Instruction manual

Attention !
Miniature Neodym-magnets
are used in this product !

H0-rail and overhead catenaries beveling wagon

Art.-No. 9130, 9131 and 9132

with automatic start/stop-function SSF-09, Faulhaber[1]-motor and 4 point current pick-up. Itususable on analog and digital layouts.

Attention:
Please handle the wagon only at the chassis. The superstructure is only plugged on! Not suitable for children under the age of 14 years because of functional and model induced sharp edges and points. There is the danger of swallowing small parts. Please keep the instruction manual. Please observe the attached safety advices for the use of magnetic materials.

AGE 14+

Function:
The H0 - rail and overhead catenaries beveling wagon removes from your track layout:

- Hardened oil and dirt residues
- Abrasions of the traction tires
- Oxidation at the rail head and the overhead catenaries

Therefore the operation hours of all rail vehicles can be increased considerably. Especially inaccessible portions like tunnels, shadow stations and tracks with overhead catenaries can be cleaned without any problems.

Operation advice:
The H0-rail - and overhead catenaries beveling wagon is supplied with electricity by the rail current and can be pulled or pushed by all of-the-shelf engines. It does not have a drive mechanism on its own. Due to the integrated voltage control system the operation of the cleaning wagon is possible as well on analog as on digital controlled layouts.
The wagon is equipped with a short coupling kinematic and a NEM coupling duct.The cleaning system is driven by a long living and service free bell anchor motor (Faulhaber[1]).The revolution speed of the cleaning system cannot be changed.
The current pick up is achieved by 4 point pick up contacts at the wheels respectively by mid-point pick-ups at the boogie of the wagon.
The automatic start-stop function SSF-09 is controlled by the movement of the wagon. If the wagon is moved on a current supplied rail the cleaning system is switched on automatically. If the cleaning wagon comes to a stop (e.g. before a signal) the cleaning system is switched off automatically.
The integrated electronic control provides 5 Volt DC for the motor of the beveling unit as well as the rechargeable battery. This battery buffers the current supply for the beveling motor if interruptions of the power supply occur from the rail (e.g. dirt coverage). Thus the cleaning operation of the rail and overhead catenaries wagon is continued even on short powerless parts of the track.

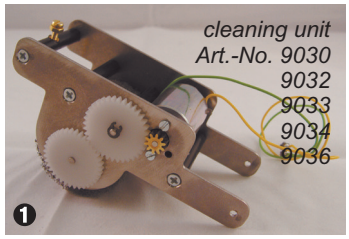
The high revolution radial cleaning technique runs rotating over the rail head. The height regulation of the cleaning unit is controlled by an adjustable screw with a counter nut (picture 1 and 2).

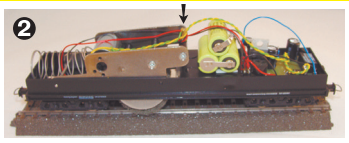
The fibers of the cleaning rotor should just barely touch the rail head (picture 3). If the height of the beveling rotor is adjusted to low (normally the wagon should not run on its own) the result can be diminished cleaning success or the control unit will switch off the system.

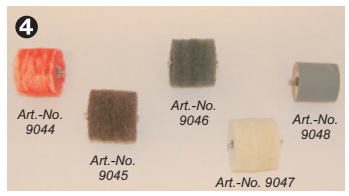
The drive block is mounted one sided on the chassis and therefore it can react easily to level differences of the rails. For optimal cleaning results we recommend that the drive (gearbox) is located on the inner rail in curves.

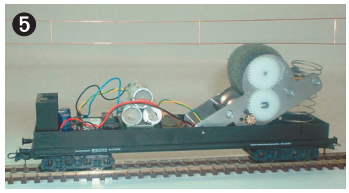
The different cleaning rotors (see picture 4) assure the optimal cleaning results at the railhead with minimal friction. The mainly soft cleaning material surrounds lightly the rail head and therefore even cleans the critical inner flange of the rail. If the rotors are saturated by dirt they have to be changed.

To clean the overhead catenaries the driving unit has to be turned by 180° and with the included pressure spring adjusted spring loaded to the overhead wire. (See chapter: Cleaning of the overhead catenaries und sketch).









Several materials are available for the cleaning operation:

Art-No. 9044 H0-RP11 Cleaning and high gloss polishing rotor especially suitable for removing hardened dirt residues from the rail head.

Art-No. 9045 H0-beveling rotor suitable for removing hardened dirt residues of any kind from the rail head and the mid-point conductor. **Attention:** This rotor has a grinding effect!

