100 YEARS
of LEHMANN

L.G.B.
Welcome to the world of LGB!
This book presents you with the largest range to date of the largest series-produced electric model railway in the world, manufactured by one of the oldest and most experienced companies in this field.

Since 1881, when Ernst Paul Lehmann founded the company in Brandenburg/Havel, countless, world-renowned, original toys have come off the production lines, for example "TOM", the climbing ape, "GUSTAV", the busy miller, "NANNI", the anxious bride, "TUT TUT", the patent car and "GALOP", the 25 pfennig racing car to name but a few. These lithographed metal toys with their indestructible, patented clockworks and their special charm today rate amongst the "classics" in museums and collections. For 100 years they have been synonymous with originality and lasting value. Such expressions might appear oldfashioned, but they were part of our original concept and they are still with us today ...

In Autumn 1981 the Heinrich Hugendubel-Verlag, Munich will be publishing the book "Ein Jahrhundert Blechspielzeug - 100 Jahre Lehmann" ("A century of metal toys - 100 years of Lehmann") by Jürgen and Marianne Cieslik. 200 pages with numerous illustrations.
The LEHMANN RAILWAY — abbreviated to LGB — is a young railway with years of tradition. It is produced with the latest generation of electronically-controlled machines.

The LGB was presented to the public for the first time at the International Toy Fair in 1968, where, to the astonishment of the experts present, it even performed outside in the snow. Since then more and more people have been discovering the outstanding qualities of these "robust large-scale models". Throughout the world this railway acquires more friends each day — from Anchorage to Cape Town and from Buenos Aires to Tokyo. This railway breaks all bounds and sets new standards! It is THE most interesting hobby for young and old! No wonder that LGB is the most frequently purchased large-scale railway in the world. We should like to take this opportunity to wish you many hours of pleasurable reading.

Yours sincerely

ERNST PAUL LEHMANN
PATENTWERK
THE FIRST ONE
for outdoor use

The world of the narrow-gauge, romantic local railways has been captured and reduced 22.5 times so that it can be accommodated in your flat, your house or your garden. The first weatherproof electric large-scale railway has become a byword throughout the world in record time. The reasons are crystal clear:

... Children love the LGB because it is so sturdy and robust and because it offers powerful locomotives and large wagons which can actually be loaded.

... Mothers are thankful for the fact that the LGB is so uncomplicated and can be put down and taken up again in a few minutes even in a small flat.

... Fathers enthuse about the true-to-life reproduction offered by the LGB. In the model scale 1:22.5 all the minute details can be detected without the need for a magnifying glass. The LGB brings reality that little bit nearer.
Lehmann large-scale railway
The product range offered by the world’s largest model railway:

This catalogue presents the world of the LGB in large, non-retouched photos.

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And finally it shows why the LGB is such a fascinating, out of the ordinary model railway.

Abbreviations and symbols used
Lg. o. b.: Length over buffers.
D = Locomotive with steam generation in stack.
H = Locomotive with working horn.
S = Locomotive with sound of built-in noise electronics.
EAV = Tractive unit with electronic start delay.
V = Voltage (volts).
A = Current (amperes).

Previously-published catalogues are no longer valid. The LGB can only be obtained from your dealer. We reserve the right to make changes. We accept no responsibility for the accuracy of dimensional data and illustrations.
Model railway gauges

Anyone interested in buying a new model railway is often at a loss when confronted with the numerous gauges and sizes available. Here they are, illustrated in their original size. Without doubt an optically interesting presentation which also reveals the multiplicity of choice which the field of model railways now has to offer.

Whereas railways with gauges up to O are generally only suitable for use indoors, the LGB, as the largest series-produced model railway in the world — encompasses from the outset, both in terms of design and from the point of view of material and robustness — the concept of a model railway for outdoor operation whatever the weather. Naturally it can be put to equally good effect indoors as well.

The entire rolling stock is constructed on the basis of well known, narrow gauge originals with their particular flair on a scale of 1:22.5. They run on small radii of curvature in natural surroundings as well.

This is yet another reason why with LGB the proportions are spot on and why LGB model railways require little space despite the huge scale in relation to their size. The smallest radius is only 60 cm.

Handelsblatt — Düsseldorf
"... It comes as no surprise that the LGB garden railway, the giant among the midgets, is enticing more and more husbands to become weekend engine drivers. A recreation for which even wives find understanding. A few hundred marks are enough for starters ...

Dr. W. S. — Berlin:
"... Just yesterday we were once again able to demonstrate our train set to a large circle of friends and it never ceases to amaze us how fully-fledged atomic physicists, doctors, engineers etc. get down on the floor when confronted with Lehmann layouts to gaze in wonder at and play with the real marvel ..."
Adantages of the LGB
12 features which make all the difference

1. Quality: Only carefully selected top-quality materials are used for the LGB and are processed by experienced craftsmen on modern machines.

2. Track system: Three different curved tracks with radii from 60 to 117.5 cm, five different long straight tracks up to a length of 60 cm. Self-assembly track system for a track section length of 1.5 meters, flexible for all radii. Not to be forgotten - the LGB turntable.

3. The track: True to life with imitation wooden sleepers, solid brass rails for reliable current transmission, will even withstand the weight of elephants! A metre long section of track weighs 0.6 kg.

4. Points: Six types of points for 22.5° and 30° junctions, double slip points and space-saving three-way turnouts, manual and electric operation, stop functions and end position shut-off, rotating and illuminated switchpoint lamps.

5. Rolling stock: All LGB coaches have different functions. Opening doors, optional interior lighting, hopper wagon which can be emptied, tank wagon which can be filled, with drain cock, and much more besides. Wheel sets with stable axle pins, hardened and polished, mean that the wagons run easily.

6. Locomotives: Elegance and electronics, the perfect combination. There are LGB locomotives which smoke, ring, whistle, and locomotives with steam or diesel sound. LGB locomotives are packed with energy, reliable, and have driving mechanism protected against sand and dust, ideal for outdoor operation.

7. Locomotive motor: The heart of every LGB locomotive is the problem-free high-power motor with 7-pole armature; this gives power for starting and in the lower speed range. Worm gears with helical gear wheels for extremely quiet running, ball thrust bearings against axial thrust, little carbon brush wear.

8. Details: You don't have to look for details on the LGB with a magnifying glass. All doors can be opened, the boiler tube wall is behind the smokebox door, locomotive lamps have bulbs in them, locomotives with metal identification plates, all have true to life footplates, mostly with a driver.

9. Couplings: Simple reliable automatic hook coupling movable in all directions. There are no coupling problems, even in narrow track radii and double bends. Rolling stock with the new standard coupling can be fitted with symmetrical couplings by mounting a second coupling hook 2040/2 (Page 122).

10. Transformers for DC operation: Infinitely variable speeds with clear direction determination, separate DC and AC outputs, overload protection and display. All transformers are tested for safety, VDE or GS safety symbol. Electronic speed regulator 5007 with brake button for delayed braking and starting, click-down button for coupling.

11. Multiple-train operation: With a catenary system an additional train can run on the same track, each train can be controlled independently. Two catenary wire systems for tram and train lines. Operating mode switch in every electric locomotive.

12. Universal operation: The LGB enthusiast knows no bounds. He runs his LGB wherever he wants, either on the carpet or on a permanent layout with landscaping and a Lehmann trump card - also outside.
LGB steam locomotives are true to life reproductions of attractive and well-known locomotives from the steam age between 1885 and 1939. It is fascinating to watch the moving rods, and when they come down the track, every railway enthusiast's heart beats more quickly.

By the way, many LGB steam locomotive models are fitted with steam generators.

The steam locomotive noise
The characteristic sound of a steam locomotive is produced by the heavy puffs of smoke—loud and in rhythm with the moving rods.

The LGB top model 2080 S electronic brings this song of the steam locomotive into the world of the model railway—a feast for the ears of every true steam locomotive enthusiast. You can actually hear the exhaust streaming out of the cylinders. If the "steam whistle" or the "signal bell" sounds, the steam locomotive seems really genuine. It does not have to be especially mentioned that the funnel smokes.

Index
D = Steam generator in funnel
S = Sound = Simulator for noise acoustics in the locomotive, coupled with bell and whistle.
Electric locomotives
at a glance

Electric locos.
range in terms of historical development between steam and diesel locomotives. They are characterized by high tractive power, rapid start-up capability and low-maintenance operation.

1: 2030 Page 44
2: 2040 Page 48/49

Work and service stock
for track maintenance; no railway authority would be without them.

3: 2033 Page 45
4: 2001 Page 45
5: 3510 Page 53
6: 3530 Page 53

Trams
normally only used in urban traffic, however, sometimes also employed for suburban traffic in a manner similar to local train services.

7: 2035 + 3500 Page 51
8: 2036 + 3600 Page 52

EAV
"Electronic start delay" in track maintenance locomotive 2033. See page 9 for detailed description of this system.

With electric locos two trains can be operated on one track! This requires above all a current-carrying catenary system. The built-in mode switch which all electric locos feature enables them to be optionally switched to overhead or track power supply. This system naturally also applies to electric work and service stock and trams.

Electric locos can also run without a catenary system, but with a contact wire it is possible for the first time to achieve two-train operation on one track.
The development of the diesel locomotive is part of recent railway history. Such stock can thus be classed as “modern”. With their fresh paintwork the LGB diesel locomotives and internal combustion-engined railcars bring a touch of colour to a layout. However some units also have something special to offer:

The diesel sound
With a steam locomotive it is the noise of the exhaust steam which gives the engines their characteristic sound in line with the speed of the piston rod. With diesel locomotives it is the engine which “knocks” during idling and runs differently at slow speeds than at high speeds. Here an “S” is indicated as index for diesel noise. This locomotive also has a horn along with other refinements.

Index
S = Sound = Diesel noise with tone change and horn
H = Horn = Acoustic signal horn

EAV
“Electronic start delay”
The EAV is fitted in the tractive units 2033 and 2051 S as well as in the railcars 2065 and 2066. The EAV system from LGB EAV tractive units permit simultaneous shunting with a second standard locomotive on the same loop.
Simultaneous main-line traffic with a second (standard) locomotive and an “EAV locomotive” is also possible, since the electronic delay in the medium speed range enables the EAV locomotive to travel slowly. (Double traction not advisable). In standstill range the EAV locomotive comes to a halt, while the standard locomotive performs shunting work. EAV functions with every standard transformer.
The lighting of all EAV tractive units is switched on as of the first transformer speed increment while the locomotive is still standing. This also applies to hooked-up carriages with lighting by way of the locomotive light socket of an EAV locomotive. Start-up is effected as of roughly 9 V. The travelling speed can be infinitely increased.

“Dieseling” with EAV
With the 2051 S locomotive (Sound) the “dieseling” is switched with the aid of the EAV system from battery current to transformer operation thus helping to save battery current.
Passenger coaches
at a glance

2-axle versions

Twin-axle passenger coaches are encountered on all secondary lines and local railways.

The LGB passenger coach range is characterized by precision down to the most minute details. All doors can be opened and roofs easily removed (for insertion of figures and installation of interior lighting).

Wheel sets with rigid trunnion bearings and hardened and polished axles produce first-class running properties even in the smallest track radius. Exquisite paintwork and faithfully-reproduced lettering make every coach a work of art.
4-axle versions

Four-axled passenger coaches belong to the modern type of coach; they have different types of bogies and are used on larger railway networks such as the ÖBB (Austria), RhB (Switzerland) and the DB (Federal Republic of Germany).

American railway companies made almost exclusive use of four-axle coaches.

Light-railway stock is used for pit, forest and peat-bog railways, as well as for factory, beach and dunes railways.

Such short twin-axled stock is also employed for track maintenance and track construction.
2-axle versions

The entire LGB goods wagon range features exact replicas with precise details. A robust design and various loading functions are the characteristic features of these models. Sidewall doors, sliding doors, hinged hatches and brakeman's cab doors all open. The wagons can be loaded without difficulty. Tank wagons have lockable filler connections and drain cocks. The ballast wagon has a working slide valve for emptying purposes and the large railway crane offers endless possibilities.

First-class running properties are guaranteed even in a small track radius by hardened and polished axle pins.
4-axle versions

Long bogie wagons give goods trains added interest. These large 4-axed wagons also feature perfect running even on the smallest radius.
The first one for indoors and outdoors

It is at home everywhere since it takes up little space despite its large-scale format. 130 cm² are sufficient for a basic set since the small LGB track radius measures only 60 cm.

The rails are laid in no time at all and the associated electrics are simple to comprehend. If necessary the layout can also be rapidly taken up again. The LGB is at home everywhere, be it in the garden, on the terrace or balcony, in the living room, in the loft or in a hobby cellar.

The LGB is loads of fun for both young and old because it is so robust and uncomplicated. The powerful, sturdy locomotives have no trouble pulling lengthy trains — they can really be made to carry some weight.

The LGB in the garden

In contrast to a model railway layout indoors, a garden railway has above all the advantage that it permits scenic and at the same time true to life landscaping. Enthusiasts are not reliant on plastic trees and an artificial lawn — in the garden everything is genuine from the grass to the stones and plants.

If the garden layout is not intended to be permanent, the tracks are simply laid on the shortest possible grass. They can be taken up just as quickly if for example the entire garden is to be redesigned ...

Heim und Garten, G. Balcke: "... Can you imagine a miniature train puffing its way through your garden and coming to a halt in a small station in front of your terrace? — Unbelievable? Thousands of enthusiasts have already made a habit of this type of "outdoor hobby". In contrast to an indoor layout, there is the advantage of being able to create a fascinating, natural landscape.

A. K. — Siegen: "... Our layout is not stationary. Depending on the time of year it is to be found in the cellar or loft or on the lawn or terrace ..."
For young...
...and young at heart
Battery-operated railways

A real kiddies toy. Gives full rein to your fantasy in the parlour and garden. The battery powered train set No. 300 is also a true LGB. The track can be laid and taken up thousands of times and even withstands being stepped on. The sturdy carriages and wagons transport Playmobile figures, building bricks or sand equally well. The layout can be extended and expanded at will using extra track and points. Furthermore since the battery operated train set No. 300 was developed from the Lehmann large-scale system, not only the couplings fit all other LGB rolling stock, but also the signals, buffers...

3-volt battery operation

M. Angerer: "...As an LGB enthusiast I initially bought my daughters (and myself) a starter pack with battery-operated locomotive. It gives tremendous pleasure! This locomotive has covered over 20 kilometres with a single set of batteries "Daimon-Longkraft No. 240", the alkaline "power packs". Hard to believe — but nevertheless true..."
Battery-operated railway — starter pack, oval track with automatic switching.

Battery-operated railway – starter pack with plastic track and automatic switching
With 3 volt steam locomotive 207, controlled by lateral switching lever for forward, reverse and stop. Manual or automatic train control via 2 switching blocks on track. With light-railway wagon loaded with barrels, summertime passenger coach with bench seats and grab handles for Playmobil figures.

Automatic train control by way of two switching blocks 130. These are simply clipped to a straight section of track and permit 4 different automatic functions which create the impression of a genuine railway.
A: Proceed e.g. in front of a green signal
B: Stop e.g. in front of a red signal or at a station.
C: Change of direction e.g. for a shuttle service.
D: Halt in a particular direction e.g. in front of buffers

The 16 page instruction booklet included with every pack gives detailed and illustrated information on layout and operation. Some ten track planning suggestions show what the battery-operated LGB is capable of. All that remains to be said is: Have a great time.

What's more, the battery-operated railway 300 also operates on dad's large LGB!
Accessories for starter pack 300

For girls and boys between 3 and 12, playing with the LGB train with battery is immensely exciting and at the same time thrilling. Caution is the key. Are the points correctly set? Will the engine driver halt in front of the signal? Nevertheless should there be an accident there's no harm done: A genuine LGB shrugs off even hard impacts! The LGB withstands a lot. Boredom never has a chance to set in, since all colours in the LGB range match and it is always possible to add, combine and expand. The coaches and wagons on Page 79, the semaphore signal 5030, the buffers 1030, the stop block 5025, the lamp 5050 as well as all Playmobil figures to name but a few all fit the battery operated supertrain set No. 300. Tracks, locomotives and coaches/wagons can be purchased as and when the piggy bank allows.

Track layout
This track layout shows how the oval track of the starter pack 300 can be expanded using extra track and points. Just one example of many.

100 Straight track
L = 300 mm

110 Curved track
R = 60 cm, $\frac{1}{12}$ circle

120 Manual points
As Y-shaped points they fit the track circle of curved track with a radius of 60 cm.

130 Switching block set
for expanding a layout with 4 functions.

1150 28 track clips
for reliably connecting loosely laid track.
Battery-operated train set — starter pack with LGB metal track.

20801B

Battery-operated railway — starter pack with LGB metal track
With 3 V steam locomotive 207, controlled by switching lever on side for forward, reverse and stop.
With light-railway wagon loaded with drums.
Summertime passenger coach with bench seats and grab handles for Playmobil figures.

Track circle consisting of 12 sections of original LGB curved track No. 1100 with solid-section brass rails.
Detailed instructions for initial layout and expansion with model track, points and accessories from LGB range.

All rolling stock with LGB couplings for automatic coupling and uncoupling.
Train length 56 cm, track circle dia. 120 cm, space requirement 130 x 130 cm.
Recommended batteries: 2 x 1.5 V single cells.

The battery-operated railway can be set up everywhere, even on carpets, or outdoors on the lawn or in a sand pit, since the LGB battery-operated railway also has a completely encapsulated gearbox.

This pack paves the way for the transition to LGB transformer operation. All that is then required is an LGB variable transformer and a second locomotive for transformer operation. Whilst the latter is remotely controlled, the battery-operated locomotive can be manually operated.

Can be enlarged using the track extension packs and individual sections of track from the original LGB track system. This track planning example stems from the track circle of the starter pack 20801 B and the extra track available in one track extension pack 20901 (red) and 20902 (blue) respectively.

Note: the switching block 130 (Page 20) cannot be connected to the metal track provided with this pack.
Battery-operated railway locomotives

Steam locomotive BR 95001 of the Deutsche Reichsbahn. Battery operation 3 V, with switching lever for forward, reverse and stop. Head stocks for automatic couplings.

Recommended batteries: 2 x 1.5 V single cell batteries.

Diesel shunting locomotive with side rods. Battery operation 3 V. Glassed-in driver’s cab, flexible-plastic grab handles. Switching lever for forward, reverse and stop. Head stocks for automatic couplings.

Both locomotives operate on both the plastic track of the starter pack 300 and on LGB track with brass rails (starter pack 20801 B) as well as on dad’s large LGB.
Compared to what it has to offer, the LGB isn't that expensive. For the beginner there are complete train sets with a circle of track 120 cm in diameter. To prevent continuous travelling in circles from becoming boring, track expansion packs are available for initial enlargement complete with points and additional track. Once they start with LGB, most people get hooked and this paves the way for developing and expanding one's LGB large-scale railway at will.

Every LGB layout — even the largest — started in a small way. Fortunately getting started is easy. All aboard please! The LGB sets, which everyone can master, are available in smart, sturdy presentation packs.

As a gift for others or for oneself, at Christmas, Easter, Whit, Father's Day, birthdays, name days, passing exams, confirmation, First Communion, as engagement, wedding and silver wedding gift, to celebrate anniversaries or simply to make someone especially happy.

To put parents minds at rest: experts have tested the LGB, approved it and awarded it the above seal of approval.

