märklin



1982/83 E


DB
381803
BD Wuppertal
BwWt-Langerfeld
25
78 355
DB
212 349-5

Three for All

1 märklin I

Gauge 45 mm (1-13/16"), Scale 1:32

Pages 142–167

This is our largest size, designed for outdoors as well as indoors. During the warmer months, have a backyard railroad and use the cars for harvesting apples, etc. During the colder months, these trains are an excellent means of relaxation. The whole family can take part and the children can learn a lot since the trains are so realistic. It's truly a wonder how the Märklin I trains snake through the garden or shuttle picnic items from house to patio.

2 märklin HO

Gauge 16.5 mm (5/8"), Scale 1:87

Pages 2–113

Perfect for Modelers. Märklin HO trains are world renown for their prototype detailing and precision craftsmanship. From simple ovals to an operation as complex as a chess game, Märklin HO offers modelers a well-designed, trouble-free route to the wonderful world of Model Railroading.

Perfectly ideal for Children. Märklin HO trains are an investment in the future. Children as young as 5 can be introduced to model railroading with Märklin. An ageless hobby, the trains keep their value as the child develops into a serious modeler. Using the unique Märklin center-stud system, the trains operate effortlessly with no complicated electrical wiring. Just plug in the transformer, and it's "All Aboard"!

3 märklin mini-club

Gauge 6.5 mm (1/4"), Scale 1:220

Pages 114–141

The smallest electric railway in the world is a genuine achievement of Märklin technology. These stunning precision-made miniatures enable modelers to capture, in the most minute detail, the prototype operations of real railroads. Requiring very little space, mini-club includes fine trackwork, an operating catenary system, and many excellent accessories.

märklin

Gebr. Märklin & Cie. GmbH
Postfach 860/880
D–7320 Göppingen
Federal Republic of Germany

Direct selling from factory to private individuals is not possible. We reserve the right to make changes, and availability is not guaranteed. Accuracy of quoted dimensions is not guaranteed.

This catalog supersedes all previous issues.

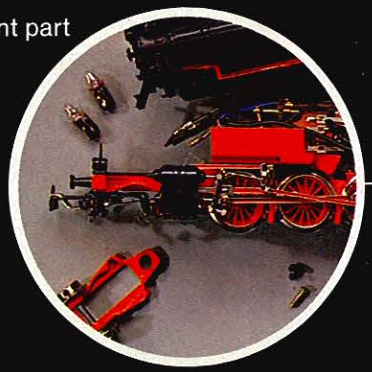
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märklin HO





Getting started is easy –
with Beginner Sets



eplacement part
ervice –
r years of
peration



Layout planning
is simple
with the Layout Game



deas on how
eal trains operate



Märklin signals make
operations more interesting



A completed layout –
the Hobbyist's dream-come-true

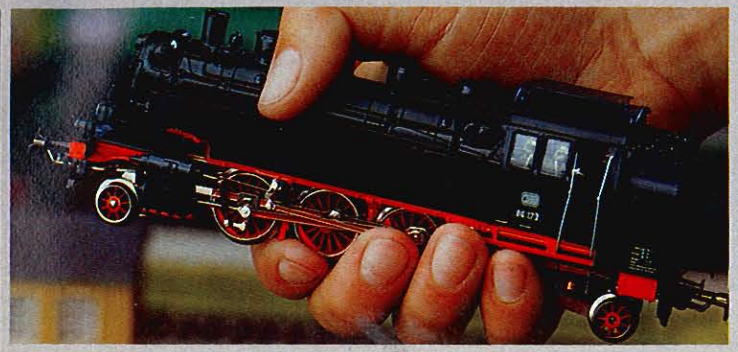
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✲ = **Märklin Service Pages**

Märklin HO – Ideal for Children

Märklin HO – The Ageless Railroad









Easy to handle

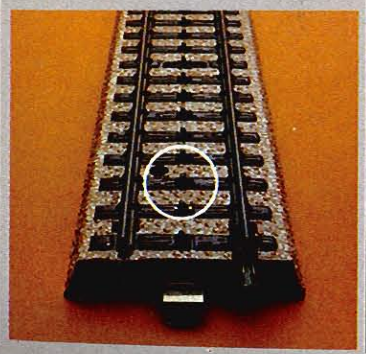
Märklin HO trains are the right size for children's hands. Thanks to the unique center-stud contact system, beginners can get started with little effort. With a little fatherly advice, children as young as 5 can get a grip on the hobby.

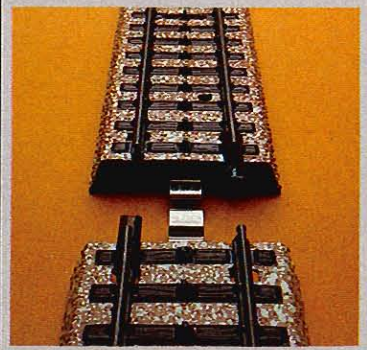
With Märklin's technological advantages, the trains operate as trouble-free as practical. The exciting world of Märklin model railroading grows and develops with the child into a lifetime hobby.

The unique Märklin Center-Stud System

The special advantage of Märklin HO is the center-stud (third rail) means of current supply to trains. The engine's slider picks up a steady current and the trains operate flawlessly.

The Märklin tracks with the metal body (M-track) are well-insulated and provide good current distribution. The track sections are simple to connect – even a child can do it! – makes layout construction and operation a serene joy . . . with no technical complications.





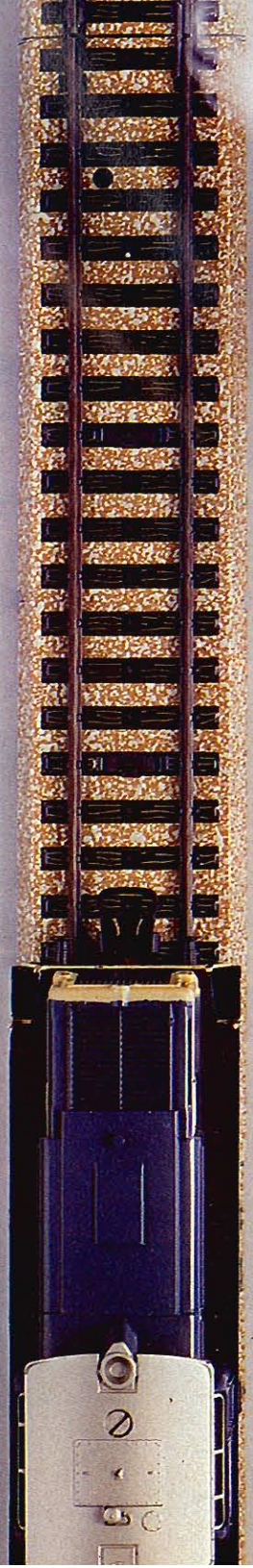
From start to Finish – the easy way

Beginning and step-by-step layout construction are topically discussed in this catalog. It is really a pleasant surprise how systematically a beginner's layout can evolve into a multi-faceted operation. The modelling possibilities of Märkling are virtually unlimited and many tips on these are found throughout the catalog.

And Space?

No problem! Märklin HO trains are versatile enough so they can be built into an interesting layout in places such as along the wall, in corners, or on levels. Even a bookshelf can suffice, since a double-track mainline is only 15 cm (6″) wide.

The best way to begin is with a genuine Märklin railroad



Märklin Model Railroad Club (Inc) Wgtn NZ

Märklin HO – Perfect for Modelers

Model Size HO
Gauge 16.5 mm (5/8")
Scale 1:87



Proper Proportions for Grand Scale Model Railroading

Märklin HO must be seen to be appreciated: the powerful locomotives, the flawless operation, the unmistaken impression of a fine-tuned railroad in HO scale. The wide variety of accessories and a complete range of rolling stock offers Märklin HO modelers unlimited possibilities for developing their Empires.



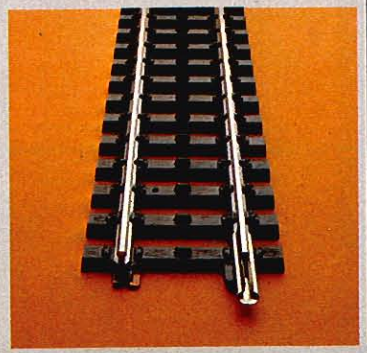
The Advantages of the Center-Stud System for Advanced Modelers

Märklin's trouble-free center-stud (third rail) system for distributing track current means that hobbyists need never worry about train operation, no matter how large the layout gets. The engine's slider is always in contact with several studs at any one time. Return current is double secured. Even complicated track design such as return loops, can be installed easily.



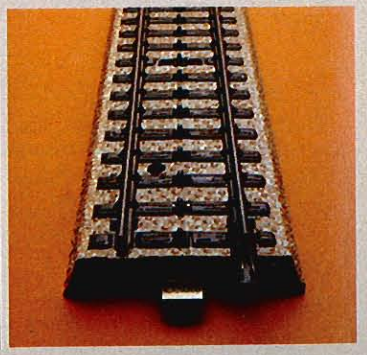
K

Whether one prefers the K-track with its prototype appearance...



M

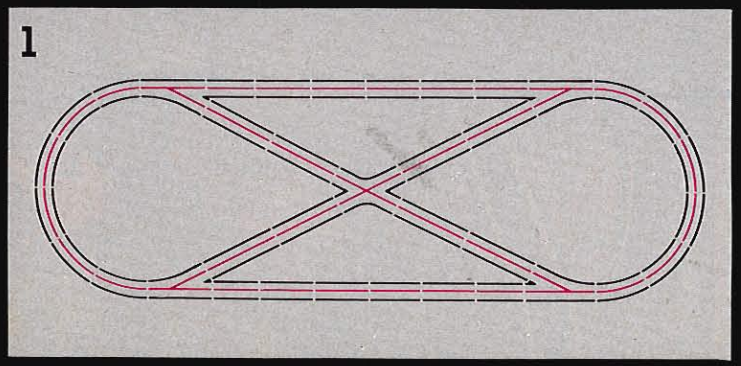
or the metal body M-track.

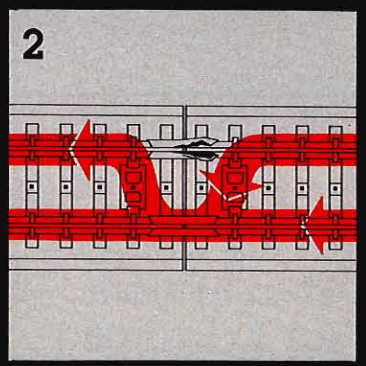


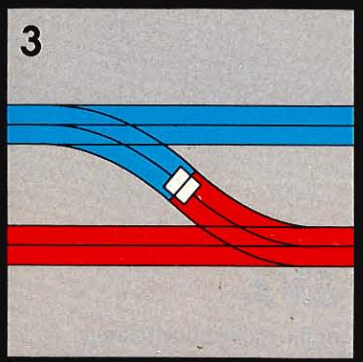
HO – the most popular gauge –

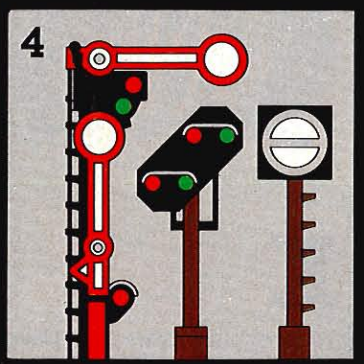
Märklin HO –
the most popular kind of HO

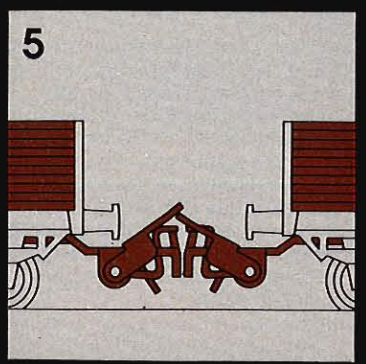
The Important Advantages of Märklin

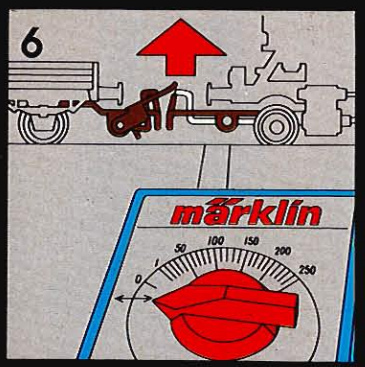


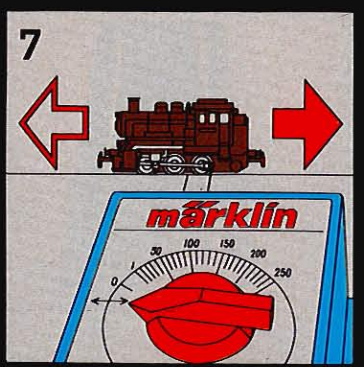


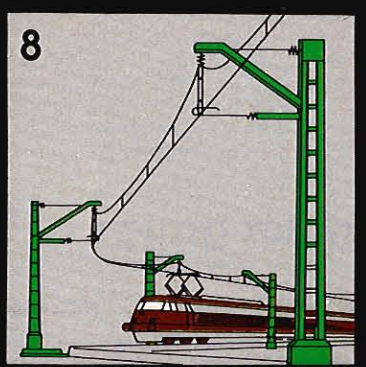












Märklin HO – a comprehensive system

This catalog illustrates the extensive Märklin HO system with its wide variety of models and accessories including rotating cranes and transfer tables.

1 Simple Circuitry

No complex wiring is required for any track configuration, not even for reverse loops.

2 Fail-Safe Current Flow

Even if one of the rail joiners is bent and fails to make contact, the other will still ensure a perfect connection.

3 Easy to Set Up Separate Circuits

For M-track, just use center isolator 5022, and for K-track use center isolator 7522. No special insulated track sections required.

4 Märklin HO Signals

The well contructed signals permit realistic and genuine train traffic control. They are indispensable for fully automatic train control.

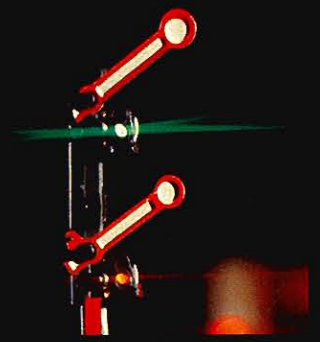
5 RELEX-Couplers

After uncoupling, cars can be pushed for spotting without the couplers re-engaging. This feature is essential for realistic yard operations.

6 TELEX-Couplers

With TELEX-couplers, locomotives can be uncoupled by remote control at any point on the layout.





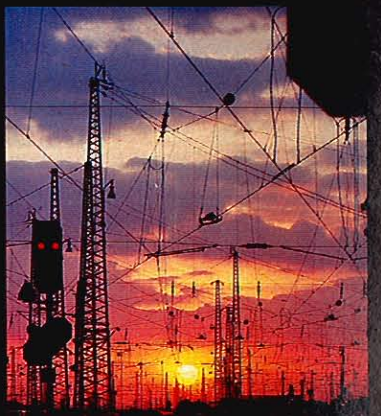


7
Direction Switch

With Märklin HO, the direction switch is in the locomotives, not in the track current. Thus it is possible to run trains in opposite directions on the same circuit.







8
Märklin HO Catenary System

Electric locomotives can be operated realistically with an overhead system. This provides another advantage: Two trains can be operated independently on the same track. The Märklin catenary system mates perfectly with M or K track and functions just like full size overheads.





Getting Started

There are four excellent ways of getting started with the Märklin HO system.

The fun of model railroading is easy when using a beginner set to start with. All the basic necessities required for a layout are included with these sets. And there are no limits to how the set can evolve.

For step-by-step extensions to the layout, Märklin offers the "SET" extension program.

For free-lancers, Märklin offers many tips through their books, brochures, and pamphlets.

1



2950

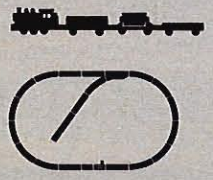
Large Fun-Set

This set offers an absorbing and multi-faceted fun filled beginning for young modelers.

Backed by much research, this large set offers a variety of operating themes yet is surprisingly inexpensive. The possibilities for fun include: loading/unloading, remote control uncoupling, switching, installing turnouts, and building various track plans.

Sensibly designed, the set contains a steam engine, three loaded freight cars, an uncoupling track, a manual switch, and several pieces of track.

A colorful 28-page pamphlet packed with tips on operating and building is included with the set.



2



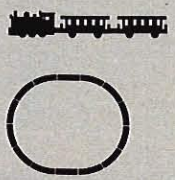
2920

Ready to Run Passenger Train

This beginner's set is an excellent first step into the fabulous world of railroading.

For greater operating possibilities, just add some extra track and switches.

The steam engine and its two 2nd class coaches are ready to run. The fun of model railroading can be grasped by even very young modelers.



3



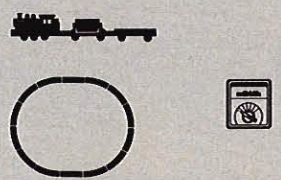
2930

Ready to Run Freight Train

This is an ideal beginner set for those who want to start with a freight train. The attractive set with its illuminated class 89 steam engine, low-side gondola and dump car can be set up quickly and be forwarding freight in no time.

Hours of fun are offered youngsters with the unloading and loading of freight cars and running the train.

Operating possibilities are measureably extended by adding additional tracks and switches.



4



2875

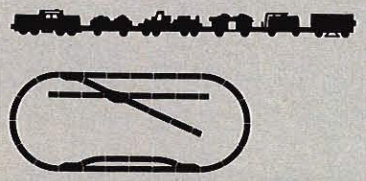
Large Freight Train Set

For those who would like to experience the fun of operating a complete railroad from the start, this freight set is perfect, offering:

- Assortment of real-life models
- Diesel with head and tail lights plus RELEX-couplers
- Operating tail light on rear box car
- Large yard
- A lot of track

Plenty of operating possibilities, many different routes, interesting techniques, and realistic dispatching conveys the authentic fun of model railroading.

Contents: 1 multi-purpose class 212 diesel, 5 interesting freight cars, 3 switches, 1 slip switch, 3 bumpers, 34 track sections, and many accessories.



Setting Up

With the variety of books and accessories available from Märklin, attractive complete layouts can grow from these starter sets.

"SET"-Extending by Stages
The extension sets in the "SET" program offers beginners the possibility of adding track to starter sets in a planned, orderly, step-by-step fashion.

For more about this, see page 84.

Free-Lancing
The scope of accessories available from Märklin, makes Märklin HO the excellent medium for modelers who want to design and build their own layouts. Practically everything is offered: Signals, electric blocks, uncoupling tracks, bridges, road crossings, catenary, etc.

Ideas and suggestions on setting up a layout are available from the following:
Track planning game, track stencils, catenary stencils, plan books, layout books, signal books, an HO handbook, plus many brochures and pamphlets.

More information about layout planning is on page 78.

Starting with K Track
For detail conscious beginners, Märklin's realistic looking K track adds a dramatic dimension to model railroads.

For more about K track, see pages 86–91.

Ready to Run Beginner Sets

1

2920 S 220 Volt
2924 S 240 Volt
2927 S 110 Volt (60 Hz)
2929 S 100 Volt Japan

Local Passenger Train with Transformer · Includes: 1 tank engine 3104, 2 coaches, 12 curved tracks 5100, 1 straight track 5106, 1 feeder track 5131 with built-in capacitor to suppress radio interference, and 1 transformer · Train length 35 cm (1′ 1-¾″)

2

2930 S 220 Volt
2934 S 240 Volt
2937 S 110 Volt (60 Hz)
2939 S 100 Volt Japan

Freight Train with Transformer · Includes: 1 tank engine 3000, 2 freight cars, 12 curved tracks 5100, 1 straight track 5106, 1 feeder track 5131 with built-in capacitor to supress radio interference, and 1 transformer · Train length 34.5 cm (1′ 1-⁵/₈″)

The transformers in these beginner sets are not available separately.

All Märklin transformers have connections for track current and for lights and accessories; and the ability to provide a spurt of 24 V to reverse locomotives. These transformers can also be used to provide power for larger engines or additional accessories.

Connect Märklin transformers to AC outlets only

1
2920

2
2930

Versatile Train Set with Transformer

More "Railroad" to start with!

For example, a Freight Terminal
A few odds and ends plus a little imagination equals hours of enjoyment. The ideas shown here are just a beginning.



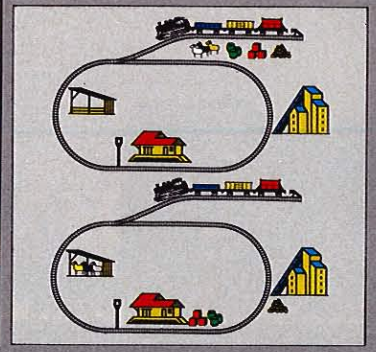
Automatic Uncoupler – with Signal Mast
Just press the button and it happens: the signal lights and cars uncouple.



Or: an Island Railroad
There are all types of landscaping possibilities, and the enclosed booklet gives many ideas. The next step would be a prototypically accurate railroad.



Make a Game out of Classifying Cars
See who can make up/break up trains in the quickest time. Game rules are in the booklet.



A special 28-page booklet with many tips on how to enjoy model railroading is included with this set. The useful pamphlet shows how easy it is to master Märklin HO technology.

This economical set enables beginners to grasp the many facets of model railroading: Train control, switching, loading, transporting, classifying, automatic uncoupling, and layout design.

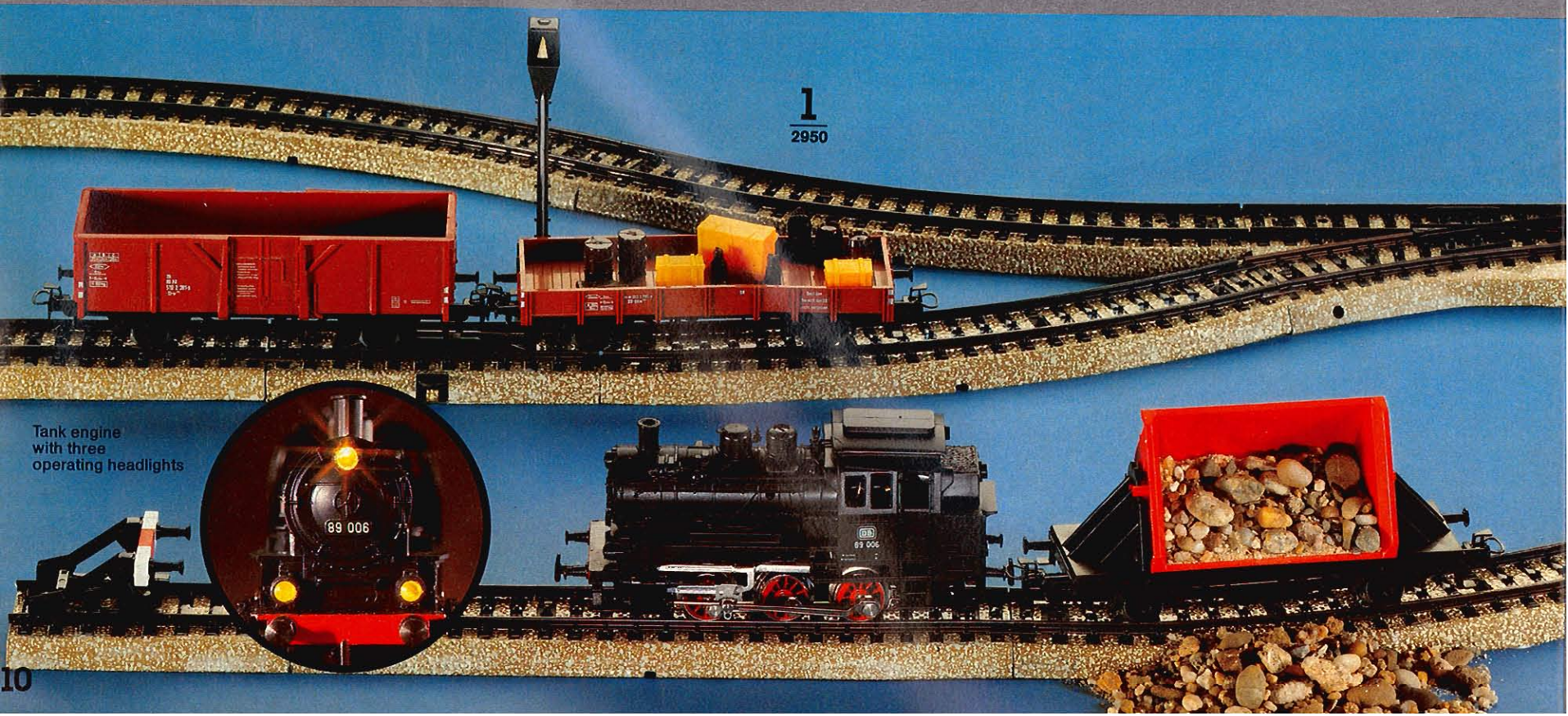
1

2950 220 Volt
2954 240 Volt
2957 110 Volt (60 Hz)
2959 100 Volt Japan

Freight Train with transformer · Includes: 1 tank locomotive 3000, 1 dump car 4413, 1 low-side gondola 4423, 1 gondola 4430, 13 curved tracks 5100, 5 straight tracks 5106, 1 straight track 5107, 1 uncoupling track 5112, 1 signal mast 5113, 1 feeder track 5131 with built-in capacitor to suppress radio static, 1 left-hand switch 5221, 1 position control box 7072, 1 bumper 7190, plus necessary wires, plugs, sockets, simulated freight as well as a transformer and instruction booklet · Train length 47.5 cm (1' 6-¾")



The transformer included with this set is not available separately. It should only be connected to an AC outlet.