Art-No. 9046 H0-polishing rotor, the surface is consisting of a synthetic fleece with 1500 grain effect. It is suitable to remove hardened dirt residues and oxidation from the rail head.

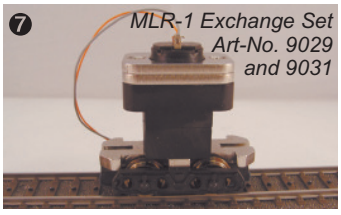
Art-No. 9047 H0-felt rotor which is made out of white hard pressed felt. It is suitable to remove films of oil and grease on the rail head. To soften very resistant dirt layers it can be soaked with a fat-dissolving fluid if applicable.

Art-No. 9048 H0-overhead catenaries polishing rotor covered with beveling linen (1500 grain).

When ordered the rail and overhead catenaries beveling wagon will be delivered with the polishing rotor Art-No. 9046.

To augment the H0-rail and overhead catenaries beveling wagon we offer:

- H0 scrap collector Fe2 suitable to collect iron containing parts (nails, screws, shavings etc.) from the whole track area (see picture 6).
- MLR-1 mid-point cleaner suitable especially to clean the mid-point contacts (see picture 7).

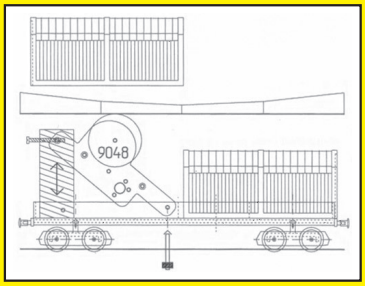


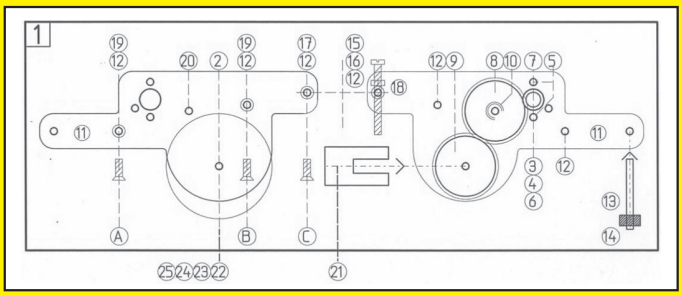
To start the operation: activation of the cleaning technique:

- Put the wagon on the rails
- Couple it to a slow moving engine
- Turn on the controller
- Move the rail and overhead catenaries beveling wagon over the rails. (**Attention:** When you switch on the current, the unit will start for a short period of time and will switch itself of after a couple of seconds).

Cleaning the overhead catenaries:

- To clean the overhead catenaries you have to remove to housing of the wagon
- Remove the driving unit from its mounting by pushing out the pivot bearing shaft (see sketch) towards the side (please observe the rubber distance holder at the side where the cog wheels are - its only plugged in)
- Turn the driving unit by 180° that the beveling rotor is pointing upward.
- Adjust the cables under the driving unit that they lead to the control electronic.
- Mount the driving unit in the middle drill holes of the chassis wall. (Important: Put in again the rubber distance holder at the side of the cog wheels).
- Put the rear distance tube into the upper receptacle of the included coil spring (see the following sketch).
- Turn the coil spring continuously till the cleaning rotor is slightly spring loaded touching the overhead wire.



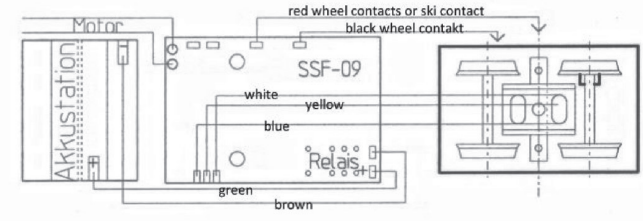


Exchanging the cleaning material:

- Remove the housing
- Take the driving unit out of the chassis mounting by pushing out the pivot bearing shaft towards the side (please observe the rubber distance holder at the side where the cog wheels are - its only plugged in)
- Open the driving unit block opposite the gear box (outer covering without cog wheels) with a screwdriver (3 screws see sketch spare parts beveling unit No. A/B/C)
- Pull the used cleaning rotor off the plugged in cog wheel on the opposite side and replace it with new one.
- After exchanging the rotor remount the outer covering to the driving unit block and press the cog wheel onto the drive shaft. **Please observe** that there should be a small gap of approx. 0,2 mm between the outer covering and the cog wheel (e.g. thickness of a sheet of paper). After completion of the exchange you should be able to easily turn by hand the cleaning rotor on the driving unit.

