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FALLER



Construction and operating instructions for the

car system

Congratulation to your decision to buy the FALLER car system start set. This package and its contents make available to you all of the components necessary for an entry into the fascinating world of FALLER's moving model car system. Regardless of whether this system is intended as a traffic system of its own or as an addition to your model railway, the FALLER car system with its wide variety of possibilities will fill you with enthusiasm. To ensure that you can enjoy this model from the very beginning without any restrictions, we ask you to read these instructions carefully, so that you will understand the necessary work steps, before you start with the construction of your model.

General information on the FALLER car system

The cars of the FALLER car system move automatically and are steered invisibly by the roads prepared before. To achieve this, the cars have a motor, storage battery, steering and a magnetically operable On/Off switch to be actuated manually. The steering is provided with a steering lever with a small magnet arranged on its tip. This magnet responds to a special contact wire (steel wire) which is embedded in the road surface, thus ensuring tracking stability.

The car motor draws its operating current from the storage batteries carried along. Prior to starting operation, these must be charged with the battery charger included in the package.

Stop stations are available for stopping. These include an electromagnet which is embedded in the carriageway. As soon as voltage is supplied, this electromagnet with its electromagnetic field will cut off the motor current via the micro-switch (reed contact) incorporated in the car.

For turning left or right, the FALLER car system has a junc-

tion. This is a coil which on activation of the steering magnets will cause a deflection from straight-through traffic and passes on to a separately run special contact wire.

Construction of FALLER car system roads

But before you can enjoy the operation of your car system, the roads for the cars will have to be constructed first. For this purpose, there are two methods which we will now demonstrate.



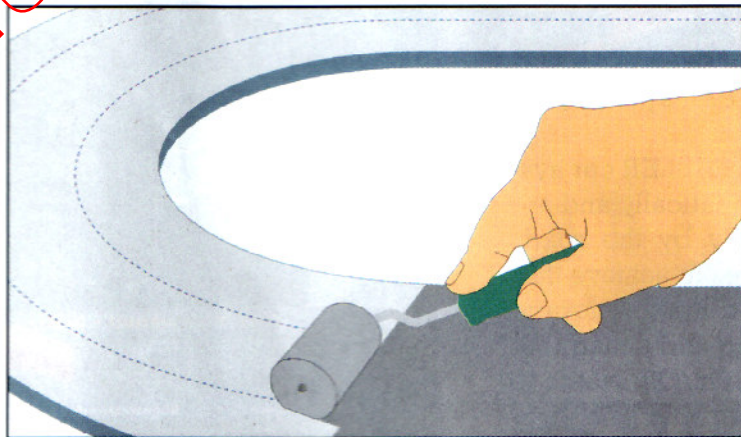
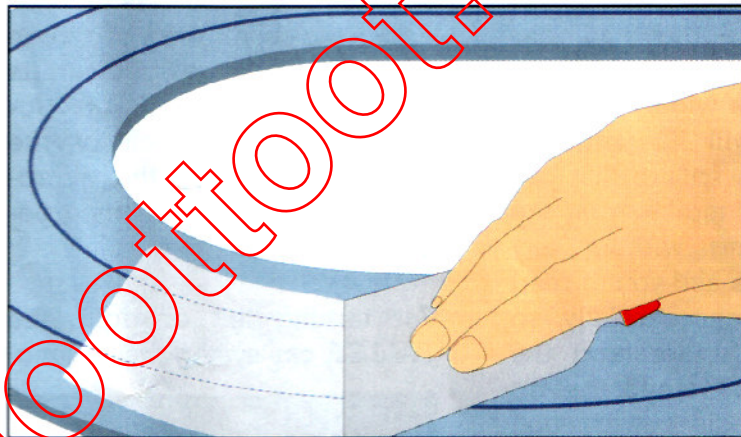
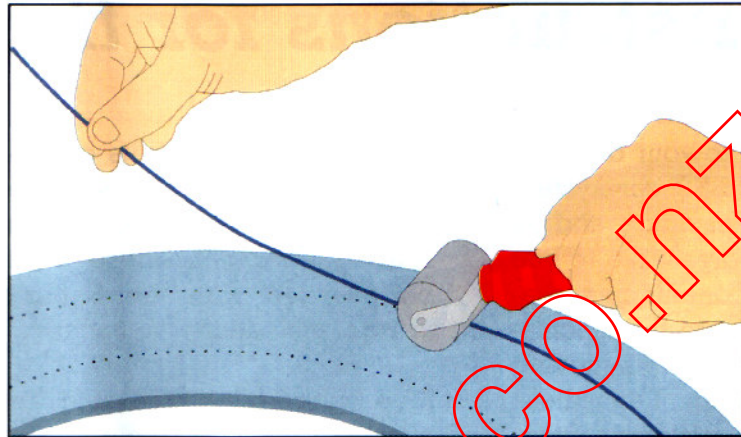
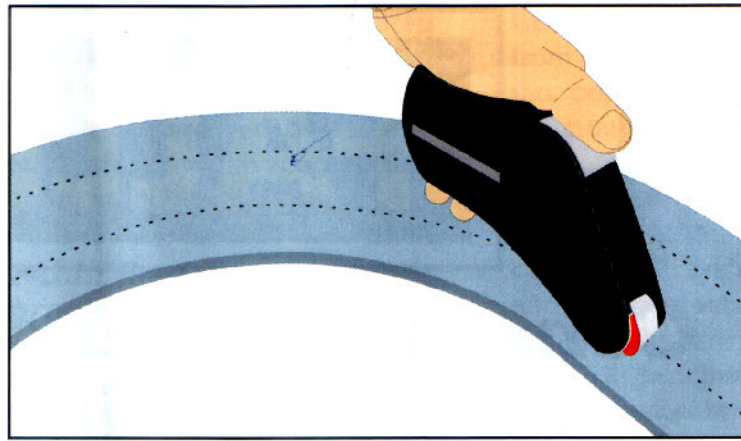
Construction method