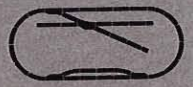
An Attractive Starter Set

Long freight train with plenty of track



2

2875 · Long Freight Train · Includes: 1 diesel switcher 3072, 1 boxcar 4411, 1 gondola 4431, 1 tank car 4442, 1 low-sides gondola 4474 with load, 1 auto carrier 4613, 12 curved tracks 5100, 19 straight tracks 5106, 1 feeder track 5131 with built-in capacitor to suppress radio static, 1 pair of switches 5202, 1 right-hand switch 5202, 2 curved tracks 5206, 1 double slip switch 5207, 1 position control box 7072, 3 bumpers 7190, 1 distribution strip 7209, plus wires, plugs, and sockets · Train length 79.5 cm (2' 7-¼")



This starter set offers a wide variety of operations and includes a large yard, realistic models, and a lot of track

- Locomotive has working headlights and RELEX couplers
- Real-life freight car loads
- Operating marker lights on rear car
- Double slip switch and three regular switches
- Several yard tracks



Signals
for safety and multi-train operation
Page 94

Train Sets –
a special gift

Track construction train with crew car and supplies

1

2853 · Includes: 1 diesel switcher 3064, 1 crane car 4671, 1 low-side gondola 4423 with boom support, 1 low-side gondola 4423 with ties, 1 gondola 4430 with ballast, 1 flat car 4663 with rail sections, and 1 crew car · Train length 94 cm (3′ 1″)

■ On the German Federal Railways, track construction trains are differentiated from maintenance-of-way trains. The latter are composed usually of an engine and assorted freight cars for transporting sand, ballast, ties, etc. to maintenance sites.

Track construction trains, on the other hand, consist of converted freight and passenger cars. Because construction sites on the German Federal Railways are not always within easy commuting distance for workers; sleepers, crew cars, and other support cars (carpenter car, special-equipment cars, etc.) are also required.



1
2853

2
2854

3 new
2855

Unit train of Mannesmann Pipes

2

2854 · Includes: 1 2-8-2T class 86 with new road number, 6 special-duty flat cars (floor centers pivot) lettered for the German Federal Railways and loaded with Mannesmann pipes plus 1 package car with new road number and rear markers · Entire train is a special run · Cars and locomotive are not available separately · Train length 99.5 cm (3′ 3-¾″)

■ Prior to 1968, steam engine were used to haul pipe trains on non-electrified routes of the German Federal Railways. Between 1966 and 1968, for example, almost 500,000 tons of pipe were delivered annually to ports such as Bremen, Hamburg, and Rotterdam for export.

Mannesmann pipes are used to transport oil, gas, and water.

EVA-Unit Train

3 new

2855 · Includes: 1 class 212 diesel and 6 four-wheeled tank cars lettered for the Eisenbahn-Verkehrsmittel-Aktiengesellschaft (EVA) · Entire train is a special run · Cars and locomotive not available separately · Train length 81 cm (2′ 7-¾″)

- The diesel has a new road number
- Each tank car has its own road number
- Engine and cars are slightly weathered for a prototype look

■ The Eisenbahn-Verkehrsmittel-Aktiengesellschaft (EVA) leases special duty cars to various industries. These cars are used for the transport of bulk material. The German Federal Railways conveys these cars in their trains for which the reduced rate is charged by the "Bahnverwaltung für Privatwagen" (Department for privately-owned cars). Thus freight can be transported quickly and economically.

Petroleum products are transported in liquid form in tank cars specifically designed for that purpose. In Germany, all tank cars are privately owned, as the German Federal Railways does not field tank cars.

EVA-tank cars carry about 10 million tons of petroleum products to refineries, dealers, and users each year.



Steam Locomotives

Although the first steam locomotive was built in 1804, it wasn't until 25 years later that the development of steam power began in earnest. The decisive event was the races held on October 8, 1829 to determine which steam engine would be used by England's first railway. George Stephenson's famous Rocket, incorporating many features still in use today, won the race. Since then, steam engines have undergone constant refinement.

Increasing performance requirements led to a great variety of types. In addition, many early designers attempted to establish their own styles. The first attempts to develop a semblance of standardization in locomotive types began in Prussia in 1871. In 1925, the unified German State Railways finalized the classification of steam locomotives, at that time numbering 28,700 units.

Each locomotive was classified into one of 8 main types: Express Passenger, Local Passenger, Freight, Cog, Branch, Narrow-Gauge, Passenger tank, and Freight tank. Each engine was also given a serial number which consisted of a two digit class indentifier (e.g.: Express Passenger 01–19, Freight 40–59 etc.) plus a three or four digit individual number. Thus, for example, Märklin's locomotive 3082 roadnumber 41334 means that it is the 334th engine of class 41. These numbers were displayed on four sides of the steamers.

The method of classifying locomotives in German-speaking countries is by axle arrangement. In English-speaking countries, locomotives are classified by wheel arrangements. The axles or wheels are identified by numbers or letters separated by dashes or apostrophes.

In the German system, an apostrophe means that the axles are supported in a frame and are usually pilot or trailing axles. Where there is no apostrophe, the axles are incorporated into the main frame and are usually the driving axles.

The large number indicates the number of driven and coupled axles, with an A representing 1, B 2 etc. A small zero after the letter indicates uncoupled axles. The English system does not differentiate between coupled and uncoupled axles.

To illustrate, here are a few examples

Axle arrangement for Märklin's locomotive 3085: 2'C1'
Two (2) pilot axles are supported independently (') of the main frame. Three (C) driving axles are coupled together. A single (1) trailing axle is supported independently (') of the main frame. Using the English system, the engine is a 4–6–2, i.e.: 4 pilot wheels, 6 drivers, and 2 trailing wheels.

Axle arrangement for Märklin's locomotive 3155: Bo'Bo'
Both pairs of driving axles (B) are uncoupled (o) and supported independent of main frame ('). The English equivalent is B–B, i.e.: two four wheel power trucks.

Axle Arrangement for Märklin's locomotive 3049: 1'Co1'
One (1) pilot axle independently supported ('). Three (C) coupled (o) drivers incorporated into main frame and one (1) trailing axle independently supported ('). The English equivalent 1–C–1.

The classification systems are somewhat different on other railroads.

Class 78

1

3106 · **Tank locomotive** · German Federal Railways' class 78 · Wheel arrangement 4–6–4T · Drivers are gear-driven · 2 nonskid tires · Simulated Heusinger valve gears · 3 working headlights at each end · Highly detailed body · Cab windows · Die cast zinc frame · Coupling hook with pre-uncoupler at each end · Length over buffers 16.9 cm (6-11/16")

=7153 =7164 =60015

■ From 1912 to 1939, 535 of these engines were built for passenger service. Originally they were classed as T 18 by the Provincial Railway Administration.

After the German Railway Society was founded in 1923, a renumbering program was developed which made it easier to identify the various classes inherited from the provincial railways. Thus, the earlier class T 18 became class 78 and was numbered 001 to 535.

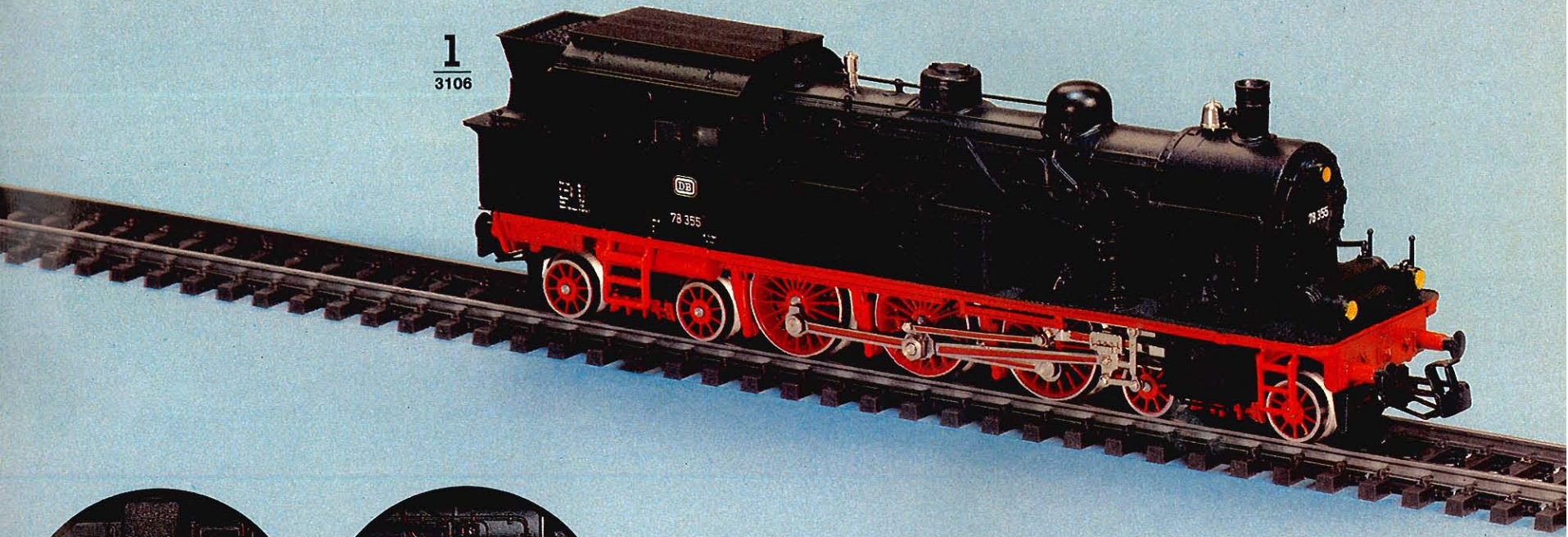
Of these 535 locomotives, 409 found themselves on the initial roster of the German Federal Railways in 1945. The last 4–6–4T to operate on the German Federal Railways was the 78 246. Based at Rottweil, it was retired in 1974.

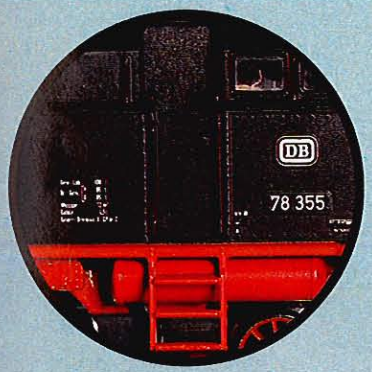
The class 78 was a well-constructed engine as its long service life attests. Its symmetrical wheel arrangement enabled it to obtain speeds of 100 kmph (62 mph) in forward or reverse thus making it ideal for commuter runs.

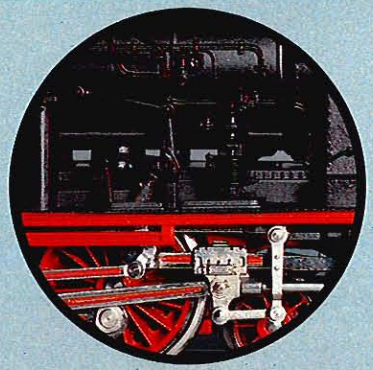
Our model's prototype, 78 355, was outshopped by Henschel and assigned to the Essen division in 1922. In 1933, it was re-assigned to Hanau where the 78 355 remained until 1961 when it was rostered at Aalen. There it was the workhorse on the Stuttgart – Schorndorf branch which required an engine capable of reverse operation since Schorndorf has no turning facilities.

Finally, in 1968, after 46 years of service, 78 355 was retired and scrapped.







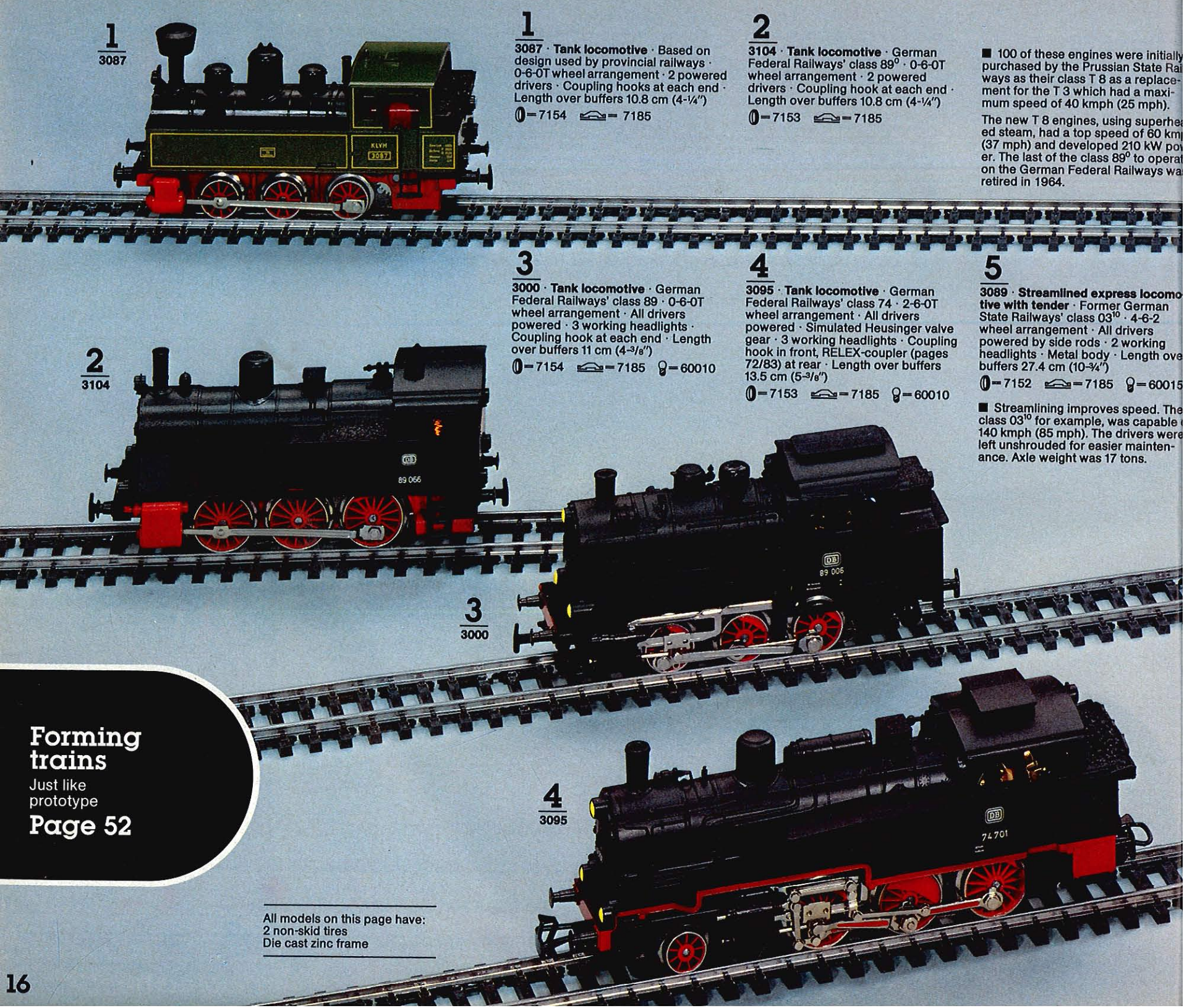


Examples of train consists:









1
3087

1
3087 · Tank locomotive · Based on design used by provincial railways · 0-6-0T wheel arrangement · 2 powered drivers · Coupling hooks at each end · Length over buffers 10.8 cm (4-¼″)
⓪ = 7154 ⌓ = 7185

2
3104 · Tank locomotive · German Federal Railways' class 89⁰ · 0-6-0T wheel arrangement · 2 powered drivers · Coupling hook at each end · Length over buffers 10.8 cm (4-¼″)
⓪ = 7153 ⌓ = 7185

■ 100 of these engines were initially purchased by the Prussian State Railways as their class T 8 as a replacement for the T 3 which had a maximum speed of 40 kmph (25 mph).

The new T 8 engines, using superheated steam, had a top speed of 60 kmp (37 mph) and developed 210 kW power. The last of the class 89⁰ to operate on the German Federal Railways was retired in 1964.

2
3104

3
3000 · Tank locomotive · German Federal Railways' class 89 · 0-6-0T wheel arrangement · All drivers powered · 3 working headlights · Coupling hook at each end · Length over buffers 11 cm (4-³⁄₈″)
⓪ = 7154 ⌓ = 7185 ⚲ = 60010

4
3095 · Tank locomotive · German Federal Railways' class 74 · 2-6-0T wheel arrangement · All drivers powered · Simulated Heusinger valve gear · 3 working headlights · Coupling hook in front, RELEX-coupler (pages 72/83) at rear · Length over buffers 13.5 cm (5-³⁄₈″)
⓪ = 7153 ⌓ = 7185 ⚲ = 60010

5
3089 · Streamlined express locomotive with tender · Former German State Railways' class 03¹⁰ · 4-6-2 wheel arrangement · All drivers powered by side rods · 2 working headlights · Metal body · Length over buffers 27.4 cm (10-¾″)
⓪ = 7152 ⌓ = 7185 ⚲ = 60015

■ Streamlining improves speed. The class 03¹⁰ for example, was capable of 140 kmph (85 mph). The drivers were left unshrouded for easier maintenance. Axle weight was 17 tons.

3
3000

4
3095

Forming trains

Just like prototype

Page 52

All models on this page have:
2 non-skid tires
Die cast zinc frame

All models on this page have:
2 non-skid tires
Simulated Heusinger valve gears
Die cast zinc frame
RELEX-couplers (pages 72/83) on the tender

6

3003 · **Locomotive with tender** · German Federal Railways' class 24 · 2-6-0 wheel arrangement · All drivers powered · 3 working headlights · Coupling hook in front · Length over buffers 20 cm (7-7/8")

◐=7153 ⌓=7185 ♀=60010

■ With a top speed of 90 kmph (56 mph), the class 24 engines saw regular passenger and freight service on the German Federal Railways.

5
3089

6
3003

7
3099

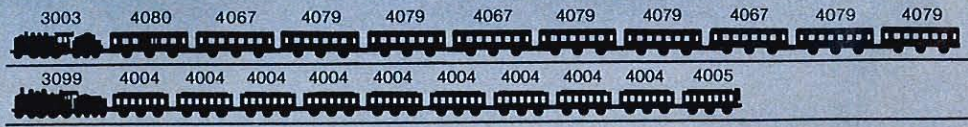
7

3099 · **Locomotive with tender** · Former German State Railways' class 38 · 4-6-0 wheel arrangement · All drivers powered · 3 working headlights · Metal body · Includes engineer and fireman · Coupling hook in front · Length over buffers 21.8 cm (8-5/8")

◐=7152 ⌓=7185 ♀=60015

■ Built originally in 1906 as Prussian State Railways' class P 8, these 4-6-0's were known for reliability and low maintenance costs. Following the creation of the German State Railways, these engines became the workhorses throughout the country. As late as the 1960s, they were still being used in passenger service in southern Germany.

Examples of train consists:



Märklin-Service

Spare parts summary

Page 50

1

3092 · Express locomotive with tender · Former Royal Bavarian Railways' class S 3/6, series i · 4-6-2 wheel arrangement · All drivers powered · Metal body · Length over buffers 24.9 cm (9-¾") · Will accept smoke units (e.g. Seuthe No. 20)

⓪=7152 =7185 =60015

2

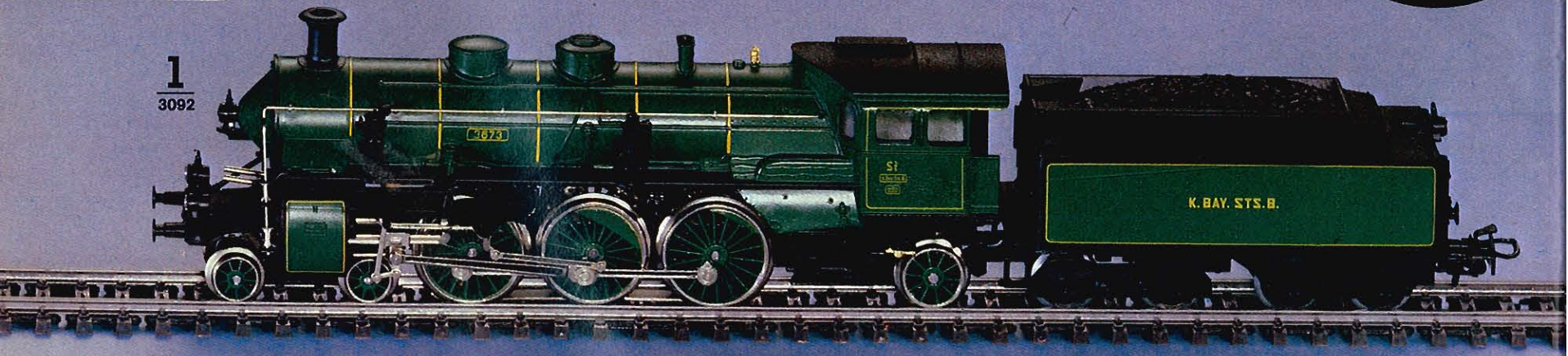
3093 · Express locomotive with tender · German Federal Railways' class 18^4 (originally the S 3/6) · 4-6-2 wheel arrangement · All drivers powered · Metal body · Length over buffers 24.9 cm (9-¾") · Will accept smoke units (e.g. Seuthe No. 20)

⓪=7152 =7185 =60015

■ The first Bavarian S 3/6 was built in 1908. Well over 100 units were constructed, 30 in series i alone. After 1918, 11 engines went to France where, with minor modifications, they became their class 231. The series i became class 18^4 on the German State and Federal Railways. An elegant engine with good performance records, these locomotives were often used on international express trains such as the "Rheingold" and the "Orient Express". Maximum speed 120 kmph (75 mph). Weight 92.3 tons. Length over buffers 21.22 m (69' 7-½").



1
3092



2
3093



3 France

3083 · Express locomotive with tender · Former French State Railways' class 231 (originally class S 3/6) · 4-6-2 wheel arrangement · All drivers powered · Metal body · Length over buffers 24.9 cm (9-¾") · Will accept smoke units (e.g. Seuthe No. 20)

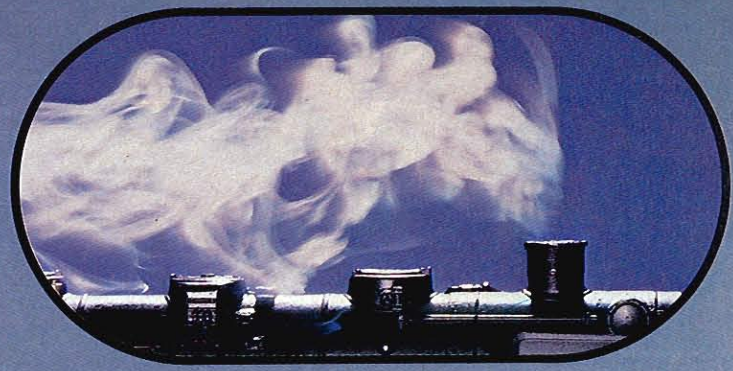
⓪=7152 =7185 =60015

4

3085 · Express locomotive with tender · German Federal Railways' class 003 · 4-6-2 wheel arrangement · All drivers powered by axle gears · Length over buffers 27.7 cm (10-⅞") · Will accept smoke unit set 7226 (page 51)

⓪=7152 =7164 =60015

■ By the 1920s, some engines were built with 20 ton axle loads. This was too heavy for many lines, thus from 1930 onwards, 300 of the lighter class 003 engines were constructed. Maximum speed 130 kmph (80 mph). Power rating 1450 kW. Overall length 23.90 m (78' 5").





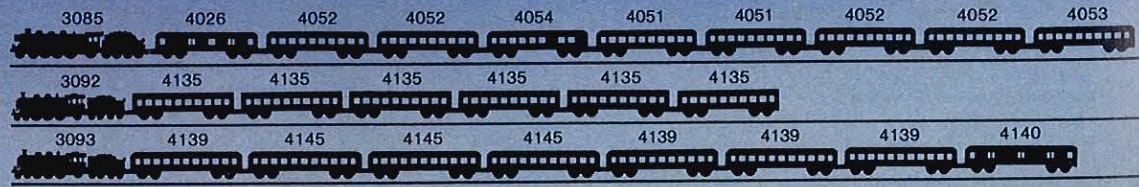
3
3083



4
3085

All models have:
2 non-skid tires
Simulated Heusinger valve gears
3 working headlights
Die cast zinc frame
RELEX-couplers (pages 72/83) on the tender

Examples of train consists:



More about uncoupling Pages 72/83

TELEX-couplers

The Märklin models 3065 and 3096 are special locomotives which are outfitted with TELEX-couplers.

Remote control uncoupling of the locomotive

With control from the transformer, locomotives having TELEX-couplers can be uncoupled anywhere on the layout.





1
3096 · **Tank locomotive with Märkl TELEX-couplers** · German Federal Railways' class 86 · 2-8-2T wheel arrangement · All drivers powered b side rods · 2 non-skid tires · TELEX couplers at each end · Length over buffers 15.8 cm (6-¼″)

◐=7153 =7164 =6001

■ A total of 774 of these workhorse were built. The German Federal Rail ways acquired 385 units and used them mostly on branch lines. Proto type measures 13.82 m (45′ 4-⅛″), weighs 88.5 tons and had a maximu speed of 80 kmph (50 mph).

