

# Instructions

Art-Nr: 7020/7021/7022/7023 Steam locomotive lighting white  
 Art-Nr: 7030/7031/7032/7033 Steam locomotive lighting yellow

1. These parts are not suitable for small children. There is a danger of swallowing.
2. The product can be seen in figure 1. These instructions are part of the product. Please retain them well. Do not worry about the yellow component having a white, transparent LED, and the white component having an orange LED. Even if letting the white component shine, it appears a bit odd. Only inside the body and behind the light conductor, the white light appears as supposed with a cast of yellow.
3. This component is designed for analog voltages up to 10 volt. The component can not be used on digital trains. Only employ the component for its intended usage. Incorrect application and overvoltage can destroy the product. We do not assume any liability for any damages caused by incorrect usage.
4. All the parts of the component are firmly soldered. The small LEDs sticking out in front are the most damageable parts of the whole circuit. Please do not try to pick and handle them with any tools, avoid any impacts and do not try to squeeze them into the body. If you find any of the soldering points damaged, do not try to resolder them yourself. The small LEDs are extremely sensitive to heat. Soldering for too long or at too high temperatures will destroy the LEDs. If any of your LEDs are damaged, better contact your local dealer, he might be able to help.
5. These lighting electronics will only work if the original lighting has been working before. If the original bulb has not been working before, you should first repair your locomotive. Try with another bulb. You won't need it anymore in the locomotive afterwards, but you can use it for a different purpose afterwards. Before building in the LEDs, it is absolutely necessary to do a function test of the locomotive to make sure the original locomotive lighting is working correctly. Only then you can be sure that the new lighting electronics component will be working as well.
6. For the installation of the electronics, open the locomotive by removing the body.
7. Remove the original bulb by turning the bracket aside, so that both of the bulb wires are laying open. Take the bulb out in a downward direction, this might be easier with the help of some tweezers.
8. Now take the electronic component out of its package. The black condenser is pointing upwards, the LEDs are pointing into running direction. Now insert the component into the socket where the bulb has been before, figure 2. Hold the component a little aslope and as well move it downwards aslope until it touches the bottom of the socket, figure 3. Now push it backwards as far as possible. The front part will lower down as far as the locomotive chassis is permitting. In case the last bit you have any difficulties moving it in completely, sway it smoothly until the whole component slips into the socket. Do not try to force it into the socket. The component then should be completely horizontal, check again if you have moved it completely to the back, figure 4.
9. On articles 7022 and 7032 for BR 24 and BR 74 you have to remove the black tappet in front of the bulb fitting below on the plastic. This tappet does not have to do anything with the fastening of the body and just stand in the way of our electronics. Now the component can also fit in horizontally. The difference can be seen clearly in figure 5.

