

Bachmann Three Truck Shay en

Here we describe the complete conversion of a Bachmann Three Truck Shay locomotive.

First of all, this conversion is not for beginners!

In this case almost the entire locomotive is disassembled.

Unfortunately I miss some pictures by a defective memory card.

I try to describe it as well as it is good in the text

As far as the cable colors mentioned here are concerned, we can not guarantee this. These may look different in your locomotive.

Needed parts:

1 x XLS Shay 8210300

Alternatively, a Visaton FRS 7 loudspeaker 8241070

2 x Fire Box modules 8242060

1 x Pulsed smoke unit 8415001

1 x Powercap Maxi 8151701

1 x LED 5mm warm white

1 x 22KOhm Resistor

2 x 2,2KOhm Resistor

Conversion of the tender:

Turn the Tender upside down and remove at the rear the 2 screws that hold the cover.

Take Bachmann's explosive drawings here!

Then reverse the tender again and lift the lid carefully backwards until the 2 snap-in lugs can be removed from the front.



Picture 1: Installing the loudspeaker.

The square Visaton is fastened with the existing 4 clamps. In addition, the “acoustic short circuit” is also eliminated with hot glue and the loudspeaker is securely attached.

Then solder the orange and green cable to the loudspeaker. Do not discard the original cable.

Fill the upper inner part of the case with about 3cm of foam, making to the speaker a small cut. The cover should not be too much under pressure.

The cover can now be fixed again with the 2 screws.

Conversion of the locomotive:

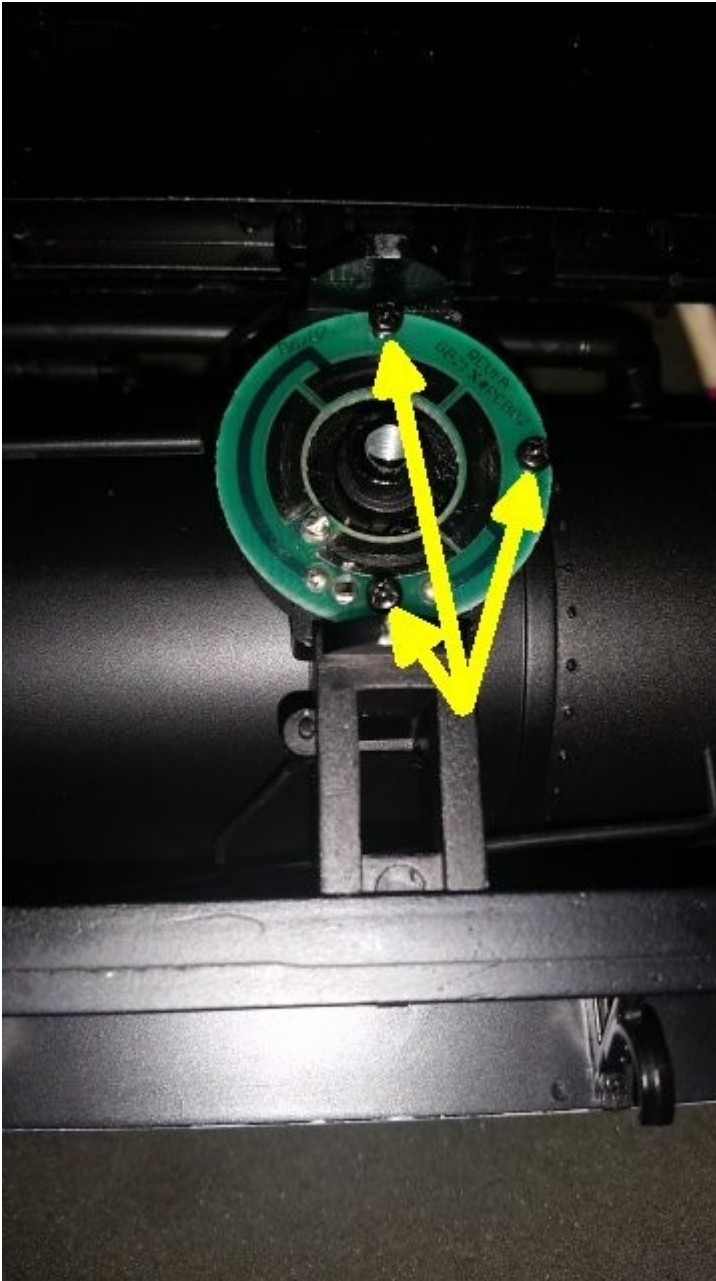
We completely replaced the bogie cables during our conversion, since they seemed to us too small.

If you do not want to do this, you can skip the following step.

Turn the locomotive around, preferably on a Loco Service Protector Tray or the original packaging.

Unscrew the 2 screws holding the gear unit and pull the gear unit upwards.