1
3096

3
3082

All models have:
Working headlights
Simulated Heusinger valve gears
Die cast zinc frame

2

3084 · Heavy freight locomotive, brakeman's cab on tender · German Federal Railways' class 050 · 2-10-0 wheel arrangement · All drivers powered by axle gears · 4 non-skid tires · Coupling hook in front, RELEX-coupler (pages 72/83) on the tender · Good cornering ability because drivers are coupled in pairs · Length over buffers 26.1 cm (10-¼") · Will accept smoke unit set 7226 (page 51)

⓪=7153 =7164 =60015

■ With a low axle weight of 15.2 tons, these 2-10-0s could be used on branches. For this reason, over 3,000 units were built from 1939 to 1943. In 1945, 2,000 units were assigned to the German Federal Railways. After 1961, some were outfitted with brakeman's cabs (as on Märklin's model). Maximum speed 80 kmph (50 mph). Length over buffers 22.94 m (75' 3").

3

3082 · Freight locomotive with tender · German Federal Railways' class 41 · 2-8-2 wheel arrangement · All drivers powered with axle gears · 2 non-skid tires · Coupler hook in front, RELEX coupler in rear (pages 72/83) · Length over buffers 27.5 cm (10-¾") · Will accept smoke unit set 7226 (page 51)

⓪=7153 =7164 =60015

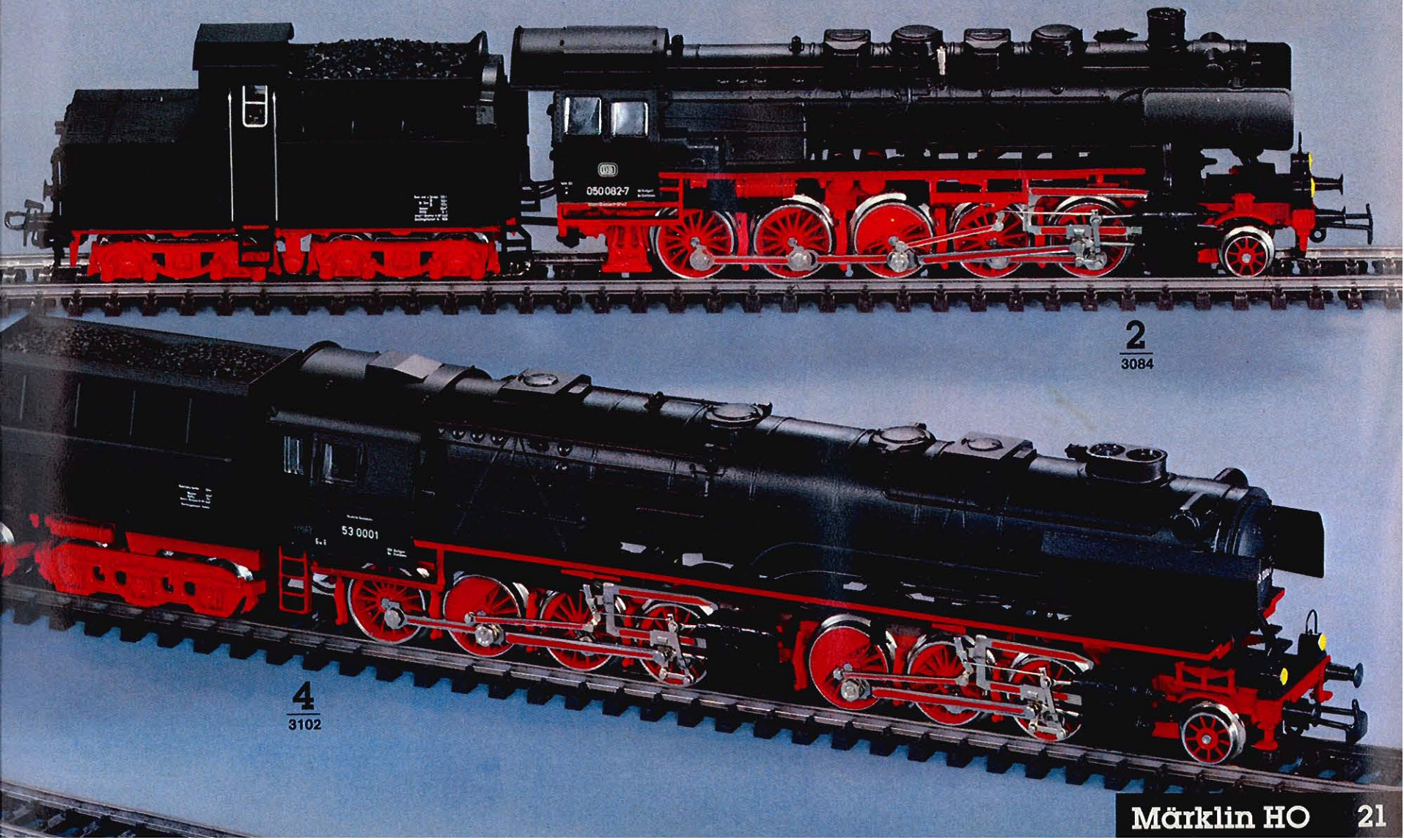
■ The first of a total of 366 engines were outshopped in 1936. Originally intended for use on high-speed freights, they proved to be excellent general purpose locomotives. Maximum speed 90 kmph (56 mph).

4

3102 · Heavy freight locomotive with tender · Based on a design by Borsig for the former German State Railways · 2-6-8-0 wheel arrangement · 8 driver powered by axle gears · 4 non-skid tires · 2 working headlights at each end · Coupler hook in front, RELEX-coupler (pages 72/83) on the tender · Good cornering ability because drivers are coupled in two groups · Will accept 2 smoke units sets 7226 (page 51) · Length over buffers 31.4 cm (1' 3⅜")

⓪=7153 =7185 =60015

■ In 1943 the German State Railways initiated the development of a heavy duty freight locomotive. The planned engine should be able to pull 1,700 tons up an 8% grade having a curve with a radius of 360 m while maintaining a speed of 20 kmph (12.5 mph). Its maximum speed should be 80 kmph (50 mph) in either direction. Many designs were submitted and one of the most interesting was the Borsig I which was a Mallet with 4 cylinders. The front of the long boiler rested on the bolster of the front drivers. A simple yet powerful machine, the engine was never built. However, this locomotive, complete with double Heusinger valve gears, is now available as a Märklin model.



2
3084

4
3102

Electric Locomotives

The first electric locomotive was demonstrated to the public in Germany almost 50 years after the appearance of the first steam engines. Entering service on May 31, 1879, the little electric covered 13 kmph (8 mph) alone and 7 kmph (4 mph) with a train. Modern speeds of 150 kmph (93 mph) or 200 kmph (124 mph) show what progress has been made.

But, at the beginning, there were a lot of teething problems: different types of electrical systems, varying frequencies, few catenary standards, and only a few short and disconnected electrified sections to operate on.

On the former German State Railways, the electrics proved their worth: The E 04 (Märklin model 3049) achieved 151 kmph (94 mph) in 1933. The E 94 (Märklin model 3322) hauled 600 tons up a .2½% grade.

The real breakthrough, however, occurred in the German Federal Railways' era as standardization evolved. Märklin model 3039 is an excellent example. Also, fast freight locomotives such as the class 151 (Märklin model 3058) and high speed engines like the class 103 (Märklin model 3354) were developed.

Today, electric locomotives are the most common type motive power in use in Germany. The Federal Railway alone have 2,700 units. Each month they average 11,700 km (6,585 miles). On some routes, they speed the Intercity trains at 200 kmph (125 mph). Further, 82% of all trains in Germany are electrically operated. This factor led to the development of the class 120 multipurpose electric (Märklin model 3153).



Express Locomotive

1 Class 120

3153 · Multi-purpose locomotive · German Federal Railways' class 120 · B-B wheel arrangement · One power truck · 4 non-skid tires · Coupling hook at each end · Length over buffers 22.1 cm (8-¾")

⓪=7153 ⌓=7164 ⚲=60015

■ The German Federal Railways' class 120 is a turning point in the history of locomotive development. Almost 100 years after the first electric locomotive entered service at Berlin, the Federal Railways realized great efficiency with the new 120.

Using modern semi-conductor technology, it is possible to use AC motors in electrics. Because of simple construction, AC motors have low maintenance costs. Yet, they offer continous traction at almost any speed. Thus these units can be used for any kind of service.

Its power output is 5,600 kW and the maximum speed is 160 kmph (1000 mph). On some trials, these engines have been clocked at 200 kmph (124 mph).

2 Class 103

3354 · High speed locomotive · German Federal Railways' class 103 · C-C wheel arrangement · One power truck · 4 non-skid tires · Coupling hook at each end · Electronically control switch for forward and reverse · Length over buffers 21.9 cm (8-⅝")

⓪=7153 ⌓=7164 ⚲=60019

■ An elegant engine, the 103 is one of the fastest and most powerful high speed electrics on the German Federal Railways. It is 19.50 m (63' 11-¾") long, and has 6 motors driving 6 axles. Its hourly rating is 6,600 kW, weight 112 tons, and has 32,000 kg (7,100 lb) tractive force on starting. Truly an engine ahead of its time.



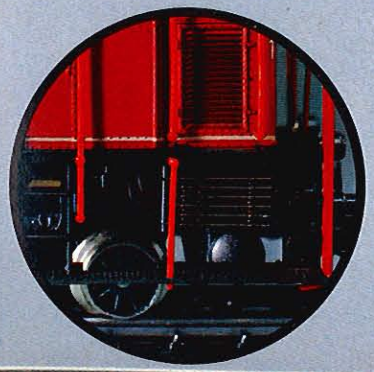
All models have:
Lever for selecting operation by overhead or track current
3 working headlights at each end
Die cast zinc frame
Spring-loaded pantographs

Freight and Yard Electrics

Catenary
for prototype operation
Page 100

1
3156

3
3322



4
3157

1

3156 · **Freight locomotive** · German Federal Railways' class 140 · B-B wheel arrangement · One power truck · 4 non-skid tires · Metal body · Coupling hooks with pre-uncoupler at each end · Length over buffers 18.1 cm (7-1/8″)

◐=7153 ⌓=7164 ♀=60015

2

3058 · **Freight locomotive** · German Federal Railways' class 151 · C-C wheel arrangement · One power truck · 4 non-skid tires · Coupling hooks at each end · Length over buffers 22.2 cm (8-¾″)

◐=7153 ⌓=7164 ♀=60015

■ Raising the speeds of heavy freight trains made these engines necessary. The class 151 can pull 1,000 tons on level track at 120 kmph (75 mph). Length 19.49 m (63′ 11-¼″). Tractive force at starting is 45 tons. Weight 118 tons. 6 traction motors deliver 6,540 kW output.

3

3322 · **Heavy freight locomotive** · German Federal Railways' class 194 · C-C wheel arrangement · One power truck · 4 non-skid tires · 3-part metal body · RELEX-couplers (pages 72/83) at each end · Electronically controlled direction switch · Length over buffers 21 cm (8-¼″)

◐=7153 ⌓=7164 ♀=60019

■ The 194 is a heavyweight: 6 motors, 4670 kW starting power, total weight 120 tons, tractive force of 40 tons on starting. However, its maximum speed is just 90 kmph (56 mph).

4

3157 · **Electric locomotive** · German Federal Railways' class 160 · 1-C wheel arrangement · All drivers powered · 2 non-skid tires · RELEX-couplers (pages 72/83) at each end · Length over buffers 12.8 cm (5″)

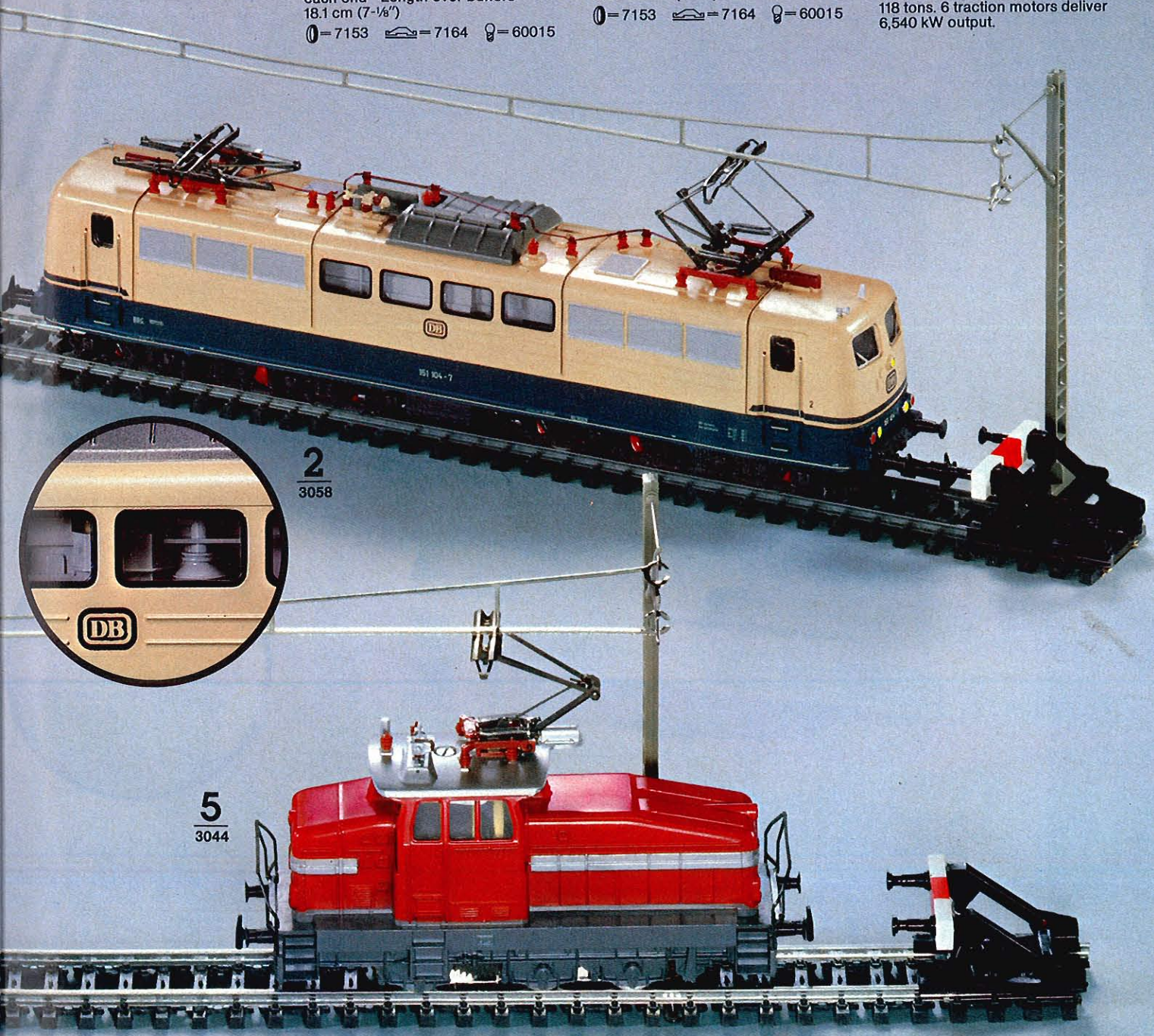
◐=7153 ⌓=7185 ♀=60010

■ In 1927, the former German Railway Society placed 14 E 60s in yard and switch duty at southern German terminals, especially Munich. Under the revised numbering system of the German Federal Railways, the E 60 became the 160. These engines have a power output of 830 kW and a maximum speed of 55 kmph (34 mph). Equipped with a double motor, power was transmitted to the wheels via a driveshaft. The prototype for Märklins's model, the 160 001-4, operated for 51 years at various southern installations (Rosenheim, Innsbruck, Garmisch, Ingolstadt) and was retired at Garmisch in April, 1978.

5

3044 · **Switch engine** · Multi-system industrial locomotive, type EA 800 · C wheel arrangement · All drivers powered · 2 non-skid tires · Coupling hook at each end · Length over buffers 11.2 cm (4-⅜″)

◐=7154 ⌓=7185 ♀=60015



All model have:
Lever for selecting operation by overhead or track current
3 working headlights at each end
Die cast zinc frame
Spring-loaded pantographs

Express Locomotives

1

3049 · Express locomotive · German Federal Railways' class 104 · 1-C-1 wheel arrangement · All drivers powered · 2 non-skid tires · 2 sprung trucks · Coupling hook at each end · Length over buffers 17.8 cm (7″)

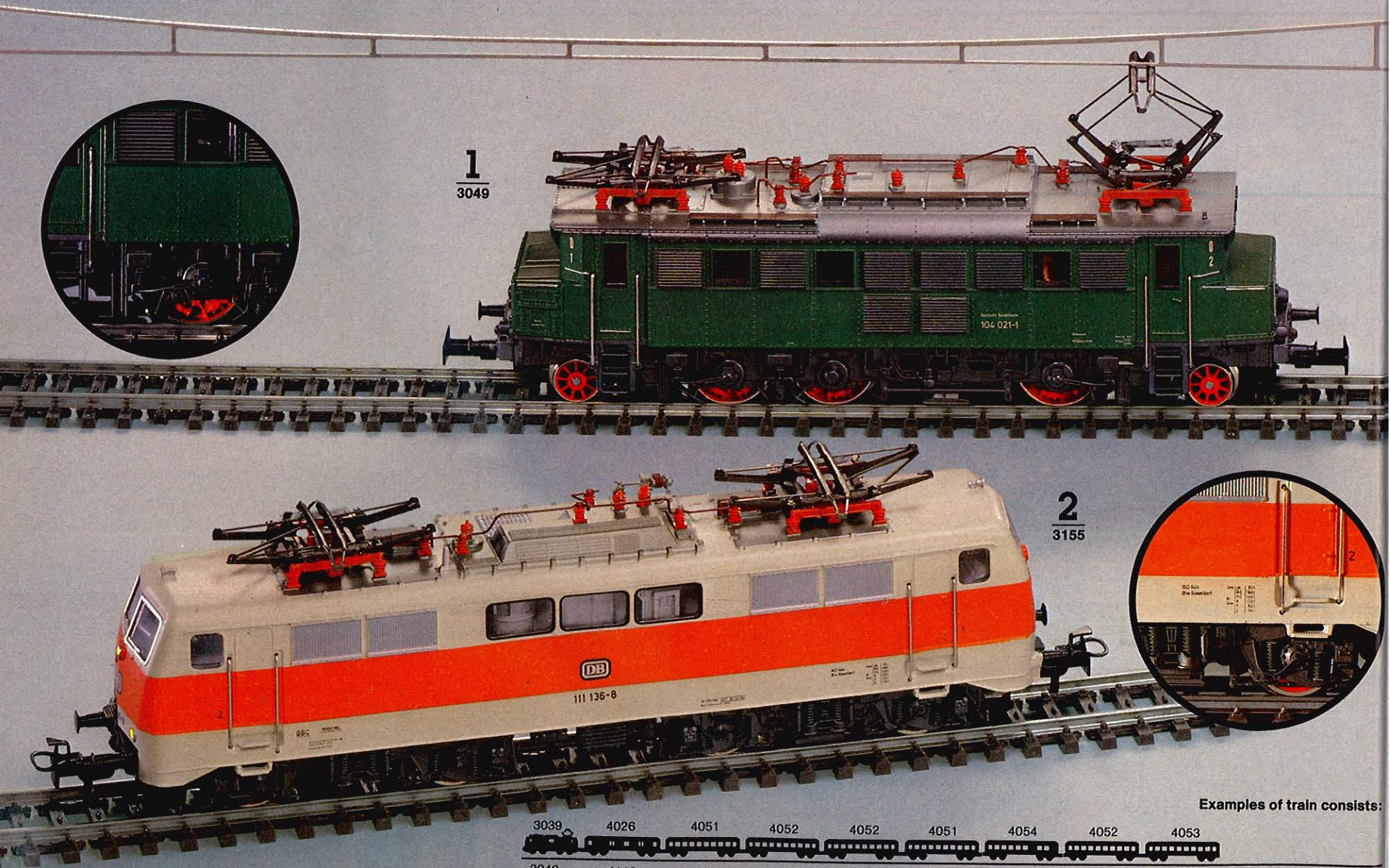
⓪=7153 =7185 =60015

■ Of the 23 originally built for the German State Railways, only numbers 17-22 were transferred to the Federal Railways. Since 1968, they have been numbered 104 017 through 104 022 and now are temporarily stored.

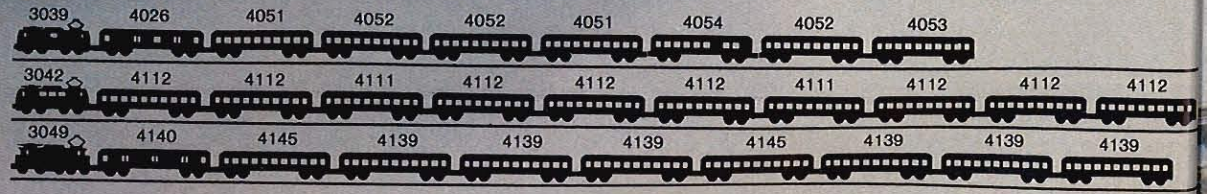
2

3155 · Express locomotive · German Federal Railways' class 111 · B-B wheel arrangement · One power truck · 4 non-skid tires · RELEX-couplers (pages 72/83) at each end · Length over buffers 19.1 cm (7-½″)

⓪=7153 =7164 =60015



Examples of train consists:



■ Since 1978, the 111s have been used in S-Bahn service in the Ruhr district and wear the attractive light gray/orange S-Bahn colors.

(S-Bahn = **S**tadt **Bahn** – local long-distance commuter trains.)

3

3039 · Express locomotive · German Federal Railways' class 110 · B-B wheel arrangement · One power truck · 4 non-skid tires · Metal body · Coupling hooks with pre-uncoupler at each end · Length over buffers 18.1 cm (7-⅛″)

Ⓘ = 7153 ⌓ = 7164 ♀ = 60015

■ The 110 class electrics were bought by the German Federal Railways as early as 1956. Permitted to go 150 kmph (93 mph), the 110s have 4 traction motors developing a total of 3,620 kW. The engine weighs 85 tons and measures 16.44 m (53′ 9″) buffer to buffer.

4

3042 · Express locomotive · German Federal Rails' class 111 · B-B wheel arrangement · One power truck · 4 non-skid tires · RELEX-couplers (pages 72/83) at each end · Length over buffers 19.1 cm (7-½″)

Ⓘ = 7153 ⌓ = 7164 ♀ = 60015

■ The class 111 is a further development of the well-proven 110. Emphasis was placed on improving the cabs, reducing track weight, and increasing on board safety. Weight 83 tons, Length 16.75 m (55′). Top speed 150 kmph (93 mph).

3
3039

4
3042



All models have:
Lever for selecting operation by overhead or track current
3 working headlights at each end
Die cast zinc frame
Spring-loaded pantographs

Switzerland

1

3050 · Heavy duty multi-purpose locomotive · Swiss Federal Railways' (SBB) class Ae 6/6 · C-C wheel arrangement · One power truck · 4 non-skid tires · Metal body · With emblem of Berne canton · Emblems of other Swiss cantons enclosed · Coupling hooks at each end · Length over buffers 20 cm (7-7/8")

0=7153 =7164 =60015

■ The Ae 6/6 is used on international trains. Weight 120 tons. Tractive power 4,400 kW. 6 motors. Top speed 125 kmph (78 mph). Has strong starting and climbing power.

2

3151 · Express locomotive · Swiss Federal Railways' (SBB) class Ae 3/6^{II} · 2-C-1 wheel arrangement · All drivers powered · 2 non-skid tires · Sprung pilot and trailing trucks · RELEX-couplers (pages 72/83) at each end · Length over buffers 16 cm (6-5/16")

0=7153 =7185 =60015

■ The SBB built 60 of these engines between 1924 and 1926 for use on lowland express trains. Tractive power was provided via driveshafts, yet the engines performed well. Its original maximum speed of 90 kmph (56 mph) was later raised to 100 kmph (62 mph).

