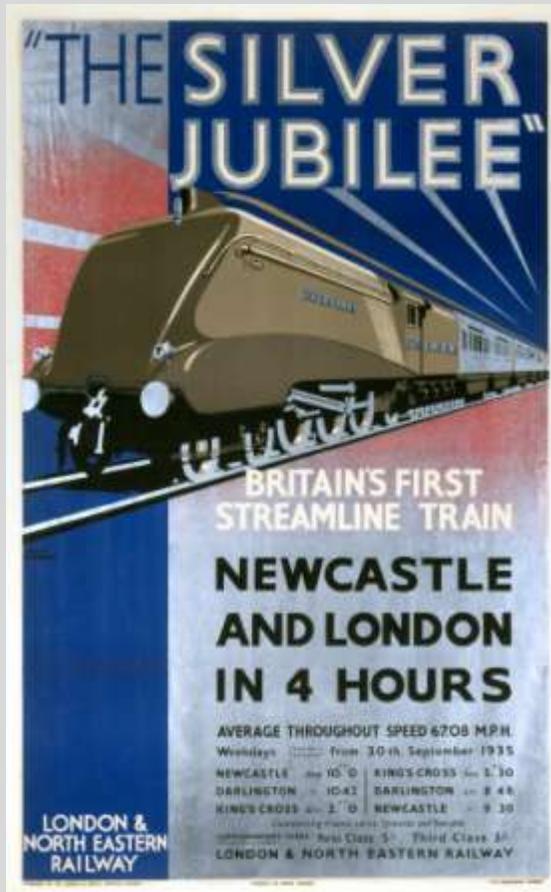
This job has taken me an unbelievable amount of time and had I had known just how long I wouldn't have started it in the first place. Putting radio control into a controller is one thing and doesn't take too long but this complete controller is a lot of work, from the hole cutting to the wiring.

I am quite happy to tell anyone what I have used and what I used it for.

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What the inside looks like now





Courtesy & Copyright NRMKiosk, York

The Newsletter of the 00 Live Steam Club Afterthoughts.....

round the track at a scale 150mph before he was able to grab it as it was about to fly off the table, a scary moment especially for him! Turned out a wire had come loose on the controller which left him with no control. Otherwise those locos are impressive.

Live steam layout was a real eye opener to me as I had no idea it ran so well, and people running it were extremely friendly and engaging"

Chris Oakes has held his hand up saying:

"I was the operator and one of the feed wires connecting the controller to the track had come loose, causing a few interesting control issues..... Until the problem was identified and repaired!!!"

Lesson there for everyone!



Committee members George and Richard relax after the AGM

Rare video of Silver Link



https://www.youtube.com/watch?v=P2jEMO_gkKg

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It was Me!!

This was posted on the RMweb forum following the Roadshows appearance late last year, at the RMWeb event in Coventry

"I was watching the Hornby live steam layout when the operator lost control of his loco which careened