All packs include an LGB instruction booklet for rapid, in-depth advice. 38 pages, a multitude of pictures and illustrations, 12 track plans and text supplement in English and French.
Getting started is easy, be it with a passenger train...

Passenger train set with 1 steam locomotive 2020 "Stainz 2", locomotive lighting system switches to direction of travel. 2 passenger coaches, all 6 doors actually open, interior fittings. The interior lighting set 3030 (Page 74) can be fitted.

20301

1 complete track circle with 12 sections of curved track 1100, circle diameter 120 cm, 4 station figures, 1 instruction booklet 0024 for layout and expansion. Train length 86 cm. Presentation pack with cellophane cover 57 x 52.5 x 16.5 cm.
...or with a goods train

With steam locomotive 2010, locomotive lighting switches automatically to direction of travel.

- 1 open goods wagon with opening side-wall doors,
- 1 closed goods wagon with moving sliding doors,
- 1 complete track circle with 12 sections of curved track 1100, circle diameter 120 cm,
- 4 station figures,
- 1 instruction booklet 0024 for initial layout and expansion.

Overall train length 86 cm, presentation pack with cellophane cover 57 x 52.5 x 16.5 cm.
Reasonably-priced starter sets — the first step

20601
Goods train starter set with variable transformer
Tank locomotive 995001 of Deutsche Reichsbahn,
2 tipping bucket wagons for loading and unloading,
1 complete track circle with 12 sections of curved track 1100, circle diameter 120 cm.
1 track connecting cable and 1 variable transformer
1 instruction booklet 0024 for layout and expansion.
Train length 60 cm.
Presentation pack with cellophane cover 67 x 33 x 15.5 cm.

Both starter packs can be expanded as desired. The enclosed transformer has a large knob for regulating forward and reverse travel as well as stopping with infinitely-variable speed setting.

Connections for railway, lighting and magnetic articles.
Tested as to safety and provided with VDE symbol.

20701
Passenger train starter set with variable transformer
Tank locomotive 995001 of Deutsche Reichsbahn,
2 summertime passenger coaches with bench seats and grab handles for Playmobil figures,
1 complete track circle with 12 sections of curved track 1100, circle diameter 120 cm.
1 track connecting cable and 1 variable transformer
1 instruction booklet 0024 for initial layout and expansion.
Overall train length 60 cm.
Presentation pack with cellophane cover 67 x 33 x 15.5 cm.
Track expansion packs — the second step

20901
Buffers set with
1 set of right-hand points 1200,
6 section of straight track 1000,
1 section of curved track 1100,
1 set of buffers 1030.
Box with cellophane cover 45 x 35 x 7 cm.

20902
Station set with
1 set of right-hand points 1200,
1 set of left-hand points 1210,
9 sections of straight track 1000,
2 sections of curved track 1100.
Box with cellophane cover 45 x 35 x 7 cm.

The time will certainly come when the track layout of the first starter pack is to be expanded. If only one had a set of points ... or a few extra sections of track ... and a set of buffers ... or two sets of points — then one could initiate shunting and perhaps a second train ...?

One can. That's what the LGB track packs are for. They are ideally suited to meeting such desires. Everything fits together piece by piece — the LGB can continue to grow.

Naturally the buffer and station sets can also be combined.

The track layouts illustrated can all be effortlessly constructed from track elements of the LGB sets. Decide upon your first layout.

The basis is always the LGB circle of a starter pack or train set.

Manual points can be converted to electrically operated points using the points operating mechanism 1206.

Realistic accessories — such as a platform, bridge, signal or barrier, all serve to heighten the enjoyment.

P. G. — Berlin:
"... When I purchased the first pieces of my LGB, I intended to use them as a test layout, with a view to constructing a garden railway. However, in view of the fact that despite its size the train set produced excellent results as an indoor layout. It has since grown into a fully-fledged system."
Steam locomotives

The romantic era of the soot-blackened steam locomotive

All aboard and off we go! Choose from eleven splendid LGB models lovingly and painstakingly copied down to the last rivet so that the magic of past ages is retained even in miniature.

Take a really close look — the fittings in the driver's cab, the coal shovel, the whistles and valves, the engine driver, the large headlamps — nothing's missing. Many models have smoke generators and in some cases the smokebox door actually opens.

The modern technical age began with the steam locomotive. It was the age when steam ruled supreme on the railway, the age of compartment coaches, gas lamps, brakemen's cabs and bells etc...

The LGB steam locomotives brought the romantic era of the soot-blackened branch line back to life. Nearly all the locomotives on which our models were based are still in use today though normally only for pulling special trains or marking anniversaries.
Eisenbahn – Vienna:
"... The locomotives are packed with energy and look quite delightful with their numerous extras ..."

Die Tat – Zurich:
"... This locomotive is a miniature rebirth of the famous, much-lamented good old puffing engines of the Salzburg-Ishl railway (which our late Emperor Franz Josef personally inaugurated in 1891) ... To every steam fan a personal Salzkammergut railway!"

2010
Branch line locomotive as 2010 D, however, reasonably-priced version without smoking stack.

The original locomotive No. 2 was in service until 1957 between Strobl/Wolfgangsee and Bad Ischl. Our archive photo shows the Salzkammergut locomotive No. 2 in St. Lorenz station. With a length over buffers of 5 m it is the smallest steam locomotive of a publicly-owned railway.

2010 D
Tank locomotive, modelled on Salzkammergut local railway SKGLB, Salzburg-Bad Ischl
Astonishingly high tractive power thanks to favourable centre of gravity above non-slip tyne. All axles driven, reliable current pick-up by all 4 wheels and via 2 sliding contacts. Lighting on both ends, switching to direction of travel. Light socket for coach lighting. Disconnectable stack which actually emits smoke, one smoke cartridge included. Top up with LGB smoke fluid 5001. Hand painted driver's cab, inset windows with embossed frame. Plus driver. Length over buffers: 250 mm, weight 1700 g.
With 2 motors

Locomotive with tender of the KPEV.

Motor in both locomotive and tender, all axles driven.

Twelve current pick-up points ensure particularly reliable running. Non-skid tyres increase tractive power.

Locomotive and tender lighting switches to direction of travel. Connecting lead between locomotive and tender.

Smoke stack with steam generator, disconnectable. One smoke cartridge included. To top up use LGB smoke fluid 5001.

Glazed driver’s cab with embossed window frames. Even the engine driver is in position. Generously detailed locomotive and tender.

Length over buffers: 450 mm, weight: 2350 g.

The water and coal supply of a tank locomotive would not be sufficient for longer stretches and therefore additional supplies are carried in the tender. The coal is normally stacked in the centre while the water is accommodated in side tanks.

Große Modellbahnen: The locomotive has two motors and that means power; the engine is easily and smoothly controllable. The baroque lavishness of the engravings and the excellent running properties coupled with high tractive power make this LGB tender locomotive a firm favourite amongst all LGB friends.

B-n2

Branch line locomotive with tender saw service on Europe’s major networks – in Prussia for example on the Mecklenburg-Pomerania railway.
US-Western type 0-4-0 class locomotive with tender and cow catcher.

LGB tender locomotives have a twin-axle coal tender containing a complete drive unit with gearbox and motor; the result — more tractive power. All 4 axles are driven and the current is taken from the rails at 12 points. Locomotive and tender lighting switches to direction of travel.

The locomotive and tender are also connected by a plug-in type lead thus ensuring maximum reliability of current distribution for both motors. A non-skid tyre increases the tractive power. The locomotive headlamps and tail lamp are automatically switched according to the direction of travel. Light socket on tender for connecting coach lighting.

Train formation: Lehmann produce a special range of coaches for the American tender locomotive enabling original Western style trains to be created.

Tender locomotives predominated in North America due to the immense distances involved. Typical features of such locomotives are the overdimensional headlamps, the large swelling bell and an especially large cow catcher which is still an absolute necessity today in exotic countries.

Following completion of their track construction days, European and in particular English work-train locomotives have often been taken over by the railway company concerned, converted and utilized for shunting and light duty. The LGB locomotive 2017 was modelled on such an engine.

The locomotive and tender locomotives have a twin-axle coal tender containing a complete drive unit with gearbox and motor; the result — more tractive power. All 4 axles are driven and the current is taken from the rails at 12 points. Locomotive and tender lighting switches to direction of travel.

The locomotive and tender are also connected by a plug-in type lead thus ensuring maximum reliability of current distribution for both motors. A non-skid tyre increases the tractive power. The locomotive headlamps and tail lamp are automatically switched according to the direction of travel. Light socket on tender for connecting coach lighting.

Hand-painted locomotive bodywork and tender. The spick and span locomotive with its true to life colouring is its driver's pride and joy.

Length: 480 mm, weight: 2350 g.

Model Railroader — Milwaukee:
"... Both locomotive and tender are motorized to achieve maximum tractive force ..."

Mba Miniaturbahnen — Nürnberg:
"... As a US locomotive it has typical accessories such as a cow catcher and smoke stack with spark arrester. This version is a real bundle of energy. The model has two motors (one in the locomotive and one in the tender) and according to LGB it has the tractive force of the LGB "showpiece" namely the diesel locomotive of the Austrian Federal Railways ..."
Tender locomotive
"Stainz 2"
of the Steiermärkischen Landesbahnen. The tremendous tractive power of this small branch line locomotive has a particularly advantageous effect on gradients on account of the centre of gravity being above the non-skid tyre axis. All axles driven, reliable current pick-up by all 4 wheels and via two additional sliding contacts, lighting on both ends which switches to the direction of travel, light socket for coach lighting. Hand-painted driver's cab, with inset glazing and engine driver. The smoke stack with spark arrester typical of this type of locomotive has no smoke generator. Length over buffers: 250 mm, wt: 1700 g.

B-h2
The "Stainz 2" has been running on the Muratal railway St. LB. since 1969 where it is used for pulling small special trains. Railway enthusiasts who like to travel on the real thing can hire this popular small locomotive in Murau and drive it themselves. Everybody's dream fulfilled – to be an engine driver once in a lifetime!

St.L.B.
Our archive photo shows the Stainz 2 on its old regular run between Preding-Wieseldorf and Stainz.
The OEG still operates on the Mannheim-Weinheim-Heidelberg run, though signs of its historical development have mostly disappeared. Box-shaped, steam-driven tramway locomotives of the 0-4-0 class carried passengers as well as loads for 50 years before the line was electrified. In built-up areas the tracks ran through the streets, outside built-up areas on their own subgrade.

Archive photo Original "Feuriger Elias" 102 on an anniversary trip. The German Railway History Association (DGEG) acquired this locomotive in 1968 and it is now to be found in the narrow-gauge museum in Viernheim.

**OEG**

The OEG still operates on the Mannheim-Weinheim-Heidelberg run, though signs of its historical development have mostly disappeared. Box-shaped, steam-driven tramway locomotives of the 0-4-0 class carried passengers as well as loads for 50 years before the line was electrified. In built-up areas the tracks ran through the streets, outside built-up areas on their own subgrade.

Archive photo Original "Feuriger Elias" 102 on an anniversary trip. The German Railway History Association (DGEG) acquired this locomotive in 1968 and it is now to be found in the narrow-gauge museum in Viernheim.

**2050**

**Tramway locomotive "Feuriger Elias" of the Oberhineische Eisenbahn Gesellschaft OEG – B-n2 (0-4-0 class).**

The black boiler inside the housing is provided with all fittings, pipes, grab handles etc. Three lamps mounted on front. Black strips contrast with green housing wall, with tiny lettering and type plate, inset front windows with metallized frame. Even the driver is in the prescribed position. All axles driven, current pick-up by 4 wheels and 2 sliding contacts, 1 non-skid tyre.

**Length over buffers: 255 mm, weight: 1570 g.**

This aesthetically-pleasing "boxshaped" locomotive can be used on all model railway layouts:
- as a tramway locomotive with the tram trailers,
- as a branch line locomotive with all twin-axle passenger coaches,
- as an urban railway locomotive with the four-axle Barmer mountain railway coaches (Page 75)
- as a mixed train with passenger coaches and goods wagons.

**B-n2**

The tramway locomotive is a particularly characteristic type of steam locomotive from the era before the breakthrough of electrified trams. To prevent them from being a hazard in urban areas, the power unit is located inside the outer frame.

No. 3618 on which our model was based was built in 1891 by Henschel & Sohn (Kassel). Service weight 16400 kg, body length 4600 mm. The locomotive has a Scharffenberg-type central buffer coupling, fixed bell, whistle, hand bell, hand brake and air brake. Despite the fact that the power unit was covered to protect passers-by and small animals this old faithful never managed to shake off the nickname "duck killer" in many areas.
Zillertal railway locomotive 2, an aesthetically-pleasing tank locomotive of the U-series.

It scores through excellent performance and high tractive power which can be attributed to a high adhesion weight and non-skid tyre as well as attention to detail; this also applies to the replica of the control system which functions exactly like the original.

There is much for the LGB lover to admire for example a smokebox door which opens to reveal a precise replica of the flue inside the boiler or a driver's cab with precise replicas of the fittings, grates on the front windows and opening doors. Stack with smoke arrester which actually emits smoke. One cartridge included. To top up use LGB smoke fluid 5001.

Twin head and tail lights which switch over automatically to the direction of travel. Light socket for coach lighting, interior lighting of driver's cab.

All three axles driven, current pick-up via 8 wheels. The set of trailing wheels has spring suspension to eliminate the danger of derailing. Length over buffers: 340 mm, weight 2480 g.

Equally well-known and popular both at home and abroad is the 31.7 km long 760 mm gauge Zillertal railway (ZB) to Mayrhofen which branches off from the main Munich-Innsbruck line in Jenbach. It is developing into an ever greater tourist attraction since trains pulled by steam locomotives run regularly during the summer timetable. Our U-series locomotive no. 2 is used on this stretch to pull passenger trains.

Photo: Locomotive no. 2 of the Zillertal railway, decked out to celebrate the 75th anniversary in August 1977.

Z.B.

The U-series, a famous locomotive family, is almost 90 years old.

This C1'-n2 (0-6-2 class) locomotive was first built in 1889 for the Steyrtal railway, in 1891 for the Salzkammergut local railway and in 1894 for the Murtal railway. Over 70 locomotives of this successful Austrian narrow-gauge type were delivered for practically every 760 mm stretch in Austria and many are still running today.

For example on the Steyrtal railway, the Styrian branch line, the Zillertal railway, on branch lines in Lower Austria, but also in Switzerland.
Tank locomotive of the Waldenburg railway. A colourful example of the famous U-series. All data as 2071 D. Length over buffers: 340 mm, weight: 2480 g.

The Waldenburg railway (WB) is the only line with a 760 mm gauge amongst the numerous narrow gauge private railways in Switzerland. It branches off from the SBB (Swiss Federal Railways) Basel-Olten line in Liestal and runs for 13.6 kilometres to Waldenburg. Between 1880 and 1953 small twin-axle and triple-axle steam locomotives saw service here before the line was modernized and electrified.

The "EUROVAPOR" Association bought the U-series locomotive 298.14 (formerly U14, built in 1898) together with a few passenger coaches from the Austrian Federal Railways in 1970 since when it has been organizing regular trips on the Waldenburg railway in trains drawn by steam locomotives. The LGB 2073D was modelled on this locomotive with its green-black-red paintwork.

The attractive model is made of plastic and has a wealth of detail. The locomotive we have is one of the most smooth-running, quietest locomotives we have ever seen...
The Spremberg urban railway opened in 1897 procured the locomotive on which ours was modelled in 1925 from Borsig and put it into service as locomotive no. 11. This small, "chunky" locomotive proved highly successful until the railway was shut down in 1956. In 1957 (now no. 995001 of the East-German State Railway) it started service on the Trans-Harz railway (formerly the Nordhausen-Wernigerode railway), where it was used primarily for shunting purposes at trolley pits and on factory branch lines in Nordhausen. Today this "beefy" B-type tank locomotive is on show in the railway museum in Pithiviers Loire (82 km south of Paris).

As the photo of the original locomotive shows, the genuine article also had no lights! Nevertheless a passenger train pulled by this original locomotive did not have to remain in the dark: The mail/luggage van 3019 (Page 73) has current collectors for supplying not only its own lights, but also those of all the other coaches via the sockets in the front wall, if the interior lighting set 3030 is fitted.

The drive unit of this locomotive is on a par with that of other proven, popular models and is naturally also suitable for outdoor use.

Especially robust model with all the details of the original: Large pneumatic pump, front bell. A non-skid tyre increases the tractive power, drive and current pick-up via all four wheels, additional current pick-up via two sliding contacts. Length over buffers: 240 mm, weight: 1300 g.

Modellbahn-Revue: "... The locomotive size is a joy to every railway lover. It is of sturdy design and withstands rough treatment. Assembly and disassembly present no problem: maintenance and cleaning are relatively simple. The locomotive has a powerful motor which guarantees a long trouble-free service life..."

Sports & Toy News — Australia: "... I too have been the proud owner of a Lehmann Railway for a year. It started quite harmlessly when I saw the locomotive in a display window and was so fascinated by it that I spontaneously decided to buy it the following morning. It was my intention to use it as decoration which I then did. That was how it all began. Now I spend every spare moment on my railway together with my girlfriend and a mate of mine..."
The BR 996001 followed on from a standard East German State Railways locomotive for narrow gauge railways (1000 mm) and designed to pull trains with an overall weight of 80 Mp (80 t) on stretches with gradients up to 33%. Krupp delivered a superheated steam locomotive of the 1'C1'-h2t (2-6-2 class) — the original on which our model was based — with the serial no. 1875 in 1939.

The Trans-Harz railway from Nordhausen to Wernigerode was opened in 1896. The 60.5 km long stretch with a 1000 mm gauge is a real low mountain range railway where the passengers can soak up the scenery and panoramic views of unique beauty. The highest point on this stretch which is used by both passengers and goods trains and for which a through train requires three hours is the “Drei Annen Hohne” (543 m above mean sea level). Here a secondary line branches off which used to lead to the “Brocken” where the line ended at an altitude of 1129.3 m. The original on which the LGB model is based still runs daily on a local line (Selketal railway).

Both locomotives have notable features: Driver’s cab with all fittings and engine driver. The firebox, opening doors, driver’s cab lighting and inset windows are all there as is the painstakingly copied lettering. The smokebox door can be opened by means of authentic locking handles to give a view of the fire tube wall where the switches for the “D and S functions” are located. Frame with 6 driving wheels, the centre axle is designed so as to give the locomotive optimum performance on bends and during transition from flat stretches to steep gradients. The carrying and trailing wheels are supported by the original Bissel radial axles and pressed onto the track by an encapsulated spring thus providing a high degree of reliability on points and crossings. The tractive power is increased by an non-skid tyre. The current pick-up via all driving wheels and both radial axles permits perfectly smooth slow shunting. 3 free-standing individually-lit lamps at the front and rear switch automatically to the direction of travel. Length over buffers: 410 mm, weight 3000 g.

MBA Miniaturbahn — Nürnberg:

... The electronics of the steam locomotive 996001 produce extremely realistic and “full” sounds, a track contact triggers an extremely genuine sounding whistling noise or the long drawn out “wailing” typical of a steam locomotive.

Model of the year 1974 for the LGB tank locomotive model “Trans-Harz Railway”. The model is characterized by its robust design which is also suitable for outdoor use and the detailed reproduction of important parts.
**2080D**

Trans-Harz tank locomotive DR with smoke generator in stack. One smoke fluid cartridge included. To top up use LGB smoke fluid 5001. Switch for smoke generator behind smokebox door. Data as per photo and description on Page 38.