As already mentioned before, the special contact wire included in the package must be integrated into the road surface for steering of the FALLER car system vehicles. The route must consist of smooth material, for example 3 mm thick plywood and its width must account for the steering range of the vehicle to be used. Especially for cornering, trucks with trailers need a larger carriageway width than passenger cars. The minimum radius of curve should not fall below 150 mm; for minimum carriageway widths see the table below. The exact course of the special contact wire is determined by laying and partial fixing it to the route with adhesive tape and marking along the route. It is now possible to perform a test run.

If this test run is satisfactory, the wire can be fastened throughout its length to the route with double-face adhesive tape. In the event of oncoming traffic or two-lane roads and particularly in cornering, attention must be given to the obstruction gauge limit and further vehicles participating in motor traffic leaving the traffic flow. Two additional wires must be fitted in parallel to the steering special contact wire across the width of the required carriageway for limiting it on the right and left side, then mark and fix these two additional wires. Instead of the double-face adhesive tape, FALLER EXPERT rapid (170500) can also be used as an alternative.

Important: For wire laying, consideration must be given to the dissimilar coefficient of expansion of steel wire and wooden route.

To exclude any position variation of the special contact wire in the road surface by



	Carriageway width (two-lane) / Clearance of special contact wire	
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for straight routes	60 / 30 mm	50 / 25 mm
in curves	80 / 40 mm	60 / 30 mm

temperature fluctuations from the very beginning, continuous wires should be cut to lengths of 50 cm.

Road topping

Now, road topping must be applied. For this purpose, stir the road knifing filler (more filler material is available from your specialist dealer under Art. No. 180500 FALLER road and terrain knifing filler) with water so that a lump-free, doughy mass will be obtained and use a wide Japan filling knife for applying it over the wires in such a way that the clearance will be completely filled without leaving any spaces unfilled. Then smoothen the filler. If flaws still exist, these must be remedied until a smooth carriageway is obtained.