Servicing and maintenance:

- Replace regularly the cleaning material - washing or cleaning can lead to distortion
- Regularly clean and apply a drop of oil on pivots points and driving elements, cog wheels, bevel etc. (**Attention:** Don't put too much oil on the pivot points).
- Regularly clean wheels, wheel pick-up points and ski pick-ups. Important! Observe the short cut free positioning of the wheel contacts at the boogies. The contacts should touch the wheel flanges slightly spring loaded.
- **Tip:** To achieve flicker free and wear and tear free conductivity clean all current leading metal parts on the boogies (if applicable on the chassis) regularly (e.g. with LUX-contact oil Art-No. 8887 or LUX-contact cream Art-No. 8886).
- **Attention:** Don't remove or misalign the activation magnets at the wheel set (see sketch).



Connection plan for Art.-No. 9130,9131,9132, 9136 and 9137

Trouble hunting:

Cleaning drive blocked

- Check function of cog wheel at the drive unit. You should be able to turn easily by hand the cleaning rotor in the drive block of the beveling wagon. If you can turn the cleaning rotor only to a certain position the gear box (cog wheel) is soiled at the teeth flanges and it has to be cleaned. If larger dirty grains on the cog wheel are blocking the gear box brush it with fine brush (toothbrush) or get the dirt out with the aid of a pair of tweezers.

Motor does not run:

(The cleaning rotor can be turned easily)

- Make sure that the permanent magnets on the wheel axle turn with the axle.
- Check the contact pressure of the wheel flange pick-ups, the wheels should turn easily by hand.
- Check the conductivity of the connecting wires from the wheels or mid-point connector to the control circuit board (by means of a multi

functional volt meter one should check the conductivity between the pick-up and the appropriate soldering point at the circuit board).

The cleaning unit produces an increased noise level:

- Put a drop of oil on all turning parts of the gear box (cog wheels and shafts) as well as the shaft holding the cleaning material. (**Attention:** don't put too much oil on the bearing shaft). DON'T put oil on any part of the motor.
- Check the free movement of the coil spring for the overhead catenaries cleaning system especially close to the motor (it should lay freely in the chassis)

Battery operation:
The integrated rechargeable battery - charged by the rail current supply - buffers the cleaning system in case of interruptions of the power supply from the rail. Attention: Please observe the correct polarity of the battery station (see sketch with the plan for the wiring). Improper handling of the batteries especially wrong polarization will lead to the destruction of the batteries.

Top up battery charge with analog or digital operation:
An active beveling wagon recharges the batteries during normal operation.
If the vehicle has been deactivated for a longer time a full turned up controller will charge the batteries within 12 hrs (on the rails).

Technical Details:
The wagon was constructed according to the Norm of European model Railways (NEM).
Important: The wagon built in control circuit board protects the motor (max 5 Volt DC) from excess voltage and assures constant rotating direction of the fan. The integrated capacitors enable the operation with half wave current and impulse width controllers.

Voltage supply:	0-24 Volt AC/DC
Current draw:	approx. 400 mA.
Max. motor voltage:	5 Volt DC
Coupling duct:	according to NEM 362
Weight:	approx. 200 grams (7.05 ounces)
Length over bumper:	185 mm (7.28 inches)
Width:	39 mm (1.54 inches)
Height of rail head:	54 mm (2.13 inches)

All products are subject to a thorough final check.Changes of the construction or design are reserved.

The optimal addition to the H0-rail and overhead catenaries beveling wagon:
H0-scrap collector Fe2, H0-rail vacuum cleaner wagon, MLR-1 mid-point conductor cleaning wagon or addition and H0 wheel cleaning devises (see included flyer).

Repair service:

- Repair works
- Maintenance works
- Refit and conversion works

The small[1]:
In this flyer, products from the following companies are mentioned:
Dr. Fritz Faulhaber GmbH &Co KG, D-71101 Schönaich, Gebr. Märklin& Cie. GmbH, D-73033 Göppingen.

Information leaflets in different languages can be downloaded from our homepage or ordered by mail directly from the company.

