Tip: Strange Happenings Log Part 1

Start Date: 27-02-07, New 16-01-2024 Last Entry 1/02/2024

Hi All,

I decided to start this log to record problems and possible solutions that I have encountered on my layout over the many years I have been running my trains. I hope this file doesn't grow too much. Use the Bookmarks tab to find the topic of interest.

Part 2 Link for all new content after the Last Entry above.

Strange Happenings Contents

ECoS 50000/50200

07-12-2016 ECoS Speed Control Fix and External Emergency Stop Buttons

ECoS Article

3054 (E103 113-7)

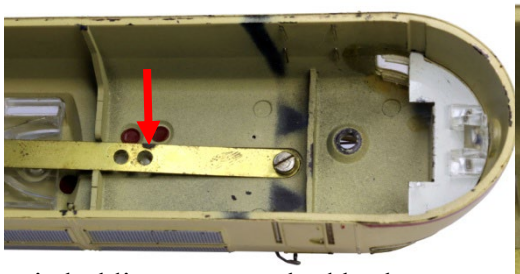
01-07-2016 3054 Locomotive with long train stopped on left hand curves.

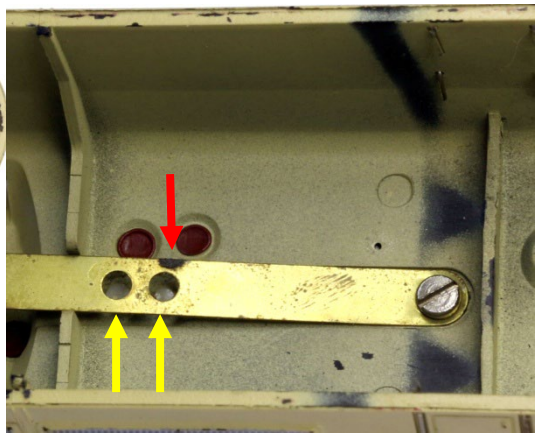
I have used this locomotive to pull eight coaches and two double car carriers as a fast express train on my layout for many years and today it started to exhibit strange behaviour by stopping in just two places on my layout which were left hand curves. It would stop suddenly, create a short circuit which would stop the ECoS and the coaches would derail.

Problem: Finding the cause of the problem took some time to diagnose as three of the coaches have collector shoes which could have caused a short circuit when they derailed after the sudden stop. I removed these coaches and tried running the train again only to have the same problem occur.

Next, I just ran the locomotive without any coaches and the problem persisted but I had established that the sudden stop on the curve had caused the derailment but still had to find the cause why the locomotive stopped. I run all my electric locomotives from the Catenary so I decided to switch to the collector shoe and now the locomotive run without any problems.

Solution: Once I removed the body shell, I found the problem and below you can see it clearly.





There is an electrical arc burn on the pantograph connection strip see red arrow. When the motor bogie turned it shorted on the bowed strip because the two plastic holding supports had broken, see yellow arrows.

I removed the screw holding the metal strip and applied hot melt glue to the area around the plastic supports and bedded the strip into the glue. I replaced the pantograph screw then the body shell and once again tested the locomotive. The problem was fixed.

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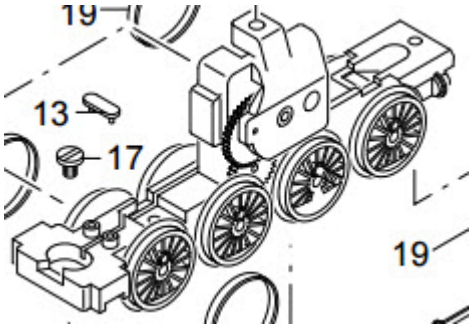
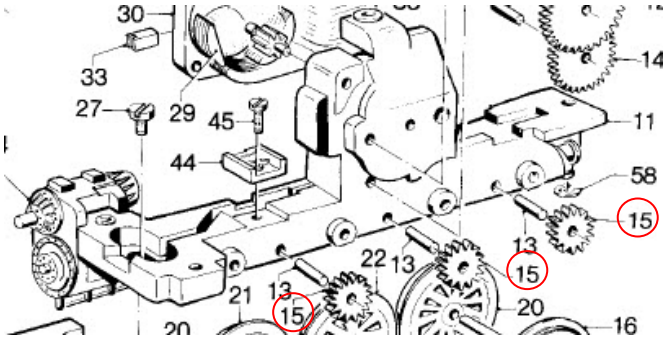
37020 BR53 0012 MHI Borsig with Condensation Tender

05-04-2016 New Insider model 2013 stopped running after a few minutes and sound failed.

I inherited this locomotive from my friend Rudolf and was dismayed to find that it stopped running with the wheels locked up and that the sound had also failed. Now I know that the total running time of this locomotive is less than 1 hour total running and being a 2013 insider model, it is covered by a five-year warranty but living in Australia, the cost of sending a locomotive back to Germany is expensive and time consuming. I decided to find out what the problems were and assess the cheapest option to either fix the locomotive or send it back to Germany for a warranty claim.

Problem 1: - After a close examination of the powered drive wheels I could see that the gears between the drive axles had damaged teeth which jammed when the wheels were rotated. I looked at the explosion diagram and discovered the drive gears aren't specified (see diagram on the left).





I looked at older explosion drawings for the Borsig locomotive and discovered item 15 was the required gear with part # E237930. I hope this trend of not showing all parts from Märklin doesn't continue.

The E237930 part costs €6 for a packet of 3 gears and fortunately my friend Norm had some, so I paid him for a packet of gears.

The two gears on the left are damaged and the gear on the right is new.
This is the first time I have encountered this problem on a new locomotive.

Solution 1: - I replaced the gears and now the locomotive runs like new.

Problem 2: - The speaker seems to have failed. I removed the wires at the decoder and measured the impedance and found it was open circuit.

Solution 2: - I applied the soldering iron to the solder pads on the speaker then measured an impedance of 8 ohms so I reconnected the wires at the decoder end and I could once again hear sound. Some of the sounds are a little distorted so I will replace the speaker on my next spare parts order.

In the case above I decided not to claim the warranty as the cost is higher than me fixing it myself.

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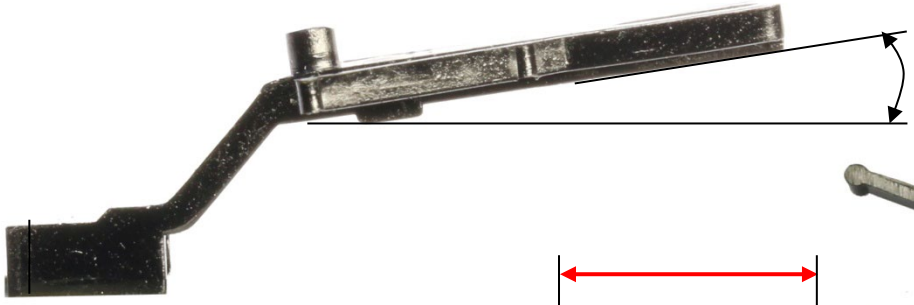
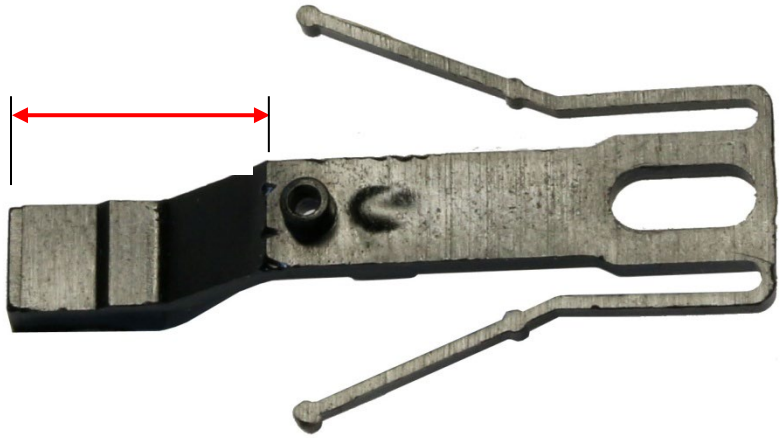
31021-1 Lady C Locomotive from the Stuttgart Station Set

05-04-2016 Lady C locomotive would derail when pulling passenger coaches.

Problem: - After installing LED lighting in a set of passenger coaches I decided to pull the train with the Lady C locomotive from the Stuttgart Station Set and discovered that the rear coupling would release the train on curves or would suffer from buffer lock when the train was descending on a curve.

I didn't pay much attention when I first coupled the coaches to the locomotive but I discovered that the coupler height was very high so the coaches were difficult to couple to the engine.





The cause of this coupler problem is shown above. With the coupler pocket on a flat surface the drawbar is angled by 7.5 degrees above the horizontal line.

Solution: - I boiled some water and poured it into a small bowl then inserted the coupler pocket end up to the guide pin (see red arrow). After a few seconds in the water, I carefully bent the drawbar down to get it as close to the horizontal line as possible. I allowed the drawbar to cool down then repeated the process until the drawbar would remain at the required position.

With the locomotive re assembled the locomotive pulled the coach set without problems.

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Broken Coil Wires 7549 Point Motors (1st and 2nd generation)
05-09-2015 (see page 25)

Point/Turnout fails to switch when controlled with TrainController
08-07-2015

Problem: - This problem indeed matches the title of this document. Over the last few weeks, I have had a constant point failure when running schedules using TrainController (TCG8.0E5). My equipment at this time is the ECoS 50000 with firmware revision 4.0.2, k83's and a selection of the 7549 and 75491, Point motors.

All my points are entered into the ECoS with a switching duration of 100ms and the Turnout Interval for TrainController is set to 250ms.

Debugging the Problem: - The first thing I eliminated was to check the point motors were functioning as this is the usual weak part of the Märklin system. I could switch the offending point from the ECoS every time. Next, I tried to manually switch the point from the TrainController switchboard and noticed that the graphics in TrainController updated to reflect the point switching but the point didn't physically switch on the layout, I also noticed that the point graphics on the ECoS screen didn't change. I switched another point in the TrainController window which was working and noted that the graphics on the ECoS screen changed.

Next, I inserted a toggle switch in the TrainController switchboard with the correct address for the point and this also failed to switch the point and update the point graphics on the ECoS screen.

The strange thing is the point is able to be switched from the ECoS and the change is reflected in the TrainController switchboard but when I use the TrainController switchboard the command doesn't update the ECoS screen and the point decoder doesn't receive the command to switch the point.
My gut feeling was the problem was in the ECoS.

Solution: - I entered edit mode on the ECoS for the points and deleted the offending point and did a save before shutting down the ECoS. On rebooting the ECoS I entered edit mode on the ECoS for the points and reinserted the point with the correct address and did a save before starting TrainController.

From the TrainController switchboard I could now switch the point once more. I don't know what corrupted this point in the ECoS but I'm happy I have managed to find a solution.

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37500 Northlander

The bell and horn for the Northlander have the same intermittent sounds as mentioned below for the 43747 ICE coach.

37606 VT11.5

08-11-14 Intermittent sounds of the horn.

The same problem and solution, exists for the VT11.5 TEE train set as mentioned below for the 43747 ICE coach.

43747 ICE 3 Coach type 406.8 with Sound Effects Module

10-11-11 Intermittent sounds of the horn.

Problem: - I noticed after I had re profiled the ICE 3 train with **TrainController** that the horn wouldn't sound when it entered the station as it had done before re profiling the train. On the ECoS the Coach decoder is setup as Motorola 28. Using the ECoS controller I tried the horn function at zero speed and it worked. Next, I increased the speed, tried the horn function and it failed to sound. I increased the speed a little more, tried the horn function and it worked. The big question was WHY?

Debugging the Problem: - With the ECoS controller I started the ICE 3 train at threshold speed (decoder speed step 6), then tried the horn function and it failed to sound. I next increased the train speed by one decoder speed step (7), tried the horn function and it worked. I increased the decoder speed step (8) and the horn failed to sound, increased one more decoder speed step (9) and the horn sound worked once more. I tested the horn sound over the entire decoder speed step range and found that the horn would only work on odd decoder speed steps, strange but I solved the mystery of the intermittent sounds.

Solution: - I revised my block speed into the station forcing the ICE 3 train to run with an odd decoder speed step so the sound of the horn could be heard as it entered the station.

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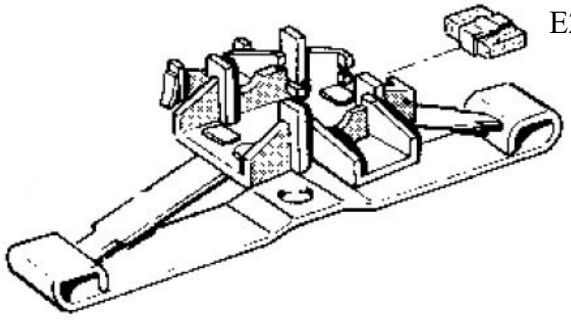
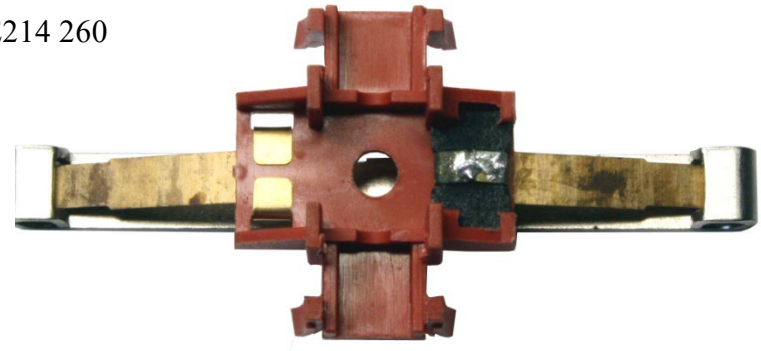
3615/26830 Locomotive

22-08-2014 BR52 locomotive from the 26830 Snow Plough set would just stop at random

Problem: - I was trying to change some CV values for this locomotive and it failed. When the locomotive was placed on the layout it would run for a while then stop at random. If I raised the tender then replaced it back on the track it would run for a short distance then stop once more. This behaviour indicated to me that the electrical connection to the collector shoe was at fault. I unclipped the collector shoe and I could immediately see the problem was a loose solder contact plate (E214 260)



E214 260



Solution: - I slid the contact plate out of the slot in the collector shoe (E280 270) and prised up the collector shoe holding lugs a small distance then refitted the contact plate carefully and made sure the fit was very firm. I soldered the wire back on and re clipped it to the tender bogie. The locomotive once again ran very well.