**2080S**

Trans-Harz tank locomotive DR with smoke generator; all data as for 2080D model plus super electronic acoustics. Billowing smoke in time with movement of connecting rods and piston rods. Ringing bell, steam whistle, smoke clouds — fascinating steam locomotive atmosphere — a feast for the eye and ear.

**With smoke and steam locomotive sound**

*Only use large transformers!*

**Electronic locomotive whistle**

A 9 volt battery 22 is fitted at the factory in the front right water box. Since the battery current is only needed when travelling slowly, the battery is sufficient for approx. 400 – 500 operating hours.

Automatic actuation for steam whistle and bell: To trigger the whistle and bell place one of the supplied contact strips 2060/3 on either side of a straight section of track. If the two contact strips are placed opposite one another, the whistle and bell can be made to sound simultaneously, as prescribed for example when approaching crossings.

The engine sounds are synchronized with the revolution of the wheels. A built-in regulator slows the approach so that if the pistons are suitably positioned the sound of hissing steam commences while the locomotive is stopped. The bell sounds and slowly the locomotive picks up speed. Rapid "opening of the throttle" even simulates the "skidding" of the driving wheels.

The noise volume can be infinitely varied or completely disconnected by means of a controller on the underside of the locomotive.
This wheel-arrangement designation signifies:

\[ C'C' = \text{Steam locomotive with 2 power units, the first of which is flexibly mounted, with 3 drive axles each.} \]

\[ n_4 = \text{Saturated steam and 4 cylinders} \]

\[ v = \text{Composite action between high and low pressure cylinders} \]

\[ t = \text{Fuel and water supplies carried on locomotive. In cases where the "t" is omitted the engine involved is always a tank locomotive. Contrary: "T" = loco. with tender}. \]

\[
\begin{align*}
\text{**2085D**} & \quad \text{(available in 1982)} \\
\text{Mallet tank locomotive 104 of the South German Railway Company, SEG.} & \\
\text{A powerful 4-cylinder saturated-steam compound tank locomotive with 2 x 3 drive axles. Built in 1925 by Hannover'sche Maschinenbau AG Hanomag, Hanover-Linden.} & \\
\text{All axles driven, current pick-up via 10 wheels, 1 non-skid tyre, 3 free-standing, illuminated lamps at the front and rear switch over automatically in accordance with the direction of travel.} & \\
\text{Smoke generator in stack. One smoke fluid cartridge included. To top up only use LGB smoke fluid 5001. Particularly striking is the harmonious arrangement of the boilers and the spacious driver's cab which, with its large topmounted vent panel, resembles the original Prussian locomotives on which it was modelled. The cab is illuminated, the driver and stoker stand in front of detailed fittings. The smokebox door opens to reveal the boiler tube wall.} & \\
\text{With 2 motors} & \\
\text{Transformer recommendation: Only use large transformers.} & \\
\end{align*}
\]
Mallet locomotives
Steam locomotives generally have two working cylinders. A Mallet has this feature in duplicate, i.e. 4 cylinders with corresponding power unit groups, some of which are articulated. Both cylinder groups are connected to steam lines. Jointed connecting pipes run from the high-pressure cylinders through the underframe to the low-pressure cylinders at the front. This means that the exhaust steam of the first group of cylinders is at the same time the working steam of the second group.

Technical data:
Built in 1925 by Hanomag in Hanover-Linder, factory no. 104-37.
Unladen weight: 45.0 t
Service weight: 56.5 t
Cylinders: 2 LP at front dia. 620 mm, 2 HP at rear dia. 450 mm
Piston stroke: 450 mm
Boiler pressure max.: 14 kg/cm²
Output: 585 HP (DIN)
Vmax: 35 km/h
Supplies: Water = 6.03 m³, Coal = 1.5 t
Length over buffers: 11560 mm

Swiss type designation: G 2 x 3/3

Original loco. 2085 D
In the early days of articulated locomotives of the Mallet type, engines with 2 twin-axled power unit groups were sufficient to cope with the existing conditions. The two six-axled Mallet locomotives for the Nordhausen Wernigerode Railway, which were intended for heavy duty on steeply inclined stretches of track in the Harz region with numerous bends, were the first examples of this engine type in Germany. No. 104 on which our model was based saw lengthy service with the South German Railway Company on the Zell – Todtnau line in the upper Wiesental. In later years however it saw scant service and ended up in the dark sheds in Todtnau where it was only occasionally given a head of steam.

When the local railway folded, the engine was supposed to end up in the scrapyard.

Swiss railway enthusiasts saved this aesthetically pleasing engine. Since 1967 it has been in use on the “Blonay-Chamby” museum railway (Montreux/Vevey region, Lake Geneva).
Electric locomotives are the "indestructibles" of the railways. Thus for example the "Mixnitz E1" is still in service despite its 66 years. The "Rhaetian crocodiles" have been pulling heavy trains over the hilly stretches encountered in this region every day for more than 50 years. LGB electric locomotives are just as sturdy and hardy as their big brothers. And what's more: LGB electric locomotives are genuine locomotives! Just as in real life the traction current can be taken from the contact wire of the catenary system. Thus using a catenary system two locomotives can run completely independently of one another on one track: The electric locomotive takes its current from the contact wire, while the second locomotive (steam or diesel) is powered from the rails. Capacity is doubled — the way to twin-train operation opened up.

And what happens when there's no catenary system? LGB electric locomotives can also run without such a system. They have an operating mode switch for catenary system, current pick-up from track and "off" (no current pick-up).
The Mixnitz St. Erhard local railway begins on the Bruck-Graz line. This 760 mm gauge railway which is only 10.4 kilometres long has always been electrified; for those times a progressive decision on the part of the builders. Two AEG electric locomotives of the Bo class were in action right from the start of the railway in 1913. They pulled passenger and goods trains mostly with a mixture of passenger coaches and goods wagons. Today this railway is primarily used for goods traffic. The two original locomotives are still in full use in Mixnitz as shunters. The original current-collector bows have been replaced by modern pantographs. For many an LGB fan this is reason enough to reconvert the locomotive to its original state using the LGB current-collector bow 2036/3.

Archive photo: The original Bo class locomotive E1 with the old designation "Breitenau". 760 mm gauge, single-axle drive, local railway central buffer coupling max. speed 30 km/h. Length over buffers: 5.09 m, locomotive weight: 15 t.

2030

Electric locomotive AEG E1 of the Mixnitz St. Erhard local railway.

With its blue and white paintwork and red pantograph for real catenary operation, this smallest LGB locomotive is not only an attractive decoration on every LGB layout. It also has a number of special features: For instance it is capable of pulling 17 coaches/wagons on flat stretches, the doors of the driver's cab open and the view through the shiny windows reveals a fully-complemented driver's cab. Naturally the two lights on either end automatically switch to the direction of travel. A light socket for coach lighting is provided as is an operating mode switch for catenary/current pick-up from track operation, which is located on the underside of the locomotive. Air hoses and grab handles made of flexible, unbreakable plastic. Length over buffers: 245 mm, weight: 1500 g.

L.B.M.-St.E.

... This LGB model has every chance of rapidly becoming a best seller.
Track maintenance locomotive for construction and work trains

In the “standstill range” shunting can be performed with a normal locomotive as second locomotive on the same current circuit.

Track maintenance loco. with flashing light. B-class type with loading platform.
The special feature of this model is the yellow flashing light mounted on the roof, which comes in a brief uniform intervals irrespective of speed. All axles driven. Current pick-up via wheels and two additional shoes. Light socket for connection of coach lighting, locomotive light as front headlamp with automatic switchover to the direction of travel.

Operating mode switch for catenary system or current pick-up from track. The switch can also be set to “off” (central position) for no current pick-up, this is of advantage if several locomotives are being run on one layout!

Lg.o.b.: 270 mm, wt.: 900 g

Electric maintenance vehicles are widespread in Switzerland. This system is described in detail on Page 9. The flashing light and front headlamps are switched on as of the first transformer speed increment while the locomotive is still standing. This also applies to hooked-up rolling stock with lighting via the locomotive light socket. Start-up is effected at roughly 9 V.

EAV electronic in track maintenance locomotive

This system is described in detail on Page 9. The flashing light and front headlamps are switched on as of the first transformer speed increment while the locomotive is still standing. This also applies to hooked-up rolling stock with lighting via the locomotive light socket. Start-up is effected at roughly 9 V.

EAV-Standbereich

EAV-Fahrbereich

Track car

For track inspection and maintenance purposes with driver who actually moves.

The lever is moved up and down by an eccentric pulley. The bearded driver has two oil drums and a crate aboard. When he gets going, he “flies” over the rails pumping furiously.

The traction current is reliably picked up by all 4 wheels by way of spring-loaded shoes on the inside of the wheels. Length: 140 mm, weight: 460 g.

Track cars are lightweigh transportation vehicles for one or more men. These vehicles have a wide variety of designs and drive systems. There are motorized types, lever-operated types, bicycle types and even so-called railcar types. One of the main features and advantages of a track car is that it can be easily lifted from the track at any point or rotated by 180°.

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LGB-Depesche – Nürnberg:

“... It has been suggested in some quarters that only one of the drums contains oil. Rumour has it that the other is full of rum...”
The Rhaetian railway (RhB).

The Rhaetian railway which has been completely modernized in recent years is the main traffic artery in Graubünden. Its rail network encompassing almost 400 kilometres — the largest continuous metric gauge network in Europe — gives access to the most important valleys: Engadin, Davos, and the Bündner Oberland.

The impressive fleet includes 1600 rail vehicles. Roughly 400 passenger trains are on the go every day.

The Rhaetian Crocodile - 2400 HP

Technical data:
The largest standard locomotive series of the RhB is the Ge 6/6 of the CoCo class used as a heavy universal electric locomotive for goods and passenger traffic. Of the total of 15 locomotives, 14 are still in full use today on the Alpine stretches in South East Switzerland. The small crocodile on the 1000 mm gauge was built between 1921 and 1929 by SLM-BBC. The original also has 2 motors in the bogies with a total power of 2 x 1200 HP. Side rods connect the wheels of each bogie by way of the slanting-rod drive characteristic of this locomotive.

It reaches a maximum speed of 55 km/h. The traction current supply is singlephase AC, 167/3 Hz. The locomotive weighs 66 t and has a length over buffers of 13.3 m.

Ge 6/6
Großbahn - Gifhorn:
"... The electric Ge 6/6 locomotive of the Rhaetian railway, has become one of the finest super models in the large-scale sector."

2040
Heavy universal electric locomotive Ge 6/6 for all types of train. Super model with two motorized bogies.
A non-skid tyne increases the tractive power and current is picked up from the track at a total of 11 points.
The three-piece articulated body (as with the original) enables the locomotive to master even the smallest LGB track circle. The locomotive has three large headlights which change automatically to direction of travel. As with "big brother" the rear right light comes on at night in addition to the triple front headlights. The cab interior lighting also alternates with the direction of travel. Two light sockets for train lighting.

1:22.5 scale model of the original locomotive 413, hand-painted, complete with all details such as: Opening cab doors, with closing springs and adjustable sliding windows, large snow ploughs and rail guards on both ends finely etched metal type plates, grab handles, brake hoses to name but a few.
The roof too has a wealth of detail with insulators and conductors made of metal. Two pantographs for twintrain operation can be easily switched over to the catenary system. Length over buffers: 560 mm, weight: approx. 3340 g.
Electronic running and lighting programmes

The running and lighting is set by way of two sliding switches in cab No. 1. 2 switch positions enable various operating conditions to be selected including:

- Night-time operation with train lighting
- Day-time operating without lighting
- Independent twin-train operation with catenary system or
- Independent constant locomotive and coach lighting with catenary system
- Disconnection of locomotive by moving sliding switches to centre position
- Side lighting with locomotive disconnected including cab and coach interior lighting.

Functional check with 3 LEDs. These indicate correct track and locomotive polarity. Set operating mode is displayed.

Technical perfection.

Genuine LGB.

A super model with unique refinements

Recommended transformer: The 2040 electric locomotive is the most powerful in the LGB range. To guarantee trouble-free operation we recommend using our transformer/controller combination 5006/6007.

2 motors for high tractive power!

Quiz question: How many individual components make up the 2040? 200, 400, 500, 600 or more?

Answer on Page 123.
There are trams the world over not only in large cities but also in many smaller towns. Trams are also to be found on overland stretches where they operate on a similar basis to a local railway. Thus it comes as no surprise to see trams pulling goods wagons.

For the LGB enthusiast this is a welcome opportunity to open up a local tramway on his layout.

The original on which our model was based — a popular oldtimer — was built by Siemens at the turn of the century for trams of all gauges both inside and outside Germany — which was a precedent in itself.

Archive photo of the tram stop “Am Schloß” in Darmstadt with the two LGB versions. The tramcar with glassed-in cab ran a scheduled service in Darmstadt until 1965 and was then put to use as a maintenance car.

Model of the year 1977 for LGB tram models. The LGB tram models are characterized by a good choice of originals and by their sturdy, weatherproof design.
Tramcar to exact 1:22.5 scale, hand-painted, with innumerable loving details: Driver's cabs with moving control and brake cranks, mock point change levers, removable platform railings, driver figure with magnetic base. Two headlights which switch over to the direction of travel.

Drive with proven LGB gears via all wheels, one of which has a non-skid tyre, 5 current pick-up points. Switchable catenary operation via rigid pantographs. Automatic LGB coupling fits all LGB coaches/wagons. Length over buffers: 350 mm, weight: 1790 g.

In illuminated passenger compartment two passengers are sitting on bench seats. The clerestory is removable. Turn signal flashers for tramcar 2035 as mock-ups for self attachment. These have been fitted on trams since 1936.

An LGB tram can be decorated at will. The enclosed sheet of adhesive labels contains everything a real tram service would use e.g. route numbers, station names for the rotatable indicators, red and white safety markings for maintenance cars and a variety of European municipal coats of arms. Since urban trams are frequently covered with advertisements, these are also available for LGB trams.

Trailer with same bodywork as tramcar and interior lighting as standard. As in real life the LGB trailer is supplied with power via the motorized car. Thus the LGB trams also have light sockets - covered by lighting cable mock-ups – which make it possible, with the aid of the power cord included with every trailer, to illuminate numerous trailers without problem.
Tramcar old-timer with open driver platforms as used everywhere with the first "electrics" after the horsequad era. Characteristic features are the large passenger compartment windows and the pivotable current-collector bow designed as a pantograph for the catenary system. Length over buffers: 350 mm, weight: 1750 g. Other technical data same as 2035.

Tramcars used to have a current-collector bow. The position of this pantograph is a function of the direction of travel. The pivoting can be "automated". The LGB system uses a special catenary wire no. 6009 (Page 87) at each terminus. The current-collector bow is thus pivoted into the correct position with the change of direction.

The enclosed sheet of adhesive labels contains everything a real tram service would use e.g. route numbers, station names for the rotatable indicators, red and white safety markings for maintenance cars and a variety of European municipal coats of arms.

Trailer old-timer
Fittings for both vehicles as with models 2035/3500.

Both vehicles hand-painted with ornate trim as was all the rage in those days.
Tram accessories

Every tram depot features a track and maintenance vehicle. With the vehicles presented here very interesting tram-work combinations could be compiled.

The maintenance car ATW is created from a standard tramcar 2035 using the sheet of labels 2035/3; the following should be used: The labels “A” and “maintenance car” as well as the red and white safety markings.

3510 Open wagon for maintenance work red and white safety markings and brake crank. Length over buffers: 170 mm.

3530 Catenary tower wagon with pivotable work platform, tool chest and ladders. Length over buffers: 170 mm.

2035/3 Trams signs on adhesive backing for attachment as desired.

See Page 79 for further short twinaxle vehicles in our light railway range.
Diesel locomotives are the modern successors to steam locomotives. They are driven by combustion engines. The golden era of the diesel locomotive came with the change in the structure of traction after 1950. Thus these locomotives are “modern machines”.

The “cart horses” of the modern day and age

In conjunction with the LGB range of modern-style coaches it is possible to keep your model railway layout abreast of the times. 5 diesel locomotive models are available, two of which have the added interest of rod drive. Not to forget the two colourful railcars.
At the beginning of the sixties the German Federal Railways acquired for their narrow-gauge lines in Württemberg 5 modern diesel-hydraulic bogie locomotives of the same type (V 51 and V 52), B'B' (BoBo) class. 3 of these locomotives (V 51.9) found their way onto the Swabian 750 mm narrow-gauge lines. The locomotives were assigned as follows:

- V 51901 Biberach - O.-hausen
- V 51902 Schried - Buchau
- V 51903 Heilbr - Marbach.

Two locomotives V 52.9 were allotted to the Mosbach - Mudau 1000 mm narrow-gauge line.

The loco. series V 51/V 52 was built at the Gmeinder-Lokomotivenfabrik in Mosbach under MaK licence (Maschinenfabrik Kiel GmbH) and put into service in 1964. Data of 51.9 series:

- Service weight 39 t,
- 2 x 270 HP (DIN) engines, (= 2 x 200 kW),
- length over buffers 9.81 m,
- Vmax. 40 km/h.

Current fields of application

Of the three V 51.9 locomotives two were retained by the DB. Renumbered in the meantime to 251 902-3 and 903-1 for computer purposes, they are now to be found in Ochsenhausen where they handle goods traffic on this stretch on weekdays and take over standard-gauge goods wagons on the Warthausen trolley pit. The V 51901 was sold to the Styrian Regional Railways where it is in service as V 21 on the Kapfenberg-Turnau run. The two 1000 mm gauge locomotives (V 52.9) were converted to standard gauge and are currently in use as branch-line locomotives in Southern Baden-Württemberg.

Main inspection on 10.11.80:

The locomotive on which our model was based being loaded onto a special trailer with destination Warthausen in the Bundesbahn repair shop in Nuremberg.
BoBo bogie diesel loco. of German Federal Railways BR 251.

Super version with 2 motorized bogies for even more tractive power. All-wheel drive, one wheel with non-skid tyre, 10 pick-up points for passing current from the rails to the two motors.

Realistic central driver's cab, with imitation windscreen wipers, interior lighting, opening doors, grab handles, brake and heating hoses and a wealth of detail. Handpainted regulation colouring with exact markings. Triple headlights on both ends which switch over to the direction of travel. Two light sockets for connecting interior coach lighting 3030. On/off switch for disconnecting locomotive and switch for lighting.

Length over buffers: 436 mm
Weight: approx. 2820 g.

Model of the year 1979

Top of the line model with proven LGB electronics

DB diesel loco. with "diesel sound"
Model description as loco. 2051.
Weight: approx. 3100 g.

EAV-Fahrbereich
Additional functions with EAV, the electronic start delay (cf. Page 9).

The Diesel Engine Sound
With the sound generator the renowned original has been realistically reproduced:
When the locomotive is stationary, the idling knocking can be heard. Once in motion, the sound changes synchronous with increasing speed until full-load dieseling is achieved. Even without the aid of a transformer "dieseling" can be continued via a built-in battery, e.g. on disconnectable track, when reversing poles of loco. or in front of a signal with train-running control.

EAV-Standbereich
Three-position switch for diesel sound from battery to transformer and sound disconnection

A signal horn
The volume of which never changes regardless of speed sounds after passing over a track contact strip 2060/3.