Safety advice

For the use of magnets

According with selling of magnets as dealers we are committed to inform you as consumer about the following:

1. Liability:

Magnets have extraordinary characteristics every user has to know to prevent any damage to himself or his surroundings. LUX-Modellbau declines any liability for damages which occur due to improper handling of the magnets and other included materials. With buying the magnets you have assured that you have read and understood the safety advices and committed yourself to hand over these to a third party if you hand over the magnets to them.

2. Health protection

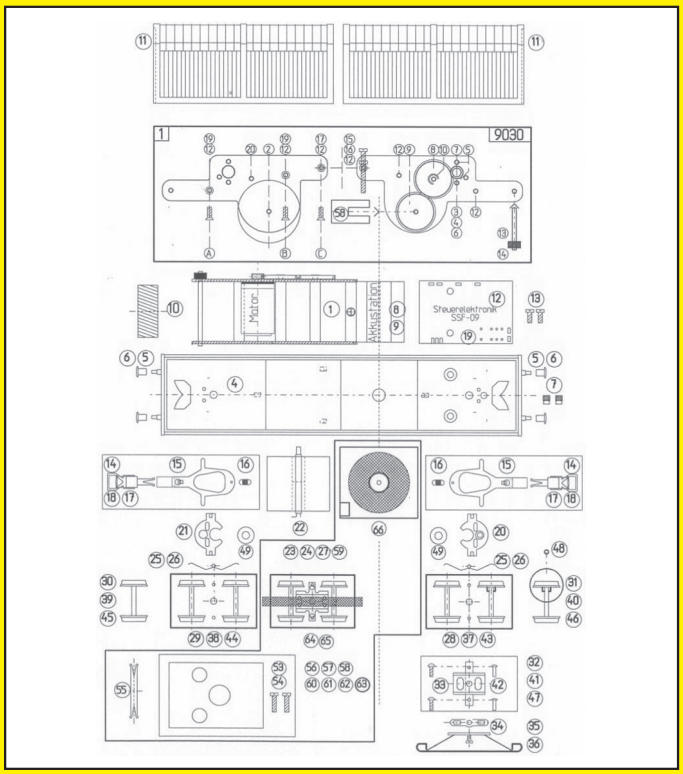
Bigger Neodym-magnets, which are presently the most powerful available magnets, can (from approx. 10 mm diameter on) induce bruises because of their enormous power. You should handle bigger Neodym-magnets only with gloves and wear protection glasses. It is the oversea liability of adults to assure that children don't suffer any damages by handling magnets. With smaller magnets there is a danger of swallowing or putting them in body openings. Magnets bigger than 10mm attract each other that powerful that the collision is not controllable and even breaking of splinters can occur. Improper handling can cause serious injuries. Many Neodym-magnets are covered with nickel. Many people react with allergies to that material. According to general and scientific finding magnets don't have negative influence to the human organism. There are even healing methods using magnetism. As with all things in life you should use sensible measures when handling magnets.

3. Material composition and processing

Neodym-magnets are produced from rare powder materials under high pressure and are covered with a thin metallic layer. The material is brittle and can easily brake or take damage to the surface if two or more magnet crash together. The basic material is inflammable. Taking of shavings is prohibited. If the magnets don't have a prefabricated hole use clue to fix the magnets to other materials.

4. Danger to electronic and other appliances

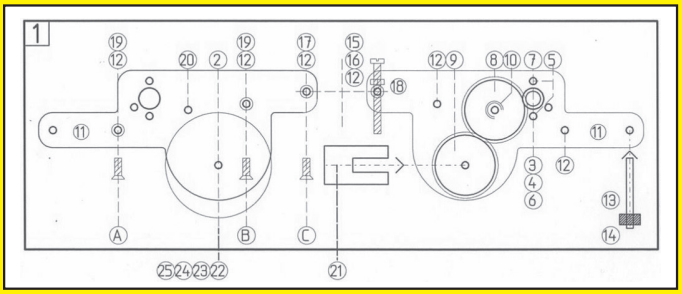
The magnet field of Neodym-magnets is very strong and far reaching. Don't put them in the vicinity of endangered appliances like television and monitors, credit cards and bank-cards, computer, computer disks and other data carriers, video tapes, hearing aids and heart pacemaker.



