

LGB 20430 Ge 4/4 II of the RhB No. 615 Klostern with ZIMO MX69S decoder, Dietz X-clusive-S sound module EL-RHB and Dietz DPS 82 LGB pantograph control:

Important: any reconstruction is at your own risk! My report is only intended as a suggestion.
Surely there are other or better solutions.

1. Description of the complete conversion:

The ZIMO MX69S decoder was not only designed for its excellent features, but also chosen because of the SUSI interface. The LGB boards were removed, the new connections go to the decoder. The 5V plug-in bulbs are supplied with 7 volts by the Dietz X-clusive-S sound module.

The loudspeaker and the Dietz pantograph control DPS 82 were installed in the roof. The sound module is switched on/off with function FA1, the pantograph I with FA2, the

Pantograph II, with FA4 the driver's cab lighting I, with FA5 the driver's cab lighting II, with FA6

the RhB signal horn, with FA7 the station announcement / conductor's whistle, with FA8 the fan sound, with FA9 the coupling sound and with FA10 the tunnel fader (fade sound in / out).

2. Install MX69S decoder:



Image: LGB2043Ge44II-Klostern-001.JPG

4 holes Ø 2.40 mm at the distance of the decoder holes in the weight drill (red arrow).
For better heat dissipation at peak performance, the bottom of the cooling plate was coated with a thermal paste.



Image: LGB2043Ge44II-Klostern-002.JPG

The decoder was screwed onto the weight using 4.50 mm high spacers. The thermal paste creates a positive connection between the cooling plate and the weight.



3. Install the speakers:



A Ø 44.00 mm opening was milled and a loudspeaker (Conrad Art.-No.: 335405) with a waterproof membrane was glued on (Henkel Kraftkleber transparent).



Afterwards, a quick hardening 2K epoxy adhesive (e.g.: Araldit Rapid) the speaker on 3 Points additionally secured (visible in the next picture on page 2).

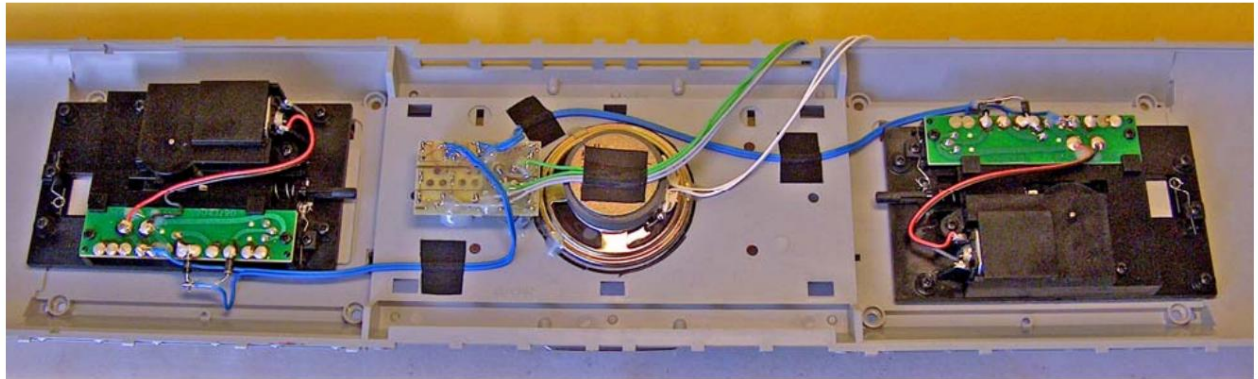


Image: LGB2043Ge44II-Klostern-004A.JPG and -003A.JPG

4. Install DPS 82 pantograph control:

DIETZ

Image: LGB2043Ge44II-Klosters-005.JPG



The pantograph control was fixed with double-sided adhesive tape and then fast-curing 2K epoxy adhesive (e.g. Araldit Rapid).

Attention: Assignment for connection to 2 functions!

Pantograph I: all LGB cable connections were removed and the diodes and a **blue** double cable were connected according to the sketch in the Dietz instructions.

Pantograph II: all LGB cable connections were removed, contrary to the sketch in the Dietz instructions, the diodes were soldered on 180° offset and a **blue** double cable was connected.

One **green** cable was connected to the pantograph **on the left**, the other **green** cable to the pantograph **right** of the ZIMO decoder, one **grey** cable is connected to the function output **pin 7 (FA2)** and the other **grey** cable is connected to the function output **pin 13 (FA3)** of the ZIMO decoder.

The connections at the soldering points were then secured with a fast-curing 2K epoxy adhesive (e.g. Araldit Rapid) (purpose: strain relief).