Pseudo two-train operation for shunting purposes
The 2051 S electronic only starts up as of roughly 9 V. In this EAV standstill range other locos without EAV can, however, be operated on the same track and with the same speed controller for shunting.
Loco. and train lighting
Even in the EAV standstill range the entire lighting system is switched on by the speed controller. The electronics keep the brightness roughly constant during operation. As always, the three headlights switch automatically to the direction of travel.

Additional technical details
8 W high-powered loudspeaker. A 9 V IEC 6F22 battery is already installed at the factory. It is automatically regenerated during operation and thus has a very long service life.

Note:
For technical reasons it is not possible to subsequently fit the sound electronics to the loco. 2051.

Eisenbahn-Magazin Düsseldorf:
"... The diesel sound was a masterly technical solution..."
**Schöma CFL-150 DH** (B-class) diesel locomotive for main-line service and shunting. Encountered all over the world as a German export locomotive.

A brand new locomotive, 1969 make, leaving the assembly shop of the Schöma Co, (Maschinen-Fabrik Christoph Schöttler GmbH) on a low-bed trailer. The locomotive has a diesel-hydraulic drive with torque converter, double heading with operation from one cab, 161 HP (DIN), max. speed 30 km/h, length over buffers: 6.07 m.

Sturdy housing with freestanding flexible grab handles on the shunter's steps. The driver's cab with control panel is completely glassed in, window frames embossed with metal foil. The automatic switchover system in the locomotive ensures that the headlamps always light in the direction of travel. A socket is provided for interior coach lighting. The proven LGB geared motor is concealed in the generously detailed chassis. All-axle drive and one wheel with non-skid tyre provide this locomotive with optimum tractive power. The power is supplied via all 4 wheels and 2 sliding contacts. Length over buffers: 270 mm, weight: 1550 g.

Anyone wanting to see how our Schöma locomotive looks in reality should visit the 1000 mm gauge railway on the North Sea island of Spiekeroog. This railway is vital to the island as are the ferries to the mainland since there are no cars. The line with its current length of 3.3 kilometres started in 1885 as a horse-drawn railway and only "went diesel" in 1949. The trains connect with the ferries.

Our diesel locomotive can also be encountered in the mountains, for instance in the Furka-Oberalp railway. The entire stretch has long been electrified, but diesel locomotives are also kept on standby for track maintenance, shunting and possible power failures.

A 2060
Universal diesel locomotive
CFL 150 DH with horn.

Irrespective of the speed at which the locomotive is travelling the volume of the horn is always the same, being automatically actuated when the contact strip enclosed with the locomotive is placed between the sleepers.

It works like this:
When the locomotive passes over the contact strip the knob on the underside is pressed in. The horn continues to sound until the locomotive has cleared the whole length of the contact strip.

Other model and original locomotive data same as 2060.

---

**Diesel loco. with horn**

**Electronic battery economy circuit**

A 9 V IEC 6F22 battery is already installed at the factory under the long hood. An electronic control system disconnects the battery current even at average speeds. Should the battery ever be so empty that the signal horn does not sound without the aid of a transformer, it is sufficient to let the loco. run for a short time in order to regenerate the battery again. The battery need only be replaced if this does not produce any tangible results.
Diesel-hydraulic shunter "Köf", a small shunter and main line locomotive with side rods.

With a wealth of striking detail such as engine covers, radiator shutters, freestanding grab handles and headlights (imitation only), horn and intake connection. Completely glassed-in cab, metallized window frames. With engine driver in front of control panel with speed regulator.

Proven LGB twin-axle gears with all-wheel drive, one wheel with non-skid tyre for increasing tractive power, 6 current pick-up points guarantee good contact between rail and motor. Length over buffers: 240 mm, weight: 1340 g.

Große Modellbahn – Gifhorn: "... This small locomotive will be able to assume a wide variety of useful tasks on an LGB layout. It can be used for shunting as well as on local railway stretches. Similar locomotives were and are still used on island railway in East Friesland. It is fascinating to watch the rods in action..."

This small locomotive will also look good on model layouts such as a peat and mine railway with tipping bucket wagons 4043 or as a "dunnes express" with summer-type coaches 3041.

The diesel-hydraulic shunter "Köf" can be seen in this or similar versions on many railways. For example on the North German island railways, the Nassau local railway and even the Zillertal railway. This "busy lizzie" takes much of the shunting load off its bigger brothers. It does however see regular main-line service though only for small trains.

From the Rogl photo archive: Diesel loco. "Köf" on the quayside on the island of Wangerooge. From the LGB photo archive: Diesel-hydraulic shunter on the Zillertal railway on New Year's Day 78 in Jenbach station.
2095

B'B (BoBo class) diesel bogie locomotive, Austrian Federal Railways series 2095.11

Heavy-duty driving gear with powerful drive thanks to two fully encapsulated motors which drive both bogie axles. A particular source of fascination is the rod drive with the so-called Hai cranks with side rods. The low centre of gravity and enormous weight of 3.15 kg lend the locomotive excellent running characteristics. Current pick-up via all 8 wheels and an additional 4 sliding contacts. Weatherproof, sturdy, but nevertheless richly-detailed body with flexible plastic parts such as grab handles, hose couplings, imitation windscreen wipers. Handpainted locomotive bodywork with lettering just like the original. Driver's cab with fittings and lighting, driver figure, doors which open and close, triple headlights which function in accordance with direction of travel, socket for connection of interior coach lighting. Length over buffers: 460 mm, weight: 3150 g.

2 motors for high tractive power!

15 locomotives have been built to date by the SGP (Simmering-Graz Pauker AG). They are among the most modern, most powerful diesel locomotives operated by the Austrian Federal Railways. For such locomotives are stationed in Zell/See on the Pinzgau local railway Pz. A further four operate on the wildly romantic stretch of the Bregenz forest railway BWB from Bregenz/Lake Constance. The other 7 see service with various railway companies (Waidhofen/Ybbs, Gmund, St. Pölten alpine station). Length over buffers: 10.4, weight: 30 tons, 600 HP (DIN).
Wismar twin railcar with 1 motor in each unit

Each railcar unit is capable of independent travel. The motor is mounted flat under the coach floor and drives the two flexibly-supported wheel-set gear mechanisms via two drive shafts. The interior can thus be fully utilized. Four sliding doors give access to the spacious compartment with double bench-type seats and grab handles. The driver on a swivel seat and a standing conductress are held in position by means of magnets and can thus change places. The twin railcar comes without passengers, however the roofs can easily be removed to enable various seated figures from the LGB assortment 5042 and 5047 to be placed in position.

Lighting with 2 x 7 microbulbs in each case for passenger compartment, driver's cab, headlamps and tail lights. The three headlamps, the cab lighting and the two red tail lights are automatically switched when the train changes direction.

The following configurations are set by way of one sliding switch in each case attached to the motor compartment and easily accessible from outside:

M + L = Travel with lighting (as delivered from factory),
L = In siding with lighting (if voltage applied to rails),
O = Switch-off of motor and lighting.

Two light sockets in each case for 18 V coach lighting.

The enclosed connecting cable connects the motors of the two railcars in parallel. The cars can be "symmetrically" coupled using two coupling hooks in each case. Current consumption 2 x 650 mA. Transformer recommendation for twin operation: the large LGB transformers with 2 A tractive capacity.

Lg.o.b.: single 360 mm
Lg.o.b.: as twin unit 725 mm
Max. wheelbase with twin operation: 525 mm
Weight per unit: 1680 g

More light!
More operation!
With EAV
Potted history

The notion of equipping passenger coaches with their own drive system led to the development of railcars and railbuses. Maximum economy was thus achieved with minimal drive expenditure, especially since goods wagons can also be conveyed. Local railways acquired a wealth of different railcars but changes were always being made, which helps to explain the wide variety of different types (e.g. also conversion of Wismar railbuses).

Original on which our model was based and technical data:

Our model is a replica of a 2nd class internal combustion engined railcar (VT). As an ex-Wismar railcar it corresponds to the "Friesland" model produced by the Waggonfabrik Wismar in 1935. It reaches a max. speed of 45 km/h. The total passenger carrying capacity of 56 places per coach subdivides into 24 seats, 14 folding seats and standing room for 18 people.

The high tractive capacity featured by such units also makes it possible to hook up several passenger coaches and goods wagons. However even in individual operation interesting trains can be made up with one railcar.

Railcar signs

This sheet of signs permits relettering, with the result that the railcars can be restyled with addresses of various railway companies, service numbers and route indicators. A few suggestions for possible train make-ups are given here and further examples can be found on Page 65.
Wismar railbus
Type Hanover E of the DEV (German Railway Association) Bruchhausen-Vilsen.
Drive via two drive shafts on two steering axles, current transmission via all four wheels. The three headlamps, the cab lighting and the two red tail lights switch automatically when the train changes direction. The passenger compartments are brightly illuminated by three bulbs each.
The railbus can be “parked” without current by way of a 3-position sliding switch; in the mid-position also with lighting if transformer is turned on slightly.

The seated driver and the conductress are both held in position by means of magnets and can change position. The roof can be easily removed to insert various seated passengers from the LGB figure assortment 5042 and 5046. 4 opening sliding doors. The roof luggage space, including the two ladders, can be fitted by the user. The individual parts required come with every bus.

Vehicle length: 445 mm, wheel base: 160 mm, weight 1800 g

EAV electronic for railbus
This system is described in detail on Page 9. The lighting is switched on as of the first speed regulator increment while the railbus is still standing. Start-up is effected at roughly 9 V. The travelling speed can be smoothly increased up to max. with the luminous intensity remaining roughly constant.

Shunting Operation
When in “EAV Stationary Range”, the railbus remains stationary whereas a normal locomotive can be shunted on the same section of track and with the same controller.
The "Hannover" Wismar railbus was constructed in various designs between 1932 and 1941 for all common gauges namely 750, 785, 900, 1000 and 1435 mm. Wismar railbuses spread to numerous narrow-gauge and local railways in northern Germany, but these remarkable vehicles could also be encountered in the west of Germany, in the Saar region and in Lower Silesia, not to mention Spain.

Known in the vernacular as "pig's snout" or "anteater" on account of its strange front end, the Wismar bus is the forefather of all railbuses. Some have luggage racks on the roof which are lined with wooden panels, can be walked on and are accessible via two ladders. Space is provided on either side of the engine for accommodating "rural" luggage and for carrying bicycles. The bumpers protect the radiators.

The series E version with 3 compartment windows on which our model was based was built in 1933 as serial no. 20202 in the Waggonfabrik Wismar and saw service for the first time on the Steinhuder Meer railway as No. SK1. Since 1970 it has been in regular service on the DEV line between Bruchhausen-Vilsen and Asendorf as VT 41.

The railcar has markings in line with those of T41-DEV (Bruchhausen-Vilsen). The sheet of signs 2065/3 is available for additional markings and re-marking. It contains advertising signs, route indicators, assorted emblems of wellknown railway companies, railcar numbering and the like. The adjacent table indicates some secondary lines on which railcars (2065) and Wismar buses (2066) were and are employed.

The railways marked with an * are contains on our sheet of signs 2005/3 with route indicators or markings (Page 63).

First museum railway in Germany

The German Railway Association (DEV) with headquarters in Bruchhausen-Vilsen (Hoya county) pursues the goal of keeping up historically-valuable railway stock and other antiquated railway material as parts of German railway history.

35 kilometres south of Bremen in the middle of the heath museum trains run a regular service on part of the former Hoya-Syke-Asendorf railway. Our railbus can also be seen in action there. DB timetable number 114.

Technical data:
Wismar bus of type Hannover E for 1000 mm narrow gauge, 24 upholstered and 8 folding seats. 2 Ford AA 45 HP (DIN) carburetor engines, max. speed 25 km/h. Optionally 4 luggage areas and 1 roof rack. 2 cabs. Weight 5.8 t, length 10 m, wheel base 3.5 m.
Hand-made models

1981 Condenser locomotive, Mountain type of Argentinian State Railways. 4-8-2 class, built in 1937, Henschel & Sohn, Kassel. Model with consecutive serial number 801-900. Length over buffers 1004 mm.

1982 Type YG of Indian State Railways SR (South region). 2-8-2 class, Micadotype. Built between 1949 and 1951, Krauss-Maffei - Munich, Henschel - Kassel and North British - GB. Model with consecutive serial number 6801-6900. Length over buffers 875 mm.

1983 2-10-0 class, Decapod type, built according to German loco. standards, Tungpu railway - China, Shansi province. Built in 1938, Krupp - Essen. Model with consecutive serial number 318-417. Length over buffers: 720 mm.

Models must be ordered in advance. Prices and delivery dates can be obtained on request from your dealer.

LGB hand-made locomotives
Collectors items for loco. lovers. Faithful reproductions fashioned individually in metal in limited numbers. Minute attention to detail, masterful colouring and lettering. With LGB motor, for use on large track circle, diameter 235 cm. Only one loco. per year and a maximum of 100 models. With consecutive numbering and manufacturer's certificate.
Perfect locomotive technology

Safety first
- "spiel gut" – award from "GUTES SPIELZEUG" committee in Ulm.
- "Funkschutzzeichen" for radio and television interference suppression.
- "VDE-trade-mark" and "tested for safety" symbols.

International system
In accordance with the international system LGB locomotives operate on a 2-conductor twinrail system with up to 18 V DC.

The wheel arrangement
To describe railway stock in brief, use is made of a code:

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2, 3</td>
<td>No. of idlers</td>
</tr>
<tr>
<td>B, C, D</td>
<td>No. of drive axles (A = 1, B = 2, C = 3 etc.)</td>
</tr>
</tbody>
</table>

Apostrophe: Such axles are swivelmounted in main frame of loco. to enable it to master tight curves.
O: This wheel-set group has individual drive.

The table opposite lists the wheel arrangements of some on the LGB based prototypes.

Inside LGB
Axial section of an LGB steam locomotive through encapsulated gear block with motor, (disconnectable) smoke generator with funnel and headlamps with bulbs fitted.

Why do Lehmann prefer fully encapsulated gears for their locomotives? Because LGB models see service everywhere and spotlessly clean conditions cannot always be guaranteed. Lofts, cellars, capets and gardens harbour dust, fluff, threads and sand which can adversely affect precision gears. No foreign matter can reach LGB gearboxes.

The heart of the LGB locos.
is the maintenance-free, heavy-duty motor. It has 7 poles providing the power to pull long trains even when starting up and at low speeds.
Worm gears with helical wheels for extremely smooth running, maintenance-free sintered bearings and thrust type ball bearings on either side for the armature shaft.

The LGB material range
Locomotives, coaches/waregns and all accessories are made from high-grade materials. There's plastic and plastic. Of decisive importance for the stability of models are properties such as high torsion and breaking resistance. Thus LEHMANN only uses high quality material for its products: Luran-S antistatic from BASF. Important parts of the housing are additionally hand-painted with high-grade synthetic resin paint.

From Stockholm to Naples
Low carbon-brush wear makes LGB locomotives capable of absolutely incredible performance equal to a run from Stockholm to Naples.

It is now clear what the LGB has to offer
Your dealer will be only too pleased to demonstrate a locomotive to you. You will scarcely be able to escape the fascination of the LGB.
### Original locomotive

<table>
<thead>
<tr>
<th>Country</th>
<th>Railway company Manufacturer</th>
<th>Year of manufacturer</th>
<th>Serial No.</th>
<th>Gauge</th>
<th>Model</th>
<th>Loco No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>S.K.G.L.B. Salzkarmsieg-Lokalbahn, Krauß &amp; Cie Linz</td>
<td>1886</td>
<td>2325</td>
<td>B n 21</td>
<td>760</td>
<td>1100</td>
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<tr>
<td>A</td>
<td>K.P.E.V Kingtich-Preuflsche Eisenbahn-Verwaltung, Arnold Jung, Jungenthal bei Kirchen-Seg</td>
<td>1906</td>
<td>374</td>
<td>B n 21</td>
<td>750</td>
<td>104</td>
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<tr>
<td>USA</td>
<td>Colorado Railroads</td>
<td>1885</td>
<td>312</td>
<td>3 ft</td>
<td>700</td>
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<td>St. L B. Murtalbahn, Oub 760, Krauß &amp; Cie Linz</td>
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<td>Lb.M-St. E. Landesbahn Menzst. Erhard, AEG Berlin</td>
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<td>E1</td>
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<td>EUR</td>
<td>Verschiedene Bahnen (Hamburg, Berlin, Hamburg, Heidelberg, Mannheim)</td>
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<td>326</td>
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<td>Städtische Verkehrsverwaltung Darmstadt, Siemens</td>
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<td>RH-B Ruhrtalbahn SLM-BB-CW, Winterthur</td>
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<td>A</td>
<td>Z.B. Zillertalbahn, Krauß &amp; Cie Linz (Reifenthal)</td>
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<td>CH</td>
<td>Eberswalder Bahn, Krauß &amp; Cie Linz</td>
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<td>ÖBB Österreichische Bundesbahn, Simmering Graz-Pauker AG</td>
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<td>1955</td>
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### LGB model

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<tr>
<th>Fittings</th>
<th>Loco. lighting front</th>
<th>Socket</th>
<th>Technology</th>
<th>Motors</th>
<th>Gear reduction</th>
<th>Non-skid type</th>
<th>Current pick-ups</th>
<th>Loco. ma</th>
<th>Reconnect. transformers</th>
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<td></td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2000</td>
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<tr>
<td>2085 D</td>
<td>2015 D</td>
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<td>1</td>
<td>2</td>
<td>2</td>
<td>2000</td>
<td>2000</td>
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</tr>
<tr>
<td>2090 D</td>
<td>2015 D</td>
<td></td>
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<td>1</td>
<td>2</td>
<td>2</td>
<td>2000</td>
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</tr>
<tr>
<td>2095 D</td>
<td>2015 D</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2000</td>
<td>2000</td>
<td></td>
</tr>
</tbody>
</table>

### Key to index

- **EAV =** Electronic start delay
- **S =** Sound
- **P =** Whistle
- **G =** Bell
- **D =** Steam
- **H =** Horn
- **1 =** Flashing light
- **2 =** Indicator lamps
- **3 =** Switching programmes
- **4 =** Tail light
- **5 =** “Parking” without current
- **6 =** Sliding windows
- **7 =** Magnetic holder for engine driver
- **8 =** Panel lighting
- **9 =** Smokebox, open
- **10 =** Driving rods
- **11 =** Catenary operation
- **12 =** Opening doors

### Tractive power chart

The tractive power data are average values measured on the flat with stock of the latest series. The figures may fluctuate depending on the condition of the locomotive, rolling stock and track. The number of pulled axles drops on gradients: at 2% to roughly half, at 4% to roughly one quarter. The pulling power is also less on stretches where numerous bends have to be negotiated. The data in the last column “Train mA” indicate the current consumption of the locomotives in milli-amps. If coach lighting is fitted the value increases by 50 mA per lamp.
<table>
<thead>
<tr>
<th>LGB-Modell</th>
<th>Tractive power</th>
<th>Quantity of pulled axles</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGB</td>
<td>Art. No.</td>
<td>lg. o. b. in mm</td>
</tr>
<tr>
<td>2010</td>
<td>250</td>
<td>1700</td>
</tr>
<tr>
<td>2010 D</td>
<td>250</td>
<td>1700</td>
</tr>
<tr>
<td>2015 D</td>
<td>450</td>
<td>2350</td>
</tr>
<tr>
<td>2017</td>
<td>480</td>
<td>2350</td>
</tr>
<tr>
<td>2020</td>
<td>250</td>
<td>1700</td>
</tr>
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<td>2030</td>
<td>245</td>
<td>1500</td>
</tr>
<tr>
<td>2033</td>
<td>270</td>
<td>900</td>
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<tr>
<td>2035</td>
<td>350</td>
<td>1790</td>
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<td>2036</td>
<td>560</td>
<td>3430</td>
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<td>1550</td>
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<td>2075</td>
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<tr>
<td>2080 D</td>
<td>440</td>
<td>3000</td>
</tr>
<tr>
<td>2085 D</td>
<td>tractive data is available after delivery</td>
<td></td>
</tr>
<tr>
<td>2090</td>
<td>240</td>
<td>1340</td>
</tr>
<tr>
<td>2095</td>
<td>460</td>
<td>3150</td>
</tr>
</tbody>
</table>
All LGB coaches are outstanding for their excellent running characteristics. They have automatic couplings and not only the platform railings but also the interior doors open. Even the brake cranks and folding gates between the coach platforms have not been forgotten.