I also noted that the 3615 Locomotive had the same collector shoe and I'm sure other locomotives use this collector shoe and could have the same problem in the future.

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3686/3687 Glaskasten Locomotive

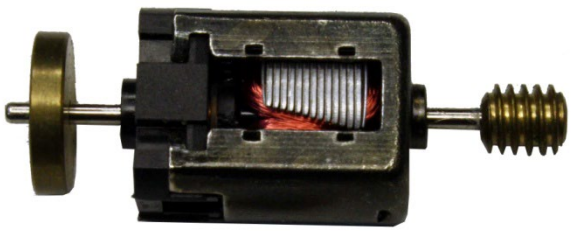
10-07-14 Very jerky running of one of my three Glaskasten locomotives

Problem: - From time to time I get out my locomotives I have in storage and give them a run around the track to ensure they still run and function well. In January 2009 I was testing the 3687 locomotive and after a few minutes of nice running the locomotive suddenly became very jerky. I disassembled the locomotive and found that a brush had broken in half. On the spare part sheet supplied with the locomotive there is only a complete motor listed as part number 371300, so I wrote to Märklin Service asking for the part number for the brush and I got a quick reply that they could supply the complete motor only, for a price of 49.95 EUR plus postage or I could send the locomotive back for a service. Now living in Australia this seemed to me to be a very expensive solution for such a simple problem, I decided not to do indulge in this expensive option and just put the locomotive back into storage.

Solution: - Since I have just completed upgrading my layout with the 'Diode Trick' I decided to test all my four wheeled small locomotives to see if I had made any improvement to their running. I chose the 3687 Locomotive with the broken brush by mistake but instead of putting it aside I decided that I would have a go at manufacturing a replacement brush to get the locomotive running once more. I chose a 60146 standard Märklin brush and held it in a pin vice which I then inserted into the chuck of a small drill. With the drill rotating at a slow speed, I used a small flat needle file to reduce the square shaped brush to a

new round brush that would fit into the brush holder. I had to rotate the brush 180 degree in the pin vice and repeat the process for a nice fit into the brush holder.

The photo shows the broken brush (left), the middle brush is original and the (right) brush is my manufactured one and I made sure that the spring would also fit on the end (red arrow).



The motor at the left has the brush holders, springs and brushes shown below. Once the locomotive was reassembled it ran like a dream.

My only regret is it took me 6 years to fix this very serviceable motor.

Opinion Time: Märklin should have been able to supply the brushes only for the motor which was easy to service. In the future if locomotives have cheap non serviceable motors, I will not purchase them.

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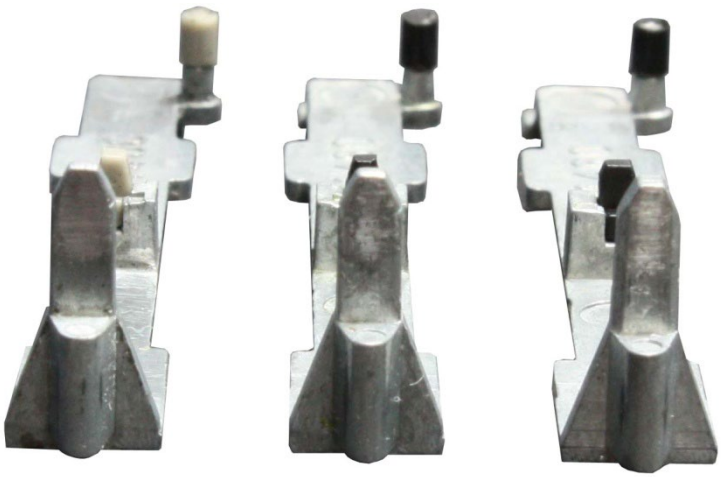
7686 Remote Control Turntable

04-11-13 Another Turntable bridge kept jamming.

Problem: - My friend Greg's turntable had stopped with a small offset (1-2mm) between the bridge rails and the stall/spoke track rails i.e. the rails didn't line up and further efforts to control the turntable failed. Greg asked me for assistance to sort the problem out. I thought the problem would be the same as Rudolf's turntable but this failed to work 100%. (See 23-03-12 entry below, I moved both reports together.) The mechanism was much smoother running so that was a step in the right direction.

Debugging the Problem: - I took Greg's turntable home. This allowed me to compare it with an original Fleischmann 6652 turntable and an early Märklin 7686 turntable. Below are three indexing control levers.



1. Original Fleischmann (far left)
2. Early Märklin (middle)
3. Greg's later Märklin design (right)

Before making any permanent changes to Greg's turntable mechanism I decided to exchange the index control lever with the Fleischmann (**1**) original. When I tested the turntable, it worked very well without jamming any more.

Next, I tried the early Märklin (**2**) control lever and it worked as well as the first example.

When I tried Greg's (**3**) later Märklin design once more the problem of jamming occurred once more in a very short time of testing.

Looking at the above levers it is possible to see one obvious design change on the right lever that the other two levers don't have. You will notice the front face has chamfers but it still requires closer inspection to find the other two design changes.

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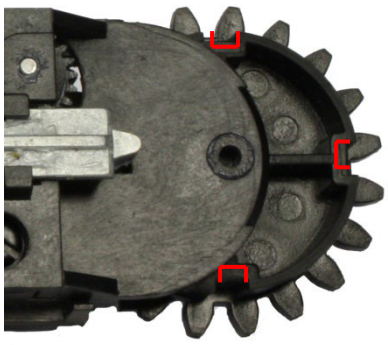
A top view reveals the Fleischmann part number 1460 for all three examples and the second design change can be seen in the righthand example as the thickness has been increased from 1.46mm to 1.82mm (red circle).

The last design change required some measurements (see below) On the left is the original Fleischmann index lever showing the index tongue with a slight draft angle. This fits into a recess index on the driving gear with a similar draft angle. (Four places)



There is a small tolerance on each side of the index tongue to allow a slight movement left or right of the index centre line.

The middle index lever measured the same as the first.

The problem index lever tongue has almost no tolerance at all and doesn't allow enough movement left or right for the index tongue to fit each time into the indexing recess and with the chamfer on each side of the tongue it helps it push out of the recess when the drive gear is turning. The motor contact remains closed and won't allow any further commands from the 7687 Decoder.

Warning: - The solution I used requires modification to the index lever and should only be done if you take responsibility for you actions and have a plan B if the modification doesn't work.

Solution: - First, I filed the front face flat to remove the chamfer on both sides of the index tongue. I then filed the sides to reduce the dimensions to match the Fleischmann dimensions (green) I also made sure no sharp edges appeared on the areas that had been filed.

Once the drive mechanism was re assembled, I tested the turntable over a week controlling the turntable a few times each day and it worked very well without jamming any more. The turntable bridge now has a small amount of movement left and right of the index centre line which was almost no existent with Greg's turntable in its original state. The turntable was reinstalled on Greg's layout Friday 1 Oct and was working with TrainController when I left.

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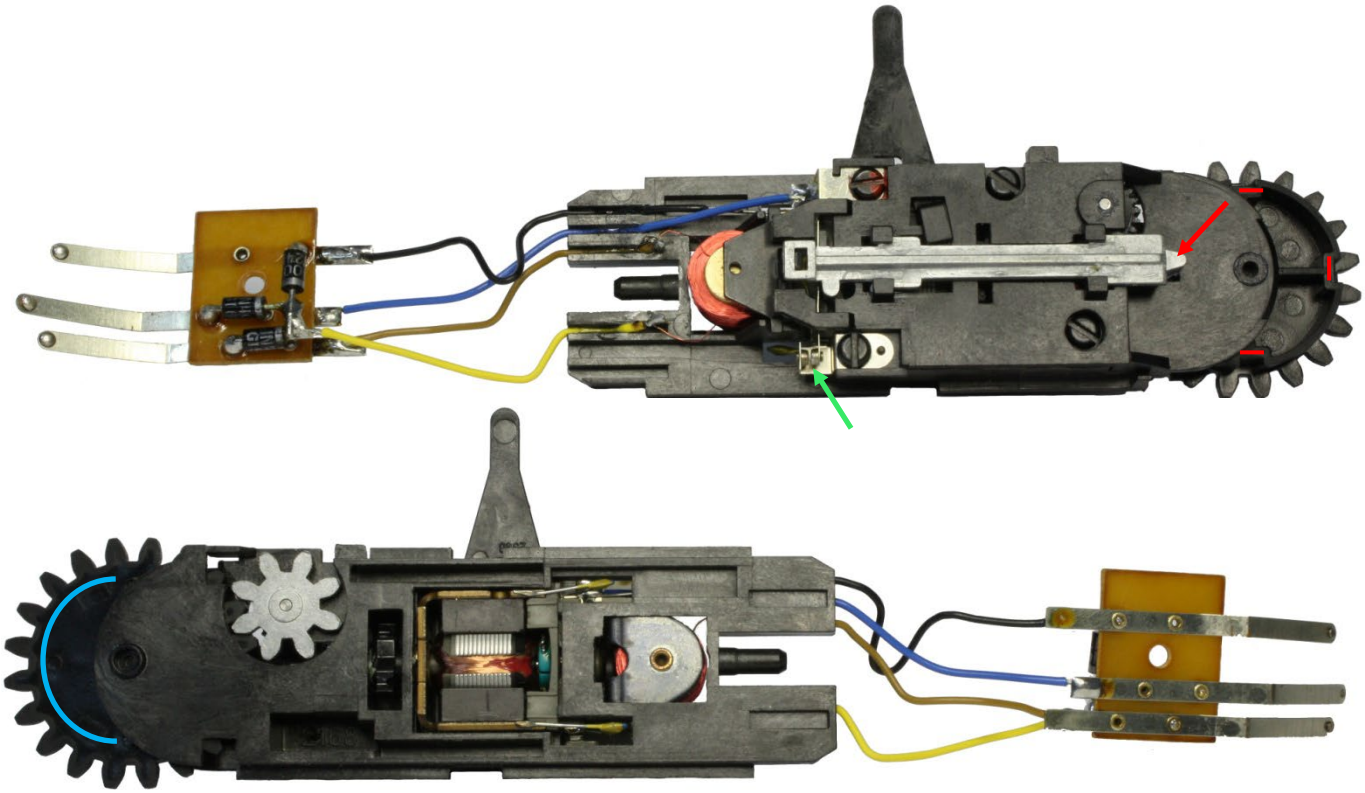
23-03-12 Turntable bridge rotation kept jamming.

Problem: - My friend Rudolf's turntable had stopped midway between two stall tracks and all efforts to free up the bridge without removing the bridge had failed.

Debugging the Problem: - Rudolf gave me the bridge and the 7687 Decoder. This enabled me to take it home and test on my spare turntable. First, I removed the motor drive housing assembly and examined it.

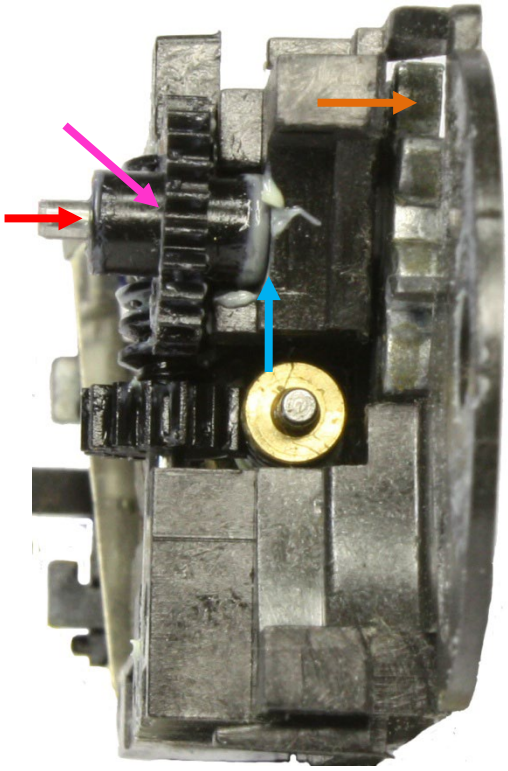


In the top photo showing a default neutral position I found that the index lever (red arrow) was pushed back closing the motor contacts (green arrow), because the indexing indents on the large gear shown as red lines were rotated away from the neutral position. This caused the decoder to show a fault because the motor contacts were closed when turning on the power to the turntable.

In the second photo I noticed some flash marks on the large gear wheel (blue line)

Solution: - First, I removed the flash marks from the large gear using 1200 grit sand paper laid on a flat surface. I rubbed the gear over the sand paper until the top surface flatness had improved.