Picture 2+3: dismantled bogie and power transmission board

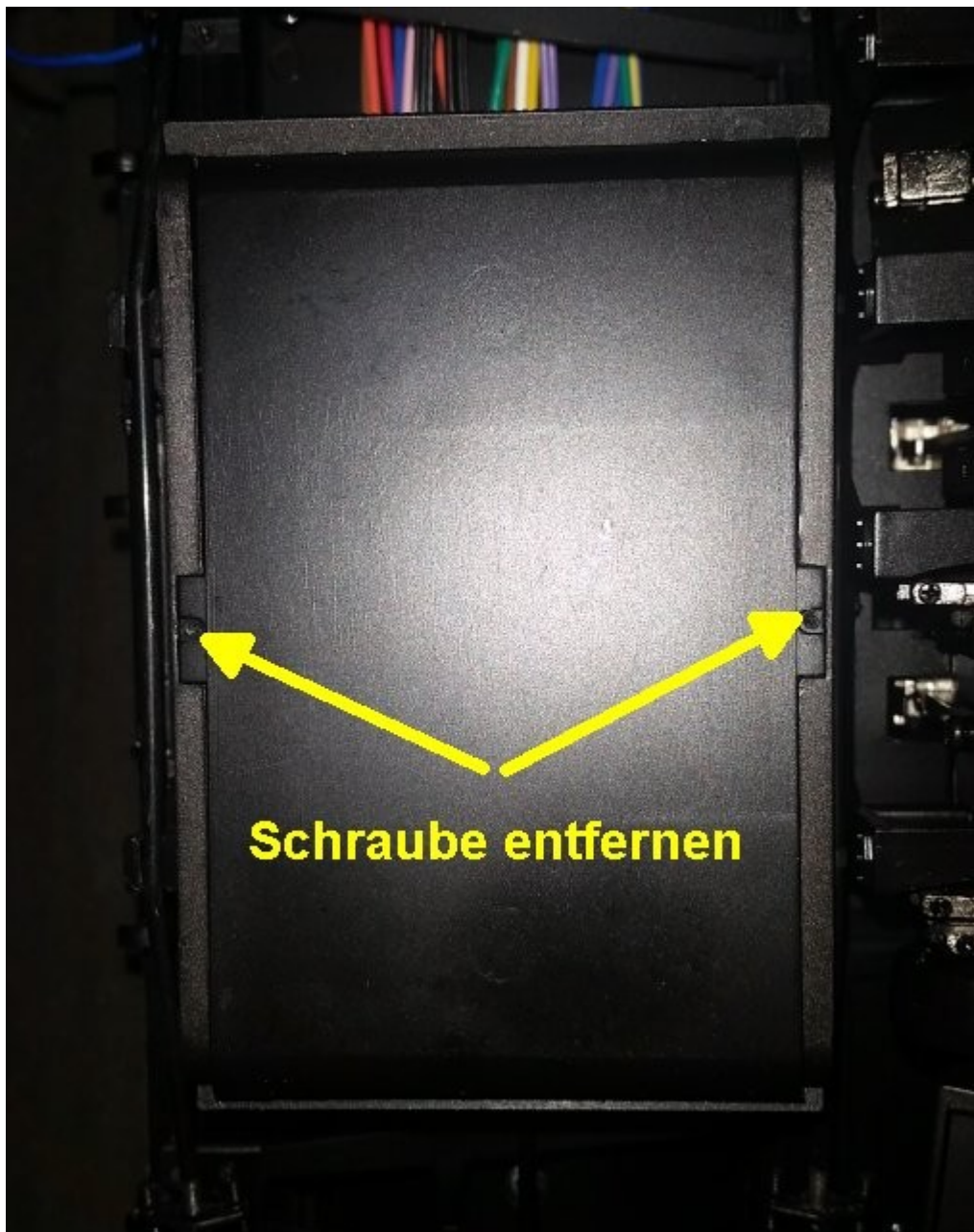
Now you can unscrew the turntable with a screw and also pull it upwards.

You will now see a round plate, which is attached with 3 small screws. This is now also unscrewed.

Do the same with the other bogie

Use 2 screws to remove the cable compartment in the rear area.

Loosen the 2 screws of the ash box.



Picture 4: Remove the ash box

Turn the locomotive around.

Pull the chimney upwards.

Remove the boiler door by simply pulling it from the boiler using the fingernail.

The switch board is removed. The cables are cut off.

On the front lamp is fixed in the boiler a bracket for locking the lamp. Pull this down.



Picture 5: Front locking lamp

Now you can loosen the 2 screws below the pulsed smoker and pull out carefully.
Loosen or cut the wires.



Picture 6: Expansion of old pulsed smoker

Now the locomotive has been disassembled so that you can install new transmission cables.
Solder the old cables at the round power transfer board.

PLEASE NOTE WHERE COLORS WERE CONNECTED

For the new cable we used the standard LGB cable green / brown / white / yellow

This results:

Old coulor New colour

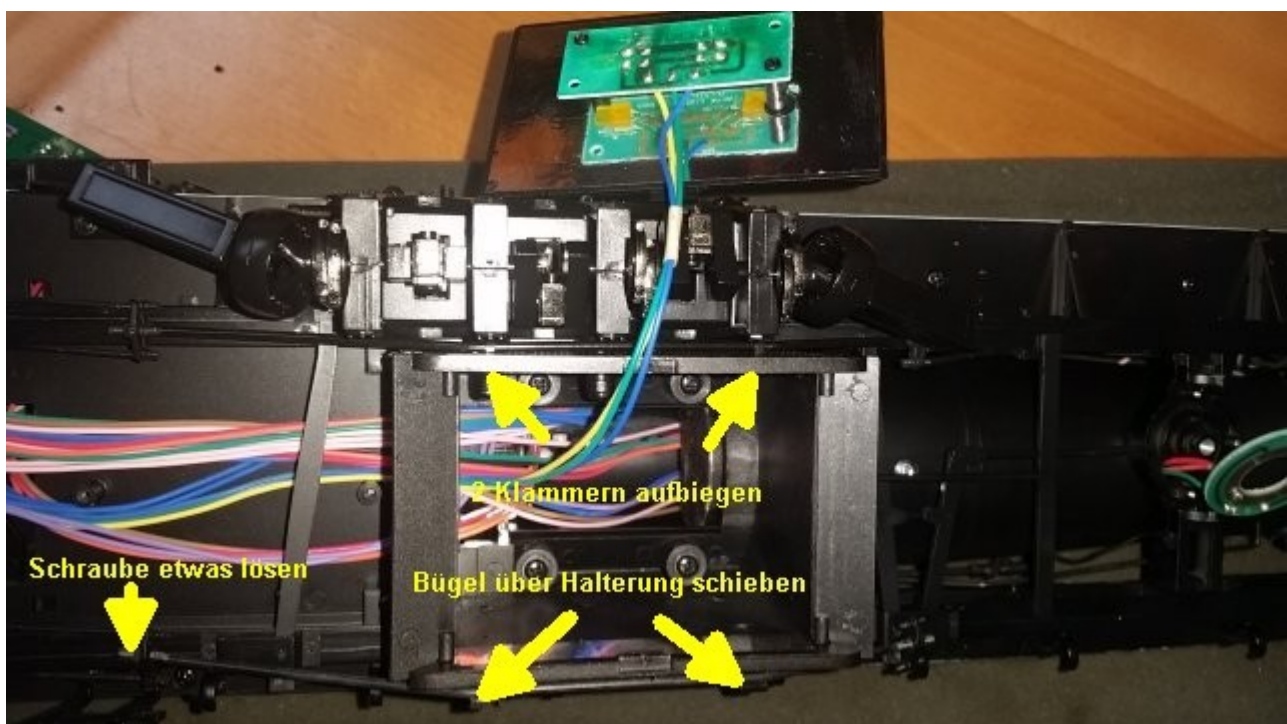
Brown	Green
Black	Yellow
Green	Brown
Grey	White

For the front bogie, use the old cable to pull the new cable through the boiler.
Re - tighten the power transfer boards.
Tighten the gearbox bracket.

