

Tip: LocPilot V3.0 Conversion of the 3614 Lady C

Date: 29-03-2009

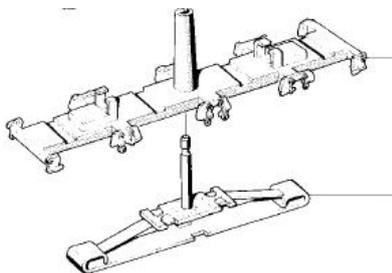
Hi All,

One of my Lady C locos suffered a malfunctioning decoder, it no longer had a full range of speed steps. As the original decoder can no longer be bought as a spare part, the options were to try and repair the decoder or find a suitable replacement, I decided to try an ESU LokPilot V3.0 decoder because it was specified as being able to run Faulhaber motors, reasonable price, has load regulation and offers two functions. I serviced the loco to ensure smooth running and gave all axles some light oil.

Warning: - You undertake the following modifications at your own risk.

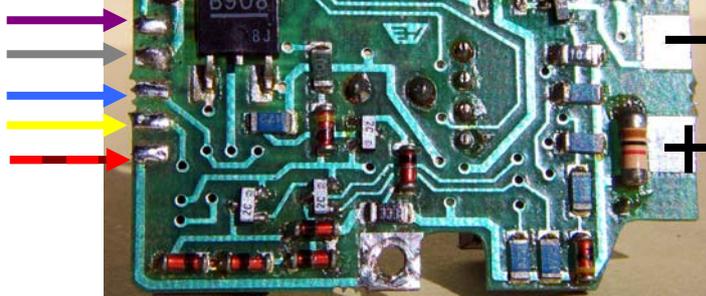


The Lady C has two problems to overcome, first the collector shoe with the long shaft which takes up too much room in the centre of the tender then the current limiting resistors for the LED lights. (The above comment was made regarding an earlier conversion using a 60905 Marklin decoder.)



First I decided keep the original collector shoe as the LokPilot decoder is a lot smaller than the Marklin decoder and would fit to one side of the collector shoe shaft and the other reason was I had a supply of spare collector shoes from previous Lady C conversions for friends.

Led - Violet
Led + Grey
Motor - Blue
Motor + Yellow
Ground Red/Brown



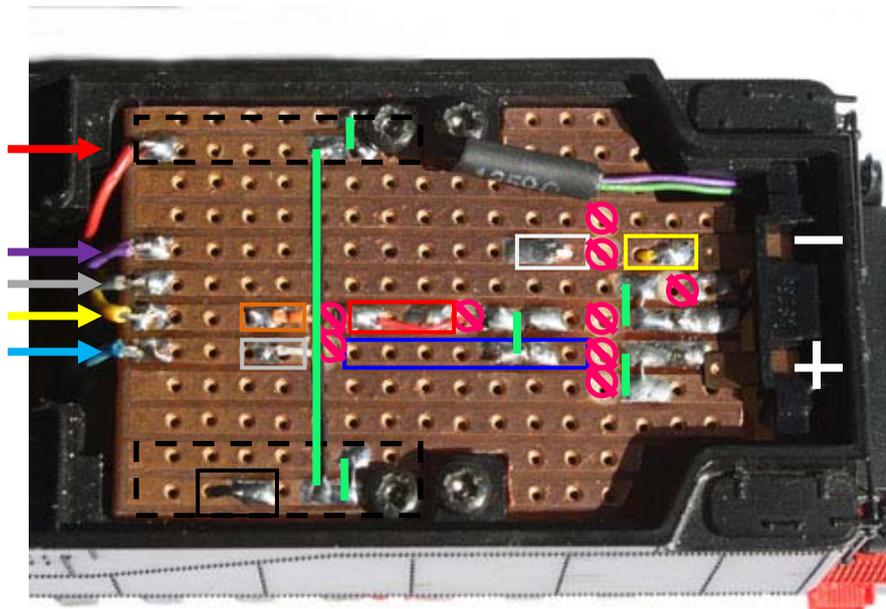
Original 3614 Decoder showing wire colours

Note: - The wire colours on the original decoder don't match the standard Marklin wire colours of their new decoders so please refer to the wire colour conversion table below to make the correct connections for the LokPilot decoder. Make sure you connect the correct wires and double check before applying the power. The rear leds on the tender are connected to the plus/minus pads on the right hand side of the decoder. Also note the value of the resistors for the LEDs on the above pcb are 1k.