5. Make sound holes for the loudspeaker:



Image: LGB2043Ge44II-Klosters-006.JPG

Holes with a diameter of 4.00 mm were drilled into the center of the brown cover.



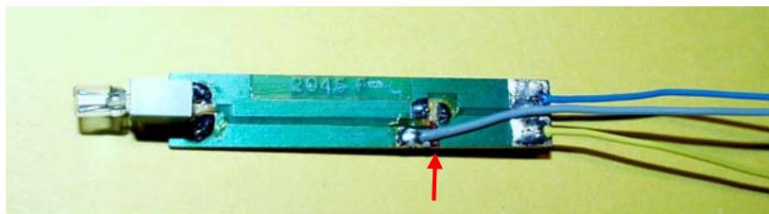
Image: LGB2043Ge44II-Klosters-007.JPG

After installing the grille, they are almost invisible.

6. Modify the lighting boards on the housing roof for DCC operation:



The 2 LGB boards illuminate roof spotlights and the driver's cab at the same time!



The conductor track was separated (red **arrow**), the solder mask was removed and a third, approx. 200 mm long cable was additionally soldered on.

Image: LGB2043RhBGe44II-18.JPG and -19.JPG



Image: LGB2043Ge44II-Klostern-010.JPG

Before the lighting boards were inserted into the housing, a rectangular clearance had to be for the loudspeaker and the pantograph control (arrow).

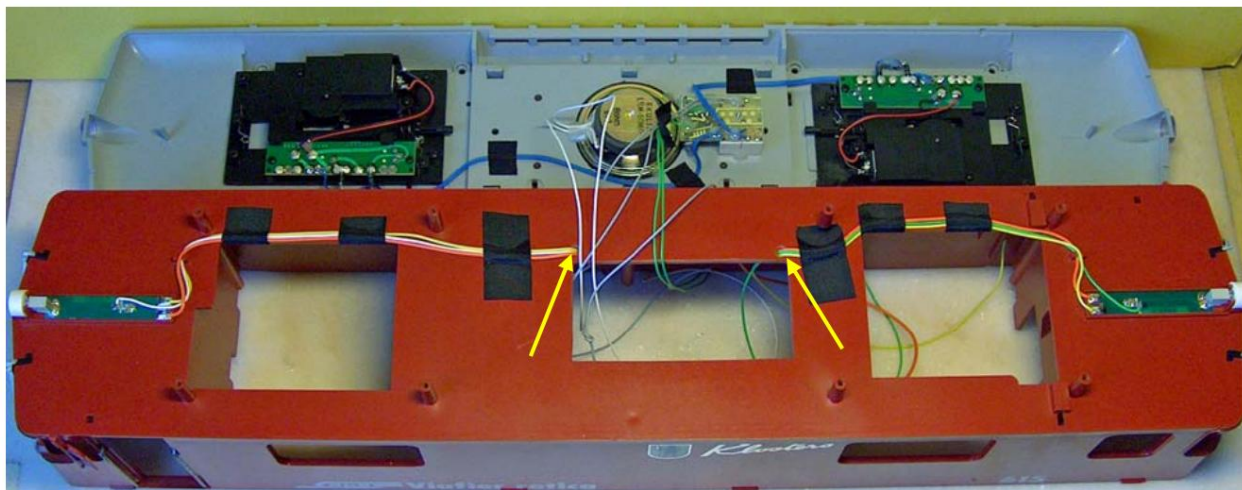


Image: LGB2043Ge44II-Klostern-012.JPG

Two holes with a diameter of 4.00 mm were drilled for the cable feedthrough (arrows). Both modified circuit boards were inserted into the housing, the cables were fixed with insulating tape and the soldering points were secured with a fast-curing 2K epoxy adhesive (e.g. Araldit Rapid).

Assignment:

Orange cable = common + pole 7 volts from the sound board.

Yellow cable = driver's cab lamp I to decoder **pin 9** FA4, driver's cab lamp II to decoder **pin 12** FA5.