Boiler + ash box fire:

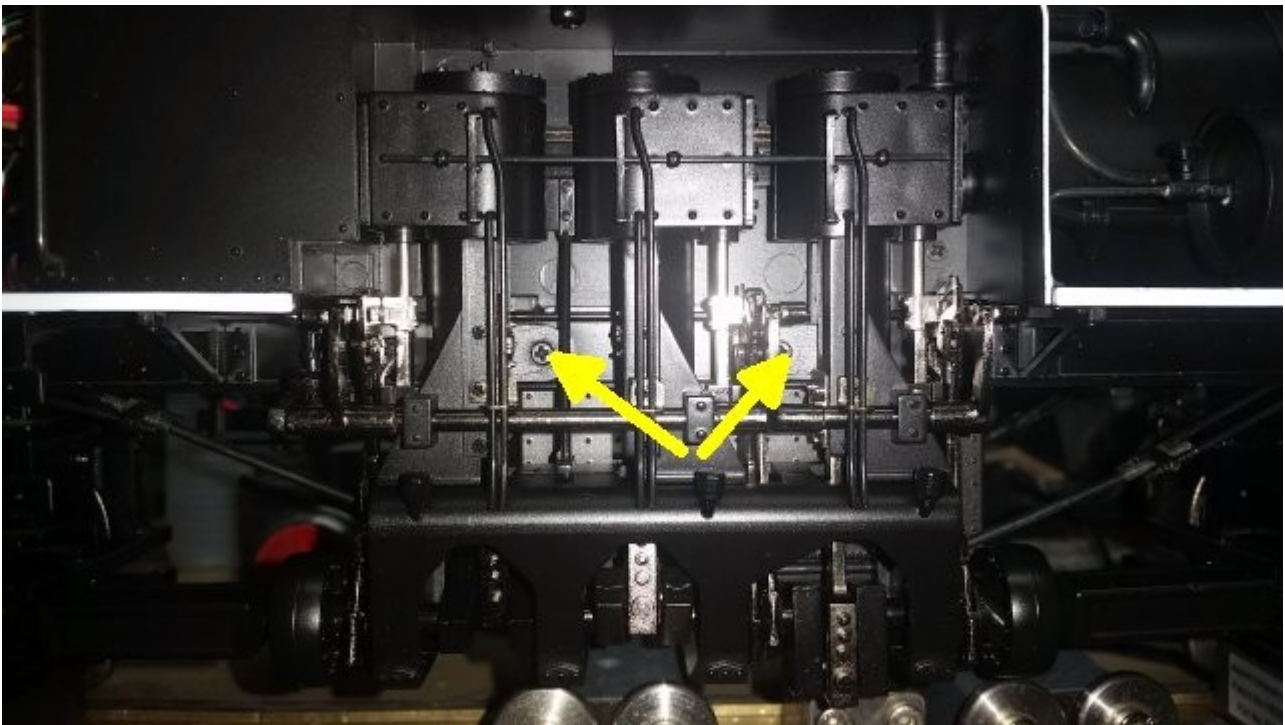
Unfortunately, almost the entire locomotive has to be disassembled in order to get to the reflector block.

First you have to remove the ash box completely. Here are some preparations needed.



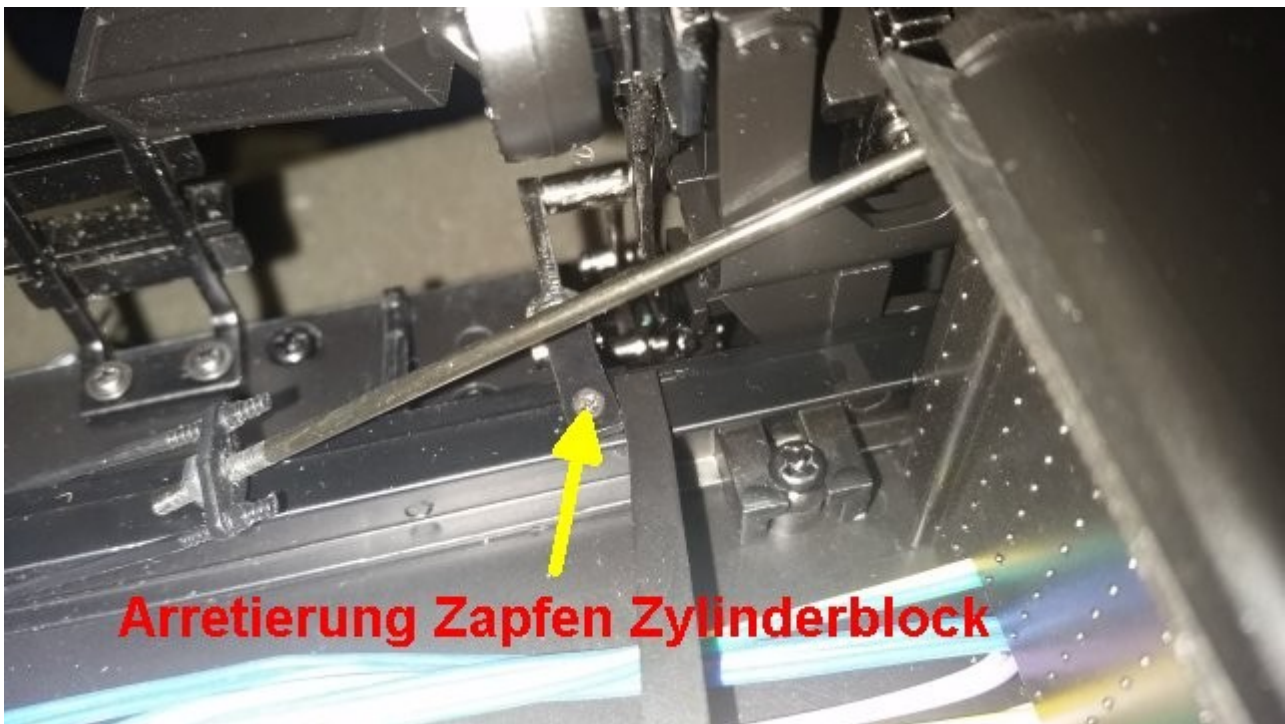
Picture 7: Preparation for removing the ash box

