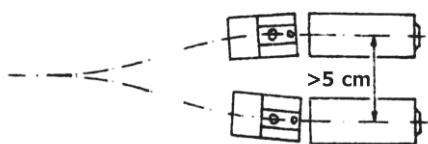
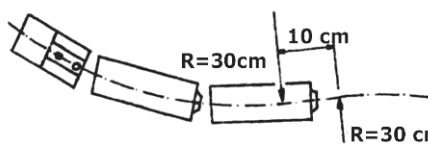
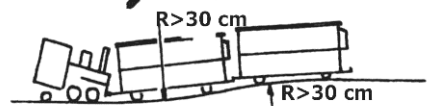
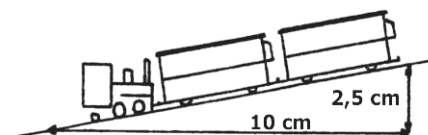




## Setting up and operating the Cog Railway:

All FERRO-TRAIN products are manufactured according to high quality standards. Therefore we add a package of small model parts we cannot attach prior to packing. In this product sheet you will find instructions where and how to place these parts on your model. Also, you will find general information on the construction, maintenance and operation of your model cog railway. Should you have any further question please do not hesitate to contact us!



The FERRO-TRAIN cog railway locomotive can climb a 25% incline in straight line and up to 20% incline in curves, with two cars. The models are designed for a 300 mm radius, just like the prototype on Schneeberg. The switches should be installed as level as possible. Inclination changes should not occur abruptly, they need a vertical radius of at least 300 mm. A maximum slope of 25% should not be exceeded. The minimum curve radius must not be less than 300 mm. In between curves in different directions, a straight distance of at least 100 mm must be provided, even if only one of the two radii is 300 mm. The distance between two parallel tracks is at least 55 mm.

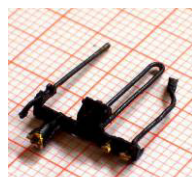
Should these conditions of the track geometry not be observed, problems can occur during operation. These problems can usually be corrected easily by small changes on the coach and/or locomotive. For example, it may be necessary to cut the ends of the footboards of the coach, so it cannot catch the locomotive. Sometimes, it is sufficient to adjust the buffer assembly (buffer, pressure pads and coupling lever). This can be done by gently bending the parts into a suitable position. Should the coaches uncouple too easily, replacing the coupling lever in the back of the car with a heavy 0,5-0,8 mm brass lever will help..



EZLD023-SW



EZW0018-SW



EZW0019+20-SW



EZW0021-SW



## Additional parts Cog railway coaches:

There are four types of two axle wagons: the closed coaches with a brakeman's cabin, the open platform coaches and the long and short flatbed wagons.

All types of cars are provided with axle bearings as separate parts, which have to be glued to the underside of the chassis as shown in the drawing. We advise to use super glue.

The closed coach needs a little more work: Above the front buffer, the front valve is glued in the middle in the corresponding ridge of the frame with some cyanoacrylate glue. Sometimes it is necessary to expand the bracket of the front valve with a fine file or sandpaper.

The headlight has to be cleaned and glued into the little hole in the front. Since the window wipers are not fitted to all wagons and are not in the same position in all epochs, you have to decide if and where to fit them. Choose a position on the brakeman's cabin and drill a 0.6 mm hole to glue the wiper into.

As a final touch the reflector of the headlight might get a silver lining. We recommend using a silver permanent marker (edding).

Please do not hesitate to contact us for more information:

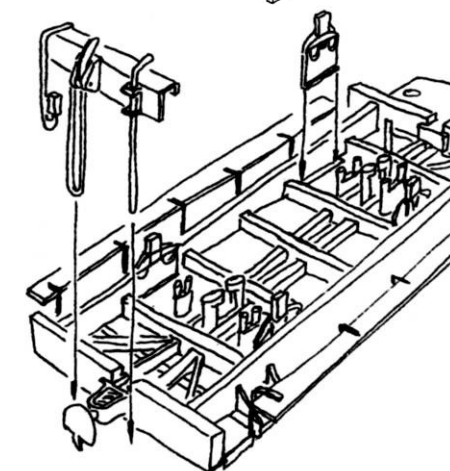
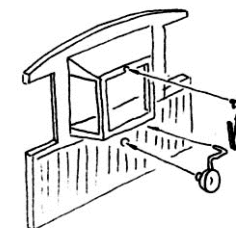
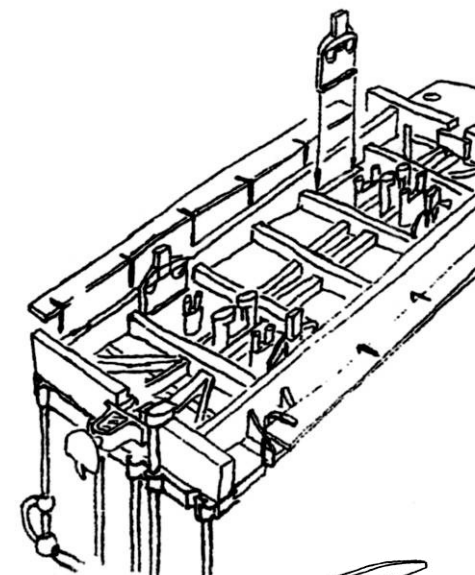
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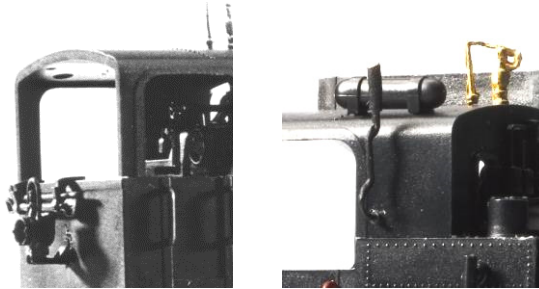


## Additional parts Cog railway locomotives:

The cog railway locomotives are delivered with all their typical details and additional parts. We recommend using solvent free super glue (cyanoacrylate glue).

All locos have to be fitted with handrails. Just separate the four handrails from the sprue and fit them with very little super glue in the corresponding holes on the sides of the drivers cabin. The handrails can also be repainted prior to assembly. We recommend keeping the parts on the sprue and roughening with very fine sand paper (no acetone or nitro thinner!). Apply a thin coat of (spray) paint and let the parts dry thoroughly before fitting them.

Some of the models are supplied with the typical tool set. This pre-painted part has to be separated from the sprue and glued to the rear of the driver's cabin on it's holders. The so-called roof pipe is typical for models of the Schneebergbahn. Again, it is cut from the sprue, cleaned and secured with very little super glue in the pre-drilled hole on the side of the roof.

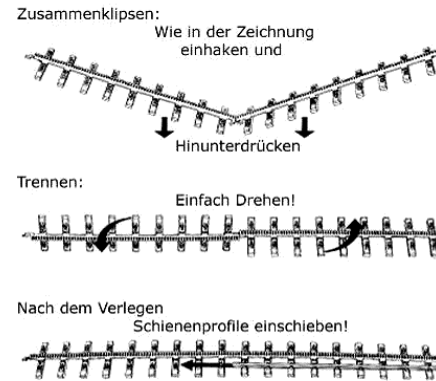


## Rack rail Flex rail and turnouts:

The sleepers (ties) with rack parts are connected as shown in the drawing and subsequently installed in your layout. The line has to be level (left/right) and in compliance with the specified inclines and radii.

After laying the sleepers insert the 2.1 mm nickel silver rails and connect them with the conducting rail connectors. It is advisable to connect the rails only in between rack rail connections to avoid kinks in the line.

Take your time when laying the track and reward yourself with excellent operating results.



The kit of the Y-switch is supplied with a delicate switch throw, which can be mounted left or right. For this purpose, the long sleepers on both sides have a predetermined breaking point. The switch blades are conductive, so the metal tongue can be connected to the supply voltage via a relay or any other way. Please keep in mind to lay the switch as level as possible and don't plan any changes of inclination in the immediate vicinity

All tracks for the FERRO-TRAIN cog railway are compatible with the older Gerard System! You will find interesting set offers below!