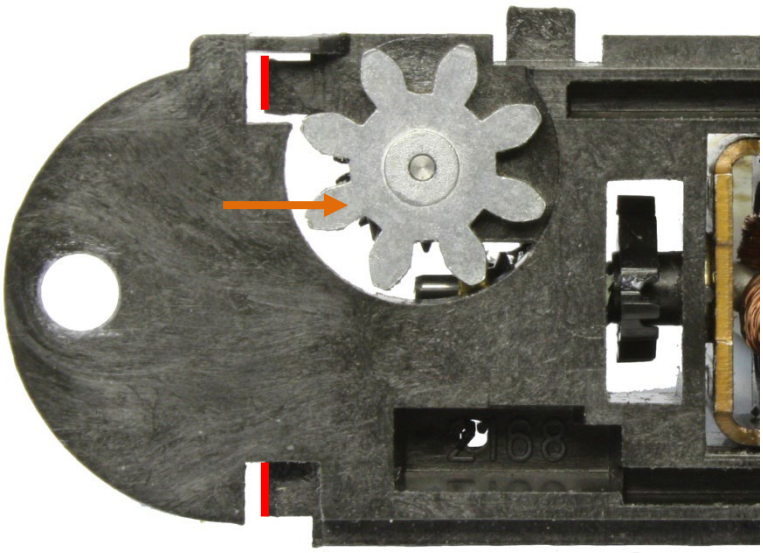
Next, I carefully removed the locking bar and the medium gear (orange arrow) by pushing the shaft in the direction of the red arrow allowing the smaller gear (violet arrow) to be removed then the medium gear was also removed.



Note: reassembly of the medium gear and smaller gear is the reverse procedure making sure that there is a small gap between the smaller gear and the motor housing (blue arrow) to allow for free rotation of the gears without being too tight. For lubrication I used Woodland's White Grease with Teflon.

Next, I reassembled the large gear with the top temporary fixed using two screws. When I rotated the large gear by hand, I was surprised to find that it was still catching the motor housing assembly.
On very close inspection I found the large gear teeth caught on the edges of the housing (red lines) in the photo below

Using a fine needle file I chamfered the highlighted edges.



I then retested the large gear, success at last and with no more jamming of the large gear I carefully reassembled the motor drive housing.

When I put the turntable bridge into my turntable base and using Rudolf's 7687 Decoder, I was able to re-programme the turntable and the bridge movement was once again very smooth and there wasn't any further jamming of the turntable bridge. I visited Rudolf yesterday and installed the repaired turntable bridge.

Using TrainController the turntable was re-programmed to suit Rudolf's layout and he made the comment that was the smoothest he had seen his turntable operate, so we were both happy.

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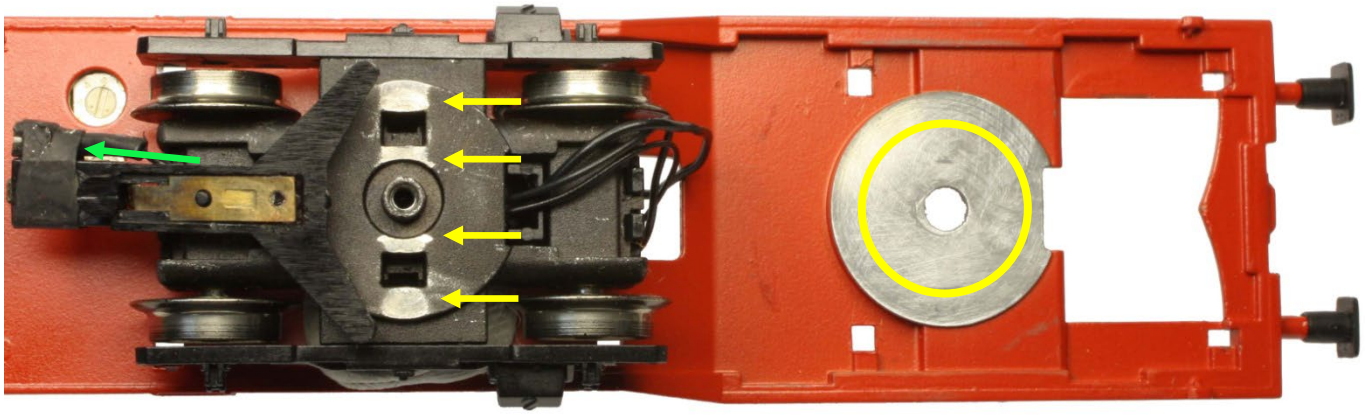
37090 Cargo Sprinter

27-11-2012 The improvement to the ground connection on the Cargo Sprinter was done some time ago so this is just a records update.

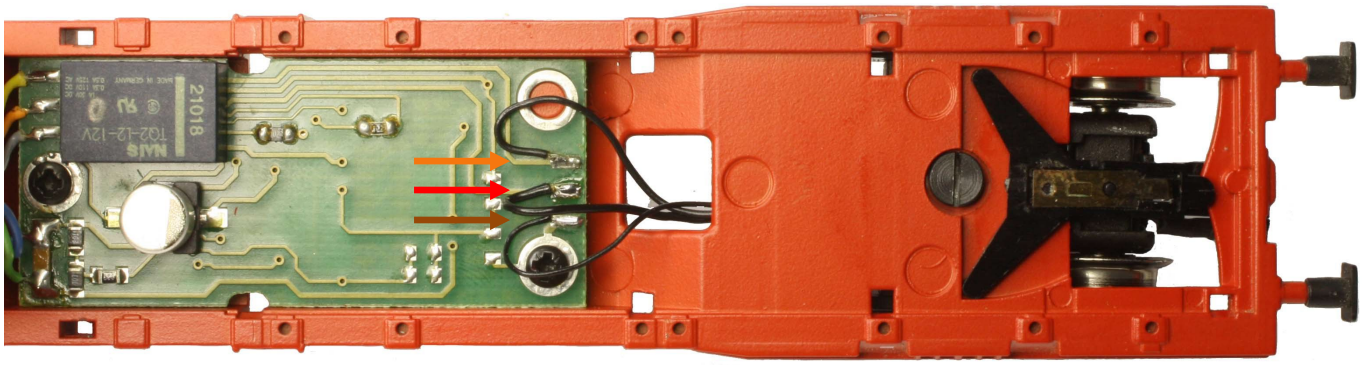
Problem: - The Cargo Sprinter would jerk or halt when driving over the 2275 double slip points when the direction was set straight across. The Cargo Sprinter is driven by the front bogie and all four wheels have a rubber tyre so there is no good ground connection at this end. At the collector shoe end all wheels, act as the ground contact. The problem is that with the wheel spacing distance of approximately 30mm it is just too small a distance to get over the non-electrified rail sections of the 2275 double slip when set to the straight direction.

Solution: Was to provide an extra ground connection, but this wasn't as easy as I first thought it would be.



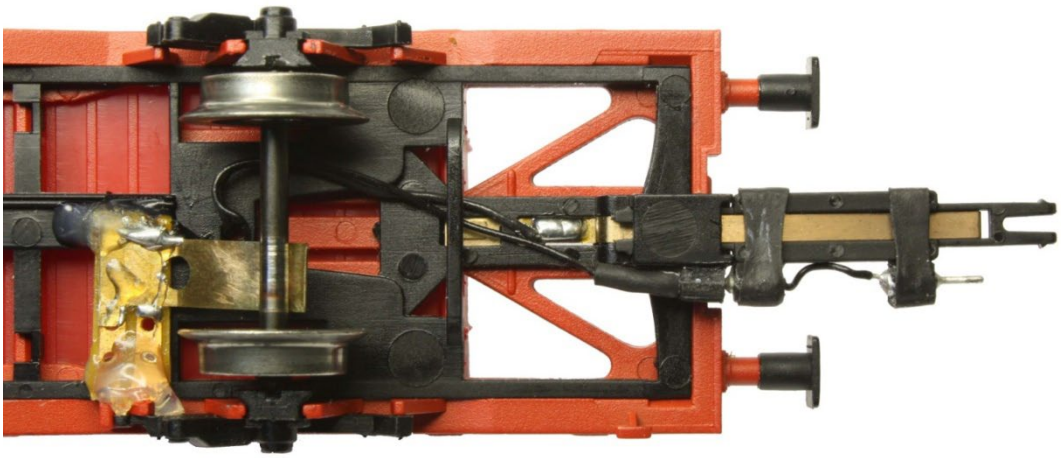
I removed the bogie at the collector shoe end and cleaned the contact points (see yellow arrows and circle)
The green arrow shows a single Harwin SIL socket, Element14 # 102-3035 super glued to the side of the electrical coupling. I soldered a wire to it and protected the connection with heat shrink. You will notice that I provided extra support to the socket by putting heat shrink around the coupling and socket. The wire from the socket was threaded through the bogie and followed the path of the other wires.

Ground Solder Pad

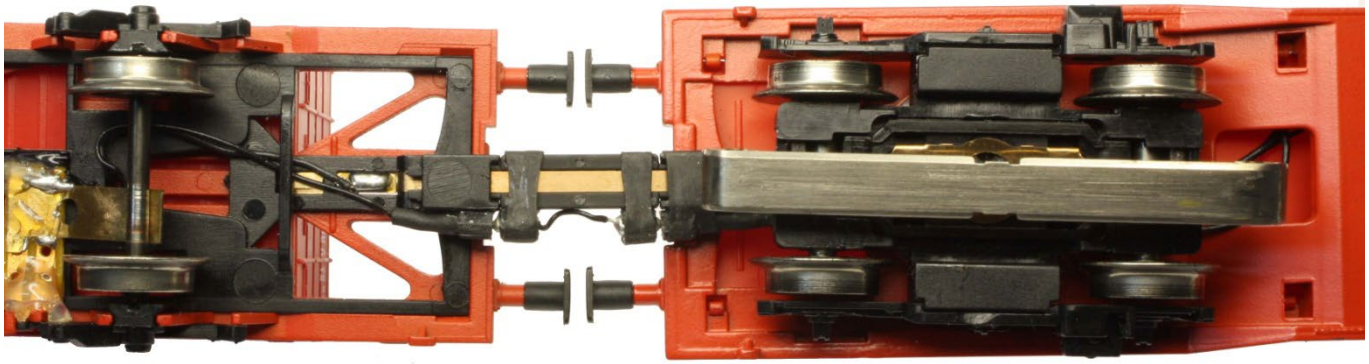


The wire from the added socket was soldered to the ground solder pad (brown arrow).
The red arrow shows the collector shoe solder pad and the orange arrow shows the solder pad for the electrical coupling.

Wagon Ground Connection



Because the axle runs in plastic bearings, I had to make up an electrical spring contact from an old collector shoe and solder it to a small piece of Vero board. This assembly is held in place with hot melt glue. I super glued another single SIL socket to the side of the electrical coupling and soldered the wire from it to the contact spring making sure there was a small loop of wire so the coupling could move freely. For the connector between the wagon and the locomotive I super glued two single SIL sockets to act as male connectors and provided extra support with heat shrink. A small length of wire completes the connection.



The Cargo Sprinter now runs very well.

In my opinion Märklin should have provided 2 pole connectors for the train to allow the switching collector shoes and a better ground connection.

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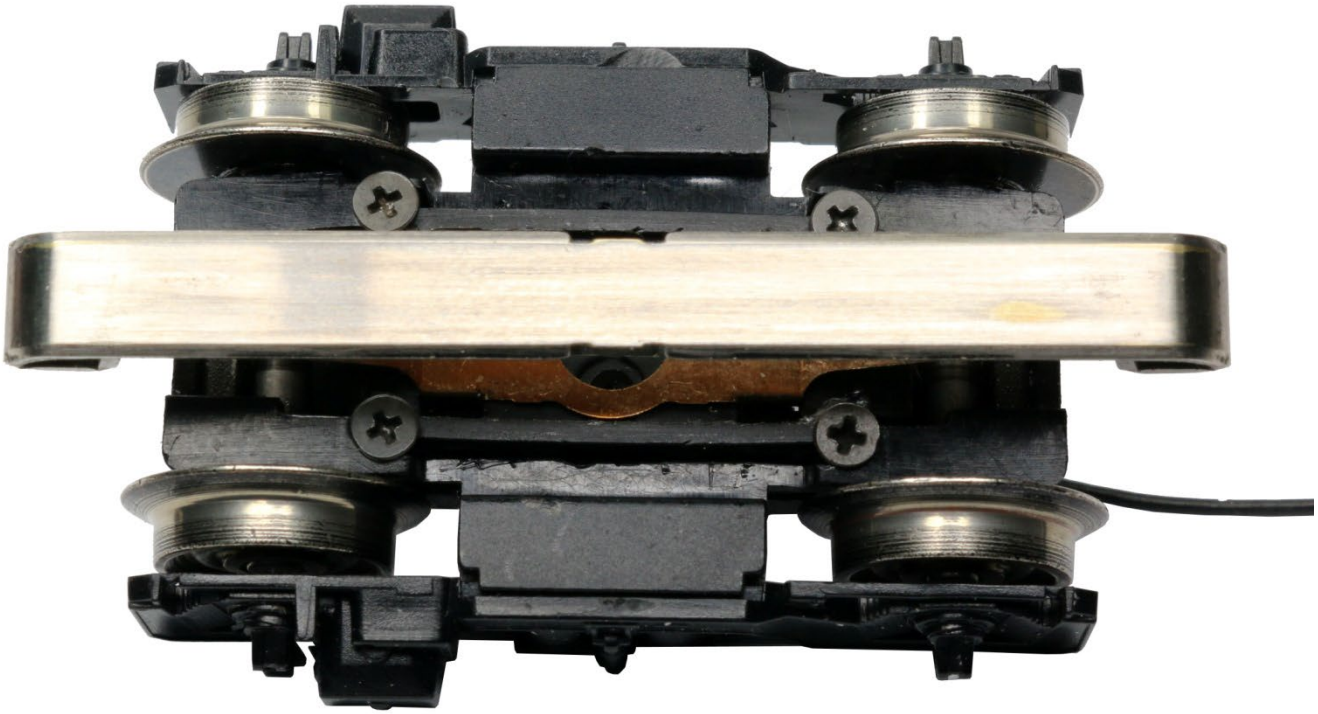
37090 Cargo Sprinter

02-06-2020 Collector shoe failed to clip on firmly. I have decided to add this information here as it helps to keep the information together and you can compare the photos on the previous page.