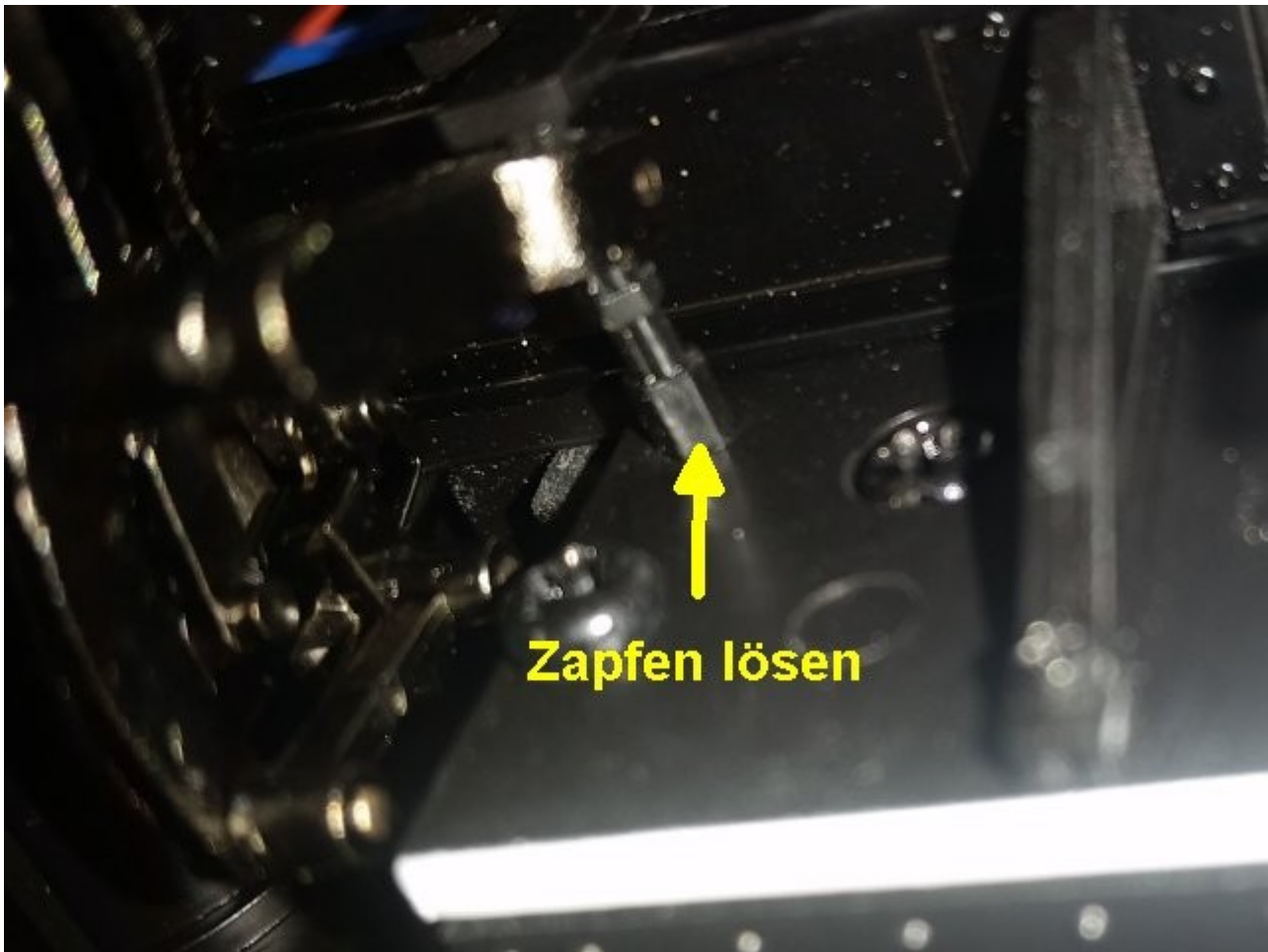
Inside the ash box are 4 screws. The bracket must be pushed over the holder on one side. To do this, you may need to loosen the wire by means of the small screw. On the other side, unscrew the cylinder unit with 2 screws.



Picture 8: Screws on cylinder block

Caution, a part is still stuck in the case! To do this, first loosen the locking plate, then pull the bolt out with a pair of pliers.





