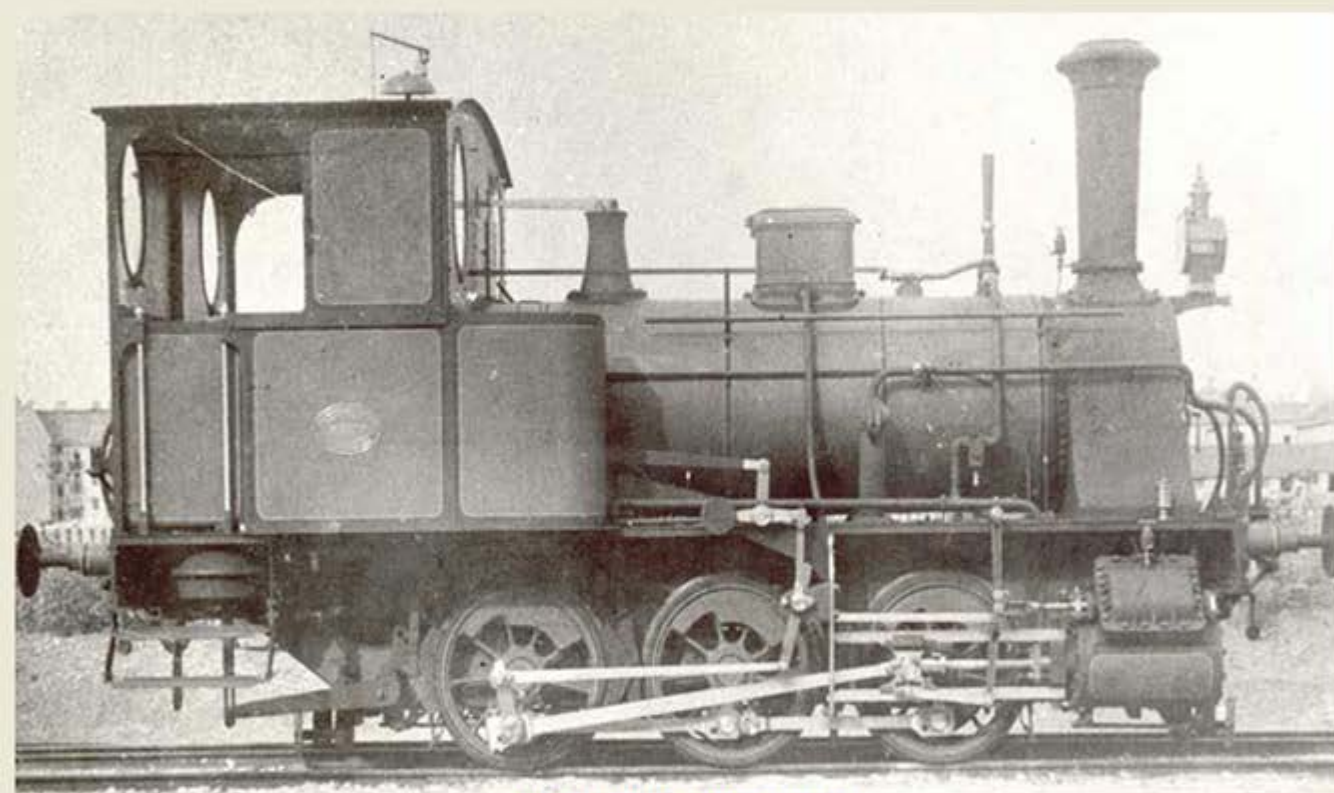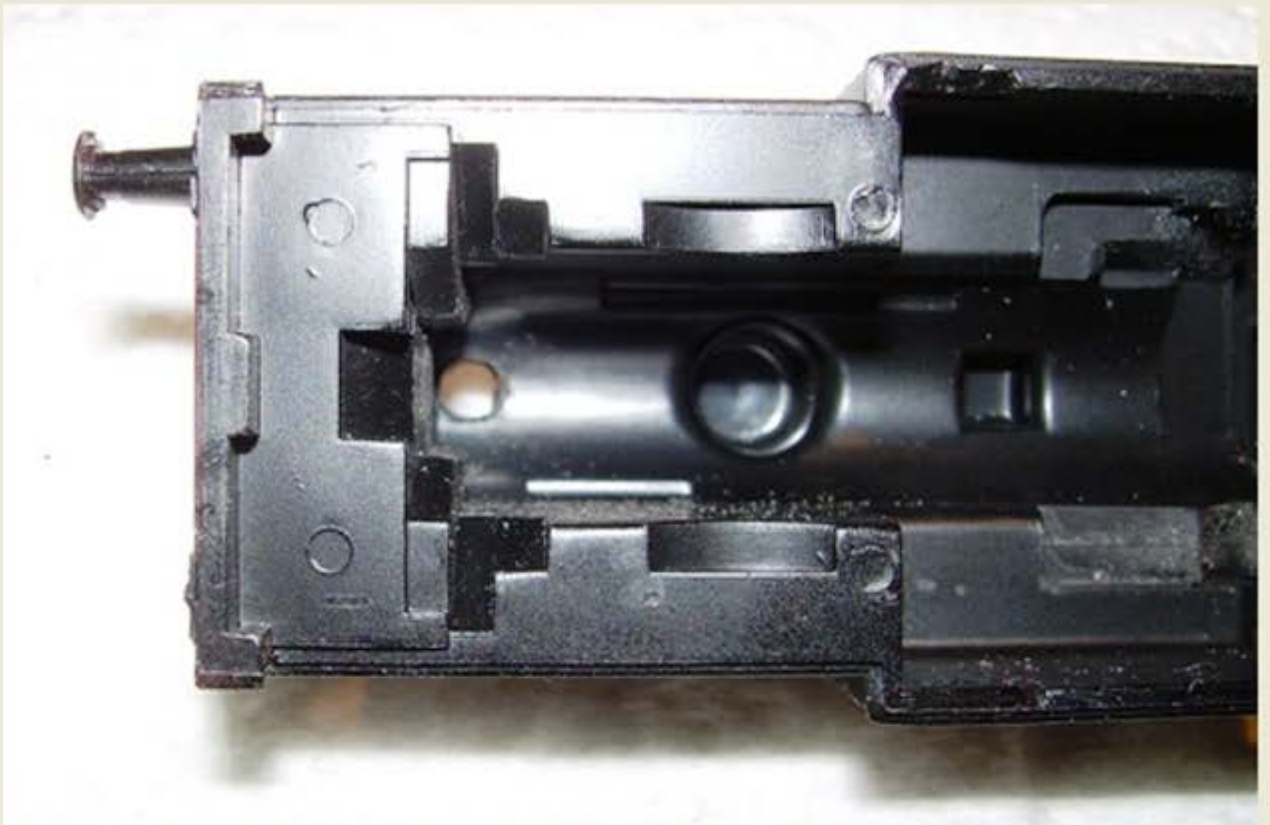# Märklin "Länderbahn" 3029

The original: Lok "Anna"

A new project to convert a Märklin 3029 to digital with all the bells and whistles.