All aboard and close the doors! off we go into the world of LGB.

The large, "airy" windows give a particularly good view of the interior fittings. And in the four-axle coaches — any disbelievers should take a look — there is even a toilet with a seat which actually lifts! Perfectionists can even go to the lengths of complementing the scene with soap, hand towel and toilet paper.

The roofs can easily be removed to enable passengers from the LGB range of figures to take their places on the bench seats, or to enable the interior lighting set 3030 to be installed — a matter of seconds with delightful effect!

LGB — is just what you need!
2-axle passenger coaches

The colourful world of LGB twin-axled stock

2nd class Bi/s type passenger coach of the Niederösterreichischen Landesbahn with hand-painted, woodpanelled bodywork. Lg.o.b.: 300 mm.

3000

2nd/3rd class Bci/s type Zillertal railway coach, hand-painted body; three-centred arch roof, length over buffers: 300 mm.

3007

3rd class Ci/s type Salzkammergut coach, hand-painted, flat roof with clerestory and filigree-work roof supports, length over buffers: 300 mm.

3010

2nd class passenger coach of the North German island railways, clerestory and roof supports, two-tone bodywork, length over buffers: 300 mm.

3011
**3013**

Bi/s type dining car of the Steyrtal railway with interior fittings for restaurant facilities, flat roof, hand-painted body with original lettering, length over buffers 300 mm.

**3014**

3rd class Ci type passenger coach of the Süddeutschen Eisenbahngesellschaft, which is also responsible for running several lines in North East Germany. Hand-painted with flat roof and metal grab handles at platform steps, length over buffers 300 mm.

**3015**

2nd class passenger coach in Bavarian blue and white colours with flat roof, metal grab handles at platform steps, filigree-work roof supports, length over buffers: 300 mm.

**3019**

Parcels/mail van of the former KPEV with luggage space and special compartment for mails. Via light sockets the van's own power supply makes it possible to provide a lighting connection for the other rolling stock independent of the locomotive.

This coach with Bavarian look clearly reflects the cosy atmosphere of a south German local railway. Opening sliding doors. As brake van for passenger or goods trains it is fitted as standard with metal wheel sets for picking up current. In addition to the tail lights (which light up red) the furnished mail section is illuminated. Buffers: 300 mm.
3040
3rd class C/s type passenger coach of the Mixnitz-St-Erhard railway, LB M-St. E. Removable crown roof, metal grab handles, asymmetrically arranged bench seats, hand-painted body and regulation lettering. Length over buffers: 300 mm.

3050
3rd class compartment coach of North German island railways (ex Prussia). Painted body with compartments for smokers and nonsmokers, all compartment doors actually open. Windows with inset frames. Compartment walls with one-piece bench seats, flat roof with clerestory. Standing in stations with their doors open the coaches are a wonder to behold! L.n.b.: 300 mm.

3030
14–18 V interior coach lighting for attachment by user in all passenger coaches and the luggage van 3019. 2 interior lighting sets are installed in the 4-axle passenger coaches and the compartment coach 3050. The lighting sets have detachable connectors so coaches can be removed. Connection via the locomotive light socket or luggage van 3019. Operation with 14–18 V.

3031
Tail lighting. The tail lamps are attached — where else? — to the last coach between the roof and wall in the case of covered goods wagons and to the back end wall in the case of open goods wagons. In the case of passenger coaches they are attached to the rear platform. The lamps can be rotated so as to display either day-time or night-time lighting. Attachment to connectors of last coach lighting system 3030.

Illuminated trains
With the LGB there are various tractive units. However, they all have one common technical feature: the light socket, which makes it possible to provide power supplies for the interior coach lighting and train tail lights. (Exception: Locos 2075, 2090).
In 1902 the Barmer Mountain Railway Company took over the Barmer mountain railway coach from the Ronsdorf-Münster railway. Together with the "box-type" locomotive 2050 it is possible to produce a replica of one of those magnificent trains which ran for example during the steam era on the Upper Rhine railway amongst others (photo→).

Pinzgau train — ready to leave Zell/See station — comprising loco. 2095.11 (2095) and passenger coaches modelled on the B4ip/s of the Austrian Railways (3062) (photo →). Bogie coaches of the same type were/are in use on the Maria-Zeller railway, the Murtal railway and the Zillertal railway. Similar coaches can also be encountered on the Steyrtal railway (Austrian Federal Railway) and on some Swiss railways.

**3061**

Barmer 1st and 3rd class mountain railway coach
A superb specimen with a wealth of detail, hand-painted with exquisite trim. This large 4-axle coach offers superb performance. Flat roof with clerestory, filigree-work roof supports, opening platform and compartment doors. Length over buffers: 420 mm.

**3062**

B4ip/s type through-train coach of Austrian Federal Railways
In service on the Pinzgau local railway. All doors actually open, folding gates with walkways at both ends. Three compartments with interior furnishings. Fully-furnished toilet with wash basin and hinged toilet seat. Comes complete with sheet of adhesive labels for attachment of interior advertising as desired. Smoking/no-smoking signs, class markers and assorted train-route displays. Length over buffers: 460 mm.
RhB express train coach
1st/2nd class corridor coach with imitation concertina-type gangways. First class indicated by yellow stripe. Detachable roof, interior furnishings, subdivided into three compartments and one toilet. Opening and closing outside doors on side with handle. Length over buffers: 460 mm.

Long-distance passenger coaches

RhB express train coach
2nd class corridor coach with imitation concertina-type gangways. Painted in two colours, detachable roof, interior furnishings subdivided into three compartments and one toilet. Length over buffers: 460 mm.

Both RhB coaches have complete interior furnishings in three compartments as well as a fully furnished toilet with imitation mirror, washbasin and hinged toilet seat. It comes complete with sheet of adhesive labels containing assorted displays of well-known routes, interior advertising signs, smoker/non-smoker signs etc.

The Rhätische Bahn is one of the most modern of its kind in Switzerland. Its metric gauge network is the largest continuous narrow-gauge network in Europe. A service similar to that of a standard-gauge railway is practiced featuring for example express trains with through coaches and restaurant cars. The frequency with which trains run is remarkable.

Our general map shows the route taken by the "Glacier-Express" St. Moritz – Chur – Andermatt – Brig – Zermatt on stretches of the RhB, FO and BVZ railways. The alpine stretch has sections of track for rack-type operation. It is 270 km long and crosses almost the whole of southern Switzerland.
DB passenger coach, 2nd class KB4-59 of German Federal Railways. 48 seats with luggage space above them. All windows adjustable. Opening sliding doors. As with the prototype the open platforms have hinged hand rails, fold-down walkways and protective gates which swivel out.

The coach is intended for independent interior lighting with installation of a set of electrical contact elements 3019/3 and metal wheel sets 3019/1. L. o. b. 495 mm.

Opening sliding doors. The luggage van with separate personnel compartment has two large 4-section (opening) folding doors. Other model data as 3070.

With both coaches the roof can be removed after loosening 2 screws in the end faces to enable figures to be inserted. Length over buffers: 495 mm.
Passenger coach of Denver & Rio Grande-Western Railroad. Platforms with brakeman's handwheels, Length over buffers: 485 mm opening doors. Roof with clerestory easy to remove. Both Models 3080 and 3081 have original true designations and roofs with overhead skylights. The interior decorations are realistically reproduced: WC-compartment complete with handbasin, cast iron stove with coalbox, platform walkways with safety chains. Bogie according to US-Range, Type "Passenger-Narrow-Gauge".

Combined passenger coach and luggage van of the D & RGW. Platforms with brakeman's handwheel, opening end doors and sliding doors of luggage van.

Both coaches can be illuminated with two interior lighting sets 3030.
The light, forest, field and holiday railways

In addition to narrow-gauge railways or public use there are numerous small private railways. These railways which are also known as light railways are normally in-company lines in factories, mines, clay pits etc. Nevertheless even public railways require such mini goods waggons.

3041 Summer passenger coach with grab handles as used on tramways, park, exhibition and beach railways.

4043 Tipping-bucket wagon offering interesting loading possibilities, can be emptied to both sides, with removable bucket.

4044 High-sided wagon with brake crank. A work wagon for use in industry and mining. Realistic graining in wood on side walls with lettering.

4045 Stanchion wagon with ARAL petrol drums aboard. Perhaps the foundation for a genuine forest railway.

4046 Cable wagon with rotating drum as often required by work crews. The cable can be unwound and the drum removed.

4047 Wine wagon. It provides water for construction sites. Naturally the cask can be filled; the tap and tube actually work.

All rolling stock with automatic LGB coupling. Length over buffers: 170 mm.
Goods wagons have an important role to play particularly on branch lines. Frequently – indeed almost always they are coupled up to passenger trains. This is a welcome factor for the model railway enthusiast since it makes the most adventure-some combinations legitimate so to speak. However, for passengers patience is often a virtue since the busy goods traffic is often linked with considerable shunting work at the intermediate stations. A wagon load of hay to be deposited here, a lumber wagon to be collected there, parcels to be loaded and mail to be unloaded. Sand, coal, gravel, crates and containers – for LGB goods wagons its all grist to the mill. After all they are built to cart loads.

**Sturdy and stable and suitable for all loads**

The side wall and brakeman's cab doors open and shut to make loading irresistible! And the decoupling track has plenty to do in the LGB station.

Sturdiness isn't everything, the minor details also get a fair crack of the whip. All twin-axle goods wagons have freestanding heating hoses, wheel sets with fine spoke wheels and brake blocks. Hopefully you won't be disappointed that the hexagon nuts on the grease cups can't be loosened. Nevertheless they look remarkably life-like as one would expect of the LGB.
2-axle goods wagons

Loadable goods wagons

LGB wagons can be readily converted, thus for example removal of the snap-on upper section of the OEG hinged-hatch wagon 4011 creates an open wagon with low sides.

4002
Cable wagon with two "Kabel-Union" cable drums. The load, bearing blocks and company name plate can be removed. A container from the 4069/1 series is eminently suitable as an alternative load. Length over buffers: 300 mm.

4010
Low-sided wagon X as used in large numbers by all railway companies, length over buffers: 300 mm.

4011
Hinged-hatch wagon K of the "OEG". Auxiliary wagon for transporting bulk goods sensitive to moisture. Also used for transporting railway company’s own auxiliary materials, waste and slag and large tools. All 6 hatches can be opened individually. Length over buffers: 300 mm.

4021
High-sided wagon Ow with opening side doors, locked in each case by a hinged catch. Fine graining in wood, completely hand-painted body, length over buffers: 300 mm.
Covered goods wagon of "Deutsche Reichsbahn" with brakeman’s platform. Length over buffers: 300 mm.

Refrigerated wagon with two large roof fans and brakeman’s platform, multi-coloured lettering. Length over buffers: 300 mm.

Refrigerated wagon with two large roof fans and brakeman’s platform. Multi-coloured lettering. With 3 different brewery signs for conversion purposes. Length over buffers: 300 mm.

Refrigerated wagon with two large roof fans and open brakeman’s platform. Length over buffers: 300 mm.

With all goods wagons the two large sliding doors can be opened for loading purposes and locked.
Gkw 187 “Rastatt”
The wagon on which our model is based was originally employed on the Mosbach-Mudau line (Odenwald). The wagon has no platform and thus more loading capacity. Lg o.b.: 6750 mm.

A true train formation encountered in the era when the Mosbach-Mudau railway was still in operation is created by combining the diesel loco 2051 or 2051 S and the new passenger coaches 3070, 3071.

All tank wagons are waterproof being filled by means of the lockable filler tower. Drain cock with valve hand wheel at outlet, exemplary valve mock-up on other side. Hand-painted tank, brakeman’s platform with crank, ladders on either side leading to filler platform, richly detailed frame with air reservoir, brake cylinder and brake linkage.

Tank wagons which can actually be filled

Various sets of adhesive labels for attaching railway company plates as desired: “Zillertalbahn” – “St. L. B.”

“RhB” Catenary warning signs for attachment next to ladders.

4035 Covered DB goods wagon
A Württemberg narrow-gauge wagon for parcels and express freight on the Mosbach-Mudau railway which later became part of the German Federal Railway system. Both sliding doors open and the wagon features regulation lettering. Length over buffers: 300 mm.

4040C Tank wagon for chemicals
“BASF” lettering as per RhB tank wagon Uh 8011. Length over buffers: 300 mm.

4040E ESSO tank wagon
Two-tone lettering as per original of “Esso Oil Company”. Length over buffers: 300 mm.

4040S Shell tank wagon
Lettering as per original of “Shell Oil Company”. Length over buffers: 300 mm.
OEG ballast wagon which can be emptied in both directions via chutes. Shut-off via manually-operated rotary slide valves.

Superb hand-painted bodywork with precise original lettering. Length over buffers: 300 mm.

Clean as a whistle with "coal"!

eisenbahn-magazin – Düsseldorf: "... This model should bring Lehmann a double helping of success: The model railway enthusiast will admire the filigree imitations of all details, the finely-engraved joints, the imitation rivets, the neat lettering and the unloading mechanism linkage. And kids will rave about the functional, manually-actuated unloading device. A bag of "artificial coal" is enclosed with the wagon ..."

The wagon on which our model is based is No. 1200 of the OEG built in 1925 by the H. Fuchs Coach Works in Heidelberg with a bulk goods capacity of 7 m³ and a load carrying capacity of 10500 kg.
"Matra-Frankfurt" type crane wagon. A modern functional model with cable winch crane hook. The cable is actuated by means of a lockable hand crank, in order to raise or lower the load. The height of the large jib can be adjusted and the jib itself extended by 110 mm. The entire crane unit is supported by a base which can be pivoted through 360°. Tool chest each with 2 moving lockable doors on either side.
Length over buffers: 300 mm.

Mobile cranes are required by all railway companies for clearing blocked track, in the event of derailments, for bridge construction, at loading points and on construction sites. No proper LGB layout should be without such an important part of breakdown work trains.

Lehmann's heavyweight

"... Matra crane wagon with rotatable telescopic jib. This crane wagon should also be something for kids..."
4-axle bogie goods wagons

4-axle bogie goods wagons modelled on Härtsfeld or Pinzgau local railways and many US lines with diamond bogies. With some types of wagon the solebar support of the underside of the chassis companies four nickel-plated tapered metal rods. Simulation of complete brake system.

4060
Platform wagon with insertable stanchions for carrying large loads such as pipes, parts of machines, vehicles and the like. Length over buffers: 415 mm.

4061
Low-sided wagon as used on the Härtsfeld railway and many US lines. Brakeman's platform with hand wheel. Length over buffers: 415 mm.

4062
High-sided wagon 00m/s as used in the Pinzgau local railway. The 8 doors in the side actually open as do the doors to the brakeman's cab. Length over buffers: 430 mm.
Covered GGm/s-type goods wagon
of the Pinzgau local railway.
Brakeman’s cab doors and 4
sliding doors actually open.
Length over buffers: 435 mm.

Lumber wagon
loaded with 5 trunks which
can be unloaded once the
metal chains between the
stanchions have been
unhooked (the spring straps
supplied are designed for
securing the load during
transport and can be
removed).

So as to be able to handle the
considerable goods traffic on
the Pinzgau local railway, the
goods wagon fleet was
modernized with new large-
capacity rolling stock. The
LGB models of the 4-axle
large-capacity wagons 4062-
4063 conform with the
originals from this new series
down to the last detail.
Sliding doors, side-wall doors
and brakeman’s cab doors all
open.
**Container transport**

**the modern freight system**

**4069/1**

**Container set.**
Two overseas containers for storage areas and stacking, one on top of the other, but also for loading on the LGB cable wagon 4002 after removal of the two cable drums. The doors in the end walls can be opened for loading purposes, L = 170 mm, W = 90 mm, H = 92 mm.

**4069**

**Container wagon.**
Fiat bogie with two removable containers. The doors in the end walls can be opened for loading purposes. Immaculate tiny lettering. Length over buffers: 415 mm.
Covered goods wagon.
Southern Pacific box car, opening sliding doors on both sides, catwalks on roof and brakeman's hand wheel fine lettering. Length over buffers: 415 mm.

Cattle wagon.
Denver & Rio Grande Western Railroad stock car. A ventilated wagon for large cattle transports. Large opening sliding doors on both sides, catwalks and brakeman's hand wheel on roof. Length over buffers: 415 mm.

Two LGB goods trains based on American originals on a typical wooden bridge. Motif from a model railway layout with mountainous Colorado Rockies landscape and slate rocks.

Modellbahn – Revue; "... These LGB models with their super detail were created for lovers of the "western look". Appropriate extras on matching scale such as indians, trappers, cowboys, saloons, drug stores, trees, wagons and naturally all kinds of animals are available from the Hausser Co/Coburg ..."
Budweiser beer wagon
4-axle refrigerated wagon, wooden body, two-leaf opening doors on either side and multi-coloured lettering. Superbly-detailed — body and roof feature a total of 82 individual parts! Freestanding grab handles, running boards, filling hatches for chilled ice, hinges, hand brake etc. Length over buffers: 415 mm.

Variations on a train
On the American narrow-gauge railways, particularly in the Colorado Rockies, passenger and goods trains were originally kept quite separate and on some stretches express trains with restaurant cars and sleeping cars could even be encountered. However in the twenties as the railways began to suffer from the development of road traffic, there was an increasing tendency towards mixed trains, namely passenger trains which carried freight. Finally as of roughly 1940 exclusive use was made of goods trains with passenger-carrying facilities in the form of a passenger coach or a combine.

Caboose
Smart twin-axle caboose of the Rio Grande railroad. Bright red paintwork with a wealth of individual parts. Two platforms with brakeman's hand wheels. Length over buffers: 300 mm. All goods trains in the USA have such a caboose where the accompanying personnel can live, sleep and eat on the long journey across the continent. A stove supplies warmth.

eisenbahn-magazin — Düsseldorf
"... This short twin-axle wagon has been built with an eye for detail and expert knowledge of the original. Even the interior partition walls are there. Flue, lamps, catwalks, ladders, platform, hand brake and chassis are made of flexible plastic ..."
Among the multitude of public transport gauges that have been in use around the world since the dawn of the railway era, the narrow-gauge range of 750 – 1067 mm has been selected by LGB for its 1:22.5 scale model railway. LGB's two-rail track with its 45 mm gauge features solid-section brass rails for reliable electrical contact and high conductivity. True-to-gauge and good electrical connection of the tracks is ensured by sturdy rail connectors.

LGB track can be trodden on. 1 metre of track weighs 0.64 kg. A reliable, sturdy product which is built to last.