Cable Fly Cable = Roof spotlight to decoder **pin 11** FLr **Pin 6**

7. Roof installation:

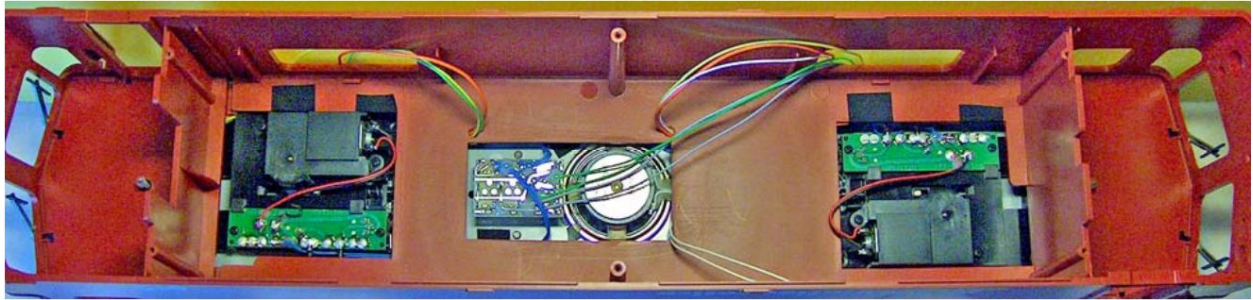
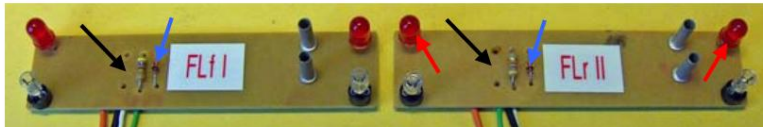


Image: LGB2043Ge44II-Klostern-013.JPG

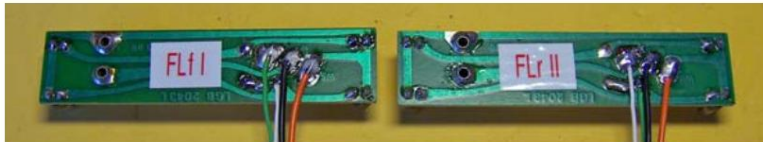
After the cables were passed through, the roof was reassembled.

8. Modify lighting boards in the driver's cab for DCC operation:



The diode (black arrow) has been removed.

The diode (blue arrow) was soldered in at an angle of 180°.



On the FLr II board, the LED cathodes (flat spot, hook shape) outwards. These LEDs were

Soldered at an angle of 180° (red arrow).

Image: LGB2043Ge44II-Klostern-008.JPG and -009.JPG

Occupancy FLf I:

Green cable = tail light diodes to decoder pin 11 FLr cable = headlight driver's cable to decoder Black cable = socket to decoder pin 15 Ground cable Pin 6 FLf orange = common + pole 7 volts from the sound board.

Occupancy FLr II:

Cable FLf Green = tail light diodes to decoder pin 11 FLr cable = headlight driver's cable to decoder pin 11 FLr Black cable = Socket to decoder pin 15 Ground Orange cable = common + pole 7 Volt from the sound board.

Afterwards, all cables were secured at the soldering points using a fast-curing 2K epoxy adhesive (e.g. Araldit Rapid) and the lighting boards were reinserted into the locomotive housing.