Problem: - The Cargo Sprinter started to derail over the **2275** double slips.

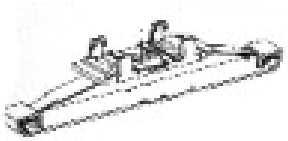
Solution: - As the collector shoe clips on to another plastic mount I was able to remove the mount and carefully drill 4x 1.2mm holes which allowed me to screw the collector shoe to the mounting plate.



The screws are **7599** k-track screws which have been cut down to 3.5 mm length to create a flush fit on the mounting plate.

Opinion Time: -

I dislike this type of clip-on collector shoe because the clips wear/break too easily.



Tip: Strange Happenings Log Part 1

Start Date: 27-02-07, New 16-01-2024 Last Entry 1/02/2024

2681/2881 S10 King Wilhelm II

09-09-12 Document update on the King Wilhelm II set

I have had this set since it came out in 1996 and planned to run it on special occasions when train enthusiasts visited my layout for a running day, this hasn't worked out as I have had a few problems with the operation and appearance of the train.

Problem 1: - King Wilhelm Potential Short Circuits 14-08-1999 mentioned on pages in this document.

Problem 2: - Paint on the front of the boiler peeling off.

- Solution 2: - I removed the boiler, then the boiler end, stripped off the paint without damaging the details and repainted the boiler end. This to me was a disappointment for such an expensive locomotive.

Problem 3: - The locomotive failed to pull six of the King Wilhelm II coaches up a standard 4% grade.
This set was designed by Trix and sold under the Märklin name turned out to have a design flaw that there isn't enough weight over the driving wheels with the rubber tyres to allow the locomotive to successfully pull the coaches up a 4% grade.

Märklin's solution was to provide two weights with self-adhesive tape to add to the cabin floor and under the cabin roof. These weights are no longer available from Märklin.

Solution 3: - I decided to tackle the problem in the following way. I removed the cabin by undoing the screws under the cabin. I think removing the cabin roof is a better solution than the way Märklin suggest because you are less likely to damage the locomotive.

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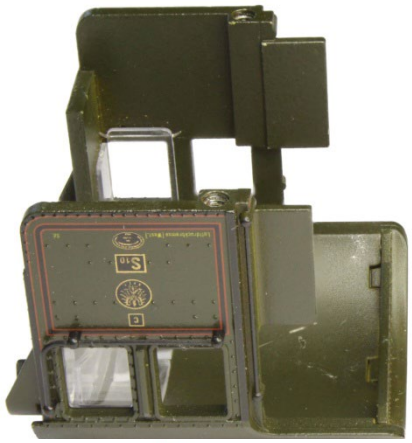
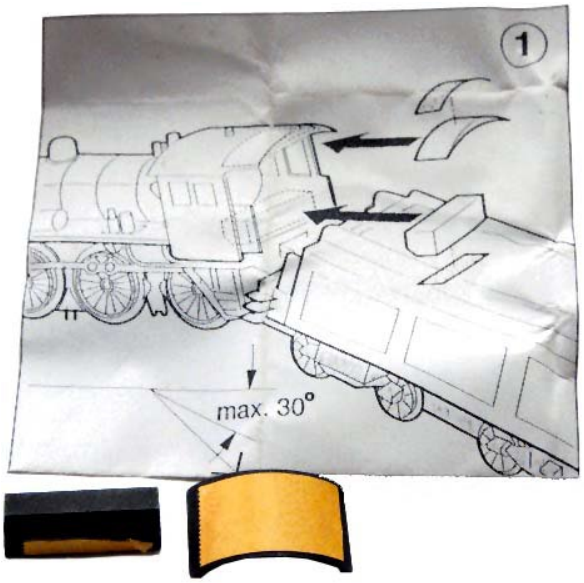
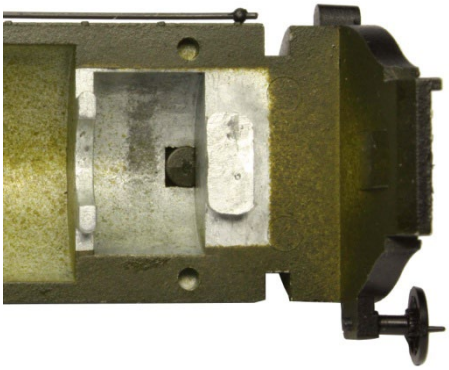


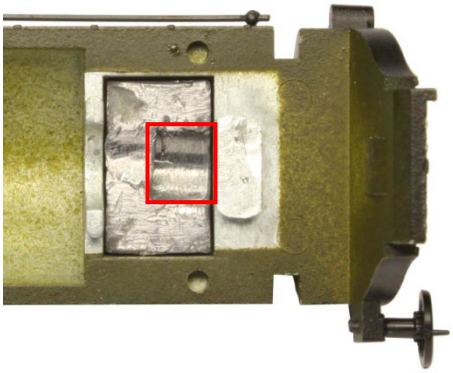


Märklin instructions and weights shown above.

I then flattened a lead fishing sinker into a flat shape as shown and then bent the shape to follow the curved contour of the cabin roof. I made sure that weight wasn't visible when viewing the cabin from the side. Once this was done, I painted the weight black and finally glued the weight into the cabin roof with hot melt glue. I didn't want to place any weight on the cabin floor so I decided to see if I could add weight in the boiler.

Removing the boiler proved to be very easy and is not specified in the Märklin service instructions. First you need to have a close look at the locomotive and you will see a part line on the boiler at the cabin end. The pipe details on both sides of the boiler need to be removed where the pipe detail crosses the boiler part line. The secret is that you have to carefully pull off the smoke stack and hidden below is a screw which needs to be removed. Now carefully lift off the boiler from the locomotive frame.





I fashioned the weight above to fit in the space as shown. You will notice that I have cut a grooved recess (red rectangle) which is required to clear the gears from the motor. The weight is held in place with adhesive tape.

With the locomotive reassembled I tested it pulling the full King Wilhelm II coach set and to my relief it handled all the grades on my layout.

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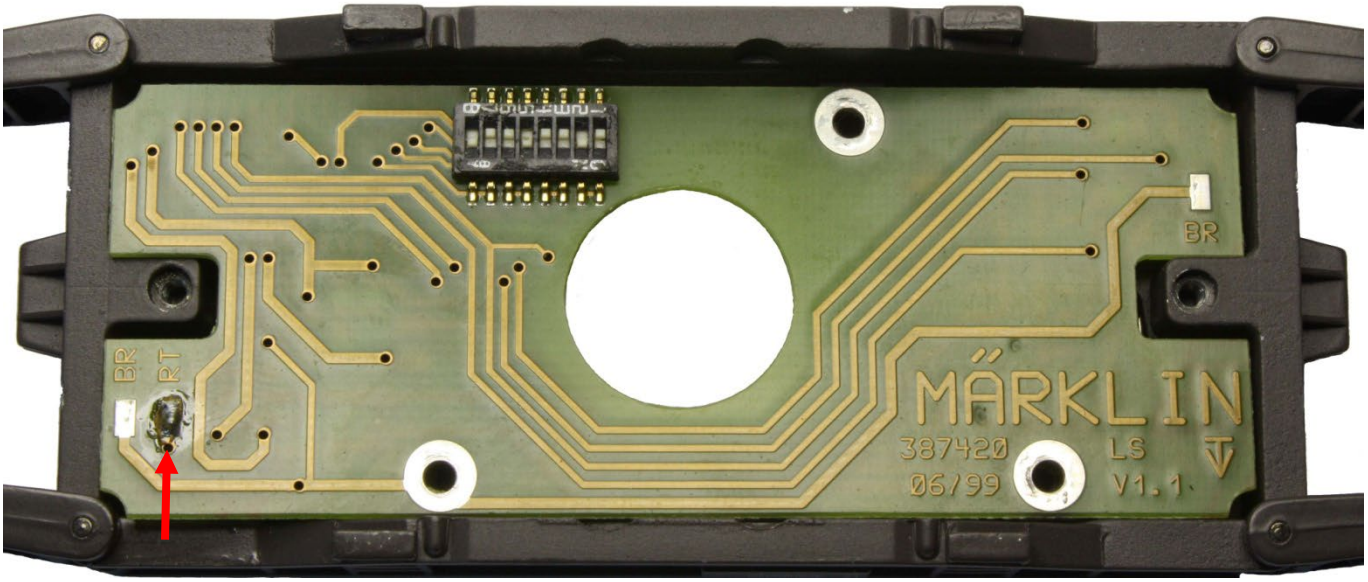
49950 Goliath Crane

09-06-12 The Goliath Crane hook cable was jammed between the gears that drive the take up drum.

Warning: - Märklin clearly state not to pull apart the Goliath Crane because special tools are required and nothing requires servicing, but since I live on the other side of the world, I decide to service the crane myself as it seemed ridiculous to send it back to Germany just to free the hook cable from the gears.

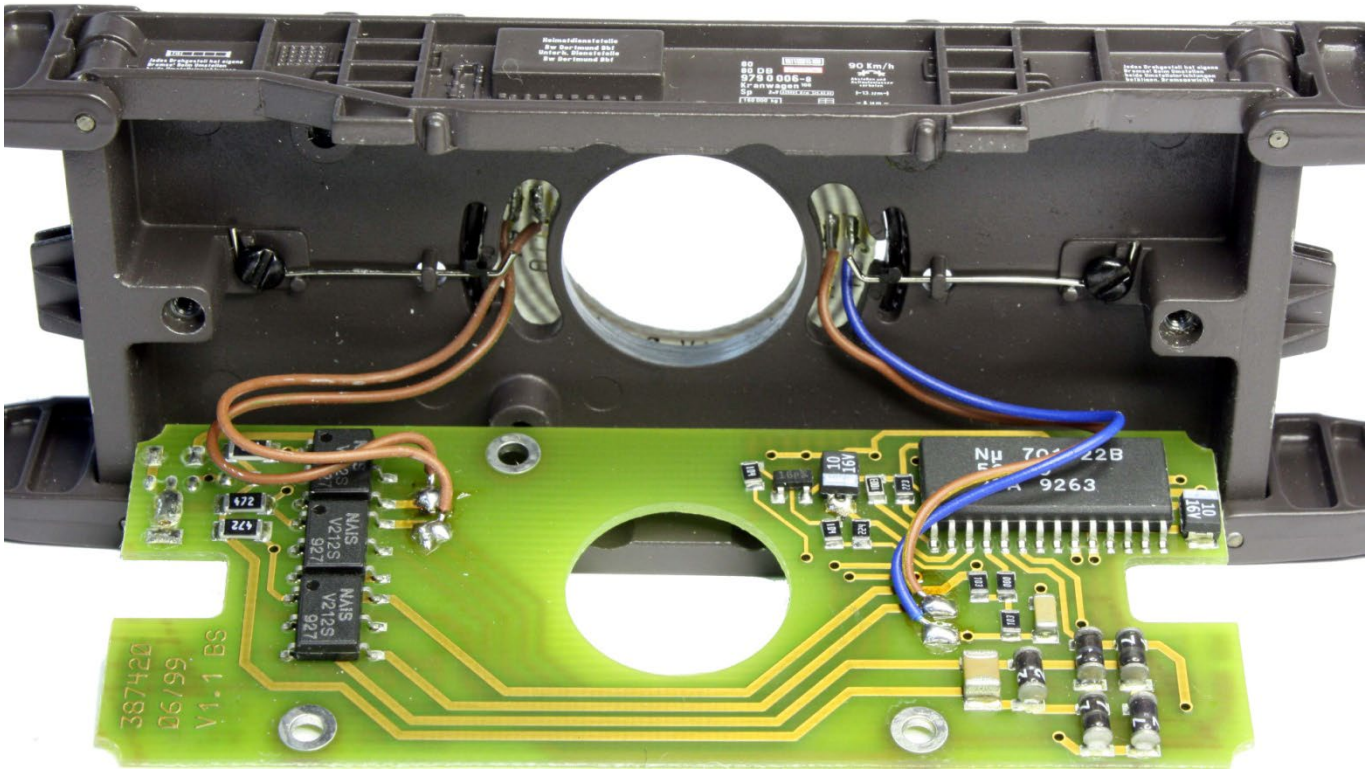
Problem: - I wanted to remove the plastic cable drum protectors so I had full access to the cable drum then I could see if I could remove the cable drum and release the hook cable that had jammed between the drive gears without cutting the cable. On close examination of the cable drum protectors, I could see that I needed to dissemble the crane because they were held in place by the body of the crane housing.

Process: - First, I removed the collector shoe. The bogie trucks were next and were easy to remove by removing the screw and spring for each bogie. Below the bogies is a plastic protective cover for the printed circuit board which can be carefully removed by using a fine screw driver to move the plastic cover clip by inserting the screw driver blade into the square hole and levering the clip towards the bogie screw location. With the cover removed I next unsoldered the red wire (red arrow) which allowed free



access to remove the three screws that hold the printed circuit board in place.