The loco plastic body was in a bad shape, buffer and smoke stack was broken off.

First, room is needed for the smoke unit. With the Dremel tool a very easy job.
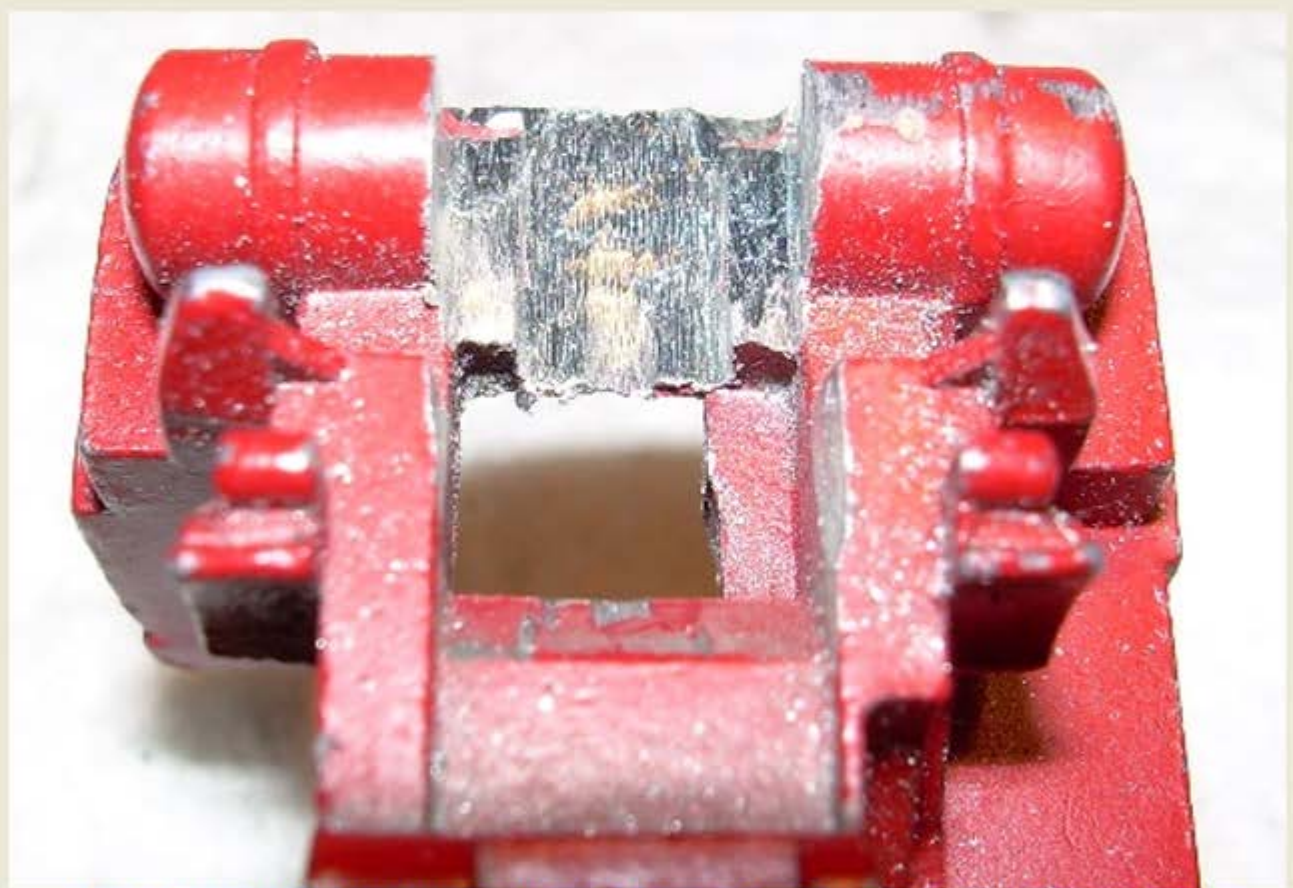
First, room is needed for the smoke unit. With the Dremel tool a very easy job.

New metal buffers (Puffer).

Next is the frame, here is some milling necessary to install a Telex coupler, a digital decoder and speaker for the sound.
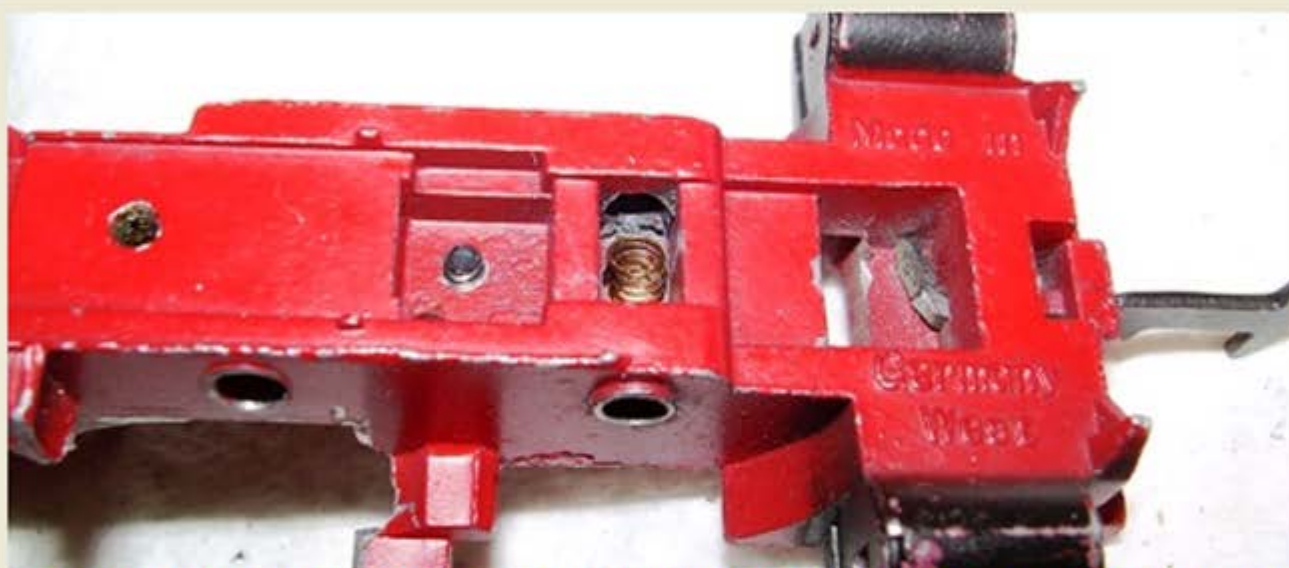