This is "Hassan" testing the LGB in his way. ... The result: the tracks are elephant-proof.
The LGB track, points and crossings are geared to one another in terms of dimensions and angles. Any track layout can be easily constructed using the track radii which come in three sizes. The 1500 mm long selfconstruct tracks (1000/3 + 1000/5) are flexible and can be adapted to every layout situation. Assorted crossing and point make it possible for the modeler to design true-to-life railway systems. Track of types 1000U, T and K is a valuable aid when expanding simple electrical circuits.

Anyone wanting to go into LGB technology in greater detail, will find in-depth material on all LGB articles in the LGB track planning book in addition to layout possibilities.

The practical track expansion packs 20901 + 20902 contain an assortment of tracks and points for the initial layout. All that is required to supplement these packs is a starter pack or the train packs 20301, 20401, 20601, 20701, 20801 or 12 sections of curved track 1100.

Cf. Page 27 for detailed explanation with track plans.

The straight make-up sections 1004 and 1008 fill gaps and thus make for easier track planning. Thus for example the track spacing at stations can be increased. Make-up tracks are primarily required for groups of crossing above all when points or crossings are fitted at "an oblique angle" and for the "slimline" points 1605/1615.

Insolated tracks can be used in place of a straight section 1000 wherever the envisaged function is desired.

1000U: For track shut-off, also disconnects storage sidings.

1000T: For use when connecting a second transformer for multiple-train operation.

Reversing loops are popular track configurations on which entire trains can be turned. With LGB the reversing loop kit employs the 1-0-2 method, just by turning the transformer knob, if desired without train stopping.

Curved sections of track with 3 different track diameters (dia. measured in centre of track). The CD is 9 cm (length of one sleeper) in each case. All series-produced LGB locomotives and coaches/wagons can negotiate even the smallest track circle.

As supplementary track also utilizable with DSP and TWT. Section 22.5°, 1/16 circle.
**1055**
Electromagnetic uncoupling track for manual and remote control. Actuation by way of control box 5075 causes the uncoupler to be lifted and the symbol "E" lights on the signal mast. If a train passes over the uncoupling track at shunting speed, uncoupling is effected. In the "off" position the uncoupler is lowered and trains can pass.

**1200**
Right-hand manual points

**1210**
Left-hand manual points
Both sets of points can be combined with the curved sections of track 1100 and crossing 1300. Angle of points 30°, the 300 mm length of the straight track corresponds to a straight track 1000.

**1205**
Right-hand electromagnetic points

**1215**
Left-hand electromagnetic points
Both sets of points for remote control via control box 5075. Technical data as 1200/1210.

**1605**
Right-hand electromagnetic points

**1615**
Left-hand electromagnetic points
Both sets of points for remote switching via control box 5075. They can be combined with curved track 1600, the DSP, TWT and the crossing 1320. The 22.5° angle of the points can be enlarged to 30° via a curved make-up section 1104. Thus connection to the 30° points system is also possible. Straight track length 440 mm, curved track dia. = 235 cm. Such points will be employed wherever the space allows since it is a real treat to watch a train going over such a group of crossings.

**1300**
30° crossing
for problem-free connection to left-hand points and for installation in circle dia. = 120 cm. The 41 mm long make-up piece 1004 also permits connection to right-hand points.

L = 300 and 341 mm. The crossing rails are electrically isolated; thus 2 different circuits can "cross" here.

LGB points have movable tongues which are spring-loaded and can thus be "split" by the train wheels when approached "backwards". Derailment is impossible since the milled tongues spring back automatically into the original position. This simplifies operation of a layout when running trains and performing shunting maneuvers.

All points actuating mechanisms can be unscrewed and transferred to the other side of the points. Manual points can also be subsequently converted to remote control using the electromagnetic actuating units 1206, 1208.

All electromagnetic actuating mechanisms for uncoupling track and points are connected to the AC terminals of an LGB transformer by way of control box 5075. See Page 107 for connecting cable.
The products featured on this page are manufactured with the cooperation of the AZB (Centre for the Handicapped) in Strengelbach/Switzerland.

A range of points for the advanced modeler. It permits life-like arrangement of groups of crossings and can be combined with all LGB track and points as the adjacent plan reveals. Crossings cross various current circuits (marked in blue and yellow). Circuit disconnection between the points is effected with rail insulating clips 5026.

LGB-AZB for advanced model railway enthusiasts

1208 (not illustrated)
Points actuating mechanism driven by electric motor
Utilizable for all left-hand and right-hand points by means of subsequent replacement (already fitted with TWT).
4-pole connecting cable for attachment to control box 5075 and AC terminals of an LGB transformer.
6-pole plug for switching disc track (stop points) and two light signals as a function of points setting.
Attachment of rotatable points lamps 1211, manual adjustment using knurled knob, end position shut-off of continuous current as protection against overload of servomotor.

1005
Make-up section, straight
$L = 50$ mm

1009
Expandable section: $L = 88$ mm, adjustable by means of rotary knob.

1320 (available in 1982)
22.5° crossing
The crossing tracks are electrically isolated and permit connection of two circuits. In terms of its geometry this crossing is identical to the DSP 1225 and can be employed in all track plans in place of double slip points. $L = 2 \times 375$ mm.

1225
22.5° double slip points driven by an electric motor
A space-saving combination of a crossing with 4 sets of points which can also be encountered on large railways wherever there is insufficient space for a group of crossings consisting merely of points, but where nevertheless certain specific functions are required. The DSP has 8 outside tongues which can be set in pairs to “cross” or “branch”. 4-pole connecting cable for attachment to control box 5075 and AC terminals (14 – 17 V) of an LGB transformer. Manual adjustment via knurled knob, end position shut-off of servo-motor, possible to indicate position on control box, $L = 2 \times 375$ mm.

1235
Three-way turnout driven by two electric motors
This turnout combines a left-hand and a right-hand set of points and thus makes for a space-saving triple branch. The two sets of tongues can be separately adjusted for “branch to left”, “straight on” and “branch to right”.

1104
Curved make-up section 7.5°, dia. 120 cm. For increasing the curved track angle from 22.5° to 30° thus making it possible to connect e.g. a DSP to the 30° points.

1005 + 1104
The ends of the sleepers can be shortened to fit a 22.5° angle; they are provided with breaking points.

Make-up track sections
Additional tracks can only be connected to a DSP and 22.5° crossing if, on either side, at least 1 make-up section 1005 (or 1104) is employed. Obtrusive ends of sleepers can be obliquely shortened by breaking them off on the “chocolate principle”.

1005+ 1104
The ends of the sleepers can be shortened to fit a 22.5° angle; they are provided with breaking points.

1Ll31_.....,
2 x 4-pole connecting cable for attachment to control box 5075 and AC terminals of an LGB transformer.

1104
Curved make-up section 7.5°, dia. 120 cm. For increasing the curved track angle from 22.5° to 30° thus making it possible to connect e.g. a DSP to the 30° points.

1005 + 1104
The ends of the sleepers can be shortened to fit a 22.5° angle; they are provided with breaking points.

Make-up track sections
Additional tracks can only be connected to a DSP and 22.5° crossing if, on either side, at least 1 make-up section 1005 (or 1104) is employed. Obtrusive ends of sleepers can be obliquely shortened by breaking them off on the “chocolate principle”.

1005+ 1104
The ends of the sleepers can be shortened to fit a 22.5° angle; they are provided with breaking points.

1Ll31_.....,
2 x 4-pole connecting cable for attachment to control box 5075 and AC terminals of an LGB transformer.

1104
Curved make-up section 7.5°, dia. 120 cm. For increasing the curved track angle from 22.5° to 30° thus making it possible to connect e.g. a DSP to the 30° points.

1005 + 1104
The ends of the sleepers can be shortened to fit a 22.5° angle; they are provided with breaking points.

Make-up track sections
Additional tracks can only be connected to a DSP and 22.5° crossing if, on either side, at least 1 make-up section 1005 (or 1104) is employed. Obtrusive ends of sleepers can be obliquely shortened by breaking them off on the “chocolate principle”.

1005+ 1104
The ends of the sleepers can be shortened to fit a 22.5° angle; they are provided with breaking points.

1Ll31_.....,
1400

Manual turntable
Manual actuation by means of a button, engages in line with track segments. Automatic current disconnection of tracks which are not in direct contact with rotating platform.
The flat turntable design permits problem-free, perfect connection of all tracks even with non-permanent layouts. The LGB turntable 1400 is handmade. It is not weatherproof and primarily intended for indoor layouts. Straight-through track length 70 cm, OD 65 cm. Platform length 47 cm, suitable for all LGB locomotives. 5 sidings, 2 approach tracks for track connection and 4 dummy sections with 22.5° track division.

Engine shed with turntable
Here steam locomotives are turned on the spot so that they can move out again front end first in direction of travel. The turntable is also used to move several locomotives over the various sidings or for running them into the connected engine sheds.

Turntable in track plan
Even in a limited space a turntable can produce an interesting layout for “parking” 6 locomotives.
Track requirement; built up from track expansion packs and individual track:
2 × 20901, 1 × 20902,
10 × 1000, 12 × 1100,
5 × 1008, 1 × 1400, 10 × 5025.

The coloured tracks have the following significance:
red = 20901
blue = 20902
white = track circle 12 × 1100
yellow = additional track

Size of layout 1.5 × 4.2 metres

Accessories for an LGB engine shed
are supplied by POLA (water crane, water tower, coaling station) and HMB (roundhouse) and can be obtained from specialist toy shops.
Track accessories
LGB layouts can of course be constructed without such accessories, but the wealth of detail they offer on and around the track adds that extra touch of class which highlights the major advantages offered by the LGB system. The OFY track makes it possible to build up track with long sections and with any desired curvature because it is flexible. Points can be additionally fitted with rotatable lamps. The double page 100/101 illustrates the LGB track accessories and gives examples of installation and application.

Track planning stencil
A drawing aid for individual layout planning on an 1:10 scale. It features symbols of all LGB track and the catenary wires 6009-6060. Two scales save conversion work in the illustrated track plan (M 1:10) and for comparative dimensions, namely original size vis-à-vis LGB size (M 1:22.5). Stencil dimensions: 283 x 210 mm, transparent, made of green plastic, with protective sleeve. Example: Using the system of connected track sections the individual track symbols can be combined using the stencil to form a group of crossings at a station or a complete track plan.
1000/5
LGB rail sections for DIY track
Solid-section 1.5 m long brass rails. Flexi-track or straight track with a length of 1.5 m requires 2 sections 1000/5, 5 flexible sleeper beds 1000/3 and 2 metal rail connectors from the pack 1000/1.

1000/3
Flexible sleeper bed for DIY track
The individual sleeper beds are linked together by sliding in the rail sections 1000/5. 5 sleeper beds are required for 1.5 metres of track. The individual beds can be held in position by using track clips 1150 so that they do not slip.

1206
Electromagnetic points actuating mechanism
For all points, both left-hand and right-hand; for converting manual points to electrically-operated points. Connection to control box 5075 with points cable 5017. Operation with 14 – 18 VAC.

1211
Rotatable points lamp with illumination
Of signal symbols which rotate automatically into correct position when points are set. They indicate the current position of the points to the engine driver.

1207
Rotatable points lamp
As 1211, however without symbol illumination.
Track accessories and their applications on and around the track

**1052**
Permanent uncoupler for fitting to straight track. When traversed slowly the first coupling is lifted and thus decoupled. When traversed rapidly decoupling can be avoided if so desired.

Uncoupling of stock with symmetrical couplings
More recent LGB stock features a coupling which moves in all directions. Such stock can be converted by means of a second coupling hook (2040) to form a "symmetrical" coach/wagon (Page 122). 2 uncouplers are then required. This combination is produced by fitting two permanent uncouplers 1052 one after the other. The permanent uncoupler 1052 can also be used in conjunction with an electromagnetic uncoupling track, in which case decoupling is remotely controlled.

**1150**
28 track clips For securing loosely-laid track and points to prevent them coming apart unintentionally and for connecting the sleepers of DIY track.

**1700**
Track Contact
The track contact can be subsequently fitted into any strait or curved track section of the layout between two sleepers. As module for automation, it takes over the simple safety functions, e. g. returning a signal to halt. Another interesting use, is in combination with an automatic block control system and Model Signals 5091 and 5092 which then allows the safe operation of a number of trains on one power supply circuit.

**2060/3**
Contact strip for triggering horn on locos. 2060/3 H and whistle/bell on loco. 2080 S. The strip is simply loosely positioned between the sleepers of a straight section of track.

**1000/1**
10 metal rail connectors for mechanical and electrical connection of the rails. Single-pole, 2 connectors are required for a DIY track.
**Track connection**

2 track terminals

For providing additional current supplies anywhere on layout. Connecting cable (sold by the metre) is soldered to metal bracket and can be routed out on either side. Large knurled screws facilitate attachment to rail section and provide a reliable contact.

**Stop block**

12 stop blocks for rails for securing parked coaches/wagons. A true-to-life railway accessory. For use on dead-end tracks on secondary lines and for securing wagons on sloping track. Large knurled screws facilitate attachment to rail section and provide a reliable contact.

**Rail isolation**

4 rail isolating clips for electrical track disconnection (single pole) or track isolation (2 pole). Can be fitted anywhere on layout following removal of metal rail connector. The mechanical connection is maintained. Used wherever the space available is insufficient to accommodate isolated track 1000U or 1000T, e.g. in curved track or between two sets of points.

**Orderly laying of cable**

5 cable holders for attachment to straight or curved track. They enable cable to be safely and easily laid along the length of the track. One holder can accommodate roughly 20 individual cables.

**Track termination with buffers**

Buffers

as termination for storage sidings and dead-end track. Planktype design filled with ballast and provided with "halt" sign. Fits every straight section of track and is attached to sleepers using the enclosed screws.

Buffers with halt signal

Can be illuminated by connection to 14 – 18 VAC. Buffers are connected to sleepers on straight and curved track by means of enclosed screws.
LGB transformers
convert the domestic 220 V
(110 V) power supply into
non-hazardous low voltages.
The operation of locomotives,
the switching of points
and the control of signals etc.
is thus completely safe. Various
transformers with different
load ratings are available for
indoor and outdoor
operation. All electrical points
signals and uncoupling
tracks on a layout can be
connected to one transform­
er, since they are not all
actuated simultaneously.
Lamps are a different
proposition; here the number
which can be connected
depends on the AC capacity
of the transformer.

Tested for safety
All LGB transformers are
tested as to electrical safety
and bear either the safety
symbol "GS" or the VDE
symbol.

Indoor operation
All transformer, naturally also
including the transformer –
speed regulator combina­
tions recommended for
outdoors, can be employed.

The adjacent table lists all
LGB transformer and
controller combinations as a
rapid orientation guide. It
provides information about
indoor and outdoor
operation as well as about
the maximum rating for
tractive current and
switching/lighting current.

Outdoor operation
Here two pieces of equipment
are always required: a so­
called supply transformer for
indoor installation (5006) and
a speed controller which can
also be utilized outdoors
(5007 or 5012). If there
is no socket in the vicinity,
LGB layouts can also be run
off a 12 V car battery with
speed regulator 5012 – a tip

The tractive current rating is
the most important criterion
when selecting the necessary
equipment. The current
consumption of all locos is
indicated in the table on Page
68/69. The sum total of the
locos operated on one
tractive current circuit or the
overall load should be below
the rated value of the
transformer system. For
example loco. 2010 with a
couple of coaches without
lighting 500 mA; here the
transformer 5003 is sufficient.

If the tractive power of this
loco. is utilized to the full the
current consumption of the
entire train increases to 650
mA. In this case the next
transformer size 5000 must
already be selected; this
however leaves sufficient
reserve for additional coach
lighting.

Equipment table

<table>
<thead>
<tr>
<th>Equipment</th>
<th>For indoor operation</th>
<th>For outdoor operation</th>
<th>Tractive current</th>
<th>Switching/ lighting current</th>
<th>Total power</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 5000</td>
<td>10 A</td>
<td>1.0</td>
<td>30 VA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 5003</td>
<td>0.53 A</td>
<td>0.5</td>
<td>15 VA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 5006 + 5007</td>
<td>2.27 A</td>
<td>1.2</td>
<td>64 VA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 5006 + 5012</td>
<td>1.5 A</td>
<td>1.2</td>
<td>64 VA</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Indoor operation

Both transformers with additional AC terminals 3-4 for connection of all electrically-operated points, uncoupling tracks, electromagnetic signals and lighting. A connecting cable with track terminals is enclosed with every LGB transformer. The track system is connected to the DC terminals 1-2.

Parallel stretches of track double the amount of traffic possible. They can be connected to a single transformer.

Purchasing a second transformer opens the way to running 2 trains independently of one another.

The Transformer Controllers 5000 and 5003 have identical features:
- Rectifiers for converting the A.C. mains voltage into D.C. driving voltage.
- Infinitely variable driving speed control for all speeds, adjustable on the controller manual knob.
- Single knob change-over switching for the direction of travel. With all LGB-Transformer Controllers, the change-over point is in the zero position of the large control knob.
- Thermal safety switches which protect the complete electrical layout for excess currents and short circuits.
- Two control lamps (for Trafo. 5000) to indicate a fault in the driving voltage or lighting supply circuits.
- Coloured quick release terminals, red-blue for track connections, white-black for lighting and points connections.

Variable transformers for "indoors"

Variable transformer, 220 V, 15 VA, connection for indoor operation, total power 13.5 VA, tractive voltage 0-16 V, 0.6 A. Lighting and switching voltage: 14 V, 0.6 A AC.

As 5003 however 110 V connection

Variable transformer, 220 V, 30 VA, connection for indoor operation, total power 33 VA, tractive voltage: 0-16 V, 1 A, lighting and switching voltage: 14 V, 1 A AC.

As 5000 however 110 V connection

As a general rule the transformer belongs between the light socket and model railway. The 220 VAC from the household socket is converted in the transformer to the voltage of 14/16 V.

Connection diagram for tractive current and remote control of points via control box 5075.
Outdoor operation

Model railway transformers are only approved for indoor use. Thus, for outdoor operation, use must be made of the speed controllers 5007 or 5012. The transformer remains indoors whereas the speed controller is installed in the open if at all possible such that it is protected against the elements.

The transformer and speed controller are electrically connected by means of LGB low-power cables.

**Transformer**
- For supplying power to a speed controller 5007 (or 5012) and for connection of lighting/switching current.
- Mains connection 220 V.
- Overall power 64 VA
- DC output for speed controller 5007: 22 V, 2 A rated current, short-term operation up to 2.7 A. AC output for lighting/switching current: 17 V, 1.2 A.
- Installation dimensions L x W x H = 16 x 12 x 9 cm, weight 2450 g.

**Electronic speed controller**
- Equally suited to indoor and outdoor operation. Infinitely-variable speed control 2 - 18 V (with connection to 5006) for forward and reverse travel via a sensitive rotary knob. Fixing of zero position in centre. The set speed is electronically maintained at a constant level depending on load, e.g. uphill or downhill travel, connection of bell with loco. 2080 S, entry into bends etc.
- Impact-proof plastic housing, simple cable connection by means of six coloured easy to fit the terminals.
- Complete with 1 connecting cable 5006 - 5007, 1.5 m long.
- Installation dimensions L x W x H = 16 x 12 x 9 cm, weight 600 g.