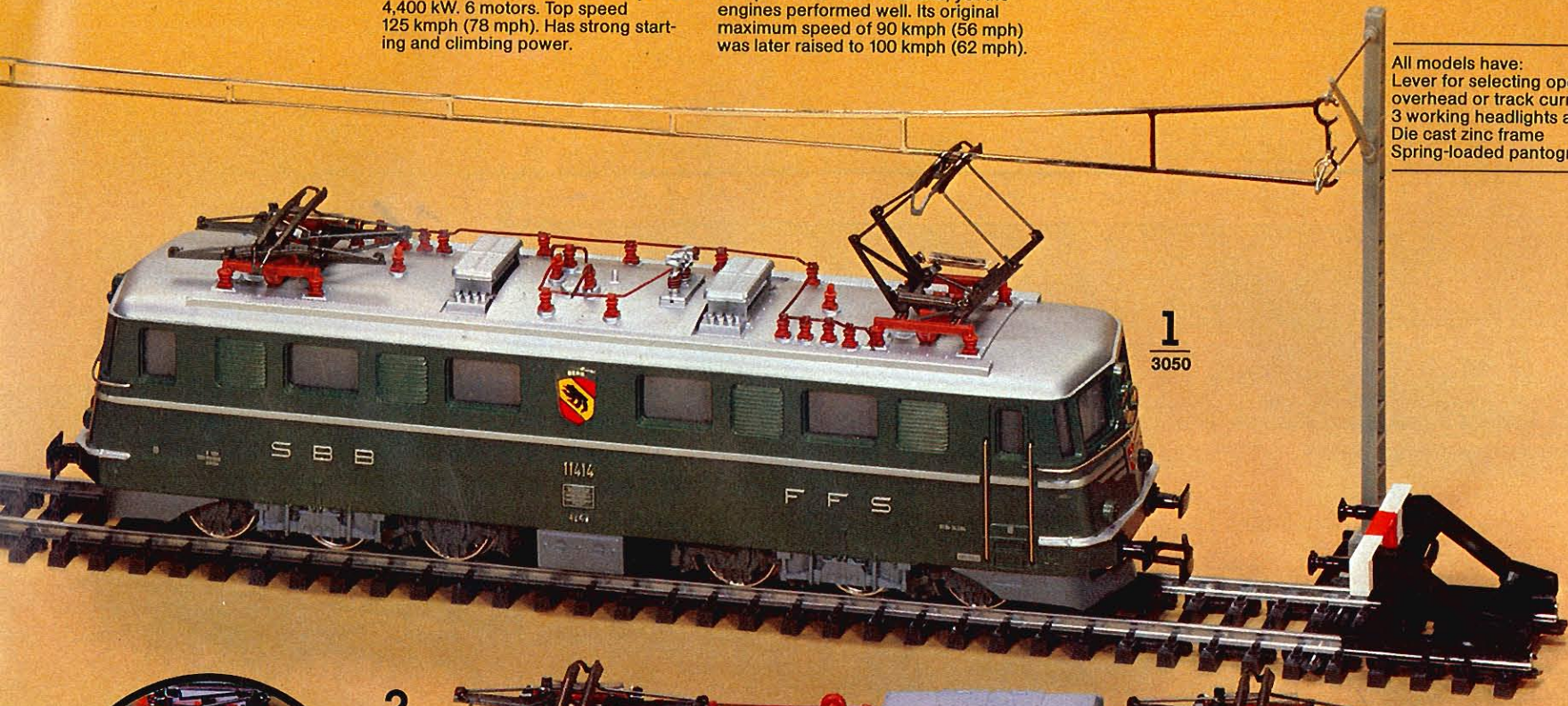
3

3356 · Heavy freight locomotive "Crocodile" · Swiss Federal Railways' (SBB) class Be 6/8^{III} · 1-C-C-1 wheel arrangement · One power truck · 4 non-skid tires · 3-part body · Good cornering ability because of flexibly coupled drivers · RELEX-couplers (pages 72/83) at each end · Electronically controlled direction switch · Length over buffers 22.8 cm (9")

0=7153 =7164 =60019

■ In 1926/1927, 18 of these "crocodiles" were placed in service on the Gotthard line. With a length of 20.06 m (65' 9-3/4") and a power output of 1,800 kW giving it a top speed of 75 kmph (47 mph), their shape reminded many of crocodiles as they lumbered over the scenic Swiss grades.

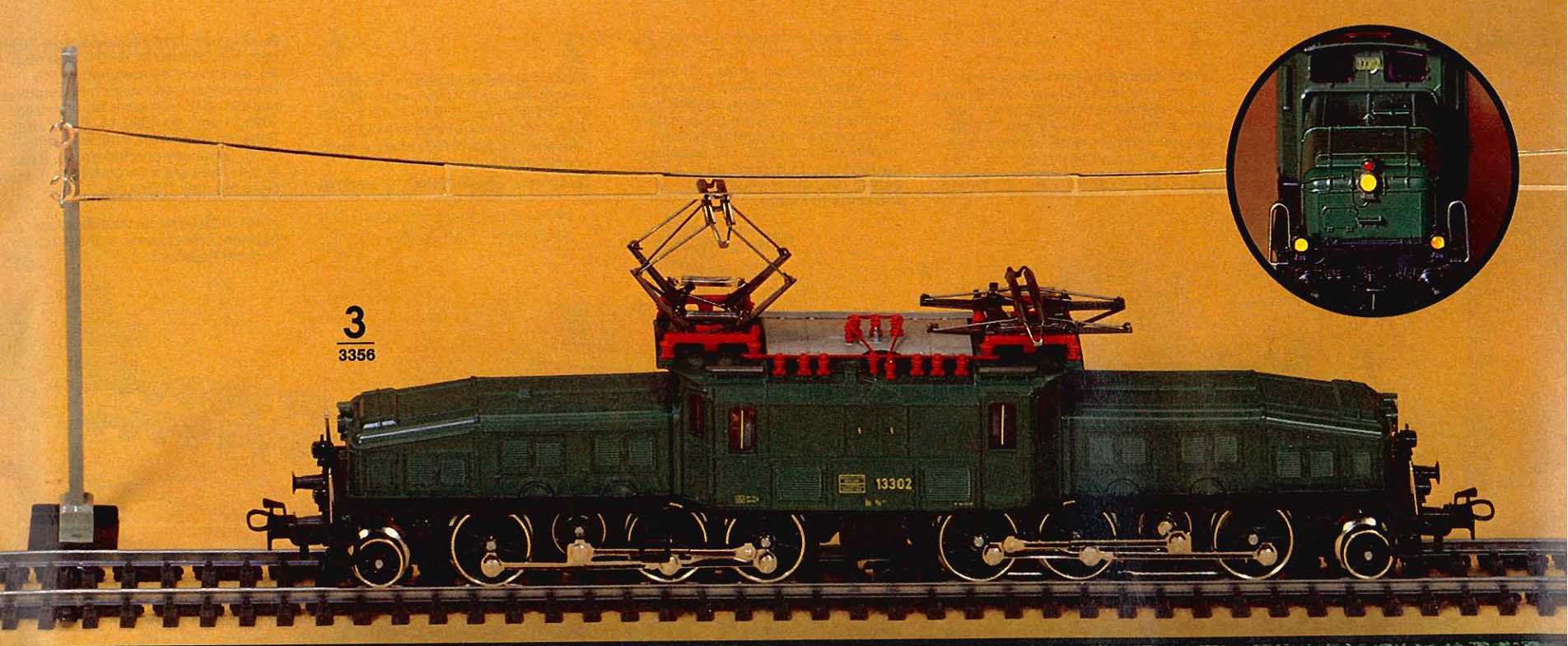
All models have:
Lever for selecting operation by overhead or track current
3 working headlights at each end
Die cast zinc frame
Spring-loaded pantographs



1
3050



2
3151


3
3356
13302



Austria

1

3041 · Multi-purpose locomotive · Austrian Federal Railways' (ÖBB) class 1043 · B-B wheel arrangement · One power truck · Colorful livery · Coupling hook at both ends · Length over buffers 17.5 cm (6-⅞″)

0 = 7153 = 7164 = 60015

■ Following extensive trials with this engine, built by the Swedish firm ASEA, the Austrian Federal Railways purchased an initial batch of 4 units. The 16-⅔ Hz alternating current is converted to direct current by thyristors. Each engine has 4 motors which develop almost 3,680 kW, enabling the 77.4 ton, 15.5 m (50′ 10-¼″) locomotive to attain speeds up to 135 kmph (84 mph).

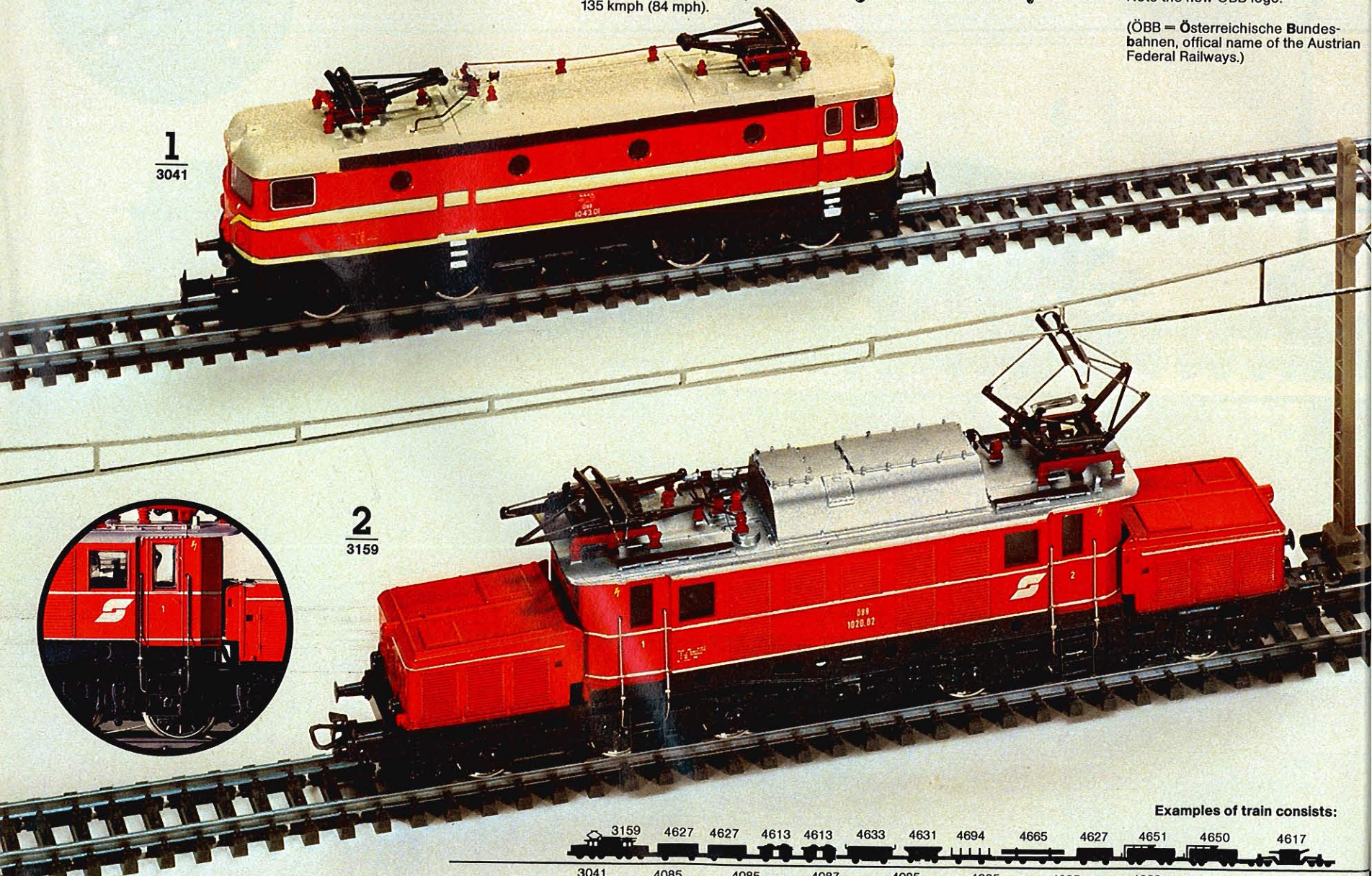
2

3159 · Freight locomotive · Austrian Federal Railways' (ÖBB) class 1020 · C-C wheel arrangement · One power truck · 3-part metal body · RELEX-couplers (pages 72/83) at each end · Length over buffers 21 cm (8-¼″)

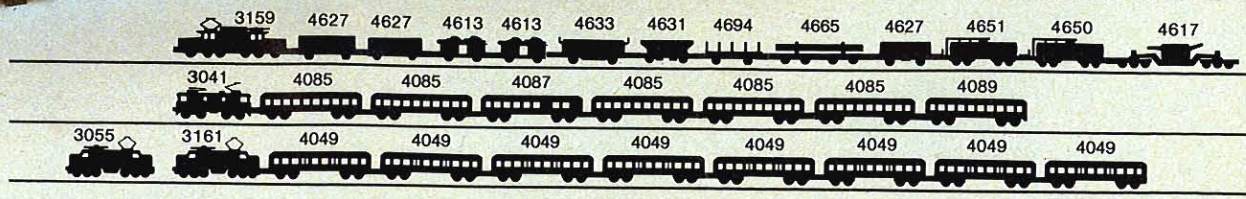
0 = 7153 = 7164 = 60015

■ Originally constructed for the German Reichsbahn in 1940 as the class 94, 44 units were assigned to the newly-organized Austrian Federal Railways in 1945 and were renumbered 1020.01 through 1020.44. Three additional engines were built at Vienna in 1955. Originally painted green, these workhorses are now garbed in orange. Note the new ÖBB logo.

(ÖBB = **Ö**sterreichische **B**undes**b**ahnen, offical name of the Austrian Federal Railways.)



Examples of train consists:



Netherlands

3

3161 · **Electric locomotive** · Netherlands Railways' (NS) class 1200 · C-C wheel arrangement · One power truck · Metal body · Coupling hooks on both ends · Length over buffers 19.6 cm (7-¾″)

⓪=7154 =7164 =60015

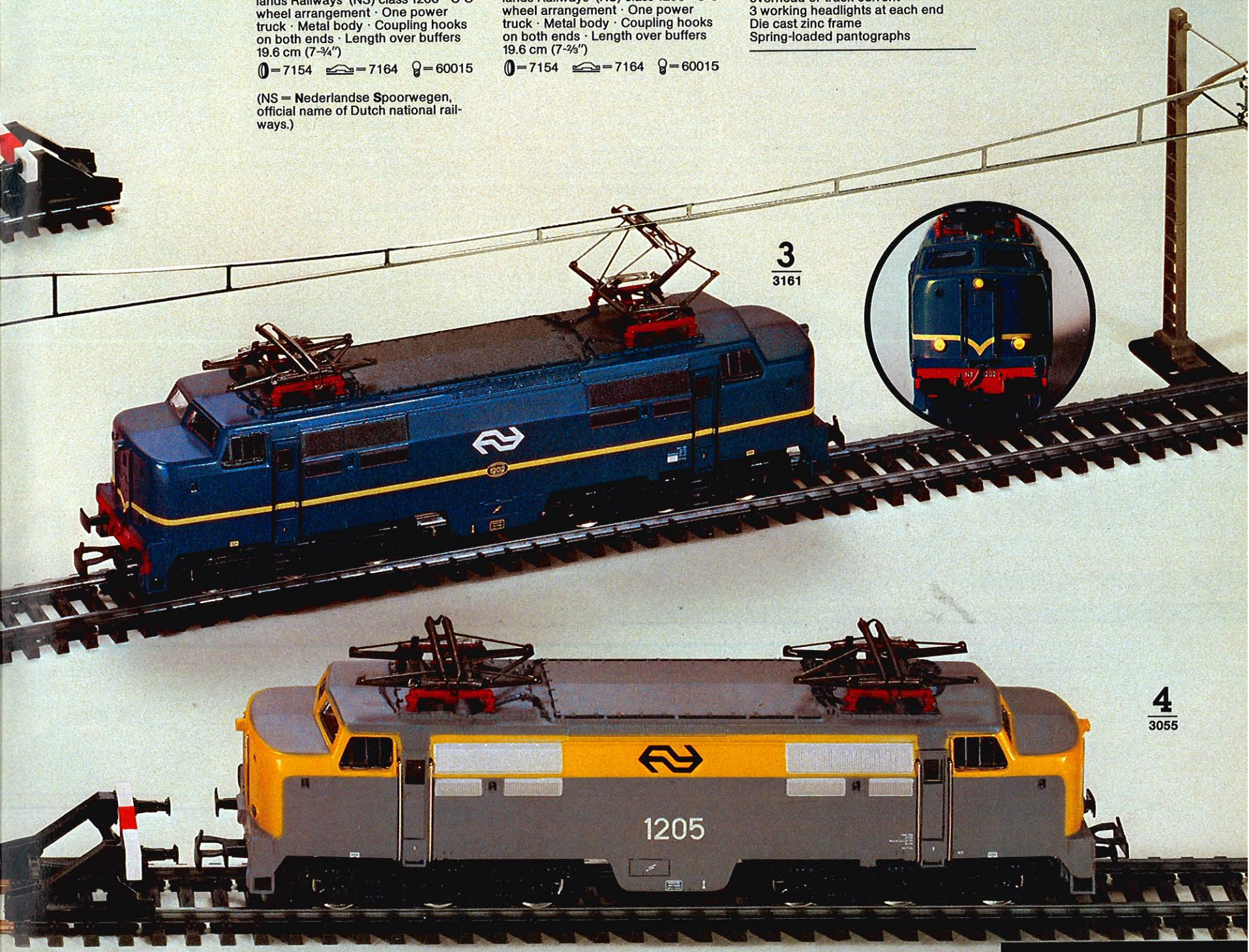
(NS = **N**ederlandse **S**poorwegen, official name of Dutch national railways.)

4

3055 · **Electric locomotive** · Netherlands Railways' (NS) class 1200 · C-C wheel arrangement · One power truck · Metal body · Coupling hooks on both ends · Length over buffers 19.6 cm (7-⅔″)

⓪=7154 =7164 =60015

All models have:
4 non-skid tires
Lever for selecting operation by overhead or track current
3 working headlights at each end
Die cast zinc frame
Spring-loaded pantographs



1 Belgium

3152 · Four-phase express locomotive · Belgian State Railways' (NMBS/SNCB) class 16 · B-B wheel arrangement · One power truck · 4 non-skid tires · RELEX-couplers (pages 72/83) on both ends · Length over buffers 19.4 cm (7-5/8")

0 = 7153 = 7164 = 60015

■ Capable of drawing current at four different phase, the Belgian Railways' class 16 is used in international service. The DC traction motors develop a continous rating of 2,600 kW. Its maximum speed is 160 kmph (100 mph). It is compatible with the following overhead systems:

1,500 Volts =	(SNCF, NS)
3,000 Volts =	(SNCB, FS, JZ)
15 kV / 16⅔ Hz ~	(DB, SBB, ÖBB)
25 kV / 50 Hz ~	(SNCF, CFL)

2 France

3165 · Electric locomotive · French National Railways' (SNCF) class BB 9200 · B-B wheel arrangement · One power truck · 4 non-skid tires · Metal body with "Corail" livery · Coupling hooks with pre-uncoupler at each end · Length over buffers 18 cm (7-1/8")

0 = 7153 = 7164 = 60015

■ The SNCF uses these old but fast locomotives to power the "Corail" passenger trains. To give these trains a sleek streamlined look, the diesels are painted in the "Corail" colors.

(SNCF = **S**ociété **N**ationale des **C**hemins de Fer **F**rançais, official name of the French National Railways.)

3 Sweden

3030 · Multi-Purpose locomotive · Swedish State Railways' (SJ) class Da · 2-C-2 wheel arrangement · All drivers powered · Jackshaft driven through gears · 2 non-skid tires · Metal body · RELEX-couplers (pages 72/83) at each end · Length over buffers 14.7 cm (5-3/4")

0 = 7153 = 7185 = 60015

■ Ideal for use on locals and branch line operations, the class Da engines have only one motor and an axle loading of just 15 to 17 tons. To prevent individual wheels from "running away", the engines are fitted with side rod drive.

4 Sweden

3043 · Multi-purpose locomotive · Swedish State Railways' (SJ) class Rc · B-B wheel arrangement · One power truck · 4 non-skid tires · Coupling hooks at both ends · Length over buffers 17.5 cm (6-7/8")

0 = 7153 = 7164 = 60015

■ Utilizing the latest in electric technology, these engines convert 16-⅔ Hz AC into direct current by means of thyristors. Under the hood are 4 motors which develop almost 3,680 kW. The unit weighs 76 tons and can reach speeds of 135 kmph (84 mph).

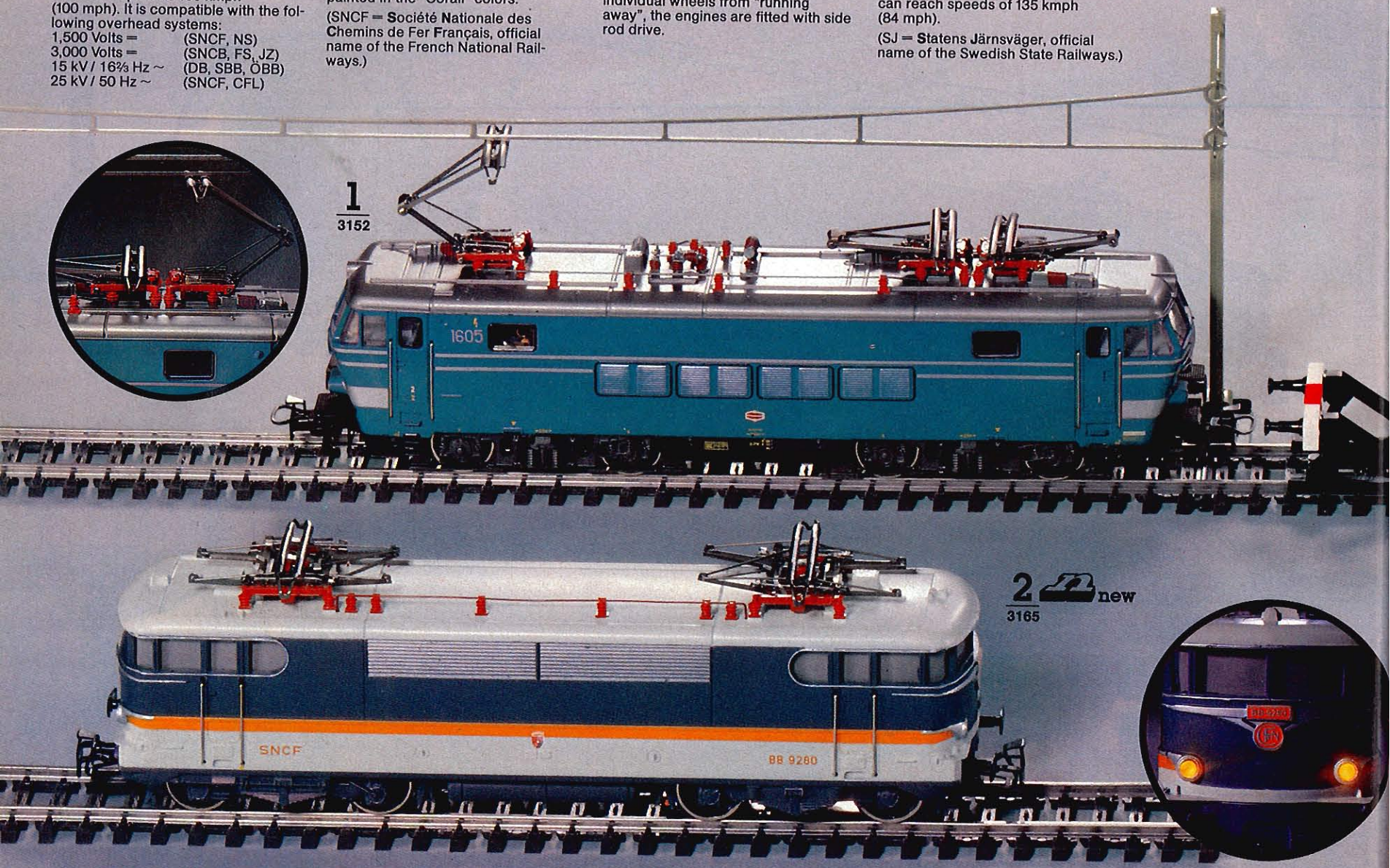
(SJ = **S**tatens **J**ärnsväger, official name of the Swedish State Railways.)

5 Italy

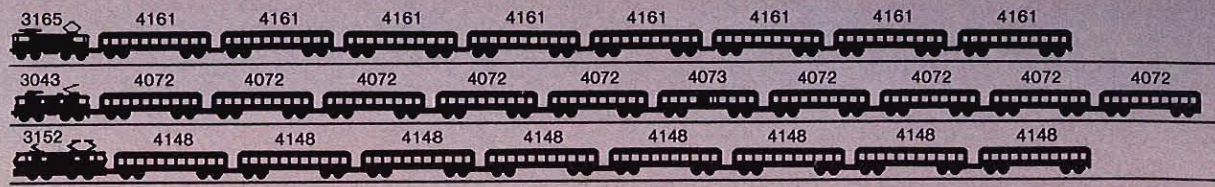
3035 · Electric locomotive · Italian State Railways' (FS) class E 424 · B wheel arrangement · One power truck · 4 non-skid tires · Metal body Coupling hooks with pre-uncoupler each end · Length over buffers 17.5 cm (6-7/8")

0 = 7153 = 7164 = 6001

(FS = **F**errovie dello **S**tato, official name of the Italian State Railways.)



Examples of train consists:



3
3030

4
3043

5
3035

All models have:
Lever for selecting operation
by overhead or track current
3 working headlights at each end
Die cast zinc frame
Spring-loaded pantographs

Diesel Locomotives

Although the diesel was invented in Germany (by Rudolf Diesel in 1897), the German railroads did not hurry to dieselize because they had huge coal reserves. However, the availability of inexpensive fuel oil in the 1950s made dieselization economical and a program was initiated in 1954. Steam was gradually phased out and all fires were banked by the 1970s.

In 1968, with total dieselization almost a reality, the Federal Railways reclassified their motive power, placing diesels in Group 2 (Internal Combustion Powered Vehicles). In diesels, energy is released by burning diesel fuel. On early models, the energy was transmitted to the wheels by means of mechanicals gears and drive shafts. Later research enabled the mechanical gearbox to be replaced by hydraulic transmission. In addition, drive mechanisms were improved. In modern diesels, a generator converts mechanical energy into electrical energy which, in turn, powers traction motors; hence the term, diesel-electrics.

Half of the 40 or so classes of diesels on the German Federal Railways are switchers. The most numerous is the class 260 (Märklin models 3064, 3065). Capable of yard and light road work, there are 941 units of this class in regular service on the Federal Railways.