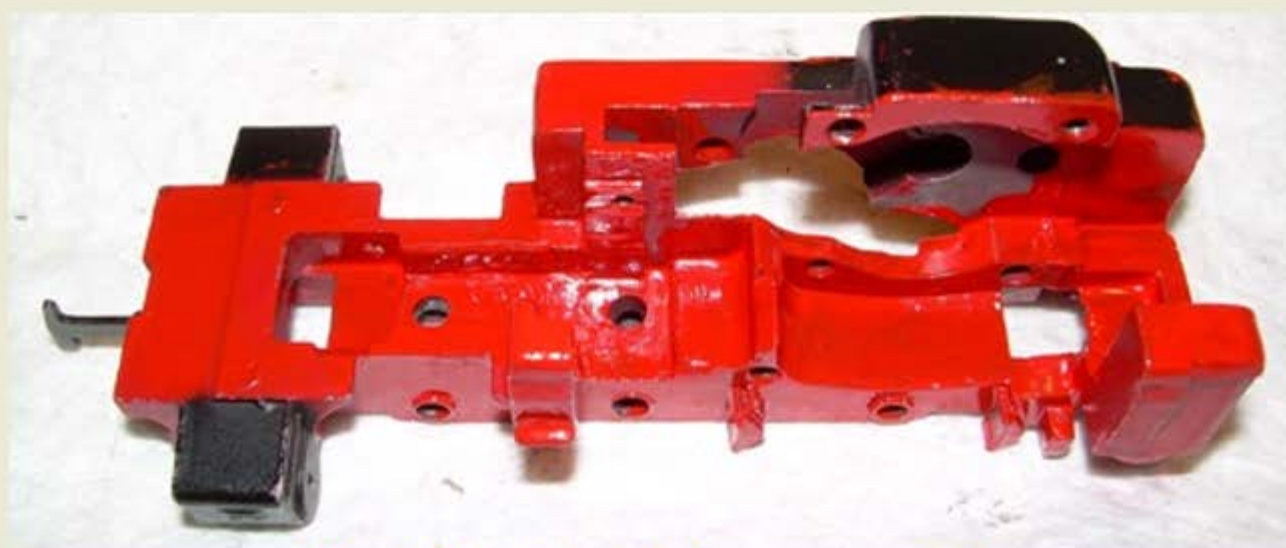The air pressure tank was cut in half to make room for the Telex coupler.

More milling in the front of the frame for the decoder and one speaker.
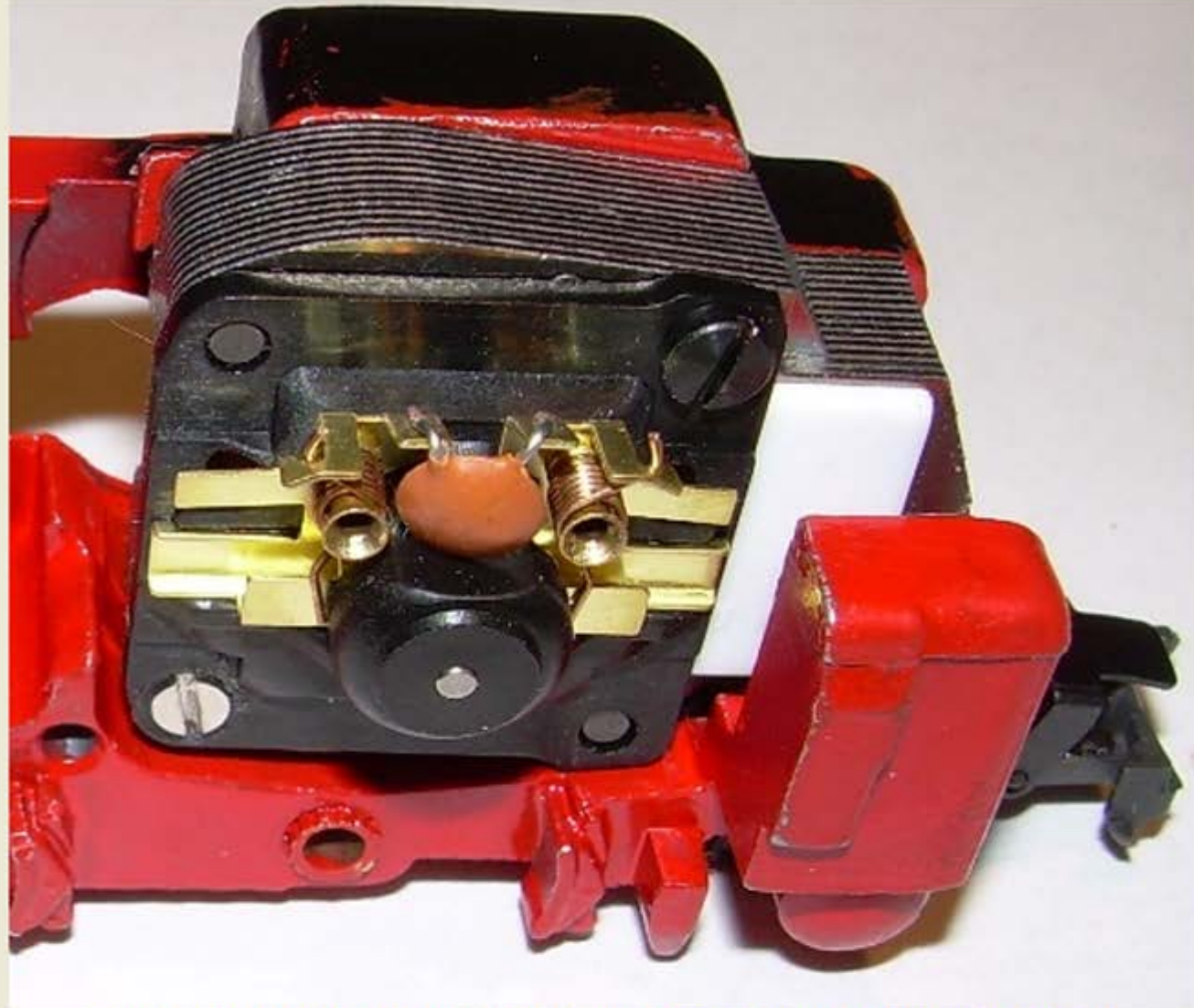

A contact spring will provide a good connection from the rail to the frame.