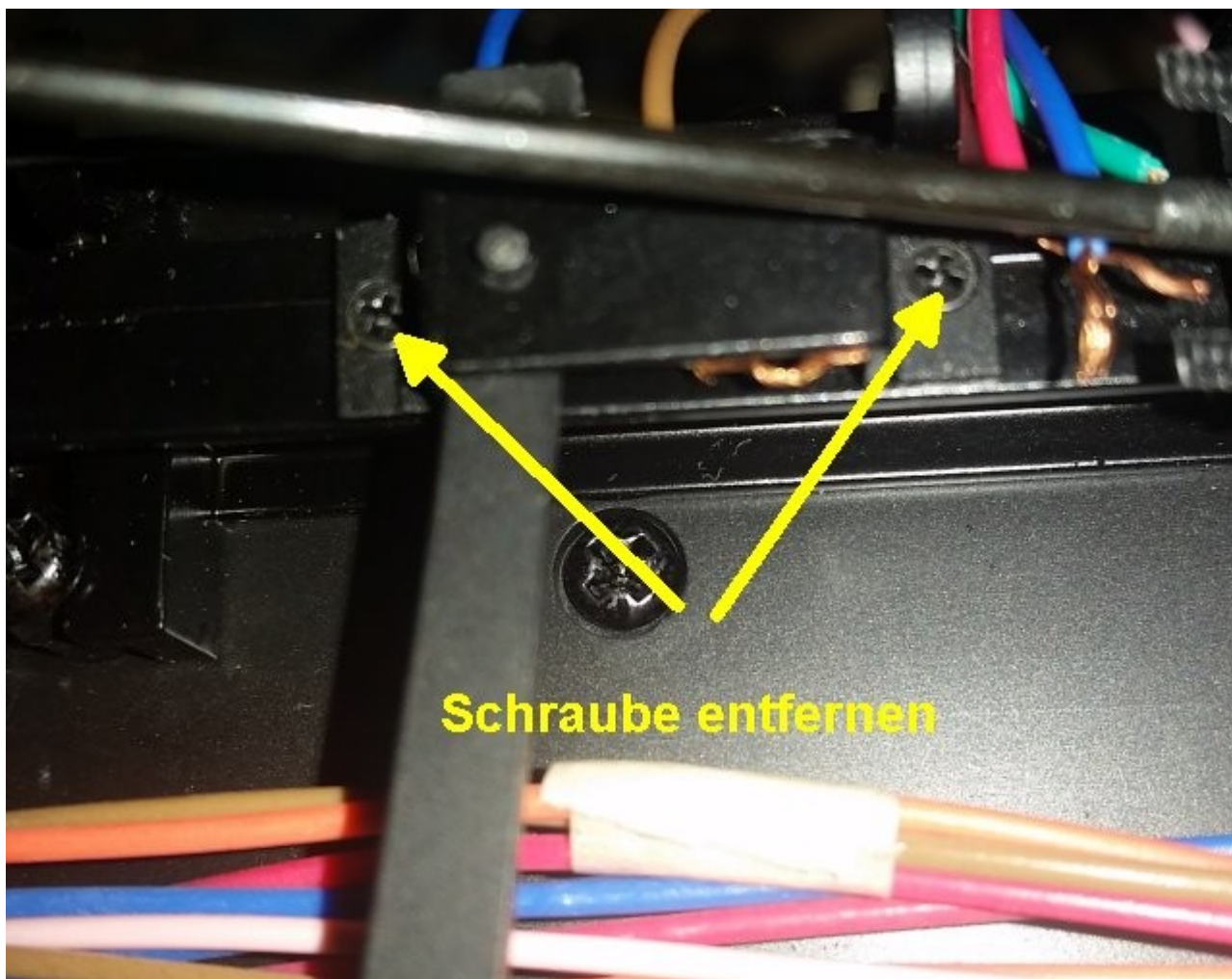
Picture 9 + 10: Removing the cylinder block

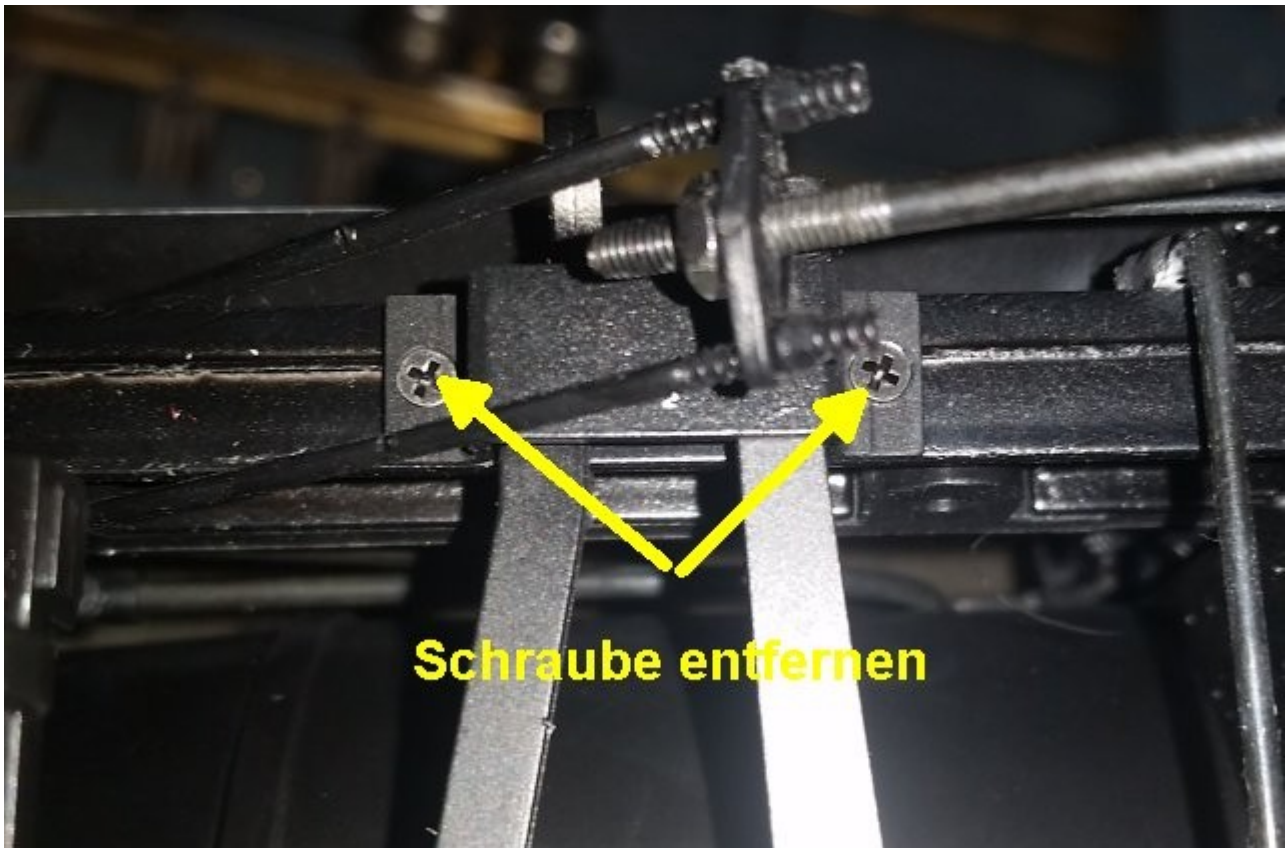
Now carefully remove the cylinder block.