When making up trains in huge classification yards, switchers are often out of sight of yard-dispatchers. An intricate system of signals guides the engineer. Further, the engineer is in constant radio contact with the Yardmaster. In fact, at some yards, the switchers are unmanned, being controlled by radio from the dispatchers office.

Diesels, when well-maintained, hav remarkably long service life. For example, the V 200 (Märklin model 3021) used in long-distance work during the 1950s and 1960s, still se regular service on work trains in th 1980s. These growlers are usually assigned to northern districts, parti larly Oldenburg (on the North Sea coast), and Lübeck (on the Baltic coast), where the V 200 can still ha respectable loads through the Nor German flatlands.



1

3064 · **Diesel switcher** · German Federal Railways' class 260 · C wheel arrangement · All wheels powered · Coupling hooks with pre-uncoupler at each end · Length over buffers 12 cm (4-¾")

⓪=7153 =7185 =60010

1

3065 · **Diesel switcher with Märklin TELEX-coupler** · German Federal Railways' class 260 · C wheel arrangement · All wheels powered · TELEX-couplers at each end (page 21) · Length over buffers 12 cm (4-¾")

⓪=7153 =7185 =60010



2 new

3146 · **Diesel locomotive** · German Federal Railways' class 236 · C wheel arrangement · All wheels powered by gears · Highly detailed body · Cab windows · RELEX-couplers (pages 72/83) at each end · Length over buffers 10.6 cm (4-3/16")

⓪=7154 =7185 =60015

Class 236

■ Originally classed as the WR 360 C 14, 250 units were built between 1936 and 1944. Of those 250, 63 were assigned to the German Federal Railways in 1945 as the class V 36 (236). By 1971, most were retired.

The multi-purpose diesel has two gear ratios (0–30 kmph and 0–60 kmph, or 0–19 mph and 0–38 mph).

Because of a scarcity of diesels during the 1950s, many of the 236s were used in local passenger service, for example, in Bremen, Bremerhaven, Frankfurt/M., and Wuppertal. The chief assignment for the 236 was yard service at the large freight yards on the German Federal Railways, as well as shunting coaches at major terminals. The 236 was replaced by the V 60 (260).

The prototype for Märklin's model 236 102-0 was stationed at Ansbach, Nürnberg, and Stuttgart between 1964 and 1978.

TELEX-Couplers
remote control uncoupling
Page 21

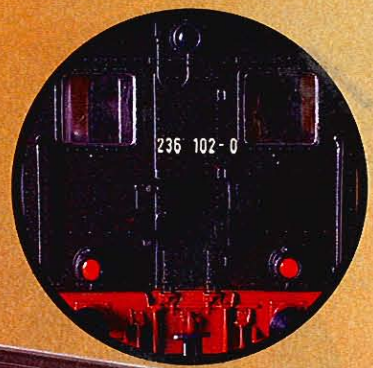
1
3064
3065



All models have:
2 non-skid tires
3 working headlights at each end
Die cast zinc frame

2 new
3146







Examples of train consists:

3146 4635 4635 4631 4619 4693



3146 4080 4079 4079 4079



3065 4423 4671 4431 4424 4430 4430 4473 4474



1

3021 · Express diesel · German Federal Railways' class 220 · B-B wheel arrangement · One power truck · 4 non-skid tires · Metal body · Coupling hook with pre-uncoupler at each end · Length over buffers 21 cm (8-¼″)

⓪=7154 =7183 =60010

2

3147 · Road switcher · German Federal Railways' class 212 · B-B wheel arrangement · One power truck · 4 non-skid tires · Finely detailed body · RELEX-couplers (pages 72/83) at each end · Length over buffers 14.1 cm (5-⁹⁄₁₆″)

⓪=7154 =7164 =60010

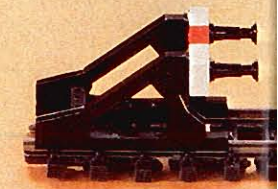
■ The 212 is a general purpose diesel with a mass of 63.2 tons on its 12 m (39′ 4″) frame. Modern versions develop about 1,000 kW and the power is hydraulically transmitted to drive shafts on all axles. Diesel has two gear ratios, which can be selected while engine is in neutral. In low gear (for switching), locomotive exerts maximum tractive effort, but has only a top speed of 65 kmph (40 mph). In high gear (for road service), the engine can get speeds of 100 kmph (62 mph).

3

3072 · Road switcher · German Federal Railways' class 212 · B-B wheel arrangement · One power truck · 4 non-skid tires · Finely detailed body · RELEX-couplers (pages 72/83) at each end · Length over buffers 14.1 cm (5-⁹⁄₁₆″)

⓪=7154 =7164 =60010

All models have:
3 working headlights at each end (except 3080)
Die cast zinc frame



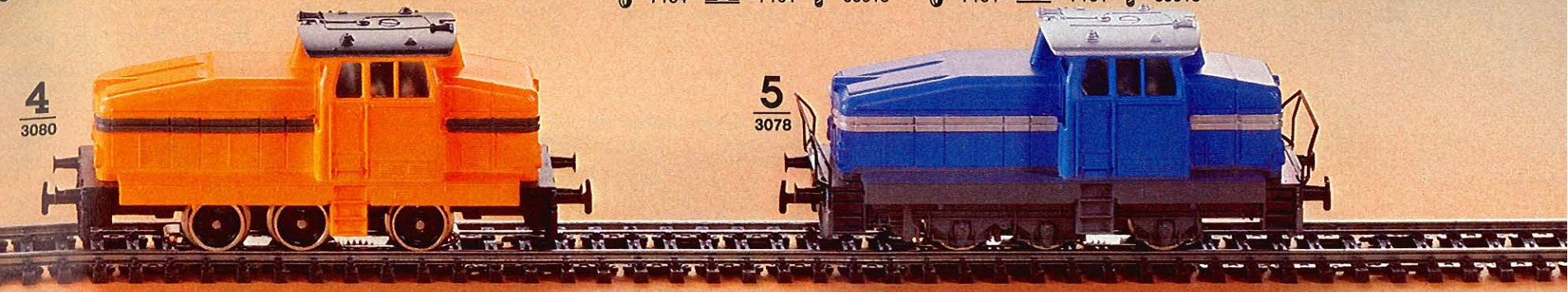
4
3080 · **Industrial switcher** · C wheel arrangement · All wheels powered · 2 non-skid tires · Coupling hooks at each end · Length over buffers 11.2 cm (4-3/8")
◐=7154 ⌓=7185

5
3078 · **Industrial switcher** · Class DHG 500 · C wheel arrangement · All wheels powered · 2 non-skid tires · Coupling hooks at each end · Length over buffers 11.2 cm (4-3/8")
◐=7154 ⌓=7185 ▮=60015

6
3074 · **Road diesel** · German Federal Railways' class 216 · B-B wheel arrangement · One power truck · 4 non-skid tires · RELEX-couplers (pages 72/83) at each end · Length over buffers 18.2 cm (7-3/16")
◐=7154 ⌓=7164 ▮=60015

7
3075 · **Road diesel** · German Federal Railways' class 216 · B-B wheel arrangement · One power truck · 4 non-skid tires · RELEX-couplers (pages 72/83) at each end · Length over buffers 18.2 cm (7-3/16")
◐=7154 ⌓=7164 ▮=60015

■ The class 216 is used in freight and passenger service on non-electrified track. With a total weight of 79 tons (with full fuel tanks), the 216 can develop 1,400 kW for a maximum speed of 120 kmph (75 mph).



4 3080

5 3078



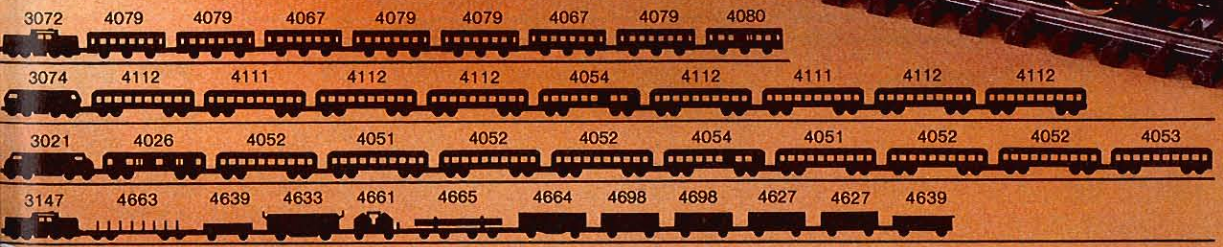
6 3074



7 3075



Examples of train consists:



1 Denmark

3067 · **Road diesel** · Danish State Railways' (DSB) class My 1100 · A1A-A1A wheel arrangement · One power truck · 4 non-skid tires · 3 working headlights at each end · Metal body · Coupling hooks at each end · Length over buffers 20.5 cm (8-1/16")

0 = 7154 = 7164 = 60015

■ The Danish class My 1100 road diesel has diesel-electric drive, i. e.: diesel motors which in turn supply current to electric motors which power the axles. This engine is similar to the Belgian class 204.

(DSB = **D**anske **S**tatsbaner, official name of the Danish State Railways.)

2 Belgium

3066 · **Road diesel** · Belgian State Railways' (NMBS/SNCB) class 204 · C-C wheel arrangement · One power truck · 4 non-skid tires · 3 working headlights at each end · Metal body · Coupling hooks at each end · Length over buffers 20.5 cm (8-1/16")

0 = 7154 = 7164 = 60015

■ A general workhorse, the Belgian class 204 is used on freight and passenger trains. Its power output is 1,300 kW and maximum speed is 140 kmph (87 mph). Because Belgium is bi-lingual, the Belgian State Railways have two official names:
Flemish: Nationale Maatschappij der Belgische Spoorwegen (NMBS)
French: Société nationale des chemins der fer Belges (SNCB)

3 Belgium

3149 · **Yard switcher** · Belgian Sta Railways' (NMBS/SNCB) class 80 · C wheel arrangement · All wheels powered · 2 non-skid tires · 2 work headlights at each end · Die cast z body · Coupling hooks with pre-uncoupler at each end · Length ov buffers 12 cm (4-3/4")

0 = 7153 = 7185 = 600

Note: This yard engine is also used branch lines.

1
3067

2
3066

3
3149

4 USA

3062 · **Road diesel** · An F 7 in the livery of the Denver & Rio Grande Western Railway · Prototype made by General Motors' Electro-Motive Division · B-B wheel arrangement · One power truck · 4 non-skid tires · 2 working headlights · Metal body · Coupling hook with pre-uncoupler at cab end · RELEX-coupler (pages 72/83) at other end · Length 17.5 cm (6-⅞")

◐ = 7154 ⌓ = 7185 ♀ = 60015

5 USA

4062 · **Dummy road diesel** · Unpowered version of 3062 · 2 working headlights · Coupling hook with pre-uncoupler at cab end · Length 17.5 cm (6-⅞")

⌓ = 7185 ♀ = 60015

6 USA

3060 · **Road diesel** · An F 7 in the livery of the Atchison, Topeka & Santa Fe Railway · Prototype made by General Motors' Electro-Motive Division · B-B wheel arrangement · One power truck · 4 non-skid tires · 2 working headlights · Metal body · Coupling hook with pre-uncoupler at cab end · RELEX-coupler (pages 72/83) at other end · Length 17.5 cm (7-⅞")

◐ = 7154 ⌓ = 7185 ♀ = 60015

7 USA

4060 · **Dummy road diesel** · Unpowered version of 3060 · 2 working headlights · Metal body · Coupling hook with pre-uncoupler at cab end · Length 17.5 cm (6-⅞")

⌓ = 7185 ♀ = 60015

3060 + 4060 USA
Power and dummy F 7 set · Atchison, Topeka & Santa Fe Railway

3062 + 4062 USA
Power and dummy F 7 set · Denver & Rio Grande Western Railway



Examples of train consists:

1

3077 · Rail Zepplin · Based on Kruckenberg's system · 8 wheels · One power truck · 4 non-skid tires · Realistic operation: As the track current is slowly increased from 4 V, the propeller is activated by a small motor · As track current increases, the zepplin itself begins to roll · 2 working headlights · Sleek streamlined body · Die cast zinc frame · Length 28.8 cm (11-3/8")

◐ = 7154 ▱ = 7164 ♀ = 60015

■ In 1931, the rail zepplin set a world speed record for tracked vehicles, 230 kmph (143 mph). Power was derived from a 450 kW BMW aircraft engine which activated the propeller.

2

3071 · TEE articulated train set · 3 units (power unit, coachdiner, and coach with cab) · Accurate beige-red color scheme as used by the TEE trains

Locomotive: One 6-wheel power truck · 4 non-skid tires · Die cast zinc frame

Train lettered for "Edelweiss", crack TEE train between Zürich and Amsterdam. More information, page 41.

This train set has special couplers which narrows the gaps between cars · Gaps also have special air-tight diaphragms · 3 white headlights and 2 red taillights at each end, illuminated according to direction of travel · Sliders at each end, with current obtained from leading slider · Length of 3-car train set 70 cm (2' 3-5/8")

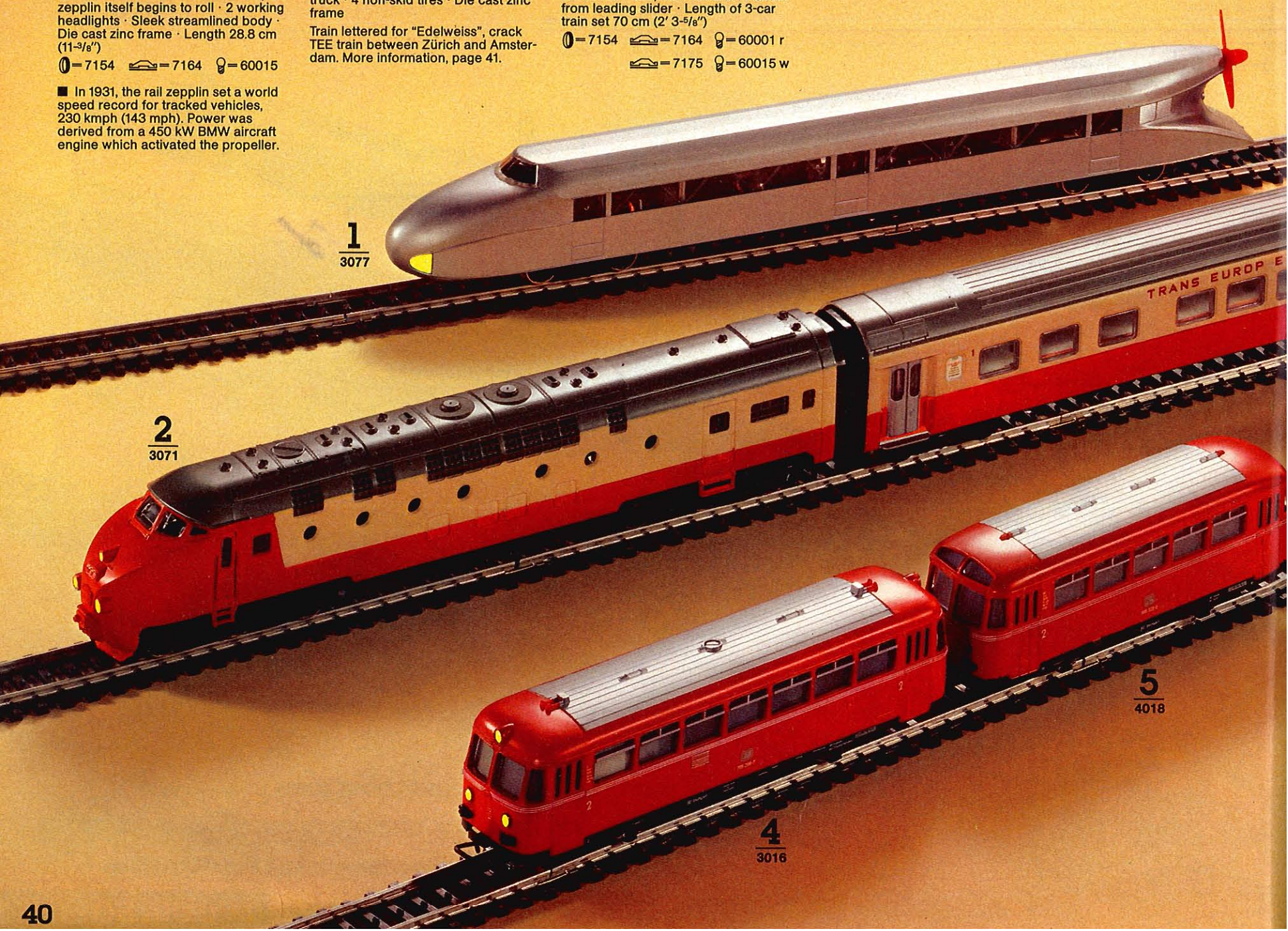
◐ = 7154 ▱ = 7164 ♀ = 60001 r

▱ = 7175 ♀ = 60015 w

3

4071 · TEE compartment car · 1st class · Flexible diaphragms at each end · Special TEE couplers · Length 23.3 cm (9-3/16")

The TEE train illustrated here consists of one 3071 and one 4071. Length 93.3 cm (3' 5/8").



■ The TEE (**T**rans-**E**urope **E**xpress) are high speed first-class-only limiteds operated by the railways of western Europe. The train sets are owned by the individual railroads by lettered and painted alike according to internationaal agreement. The diesels can develop up to 1,700 kW for speeds up to 140 kmph (87 mph). The trains are fully air-conditioned with sealed windows. The 1st class coaches seat 114, the diners seat 32.

To assure reliable service, most TEE runs have several identical train-sets. The Edelweiss (upon which Märklin's model is based) have 5 identical train-sets to ply the historical Rhine route between Zürich and Amsterdam.

3
4071

6
3028

7
4028



4

3016 · **Rail bus** · German Federal Railways' class 795 · One power truck · 2 non-skid tires · 3 working headlights at each end · Interior lighting · Authentic red livery · Die cast zinc frame · Special short couplers at each end according to prototype practice · Length over buffers 14.7 cm (5-¾″)

= 7153 = 7164 = 60010

5

4018 · **Rail bus trailer** · German Federal Railways' class 995 · Operating red taillights at each end · Interior lighting · Special short couplers at each end according to prototype practice · Length over buffers 12 cm (4-¾″)

= 7175 = 60010

6

3028 · **Self-propelled coach** · German Federal Railways' class 515 · Prototype powered by batteries · One power truck · 4 non-skid tires · 3 white headlights and 2 red taillights at each end, illuminated according to direction of travel · Interior details with illumination · Coupling hooks at each end · Length over buffers 24 cm (9-½″)

= 7154 = 7164 = 60001 r
= 60015 w

7

4028 · **Control car** · For use with self-propelled coach 3028 · German Federal Railways' class 815 · Interior details with illumination · When coupled to 3028, 3 white headlights and 2 red taillights illuminated according to direction of travel · Dummy couplers at both end (eye at one end, hook at the other) · Length over buffers 24 cm (9-½″)

= 7164 = 60001 r
= 60015 w

Basic Principles of Märklin Locomotives

The Märklin HO System

The decisive advantages of the Märklin HO system are: the versatile Märklin tracks (with the "invisible" third rail) and the precision engineered locomotives which offer:

Fail-Safe Current Pick Up

The pick up shoe, also called a slider, is in constant contact with several studs of the hidden third rail.

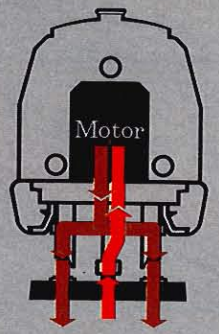
Fail-Safe Current Return

The current flows back through the wheels on **both** sides. **Both** outside rails carry return current.

Directional Unit is in the Locomotive

A locomotive's direction is determined by a direction switch (relay) in the locomotive. Thus it is possible to operate trains in both directions with the same track current.

All these advantages are possible because Märklin uses a 3-rail AC current system.



Fail-safe current return via **both** outside rails

The Slider (pick up shoe)

The slider assures a current supply to the locomotive. The slider consists of three parts: the shoe itself which is in constant contact with the third rail studs, a spring which presses on the shoe to insure contact, and an isolation plate which insulates the engine frame from the slider.



Fail-safe current pick up

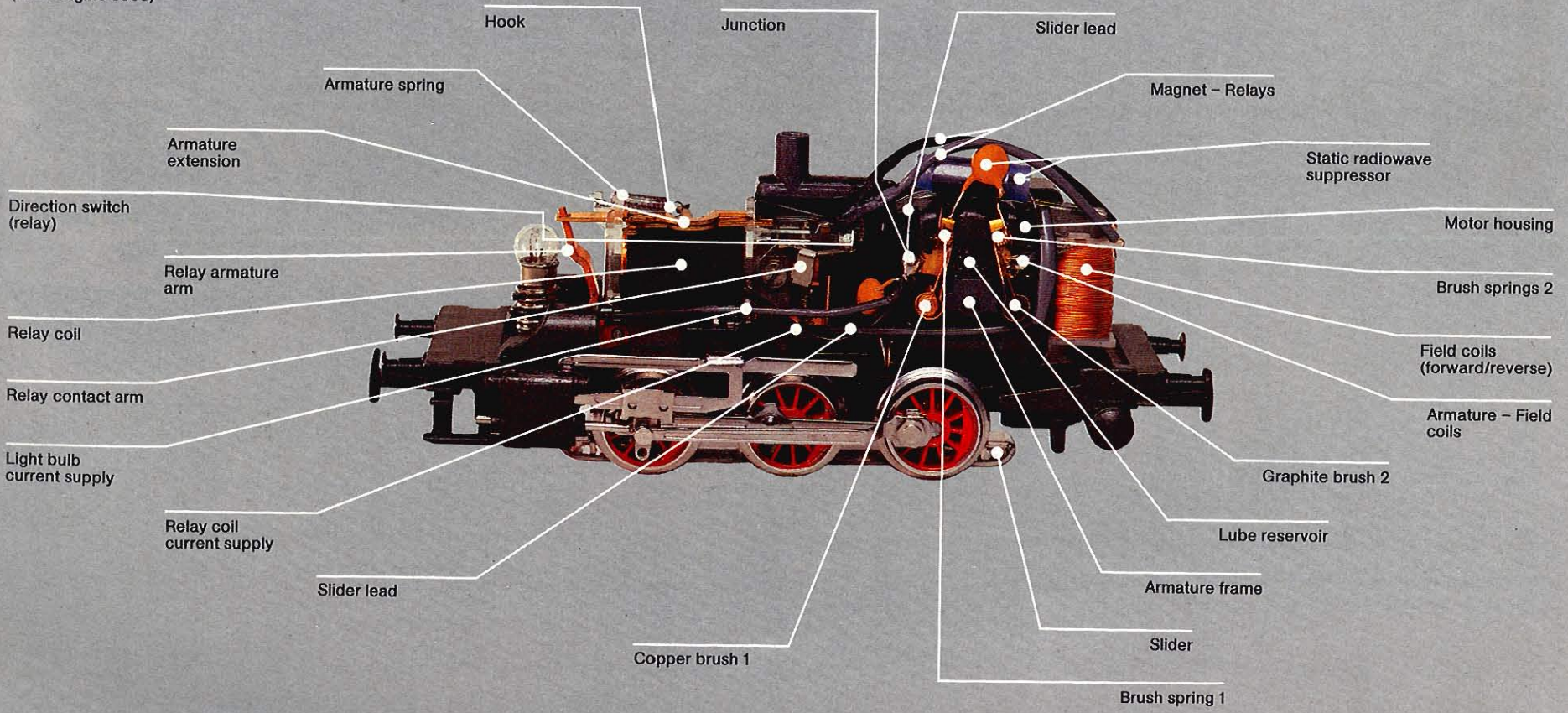
The Motor

The electric motors in Märklin locomotives consist of an electromagnet which draws current from two coils (one forward and one reverse); as well as an armature. On the motor housing are located the brush clips, brush springs, and the brushes themselves.

As a rule, Märklin locomotives utilize either a **flat (disc) commutator** or a **circular commutator.** On the former, the collector is a disc on the armature, while on the latter, the collector is shaped like a cylinder.

Locomotive with Flat Commutator Motor

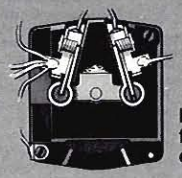
(Tank engine 3000)



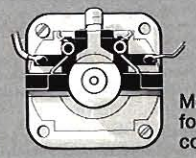
Externally, the two motors are distinguished by:

The flat commutator has one copper and one graphite brush.

The circular commutator has two graphite brushes.



Motor housing for the flat commutator motor



Motor housing for the circular commutator motor

Direction Switch (Relays)

The direction switch determines the flow of current through the field coils, and thus the direction of travel for the engine.

These relays include:

A relay coil, relay armature arm, armature spring, armature extension, and relay contact arm.

The relay works as follows:

Some of the current picked up by the engine flows through the relay coil at all times. When the red knob on the transformer is rotated to the left of zero sending a momentary pulse of 24 V, the magnetic field becomes strong enough to trip the relay armature arm. As a result, the flow of current between the electromagnet and the ground via the armature extension is broken and the motor is turned off.

As soon as the pulse of over-voltage is stopped (by returning the red knob to zero), the magnetic field around the relay coil is killed, and the armature spring returns the relay armature arm to normal. At the same time, the relay contact arm is thrown in contact with the other of the two contacts on the coils (each time relay is thrown, the arm flip flops). Current flow is reestablished between magnet and ground, and the locomotive begins moving, but in the opposite direction.

Certain locomotives, namely the 3065 and 3096, an the self-propelled cars 3028 and 3071 function somewhat differently because of the TELEX-couplers and illumination switch. However, the basic principles remain the same.