After all the milling the frame was painted.

5 pole motor with the modification of the left lower mounting screw.
The motor has to be removed again for the installation of ball bearings
on both sides of the armature shaft. The running noise of the motor is
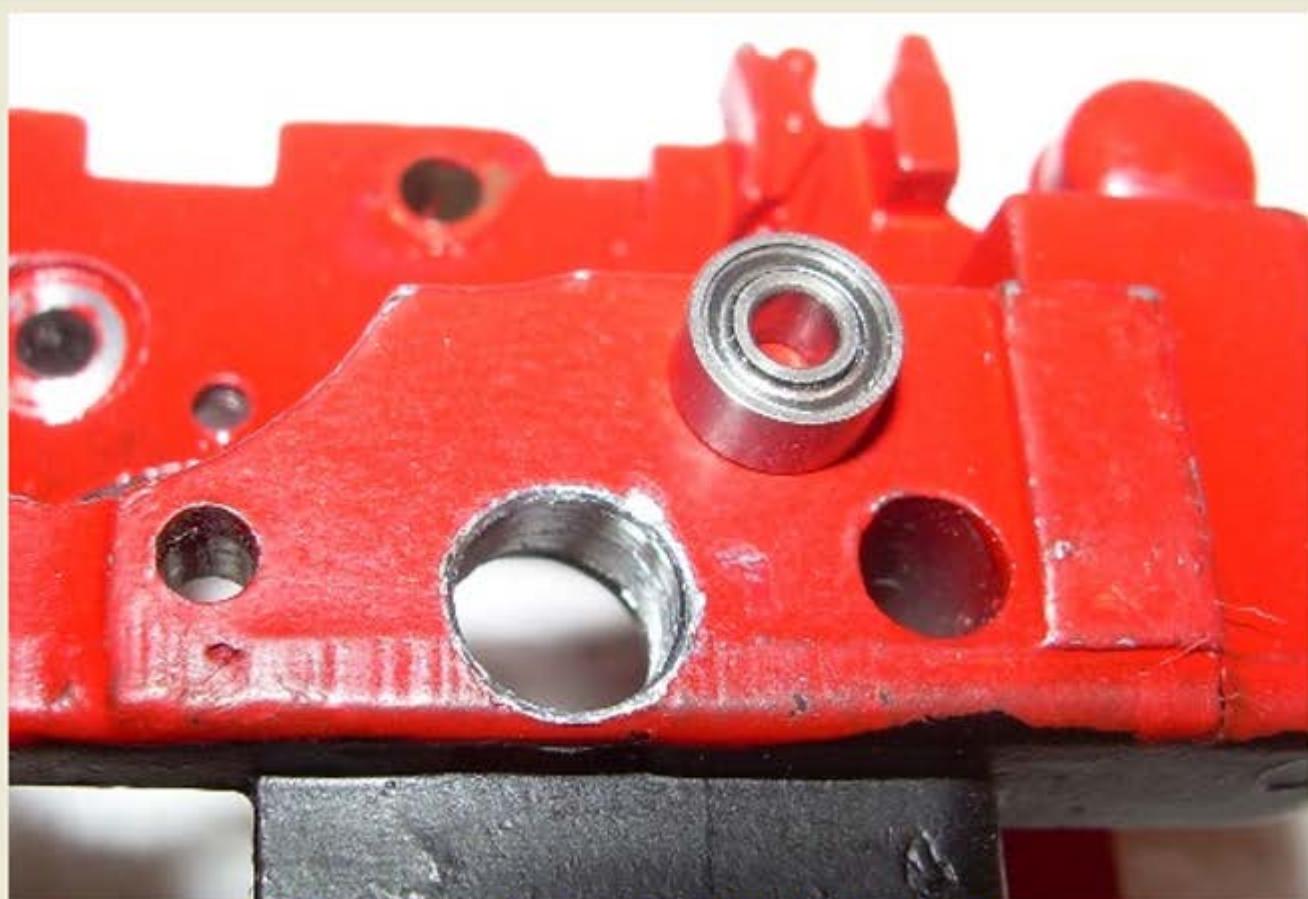very high for this small engine, especially while shunting at a low speed.
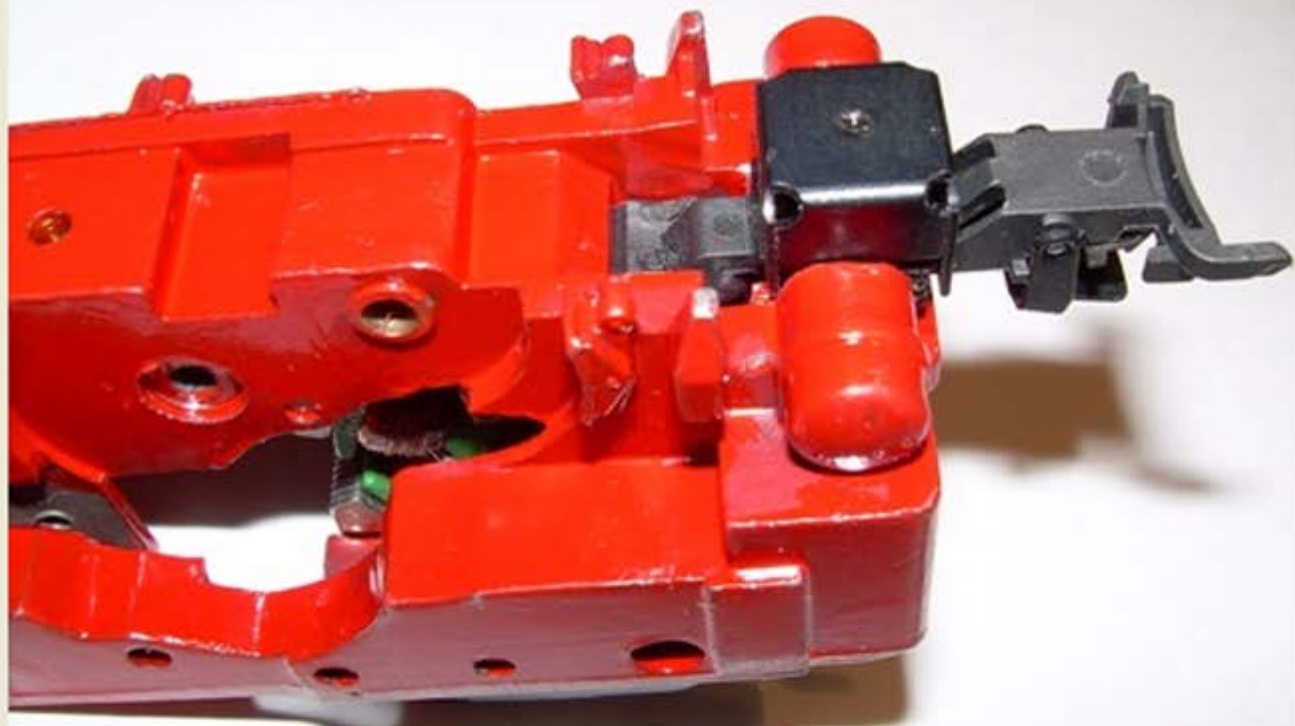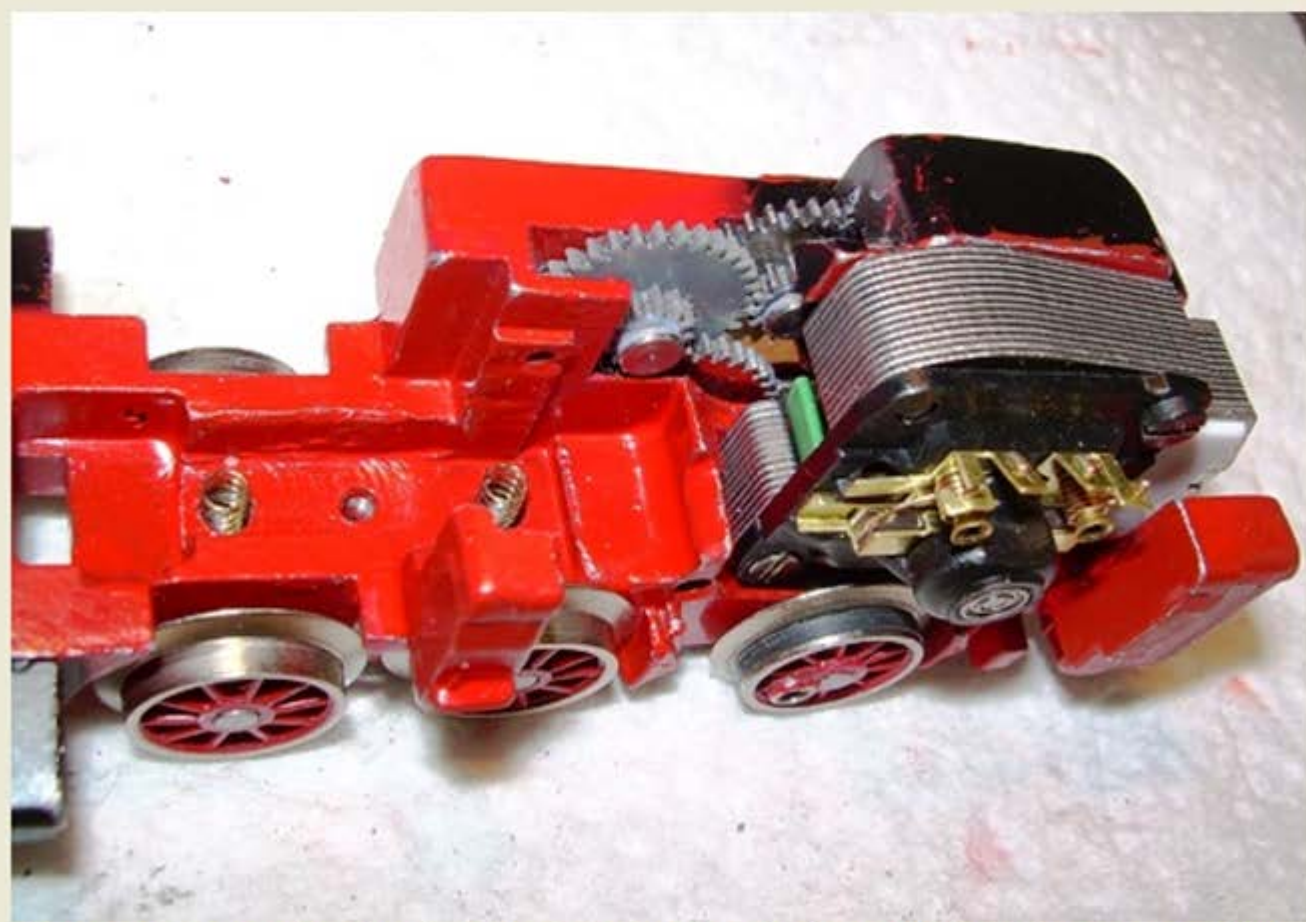