**Connection examples**
1. Single-train operation: For one track connection with one train up to 2700 mA and simultaneous connection of all electromagnetic features (points, signals, uncoupling tracks) or lighting up to 1200 mA.
2. Two-train operation: For circuit division into two tracks or catenary operation with 2 locomotives on the same track. The overall power of the transformer 5006 is split between speed controller 1 with 2700 mA and speed controller 2 with 1200 mA. Should two speed controllers be connected, additional con. of lighting/switching current is no longer possible.

**For all DC railways up to 18 V.**
The transformer/controller combination 5006/5007 is a powerful module for supplying power to any model railway layout. It has additional functions for braking and acceleration and can be extended to accommodate automatic operation.

The electronic speed controller 5007 can also be connected to any other 110 V or 220 V transformer, even to the AC or DC outputs. The output on the speed controller will always be DC.

Improved handling! With proven LGB electronic

LEDs indicate the operational status at the cable input/output: The right LED indicates the output voltage, its brightness changes with travelling speed.

Automatic operation for the ambitious railwayman
The magnitude of the output voltage (travelling speed) can be remotely controlled via the terminals "AUTOM". For the experienced "do-it-yourselfer" the operating manual contains switching suggestions which can be easily realized with commercially-available components. In conjunction with track contacts various automatic functions can thus be put into practice, e.g. slow travel on main line or entry into station with automatic stopping etc.

The "EAV shunting range" for the "LGB railcars" 2033, 2051 S, 2065 and 2066 is marked on the knob scale with settings 0—2.

The electronic speed controller 5007 can also be connected to any other 110 V or 220 V transformer, even to the AC or DC outputs. The output on the speed controller will always be DC.

5012 up to 1.5 A
Speed controller with resistance control.
For connection to transformer 5006. Infinitely-variable speed regulation with polarity reversal switch for forward and reverse. Thermal safety switch, load rating up to max. 1.5 A.

Complete with con. cables: 1 connecting cable 5006 - 5012, 1.5 m long. 1 track connecting cable for 5016 with connector, 1.5 m lg.
The LGB control boxes are important for remote control of points, signals, lamps, disconnectable track, etc. The LGB range features two boxes with different types of switches which have fundamentally different electrical functions. In order to prevent mix-ups, the housing are thus of different colours: namely red or yellow.

The "growing" control console is realized by simply connecting together LGB control boxes. All switches are thus automatically connected to the transformer cable attached to the first box.

Control console for electromagnetic features and devices driven by an electric motor
All electrical points, signals and uncoupling tracks are connected for remote control purposes to red control boxes 5075. A current circuit is produced by combining several control boxes. All that is required as a control box cable 5018.

Control console for disconnectable track
For all disconnectable sections of track on one transformer circuit if it is desired to operate with more than one locomotive with one transformer. Additional tractive current circuits require their own control boxes; for this reason, with larger layouts, a separate control box is also required for each tractive current circuit.

5075
Control box with protective lid.
Designed for remote control of all LGB devices with electromagnetic actuating mechanisms, to which current may not be continuously applied (points, signals, uncoupling track).

Control box signs
For indicating the individual functions – enclosed with every box.
Signs with appropriate function symbols and identification numbers can be stuck into the recesses in the protective lids. With such labelling correct switching can be effected every time.

5075/1
Control box signs
A sheet of adhesive labels for control boxes 5075 and 5080 and for all points actuating mechanisms.

In this manner several locomotives can be held in readiness at the same time on a single layout and operated alternately:
• Parking of several locomotives in sidings
• Halting on approach to a station while a second locomotive is still being manoeuvred.

Four electromagnetic units can be actuated via 4 non-latching push-buttons.

5080
Control box with protective lid.
With 4 toggle switches for connection/disconnection of four disconnectable track sections or lighting.
The interior circuit diagram shows the four built-in rocker switches which only make contact as long as the switch in question is pressed.

Lighting
For lighting circuits the yellow control box can be attached to red control boxes.

Connection symbols:
The control box 5075 is connected to the AC transformer terminals 3 – 4 with the same designations with cable 5018.

Connection symbols:
The control box 5080 can be optionally used for two applications; thus the connection symbols are given twice.

Multiple-train operation with disconnectable track
In this manner several locomotives can be held in readiness at the same time on a single layout and operated alternately:
• Parking of several locomotives in sidings
• Halting on approach to a station while a second locomotive is still being manoeuvred.

The internal circuit diagram shows the four built-in rocker switches which only make contact as long as the switch in question is pressed.

Multiple-train operation
• Prevention of individual trains leaving station.
• Overtaking or crossing. The greater the number of disconnectable sections of track, the greater the number of locomotives which can be controlled and thus the higher the operational intensity.

LGB technology
Anyone wishing to really get to grips with LGB technology will find comprehensive information regarding the uses, design and functioning of the individual items in the LGB range – in greater detail than is possible here – in the LGB track planning book in addition to layout suggestions.
Cable and accessories

The LGB connecting cables with large cross-section 0.38 or 0.50 mm², YL-insulated. The various cable ends fit the respective transformers etc. Should a cable end not fit to a particular device, this is no problem: cut off connector or terminals, strip cable, make connection with bare ends.

DIY cables
The prefabricated LGB connecting cables 5015 - 5021 have fixed lengths which are indispensable for initial equipping of an LGB railway, but which are insufficient for larger layouts. Thus, for advanced model railway enthusiasts, we recommend DIY cable with LGB 5022 - 5024 which is sold by the metre. To produce DIY track connections the connecting cable (sold by the metre) is soldered to the metal bracket of the track terminal 5016/1 (Page 101).

Heavy-duty connecting cable
with additional radio interference suppression as per VDE; for use in place of a standard connecting cable. It brings advantages which no LGB lover should be without:
- improved radio and television interference suppression
- higher speeds.

Connecting and extension cable with terminals
For connecting a transformer (5006, 5009) to a speed controller (5010, 5012). 2-core, L = 500 cm, extra long for outdoor operation. Separating the twin strand creates 2 individual cables.

Separating the twin strand creates 2 individual cables.

Connecting lead (5012 - 1000), 2 core, with plug for 5012 and 2 track terminals, L = 150 cm.

Heavy-duty connecting cable with plug for connection to controller 5003, 5000, 5007. L = 150 cm. 5016/5000 (not illustrated) Heavy-duty connecting cable with terminals for connection to transformer or controller 5009, 5010. L = 150 cm.

Control box cable (5000 ---, 5075) 2-core with terminals and sockets for control box 5075, L = 200 cm.

Model Railway Connecting Wire
In practical reels of 20 metres for making individual connecting leads. Recommended for your LGB. Cross section of the stranded copper wire 0.50 mm², YL-insulated dia. 2.0 mm. The insulated wires of the twin and triple leads can be easily separated.

Cable (sold by the metre) 20 m stranded wire. Cross-section 0.50 mm², YL-insulated.
- 5022 Single wire, grey
- 5023 Twin wire, blue/red
- 5024 Triple wire, green/white/yellow for connecting electrical mechanisms of point etc.

Control box cable (5000 → 5075) 2-core with terminals and sockets for control box 5075, L = 200 cm.

Cable holder 5071
Practical holder for routing cable along the length of the track layout. The holder is simply clipped to the sleeper bed, can accommodate up to 20 cables and routes them safely along the track (cf. Page 101).

Control box cable
(5000 → 5075) 2-core with terminals and sockets for control box 5075, L = 200 cm.

3-pole distributor strip
Required for connecting several individual leads of points, signals, lighting etc. to a common pole. The three electrically-isolated screw terminals can accommodate several cable terminals.
Signals are an essential part of an orderly railway. In stations or along the line they impart information and commands from the operations controller in the station to the engine driver.

A few LGB signals, appropriately arranged in stations and around the track, should not be dispensed with even on smaller layouts, since they make for added interest and more practicality. Connection and setting of signals via control box 5075 (or track contact 1700 for automatic operation). In conjunction with isolator track or rail isolating clips a short section of track in front of the signal is automatically switched as a function of the signal setting by means of the train-running influencing switch built into every signal actuating mechanism. The stopping and starting of trains is thus remotely controlled.

And that's not all: if a track contact 1700 is fitted after each signal then the trains control themselves. Thus, with this set-up, it is possible for example to automatically switch a signal after a train has passed so that a following train will be forced to halt.

With a minimum of 3 stop signals on one line it is also possible to realize “block operation” where two trains control themselves.

Railwaymen's signal parlance

To enable semaphore signals to be recognized even at night and in foggy conditions, the coloured “night signal” lights depending on position.

The signal commands can be recognized more easily and more rapidly in abbreviated form. For example at stop signals Hp:

Hp0 = “Stop”, red light
Hp1 = “Proceed”, green light
Hp2 = “Proceed slowly”, one green and one yellow light.

Or with warning signals Vr:

Vr0 = “Expect to have to stop”, green/yellow light
Vr1 = “Expect to be allowed to proceed”, green/green light.

Multiple-train operation with signals
Standard signals

Even with non-permanent layouts signals are extremely easy to install: they are clamped to the track by means of a special fastener. Up to 4 signals 5029 can be remotely controlled using a control box 5075.

Standard signals are available in two versions: 5029 with train-running control and electromagnetic actuating mechanism for remote control, 5030 without train-running control for manual actuation.

5029
Electromagnetic semaphore signal with lighting
for automatic train-running control with 2 isolator tracks, each 82 mm long, 2 track connecting cables. Remote control with connection to control box 5075, via cable 5017. Operation with 14 - 18 VAC.

5030
Manually-operated semaphore signal, without lighting and train-running control.

5030/1
Prussian semaphore arm as spare part.

5031/1
Bavarian semaphore arm as spare part or period piece.

Connection diagram for signal 5029 with train control.
The signals are installed directly adjacent to a straight section of track and secured to the sleepers by means of a snap fastener.

A tractive current switch is already installed in the signals which disconnects the current of one rail in the Hp0 position = "stop" thus bringing the locomotive to a standstill before the signal.

Automatic Operation
For an automatic signal setting by means of the Track Contact 1700 the Semaphore Signals (see page 110) with end of travel coil contacts are recommended.
Model signals with train-running control

LGB-Model-Semaphore-Signals

Installation - Technique - Extension:

• Each signal with individual manually operated mechanism and a change-over switch with spring-contact for train control which is coupled to the semaphore signal arm. Lighting and track connections by means of screwed connectors.

• By means of the Electromagnetic Drive 5090, the signals can be subsequently converted for remote control operation.

• Each signal with two disconnecting track sections 150 mm long. A 6 pole connector-block for connecting the various track sections is accessible under a removable chequered plate cover. The signals are screwed to one of these disconnecting tracks (left or right as required) and the leads connected to the train control circuits over the shortest distances.

• A diode, included with each signal, can be fitted which allows the locomotive to reverse through a blocked signal (Cancellation of a “Stop” signal) in the reverse direction on a single track section.

• All signal masts can be easily removed from the drive units. Lighting connections are made through plug and socket connections. In this manner, a service friendly handling is accomplished when mounting, cleaning or during long non-operating periods.

(5090) Electromagnetic Drive Unit

For subsequent conversion of manually operated Semaphore Signals 5091-5092. In this manner, every model semaphore signal can be remotely controlled either from the Control Panel 5075 or automatically from the Track Contact 1700.

Twin coil operation with coil protection by means of end-cut off contacts, operating voltage 14 - 18 V A. C. Connection by means of three screwed connectors.

Warning signals

(5091) Warning signal Vr0/Vr1 with movable signal disc and light change from yellow/yellow (Vr0) to green/green (Vr1) by means of two pivotable diaphragms. Removable signal actuating mechanism. 2 bulbs 18 V. Signal height 180 mm.

(5092) Warning signals Vr are always linked to a subsequent stop signal. A warning signal informs the engine driver to the next stop signal position he can expect.

(5093) Warning signals Vr are always linked to a subsequent stop signal. A warning signal informs the engine driver to the next stop signal position he can expect.

Stop signals

(5094) Stop signal Hp0 - Hp1 With one signal arm and light change from red (Hp0) to green (Hp1) via a pivotable diaphragm. Removable signal actuating mechanism. Bulb 18 V. Signal height 350 mm. Installation on main line

Stop signal Hp0 - Hp2 With two coupled signal arms and light change via two pivotable diaphragms from red (Hp0) to green/yellow (Hp2). Removable signal actuating mechanism. 2 bulbs 18 V. Signal height 350 mm.
Electric locomotives characterize the modern railway. An outward feature of electric-locomotive operation is the catenary system. For a model it is of no importance whether the catenary system serves as current conductor or merely as a mock-up for its visual effect.

2 trains on 1 track

An overhead current supply does however have one big advantage from the operational point of view: independent operation of 2 trains on the same track. It is merely necessary to flick over the mode switch to be found in every electric locomotive to catenary operation. That's how easy it is to operate a two-train service with the LGB.

- Two trains running in opposite directions cross on passing track.
- Two trains following one another.
- Coupling up of an assisting locomotive e.g. on hilly stretches.
- Main-line operation with simultaneous shunting in station.
- Two locomotives performing simultaneous shunting operations in station, and much more besides.

The LGB on a steep slope

This layout with realistic track routing was based on the original Rhaetian railway. Owner: Dr. Knut Eichner.

Crocodile under "catenary wire"

A Swiss exhibition layout with model catenary system.
Standard catenary system

For secondary lines and trams

Connection diagram
Catenary-system operation for "indoors" with two variable transformers. For outdoor operation a transformer 5006 (as supply transformer) and 2 control boxes 5007 or 5012 are required.

Catenary mast
For attachment to track by means of snap fastener; an ideal solution for outdoor operation as well.

The contact wires are laid in zig-zag fashion at a height of 230 mm above upper edge of rail.

Mast bracket arm
Accessory for a second contact wire in the case of two-track tram or secondary line operation. For attachment to catenary mast 6000 or 6001.

Catenary wires
6010 L = 300 mm for track 1000
6011 L = 315 mm for track 1100
6015 L = 400 mm for track 1500
6016 L = 470 mm for track 1600
6060 L = 600 mm for track 1060.

2 special catenary wires
pivot current-collector bow of tram 2036 automatically when changing direction. Installation at terminuses in place of 6010.

The LGB catenary material is weatherproof:
- Contact wires and mast support arms made of stainless steel
- Lattice masts made of weatherproof plastic LURAN S (BASF).

Catenary-system signs
Signs for "Halt", "End of catenary system", "Bow down", "Bow up" are contained in the set of warning signs 5032.

Feeder mast
with 2 cables, length = 300 cm, for catenary and track connection. A stretch of track with catenary system requires several catenary masts 6000 and at least 1 feeder 6001 per circuit.

Catenary mast
for attachment to track by means of snap fastener; an ideal solution for outdoor operation as well.

The contact wires are laid in zig-zag fashion at a height of 230 mm above upper edge of rail.

Mast bracket arm
Accessory for a second contact wire in the case of two-track tram or secondary line operation. For attachment to catenary mast 6000 or 6001.
Model catenary

with metal masts, weatherproof. Complete catenary assortment based on Swiss railways with individual support arms (also with current connection), gantry supports for spanning max. 3 tracks, 12-piece contact wire kits and naturally individual masts made of H-sections in aluminium alloy.

The catenary wires consist, as do their prototypes, of parts which are separately mounted; the contact wires are suspended from "carriers" via so-called hangers. This permits precise installation which exactly matches the track layout. Creating a fit between two support arms or gantry supports is no problem; simply shorten the contact wires and "carriers".

The model catenary system is produced in conjunction with the AZB (Centre for the Handicapped) in Strengelbach/Switzerland.

Contact wire in detail:

• Fitting of hanger between "carrier" and contact wire; the grooved profile of the contact wire is clearly visible.
• Contact-wire isolation for disconnectable stretches of track and different circuits with plastic contact-wire connectors (6100/5), for example a set of points.
• Contact-wire branching over a set of points.

LGB-AZB for advanced model railway enthusiasts
The article photos illustrate the catenary-system as it would be during operation and marked with consecutive numbers.

6100 1
Catenary mast with mounted contact-wire support arm, insulators for feeder line and base. For attachment directly to sleeper bed with different spacings. For universal use as mast alongside track and mast for gantry supports. Mast material: H-shaped rolled section made of aluminium alloy, height max. 365 mm.

6100/2 4
Contact-wire support arm with insulator, for attachment to mast for additional track, e.g. in conjunction with gantry support.

6100/4 6
12 connectors/metal for mechanical and electrical connection.

6100/5 7
12 connectors/plastic as isolator between two contact wires for various functions and circuits.

6101 5
Contact-wire support arm with cable for supplying power to catenary-system contact wires. A contact-wire connector (Sa) with connecting cable serves to supply power to sectioning points in the catenary system. Cable length: 1 m each.

6102 3
3 gantry supports For spanning 3 (and more) tracks in stations. Rigid design with fitted insulators for “carriers” and a contact-wire support arm for centre track.

6160 2
12 piece contact-wire kit With 600 mm long contact wires, sufficient for a track length of 7.2 m.

6190 (not illustrated)
12-piece contact-wire kit With 900 mm long contact wires, sufficient for a track length of 10.8 m. Both kits contain 12 carriers, assorted hangers with differing heights and 12 contact wires with grooved profile made of brass.
LGB accessories for the layout builder
A railway without accessories is incomplete. Wherever trains stop, people live, and houses, stations, bridges, barriers etc. are to be seen. The LGB assortment contains accessories of all types.

Moreover the accessories industry has other interesting possibilities to offer, which match the LGB scale and are available via specialist toy shops and model railway dealers. A selection is given on Pages 124 and 125.
5032 Set of warning signs containing 16 different rigid railway signs. The enclosed base plates with pin (for sticking on) are intended for outdoor installation.

5033 8 piece tram stop set. The three signs from different eras and a clock are inserted into the platforms 5034. In addition, advertisement and departure time board, bench seats, waste paper bin and a sheet of labels on a four-coloured adhesive foil.

5034 12 piece platform. For insertion of straight track on a level with rails. A kit contains 8 broad and 4 narrow base plates each 300 mm long. Installation can either be on a single or multiple-track basis. Catenary or signal masts can be inserted at the outer edges.

Idyllic winter scene at a small station
No need to shift snow — photo of a cleverly-constructed diorama by our LGB friend, Fritz Braun.

The LGB platform covers all straight sections of LGB track on a level with the rails. It is used wherever — as on large railways — it is permitted to cross and drive over the track, i.e. at
- passenger stations as platform
- freight stations for facilitating loading
- tram stops

What's more the LGB mini-figures don't want to go stumbling over the track either.
5035 **Telegraph poles**
For use on straight track. With pins for outdoor.

5036 **Telegraph pole with support**
For use on bends. With pin for outdoor.

5038 **Outdoor advertising pillar**
Modelled on old Nuremberg originals. Height x diameter: 182 x 69 mm.

5039 The advertising pillar can also be used as a (model railway) money box or as a camouflaged box for pens, pencils etc.

5040 **Station lamp**
Model based on old street lamps. 14 – 18 V lighting connection, cable length approx. 30 cm. Base for outdoor operation. Ht. 210 mm.

5050 **Barrier (level crossing)**
Can be used everywhere on single-track, straight stretches. The two arms are lowered by the weight of an approaching train. They remain down until the last coach/wagon has passed. Length: 250 mm, width: 310 mm.

5060 **Railway bridge**
For straight sections of track, replica of a "top boom bridge" with precision imitation riveting in framework, wooden walkway for pedestrians, span: 450 mm.

5065 **Winter operation on a terrace layout**
Snow can neither harm the trains nor the LGB accessories – all that is required is track clearance.