Current Flow

In a locomotive, current is picked up by the slider, fed through the slider lead to a junction from where the current is fed to three parallel circuits:

1. Motor Circuit
   Brush springs 1 → Brushes 1 → Armature (not visible in picture) → Brushes 2 → Brush springs 2 → Armature – field coil → Magnet → Magnet – Relay → Relay contact arm → Ground (frame, wheels, rail)
2. Relay Circuit
   Wire to relay coil → Relay coil → Ground
3. Illumination Circuit
   Wire to bulb → Bulb → Bulb socket → Ground

On electric locomotives, this junction is located at the switch for receiving current from the overhead or third rail.

Locomotives with Flat Commutator Motors:

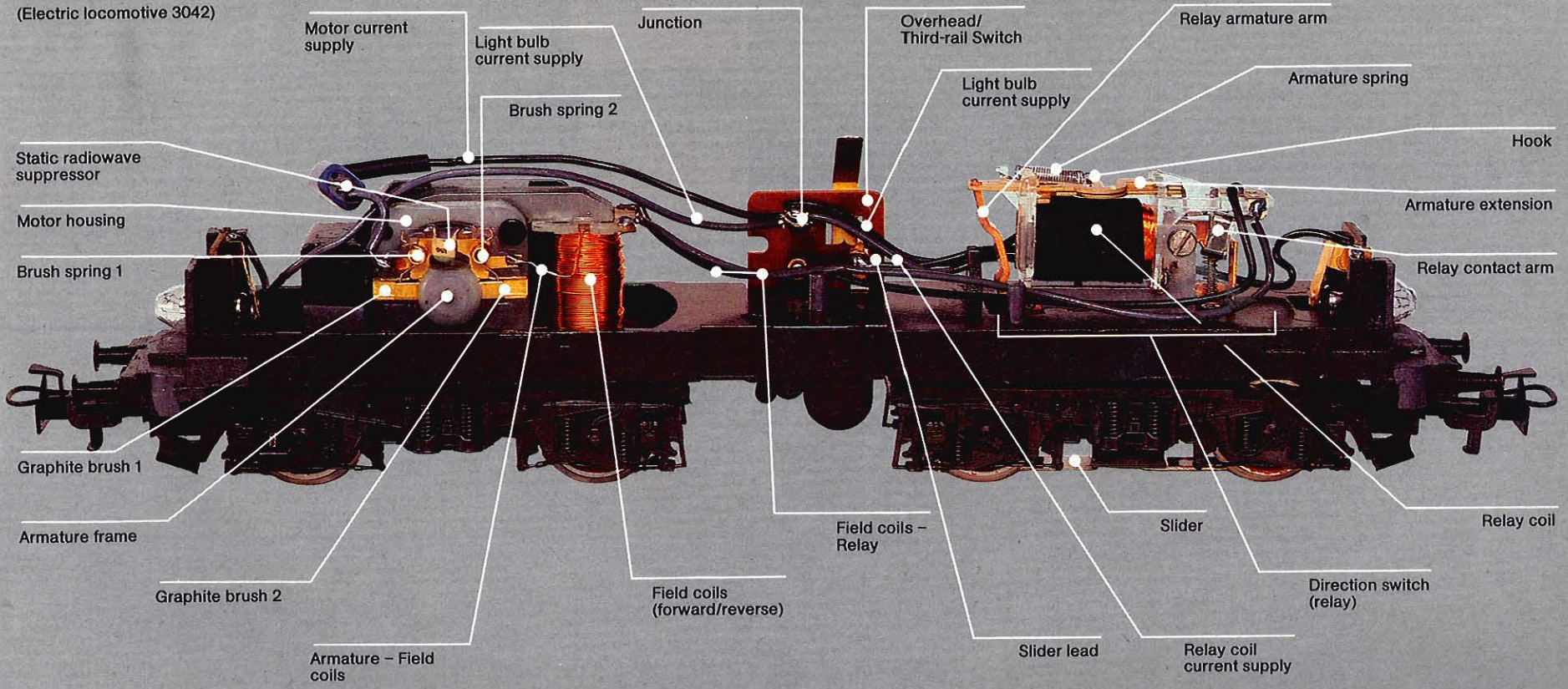
3000, 3003, 3016, 3021, 3028, 3030, 3041, 3043, 3044, 3050, 3055, 3060, 3062, 3064, 3065, 3066, 3067, 3071, 3072, 3074, 3075, 3077, 3078, 3080, 3083, 3087, 3089, 3092, 3093, 3095, 3096, 3099, 3147, 3149, 3159, 3161, 3322, 3354

Locomotives with Circular Commutator Motors:

3035, 3039, 3042, 3049, 3058, 3082, 3084, 3085, 3102, 3104, 3106, 3146, 3151, 3152, 3153, 3155, 3156, 3157, 3165, 3356

Locomotive with Circular Commutator Motor

(Electric locomotive 3042)



Engine Diagnosis

Märklin railroaders have come to rely upon the high quality and skilled workmanship that characterizes Märklin locomotives.

Usually, if trouble develops in an engine, the cause is either normal wear and tear of certain parts or a lack of maintenance. In most cases, these problems can be corrected by the hobbyists themselves with minimum effort.

The following schematics, along with the information on the previous two pages, can assist Märklin railroaders diagnose troubles and make minor repairs.

Should an engine develop a problem not discussed in these schematics, the locomotive should be taken to an authorized Märklin repair center.

To service locomotives and make minor repairs, the following tools are very handy:

- 1 small screwdriver 2.9 mm (⅛")
- 1 tweezers
- 1 flat nosed pliers
- 1 socket wrench 3.5 mm (9/64")
- 1 socket wrench 3.0 mm (⅛")

And now to the diagnosis:

Symptoms of engine problems are odd sounds, poor lighting, or faulty operation.

These symptoms suggest that a problem listed on these charts may be present.

If something is wrong:

1. Determine what the trouble is.
2. Using these charts, check for a "Probable Source".
3. When the source is found, the cause will be found in the "Diagnosis" column.
4. The "Repair" column tells how to fix it.
5. If trouble persists, the engine should be taken to an authorized Märklin repair center.

The basic principles of all Märklin locomotives are identical. Minor difference such as the catenary operation on the electrics and the trucks used by the diesels and electrics do exist. Thus these engines may develop unique problems.

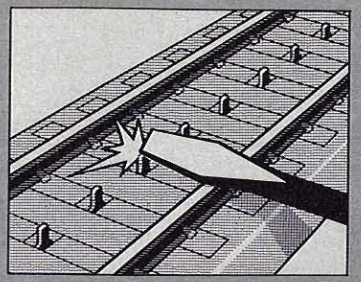
These problems are given special mention on the following charts.

Problem

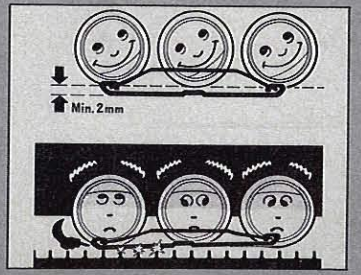
- Engine doesn't move
- Lights don't work
- No sounds

Probable Source	Test For	Diagnosis	Repair
Current supply	Turn on transformer. No sparks fly when attempt is made to short the rails	Track has no current	Be sure that all connections are tight (leads on transformer, feeder track, and rail joints) and that transformer is plugged in
Slider	Remove engine from track: Slider does not extend 2 mm (5/64") beyond the wheel flanges	Slider is not in contact with the third rail because there is not enough tension from the slider springs	Use tweezers to move the springs left and right under the isolation plate or replace the slider (for replacements see pages 50/51)
Junction (remove engine shell according to instructions)	Slider lead is not in contact with the junction	Main current supply broken	Soldering required. Take engine to repair station
Additional problem sources by electrics			
Overhead current supply	Turn on transformer. No sparks fly when attempt is made to short circuit catenary with outside rails	Catenary has no current	Be sure that all connections are tight (leads on transformer, feeder mast, and catenary joints) and that transformer is plugged in
Catenary/Third Rail Switch	Turn on current to third rail. Engine moves	Switch is positioned for third rail not catenary	Position switch for catenary

Confirm current flow by short-circuiting the third rail with the outside rails



Slider must extend at least 2 mm (5/64") beyond wheel flanges

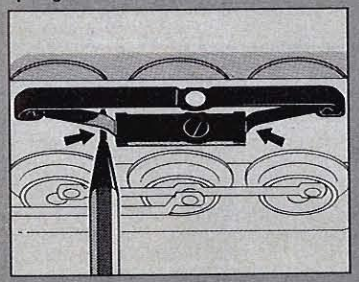


Problem

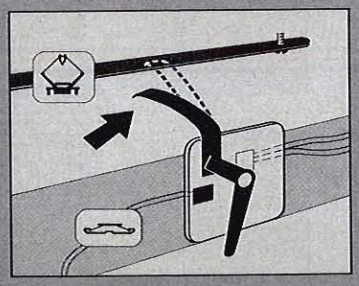
- Engine doesn't move
- Lights don't work
- No sounds

Probable Source	Test For	Diagnosis	Repair
	Put switch on catenary. Turn on current to catenary. Engine doesn't move	Some section of the pantograph set up is loose	Check parts of setup: pantograph, overhead/third rail switch, switch spring
Pantograph	Pantograph is not in contact with the overhead	Pantograph springs are loose or pantograph is deformed and bent	Hook up the springs, or straighten out kinks in pantograph, or replace pantograph (for replacements, see pages 50/51)
Spring on overhead/third rail switch (remove engine shell according to directions)	Spring on overhead/third rail switch is severely bent	Contact spring is not touching the connecting strip under the roof. No current flowing between pantograph and connector	Bend spring upwards. Put shell back on
Junction on overhead/third rail switch	Engine doesn't move regardless of current supply	Various connections to overhead/third rail switch junction may be broken	Soldering necessary. Take engine to authorized Märklin repair center
	Previous testing proves fruitless	A repair center will have to locate the problem	Take engine to a repair center

Correcting the pressure of the slider springs



Replacing the spring on the overhead/third rail switch

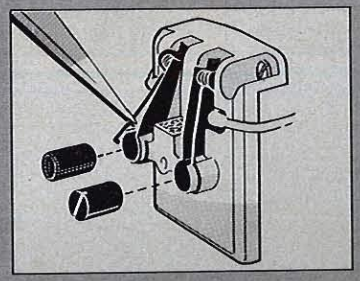


Problem

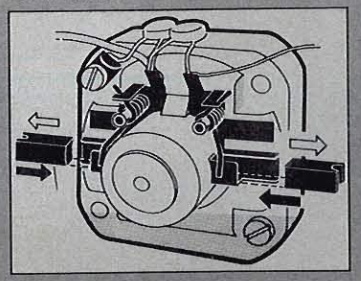
- Locomotive doesn't move
- Lights get brighter with higher current
- Sounds get louder

Probable Source	Test For	Diagnosis	Repair
Brushes (remove engine shell according to directions)	Brushes are missing or they are shorter than 3 mm (⅛") or the springs are too weak	Circuit in the motor is broken	Replace brushes (for replacements, see pages 50/51). Tighten springs with tweezers
Direction switch (Relays)	See if the relay armature arm holds fast under normal tension. Test by lightly tugging it	Armature spring is missing or too weak	Replace armature spring (for replacements, see pages 50/51)
Leads to and from the field coil	Wires: Brushes – relay coil or relay coil – direction switch wires broke or soldering joint is broke	Circuit to the field coils is broken	Solder or replace the field coil. Take engine to a repair center
Additional tests for diesels and electrics			
	One or more wires are pinched between truck frame and shell	Pinch may have broken wire or caused a short	Repair or replace wire. Insulate soldered joints. When putting shell back on, be sure wires are positioned properly
	Previous testing proves fruitless	A repair center will have to locate problem	Take engine to a repair center

Changing brushes on a flat commutator motor



Changing brushes on a circular commutator motor

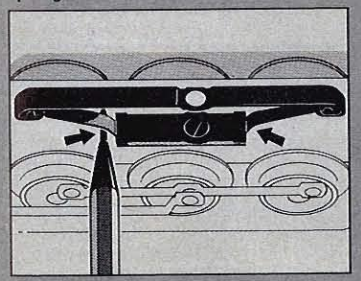


Problem

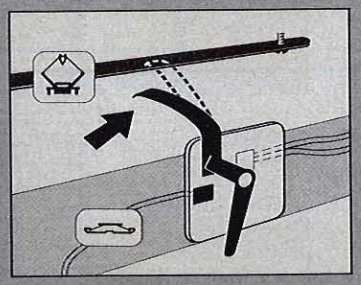
- Engine doesn't move
- Lights don't work
- No sounds

Probable Source	Test For	Diagnosis	Repair
	Put switch on catenary. Turn on current to catenary. Engine doesn't move	Some section of the pantograph set up is loose	Check parts of setup: pantograph, overhead/third rail switch, switch spring
Pantograph	Pantograph is not in contact with the overhead	Pantograph springs are loose or pantograph is deformed and bent	Hook up the springs, or straighten out kinks in pantograph, or replace pantograph (for replacements, see pages 50/51)
Spring on overhead/third rail switch (remove engine shell according to directions)	Spring on overhead/third rail switch is severely bent	Contact spring is not touching the connecting strip under the roof. No current flowing between pantograph and connector	Bend spring upwards. Put shell back on
Junction on overhead/third rail switch	Engine doesn't move regardless of current supply	Various connections to overhead/third rail switch junction may be broken	Soldering necessary. Take engine to authorized Märklin repair center
	Previous testing proves fruitless	A repair center will have to locate the problem	Take engine to a repair center

Correcting the pressure of the slider springs



Replacing the spring on the overhead/third rail switch

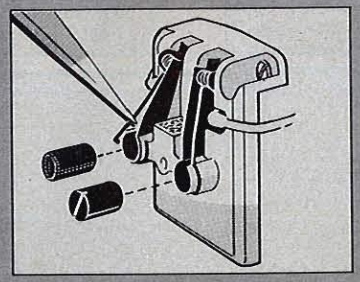


Problem

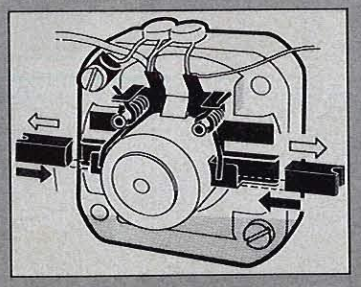
- Locomotive doesn't move
- Lights get brighter with higher current
- Sounds get louder

Probable Source	Test For	Diagnosis	Repair
Brushes (remove engine shell according to directions)	Brushes are missing or they are shorter than 3 mm (⅛") or the springs are too weak	Circuit in the motor is broken	Replace brushes (for replacements, see pages 50/51). Tighten springs with tweezers
Direction switch (Relays)	See if the relay armature arm holds fast under normal tension. Test by lightly tugging it	Armature spring is missing or too weak	Replace armature spring (for replacements, see pages 50/51)
Leads to and from the field coil	Wires: Brushes – relay coil or relay coil – direction switch wires broke or soldering joint is broke	Circuit to the field coils is broken	Solder or replace the field coil. Take engine to a repair center
Additional tests for diesels and electrics			
	One or more wires are pinched between truck frame and shell	Pinch may have broken wire or caused a short	Repair or replace wire. Insulate soldered joints. When putting shell back on, be sure wires are positioned properly
	Previous testing proves fruitless	A repair center will have to locate problem	Take engine to a repair center

Changing brushes on a flat commutator motor



Changing brushes on a circular commutator motor



Problem

- Jerky running
- Lights flicker
- Sound normal

Probable Source	Test For	Diagnosis	Repair
Slider	See if slider is creating sparks when moving	Slider springs too weak or uneven	Use tweezers to move the springs under left and right on the isolation plate
	Slider: Track grooves Burn spots Brass color Dirt spots	Worn out slider	Replace slider (for replacements, see pages 50/51)
Wheels	See if wheels spark when moving or if wheels have burn or dirt spots	Poor ground contact because of dirty wheels (or track)	Moisten a rag with a suitable cleaning solvent and clean wheels (or rails)

Additional problem sources by electrics

Pantograph	See if pantograph is making sparks when moving	Pressure of pantograph on catenary is too weak	If necessary replace pantograph springs or complete pantograph (for replacements, see pages 50/51)
	Pantograph: Burn spots Dirt spots	Pantograph worn out or dirty	Use sand paper to clean top of pantograph and underside of catenary contact wire, or replace pantograph (for replacements, see pages 50/51)
	Previous testing proves fruitless	A repair center will have to locate problem	Take engine to a repair center

Problem

- Engine doesn't move no matter how much current is fed
- Lights burn bright
- Sound is normal
- With maximum current, the engine changes direction by itself

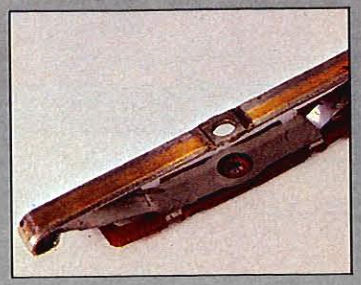
Probable Source	Test For	Diagnosis	Repair
Direction switch (remove shell according to directions)	Relay armature arm holds fast with high tension despite spring action	Armature spring has too little tension	Shorten the spring by a few curls using a screwdriver and adjust its connection with the hook
	Previous testing proves fruitless	A repair center will have to locate problem	Take engine to a repair center

Problem

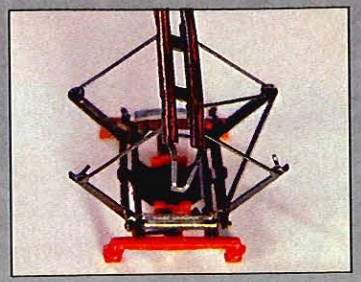
- Engine hesitates when changing directions or doesn't change directions

Probable Source	Test For	Diagnosis	Repair
Direction switch (remove shell according to directions)	Relay armature arm hesitates or doesn't move when switched	Armature spring has too much tension	Stretch the armature spring a little with tweezers or adjust the connection on the hook with a screwdriver
	Lead to the relay coil is not connected to junction or coil	No current is reaching the relay coil	Solder or replace the direction switch (for replacements, see pages 50/51). Take engine to a repair center
	Previous testing proves fruitless	A repair center will have to locate problem	Take engine to a repair center

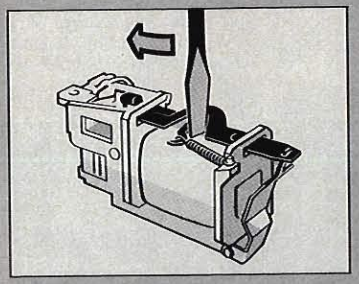
Used slider



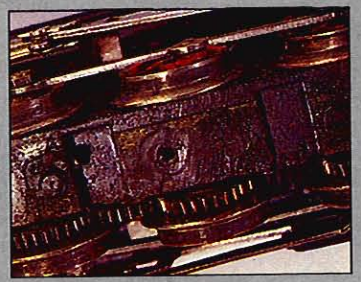
Used pantograph



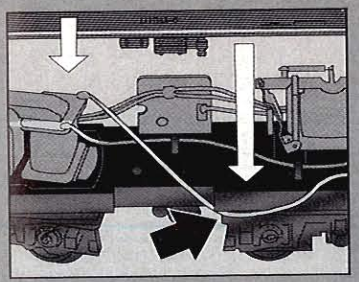
Bending the hook tightens the tension on the armature spring



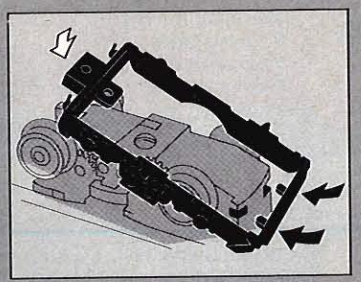
Very dirty locomotive



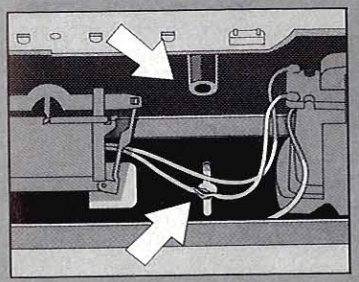
Wire squeezed in between shell and truck



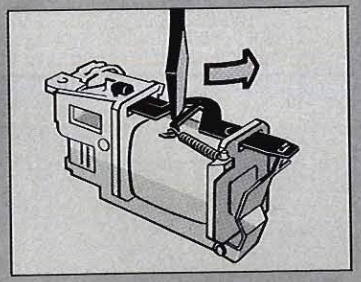
Correct placement of truck frames



Wire squeezed off between shell and truck



Bending the hook lessens the tension on the armature spring



Problem

- Engine derails on curves
- Lighting is normal
- Sounds are normal

Diesels and Electrics

Probable Source	Test For	Diagnosis	Repair
Trucks	One or both have too little play	Truck frames are on wrong	Remove the frames according to instructions and put them back on properly. Be sure frames are properly plugged on the truck
	Power truck seems stuck	One or more wires are pinched when shell is on engine	Remove the shell and before putting it back on, be sure wires are not being pinched
	Previous testing proves fruitless	A repair center will have to locate problem	Take engine to a repair center

Problem

- Engine travels slow or jerky
- Lighting is normal
- Sounds are normal

Probable Source	Test For	Diagnosis	Repair
Dirty locomotive	Trucks, gears, wheels, and axles are black with grime	Heavy grime blocks movement	Clean dirty parts with a suitable solution
Brushes (remove shell according to directions)	Lift brush springs with tweezers and remove the brushes. Brushes are shorter than 3 mm (⅛")	Worn out brushes	Replace brushes (for replacements, see pages 50/51). Perhaps brush springs require adjustment with tweezers
	Previous testing proves fruitless	A repair center will have to locate problem	Take engine to a repair center

Problem

- Engine travels slow or jerky
- Lighting is normal
- Sounds are awful

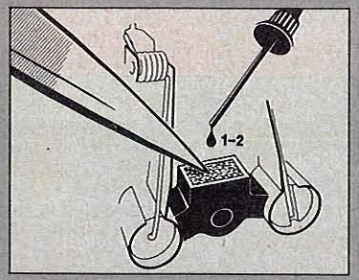
Probable Source	Test For	Diagnosis	Repair
Armature frame Axles on wheel sets Gears (remove shell according to directions)	Everything appears normal	Apparently not enough lubrication	Put 1 or 2 drops of Märklin oil 7199 on the lube reservoir, armature frame, and axle bearings of the wheel sets
	Still no improvement after lubricating parts	A repair center will have to locate problem	Take engine to a repair center

Problem

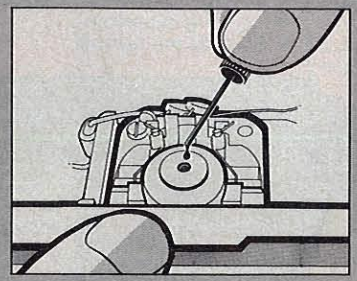
- Engine travels normal
- Lights don't work
- Sounds are normal

Probable Source	Test For	Diagnosis	Repair
Wires to lights (remove shell according to instructions)	Soldered connection to lamp socket or junction is broke	No current supply to light bulbs	Wire must be resoldered. Take engine to a repair center
Light bulbs	All connections are tight and secure	Light bulbs burned out	Replace lights bulbs according to directions (for replacements, see pages 50/51)
	Previous testing proves fruitless	A repair station will have to locate problem	Take engine to a repair center

Oiling a flat commutator motor



Oiling the armature frame on a circular commutator motor

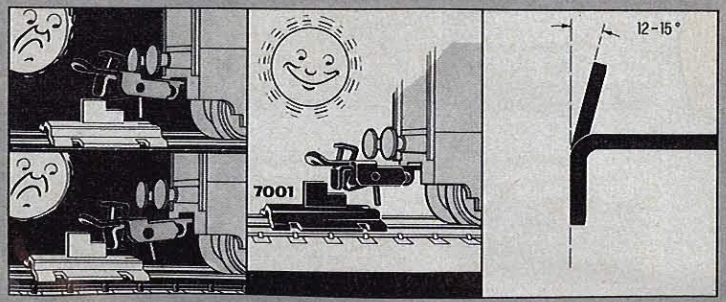


Problem

- Engine moves
- Lights burn
- Sounds are normal
- Engine's front or rear coupler not working

Probable Source	Test For	Diagnosis	Repair
Front or rear couplers	Coupler Guide 7001 place on track. Engine's couplers have wrong height	Couplers are either bent or broken	Metal coupler: adjust with flat head pliers or replace. Plastic coupler: replace (for replacements, see pages 50/51)
	Previous testing proves fruitless	A repair center will have to locate problem	Take engine to a repair center

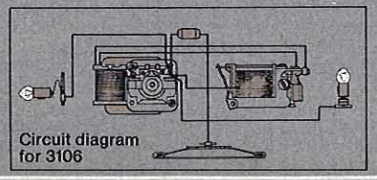
Testing the coupler with the coupler guide



Tank locomotive 3106 Class 78

Märklin locomotives are technological masterpieces with real prototype appearance. The precision-made parts assure trouble free operation. Elegant and sturdy – small but powerful, today's Märklin engines reflect the progress of a century of research.

