

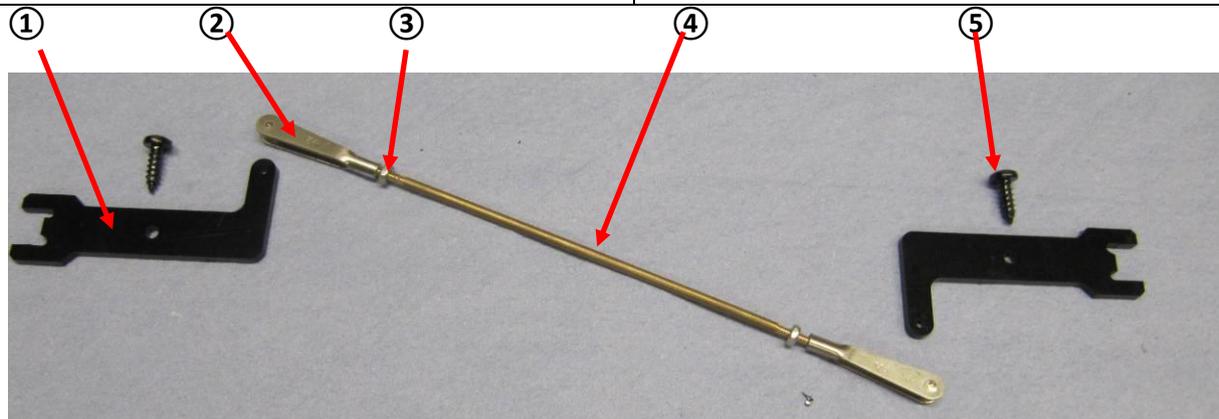
# Assembly Instruction for coupling rods

Sets KS-1 bis KS-11

**!!! Please read through completely before starting work !!!**

The pack contains the appropriate number of items:

<ul style="list-style-type: none"> <li>• ① Angels aus POM black</li> <li>• ② Forkhead M2 , anodized</li> <li>• ③ Nut ØM2, A2</li> </ul>	<ul style="list-style-type: none"> <li>• ④ Rod brass with M2 thread</li> <li>• ⑤ screw Ø2,9 x 6,5 black anodized</li> <li>• Possibly. further setting parts per set</li> </ul>
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## Preface:

### About the purpose of these sets:

With the two-axle wagons there is the problem that the bogies - especially the trailing one - no longer straighten themselves after cornering.

The effect is that a train with two-axle wagons does not run smoothly in a straight line or can even tend to derail at problem areas.

The installation of this set eliminates this problem in that the following bogie is positively driven into the position specified by the front one.

How do you notice the difference now?

A train with e.g. Five or more two-axle wagons run smoothly through curves and on straights after conversion, you can only hear the noises of the metal wheels, if any.

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## Further remarks:

1. An assembly with existing LGB® 63193 sliding contacts is not possible, these should then be replaced by the LGB® 67403 ball bearing wheel set.
2. For sets 5,6,7,8 holes with a 2mm diameter have to be pre-drilled!

### Step 1: Preparation

Please lay out the contents of the package on a pad so that you can easily pick up the parts. Avoid dropping the parts on the floor.

### Also necessary and helpful are:

- A pad for the car, e.g. a locomotive bed or foam cushion
- A cordless screwdriver (e.g. Bosch IXO or a Phillips screwdriver)
- An open-end wrench with wrench size 4 (for M2)
- A slotted screwdriver and a Phillips screwdriver
- Small long flat-nose pliers
- A small oiler with sewing machine oil (or e.g. LGB® 50019)
- Reading glasses if necessary and sufficient light
- For sets 5, 6, 7, 8 holes with a 2mm diameter must be pre-drilled -> drill 2mm

Proposal:  
required tools (see list above)



Proposal:  
In the case of tankers, it makes sense to use two locomotive beds or to remove the ladder.