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Below is a top view of the replacement PCB using vero board to replace the original decoder and mount 1k5 current limiting resistors I had for the LEDs.



(Suitable value range 1k to 1k8 ¼ - ½ watt can be used.)

The coloured arrows on the left show location and wire colours of the original Marklin wires in the 3614 locomotive.

The coloured rectangles show location and wire colour for the LokPilot wires.

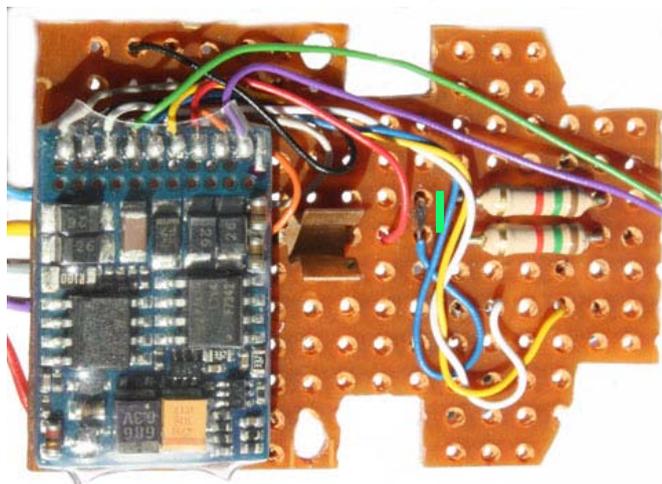
Ensure your cut the copper foil with a 3mm drill where indicated by the red circles with a diagonal line.

A green line indicates a wire link required between foil strips.

Please note the top/bottom screws make the chassis connection

indicated by the black dashed rectangle top and bottom left. The LokPilot black wire is at the bottom left of the picture. Ensure +/- rear LED contacts don't create short circuits. Terminal + is across 2 foils.

Below is the bottom view of the replacement PCB with LokPilot decoder held in place by double sided sticky tape. You will note that I have re used the collector shoe socket clip (middle of picture). The centre for this is the line between the top/bottom left most screws.



I traced the original PCB outline onto the vero board, cut out the shape and soldered the collector shoe clip. I drilled 2.5mm dia. Mounting holes at the correct locations and made sure the clip was in the correct place before mounting the decoder and resistors.

Please note the blue wire (+ common) is connected via a wire link on the left side of the resistors

You should ensure all wires are clear of the mounting pillars before screwing the PCB into position.

Marklin and LokPilot Wire Colours Connection Chart

Function	Marklin (3614 only)	LokPilot
Power supply	Red/Brown	Black
Power supply	Red (Collector shoe)	Red
+ Motor Terminal	Yellow	Orange
- Motor Terminal	Blue	Grey
+ Common for functions	Grey (via 1k5 resistors)	Blue
Front LED -	Violet	White
Rear LED -	- Pad on PCB	Yellow
Aux1 (F1)	No Connection	Green
Aux2 (F2)	No Connection	Violet

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This loco now has to have the configuration variables (CV's) set to ensure the locomotive runs well. Go with the ESU recommendations for Faulhaber motors (marked **RED**) in the table below. Besides the motor CV's I set some further CV's to ensure I could profile the locomotive using the RR&Co Train Controller software (marked **GREEN**)

Function	CV #	CV Value	Default Value
Start Voltage	2	6	3
Control Reference Voltage	53	40	56
Load Control Parameter "K"	54	10	32
Load Control Parameter "I"	55	10	24
Primary Locomotive Address	1	6	3
Acceleration	3	5	8
Deceleration	4	3	6
Head lights	113	15	15
Rear lights	114	15	15
Aux1 (F1) Smoke	115	111	15
Aux2 (F2) Telex (timed output)	116	207	15

All CV's were programmed using an ECoS Controller on a programming track.

The functions are not connected at the moment but will be used for a Seuthe smoke unit and a new type Marklin Telex uncoupler. This article will be updated when I receive the parts.

I know another of my friends has this loco and intends to upgrade it using a LokPilot decoder so I hope he can follow what I have done.

As always enjoy your model trains.