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## Couplings (model type) by John Jesson

This is about Kadee couplings but, before looking at them, it is worth considering just what is wanted from a coupling system.

A coupling, in the railway sense of course, is a means of joining together a series of vehicles to make a train. The prototype does this in a number of ways, but not nearly as many as the modelling fraternity, who have come up with almost as many different couplings as there are locomotive classes in Europe.

Couplings can be grouped into one of three categories: scale, non-operating and operating. Scale couplings are usually, but not always, non-automatic, and are often fitted to showcase models. Non-operating couplings are a means of coupling vehicles together in a fixed rake, such as the coaches of a multiple unit or a block train of some sort. The third category, operating couplings, is a mine-field of different types, very few of which are compatible.

An operating coupling needs to couple to itself easily, stay coupled during operation, and be capable of being uncoupled automatically. The means of uncoupling may be mechanical or magnetic. Ideally, the coupling should be capable of delayed action uncoupling, allowing a vehicle to be uncoupled and propelled to a location remote from the uncoupler.

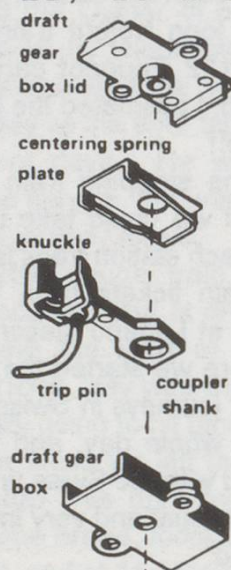
Coming in the equation is the matter of close-

coupling, whereby vehicles can be coupled very close together, but still negotiate the sort of non-scale curves encountered on most model railways.

Some years ago, I built an exhibition layout, on which the couplings in use were the "standard" European type, such as used by Liliput, Märklin, Roco, etc. I found the couplings to be anything but standard and there were frequent problems of differing coupling heights and dimensions. I resolved to try to find another coupling which would fulfil my requirements - reliable coupling, no inadvertent uncoupling, easy to uncouple manually (if required), magnetic uncoupling, delayed uncoupling and not too obtrusive. What I found was the Kadee.

The Kadee coupling consists of, basically, a shank with a buckeye-style coupler on the end, and a box to hold it. There are three different shank lengths (long, medium and short) and several different boxes. Another variation is that the coupler head, normally centred vertically on the shank, is also available offset above or below the centre-line of the shank, allowing the box to be mounted below or above standard height. There are also available four different lengths (short, medium, long and extra long) of coupling which are a plug-in fit to the European NEM coupler box.

Assembly style for no's  
5, 21, 26 & 27



Assembly style for no.7





The couplings are not brilliant at coupling on curves if they are mounted on the body of a vehicle, especially at the transition of straight and curved track, because of the lateral off-set of the coupling. (They can, and should, be mounted on the bogies of long bogie stock not fitted with the NEM box and KKK.)

Also, the couplings are not too heavy on very sharp curves, especially when not using the NEM box with full KKK. Apart from anything else, they have to be mounted farther out to avoid the buffers getting in the way, resulting in a large gap between vehicles on straight track.

Having said that, the Kadee coupling is a real joy to shunt with, if that is what you want on your layout. This is the crux - if you do not enjoy shunting, with frequent coupling and uncoupling, the Kadee is probably not for you, and the not inconsiderable expense of conversion (about £1=25 per vehicle) would not be worth it.

Of the Kadee range, those I have found of use are listed here, with their characteristics.

No. 5 Medium shank, no offset, long box.

No. 7 Short shank, offset above, short box.

No. 17 Plug-in, short shank.

No. 18 Plug-in, medium shank.

No. 19 Plug-in, long shank.

No. 20 Plug-in, extra long shank.

No. 21 Long shank, offset above, long box.

No. 26 Long shank, no offset, long box.

No. 27 Medium shank, offset above, long box.

When I started converting to Kadees, there was not the vast selection of different types of Kadee coupling available, and the NEM box and short coupling technology (KKK) were still in the future. For stock with buffers, the No. 16 was recommended. This was not successful as it combined a long shank with a short mounting box, and the only guaranteed result was a drooping coupling. The only other useful types available were No's 5 and 7. Both had disadvantages. The No. 5 was not offset and usually involved carving away part of the buffer beam to get the coupling high enough. Also, part of the mounting box protruded beyond the buffer beam. The No. 7 has a short box, which tends to allow the coupler shank to droop. In the case of the No. 7, this is not too much of a problem, but this box has another drawback - the coupler shank is sprung longitudinally, and there is a very

real rise of buffer-locking when propelling on curves.