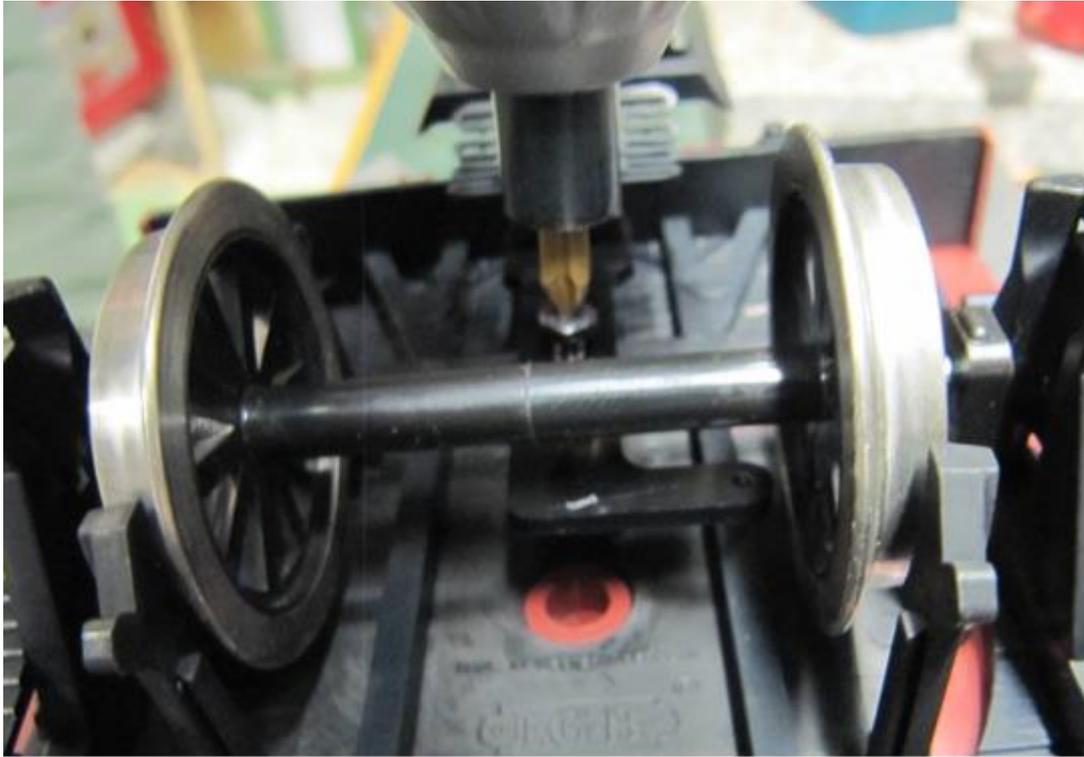


## It is best to do the following:

### Step 2: Assembly of the angles

Insert the angle as shown in the pictures with the U-shaped opening under the coupling eye (also called bottle opener), if necessary loosen the fastening screw of the coupling slightly.

Screw the two brackets to the existing hole in the bogie using the black self-tapping screws.



### Pay attention to the following:

One angle must point downwards, the other opposite upwards.

It is up to you whether you dismantle the axles beforehand; it makes assembly a little easier.

If there is already a current collector (e.g. LGB® 63193) using sliding contacts, you must remove it.

Proposal:

It is best to replace this with at least one ball bearing mounted pantograph axis (e.g. LGB® 67403).

**For sets 5, 6, 7, 8, holes with a diameter of 2 mm must be pre-drilled in the bogie at the appropriate point. Use the angle of attack as a template to mark the hole.**

### **Step 3: assembling the coupling rod**

Click one of the clevises into the right angle. (Image 1)

The pin in the clevis is firmly soldered to a wing. They attack this wing with the pliers.

The loose wing is held in place by the angle.

Check the approximate length by straightening the two bogies and then turning the other clevis so that the desired position is achieved. (Picture 3)

Now click the left clevis into the left angle to check it.

Now check the parallelism of the two axles while pulling the two bogies apart slightly (as if another car was hanging on both ends).