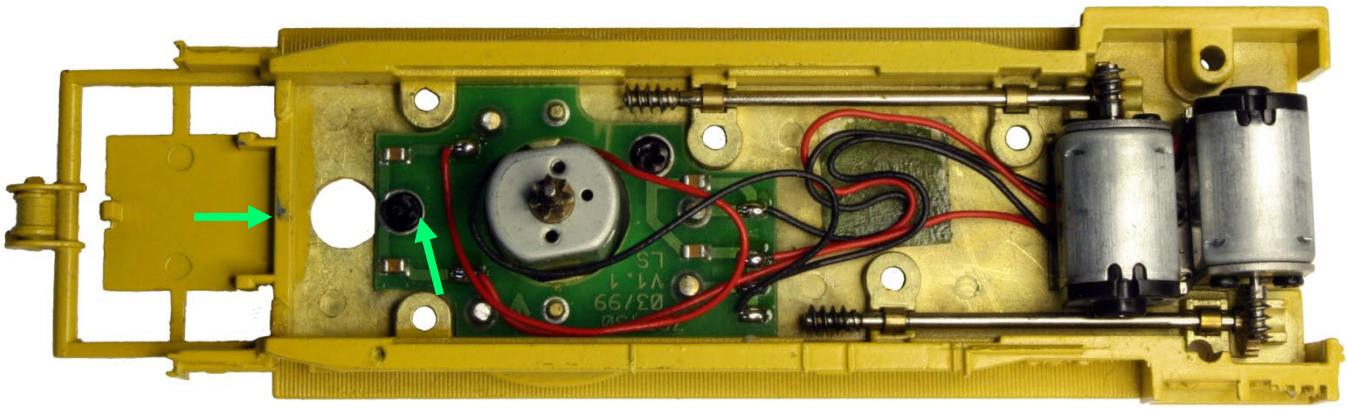
Carefully raise the PCB and you will see a round plastic support ring around the motor held by two screws. Carefully note how the plastic ring is located and remove the screws. You will now be able to remove the crane housing from the base allowing easy access to all the screws that hold the crane upper body together. Make sure you put all screws and small bits in a container so you won't lose them!



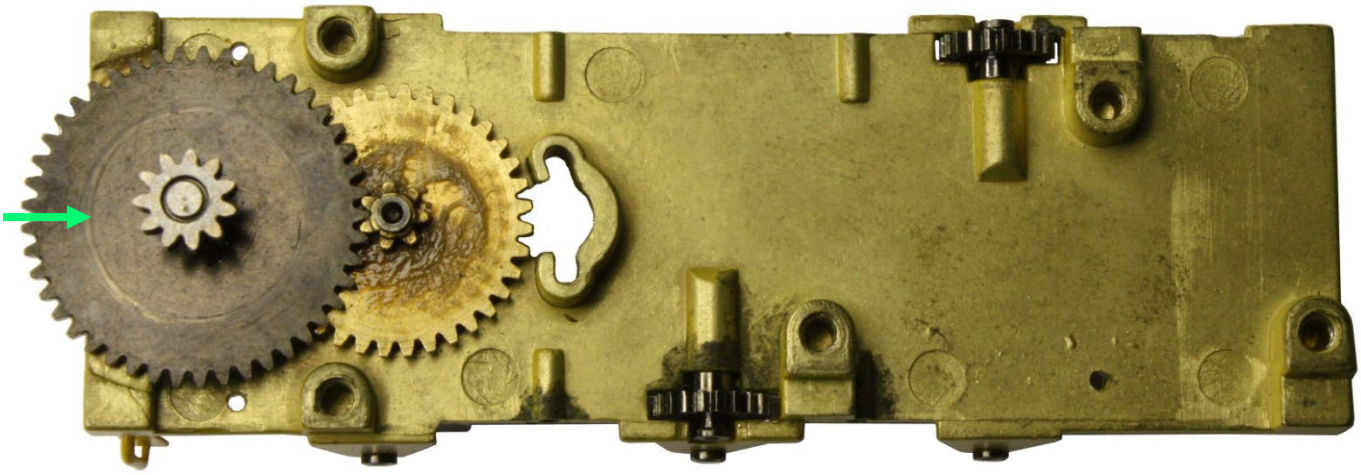
Dismantling the crane body housing proved to be a very easy task provided you do it in the correct order as follows. First at the back of the crane there are three large head screws, only remove the two outside ones and leave the middle one as this holds the motor assembly in place. Now you can remove the rear top housing by lifting it up to expose two motors, one drives the hook cable drum and the other drives the jib-drum.

The next step is to carefully unclip the cabin which also supports the crane jib. Make sure you don't tangle the cables too much.

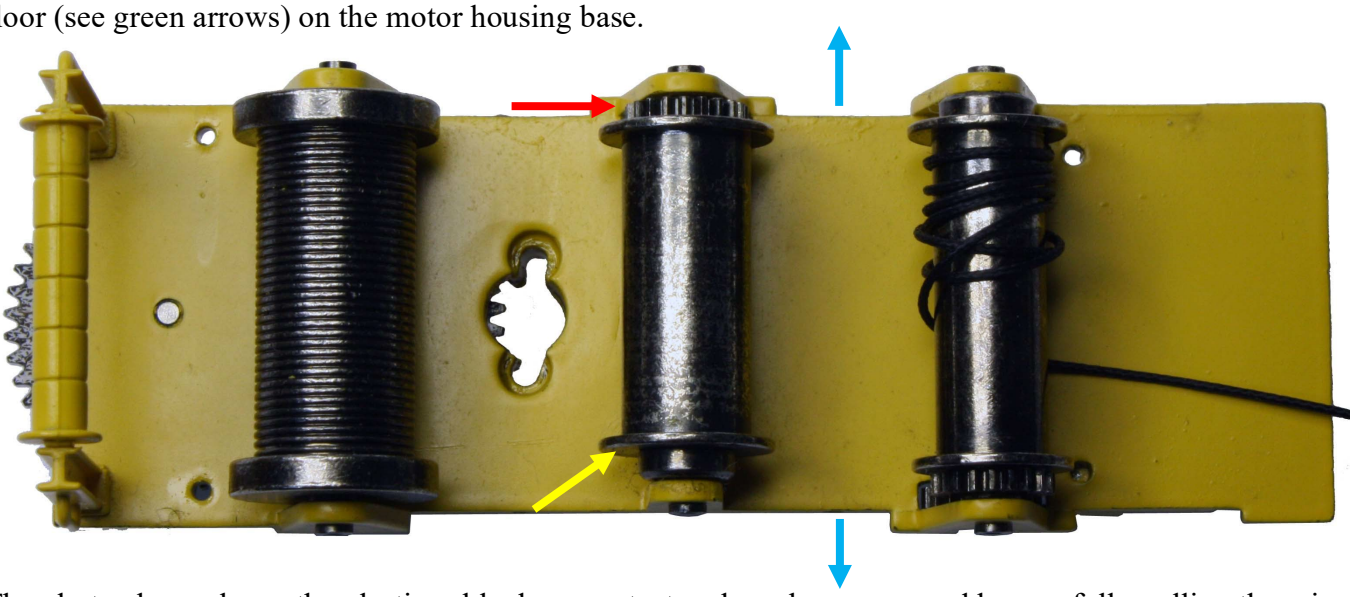
The 4th step is to now remove the five small screws on the bottom of the housing and place them in that container with the rest of the screws. Now turn the crane housing over holding the housing top and bottom sections together and remove the two very small screws close to the drive gear. These screws hold the rotation motor in place so make sure that as you remove the last screw you also hold the motor so you won't drop and damage it.



Now separate the top part of the crane housing from the bottom section by carefully pulling them apart and make sure you support the motor.
With the crane now apart the first thing that concerned me was the lack of lubrication. All photos shown where as I dismantled the crane. There wasn't any lubrication on the worm gears and mating pinion gear. The bushes that support the drive rods also lacked lubrication.



In the photo above the only grease visible was going hard and I could also see wear marks on the left gear pinion which I think is rubbing on the screw that holds the PCB and/or the mark on the body for the cabin floor (see green arrows) on the motor housing base.



The photo above shows the plastic cable drum protectors have been removed by carefully pulling them in the direction of the (blue arrows) shown. I decided that the middle drum shouldn't be removed as the mounting pins were a press fit into the drum.
I removed the hook cable by cutting off the end where it is fixed to the middle take up drum at the (yellow arrow) location. I unwound the lose end until I got to where it had jammed between the gears (red arrow). Holding the hook cable on either side of the drum gear I pulled the cable away from the gear and rotated the bottom gear at the same time and the cable came free. There was very little damage to the cable so I inserted it back into the hole at the (yellow arrow) location and melted the end with my soldering iron so it couldn't slip back through the hole. Problem solved.

Before re assembly of the crane I lubricated all the points I mentioned with white grease containing Teflon and all gears pinions that had an axle was oiled with light oil. Re assembly was the reverse order of the points mentioned. The crane now runs smoother and much quieter, so I can chalk that up as a success story.

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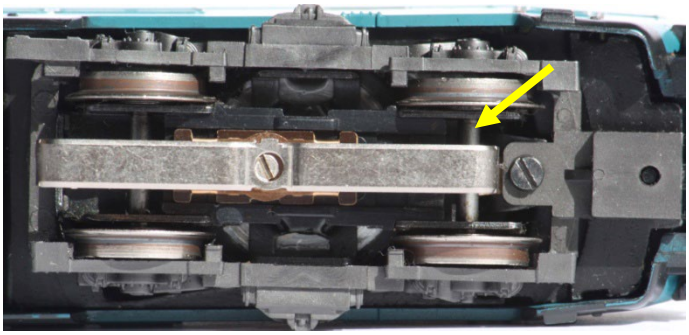
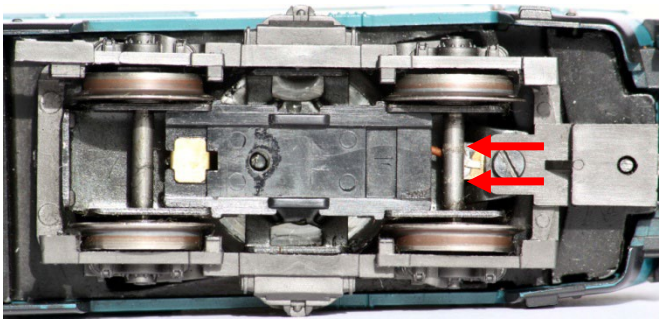
3152 Electric Class 16 05 SNCB

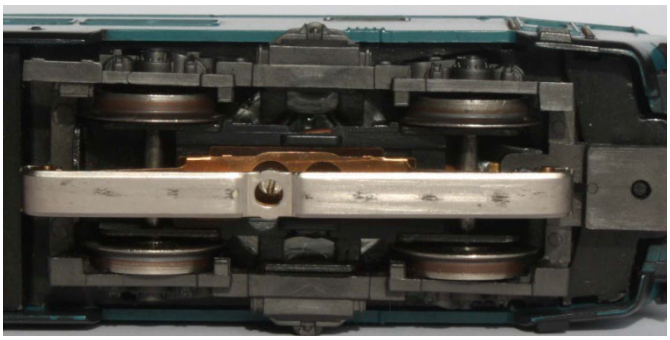
11-04-11 Poor running after a LokPilot 3.0 Conversion.

Problem: - After completing a LokPilot conversion of my 3152 locomotive I experienced jerky running when trying to profile the locomotive with TrainController. It ran ok when I ran it on the rolling test stand but not when I ran it on my layout. I found two problems, one was a short circuit and the other was a poor ground connection.

Solution 1: - The short circuit was easy to fix once I had discovered where the problem was.



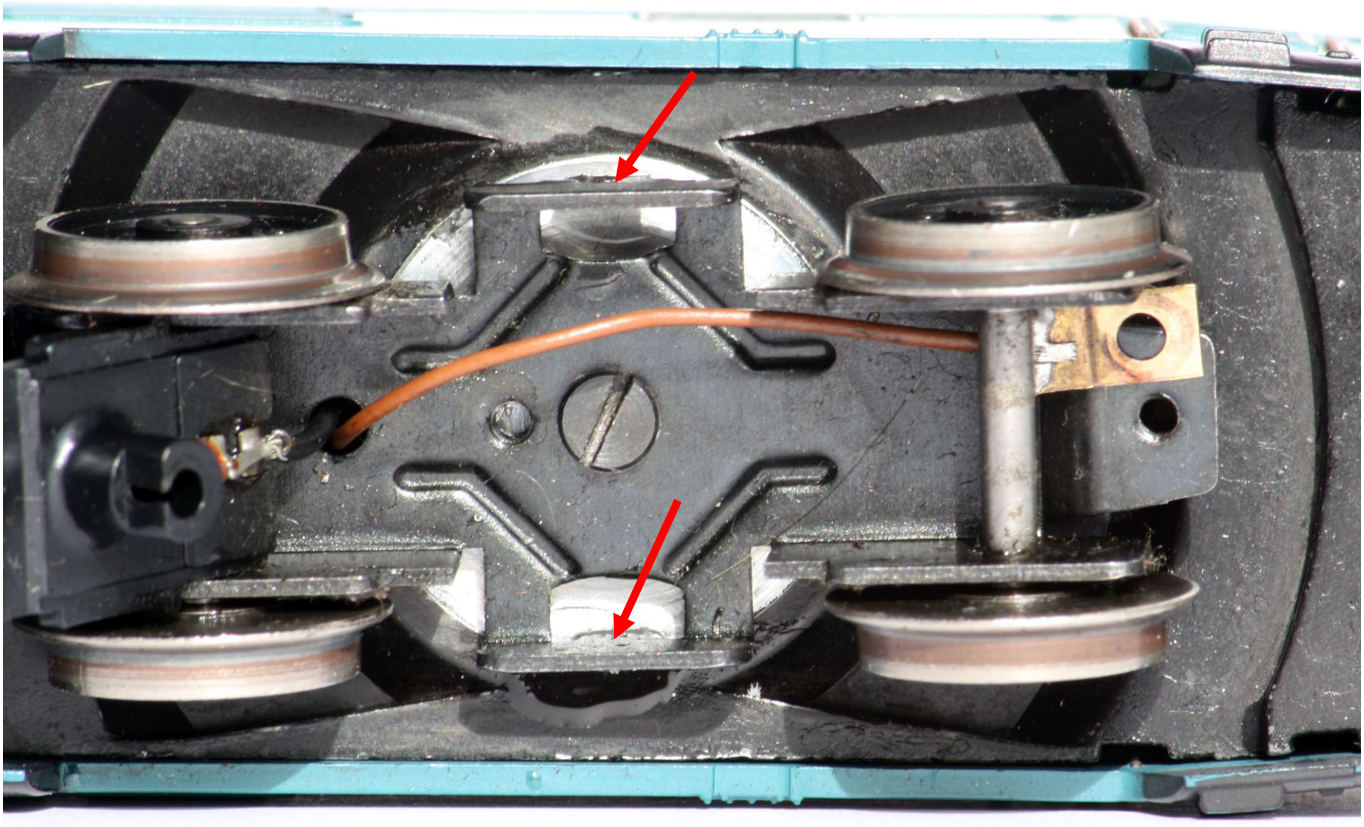




The correct collector shoe 7164 for the locomotive shown above, ends directly above the axle (yellow arrow) and was shorting on the axle at two places shown by the red arrows, you may be able to see the arc burns on the axle.