This ball bearing can rotate up to over 100,000 RPM

Ball bearing installed in the brush holder plate

Ball bearing ready to get installed in the loco frame

Telex coupler installed.

Here are two contact springs on both front axles to provide better connectivity.
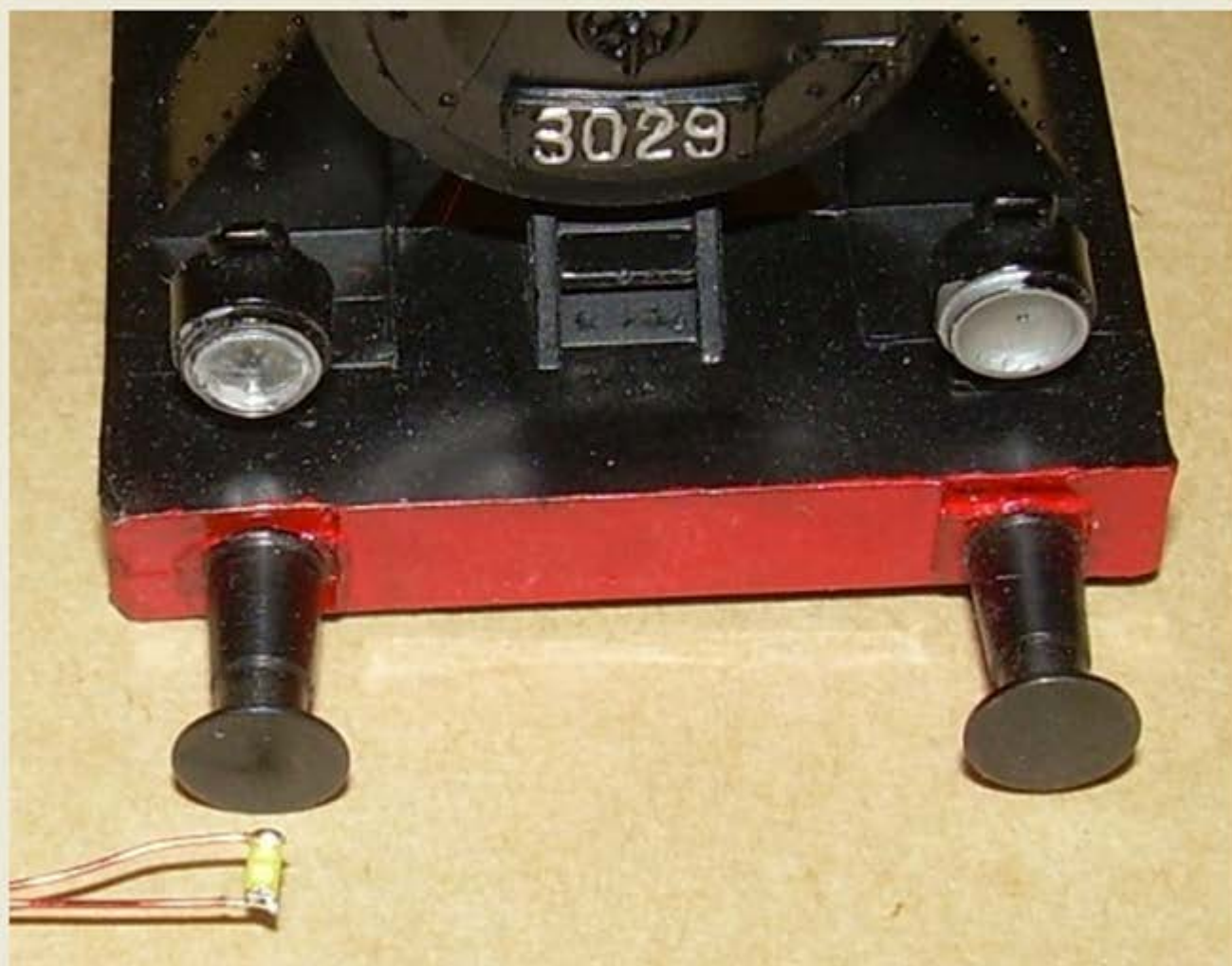New gears installed and the wheels and axles back in the frame.

Underneath the brass bracket are two contact springs on both front axles.
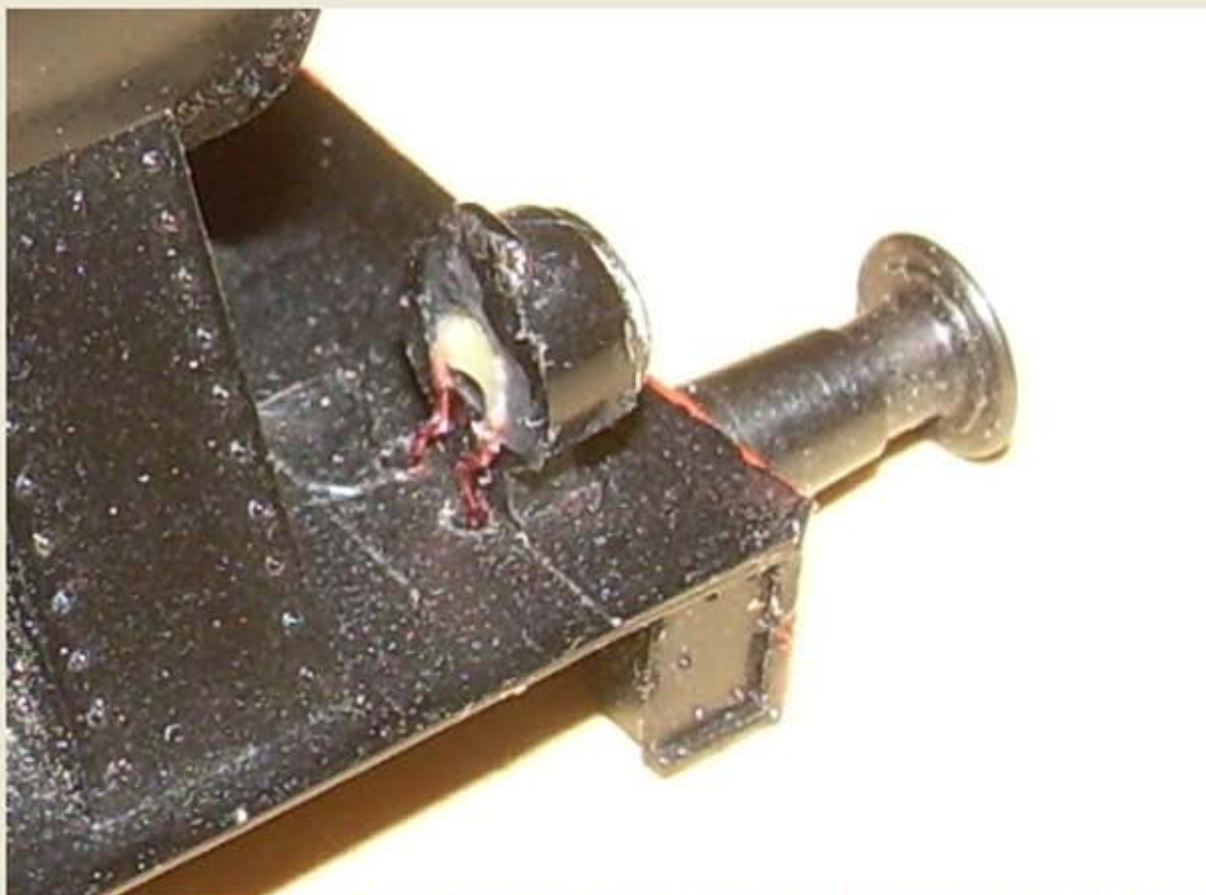
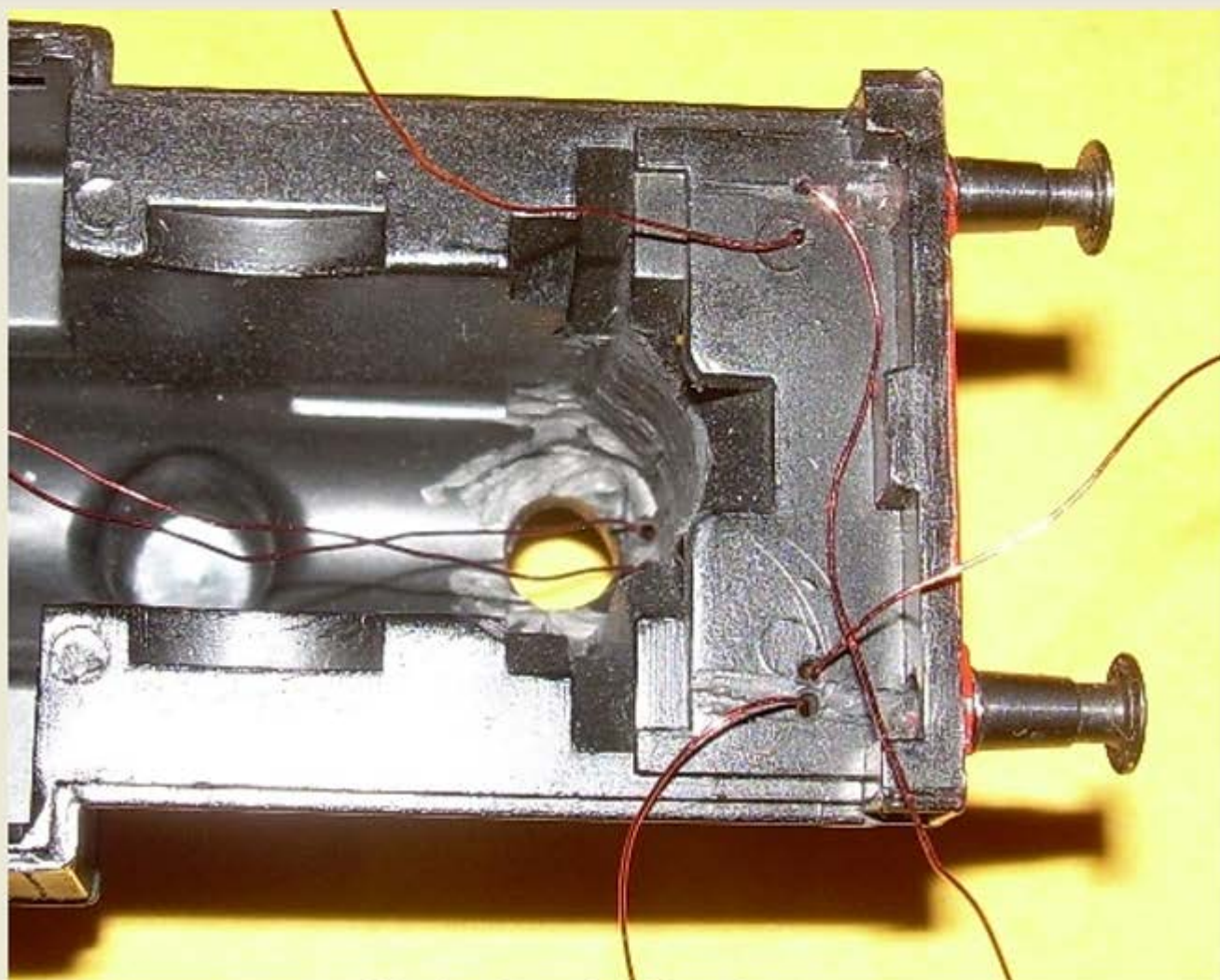Install lanterns at the front. Upper lantern drilled out, lower left with lens inserted.