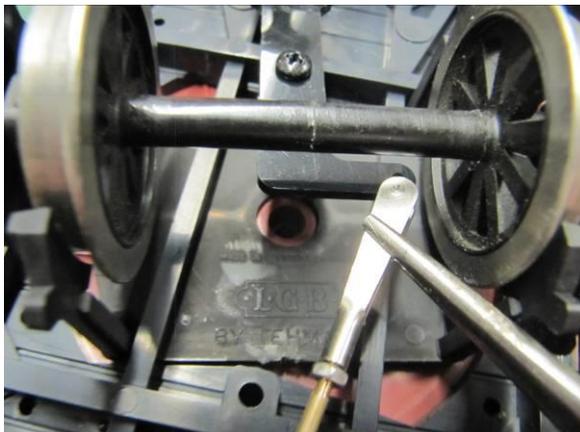
Move a bogie to the respective end position and check the symmetry if, e.g. move the left bogie, the right one now only has to perform the same movement in opposite directions. (Picture 2)

If necessary, loosen the left clevis again (preferably with pliers or a flat-blade screwdriver) and correct the length of the coupling rod by turning the clevis.

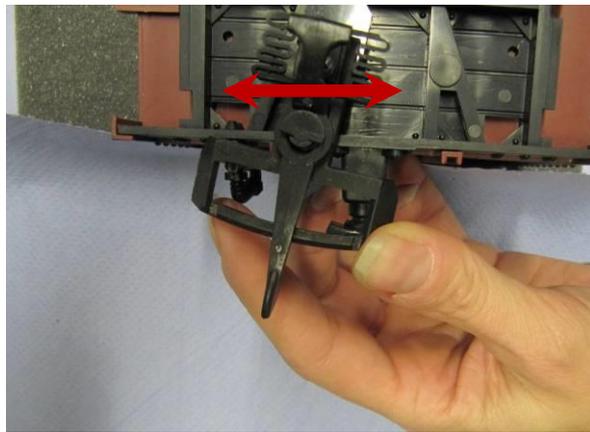
Then loosen both lock nuts and bring the coupling rod into a central position (thread ends left and right the same). (Picture 3 & 5)

Lock the two fork heads by pressing them together with a pair of pliers (you will usually hear a distinct click) (Picture 4)

Counter the two nuts with an open-end wrench SW 4 or small pliers towards the fork head. (Picture 6)