## Accessories for your cog railway layout



M-254-FM



M-214-FM



M-255 - parts kit



M-391(-FM)



M-020-FM



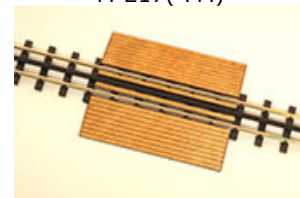
M-217(-FM)



M-215(-FM)



M-220-FM

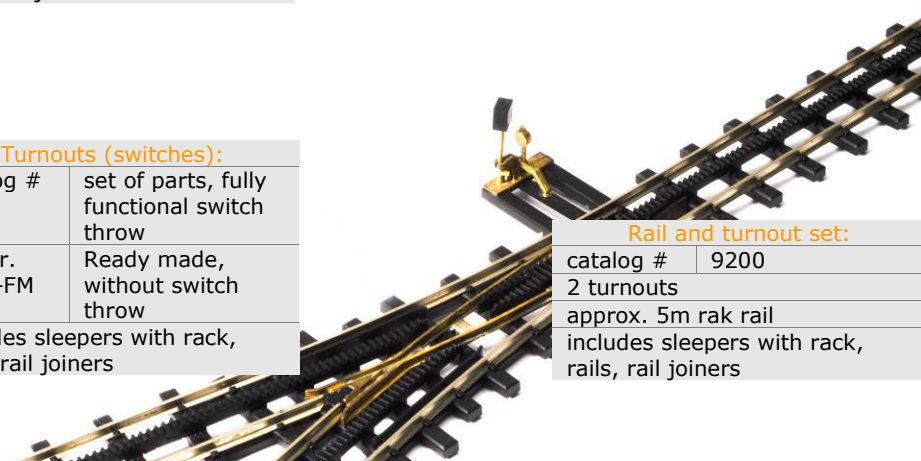


M-230-ZRB-FM

Rail:	Catalog number:
1m-set	2000-1
5m-set	2000-5
10m-set	2000-10
includes sleepers with rack, rails, rail joiners	

Turnouts (switches):	
catalog # 2004	set of parts, fully functional switch throw
Kat.Nr. 2004-FM	Ready made, without switch throw
includes sleepers with rack, rails, rail joiners	

Rail and turnout set:	
catalog #	9200
2 turnouts	
approx. 5m rak rail	
includes sleepers with rack, rails, rail joiners	





# FERRO-TRAIN

## Maintenance instructions

Depending on the operation hours, even small locomotives must undergo regular revisions. In general, it should be enough to carry out the described maintenance once a year. If your model is heavily used, as in commercial operation, you must perform maintenance in shorter intervals! Please keep in mind that the model, as it's prototype, is open at the bottom - dirt can easily get inside and has to be cleaned out!

### 1) Current pick-up:

The model picks up current on all three axes. The pick-up wipers of the trailing axle are located on the inside of the trailing wheels. The pick-up wipers of the drive wheels are above the wheels inside the locomotive, left and right of the gear unit. Problems with current pick-up usually occur when the brass wheel discs on the surfaces are no longer clean, or dirt gets in between the wheel and the pick-up wipers.

So first turn the model over so you can attach alligator clips (or similar) to the trailing axle. Turn on the transformer and clean the contact surface of all four drive wheels with a glass brush or very fine sandpaper. If this does not improve, you need to open the model to remove possible contamination between wipers and the wheel disc (see below). The insides and contact surfaces of the trailing wheels should be cleaned regularly. The trailing axle is easy to take out of the holder, but watch out when re-installing it, not to deform the pick-up wipers.

### 2) Trailing axle:

The trailing axle has two major functions: first it provides a current pick-up and secondly, it is a spring, which puts pressure to the two drive wheels. Should your model start to stutter or even jump the tracks, the trailing axle's spring is probably set to strong or weak.

You can check this by viewing the model from the side on a 25% inclined piece of track. The spring should compress slightly when you place the model on the tracks and both of the drive wheels should touch the rails evenly. If the front wheel is off the rail, the spring is too weak. If the middle wheel hovers above the rail, the spring is too strong. This can be adjusted by gripping the spring from the side with a fine tweezers and bending it. Due to the material of the spring it might be necessary to readjust the spring even if the model was not in use. Any dirt under the spring must be removed to get an optimal current draw.

### 3) Drive gears maintenance:

As all gears, also your little cog railway loco's gears needs lubrication! We recommend to apply model railway grease from the underside to the gears. Turn the loco on its back, attach current wires with clips to the trailing axle wheels and turn up the power pack. Now apply the grease to gears and let them run for a short while. Whenever you open the loco, you can get to the two gears near the motor, which should also be greased regularly.