Important: To ensure that the steering magnet does not lose its contact with the special contact wire, the filler must be applied in such a way that the wire surface is just covered.

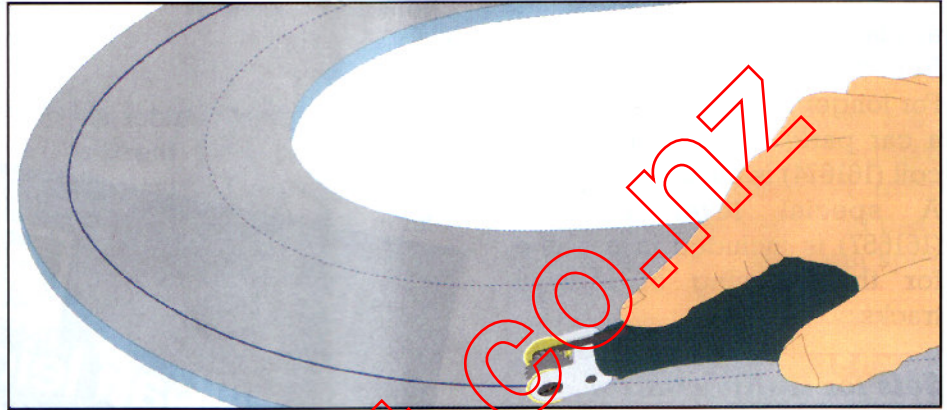
Finally, apply the road paint to the filling surfaces with a painting roller. This method will furnish an regular, though slightly roughened road surface. This imparts the required road grip to the tyres of the FALLER car system vehicles.

Embedding method

The construction method described before is associated

with a relatively large volume of filling and modelling work which calls for strict adherence to dimensions and, therefore, among other things, it is not in everybody's line. Road construction will be greatly simplified and accomplished considerably faster by using a groove milling cutter and the so-called embedding method.

In this method, the special contact wire is not put on, but it is



embedded in the route surface. For this purpose, a small groove must be milled into the road surface which is dimensioned in such a way that it can exactly accommodate the special contact wire. The groove cutter (161669) made by Böhler and also available from FALLER is an ideal tool for the laying of wires in wood-based materials. The tool operates from 12 VDC and has a rated current of at least 1 A. A suitable power pack with an appropriate power potential is required for this tool.

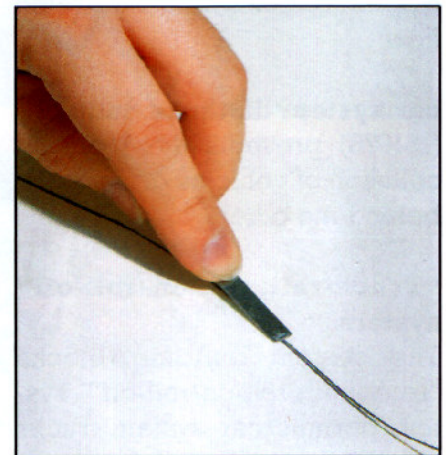
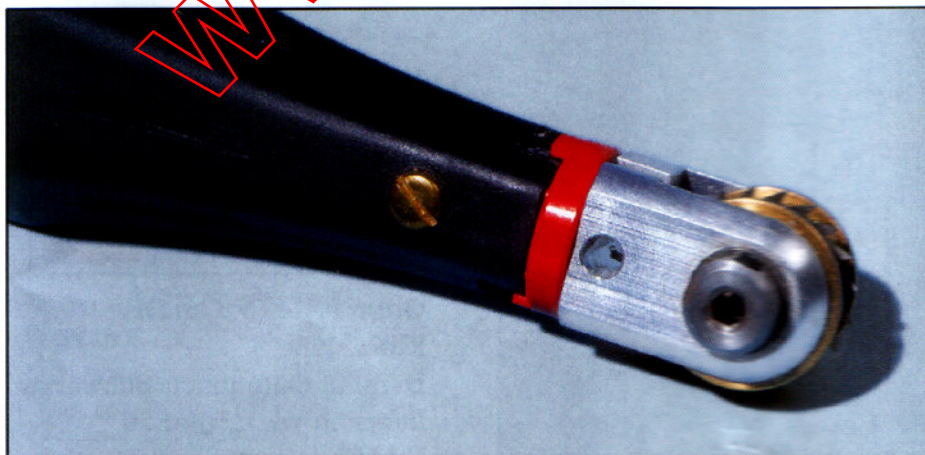
If the bases such as poplar plywood used are not too hard, the FALLER transformer 180641 will be sufficient; if hardwood is used, reference is made to the 12-Volt DC transformer from Böhler.