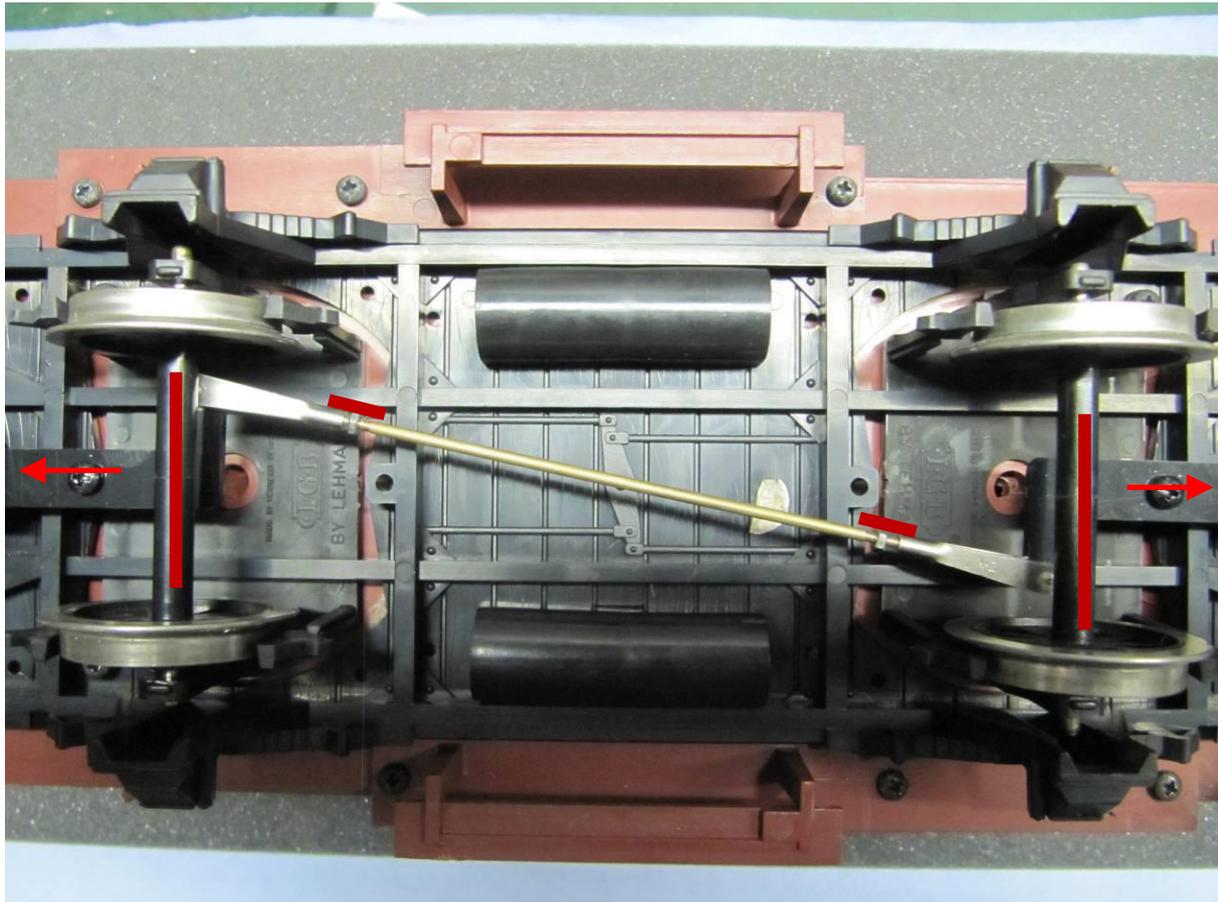


Picture 1: Hook in the fork head

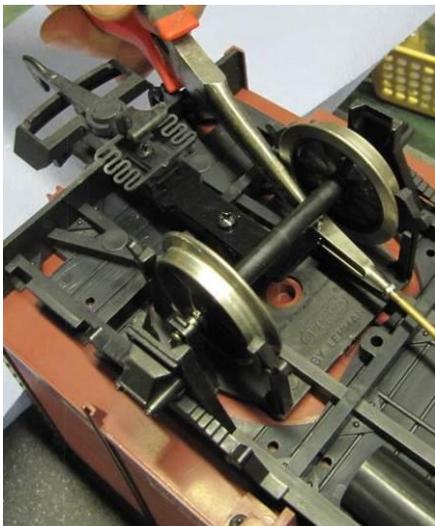


Picture 2: check the symmetry

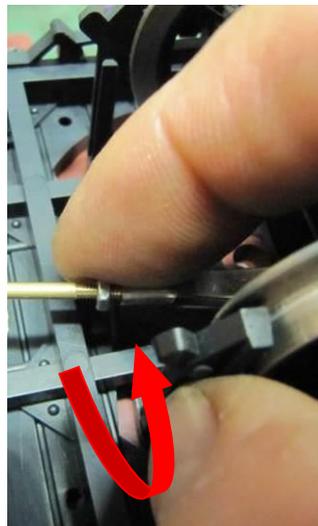
**Continue Step 3:**



Picture 3: Check the parallelism of the axes, center the coupling rod with the lock nuts open.



