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Autor: King, Darryl / Elmsly, Geoff / Procter, Greg
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The Bemo Short Coupling

A closer look at the new system by Darryl King
With some help from Geoff Elmsly and Greg Procter

Bemo recently introduced their new universal short coupling system for narrow gauge vehicles. Technical details of the coupling also appeared in *Bemo Post* No.5. If, like me, you cannot read German, then you would be puzzled by the accompanying drawings. Fortunately I was privileged to view two Bemo sample models at Eurail Models here in Christchurch NZ; these were available through Euromodel Distributors of Australia. The following article is largely based on the technical sheet that accompanied the sample models and appears to be a translation of the *Bemo Post* article, though the Mounting Suggestions did not appear in the original article. I have modified some of the original text to clarify some important points, especially regarding fitting procedures.

The previous Bemo standard coupling (NEM) proved perfectly satisfactory for use with narrow gauge vehicles, where the original called for a buffer-centre coupling. The introduction of rack on the models showed that the original concept of the coupling was not universally suitable, as the NEM couplings lacked the required vertical clearance over the new centre rack section units.

To meet the wishes expressed by so many Bemo customers for a functional coupling, a completely new design was conceived. The new parts for the Bemo short coupling system were made available in conjunction with the first deliveries of the Furka-Oberalp HGe4/4II rack fitted locomotives, catalogue nos. 1262 201 and 1262 207.

The newly developed Bemo short coupling head is similar in appearance to the prototype Scharfenberg coupling that has been widely used on trams, railcars and light railway commuter trains. There are however differences in the operating principles of the Bemo coupler, but the functional design provides a far more reliable connection than does the conventional coupling. .

A special decoupling rail is essential for uncoupling operations. The operating electromagnetic ramp made by Repa of Germany is highly recommended. This can be raised momentarily to uncouple selected wagons, carriages or the locomotive. This product is reputed to be very reliable, simplicity being its great virtue. Installation is very easy and clear instructions written in English are enclosed with each uncoupling ramp.

Bemo has devised a modular approach to their new coupling system that can be defined in three parts.

A: The Coupling Head (5249 000, 5251 000)

This standard interchangeable component is available in two versions, either with or without electrical connection. The rear end of the coupling head has a dovetail entry into which a variety of short coupling adaptors or the drawbar of the coupling link for locomotives and wagons can be inserted. The coupling head has a basic rectangular body that measures 5mm wide x 2.7mm high x 6mm long.

B: The Coupling Adaptor (5252 000 - 5259 000)

These come in a range of eight different versions, each designed to fit the individual Bemo models. All Bemo wagons can be readily adapted to the new short coupling by simply replacing the coupling adaptor.

C: The Coupling Connecting Link (5250 000)

This is a body-mounted adaptor unit with a self-centering spring-loaded drawbar. The connecting link is used in conjunction with the coupling adaptors 5256 000 - 5259 000. It is recommended as the preferred alternative for all bogie-mounted wagons and carriages. Bemo claims that the bogie-mounted coupling units do not couple so close together as the body mounted connecting link.

Mounting Suggestions

When fitting the short coupling system, please bear in mind the following points:

1. The internal blade (inside the coupling head assembly) should first be inserted in the coupling head, then the two springs an be bent over the retaining lever of the blade.

2. To uncouple rolling stock the two vertical uncoupling pegs have to be raised together, hence the necessity for an uncoupling ramp.
3. The coupling adaptor is fitted with the guide lug for the coupling head facing downward. In the case of two-axle vehicles only, the recess for the buffer makes it necessary for the guide lug to face upwards.
4. To fit the coupling connection to bogie coaches and luggage vans, it will be necessary to file a recess about 12.5mm wide in the bottom edge of the body moulding end. This will allow the body's edge to match the underside of the floor moulding. When fitted the coupling head should project about 0.3mm beyond the projecting corridor bellows moulding. See Figure 1.