And this is how it is done:

The small machine is equipped with a slot milling cutter for moving along the marked steering track. Due to the small stop wheels arranged on both sides

of the milling cutter, only as much material as required for the flush embedding of the special contact wire will exactly be removed from the route surface.

A flat screwdriver is then used for pressing the special contact wire into the groove. For filling the groove, so that it will be flush with the road surface, use FALLER road filler which is included in this package. Finally, the road will be "asphalted" as described before with the painting roller and FALLER road paint.



Upgrade and downgrade routes

For the construction of upgrades, crests and downgrades, the rounding of the carriageway at the given transitions for the steering is important. Upgrades should not exceed 12 % (= 120 mm over a route of 1000 mm).



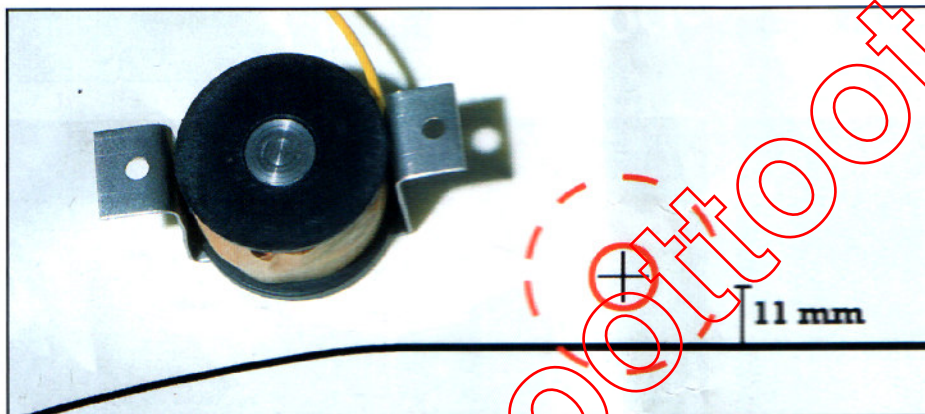
Mounting the stop station

(not included in all packages)

The stop station must be mounted in such a way that the coil will be located 3 mm below the carriageway surface at most and the mounting lugs must

of curves, this dimension can deviate, dependent on the radius involved and the vehicle used. The exact position must be determined by trying.

The stop station is always connected to direct current (16 VDC).



always be oriented in parallel to the direction of traffic.

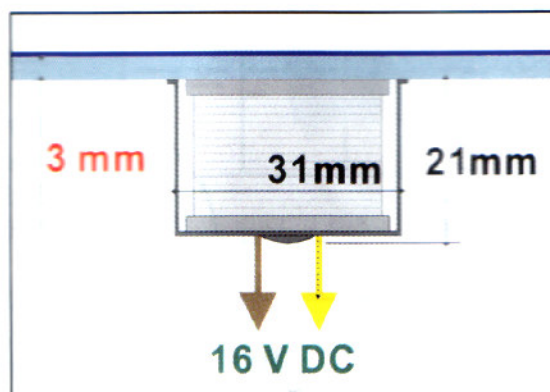
With a route thickness of 3 mm, the stop station can be built directly below it. For road route of larger thickness, the magnet must be embedded in a hole with a diameter of 30 mm. After mounting of the coil, this hole must be carefully closed and levelled.