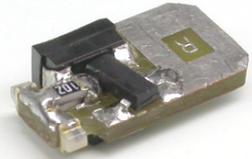


figure 1: Steam locomotive lighting yellow or white

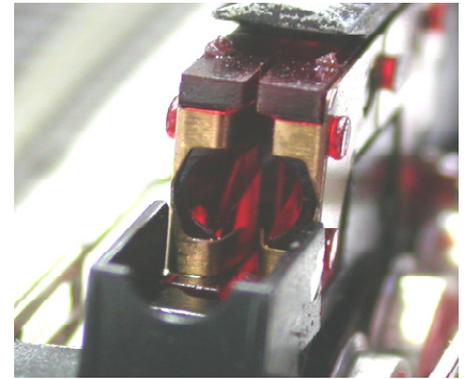


figure 2: Correct position of the contact sheets

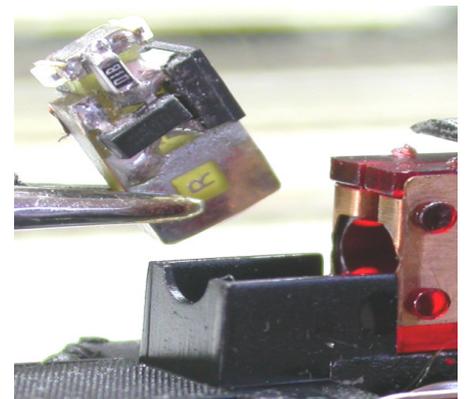


figure 3: Correct installation of the component

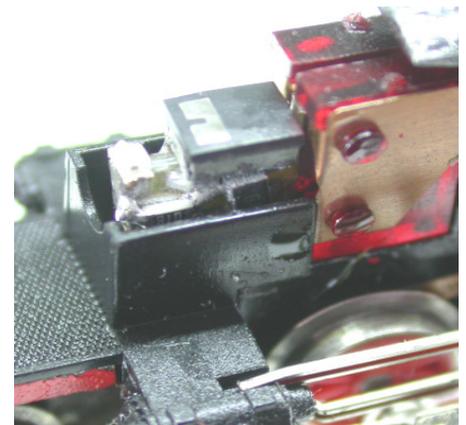


figure 4: The component in its correct position after being pushed in completely

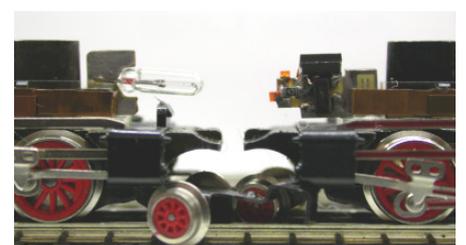


figure 5: BR 74 and BR 24, on the left with a bulb, on the right with a white receptacle in the small version. Below at the undercarriage the removed tappet.

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10. If the component does not stay inside firmly or even falls out, the contact sheets of the socket have to be bent very carefully with the help of some tweezers. The current-carrying sheets should not be bent sideways. There always has to be a small distance between the contact sheets (figure 2), in no case the contacts should touch each other.
11. Now do a function test by putting the locomotive onto the tracks and letting it run into both directions. The LED or the LEDs have to shine in both running directions. If the test works out fine everything is ok and you can reassemble the locomotive.
12. Carefully put the body back on. Watch out that no part gets jammed and that the body closes completely. Now secure the body with the screw from above or, like BR 74, let it snap in.
13. A last function test now shows the terrific improvement. Almost independently from the running voltage, the lights at the outside of the locomotive body now are shining brightly and in an enjoyable color.
14. The only requirement for the new lighting electronics is the use of a pulse-modulated or pulse-width-modulated running controller, as nowadays is used everywhere in the Z-model world. You will get another specially nice effect when using our controller, since thanks to an additional function it still lets the lights shine when the train is standing.
15. If the white light has too much of a yellow cast for you, you can wipe off the orange coloring with some nitro-dilution. The light then appears even whiter, but without any bluish cast. If at some locomotives the upper head light appears too bright, you can use a black Edding 400 pen and carefully cover the upper LED with a little color. There is no problem if then the light gets too dim, because you can easily remove the color again with some thinner. But be careful if you do this, because the orange color easily gets removed as well, then you end up with your lower lights having a yellow cast, but the upper light shining in bright white. Read more about this under "Tips and tricks" at [www.z-hightech.de](http://www.z-hightech.de).
16. We are proud that with our new Z-model train technique we have come another step closer to the original trains.
17. A protection of utility patents has been issued by the German patent office.
18. High Tech Modellbahnen manufactures its products with the greatest possible care. We issue a guarantee and warranty according to legal regulation. Should you find any new product you just bought defective, please contact your local dealer.
19. It can always happen that something gets damaged by inappropriate use or simply breaks. Since the parts are very small, it is not advisable trying to repair broken parts by yourself. Please contact your local dealer who might be able to save them instead of a self-repairing try that might end up in a total economic loss.

Now enjoy your new locomotive lighting and always have fun with your model trains.

*High Tech Modellbahnen  
97456 Hambach  
[www.z-hightech.de](http://www.z-hightech.de)*