Picture 4: lock clevis



Picture 5: loosen counter nut



Picture 6: counter nut

**Pay attention to the following:**

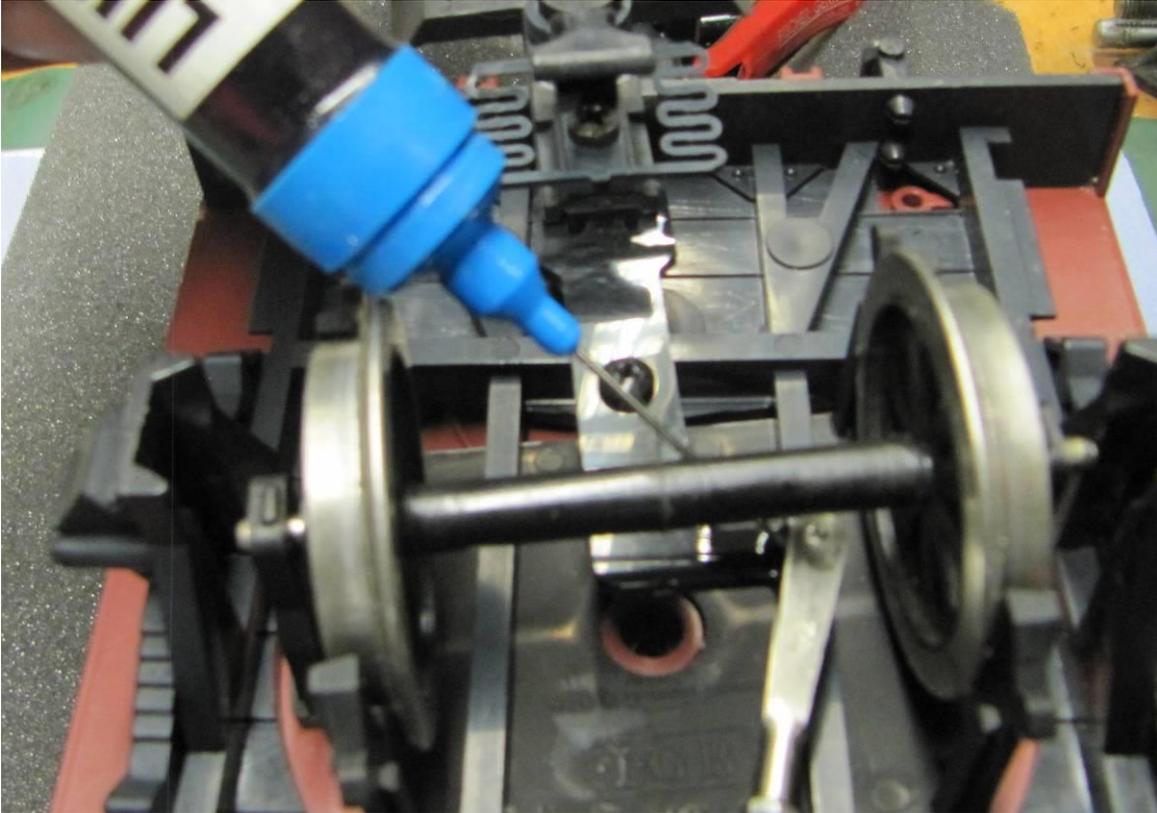
- that the bogies or axles are parallel when pulled apart slightly.
- that the clevises are locked and countered.

#### **Step 4: Oiling**

Now oil the fork heads at the connection point to the setting angle with a drop of LGB® 50019 or something similar (e.g. resin-free sewing machine oil).

You should also oil the swivel bearing of the bogie and the shaft ends of the axles in the bogie. (a drop is enough here too)

Personally, however, I use a thin grease for the axlese.



Oiling of the fork heads

#### **Pay attention to the following:**

- Check that the bogies move freely and that the axles run with little friction.

#### **Safety instructions, disclaimer:**

his is not a toy, not suitable for children under 12 years of age.

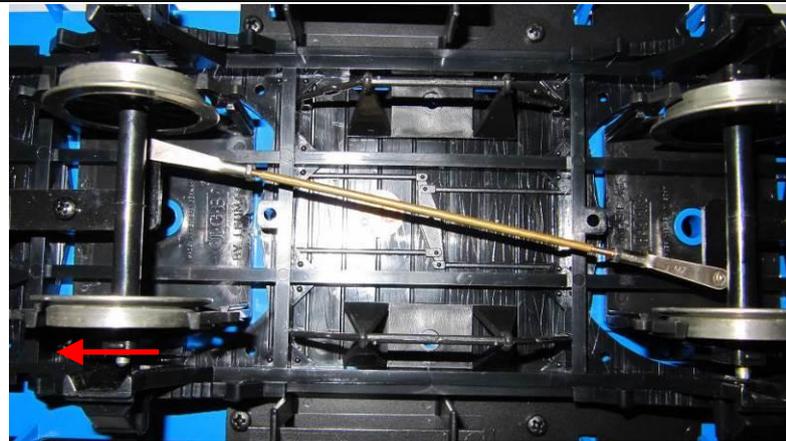
Parts only for use as described above.

Do not swallow small parts.

Carry out the described procedures at your own risk and without guarantee!

## Attachement: Variations

There are the following versions, which differ in the length of the coupling rod and in the design of the angle.