For straight-through traffic, the centre point of the stop station must be arranged on the right 11 mm from the special contact wire as seen in the direction of traffic – for exact position see drawing. In the course

Based on a 16 VAC output, the voltage can be obtained by interconnection of the FALLER rectifier (161668).

Outfit

For outfitting the road, dry-transfer symbols, crash barriers



and roadside border poles are included in the HO packages. These poles are intended for traffic safety and must be placed along the roadside. The dry-transfer sheet contains road markings, border and centre lines, direction arrows, zebra crossings etc., etc.

The individual symbols are cut out, placed on the desired spot and rubbed on with the stylus included in the package. Articles N of equal construction are available from your specialist dealer.

Vehicle maintenance

Storage battery charging

Before motor traffic can start, the storage batteries of the FALLER car system cars must be charged with the accompanying charger. Charging duration is seven hours. For this purpose, insert the three-pole plug of the charger into the charging socket at the vehicle bottom. Incorrect polarity is technically excluded.

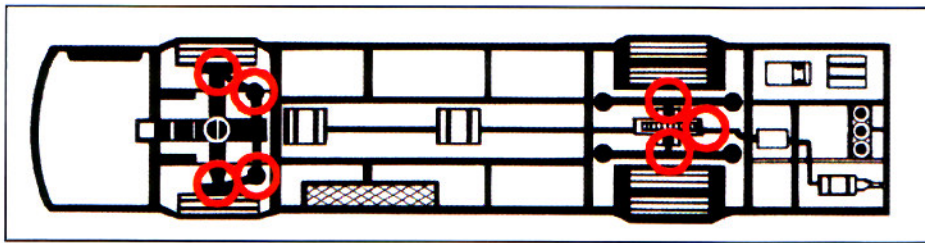
Important: Use FALLER chargers only, as these are precisely adjusted to the storage batteries used. External devices may be detrimental to components.

Cleaning

The shaft, drive and steering elements of the vehicles must be cleaned from time to time by removing dust and lint. The model roads, too, should be kept free from dust and abraded tyre material at all times.

Lubrication

As in the original vehicles, all rotating parts of vehicles like driving shafts, front-wheel axles and all movable parts of the steering like steering knuckle pins must be lubricated. For this purpose, we recommend FALLER special lubricant



(170488) or FALLER special oil (170489). For lubricating points see red markings in the above drawing.

Adjusting the steering sliders

FALLER car system vehicles cannot be guided optimally unless the steering sliders are adjusted correctly. This is true in the as-delivered condition. However, deviations may arise for example due to "accidents" during operation. Re-adjustment will then be necessary. Make sure