Loosen all screws below!

Fix the wire holder straight from inside, so that you can one pull out.

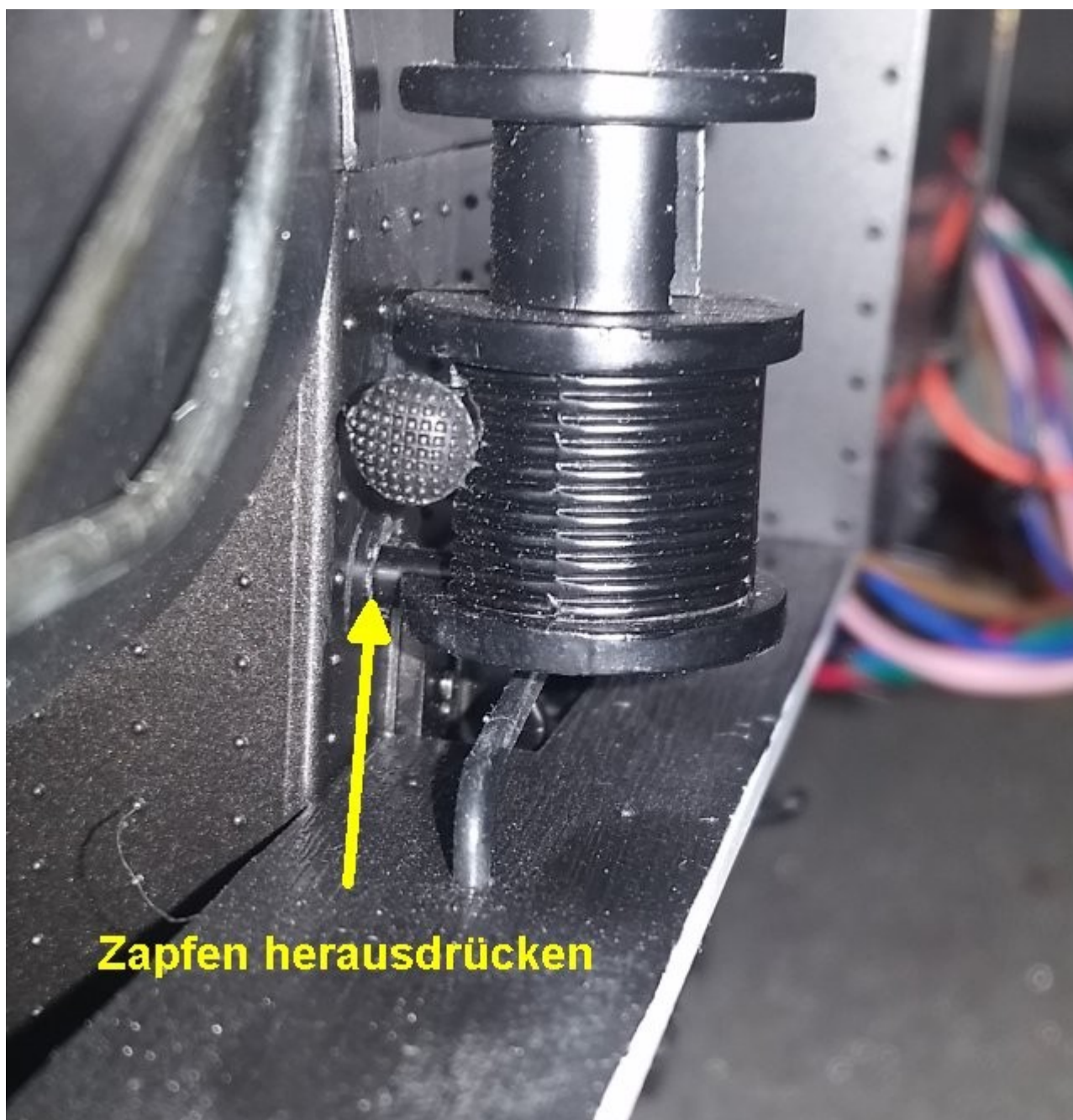
Loosen the brake levers (2 screws each) so that the brake cylinder is free.