Spare part list for H0 - rail and overhead catenaries beveling wagon
Art.-No. 9130 / 9131 / 9132

Pos.-No.	Identifier name	Art.-No.
1	Beveling unit complete with polishing rotor Art-No. 9046	9030 000
2	Mounting instructions overhead catenaries	9010 103
3	Sketch electronic control unit	9133 001a
4	Chassis with thread inserts	9030 021
5	Bumper, single	8810 061a
6	Bumper (4 pieces)	8810 061
7	Screw thread inserts M2 (2 pieces)	9010 078
8	Rechargeable battery unit	9043 000
9	Adhesive tape for battery unit (without picture)	9043 002
10	Coil spring for overhead catenaries cleaning unit	9010 010
11	Car body top	9010 020
12	Control circuit board SSF-09	9133 001
13	Screw for circuit board (2 pieces)	8810 066
14	Coupling shaft complete	8810 059
15	Coupling shaft	8810 402
16	Spring for coupling shaft	8810 060
17	Loop and hook coupler (universal for 2R= DC and system Märklin wagons	8810 072
18	Loop and hook coupler for Trix-Express without picture - only included with Trix-Express wagon	8810 073
19	Relay	9133 002
20	Clamp ring for coupling shaft	8833 025
21	Clamp ring for coupling shaft	8833 025
22	Polishing rotor 1500 grain - not included at delivery	9048 000
23	Polishing rotor 280 grain - not included at delivery	9045 000
24	Felt polishing rotor - not included at delivery	9047 000
25	2-point contact spring -without picture, not included at delivery	8810 200
26	4-point current pick-ups for 2 boogies - without picture, not included at delivery	8885 000
27	Overhead catenaries rotor - without picture, not included at delivery	9048 000
	Pos. 28 to 36 are only included with wagons system Märklin	
28	Boogie system Märklin with motion detector, ski mid-point pick-up socket and wheel set	8833 007
29	Boogie system Märklin with wheel set and 4-point current pick-up	8833 008
30	Wheel set system Märklin	8810 043
31	Wheel set system Märklin with double magnet	8833 013
32	Ski current pick-up socket with motion detector and screws	8833 017
33	Screws for ski current pick-up socket	8833 022
34	Contact pads for ski current pick-up	8810 039
35	Ski current pick-up 50mm (1.97 inch) with screw	8810 047
36	Screw for ski current pick-up	8810 130
	Pos. 37 to 42 are only included with wagons for 2R= DC direct current	
37	Boogie 2R= DC with motion detector, mounting socket and wheel set	8833 009
38	Boogie 2R= DC with 4-point current pick-ups and wheel set	8833 010
39	Wheel set 2R= DC	8810 042
40	Wheel set 2R= DC with double magnet	8833 014
41	Mounting socket with motion detector and notched pins 2R= DC	8833 018
42	Notched pins 2R= DC	8833 132
	Pos. 43 to 47 are only included with wagons Trix-Express	
43	Boogie Trix-Express with motion detector, mounting socket and mid-point current pick up	8833 011
44	Boogie Trix-Express with wheel set and one side wheel contacts	8833 012
45	Wheel set Trix Express	8810 044
46	Wheel set Trix Express with double magnet	8833 015

Pos.-No.	Identifier name	Art.-No.
47	Mounting socket with motion detector, mid-point current pick-up and screw for Trix-Express	8833 019
48	Magnets	8833 003
49	Nylon-disks for boogie pivot (2 pieces)	8830 005
50	Operating manual - without picture	9130 100
51	Spare part list and sketch - without picture	9130 102
52	Complete packing material with Styrofoam - without picture	8810 111
	Not included with delivery	
53	Ballast board with mounting screws (for mounting under the control circuit board)	8810 074
54	Screws (2 pieces)	8810 075
55	Rigid coupler for NEM duct	8810 062
56	Wheel set RP25 (2R= DC) - without picture	8810 045
57	Wheel set RP25 (2R= DC) with double magnet - without picture	8833 016
58	Spacing template for cog wheel fixation	9010 011
59	RP-11 Cleaning and polishing rotor - without picture	9044 000
60	Beveling unit complete with beveling rotor 280 grain - without picture	9033 000
61	Beveling unit complete with felt rotor - without picture	9034 000
62	Beveling unit complete with overhead catenaries rotor - without pic.	9036 000
63	Beveling unit complete with RP-11 Cleaning and high gloss polishing rotor - without picture	9032 000
64	MLR-1 addition set system Märklin - without picture	9025 000
65	MLR-1 addition set system Trix-Express -without picture	9031 000
66	Fe2 scrap collector, magnetic addition for all H0-rail and overhead catenaries beveling wagon and all MRL-1 mid-point cleaning wagon	9028 000
67	Ballast board addition set usable with Fe2 scrap collector - without picture	9028 004
68	Operation manual Fe2 H0 - scrap collector - without picture	9028 103
69	Operation manual MLR-1 addition set - to mount into any H0- cleaning wagon - without picture	9029 103