I removed the 7164 Collector shoe and replaced it with a **7185** Collector shoe and the problem short circuit was fixed.

Solution 2: - Improving the ground return also proved to be a simple solution.



First, I removed the bogie and cleaned it at the locations shown by the two red arrows. Next, I cleaned off the arc burns on the ground contact area where the bogie makes contact by using some 1200 grit wet and dry sand paper. This improved the running but still wasn't 100%.

I then decided to run a ground wire soldered to a brass contact directly back to the decoder. This is held in place by the plastic wheel cover being screwed on and firmly holding the brass contact plate against the wheel bogie, now the running was just perfect.

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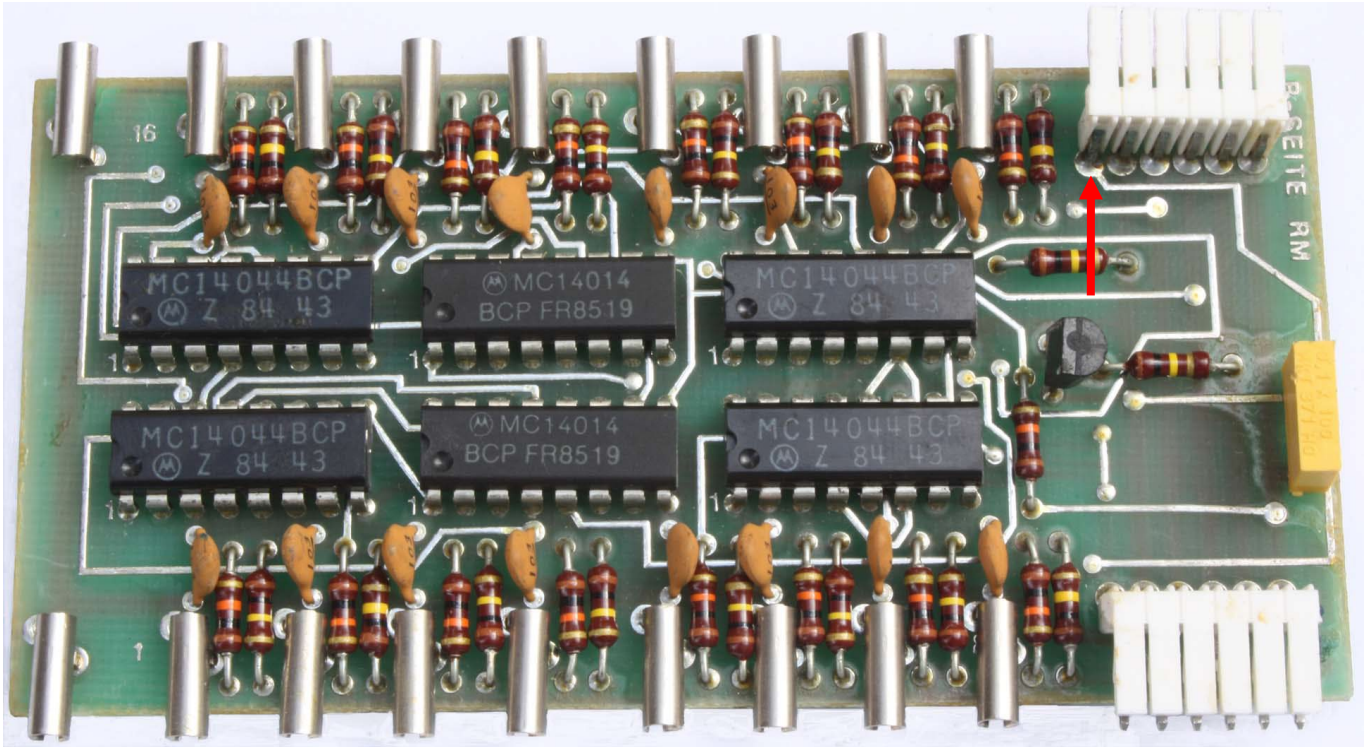
S88 Decoder Failed for the First Time

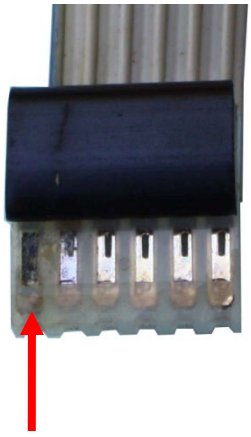
27-02-10 **Replace data cable**
18-02-10 **S88 decoder failed but it wasn't an IC.**

Problem: - While running my trains using a computer with RR&Co software, I started to have trains fail to stop or slow down. On closer inspection I noticed that the last s88 decoder in the data chain wasn't responding at all. Once I had removed the s88 decoder I discovered that the "Dataout" pin on the top connector that feeds back from the shift register to the central unit was black (see red arrow). Over the years the flux on the PCB had migrated onto the pin and tarnished it enough that it would not conduct.



Solution: - I removed the tarnish from the pin using some contact cleaner then polished the pin with some 1200 grit wet and dry sand paper. I then tested it to make sure it was working then reinstalled it back on my layout.

Today I had to replace the data cable that connects between s88 units because on closer inspection the corrosion had also migrated to the cable connector pin (see red arrow)



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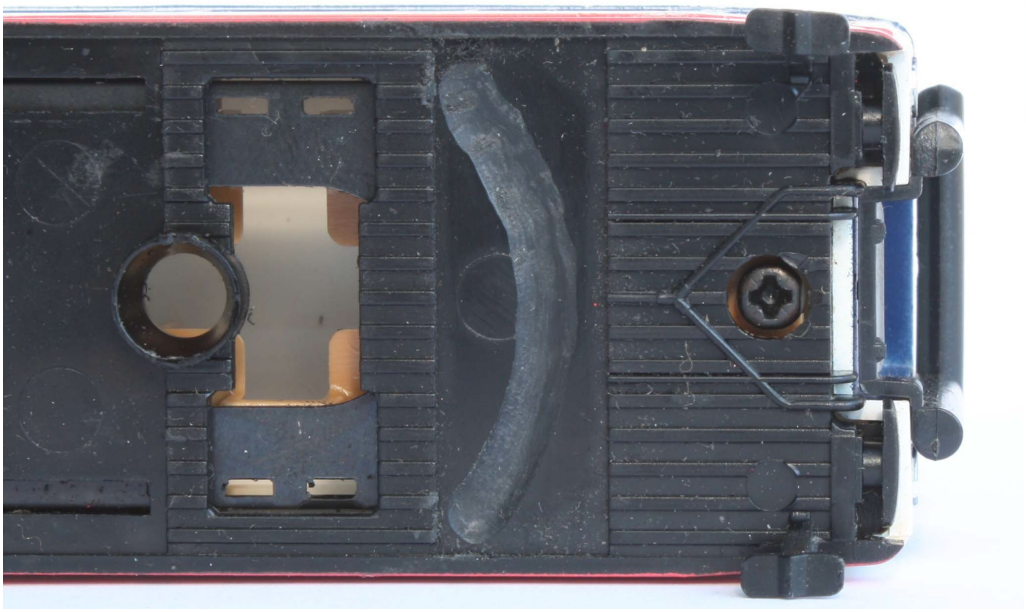
Loud Noise from "Bnp" type Passenger Coaches

19-10-09 Bnp Type coaches from the 2859 Demonstration Set and 4222 City-Bahn coach.

Problem: - After many years of running these coaches, they started to produce a very loud noise and on further investigation I discovered that the wheel flanges were rubbing on the underneath of the coach.

Solution: -

I removed the bogie assembly from the coach with a strong pull and could see where the wheel flanges had been rubbing.



With my Dremel tool set to a slow speed I used a HS cutter #114 and traced over the rubbing marks and gouged a shallow clearance groove as shown.

I reassembled the bogie to the coach, applied some Woodland Scenics HL 657 white grease with Teflon to the axle bearings and the coaches were as good as new again.

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Broken Coil Wires 7549 Point Motors (1st and 2nd generation)

05-09-15 7549 Point coil magnet has broken wires from coil to solder pad location.

Problem: - This is the third time I have encountered this problem where the movement of the coil has caused wire fatigue and the wire has broken off from the solder pad. Good observation of the point motor is required to find the fault.

Solution: - In all cases the wire has been long enough that I have been able to resolder the wire to the correct solder pad and get the motor operational once more.

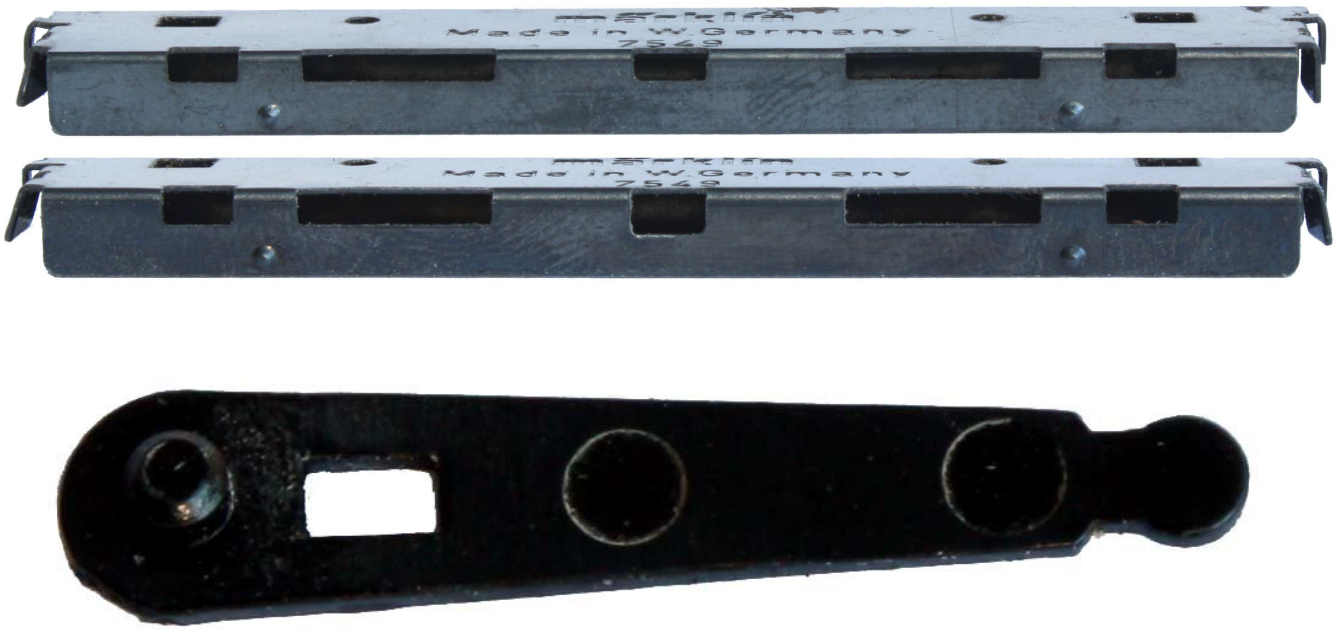
Jamming/Stiff 7549 Point Motors (1st and 2nd generation)

19-10-09 7549 Point motors very stiff or jamming after years of use on the layout.

Problem: - I was getting derailments at points which sounded normal when switched but failed to throw the full distance. On closer inspection I found the point motor was the culprit as it was very stiff or in some cases it would jam half way through its throw. The cause was the actuator was binding with the metal body of the point motor.

Solution: -

I disassembled the point motor and using a miniature flat file modified the size of the hole in the metal body.



The top metal body is before modification and the body below it shows that the middle hole has been enlarged by 0.5mm in the downward direction, compare with the other holes to see it's not much.
Next, I had a good look at the actuator and noticed the flash at the location of the round ejector marks. Using 1000-1200 grit wet and dry sand paper I removed all the flash and reassembled the point motor. For good measure I also puffed in some Labelle 134 Teflon lubricating powder around the actuator and the result was a like new point motor that switched with a very positive click. As I service my point motors to clean the electrical contacts, I'll make sure I also do this modification.

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Special Options for the Intellibox and 39970

17-04-09 39970 Catenary Maintenance Car options caused running problems with other items.

Problem: - Uhlenbrock advised to change the Special Options to the following settings so the FX decoder would work. At the time I was pleased that my new locomotive functioned well.

902 = 16 (Default = 12)
914 = 40 (Default = 18) See tip **39970 Extra functions** for full article.