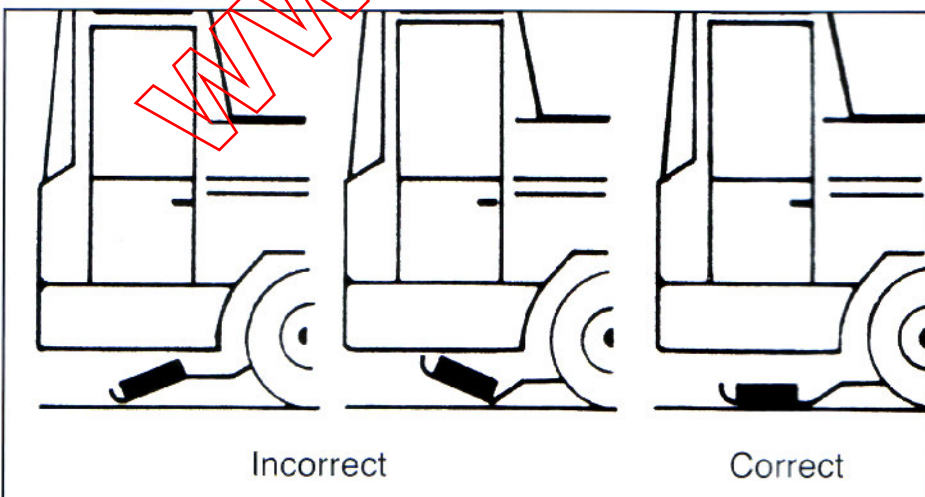
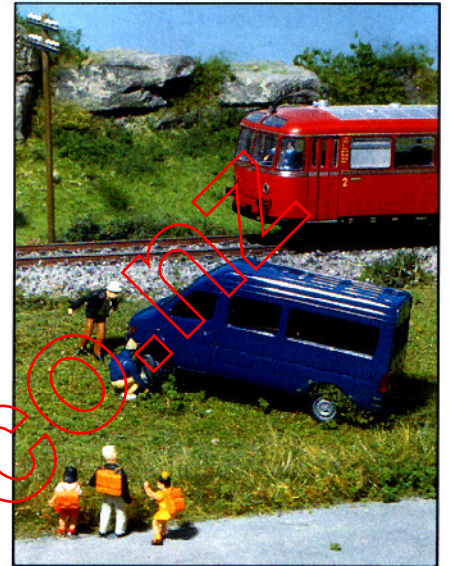
that sliding of the solenoid slider is always in parallel to the road surface. The optimum adjustment is shown in the Figures below.

In small vehicles with folded steering slider tips, the magnetic force can be regulated by bending up with the tip of a knife blade (see illustration at bottom right).

This may become necessary for optimisation of the steering forces (steering loss due to solenoid located too high or "sticking" of the steering slider to the road due to too small solenoid clearance).

Wheel changing

In model cars, too, tyres are subject to abrasion. As in original vehicles, poor profile will result in traction losses and steering problems. Wheels will have to be changed, if loss of profile exists. Spare wheels and other spare parts are available from the FALLER customer service (always specify the Art. No. of your vehicle).



This concludes the description of handling and using the components and materials contained in this package.

Now, we wish you much success in the construction of your FALLER car system and great fun in its operation.

Further car system products

For upgrading and controlling of your model traffic, FALLER offers a broad spectrum of further components. You will find these components in the current FALLER catalogue. We should like to mention some of these components below:

Road components

An electric junction (161677) is available for optional turning from the straight-through track. For longer stays, for example in a car park, the parking space coil (161674) is available.

A special level crossing (161657) is included in our line for the crossing of railway tracks.

Sets for traffic control

For traffic control, the following electronic and electromechanical components are included in the FALLER range:

Traffic lights with switch

(161655) for control at street crossings, road junctions.

car system construction

site set

(161673) for traffic control at one-track construction sites.

car system bus stop

(161671) and

car system gas station

(161672) permits the leaving, stopping and trouble-free entering of vehicles into the traffic flow.

car system distance control

(161678) prevents the rear-end collision of vehicles driving one behind the other.

"Truck-rail roll-on/roll-off" system

The system building blocks "truck-rail roll-on/roll-off" system permits car system trucks

and trailers and articulated trucks to be automatically loaded onto railway wagons, they can be transported by rail and integrated into the road system again at the terminal station.

FALLER car system brochure

Only the most important basic information for the construction of the FALLER car system could be given in the present instructions.

Comprehensive information from the detailed description of the construction of roads, via the mounting of many functional parts, comprehensive electronic circuits for traffic control, operation of the "truck-rail roll-on/roll-off" system and hints and tricks around the FALLER car system are given in the FALLER brochure "Modellbau leicht gemacht, car system" ('Modelling made easy') (190846). Every FALLER car system friend is well advised to buy this informative brochure. (Available in German only)



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