Spare part list for the H0-beveling unit of Art.-No. 9130 / 9131 / 9132

Pos.-No.	Identifier name	Art.-No.
1	Beveling unit complete with polishing rotor Art-No. 9046	9030 000
2	Polishing rotor	9046 000
3	Replacement motor with pinion and cables	8851 000
4	Motor cable with 2-pin plug	9130 002
5	Screws for motor mounting (2 pieces)	9010 082
6	Rubber disk for motor mount	9010 078
7	Pivot z=10	9010 035
8	Intermediate cog wheel z=30	9010 062
9	Drive cog wheel z=30	9010 063
10	Shaft locking clip	9010 060

Pos.-No.	Identifier name	Art.-No.
11	Side mounts - stainless steel (2 pieces)	9010 079
12	Body housing screws (10 pieces)	9010 081
13	Pivot bearing shaft	9010 007
14	Rubber spacer	9010 016
15	Height adjust screws (M2x20)	9010 074
16	M2 screw nut	9010 075
17	Distance bolt for height adjust screws	9010 077
18	M2 thread insert	9010 078
19	Distance bolt	9010 080
20	Distance bolt for intermediate cog wheel	9010 051
21	Operation manual - without picture	9030 100
22	Spare part list with sketch - without picture	9030 102
23	Package material - without picture	9030 111
	Not included with delivery - all positions without picture	
24	Spacing template for mounting cog wheels	9010 011
25	RP-11 Cleaning und polishing rotor	9044 000

Made in Germany

Status: September 2012

Overview of our products

- For all model railway systems -

Rail vacuum cleaner wagon
For gauge H0, N, TT, H0m, H0e
To remove loose dust and dirt particles from the whole track layout

Rail beveling wagon
For gauge N
To remove hardened oil and dirt residues, residues of driving tires,
oxidation layers on the rails

Rail and overhead catenaries beveling wagon
For gauge H0
To remove hardened oil and dirt residues, residues of driving tires,
oxidation layers on the rail, mid-point conductor and overhead catenaries.

MLR-1 Mid-point conductor cleaning unit or MLR-1 exchange unit
For gauge H0
To remove oil and dirt residues as well as oxidation layers from the mid-point conductors.

Wheel cleaning flush mounted or table unit
For gauge H0, N, TT, H0m, H0e and large gauge 0, 1, IIm
To clean driven or not driven wheels of rail using vehicles from oil and dirt residues

Cleaning wagon for large gauge
For gauge 0, gauge 1, gauge IIm
To remove loose dust and dirt particles from the whole track layout and to remove
hardened oil and dirt residues, residues of driving tires, oxidation layers on the rails

Under floor electric switch motor with or without switch lantern control
For gauge H0, gauge 0 and gauge 1
Control switches life like, silent and safe

Augmentation scrap collector Fe1 and Fe2
For gauge H0 and N

Replacement wheel contact sets (construction kit)
For gauge H0 (up to 28mm axle distance)

Mounting systems for overhead catenaries
For gauge H0 and N
To mount overhead catenaries in tunnels and shadow stations staging yards
using your rail profile

DLE-90 print and paint remover
With the DLE-90 print and paint remover, you will be able to remove print and paint residues from nearly all of the shelf metal and plastic models, without damaging the basic material.

KSP-98 Synthetic material cleaner
To clean dirty car and rail models as well as household appliances.

KC-05 contact cream
KC-05 prevents current disruptions and wear and tear at mechanically strained contact points, e.g. axle and wheel pick-ups at model railway vehicles or rail connectors.

KC-10 contact oil
KS-10 is used with low voltage appliances at all movable gliding and rubbing parts to prevent disruption and malfunction of the motion-sequence. It prevents flying sparks and forming of corrosion at current leading engine or wagon wheel sets.

Other accessories
Motors, decoders, light rods, wire, connectors, rechargeable batteries, springs, screws, screw threads, thread anchors etc.

LUX-Modellbau

Innovative model railway solutions - rail cleaning units
Large and small scale production

Anton-Schlecker-Straße 5 ~ D-49324 Melle ~ Germany
Fon ++49 (0) 54 22 - 43 49 1 ~ Fax ++49 (0) 54 22 - 44 99 8
E-mail: Info@ Lux-modellbau.de ~ Internet: www.Lux-modellbau.de