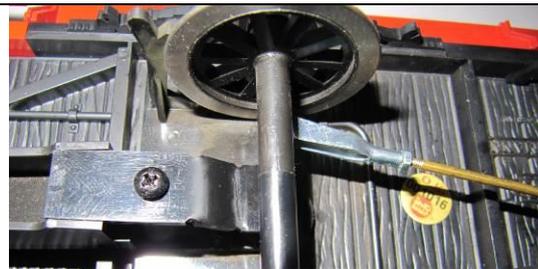


KS-1-130,

**Set 1** or short passenger and freight cars with a wheelbase of 130-135 mm.  
and

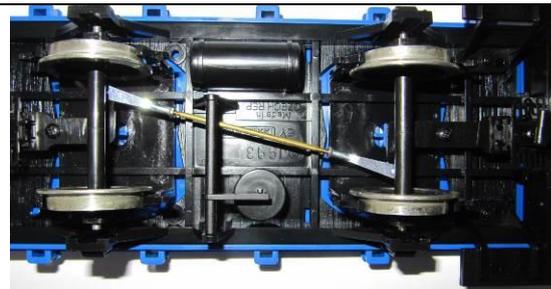
KS-2-168

**Set 2** For freight wagons with a brakeman's platform (e.g. RhB cement silo wagons) with a wheelbase of 168mm.



Detail KS-3-135

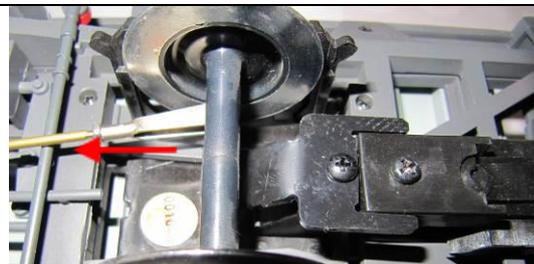
**Set 3** or LGB® 7-window passenger cars with 135mm wheelbase.  
The angles are bent downwards.



Detail KS-4-105

**Set 4** or LGB® Toy-Train with 105mm wheelbase.

!! There is a long and a short angle here !!



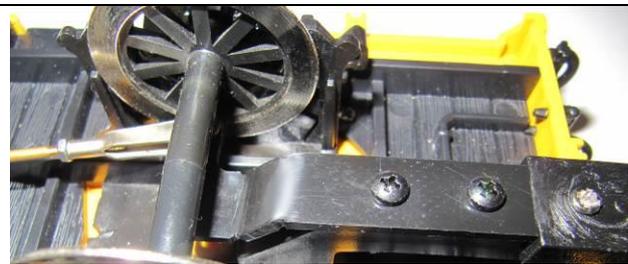
Detail KS-5-210

**Set 5** or LGB® RHB container wagons with a wheelbase of 210mm.

The angles are bent downwards.

A 2mm hole is to be pre-drilled into the bogie on each side.

Arrow = side with cut thread

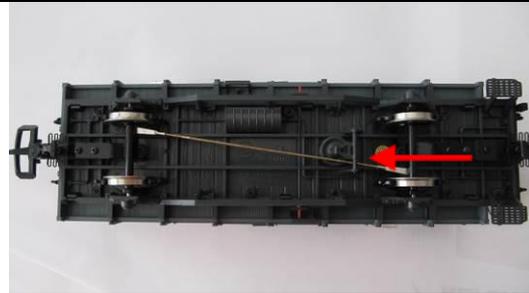


Detail KS-6-185

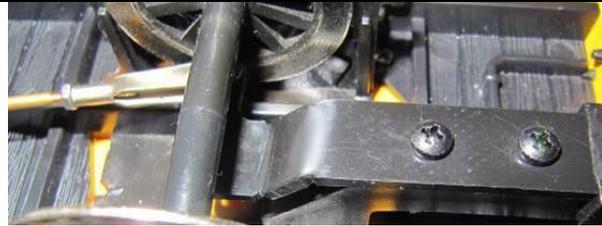
**Set 6** for LGB® 40813 freight wagons and Newqida two-axle vehicles with a center distance of 185mm.

The angles are bent down and screwed twice.  
Here, 2 holes with a 2mm diameter are to be pre-drilled in the bogie on each side.