Yesterday I was trying to run my 7651 digital crane and a few locomotives that had 6080 type decoders and discovered that they ran poorly or not at all. My first thought was the decoders were deteriorating and needed replacement, but on further investigation I found the following.

1. Locomotives run poorly at half their original speed using Motorola-old for the loco address.
2. 7651 Crane, only the light function worked, not motor control via F1 and F2

Part Solution: - I found that if I switched the locomotive address to Motorola-new the locomotives with 6080 type decoders would run ok, but the results for the crane remained the same.

Full Solution: - After a lot of experimentation with the two Special Options mentioned I found that by setting the Special Options to the following.

902 = 12 (Default = 12)
914 = 40 (Default = 18)

1. The locomotives with 6080 type decoders worked well using Motorola-Old for the loco address.
2. The 7651 digital crane, now worked using Motorola-old for the loco address.
3. My 39970 Catenary Maintenance Car worked well using Motorola-New for the loco address.

I'm pleased I can run all my locomotives once again, have fun with your trains.

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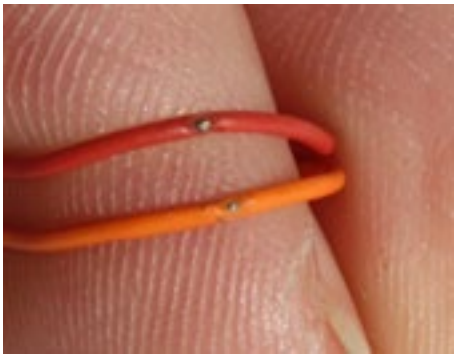
37265 BR ET87 Electric Railcar

08-04-09 Poor running and short circuits

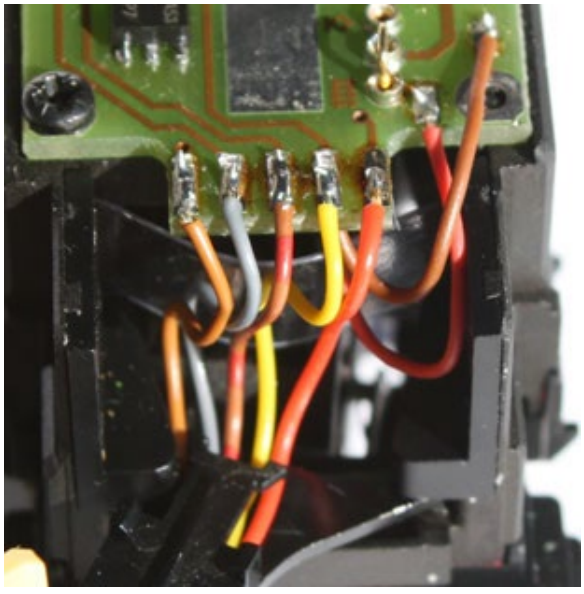
A friend asked me to fix/improve his Railcar

Problem: - The interior lights had failed to switch on with the F1 function and the railcar ran with a jerking motion. Once I had removed the body shells of the locomotive, I found that two wires had short circuited with the drive shaft on the driving bogie. The insulation on the wires had been removed by rubbing on the rotating drive shaft. The red wire was the F1 function and the orange wire is the + supply for all lights.



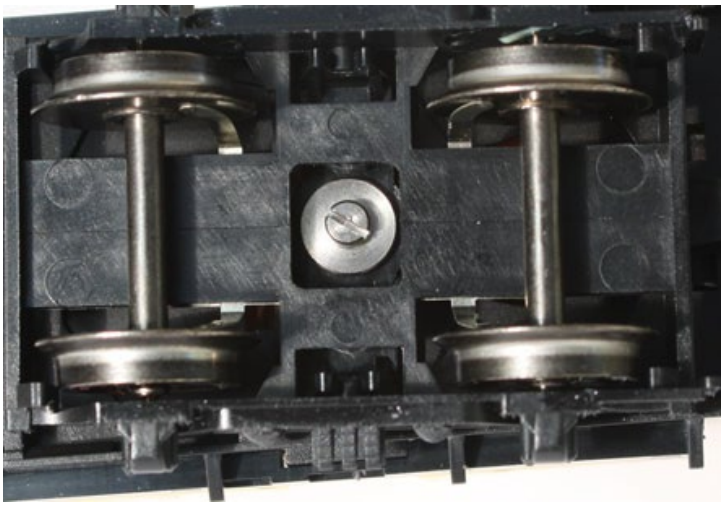
Next, I noticed that the bogies at each end of the locomotive only had one wheel contact that brushed on the side of the wheel flange, as the axle has some side way movement the contact wasn't in constant contact with the wheel flange and created a poor ground return for the locomotive. I think this is a two-rail locomotive design that has been adapted to run on three rail systems (Trix – Märklin)

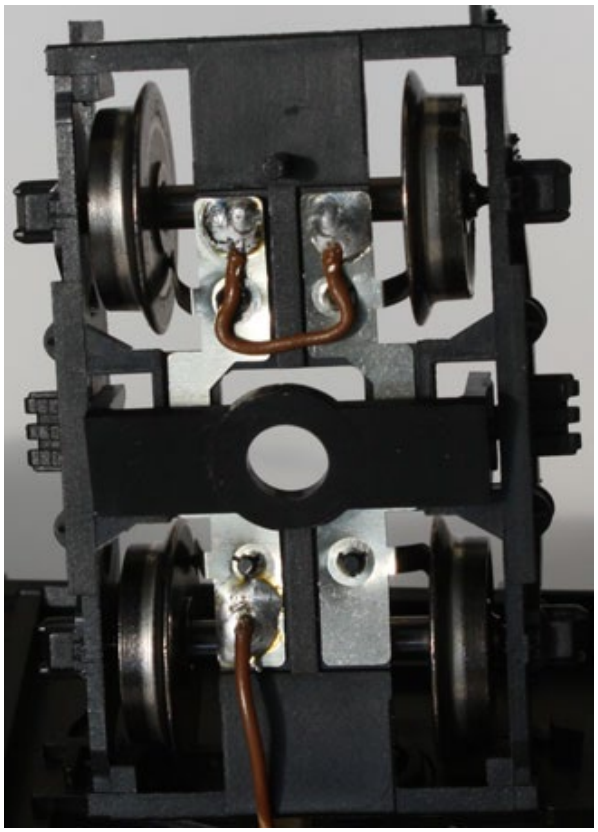
Solution: - First, I replaced the damaged wires and the AS3 transistor on the circuit board. To stop the motor shaft rubbing on the wires, I cut some clear plastic into a rectangle 21.5x9x0.3mm (LxHxT). Because the plastic is longer than the space it was inserted into it formed a nice bow, allowing the motor shaft on the driving bogie to swing freely and form a barrier so the wires were protected. I also used another plastic strip at the motor end to create the protective barrier between wires and motor shaft.



Once the major problem of short circuits was resolved I addressed the poor running problems. I noticed the transmission gears and wheel axles had no lubrication so as I had the locomotive apart, I applied white grease to the gears and light oil to the axles and gear pins.

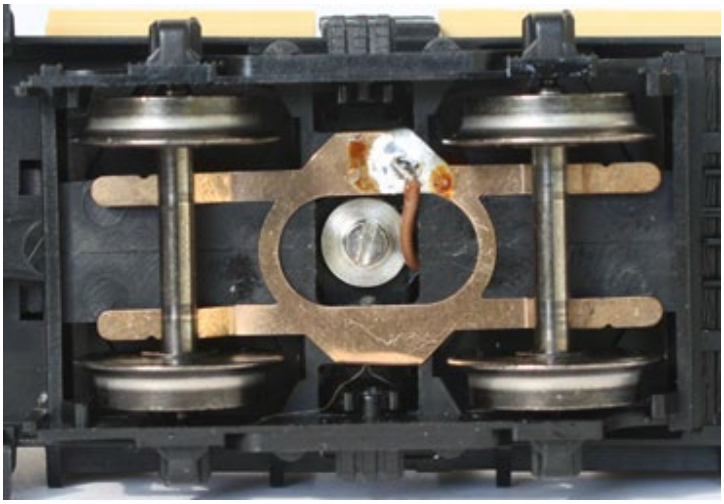
Now it was time to address the poor grounding on the end bogies. I removed both end bogies, and removed the wheel contact from one bogie and fitted it to the other bogie, now the wheel flanges would self-centre between the contacts and not loose electrical contact at all.





On the top of the insulated contact strips, I soldered a wire across the two strips and soldered the existing brown wire to one of the contact strips.

On the other bogie I used a 72050 Ground spring that I had spare which was just right to provide a good ground connection for the other bogie.



I next tested my changes/improvements. The F1 function now switched the coach lights on and the locomotive ran smoothly. I'm sure my friend will be pleased he now has a locomotive as it was intended to run.

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3676 Diesel Railcar Class 628

15-01-08 Cabin lights were very dim, in the unit which holds the motor. Modified 23-03-12

Problem: - Over time I have noticed a gradual decline with the brightness of the cabin lights where the motor is housed. The rail car has been run on a regular basis since 1989. Once I had removed the body shell, I was able to remove the interior seat details and to my surprise the entire cabin was covered in fine black soot which cut down the reflections of the cabin lights making the cabin very dim.

Solution: - I removed all the window inserts, driver's cabin, and light diffuser and washed them in warm water with a little detergent. I dried all the parts and re assembled the body shell. The cabin lights are again equal in brightness in both units.

> See 3676 LokPilot conversion for more improvements.

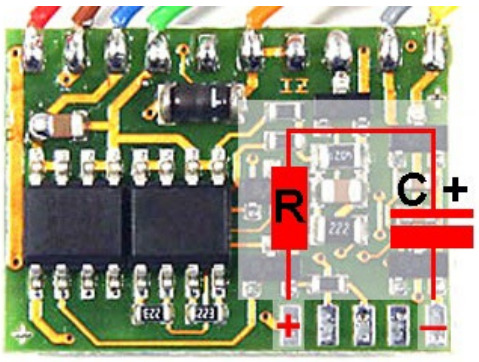
Decoder 60760

05-06-07 A bad experience with 60760 Märklin decoder.

I chose this decoder to convert the T5 loco in the 2857 set as it was small and I only wanted the inertia control and a lower speed to improve the running with no extra functions. The conversion was straight forward.

Problem: - The main problem was the locomotive ran very poorly without acceleration/breaking delay being set and even worse with the acceleration/breaking delay being set. Every time the loco encountered a power interruption the inertia would start from zero again.

Things I tried: - First I tried to improve the ground connections by wiring the pony wheels front and back to the same ground connection that the decoder was wired to, not much improvement found.
I then tried the modification suggested on www.x-train.de to cure the Alzheimer problem by fitting a 10k resistor and a 1000uF electro cap as shown. This mod didn't seem to help as the loco inertia would start from zero again after every power interrupt.



Frustrations: - (just a few) The programming of the CV's (a total of 3) was a problem as Märklin don't state the default settings so I tried a large change to see the results then refined this by halving the last entry until I came close to the correct setting. All in all, this was a very time-consuming process.

Solution: - There is none for this decoder that I can find. I have since pulled out the decoder from the loco and replaced it with a 6090 Decoder that a friend no longer required. My loco now runs like a dream.
I will probably use the 60760 Decoder as a lighting decoder only at some further date.

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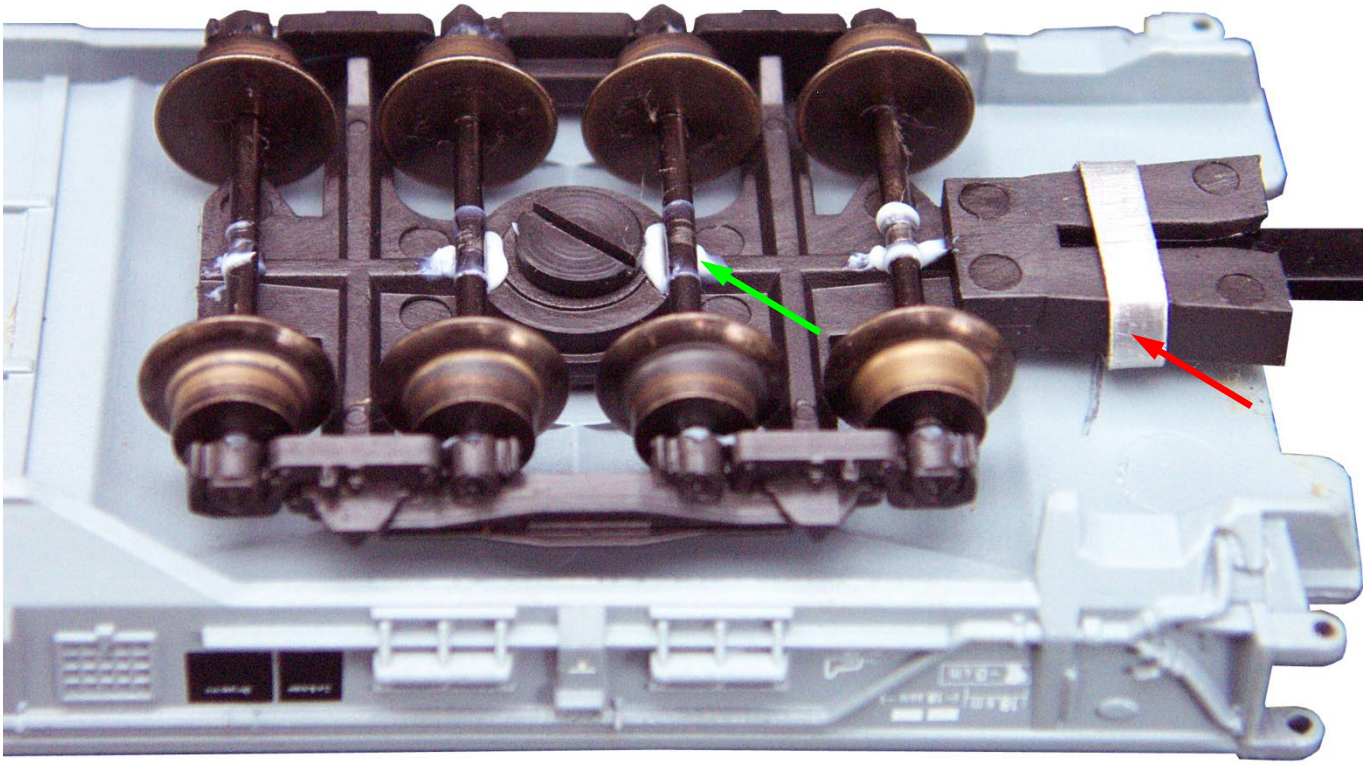
Rollende Landstrasse Train

12-03-07 "Rollende Landstrasse" train consisting of the slumber coach (4232) and six depressed floor flat wagons (4740, 4741, 4796, 4797) started to uncouple between flat wagons and also just started to uncouple the slumber coach from the loco when on a curve going up a grade.