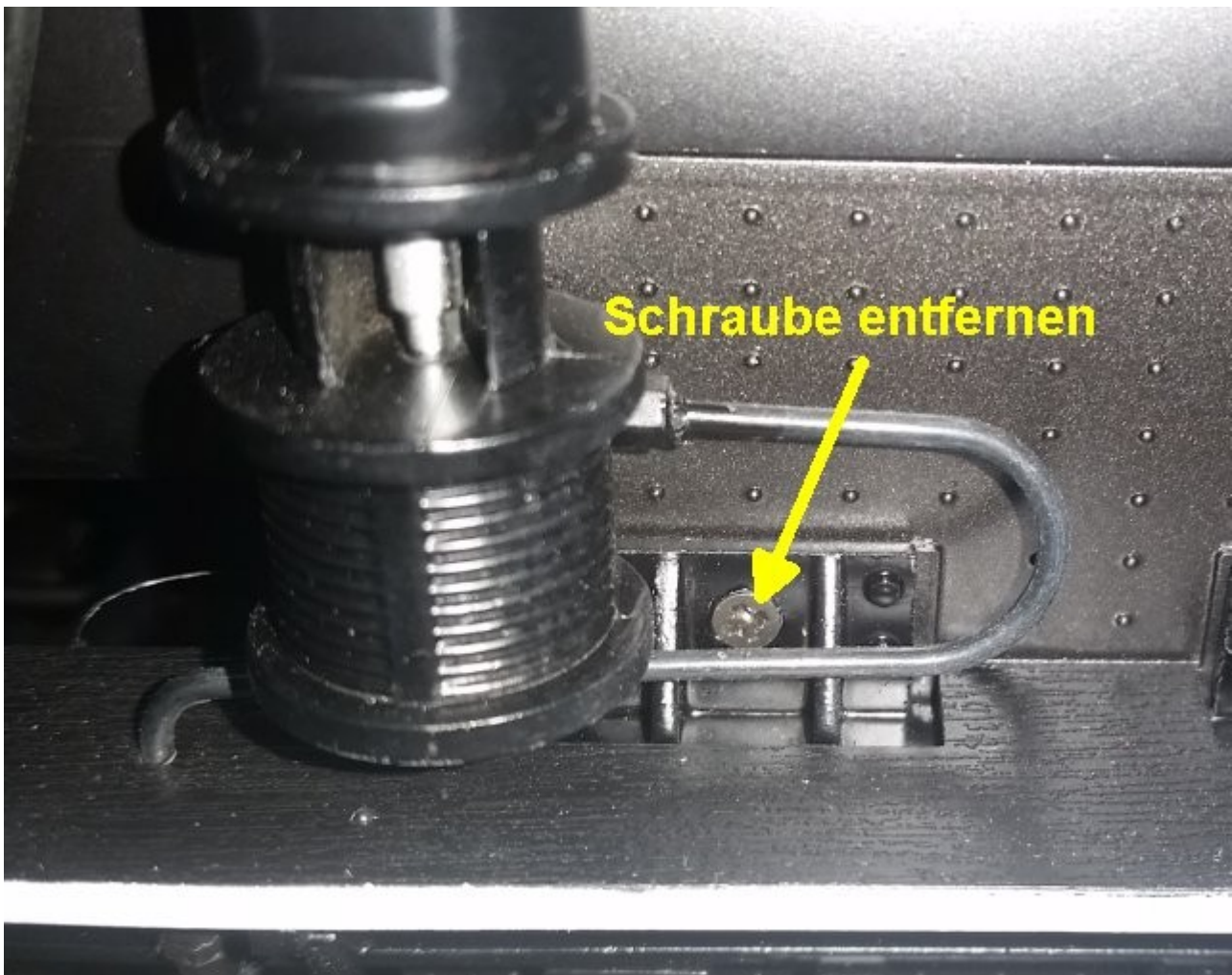
Picture 11 + 12: Loosen the brake lever

On the other hand, the air pump, which is attached with a pin in the plastic, has to be carefully pried out.



Picture 13: Release the air pump

Now remove the screw right of the air pump.



Picture 14: Remove screw

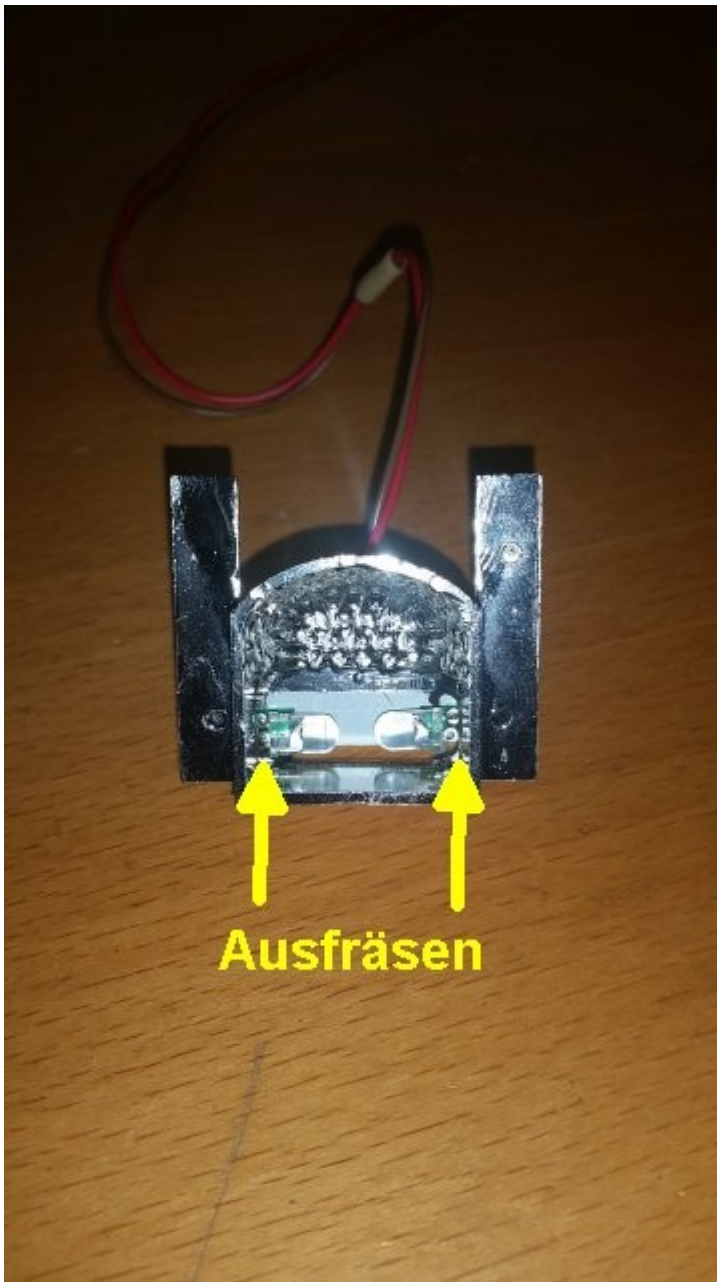
Now you can pull the shaft off

Now you can remove the boiler fire reflector and unscrew the original board. 2 of the 3 cables are required, in our case brown and red.



Picture 15: Remove the boiler fire reflector

Milling the opening as shown until the boiler fire panel fits in. Fix the board with hot glue. Solder the brown and red cables according to the instructions.