Part Number	Description	Reference Number
24 285	A complete locomotive includes	1
24 287	Luminary	2
24 288	Luminary	3
24 289	Luminary	4
75 052	Cylinder screw	5
24 244	Steam dome	6
24 250	Drivers (complete) with	7
23 794	Alloy wheels	8
23 184	Stay bolt	9
23 687	Intermediate wheels	10
24 251	Toothed gear	11
24 252	Powered axles with	12
7 153	Non-skid tires	13
24 258	Powered axle	14
24 263	Powered axle	15
24 255	Driver with non-skid tire	16
24 261	Driver	17
24 265	Driver	18
76 147	Buffer	19
23 755	Field magnet	20
23 144	Armature	21
23 135	Motor shield	22
78 512	Cylinder screw	23
60 146	Brushes	24
60 091	Suppressor	25
20 824	Directional unit with	26
7 194	Reversing contact spring and	27
78 510	Cylinder screw	28
22 628	Spring disc	29
60 015	Bulb	30
24 316	Covering	31
24 249	Coupling rod	32
75 513	Hexagon set screw	33
24 268	Support, right	34
24 274	Support, left	35
75 702	Hexagon nut	36
22 895	Insulating plate	37
75 020	Cylinder screw	38
24 246	Cylinder, right	39
24 247	Cylinder, left	40
78 004	Tubular rivet	41
24 283	Dummy	42
24 248	Boiler	43
24 281	Coupler	44
24 245	Leaf spring	45
24 278	Truck (complete)	46
75 018	Cylinder screw	47
7 164	Slider	48
75 609	Countersunk screw	49



Circuit diagram for 3106

Spare Parts

For many years of reliable operation

Installation instructions are included with the non-skid tires, sliders, light bulbs, and reversing unit springs.

The Table shown here gives the part numbers of the more important spare parts. All spare parts can be obtained through your Märklin dealer.

Locomotives

Loco-motives	Non-skid tires	Slider	Panto-graph	Light bulb	Brushes	Reversing Switch	Front Coupler	Rear Coupler
3000	7154	7185	–	60010	60030	20824	20001	20001
3003	7153	7185	–	60010	60030	20824	20214	70154
3016	7153	7164	–	60010	60030	20824	20989	20989
3021	7154	7183	–	60010	60030	20824	21166	21166
3028	7154	7164	–	60001	60030	21899	70412	70412
				60015				
3030	7153	7185	7218	60015	60030	20824	21128	21128
3035	7153	7164	7218	60015	60146	20824	21484	21484
3039	7153	7164	7218	60015	60146	20824	21484	21484
3041	7153	7164	7219	60015	60030	20824	70412	70412
3042	7153	7164	7218	60015	60146	20824	70156	70156
3043	7153	7164	7218	60015	60030	20824	70412	70412
3044	7154	7185	7219	60015	60030	20824	20001	20001
3049	7153	7185	7218	60015	60146	20824	70412	70412
3050	7153	7164	7218	60015	60030	20824	21708	21708
3055	7154	7164	7218	60015	60030	20824	21783	21783
3058	7153	7164	7218	60015	60146	20824	70412	70412
3060	7154	7185	–	60015	60030	20824	21583	21586
3062	7154	7185	–	60015	60030	20824	21583	21586
3064	7153	7185	–	60010	60030	20824	21411	21411
3065	7153	7185	–	60010	60030	22970	21376	21376
							21377	21377
3066	7154	7164	–	60015	60030	20824	21783	21783
3067	7154	7164	–	60015	60030	20824	21783	21783
3071	7154	7164	–	60001	60030	22049	–	21929
		7175		60015				21951
								21954
3072	7154	7164	–	60010	60030	20824	21842	21842
3074	7154	7164	–	60015	60030	20824	70156	70156
3075	7154	7164	–	60015	60030	20824	70156	70156
3077	7154	7164	–	60015	60030	20824	–	–
3078	7154	7185	–	60015	60030	20824	20001	20001
3080	7154	7185	–	–	60030	20824	20001	20001
3082	7153	7164	–	60015	60146	20824	21843	21842
3083	7152	7185	–	60015	60030	20824	–	21842
3084	7153	7164	–	60015	60146	20824	21843	21842
3085	7152	7164	–	60015	60146	20824	–	21842

Loco-motives	Non-skid tires	Slider	Panto-graph	Light bulb	Brushes	Reversing Switch	Front Coupler	Rear Coupler
3087	7154	7185	–	–	60030	20824	20001	20001
3089	7152	7185	–	60015	60030	20824	–	70154
3092	7152	7185	–	60015	60030	20824	–	21842
3093	7152	7185	–	60015	60030	20824	–	21842
3095	7153	7185	–	60010	60030	20824	22532	21842
3096	7153	7164	–	60015	60030	22970	21843	21843
							22897	22897
							22924	22924
3099	7152	7185	–	60015	60030	20824	22418	21842
3102	7153	7185	–	60015	60146	20824	21843	21842
3104	7153	7185	–	–	60146	20824	20001	20001
3106	7153	7164	–	60015	60146	20824	24281	24281
3146	7154	7185	–	60015	60146	20824	70156	70156
3147	7154	7164	–	60010	60030	20824	21842	21842
3149	7153	7185	–	60010	60030	20824	21411	21411
3151	7153	7185	7218	60015	60146	20824	70156	70156
3152	7153	7164	7219	60015	60146	20824	70156	70156
3153	7153	7164	7208	60015	60146	20824	70412	70412
3155	7153	7164	7218	60015	60146	20824	70156	70156
3156	7153	7164	7218	60015	60146	20824	21484	21484
3157	7153	7185	7218	60010	60146	20824	21842	21842
3159	7153	7164	7218	60015	60030	20824	21842	21842
3161	7154	7164	7218	60015	60030	20824	21783	21783
3165	7153	7164	7218	60015	60146	20824	21773	21773
3322	7153	7164	7218	60019	60030	20824	21842	21842
3354	7153	7164	7218	60019	60030	20824	22313	22313
3356	7153	7164	7218	60019	60146	20824	70156	70156
Locomotives discontinued within the past 3 years:								
3022	7153	7164	7218	60015	60030	20824	21842	21842
3034	7153	7164	7218	60015	60146	20824	21484	21484
3037	7153	7164	7218	60015	60146	20824	21484	21484
3038	7153	7164	7218	60015	60146	20824	21773	21773
3054	7153	7164	7218	60015	60030	20824	22313	22313
3056	7153	7164	7218	60015	60146	20824	70156	70156
3057	7153	7164	7218	60015	60146	20824	70412	70412
3086	7152	7185	–	60015	60030	20824	22418	21842
3090	7154	7185	–	–	60030	20824	20001	20001



Cars

Couplers for cars	
21 005	4018
21 583	4060, 4062 (front)
21 622	4060, 4062 (rear)
21 842	4578, 4631, 4635
21 951	4071
21 954	4071
32 399	4632, 4650, 4651, 4652, 4653, 4663
32 402	4632
32 540	4067, 4079, 4080, 4100, 4101, 4102, 4103, 4107, 4108, 4633, 4644, 4646, 4664, 4694
70 154	4004, 4005, 4040, 4610, 4612, 4613, 4617, 4618, 4619, 4627, 4639, 4661, 4665, 4671
70 157	4074, 4084, 4091, 4092, 4093, 4094, 4095, 4096, 4097, 4098, 4099, 4150, 4151, 4152, 4154, 4410, 4411, 4413, 4414, 4415, 4418, 4419, 4420, 4421, 4422, 4423, 4424, 4430, 4431, 4432, 4440, 4441, 4442, 4460, 4473, 4474, 4475, 4693, 4695, 4696, 4697, 4698, 4699
70 158	4135, 4136, 4137, 4138, 4139, 4140, 4141, 4142, 4143, 4144, 4145, 4146, 4147, 4148, 4149, 4157, 4161
70 412	4028
Trucks with couplers, for cars	
30 256	4076
30 339	4026, 4045, 4051, 4052, 4053, 4054, 4064, 4085, 4087, 4089, 4090, 4111, 4112
30 417	4029, 4049, 4072, 4073
30 547	4066, 4068
32 311	4571
32 339	4624, 4626, 4691
32 570	4575
Slider	
7164	Car 4028
7175	Cars 4018, 4053, 4089
	Train lighting sets 7197, 7198, 7320, 7322, 7323
7185	Cars 4060, 4062
31 051	Car 4103
41 494	Cars 4098, 4154, 4411
	Train lighting set 7329

Light bulbs

	60 000	Train lighting set 7077
		Switches 2261, 5128, 5137, 5140, 5202
		Bumper 7191
		Signals 7036, 7038, 7039, 7040, 7041, 7042
		Lamps 7280, 7281, 7282, 7283, 7284
		Crane 7051
red	60 001	Car 4028
		Train lighting set 7079
		Signals 7188, 7339
green	60 002	Signals 7188, 7339
	60 010	Car 4018
		Train lighting set 7323
		Light pole 5113
		Lamps 7046, 7047, 7048
	60 015	Cars 4028, 4060, 4062, 4089, 4411
		Train lighting sets 7197, 7320, 7322, 7329
	60 020	Train lighting set 7074
	60 200	Signal 7242
red	60 201	Signals 7239, 7240, 7241
		Crossing gates 7292, 7592
green	60 202	Signals 7187, 7236, 7237, 7238, 7239, 7240, 7241
orange	60 204	Signals 7187, 7236, 7237, 7238, 7240, 7241

Accessories

7194 Reversing unit springs
Pack of 5 springs suitable for all locomotives

7226 Smoke unit accessories
Includes smoke unit (for locomotives 3082, 3084, 3085, and 3102), extra smokestack, cleaning wire, tweezers, and a capsule of smoke fluid

0241 Smoke oil
Refills, in plastic capsules, for smoke unit 7226

7224 Re-railer
Made of plastic · Easy way to get cars on track · Length 300 mm (11-13/16") · Height 25 mm (1")

7001 Coupling guide
For testing couplers · Made of nickel plated steel

7199 Bottle of oil
Contains about 10 cc · Suitable for all cars and engines

---

35 256
Lamp frame for light pole 5113

40 185
Control panel for turntable 7186

40 619
Hooks for crane car 4671 and crane 7051

40 625
Magnet for crane 7051

41 270
Arms for crossing gates 7292 and 7592

60 027
Tube for smoke unit 7226

97 170
Control panel for crane 7051

Rules for Prototype Operation

In order to insure safety, the consists of real trains are governed by strict rules. For example:

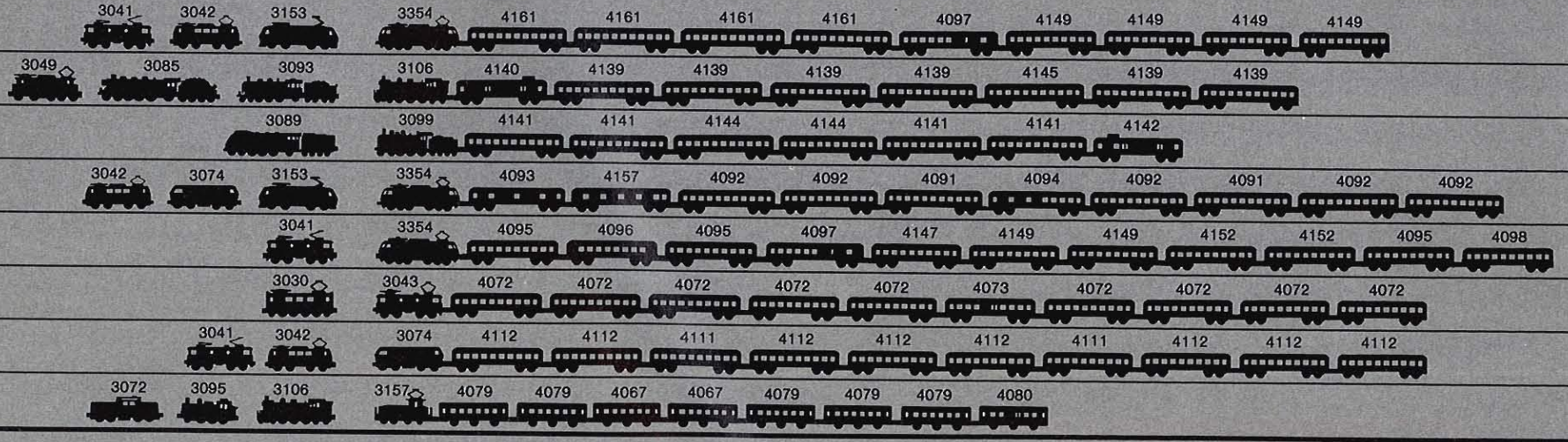
Cars may not be pulled by locomotives having higher maximum speeds than the cars themselves. Also, trains may not exceed prescribed maximums for length and number of cars. Further, passenger trains should consist of all eight-weel or all four-wheel cars. If a train has both types, then the eight-wheel cars must be forward. Four-wheel cars require special permission for inclusion in trains having speeds above 90 kmph (56 mph). Mixed trains operate only if demand warrants. In assembling freight trains, the total weight must be considered before determining whether the maximum speed will be 80, 100, or 120 kmph (50, 63, or 75 mph). Detailed regulations about train consists are included in Rule Books.

0380

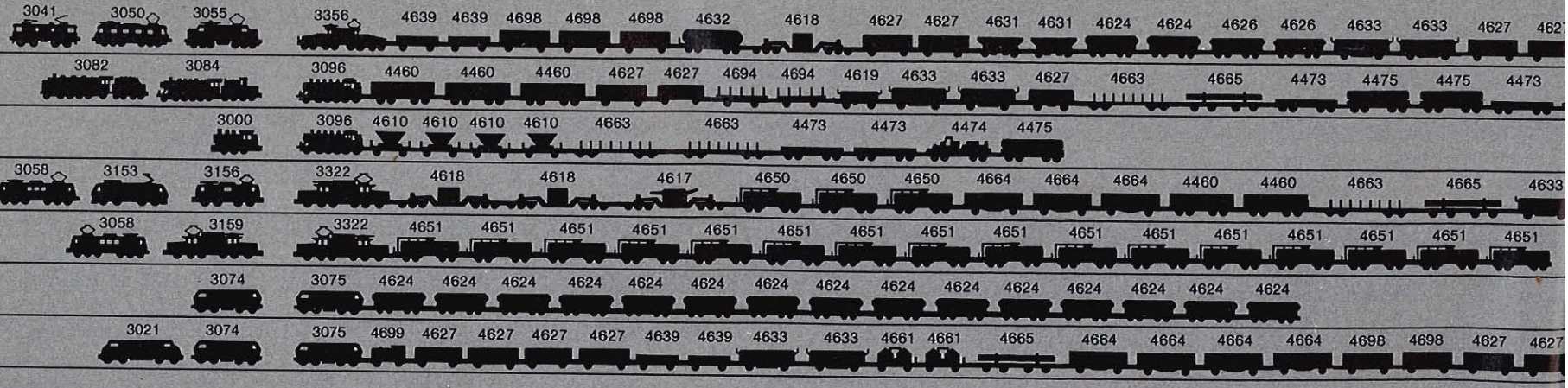
Booklet "Die Märklin-Bahn HO und ihr großes Vorbild", a handbook for Märklin model railroad enthusiasts · Includes hints for adding scenery to layouts; information on Märklin engines, cars, and their prototypes; signaling; prototype rules; train operation; circuitry (e.g. multi-train operation; and much more · 228 pages · Size 15 × 24 cm (6″ × 9-½″) · German text

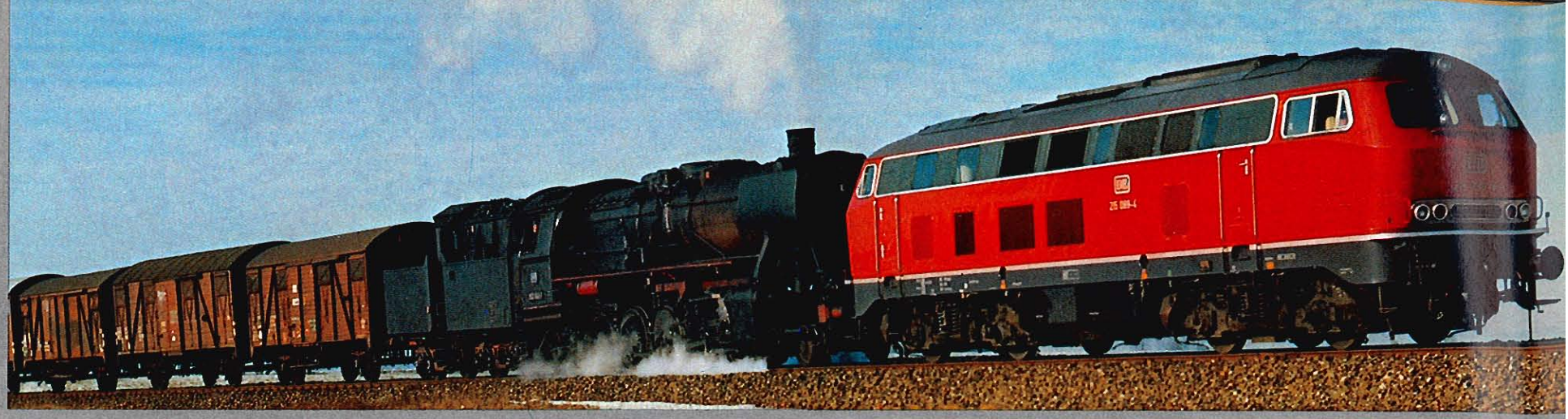


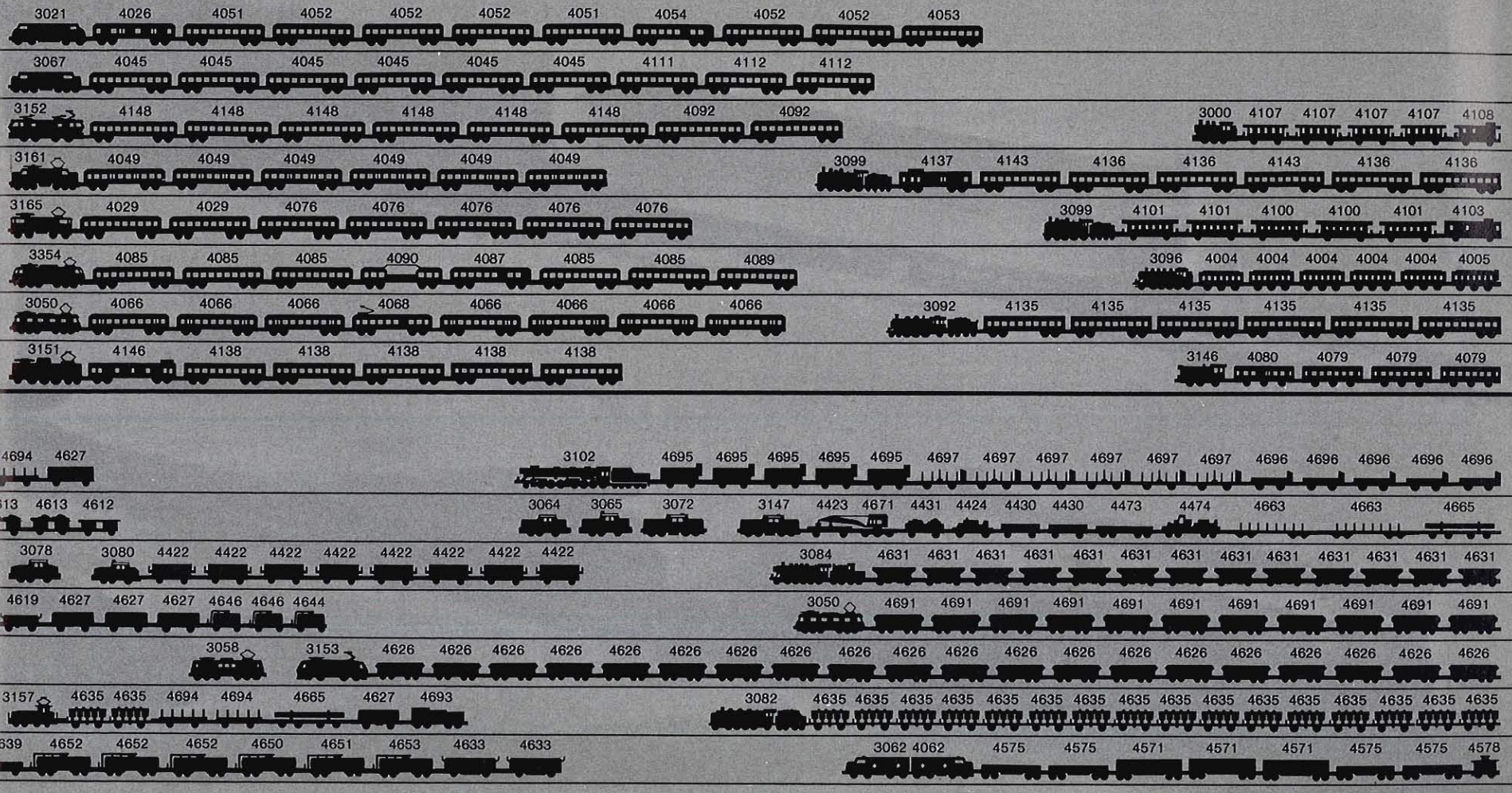
Examples of train consists: Passenger trains



Freight trains






3021 4026 4051 4052 4052 4052 4051 4054 4052 4052 4053
3067 4045 4045 4045 4045 4045 4045 4111 4112 4112
3152 4148 4148 4148 4148 4148 4148 4092 4092
3000 4107 4107 4107 4107 4108
3161 4049 4049 4049 4049 4049 4049
3099 4137 4143 4136 4136 4143 4136 4136
3165 4029 4029 4076 4076 4076 4076 4076
3099 4101 4101 4100 4100 4101 4103
3354 4085 4085 4085 4090 4087 4085 4085 4089
3096 4004 4004 4004 4004 4004 4005
3050 4066 4066 4066 4068 4066 4066 4066 4066
3092 4135 4135 4135 4135 4135 4135
3151 4146 4138 4138 4138 4138 4138
3146 4080 4079 4079 4079

4694 4627
3102 4695 4695 4695 4695 4695 4697 4697 4697 4697 4697 4697 4696 4696 4696 4696 4696
613 4613 4612
3064 3065 3072 3147 4423 4671 4431 4424 4430 4430 4473 4474 4663 4663 4665
3078 3080 4422 4422 4422 4422 4422 4422 4422 4422
3084 4631 4631 4631 4631 4631 4631 4631 4631 4631 4631 4631 4631 4631
4619 4627 4627 4627 4646 4646 4644
3050 4691 4691 4691 4691 4691 4691 4691 4691 4691 4691 4691
3058 3153 4626 4626 4626 4626 4626 4626 4626 4626 4626 4626 4626 4626 4626 4626 4626 4626 4626 4626 4626 4626
3157 4635 4635 4694 4694 4665 4627 4693
3082 4635 4635 4635 4635 4635 4635 4635 4635 4635 4635 4635 4635 4635 4635 4635 4635
4639 4652 4652 4652 4650 4651 4653 4633 4633
3062 4062 4575 4575 4571 4571 4571 4575 4575 4578

Passenger Cars

Cars of non-government operated railways
Platform and doors at both ends · Fine detailed bodies · Simulated roof ventilators · Windows set in plastic frames · RELEX couplers (pages 72/83) · Length 11 cm (4-3/8″) · Accepts interior lighting kits ⊓▪▪▪▪⊓ = 7323 (page 68)

1
4107 · Coach · Interior details

2
4108 · Baggage Car with cupola for conductor

Rebuilds
Passenger cars of the German Federal Railways · Detailed bodies · Windows set in plastic frames · Simulated rubber beading · RELEX couplers (pages 72/83) · Length 15.2 cm (6″) · Accepts interior lighting kits ⊓▪▪▪▪⊓ = 7074 (page 68)

3
4067 · Model of type AB3yge^{756} · 1st and 2nd class coach

4
4079 · Model of type B3yge^{761} · 2nd class coach

5
4080 · Model of type BD3yge^{766} · 2nd class combine

"Donnerbüchsen"
Standard passenger cars of the former German State Railways · Detailed bodies · Platform and doors at both ends · Interior Details · RELEX couplers (pages 72/83) · Length 16 cm (6-5/16″)

6
4102 · Baggage Car · Model of type Pwi 30 · 4 sliding doors · Windows set in plastic frames · Cupola on roof

7
4100 · Model of type BCi 29 · 2nd and 3rd class coach · Windows set in plastic frame

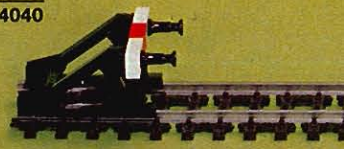
8
4101 · Model of type Ci 29 · 3rd class coach · Windows set in plastic frame

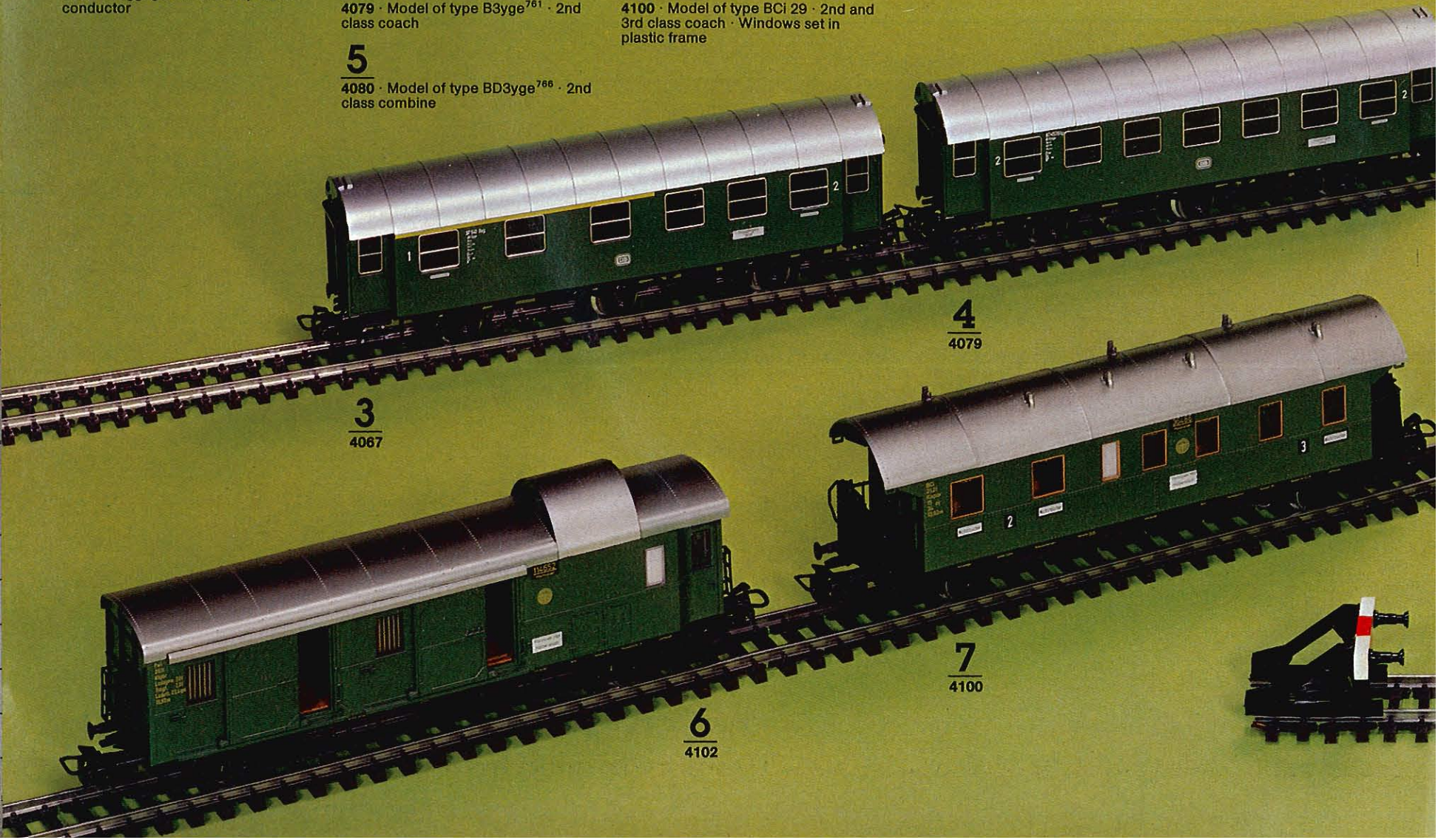
9
4103 · Baggage Car · Same as 4102 but includes illuminated end markers
⌓ = 31051

■ A 2-axle design was selected and originally the cars had wood roofs and wooden interior walls. Because of their noisy operation, they quickly acquired the nickname "Donnerbüchsen" (Rattling Crates).