The LGB – a model railway for indoors and out which can operate whatever the weather and brings incomparable pleasure every day of the year.

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For straight sections of track, replica of a "top boom bridge" with precision imitation riveting in framework, wooden walkway for pedestrians, span: 450 mm.

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The LGB – a model railway for indoors and out which can operate whatever the weather and brings incomparable pleasure every day of the year.
**Figures**

Miniaturbahnen/MIBA – Nürnberg
"Seated figures serve to "animate" the passenger coaches and prevent them from having to sway through the countryside empty."

**What would a railway be without passengers and personnel?**

"Something's always going on in the LGB world. 40 standing, sitting and even working miniature figures enliven the scene. They take their places in passenger coaches or they wait patiently on the platform for their next train. All figures are hand-painted and come with secure base.

**5040**

4 station figures I
Conductor, station master with moving signalling disc and two waiting passengers.

**5041**

6-piece group in traditional costume
A couple from the Black Forest, two children, hunter with dog and farmer's wife.

**5042**

4 seated figures, for all passenger coaches, tramcars and platform seats.

**5043**

4 piece station personnel set. Engine greaser, porter, newspaper salesman and track worker with pick.

**5044**

4 station figures II
Porter with hand-cart, Red Cross sister from Travellers' Aid Society, waving woman, track construction worker with shovel.

**5045**

4 station figures III
Filter with wrench, shunter with lamp, waiter, sausage seller.

**5046**

6-piece tourist group
Skiers and hikers with rucksack and binoculars.

**5047**

4 seated figures II
for use in all passenger coaches and railcars, on trams and naturally also on platform seats. Tramp, teenager and an exotic couple.

**5048**

4 standing passengers
Man and woman greeting each other, running motorcyclist with crash helmet and girl with moped.

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**Rail maintenance**

Outdoor tracks are subject to different, far more severe conditions than those used in indoor layouts.

Maintenance work concentrates primarily on keeping the surfaces of the rails clean.

**5001**

LGB smoke and cleaning fluid
with two functions:
1. Smoke fluid.
2. Cleaning fluid for rails, wheels, gears.
An all-round preservative which has no adverse effects. Container with spray nozzle. (Do not use as lubricant!)

**5004**

Rail grinder for cleaning surface of rails
Bright rails mean good outdoor LGB operation. This grinder is also a popular DIY requisite for hobby and home. 3 interchangeable strips of superfine emery paper (grain size 220) are included.

**5005**

Rail cleaning unit for automatic rail cleaning during operation
Particularly suitable for large outdoor layouts.

Simple to retrofit on a twin-axle wagon. 2 spring-loaded grinders keep the track surface clean. Self-adhesive grinding pads (grain size 80) are included as spares.
Anyone wishing to journey through the LGB world wants to know as much as possible in the greatest detail. The LGB track layout book contains all the information a hobby railwayman needs.

0026

LGB track planning book
152 pages, format 21 x 30 cm, boarded, high-gloss foil laminated binding; 260 photos, 340 drawings and 2 tables. A handbook with numerous valuable, practical tips. It contains more than 100 exactly-reproduced track plans with parts list. 14 chapters provide numerous stimuli not only for LGB beginners and the advanced amateur but also for the "professional model railwayman". A section covers in detail controllers, cabling, points, reversing loops, multiple-train operation, signal technology, disconnectable track etc.

In addition to this insight into LGB technology with its flexible layout possibilities, reference is also made to the construction of layouts in the home as well as the numerous possibilities for constructing an outdoor layout in the garden.

It's simply more fun when one's in the picture

The section entitled "For locomotive lovers and railway friends" at the end of the book reviews the narrow-gauge railways in Europe. You will be surprised how many are still "active".

What the press thinks

Eisenbahn - Düsseldorf: "... A wealth of practical and valuable LGB tips make this book a handy source of information for all LGB lovers; strictly speaking it's a must ..."

Eisenbahn - Vienna: "... The layout planner and constructor will find a wealth of information in the individual chapters in selected examples and what's more the key to their practical realization ..."

Miniaturbahnen - Nuremberg: "... To prove that the LGB narrow-gauge stock is by no means a "fantasy product", the reader learns in passing about the originals on which the LGB was modeled. An appendix provides useful planning material such as information on track and points geometry, structure clearance etc. ..."

Plan 1: This track plan is one of our readers' favourites. The red arrows show extension possibilities which can be realized by inserting straight sections of track. The layout can also be quite simply extended with a turntable thus giving room to accommodate 6 locomotives.

Plan 2: A pretty 'layout with twin-track and two tractive current circuits which requires little space. The red line indicates possible separation of the layout. When putting down the layout the two halves of the base need only be pushed together at the rail joints; the power connections of the two track halves are thus also made.

Plan 1000 4
1004 1 2
1008 5 4
1020 4 2
1030 3 ~
1050 10 ~
1070 27 4
1100 5 3
1120 4 ~
1150 ~
1505 ~
5038 1

Plan 1004 1
1008 5 4
1020 4 2
1030 3 ~
1050 10 ~
1070 27 4
1100 5 3
1120 4 ~
1150 ~
1505 ~
5038 1

Plan 1008 5 4
1020 4 2
1030 3 ~
1050 10 ~
1070 27 4
1100 5 3
1120 4 ~
1150 ~
1505 ~
5038 1

Plan 1020 4 2
1030 3 ~
1050 10 ~
1070 27 4
1100 5 3
1120 4 ~
1150 ~
1505 ~
5038 1

Plan 1030 3 ~
1050 10 ~
1070 27 4
1100 5 3
1120 4 ~
1150 ~
1505 ~
5038 1

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LGB-Depesche
"Magazine for friends of the Lehmann large-scale railway and the originals on which it was modelled".
Published twice a year — normally at the end of May and November — it provides a wealth of information. No doubt you too want more information about the best hobby there is “The LGB model railway”.

56 pages, format 21 x 30 cm, enamelled paper. Price per issue DM 6.50* or on subscribing directly from E. P. Lehmann (free house) following transferal of DM 15.50*. (1981 prices)

If you desire to make up a subscription in the second half of the year, then please only submit half the above sum.

LGB instruction booklet for the prospective railwayman:
Numerous pictures and illustrations coupled with simple explanations ensure that the first step into the wonderful world of the LGB will become a permanent joy.
38 pages, format 15 x 21 cm.

LGB poster
for the hobby room, for hanging up or standing upright. A multicoloured print with real atmosphere showing an engine shed and almost all the LGB locos. Paperboard backed 62 x 44 cm.

LGB car sticker
Low-priced "sticker" as recognition symbol for all LGB lovers. Attached to the car window it announces: "At home I travel LGB".

Metal, hand-enamelled with safety pin.
40 x 27 mm.
The most important replacement parts particularly those which are subject to natural wear are always on stock at a good dealers. Uninterrupted LGB operation is thus guaranted. You can obtain these parts through your dealer. Should he not have them available, please ask us for a source reference.

We reserve the right to make technical changes and availability of stock is not guaranteed.

Anyone needing to call in the after-sales service of his dealer should remember that around Christmas things are extremely hectic. True model railway lovers make use of wet summer days to inspect their stock.

2200 Universal DC motor with bearing balls with 2 gear screws for all railcars (exception 2001, 2065 and 2066).

206 DC motor with 2 universal drive couplings for railcar 2065 and Wismar bus 2066.

2300 Replacement motor with bearing ball for track car 2001 with gear screw.

2030/3 Red pantograph for electric locos. and tram 2035.

2040/3 Silver pantograph with twin slipper for electric loco. 2040.

2036/3 Current-collector bow for electric locos. and tram 2036.

Spare stacks for all "smoking" LGB steam locomotives:
2010/3 Standard stack for loco. 2010D.
2015/3 Smoke stack with spark arrester (Cooke-type) for 2015D.
2070/3 Smoke stack with spark arrester (Baldwin-type) for 2071D.
2080/3 Smoke stack insert with cable for 2080D, 2080S and 2085D.

2210 2 sliding contacts with contact spring for additional current pick-up from rails. For all locos. with sliding contacts, except electric loco. 2040.

2214 2 sliding contacts as 2210 however only for electric loco. 2040.

2065/5 2 steering axle gears with worm gear 17:1 for railcar 2065 and railbus 2066. Complete without coach coupling.

2030/5 Motor block (without frame) with 3 current pick-up carbon brushes for wheels, use in electric locos. 2030, 2033 and trams 2035, 2036.

2060/5 Motor block (without frame) for 2050, 2060, 2060H, 2017 tender.

2095/5 2070/3 Smoke stack with spark arrester (Baldwin-type) for 2071D.
2072/3 Standard stack for 2073D.
2080/3 Smoke stack insert with cable for 2080D, 2080S and 2085D.

2110 4 current pick-up carbon brushes and springs for wheels of all locos., trams and railcars.
2-axled tender with gearbox
Complete and ready for operation, with switching of lighting for reverse travel, automatic coupling for coaches/wagons.

2015/6 For replacement with loco. 2015, black
2017/6 For replacement with loco. 2017, green.

3000/2 2 wheel bearings
for all twin-axled passenger coaches and goods wagons
3000/3 2 bogies
for passenger coaches 3061, 62, 63, 64
3070/2 2 bogies (not shown)
for coaches 3070 and 71.
3080/2 2 bogies (not shown)
for coaches 3080 and 81 (available 1982).
4000/2 2 bogies
for all four-axled goods wagons

3019/3 2 x electrical contact elements
for coach lighting. For installation in wheel bearings 3000/2 or bogies 3070/2 and 3080/2. Wheel axles with plastic wheels are replaced with metal wheel sets 3019/1.

1 set of locodrive wheels
Order no. for Colour red = R, black = S, non-skid tyre = H
2001/1 2001/2015 Tender R R
2010/1 2010/100/2020 R H
2015/1 2015 (without tender) R H
2017/1 2017 (without tender) S H
2030/1 2030/3-33 R H
2035/1 2035/36/40/50/51S/51S/H S H
2065/1 2017 Tender/2040/51/51S/65/66/95 S S
2070/1 2071D/73D S H
2075/1 2075 R H
2080/1 2080D/-80S R R
2090/1 2090 R H

2040/2 1 set of coupling with plastic spring and pin (standard coupling).
2070/2 for 2071D/73D.
2080/2 for 2080D/80S.
Stock with these couplings cannot be converted to standard couplings with "plastic spring".

2040/7 for all rolling stock and for 2035/36/40/50/51/51S/65/66/75/80/80S/80H.
2010/7 for 2010/100/150/17/20/30/33/60/60H.
2070/7 for 2071D/73D.

1 set of standard loco. couplings with plastic spring and coupling bracket:
2040/7 for all rolling stock.

3000/13 10 coach buffers
3000/12 10 loco. buffers
3019/3 2 metal wheel sets
for all twin-axled passenger coaches 3070, 71, 80, 82 can be converted for independent interior lighting.

300/1 2 wheel sets with spoked wheels.
4000/1 2 wheel sets with disc wheels.

1 set of coupling with metal spring and coupling bracket:
2010/2 for all twin-axled locos.
2070/2 for 2071D/73D.
2080/2 for 2080D/80S.
Stock with these couplings cannot be converted to standard couplings with "plastic spring".

1000/2 Set of screws
Approx. 100 self-tapping screws in 4 sizes and assorted knurled nuts for our LGB electrical connections.

5012/15 Resistance controller
with automatic switching in line with direction of travel for installation in control boxes and as spare part for super speed controller 5012. Further applications: As infinitely-variable braking resistor for slow sections of track.

5050/1 25 universal bulbs
with screw-type base E 5.5, 18 V, 50 mA, for all locomotives, trams, coaches, lighting and signals. Yellow lens.
5050/1 10 plug-in micro bulbs
red, 5 V, 33 mA for tail lighting on railcars.
5050/2 10 plug-in micro bulbs
white, 5 V, 33 mA for lighting railcars.

5050/1 10 plug-in micro bulbs
The LGB goes into detail; grab handles, brake and heating hoses, electrical leads, handwheels and fire extinguishers in driver's cab, everything is made specially. Opening doors have already become a matter of course with LGB.

Our picture shows the numerous individual components of an LGB electric locomotive, namely the Crocodile 2040. 640 parts must be manufactured, checked and naturally also assembled; then another 2040 can leave the LGB factory.
The following all fit to the LGB

A list of accessories from companies' which fit LGB.

The choice is large not every dealer can stock all makes in his assortment. The companies listed here in alphabetical order will be pleased to inform you of the nearest source.

Direct deliveries to private individuals are not possible. The following is by no means exhaustive.

1. **HMB Holzmodellbau Günter Huppertz, Penningrode 33, 4712 Werne:**
   Scale 1:22.5 wooden building kits for the LGB, such as "Relief", stations, signal box, etc.

2. **BUSCH + Co. KG, Postf. 1350, 6806 Viernheim:**
   Landscape, tunnel mouths, wall panels, cork ballast, etc.

3. **GAMA, G.A. Mangold, Langestr. 69, 8510 Fürth:**
   Motor vehicles, cranes, tractors

4. **Verlag am Wasser 55 CH-8049 Zürich Schweiz, Ph: 004 11-561888:**
   Townscape, a book for combining with the LGB for use as background.

5. **GAMA, G.A. Mangold, Langestr. 69, 8510 Fürth:**
   Motor vehicles, cranes, tractors

6. **HAUSSER, O. & M. Hauser, 8632 Neustadt bei Coburg:**
   Western figures, Indians, trappers, pets, zoo animals, game, farms, agricultural machinery.

7. **LEHMANN, Patentwerk E. P. Lehmann, Postlach 3048, 8500 Nürnberg:**
   Manual and electrically operated cable cars

8. **HERPA, Fritz Wagener GmbH, Leonrodstr. 46, 8501 Dietenhofen:**
   Coniferous and deciduous trees, landscape accessories.

9. **LEHMANN, Patentwerk E. P. Lehmann, Postlach 3048, 8500 Nürnberg:**
   Manual and electrically operated cable cars

10. **LINDBERG Verkaufsgesellschaft, Löflehholzstr. 35, 8500 Nürnberg:**
    Plastic houses, stations, etc.

11. **MATTEL GmbH, Postlach 40, 6113 Babenhausen:**
    Monogram construction kits.

12. **NOCH GmbH & Co, 7988 Wangen/Allgäu:**
    Scale 1:25 model kits for lorries, articulated vehicles.

13. **WIMMER Modellbau, Himmelreichsweg 18, 6121 Rothenberg-Hainbrunn:**
    LGB mini-accessories.

Not illustrated:

**POLATOR, lng.-Büro F. Kutter, Mecklenburgweg 57, 7900 Ulm:**
Reversing loop kit for track and catenary operation.

Page 25

**POLA Modellspielwarenfabrik 8734 Rothausen:**
Weatherproof building kits on 1:22.5 LGB scale: stations, engine sheds, etc. Catalogue obtainable from your dealer.
A linear future?
An LGB experimental study
The experimental model of a railcar with linear motor, which was introduced for the first time at the Nuremberg Toy Fair in 1980, caused a stir amongst the experts. The advances made in magnetic levitation in recent decades by many large companies both at home and abroad have given new importance to the linear motor - a by no means new concept. It represents a non-contacting drive with no moving or wearing parts. In industry it has already been introduced wherever linear motion is involved. For example in company transportation, automatic doors in department stores, at airports and in lifts, but also in precision engineering for example in the field of cameras.

What is a LINEAR MOTOR?
The simplest way of explaining a linear motor is to start from a normal three-phase motor. It consists of a stator (stationary part on which the winding is located) and the rotor which is permanently connected to the drive shaft. With a three-phase motor inducing a three-phase current in the stator produces a revolving field and causes the rotor to rotate as a result of the forces exerted by the magnetic fields (direction of arrow).

If such a motor is cut and unrolled along the length of the shaft and the stator and rotor are then bent flat, with the parts being arranged one above the other with a certain spacing between them, then a LINEAR MOTOR is created.

The first LGB experimental model
Here the rotor is "fixed" between the rails as a copper-iron bar. Each bogie of the railcar accommodates a "stator" with winding. The linear motor runs on 400 Hz.

The railcar pulls roughly 600 ponds, can master 25% inclines and reach a speed of roughly 25 km/h on the straight. Converted to real-life railway conditions this would be equivalent to some 550 km/h.
Anyone wishing to get acquainted with LGB layouts can do so here. A selection of small and large layouts for indoor and outdoor operation can be visited. Many LGB friends, whom we would like to thank most heartily for their cooperation, have agreed to open their doors to other LGB fans for getting to know the LGB system. With such private layouts we recommend making an appointment in advance. All these railways have one thing in common: they are individually matched to the space available and have their own unmistakable character.

1. LGB Club St. Gallen
   Large outdoor club layout in Schiltacker leisure park,Josefenstr., CH-9000 St. Gallen/Switzerland

2. An outdoor layout
   Here the emphasis is on bridges. The master stroke: a mountainous stretch for the DIY rack-type loco.
   Ing. Edwin Herkner, Kirchbergstraße 44, D-6991 Bad Mergentheim-Neunkirchen, Tel. 07931/3532

3. Model layout in Upper Bavaria
   The hobby of a model railway enthusiast with many years of experience.
   Hans Godl, Bahnhofstr. 20, D-8221 Taisendorf
   Tel. 08666/203

4. Hotel layout 1850 metres above sea level
   Europe’s highest-lying permanent outdoor layout is often completely snowed in, which is why the LGB only operates here in the summertime.
   Arosa-Kulm-Hotel, CH-7050 Arosa, Graubünden/Switzerland
1 A model railway runs at a profit
for the German Red Cross and the German Air Rescue.
Kurt Schröder, Posilipostraße D-7140 Ludwigsburg/Württ.

2 and Fig Page 17
Large-scale layout
Indoor layout of
Hans Zinner,
Scheppacher Str. 3,
D-8901 Döpshofen
Tel. 08238/2691

3 and Fig Page 15
Outdoor layout near Berchtesgaden
with attractive landscaping.
Georg Pscheidl,
Gumperling, 22,
D-8221 Teisendorf/Obb.

4 “Düsseldorf” indoor layout
With over 200 metres of track.
Rudi Enners,
Charlottenstr. 87,
D-4000 Düsseldorf
Tel. 0211/352368

5 The LGB on a steep slope
Layout: Dr. K. Eicher,
Oberstudienrat,
Humboldtstr. 1a,
D-6730 Neustadt a.d.
Weinstraße, Tel. 06321/88167

6 Haus der Eisenbahn
(House of the railway)
30 x 6 m large garden layout.
Karl Wagner u. Thorn,
Alte Heerstraße 37,
D-6367 Karben 6 (Petterweil)
Tel. 06039/503

Club layout in DB coach
Wiesbaden model railway
club in “Wiesbaden-
Landesdenkmal” station.
H. A. Scheffeler,
Tel. 06121/925304

“Minidommi” leisure park
Düsseldorf Breitscheid.
Here LGB rolling stock is
subjected day after day to a
strenuous endurance test.

Geiselwind recreation area
(Würzburg-Nuremberg motorway). Medium-sized
layout in a rock garden.
There is a tradition of pride and craftsmanship at the L.G.B. factory that is evident in the dedication of L.G.B. people and in the result of their work. Many of L.G.B.'s craftsmen have been part of this tradition for decades. But veteran or novice, foreman or lineworker, there is justifiable feeling within the Nuremberg factory that this is not just another job, building just another product. L.G.B. people are part of a legend, and proud of it.
More LGB catalogs are available for downloading at www.lgb-trains.com