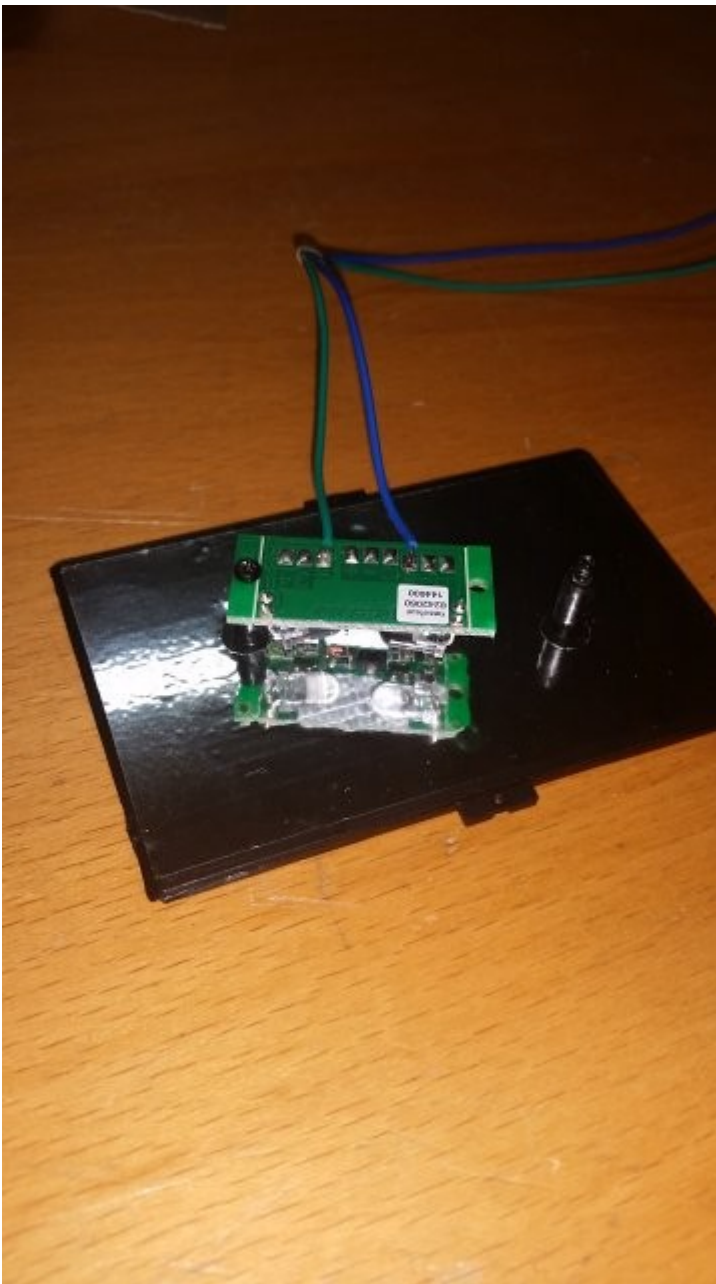
Picture 16: Modification of the boiler fire reflector

Put the boiler fire reflector back into the shaft.

Reattach the ash box and re-tighten all screws.

Remove the board from the ash box cover, here we need the blue and green cable.

Screw the 2nd boiler fire panel as shown with a screw, solder the cable according to the instructions.



Picture 17: Mounting ash box fire

Pulsed smoke unit:

Extend the 2-pin connection cable and the clock cable, as far as the rear.

You can also use the remaining cables in the boiler. Therefore we do not describe cable colors here!

Pay attention to the assignment, however, at the clock simulation terminal!

In order to fit the pulsed evaporator into the boiler, the mounting lugs must be removed.

In the boiler, the mounting bar must be milled away.



Picture 18: Preparation of the pulsed smoker

Plug the 3-pin clock connector into the socket and pull it and the connection cable backwards.
Be sure to remember the order of the clock cable.

Push the pulsed smoker into the boiler so that it is approximately aligned with the opening on the boiler.

Now cut off the Massoth hose set from the large hose 18mm and the middle hose 90mm. The length of the middle tube varies depending on the steam dome. In the example I used the very large one.
Connect the hoses as shown.





Picture 19 + 20: Installation of the hose at the steam dome

The steam dome must be pre-drilled to 9.4mm.

Now re-press the thinner hose. Install the steam dome, taking care that the thicker tube fits into the opening of the pulsed evaporator.

Cab light:

Anyone who wants to have the bulb installed does not need to do this section.

Remove the roof with a total of 4 screws.

Remove the cover of the lamp.

Remove the contact plates and solder the cables.

Cut the pin as shown in the figure.

Bend the LED sharp-angled below the body by 90 °.

Solder the resistor as shown in the figure. The whole unit fits exactly under the cover!

Replace the cover.
Reinstall the roof with the 4 screws.

Mounting XLS and wiring:

In the coal tender you can well place the XLS and the Powercap maxi. Place the Powercap maxi below the mounting plate. Screw the XLS onto the mounting plate.
because of the water pipe absolutely from the rear edge about 5mm place.

Now it goes to the wiring:

Green+Green (Loco + Brown (Tender) = Motor -
Yellow+Yellow (Loco) + Black (Tender) = Motor +
Brown+Brown (Loco) + Green (Tender) + Black Smoke unit = Track -
White+White (Loco) + Grey (Tender) + Black Smoke unit = Track +

White + Red from tender = Speaker
Blue (Tender) = Led rear - to light rear
Orange (Tender) = Led rear + to Dec+ (Resistor 2,2KOhm)

Blue = Ash box to A2
Green = Ash box to Dec+

Brown = boiler fire to A1
Red = boiler fire to Dec+

Violett = Led front - to Light front
Blue = Led front + to Dec+ (Resistor 2,2KOhm)

Violett + Violett = Light interior, Resistor 22KOhm. (The polarity must first be determined, since the cables are unfortunately identical!)

Powercap Maxi according to the description to the decoder.
Connect the pulse simulation for the pulsed smoke unit as described.

Programming:

Here the values for programming.
CV15=0 (Lock programming)
CV15=148 (Unlock programming XLS)
Use the MST or Navigator to program the address
CV47=30 (Buffer runtime, possibly adjust)
CV49=2 (Only parallel mode)
CV60=1 (Reduce maximum adjustment)
CV61=200 (Load control readjustment Retardation set more slowly)
CV63=20
CV114=30 (Clock simulation at A3)
CV196=255 (Clock simulation)
CV15=0 (Lock programming)
CV15=160 (Unlock programming pulsed smoker)
Use the MST or Navigator to program the address
CV49=2 (Load dependency without SUSI)
CV50=3 (Steam mode 4/4 clock)
CV15=0 (lock programming)
CV50=3 (Dampfmodus/4 Takte)