At **Set 6** on the newer models 40817 Xk 9005 (orange), the small nose on the pivot bracket has to be removed, the drawbars of this and subsequent cars have been shortened by approx. 4 mm by LGB!  
(Test: the pivot point of the fork head must be below the axle)



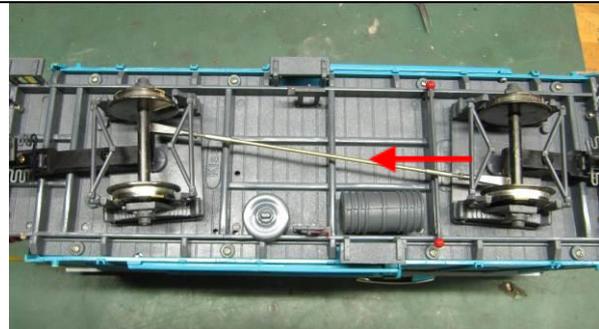
KS-7-206  
**Set 7** or LGB® for RhB high side gondolas LGB® 40880/40883 with a center distance of 206mm  
The angles are bent down and screwed twice.  
Here, 2 holes with a 2mm diameter are to be pre-drilled in the bogie on each side.  
Arrow = side with cut thread



Detail KS-8-252  
**Set 8** RhB LGB® 40840/41840 baggage car with a center distance of 252mm.

The angles are bent down and screwed twice.

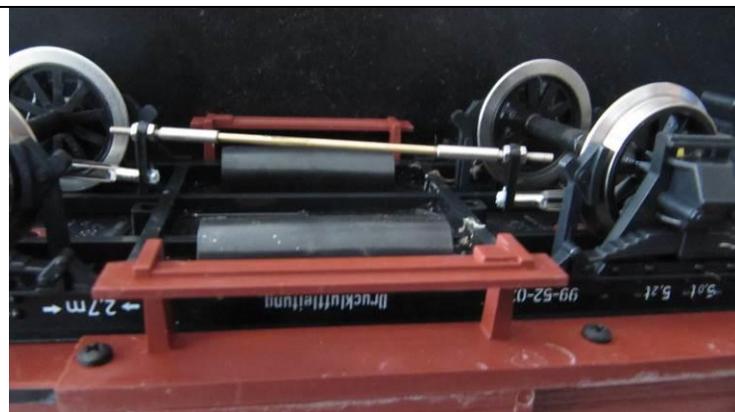
Here, 2 holes with a diameter of 2mm must be pre-drilled in the bogie on each side.



KS-9-185  
**Set 9** for KISS® GBK with a center distance of 185 mm



KS-10-180  
**Set 10** or PIKO® trolleys with a center distance of 180 mm.



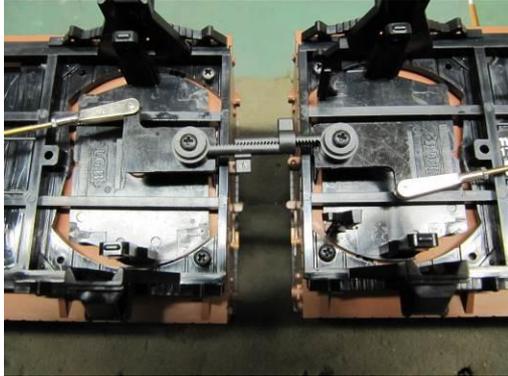
### R-Adapterset:

With this set, the coupling rod is "lowered" to enable the installation of rail cleaners or battery boxes. In addition to the adapters, another 2 M2 nuts and slotted screws are included.

KS-11-25K/8K

Set 11 or LGB® double car 35094

Attention: the bogie angles are different.  
The original screw is too short and must be replaced. However, it can be reused on the left in the picture.



### Important instructions:

### Installation suggestions when using ball bearing axles:

When using ball-bearing wheel sets with power take-off, at least one contact pin must be insulated when the interior lighting is not connected (strip a piece of the insulation from a 0.75 mm<sup>2</sup> cable and push the PVC piece of the line over the contact pin. Length about 1 mm longer than contact pin, alternatively shrink tubing with the appropriate diameter ).

This avoids a short circuit across the coupling rod through the contact pin on the opposite side. See photo yellow insulation for better visibility

When using the ball bearing axis with power take-off, the contacts must be insulated. (preferably with shrink tubing)