Image: LGB2043RhBGe44II-25.JPG



Image: LGB2043RhBGe44II-26.JPG

9. View before connecting to the decoder:



Image: LGB2043Ge44II-Klostern-014.JPG

10. View after connecting to the decoder:

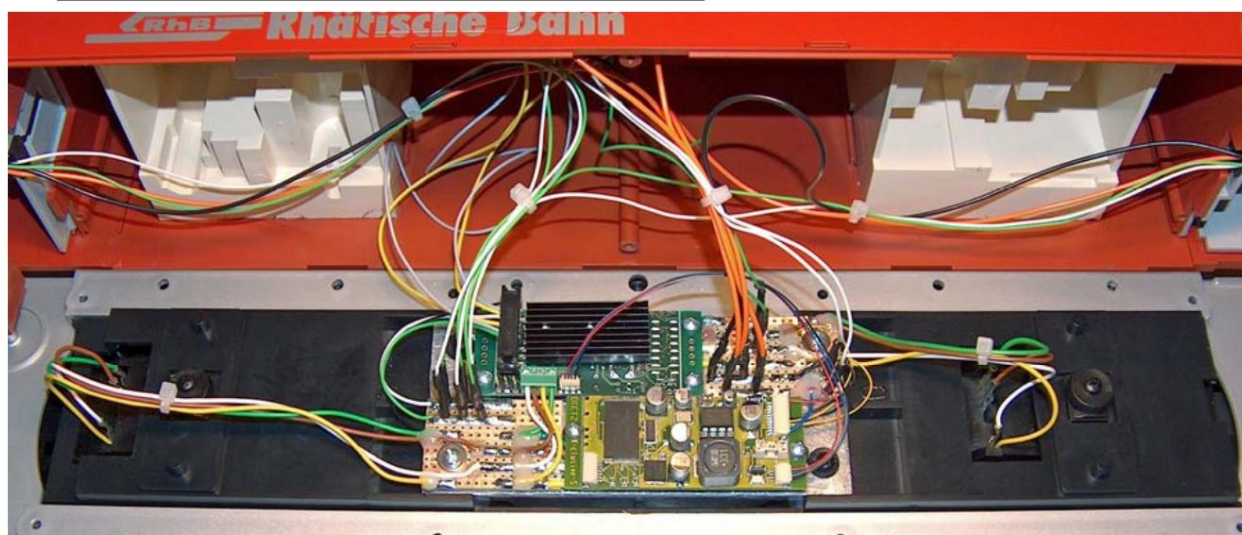


Image: LGB2043Ge44II-Klostern-015A.JPG

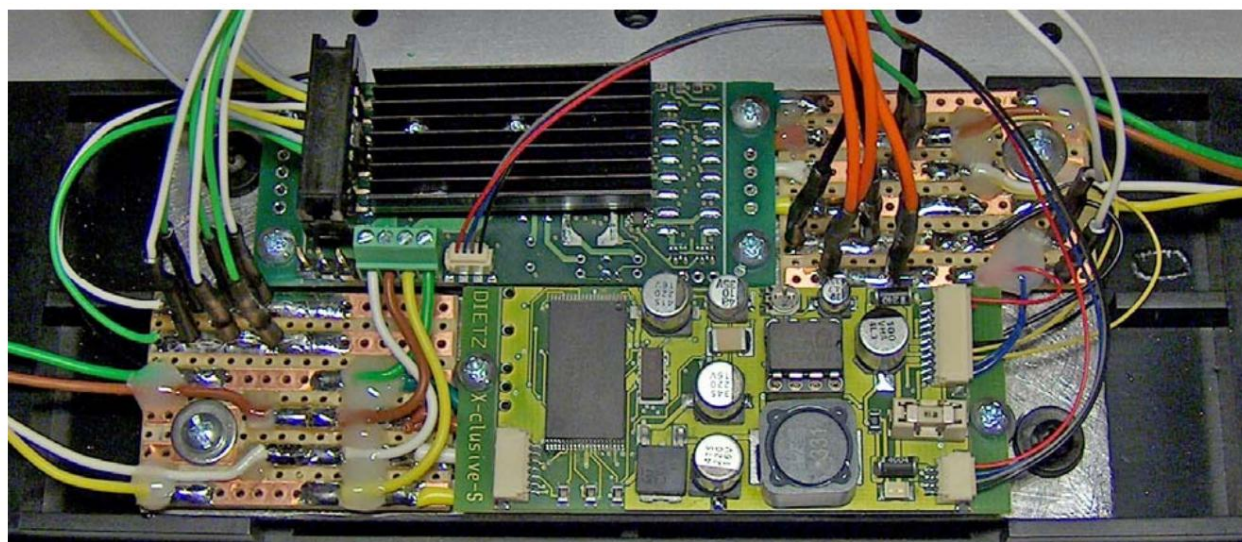


Image: LGB2043Ge44II-Klostern-016A.JPG

11. Decoder and sound module programming with ZIMO system:

The most important decoder CV's (CV's not listed have default value):

CV 5 = value 200

CV 6 = value 65

CV 17 = value 194 + CV 18 = value 103 = long address 615, values automatically when entering address

CV 29 = value 32

CV 56 = Value 55 Default, has not been changed because high frequency singing is real in modern electric locomotives

CV 57 = Value 180

CV 58 = value 200

The sound module CV's (CV's not listed have default value):

CV 904 Value 3 = FA1 Sound on / off

CV 905 Value 0 = is occupied by the decoder FA2 for raising / lowering the pantograph I

CV 906 Value 0 = is occupied by the decoder FA3 for raising / lowering the pantograph I

CV 907 Value 0 = is assigned by the decoder FA4 for the driver's cab lighting I on / off

CV 908 Value 0 = is assigned by the decoder FA5 for the driver's cab lighting II on / off

CV 909 Value 2 = FA6 RhB signal horn 1

CV 910 Value 5 = FA7 Conductor whistle, brake squeal, station announcement

CV 911 value 6 = FA8 fan noise

CV 912 Value 4 = FA9 clutch noise

CV 913 Value 8 = FA10 Tunnel fader (fade sound in / out)

CV 923 value 255 = no automatic fan noise

CV 925 Value 8 = Sensitivity to load changes to very slow

12. Acceptance point for modifications and repairs:



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Since March 2006, it has also been carrying the products of:

