B3 series lighting board assembly guide

- version 0.1.4 –

Please read this manual carefully before carrying out the installation!!! Although our products are very robust, incorrect wiring may destroy the module!

During the operation of the device the specified technical parameters shall always be met. At the installation the environment shall be fully taken into consideration. The device must not be exposed to moisture and direct sunshine.

A soldering tool may be necessary for the installation and/or mounting of the devices, which requires special care.

During the installation it shall be ensured that the bottom of the device should not contact with a conductive (e.g. metal) surface!

Content

1. Required tools

- tweezer
- marker pen
- plier
- cutting plier
- cutter
- soldering station
- 1.2-1.5-2.0 mm drill bit with holder

2. Required materials

- B3 lighting kit containing:
    - Shine Plus Maxi, B3 version x1
    - 220uF/25V capacitors x2
    - B3 wheels/axles x4
    - B3 current pickups with wires x2
    - Brass auxiliary tool x1

- adhesive tape
- soldering wire
- cyanoacrylate (optional)
- Shine Plastic supports (2 pcs optional)
- Shine Micro R boards (2 pcs optional) for tail lights
- isolated conductor wires 2x30 mm for each tail light
- fine sandpaper (optional)

Estimated assembly time: 20-25 minutes

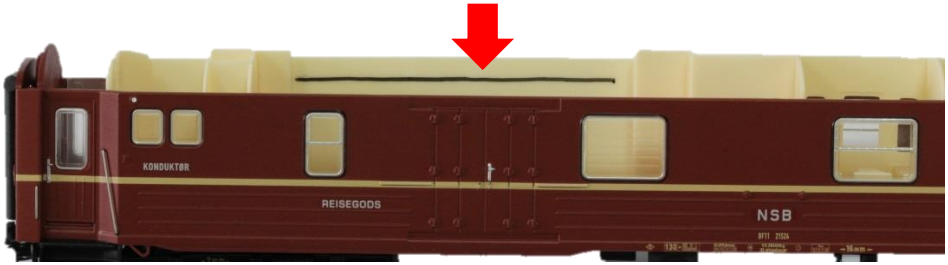
3. Disassembly of the coaches

The roof of the carriages has to be removed first. Press the roof from both sides in direction (1) and lift it above the body (2).

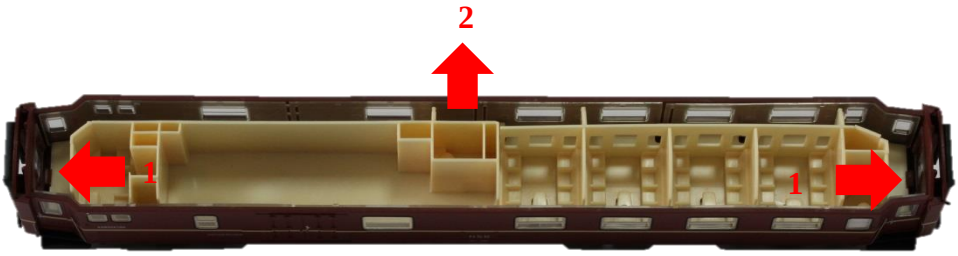
Some of the B3 carriages have interior walls up to the level of the carriage body, others (as the BF11 road number 21524, article 108.101, used in the illustrations) has interior wall up to the roof level.

In the case of higher interior walls, their height has to be adjusted to allow space to fit the lighting boards.

Before extracting the interior, using a marker pen, mark the adjustment line. This should be situated 2-3 mm above the level of the body. We will use later this mark while we adjust the height of the walls.



The interior is kept in place by 2 plastic pins at the end of the bodies (1). If the middle of the interior is pulled in upper direction (2), the pins will release the interior, and it can be removed easily.



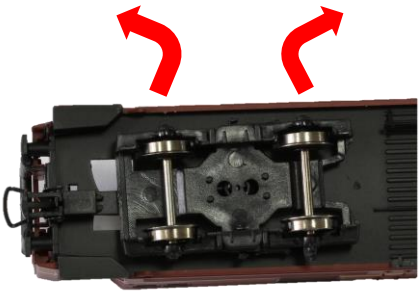
In most of the cases, the interior is glued with several glue drops to the body, so firmly movements will be necessary while removing it.

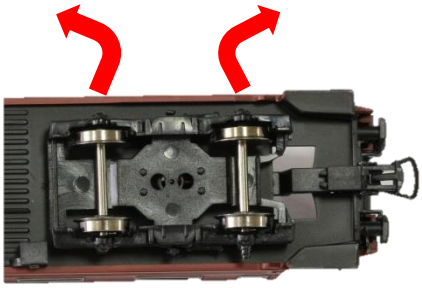
Interior during removing:

Completely removed interior:

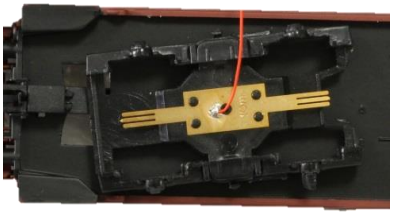
4. Installing the current pickups and changing the wheels

Using a small screwdriver and a tweezer, remove the 2 axle pairs from each boogie.

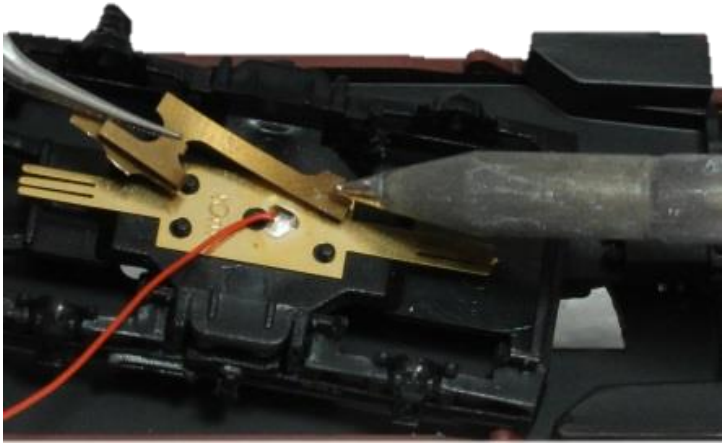




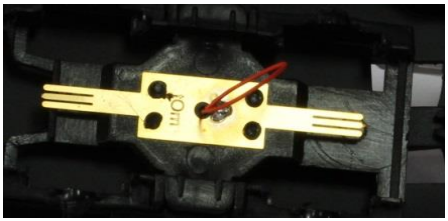
Insert the supplied current pickups on each of the boogies. Fit the 4 holes of the current pickup to the plastic pins of the boogie. A small drop of cyanoacrylate can be used to keep in place the current pickups.

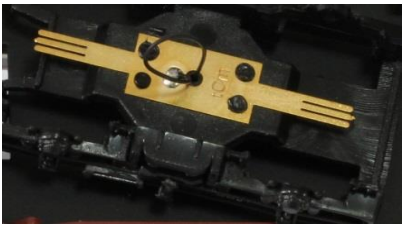


Holding the supplied brass auxiliary tool over the small plastic pins with a tweezer, melt them with the soldering iron. This will keep safely the current pickups in their place. Do not touch the plastic parts of the boogie or the carriage with the tip of the soldering iron!



Insert the wires in the central hole of the current pickup, and lead them to the interior of the body. Pull them completely inside the body.