   The coupling unit should be fixed in position with plastic cement. Both bogies should be mounted in reverse (180°) orientation to the original factory fitting so that the drawbar (an integral part of the bogie moulding), faces inwards. If this is not done the bogie drawbars will foul the new short coupling head.
5. Bemo recommend that for all vehicles the height of the coupling head should be 3.5mm above rail level.
6. In the case of coupling heads for electrical power transmission, two power supply wires can be soldered to the coupling head.

Personal Observations

I was joined by Swiss Rails, Christchurch (NZ) member Greg Procter, for a more technical perspective on the short coupling's performance. Greg models East German railways and has done considerable research on the subject of couplings. Geoff Elmsly has also contributed his observations.

Our tests were limited to a single length of HOm flexible track and the two sample wagons supplied. These beautiful models had a potential to distract us from our original mission. They were the new SBB Brünig line Bar Coach, with its stunning graphics and the latest release RhB Gbk-v class van in Bemo livery. So we had a bogie vehicle coupling to a two-axle van. To add to the complications, one end of the coach used the bogie mounted coupling adaptor, while the other end employed the body mounted connecting link. We had no HOm locomotives or power supply available at the time of testing, and so had to rely on movements by hand.

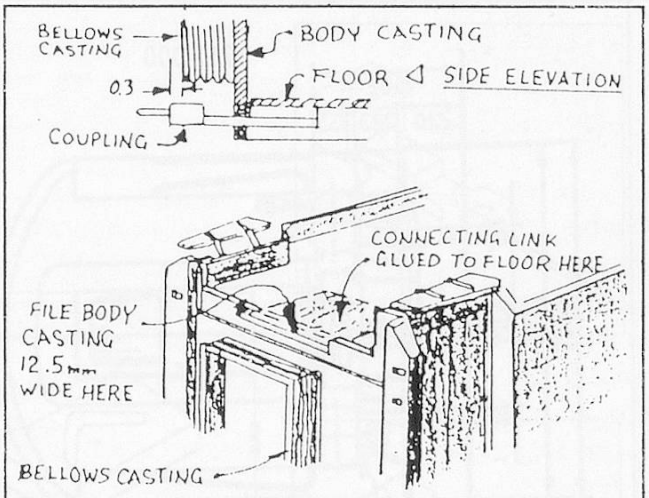


Figure 1 Mounting Couplings

As with any body-mount situation, it is essential that the couplings be accurately aligned on the track centre line, so this rules out coupling operations on curves. The centre return spring on our sample coach connecting link unit did not always return the coupling head to centre on straight track. This was an intermittent fault. It may have been the result of only one return spring being installed on our connecting link unit sample. This spring also seemed too strong. The required alignment allowing both coupling heads to locate correctly on straight track was at times unreliable. There were also occasions where the force required to connect the coupling heads successfully exceeded the resistance of the stationary vehicle.

We therefore have some reservations about the functional properties of the short coupling in regard to intensive shunting operations. We stress that our results are inconclusive - we did not have any motive power to test the sample wagons under true shunting conditions, nor did we have the opportunity to set up an uncoupling ramp.

We would highly recommend the new Bemo short coupling system to those HOm modelling members who desire..

1. To operate their trains in permanently coupled units. This is critical under exhibition conditions. There have been accounts