Problem: -

1. Because the flat wagons are all metal and heavy the train started to come apart when going up grades because of the poor coupling design.
2. With a lot of running and normal wear the slumber coach with six flat wagons behind started to uncouple from the loco when the train was climbing a curved grade.

Solution: -

1. I had some flat metal strips which I bent around the coupling to squeeze it together to create a tight grip on the coupling to stop it coming apart (see red arrow).
2. I always lubricate my trains and found that the axles of the flat wagons had started to touch the body of the bogie in the centre of the axle which created more drag on the entire train, just enough to roll the slumber coach over in the curve and uncouple the train from the loco but not enough to leave the tracks. I used Woodland Scenics (HL 657) white grease with Teflon to lubricate the centre of each axle and the problem has gone away (see green arrow).

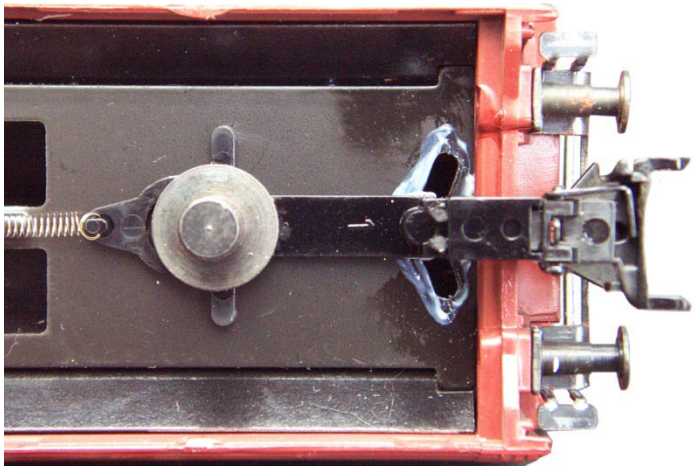
Tip: Strange Happenings Log Part 1

Start Date: 27-02-07, New 16-01-2024 Last Entry 1/02/2024

Jamming Couplers

27-02-07 Coal wagons from the 4824 RAG Ruhrkohle AG Set x5 Wagons, a total of 15 wagons started to derail after many years running around the layout. In many years to come this may apply to the "Langer Heinrich" 26536 ore set and the 46255 extension wagons.

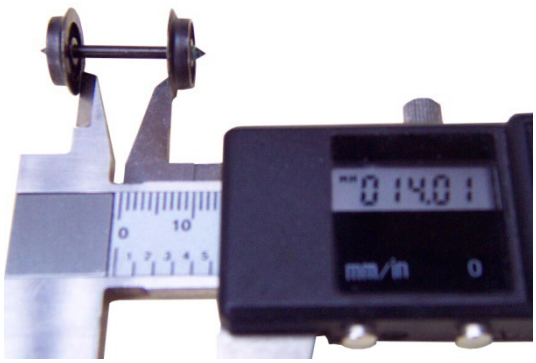
Problem: - Couplings started to jam and throw wagons on any radius curve, this decreased towards the back of the train as the load on the couplings decreased.



Solution: - I used Woodland Scenics (HL 657) white grease with Teflon to lubricate the brass pin that moves in the slot of the close coupler mechanism.

Wheel Gauge Settings

27-02-07 Passenger coaches started to derail over points after many years running around the layout trouble free.



Problem: - The wheel gauge had decreased because of a loose wheel on axle which may have been caused by the wiping action when I cleaned the wheels many times with SR24 Modellbahnol by Hans Weiss.

Solution: - Was to correct wheel flange dimension 14.00 to 14.1mm and use Locktite to fix in place.

Tip: Strange Happenings Log Part 1

Start Date: 27-02-07, New 16-01-2024 Last Entry 1/02/2024

Collector Shoe Problem

27-02-07 The coach lights of the Panorama car with Waiter (4999) failed to stay on as the coach moved around the layout. I cleaned the wheels, track and collector shoe, no improvement was noticed.

Problem: - After much trial and error, I determined that the collector shoe was to blame. The bronze spring had caused arcing burns to the slider of the collector shoe.

Solution: - I used Electrolube PL-64X from Peco Lectrics between the spring and the slider of the collector shoe (see red arrows), this ensured a continuous electrical connection. It may be interesting to note to use this fix where ever a collector shoe is required that has been used for a long time.

Tip: Strange Happenings Log Part 1

Start Date: 27-02-07, New 16-01-2024 Last Entry 1/02/2024

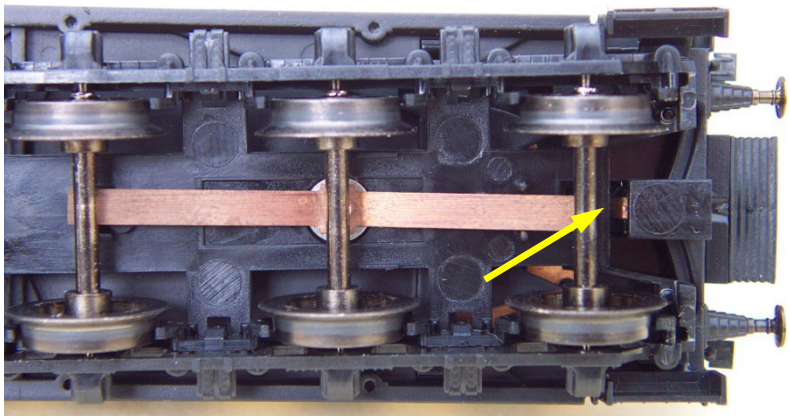
King Wilhelm Potential Short Circuits

17-06-07 Revised Format changed to PDF and photo added
14-08-1999 Originally sent to the Märklin Mailing list.

Last weekend I decided to check out some of my rolling stock which doesn't see the light of day, and discovered a problem with my King Wilhelm (2681) set.

Problem: - I had coupled all the coaches together and turned on all the functions only to find that 2 coaches weren't working. I turned the power off quickly and on closer inspection I found that the copper contact in the coupler pocket had been pushed back so far that the current coupling draw bar was unable to make contact with the copper contact in the coupler pocket. The other contact had come loose from the coupler pocket and was touching the copper ground wheel pickup causing a short circuit

Solution: - I managed to disassemble the two function coaches, straighten the copper contact that goes into the coupler pocket and superglue it back into position in the pocket. Alas I wasn't quick enough to save an output transistor, so I also had to repair the decoder and replace the output transistor. With the wheel contact spring I also trimmed it back so it was as short as possible, to avoid further shorts (see yellow arrow).



A word of caution if this happens to you, make sure you don't dislodge the coupling spring wire which centres the coupling because if this comes loose it will most certainly cause a short circuit as the electrical contacts are very close. So, in closing if you have rolling stock which has the current conductor couplers make sure you inspect how they have coupled together and that the coupling self-centres as this could save you some damage to your most precious rolling stock

s88 Contact Repair

19-06-07 PDF format
08-12-01 HTML format

How many of you have an s88 module which has a bad contact?

If you suspect you have, test for this problem by leaving all contacts for the s88 module unconnected and just connect the flat ribbon cable to the interface or Intellibox. Display all contacts for the module using a computer program such as c80prox or monitoring the contacts using the Intellibox, any bad contacts will show up as being switched/made.

To date I have found that the 10n capacitor is the cause of the problem. Just remove the suspect capacitor for the contact and replace it with a new one. I have never had to replace an IC yet.

Tip: Strange Happenings Log Part 1

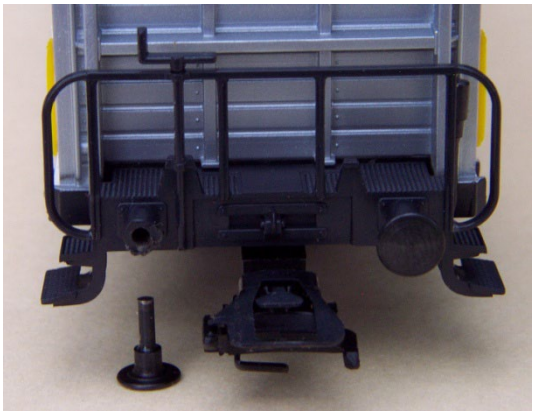
Start Date: 27-02-07, New 16-01-2024 Last Entry 1/02/2024

Buffer Lock Problems

17-06-07 Revised	Format changed to PDF; Photos added
24-11-01 Revised	Picture and 460 Class buffer lock added, 360mm minimum radius added to layout.
19-01-1997	Originally sent to the Marklin Mailing list.

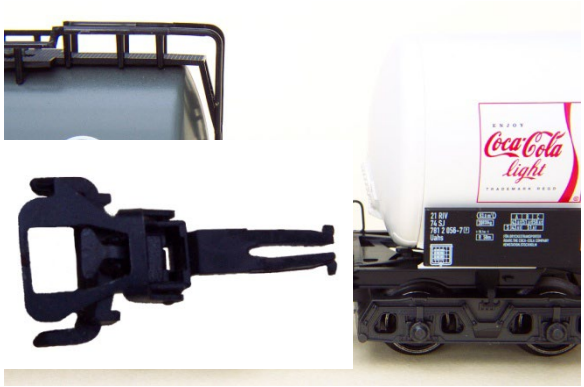
On my layout the 424.6mm radius curves on a hill grade caused a train consist going in a downward direction with all the couplers in compression to derail. I had encountered buffer lock which then derails the entire train consist because of the NEM close couplers.

Buffer lock problem 1: - The offending wagons are the Swiss Hbis long wheel base with large overhang eg. 4735, 4834 4835



Solution to problem 1: - There is a metal buffer inserted in the plastic base part of the buffer. I removed the metal insert as it is only a press fit into the plastic and filed .5mm of each plastic part of the buffer then reinserted the metal buffer insert. This mod isn't noticeable even on close inspection.

Buffer lock problem 2: - The offending wagons are the long double bogie tank wagons and the short wheel base tank wagons. eg 4644 and 4758. Left photo below standard coupler distance, right showing increased distance after modification.



Solution to problem 2: - Remove the close couplers on the short wheel base wagon. Using spare part 26 3730 (close coupler used on several locos) cut off the pivot stubs and trim the plastic spring back to about 1mm in length. Then using a fine saw cut a slot about 5mm down the stem of the coupler (see below).

Insert modified coupler into the coupler pocket. The 26 3730 coupler is about .75mm longer than the 70 1630 standard close coupler, just enough to overcome the buffer lock.

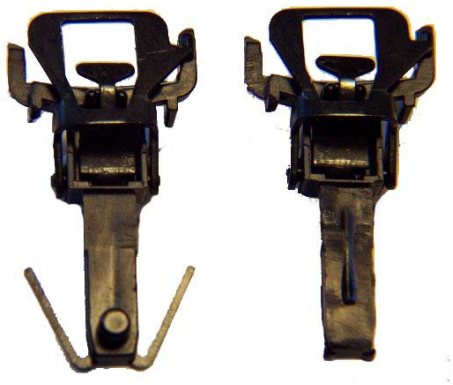
Tip: Strange Happenings Log Part 1

Start Date: 27-02-07, New 16-01-2024 Last Entry 1/02/2024

460 Class Buffer Lock

Problem: - On a 360mm radius curve the 460-class loco would derail the trailing wheels of the first coach. It would flick the coach off the rails as the loco entered the curve. I noticed that the couplings caught on the buffers and wouldn't allow full movement of the couplings.

Solution: - First, I removed the buffers form the loco, this worked but didn't look very good. I next tried a current conducting coupler, this worked but is no good if you don't want a fixed train composition



Using spare part 26 3730 (close coupler used on several locos) cut off the pivot stubs and plastic springs. File the pivots and springs flat then insert the coupling into the coupler pocket. The fit should be tight. Next adjust the length approx. 1.8 to 2.2mm longer than the standard coupler. This extra length will just clear the rear of the coupling from the buffer and looks fine.

Fix Close Couplers without Glue

18-06-07 Format changed to PDF
10-10-1996 Originally sent to the Märklin Mailing list.

With the increased use of 6090/609xx motors in a double/triple/quad heading on my layout I have had a lot of trouble with the close couplers pulling out of the coupling pocket.

Problem: - With multiple heading of locos if one loco had a power interruption or wasn't speed matched to the other locos, the close coupler would be pulled free of the uncoupling pocket.

Solution: - Shave a match stick or some other wood into a small wedge and from the rear of the coupling pocket insert the wedge into the close coupling where it is split to grip on the side of the pocket.

Note: -

- You may have to remove the coupling mechanism from the loco to carry out this modification.
- Also, no glue is required, so at any time you can restore it to its original condition.

As always have fun with the hobby.