As other types have come on the market, I have obtained them from that nice Mr. Victor in Pentonville Road and have experimented. First to appear was the No. 27, which enabled the mounting of a coupling without having to carve up the buffer beam, although the box still protruded. At the same time came the No. 26, giving the other option - no protruding box, but the buffer beam still had to be cut out. Then (Oh, happy day!) came the plug-in varieties, all of which I have used, although the most generally useful is the No. 18. Finally, the No. 21 sneaked in, allowing the conversion of pre-NEM box stock without either cutting the buffer beam or having the box stick out.

See drawings over page for dimensions.

So, having described the various useful types, what are the potential pitfalls and "wrinkles" in using Kadees?

It is important that the coupler shank is horizontal and that it is perfectly free to move laterally in the box. Kadee provide instructions with every pack of couplings, and these should be studied and followed.

The height of the coupler knuckle must be accurate, within very small limits. Kadee make this easier to achieve by making a coupler height gauge, which sits on the track. The older version of this, which I have, is a metal casting, so make sure there is no electrical supply to the track being used. I understand that the later version is plastic.

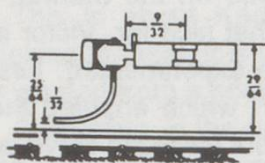
The plug-in types often suffer from droop, due to the hole in the NEM box being very slightly large. This can be easily cured by inserting a sliver of 5 or 10 thou plasticard in the NEM box, below the coupling. This can be secured by a dab of plastic cement.

The choice of which of the plug-in types to use is governed by the individual model and what distance you want between the buffers. This, in turn, is governed to some extent by the minimum radius you will want the models to negotiate. I have found the No. 18 (medium length) to be far and away the most useful, but have used all four lengths for various models.

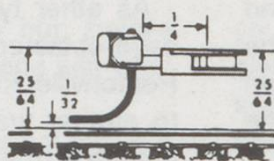
NEM boxes are supposed to be at the right height but, as the song goes, "it ain't necessarily



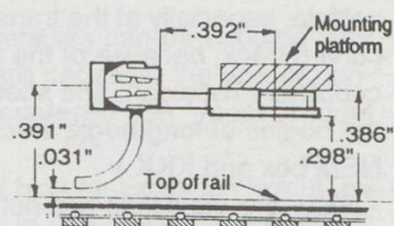
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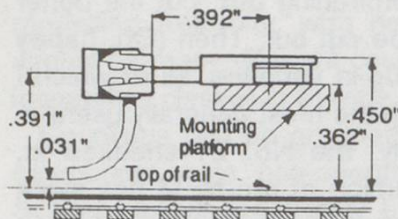
No. 7



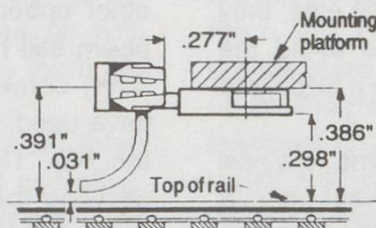
No. 21



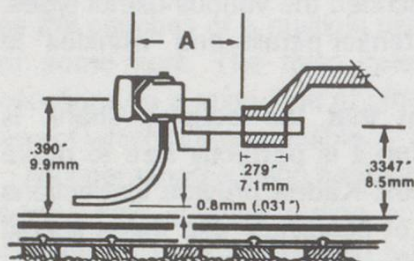
No. 26



No. 27



Nos. 17, 18, 19, 20



No. 17:	A = 7.11mm	(0.28 in)
No. 18:	A = 8.63mm	(0.34 in)
No. 19:	A = 10.16mm	(0.40 in)
No. 20:	A = 11.68mm	(0.46 in)

so". The worst I have come across is the front box on the Roco German class 50, which is too low by about 1½ mm. This may not sound a lot, but it is. I have cut away the top of the NEM box and fixed the coupling in place, with plasticard packing, with a 14 BA bolt. Other NEM boxes tend to flop around, which is OK if the Roco short coupling is in use, but not for the Kadee. In some cases, where I have encountered this, I have abandoned the NEM box altogether and fitted one of the conventional types.

One of the great advantages of the plug-in types is that they do not need the NEM box, and they can be mounted rigidly on the chassis (or whatever), without having to find room for the standard long Kadee box. Had they been available earlier, they would have saved me much grief in trying to "square the circle" and fit a standard Kadee box in an impossible space. When I use this option, my usual choice is the extra long version, No. 20. This one has a nice long plastic shank, which can be cut to suit and may also be drilled to take a mounting bolt.