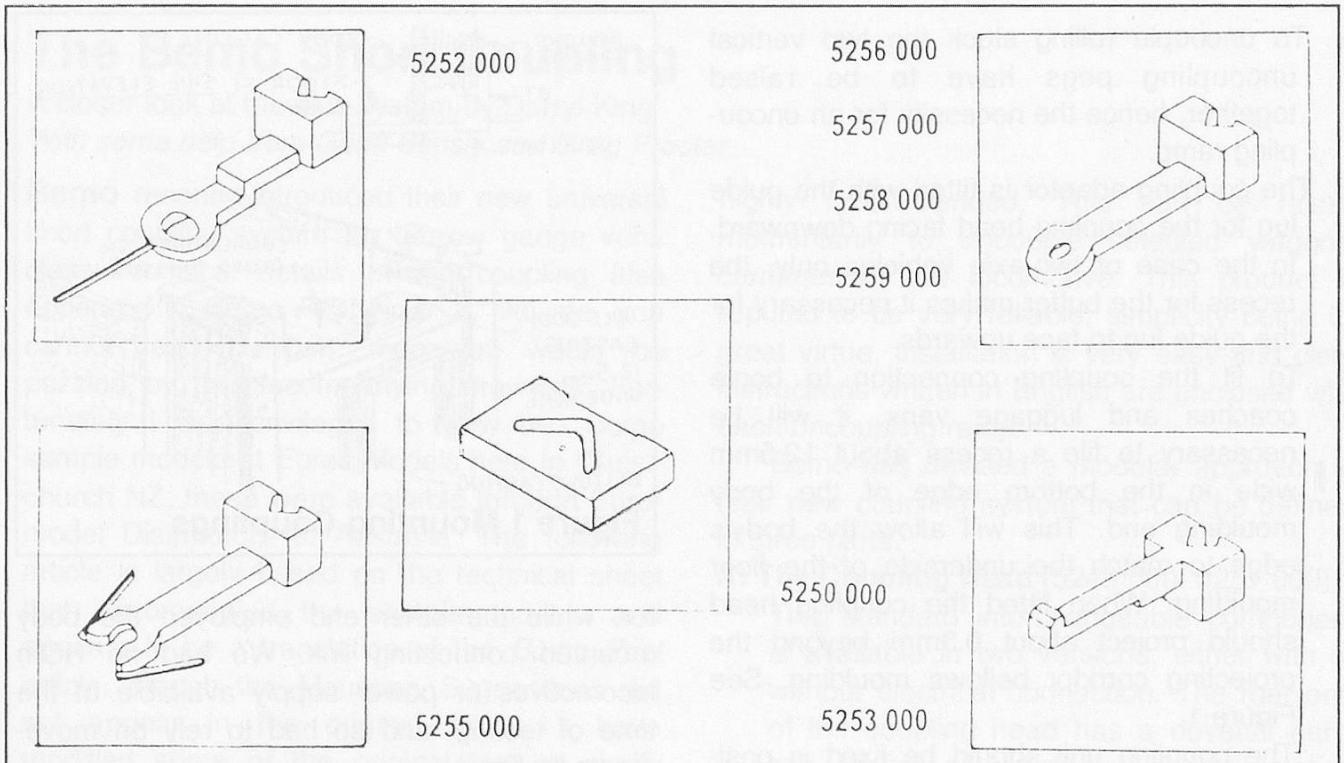


Figure 2 Summary of Components

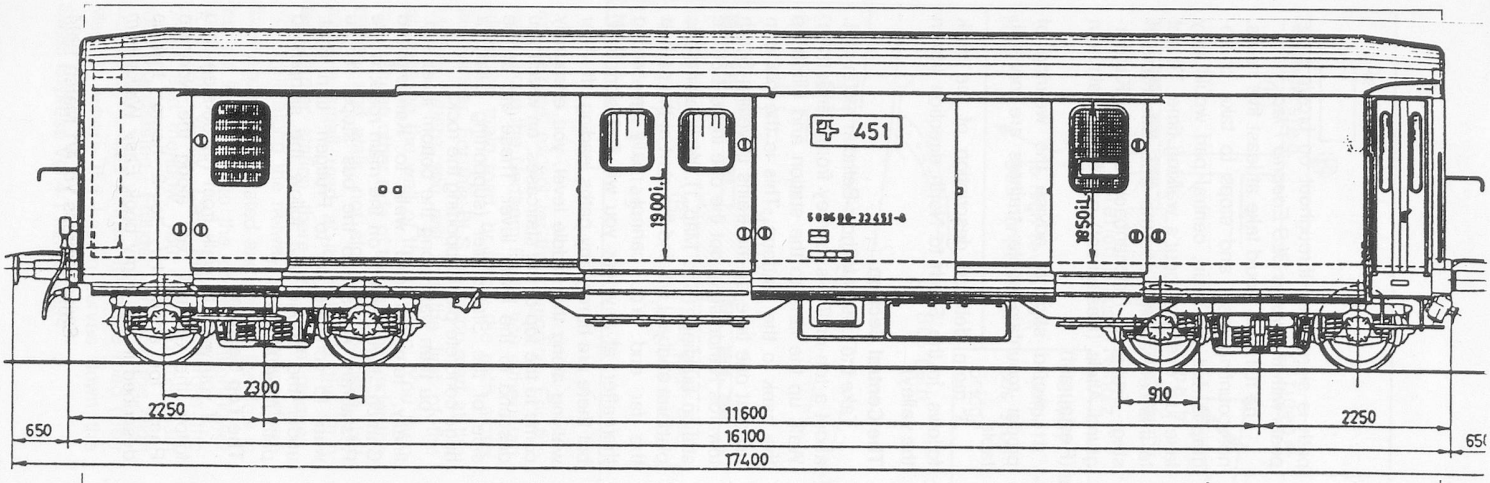
5249 000	Electrical Conducting Coupling Head
5250 000	Coupling Connecting Link (for bogie carriages, bogie luggage vans & bogie freight wagons)
5251 000	Coupling Head
5252 000	Adaptor for 2-axle wagons
5253 000	Adaptor for locomotives 1250, 1252, 1254, 1255, 1256, 1260, 1261, 1265 and tractors
5254 000	Adaptor for locomotives 1262 and 1280
5255 000	Adaptor for locomotive 1258
5256 000	Adaptor length = 17.5mm for bogie wagons 3272 & 3274
5257 000	Adaptor length = 15.5mm for bogie wagons 2278 & 2280
5258 000	Adaptor length = 12.0mm for bogie wagons 3250-3253, 3255, 3256, 3266, 3268, 3290-3292 & 2285
5259 000	Adaptor length = 8.83mm for bogie wagons 3269, 3271, 3276-3378, 3281 & 3282

in *Continental Modeller* of the present NEM couplings being adapted to couple trains permanently by using wire to achieve the desired level of reliability. The short coupling system fulfils this function and guarantees reliable mechanical coupling.

(I would dispute this statement. A simple wire link is a lot cheaper and much less bother than changing all couplings on trains. Where permanent rakes are required, a change to a pin ended bar coupling is the simplest arrangement. CJF)

2. More realistic scale appearance and size.
3. more realistic scale prototype distance between vehicles. We measured the goods wagon headstock-coupling head face distance at 7.8 mm. This would put the total distance between two wagons at 15.6 mm, in prototype terms this is 1,359 mm. The prototype plans from the RhB workshops indicate a prototype spacing of 950 mm.
4. To model rack railway systems. Conventional NEM couplings will not clear rack sections.
5. To reduce mechanical wheel resistance caused by individual electrical pick-up for coach lighting., through the use of the new electrical coupling head to light the whole train from one contact supply source. (This might prove awkward in practice, as a pick-up vehicle must be in every train and all couplings must be of the electrical pattern. CJF)

Our tests were far from conclusive, particularly in the absence of a HOm layout and appropriate motive power. I would welcome the findings of other SRS members regarding the short coupling system.



Paketpostwagen

Scale 1:87

Series Z 451-460

Z 471-480

Built 1959, 1961

50 85 00-33451-8 to 33460-9

50 85 00-33471-6 to 33480-7

Tare	23T
Load	13T
Total	36T
Length	39.5 m
Max speed	140 km/h