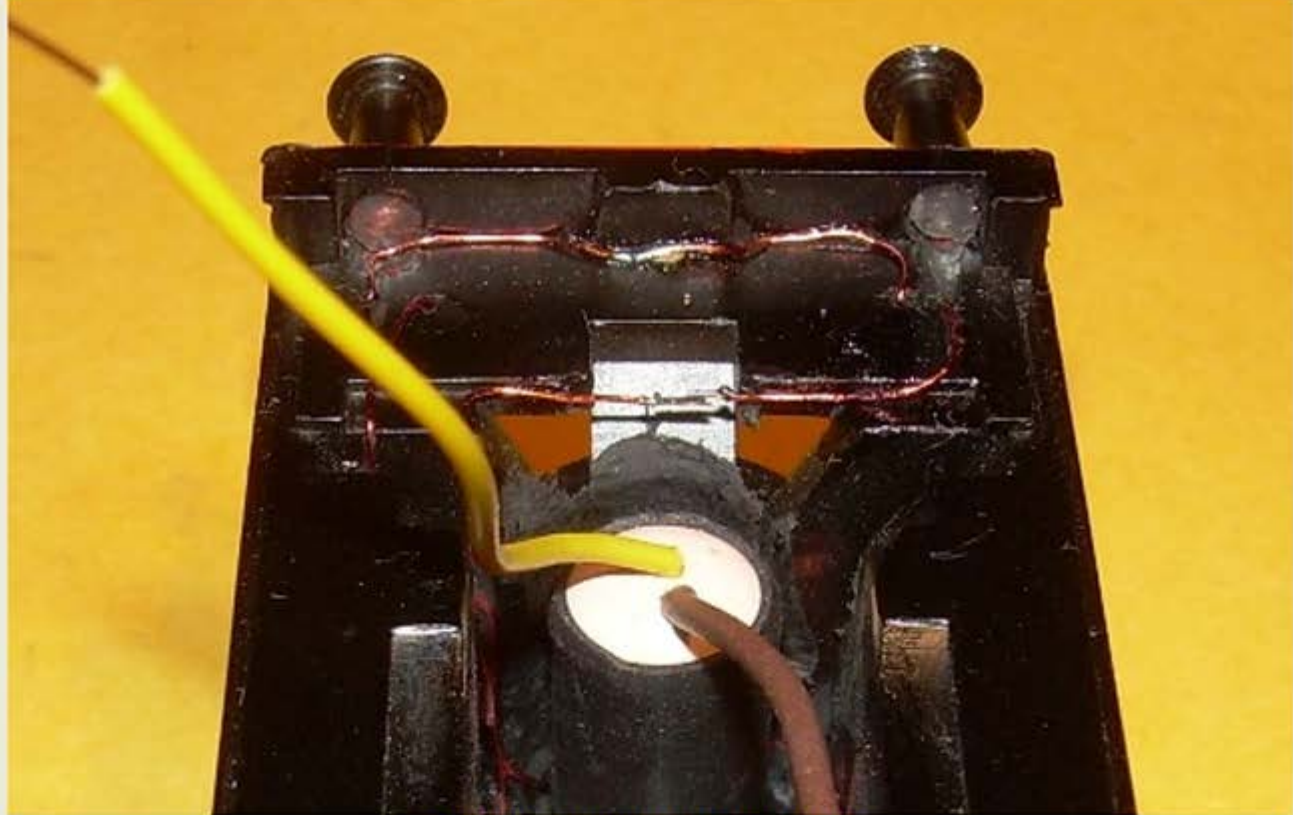The tiny LED with connection wires. Thanks to Jens Ullmann (ETE)

LED glued in to the lantern from the back, two holes drilled through the body for wires.