Models without NEM boxes can be quite a

challenge. As already said, 4-wheel stock is not usually a problem, but coaches and, particularly, locomotives, raise all sorts of difficulties. The worst problem I have encountered with my Swiss stock has been fitting couplings to the Roco Ae6/6 which involved some careful cutting away of the skirt so that the coupling is at the right height. I have modified several couplings to suit individual locations, but all of these were prior to the introduction of the plug-in types. In virtually every case, use of a cut No. 20 would have done the job much more simply, so there is no point in describing the modifications.

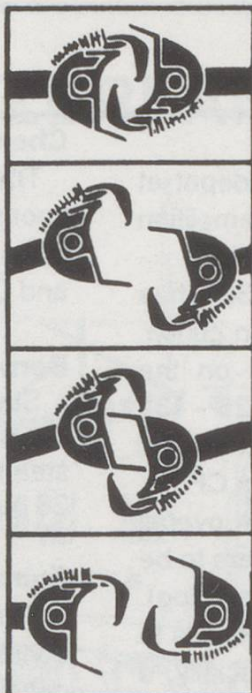
Uncoupling Kadees is by magnet, either permanent or electric. The former come in two widths, both fitting between the rails. The narrow version (No. 312) allows non-delayed uncoupling by offsetting the coupler heads just sufficiently to disengage. The wider version (No. 321) displaces the coupler heads a little more, allowing the "tails" to engage and so permit the uncoupled vehicle to be propelled and left somewhere remote from an uncoupler.

There is another magnet, No. 308, which is



wider and stronger. This is mounted under the track and allows delayed uncoupling. The electro-magnetic uncoupler is a rather clumsy beast which requires a substantial hole in the baseboard, and is very obvious. A friend who has been converted to Kadees has carried out some trials to find out if it is possible to mount the uncoupler under the track, thus rendering it invisible.

While the permanent magnets are cheap, they are not suitable for all locations. On a running line, should a train be stopped over a permanent magnet and the tension on the couplings ease, the train will become uncoupled, whether you want it or not. Electro-magnets are recommended in this situation. As Kadee point out in their literature, one delayed-



1. Stopped over Delayed-Magnetic Uncoupler, knuckles have opened. "Uncoupled" position.
2. Back up slightly to disengage couplers. Magnetic force draws couplers off center. "Open" position.
3. Forward again, couplers now in delayed position. Push car to desired location. "Delayed" position.
4. Back up again, couplers snap back to normal position. "Couple."

action uncoupler is sufficient for a fan of sidings. This can be either permanent or electric.

As at the last time I counted, I had fitted nearly 1400 couplings, the most-used being the No. 27 (only because I did most of my conversions before other types became available) with 440, closely followed by the No. 18 with 420. The No. 5 accounts for 290, but none of the others amount to more than 5% of the total. The most generally useful of the non-NEM box types is the

No. 21 but, as this has only relatively recently been introduced, I have not used it a great deal.

It seems that more people have turned to Kadees as a reliable alternative to other European types. Undoubtedly, the introduction of the plug-in types precipitated the trend, but there follows a need to convert pre-NEM box stock. I hope that this relating of my experiences has helped those considering taking the plunge to jump in.

## BOOK REVIEW

**Switzerland by Rail** - Anthony Lambert, (who is a member of the SRS), Bradt Publications, 41 Nortoft Road, Chalfont St. Peter, Bucks. SL9 0LA, Tel: 01494 873478; Visa & Access. 8½x5¼ portrait, 23 colour photos, b/w drawings, route maps. ISBN 1 898323 13 5. £10.95. **Special Offer** - Post Free for members, quote Swiss Railways Society to Publishers.

When I first started to read this book I expected it to be a factual account of the railway network of Switzerland. After the first few chapters I found it difficult to put down. It not only gave detailed information of the rail lines of Switzerland but also an insight to various points of interest at each station. Even having visited many of these lines and stations personally, I still managed to learn of further sights to see and places of interest to visit that I had not been aware of before. The author has gone to great

trouble to include as much information on the surrounding area of the stations as well as technical information on the stations even down to which side of the train to sit on when travelling between stations. There are also hotels listed near the station or of interesting character, the places of interest includes museums, churches and walks etc., thereby catering for all tastes.

This book will help you find new places, even if you have visited the area before, and if you haven't it will tell you what to look out for and where to find it.

This book will be an essential part of our hand luggage on future visits to Switzerland. I would recommend it to any member wanting a book that will be of interest to both them and their partner. It contains all you need to know to have a successful visit to Switzerland's railways and other interesting places.

LSH