### 4) Opening the model:

Remove the screw on the underside/front. The frame can now be separated from the boiler and cab. The gear block has another fastener on the back of the frame and is also connected to the driving rod mechanism. If possible, leave the gear block in the frame, or leave at least the driving rod mechanism in its plate. The weight in the boiler is only held by the screw.

When the model stops running in reverse direction, the worm gear on the motor axle may have moved. Using tweezers, slide the worm gear very cautiously a little bit away from the motor.

If the gears are not moving or seem to be blocked, dirt is probably the cause. Open the loco, and clean the gears and worm gears carefully.

### 5) Spare parts and repairs:

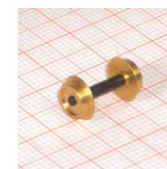
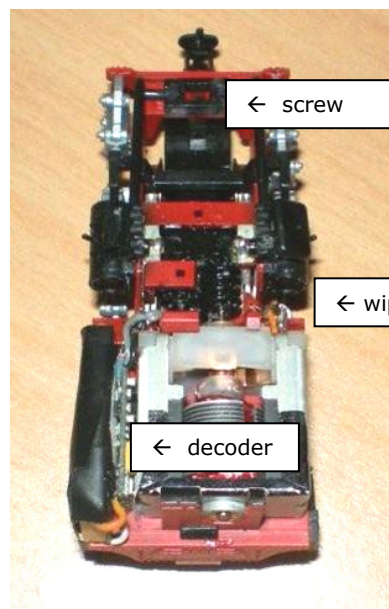
We can do repair and maintenance work for you (at cost). Should you need spare parts, pls send your inquiry, if possible with a photograph of the required parts(s).

A spare parts list is in preparation.

### 6) Digital operation:

Fitting a decoder in the loco is simple, and even recommended. It will reduce the motor sound considerably and driving characteristics will improve as well. To the left of the motor, there is enough room for an N-gauge or H0e-decoder (see photo).

To install the decoder, some soldering skills are required. Open the loco by removing the screw on the underside and lift off the boiler and cab part. The two wires connecting motor and current pick-up wipers are desoldered, and the four wires of the decoder re-soldered according to instructions usually provided with the decoder. Put insulating tape around the decoder and fit it by the side of the motor.



EZA0002-SET



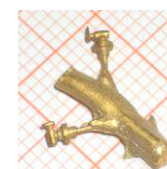
EZA0002-SET-BR



10 off. - 2003



Mfg plates



EZLD029-ME



EZLD020-SW



EZL003+4-SET



EZLXX04-B



EZWLD043-SW



EZA0001-SW



Made in Austria!



Achtung! Dieses Modell ist KEIN SPIELZEUG! Nicht geeignet für Kinder unter 18 Jahren wegen abnehmbarer und verschluckbarer Kleinteile. Bei unsachgemäßem Gebrauch besteht Verletzungsgefahr durch scharfe Kanten! Dieses Produkt darf am Ende seine Nutzungsdauer nicht über den normalen Hausmüll entsorgt werden, sondern muss an einem Sammelpunkt für Recycling von elektronischen Geräten abgegeben werden. Attention! This model is NOT A TOY! Risk of injury if handled improperly. Beware of sharp edges! At the end of its useful life recycle this product at a collection point for electronic equipment. Attention! Risque de blessures en cas de mauvaise manipulation. Méfiez-vous des arêtes vives! Attenzione! Pericolo di lesioni, se gestita in modo improprio. Attenzione ai bordi taglienti! Questo modello non è un giocattolo! Attenzione! Questa lista dei modelli non è un giocattolo! Pericolo di lesioni, se gestita in modo improprio. Attenzione ai bordi taglienti! Alla fine della sua vita utile riciclare questo prodotto in un punto di raccolta per apparecchiature elettroniche. ¡Atención! Esta lista de modelos NO ES UN JUGUETE! Peligro de lesiones si se maneja de manera inadecuada. Tenga cuidado con los bordes afilados! Al final de su vida útil reciclar este producto a un punto de recogida para equipos electrónicos. Pozor! Tento seznam modelu není hra ka! Nebezpe í zran ní p i nesprávném zacházení. Dejte si pozor na ostré hrany! Na konci své životnosti recyklovat tento výrobek na sb rném míst pro elektronické za ízení.

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