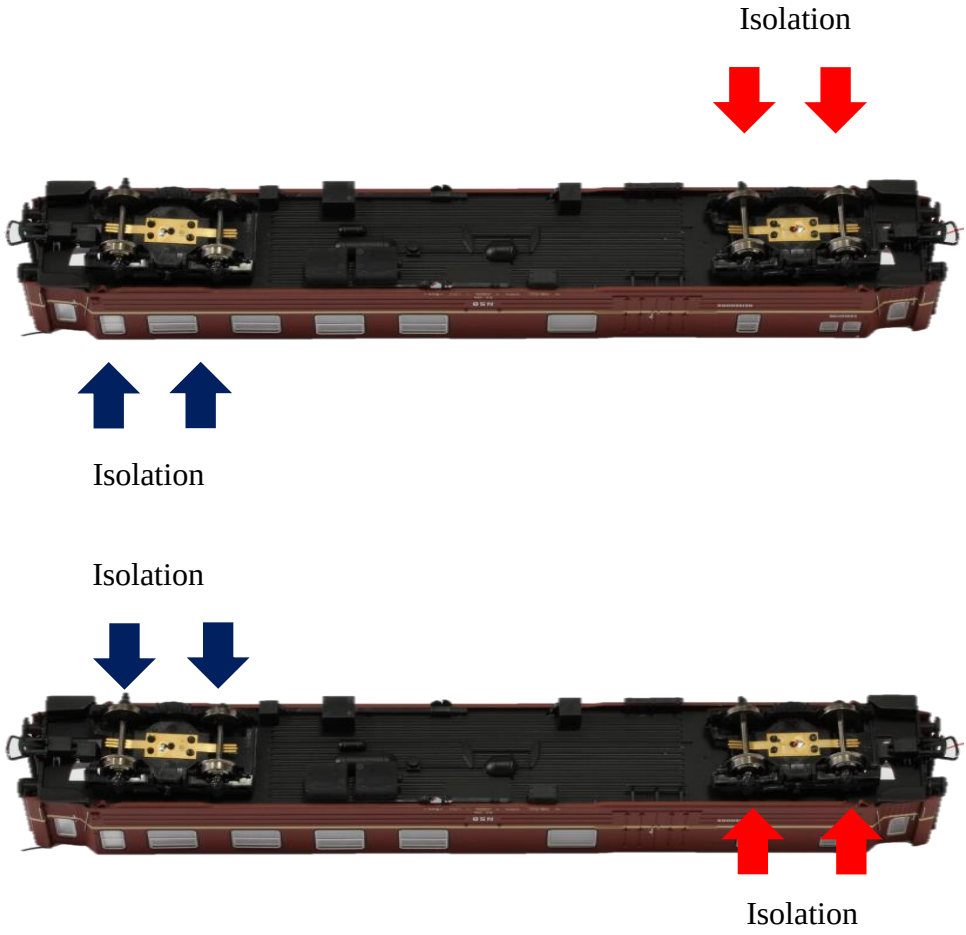


Lead the wires at the bottom level of the housing. Keep them in place with some small drops of cyanoacrylate. Do not leave them loose, else they will disturb the movement of the close coupling mechanism. They should be lead to the roof level in the corner of the body, between the transparent window pieces.

Before inserting the new wheels into the boogies, bend both sides of the current pickups in upper direction with a plier, as it can be seen in the illustrations below. This will ensure a proper contact to the axles.

Insert 2 of the supplied new axles into each boogie.

The current pickups will collect one track polarity on each boogie. Therefor the isolation of each of the axles of one boogie must be on the same side. The isolations on the boogies must be opposite. Possible solutions are illustrated below:



Any of the above situations will result in a correct operation. Mixing the isolation on the same boogie will produce short circuit of the DCC system.

5. Adjusting and fitting the interior

Using a cutter and a cutting plier, adjust the interior walls to the marking line. Perform the adjustments with small cuts, and use the cutter to level the surface.

Insert the interior into the body of the carriage, and let the 2 pins at the end to keep it in place.

Optionally you can use 2 Plastic Shine supports, and insert them inside the interior of the carriage. Use cyanoacrylate to glue them to the walls of the interior. Adjustment of the length of the U shaped plastic support might be necessary.

6. Assembly the lighting board

Fit the Shine Plus B3 board over the interior, and find the proper place for the capacitors. One possible solution is illustrated.

Please note the polarity of the capacitors, and connect them according to the Shine Plus manual. Cut the excess of the capacitors terminals.

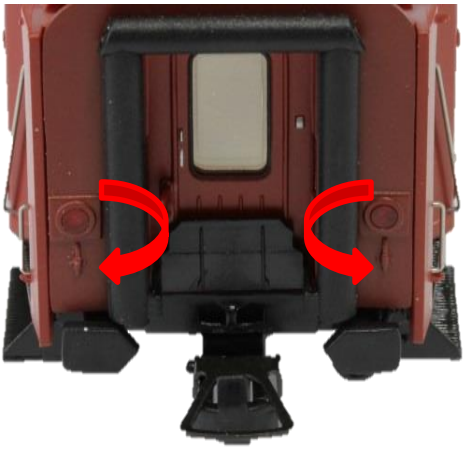
Connect the wires from the current pickups to the Shine Plus board. If necessary keep them in place with a small drop of cyanoacrylate or with the use of adhesive tape.

Insert the roof over the body and secure it by pressing against the housing.

Short overview of some assembled B3 carriages:

7. Tail light connection

The construction of the B3 carriage housing allows the assembly of tail lights at each end of the carriages. Remove the double wall from the housing by simply pulling it out.

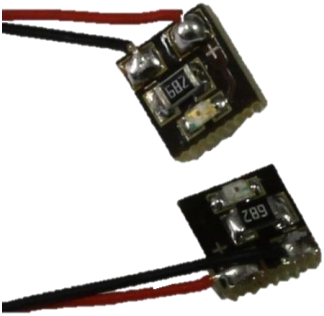


As it can be seen, it is kept in place by 2 plastic pins (1, next page figure).

The light guides have a 3 mm excess in the back side of the wall (2).

Level the light guides with a cutter to the same plane as the walls. Their surface can be adjusted/finished with a piece of fine sand paper.

The tail lights will use 2 Shine Micro R boards. Wire them as it is illustrated. The wire length is approximately 30 mm for both conductors. Please respect the polarity of the connections. The 2 Shine Micro R boards are wired in mirror as it is illustrated..



Glue the 2 Shine Micro R boards to the end wall of the carriage using a few drop of cyanoacrylate.

Mark the level of the double wall at the back of the carriage using a marker pen.

Drill a 2 mm hole in the back of the carriage in the center symmetry line of the wall.

Insert the double end wall to the back side of the carriage while leading the 2 wire pairs in vertical position.

Lead the 2 wire pairs from the Shine Micro R boards through the 2 mm hole to the Shine Plus Maxi board.

Solder the tail light connection to the proper O15/O16 output connection points of the Shine Plus board. The wires are connected in pairs.

Reassemble the roof of the carriage. Your B3 carriage will have functional tail lights now.

8. Notes

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