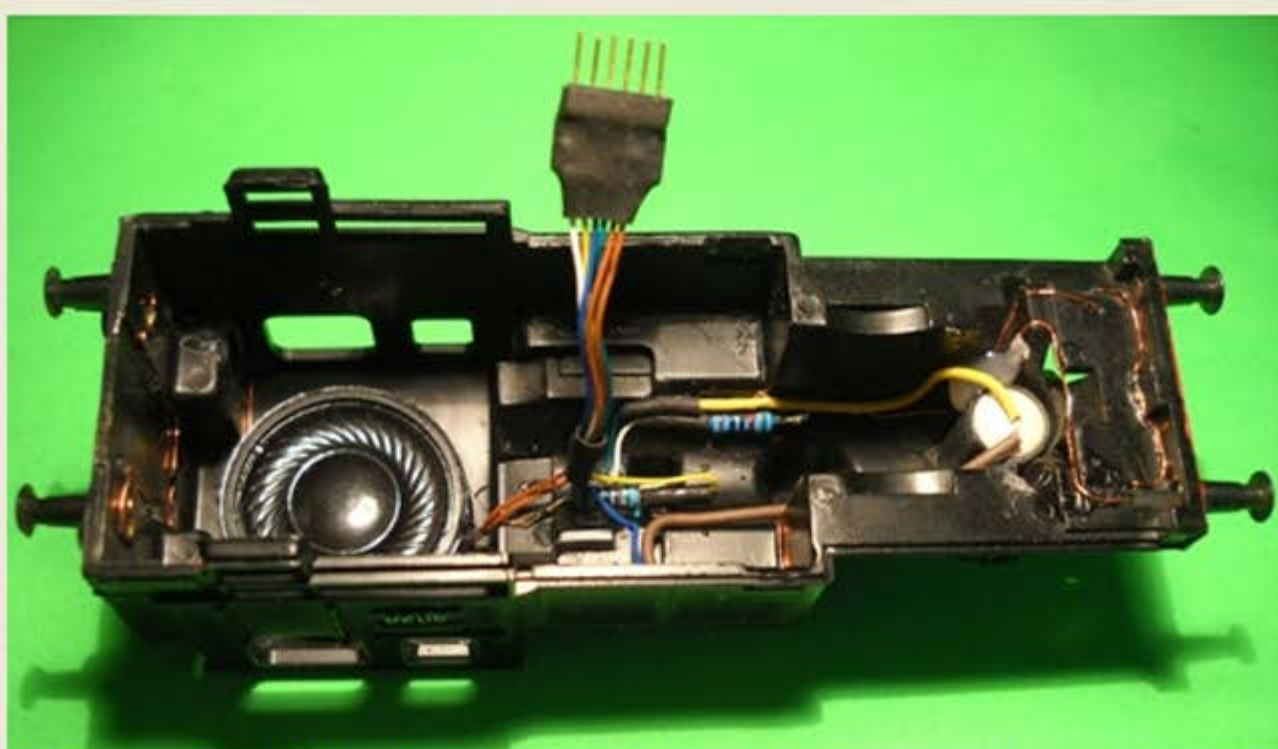All wires from the 3 front lanterns.

Smoke generator installed.

The speaker get its own very flat baffle, just a card board glued on the back, ...

... completely sealed with hot glue, and mounted in the cabin under the roof.

Wiring completed in the shell. Rear LED's installed, 23mm speaker under the roof, load resistors for LED's, and a 6-pin connector to the frame of the 3029 loco.

ESU LokSound M4 (mfx®) decoder and NEM 651 6-pin connector installed.

Märklin 3029 with 16 functions installed, includes smoke and front and rear lights.
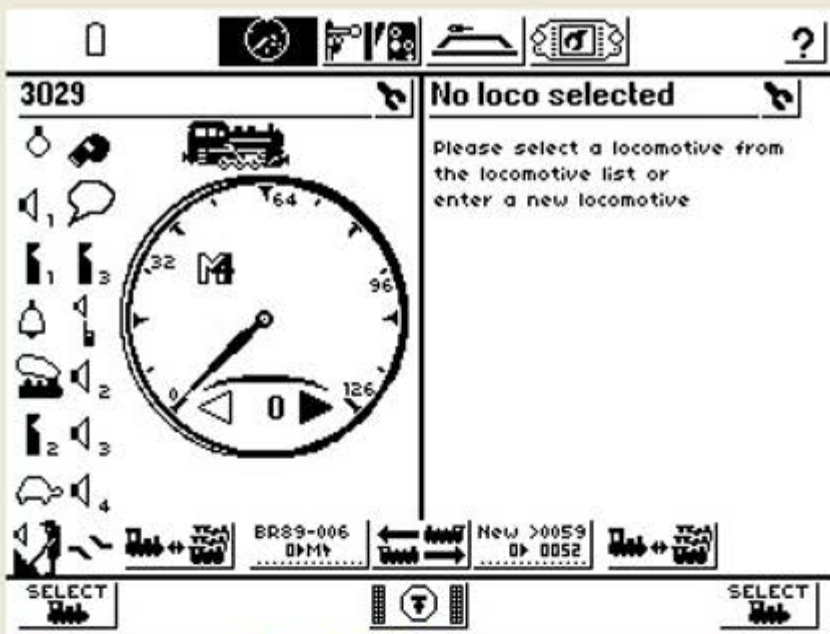
Front lights ...

... tail lights and Märklin Telex coupler.

ESU ECoS loco screen

Functions	
F0	Light on/off
F1	Sound on/off
F2	Whistle (Länderbahn)
F3	Bell
F4	Smoke Generator
F5	Whistle (short)
F6	ACC / DEC
F7	Coal shoveling
F8	Conductors whistle
F9	Station announcement
F10	Second whistle
F11	Demo Sound
F12	Demo Sound
F13	Demo Sound
F14	Injector
F15	Un-coupler