Coaches
Platform and doors at both ends · Unglazed windows · RELEX couplers (pages 72/83) · Length 11.5 cm (4-1/2″)

10
4040





Prussian cars
Each car has 6 compartments · Windows glazed with "cellon" · RELEX couplers (pages 72/83) · Length 13 cm (5-⅛") · Accepts interior lighting
⊓▪▪▪▪▪⊓ = 7074 (page 68)

11
4004 · Compartment car without brakeman's cab

12
4005 · Compartment car with brakeman's cab



Express coach of the former Royal Bavarian Railways

Finely detailed body · Windows set in plastic frames · Interior details · Simulated roof ventilators · Length 22 cm (8-5/8") · Accepts interior lighting kit ⇩▪▪▪▪▪▪⇩ = 7329 (page 68)

1
4135 · Model of type CCü · 3rd class coach

Old style express coaches of the former German State Railways

Finely detailed body · Windows set in plastic frames · Accepts interior lighting set ⇩▪▪▪▪▪▪⇩ = 7329 (page 68)

2
4136 · Model of type C4ü bay 11 · 3rd class coach · Interior details · Simulated roof ventilators · Length 22 cm (8-5/8")

3
4137 · Model of type Pw4ü bay 09 · Baggage car with cupola · Length 20 cm (7-7/8")

4
4143 · Model of type ABC4ü bay 11 · 1st, 2nd, and 3rd class coach · Interior details · Simulated roof ventilators · Length 23.2 cm (9-1/8")



Standard express coaches of the former German State Railways

Finely detailed body · Windows set in plastic frames · Görlitz trucks · Accepts interior lighting set ⇩▪▪▪▪▪▪⇩ = 7329 (page 68)

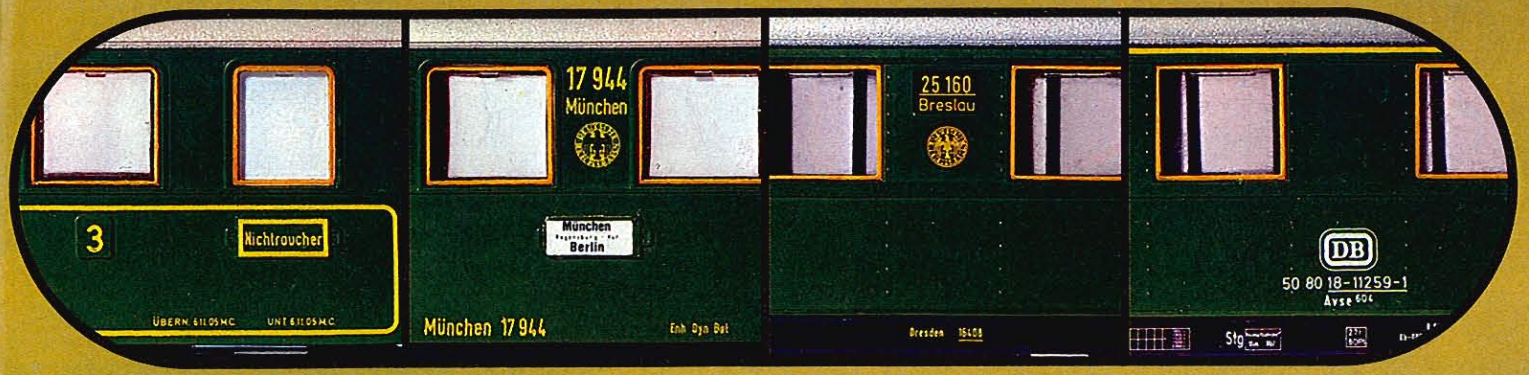
5
4141 · Model of type C4ü 31 **DR** · 3rd class coach · Interior details · Length 25 cm (9-7/8")

6
4142 · Model of type Pw4ü 30 **DR** · Baggage car with cupola · Length 22.6 cm (8-7/8")

7
4144 · Model of type B4i 30 **DR** · 2nd class coach · Interior details · Length 25 cm (9-7/8")



All cars have automatic couplers, destination signs for different routes, and can accept interior lighting kits ⇩▪▪▪▪▪▪⇩ (page 68).



Train consists

Just like prototype

Page 52

4
4143

Standard express coaches of the German Federal Railways

Finely detailed body · Windows set in plastic frames · Görlitz trucks · Accepts interior lighting set ⊏▪▪▪▪▪⊐ = 7329 (page 68)

8
4139 · Model of type Büe[354] **DB** · 2nd class coach · Interior details · Length 25 cm (9-⅞")

9
4140 · Model of type Düe[932] **DB** · Baggage car with cupola · Length 22.6 cm (8-⅞")

10
4145 · Model of type Ayse[604] **DB** · 1st class coach · Interior details · Length 25 cm (9-⅞")

7
4144

9
4140

10
4145



Express Coaches 24 cm (9-½")

Express cars of the German Federal Railways

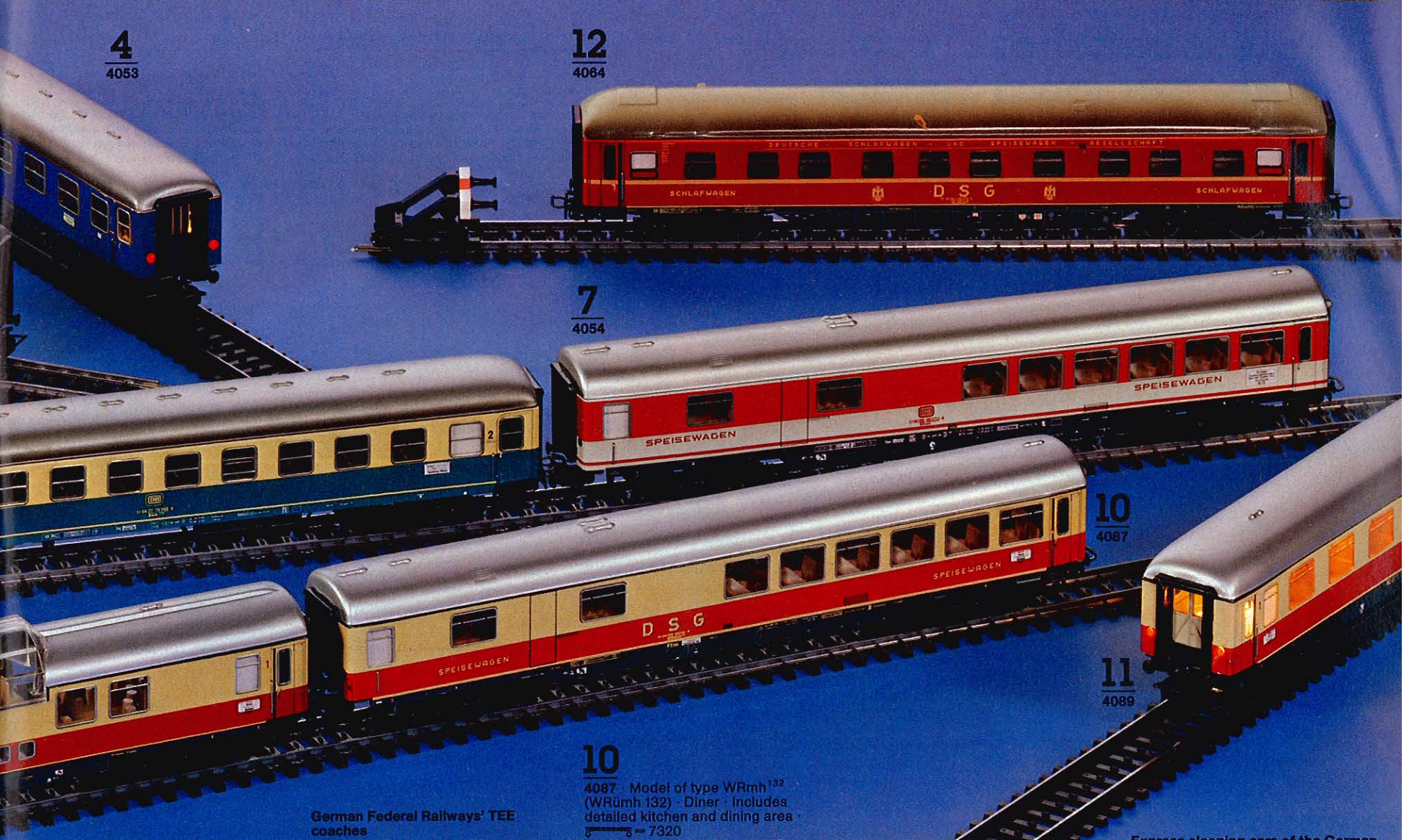
Windows set in plastic frames · Length 24 cm (9-½") · Accepts interior lighting ⇩▪▪▪▪▪⇩ (page 68)

1
4026 · Model of type Dyl[961] (Dym 961) · Baggage car · ⇩▪▪▪▪▪⇩ = 7077 + 7198

2
4051 · Model of type Am[202] (Aüm 202) · 1st class coach · Interior details · ⇩▪▪▪▪▪⇩ = 7077 + 7198

3
4052 · Model of type Bm[232] (Büm 232) · 2nd class coach · Interior details · ⇩▪▪▪▪▪⇩ = 7077 + 7198

4
4053 · Model of type Am[202] (Aüm 202) · Same as 4051 but includes illuminated end markers · ⇩▪▪▪▪▪⇩ = 7077
⌓ = 7175



German Federal Railways' TEE coaches

These cars are also used on domestic IC (Intercity) trains · Windows set in plastic frames · Length 24 cm (9-½") · Accepts interior lighting kit (page 68)

5

4111 · Model of type Am[202] (Aüm 202) · 1st class coach · Interior details · = 7077 + 7198

6

4112 · Model of type Bm[232] (Büm 232) · 2nd class coach · Interior details · = 7077 + 7198

7

4054 · Model of type WRm[132] (WRümh 132) · Diner · Includes detailed kitchen and dining area · = 7320

8

4085 · Model of type Avmh[111] (Avüm 111) · Compartment car · Interior details with side corridor · = 7320

9

4090 · Model of type ADm[101] (ADüm 101) · Vista dome car · Interior details · Dome made of transparent plastic · = 7322

10

4087 · Model of type WRmh[132] (WRümh 132) · Diner · Includes detailed kitchen and dining area · = 7320

11

4089 · Model of type Avmh[111] (Avüm 111) · Same as 4085 but includes interior lighting and illuminated end markers

= 7175 = 60015

Express sleeping cars of the German Sleeping and Dining Car Co. (DSG)

(DSG = Deutsche Schlafwagen- und Speisewagengesellschaft)

12

4064 · Model of type WLABm[174] (WLABüm 174) class 33200 · 1st and 2nd class sleeper · Windows set in plastic frames · Length 24 cm (9-½") · Accepts interior lighting = 7320

All cars have RELEX couplers (pages 72/83) and will accept interior lighting kit (page 68).

Express coaches for International Service

Windows set in plastic frames · Accepts interior lighting ⊓▪▪▪▪▪⊔ (page 68)

Swiss Federal Railways' express coaches

1

4138 · Model on original type C4ü · 3rd class coach · Finely detailed body · Interior details · Simulated roof ventilators · Length 22.2 cm (8-¾") · ⊓▪▪▪▪▪⊔ = 7329

2

4146 · Model of original type F4ü · Baggage car with cupola · Finely detailed body · Length 23.2 cm (8-¾") · ⊓▪▪▪▪▪⊔ = 7329

3

4066 · Model of type A 2500 · 1st class coach · Ribbed roof with simulated ventilators · Length 24 cm (9-½") · ⊓▪▪▪▪▪⊔ = 7320

4

4068 · Model of type RIC · Diner · Removable ribbed roof · Modern style pantograph · Length 24 cm (9-½") · ⊓▪▪▪▪▪⊔ = 7077



All cars, except 4138 and 4146, have RELEX couplers (pages 72/83) and will accept interior lighting kits ⊓▪▪▪▪▪⊔ (page 68). Additional destination signs are included with car 4076.

Swedish Railways' express coaches

5

4072 · Model of type Bo 1 · 2nd class coach · Prototype colors · Length 23.7 cm (9-3/8") · = 7197

6

4073 · Model of type RBo 2 · Diner · Prototype colors · Length 23.7 cm (9-3/8") · = 7197

Danish Railways' express coaches

7

4045 · Model of type B 2300 · 2nd class coach · Length 24 cm (9-1/2") · = 7077 + 7198

Dutch Railways' express coaches

8

4049 · Model of type B 6600 · 2nd class coach · Length 24 cm (9-1/2") · = 7320

Express sleeper of the International Sleeping Car Co. (ISG)
(ISG = Internationale Schlafwagen-gesellschaft)

9

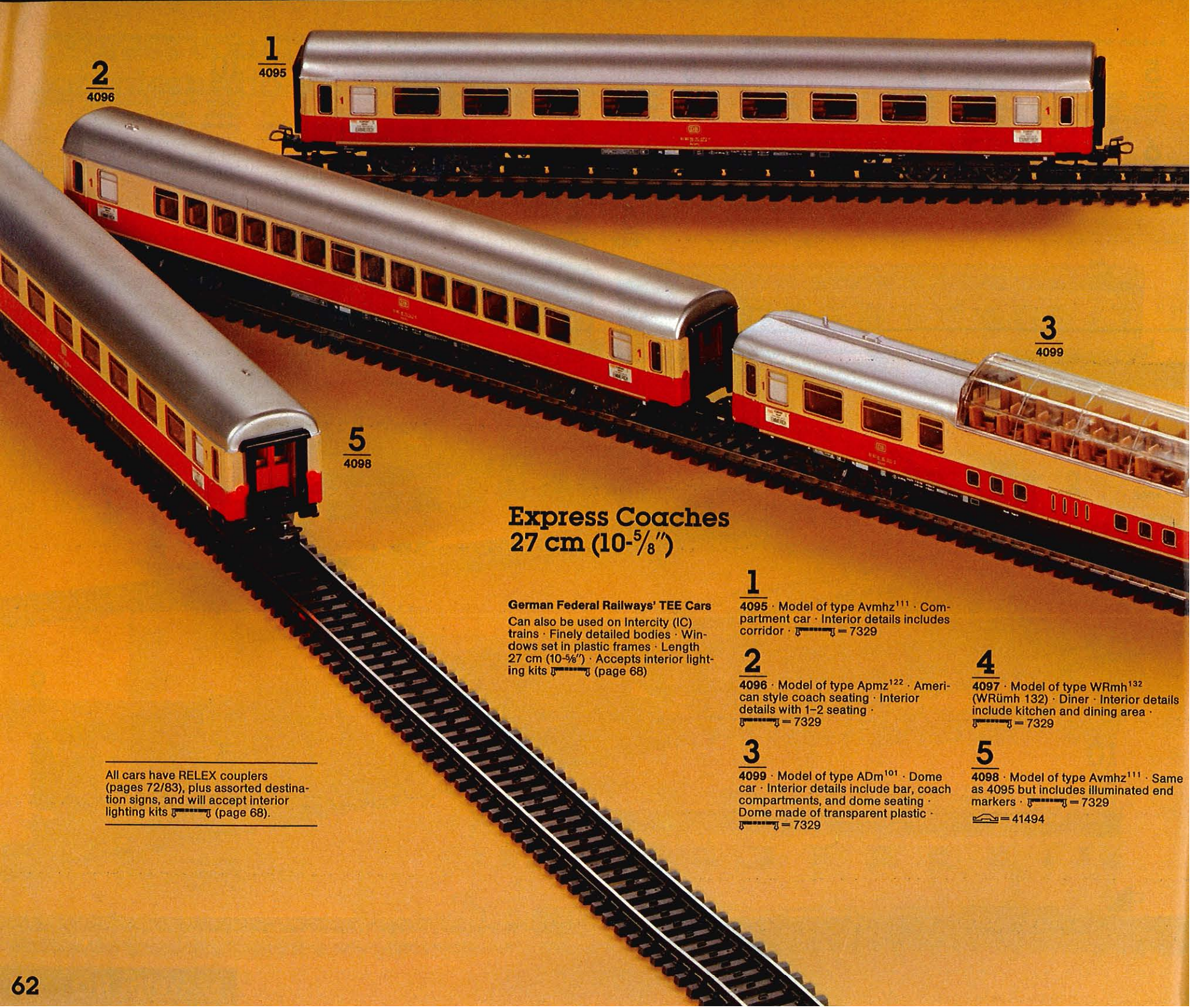
4029 · Model of ISG car 4581 · Length 24 cm (9-1/2") · = 7077 + 7198

French Railways' express coaches

10

4076 · Model of type A8myfi · 1st class coach · Finely detailed body · Interior details · Length 24 cm (9-1/2") · = 7197





Express Coaches 27 cm (10-5/8")

German Federal Railways' TEE Cars
Can also be used on Intercity (IC) trains · Finely detailed bodies · Windows set in plastic frames · Length 27 cm (10-5/8") · Accepts interior lighting kits ⊓▭⊔ (page 68)

1
4095 · Model of type Avmhz[111] · Compartment car · Interior details includes corridor · ⊓▭⊔ = 7329

2
4096 · Model of type Apmz[122] · American style coach seating · Interior details with 1–2 seating · ⊓▭⊔ = 7329

3
4099 · Model of type ADm[101] · Dome car · Interior details include bar, coach compartments, and dome seating · Dome made of transparent plastic · ⊓▭⊔ = 7329

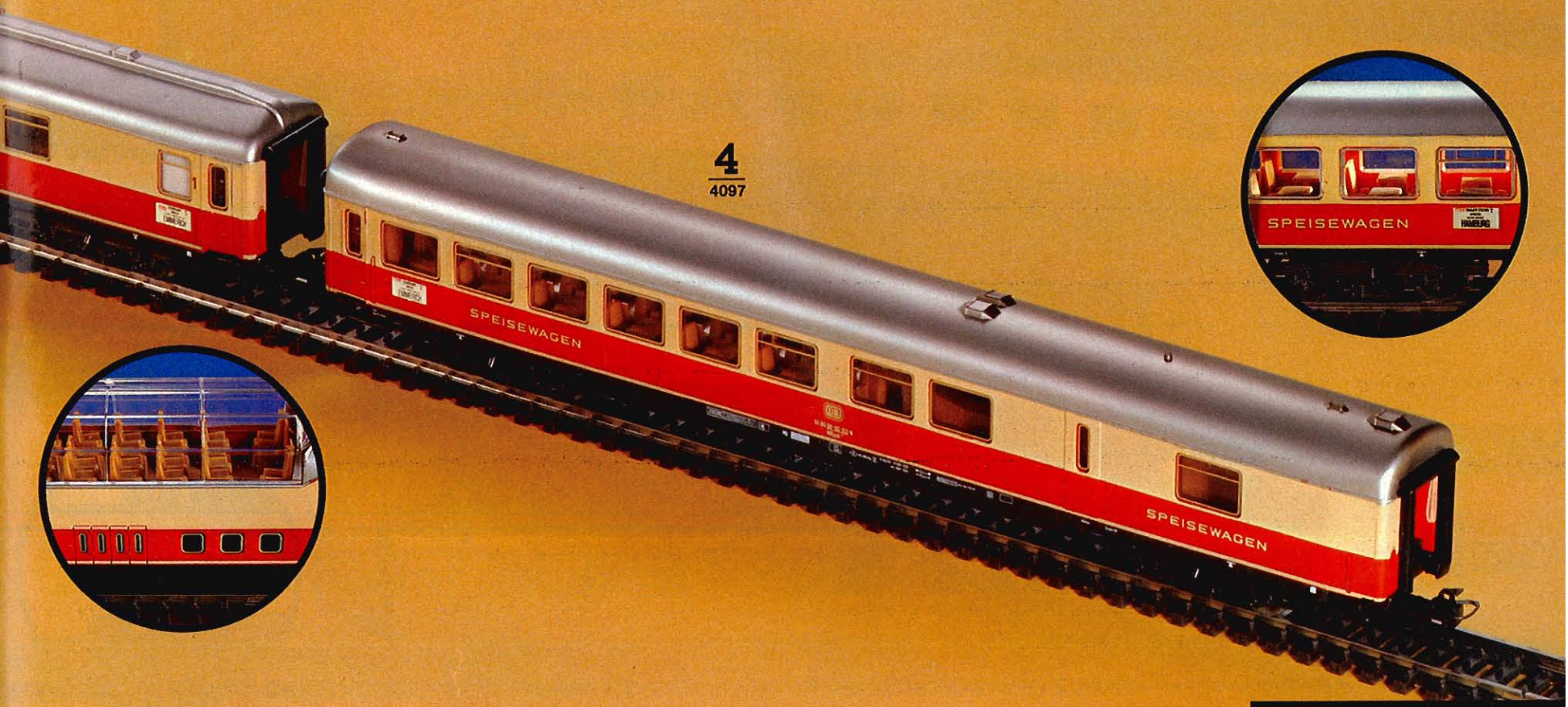
4
4097 · Model of type WRmh[132] (WRümh 132) · Diner · Interior details include kitchen and dining area · ⊓▭⊔ = 7329

5
4098 · Model of type Avmhz[111] · Same as 4095 but includes illuminated end markers · ⊓▭⊔ = 7329
⌓ = 41494

All cars have RELEX couplers (pages 72/83), plus assorted destination signs, and will accept interior lighting kits ⊓▭⊔ (page 68).



4
4097



EUROFIMA cars 26.4 cm (10-3/8")

Finely detailed bodies · Windows set in plastic frames · Interior details · Length 26.4 cm (10-3/8") · Accepts lighting kits ⊏┈┈⊐ (page 68)

■ The "European Community for the Financing of Railroad Equipment" (EUROFIMA) is composed of representatives of six European railroads (DB, ÖBB, SBB, SNCB, FS, SNCF). Their task is to create standard design cars. Among their accomplishments are the A9 1st class coach and the type B11 2nd class coach. The EUROFIMA care are constructed by an international consortium under the leadership of the Linke-Hofmann-Busch Car Co.

EUROFIMA cars can be used in trains with speeds up to 200 kmph (125 mph). Presently there are 100 A9 cars on the German Federal Railways, 20 on the Belgian State Railways, and 25 on the Austrian Federal Railways.

1

4147 · Model of type Avmz^{207} (A9 EUROFIMA) · German Federal Railways' 1st class coach · ⊏┈┈⊐ = 7329

2 Belgium

4148 · Model of EUROFIMA's A9 1st class coach as used by the Belgian State Railways (NMBS/SNCB) · ⊏┈┈⊐ = 7329

3 Austria

4149 · Model of EUROFIMA's A9 1st class coach in the colors of the Austrian Federal Railways (ÖBB) · ⊏┈┈⊐ = 7329

4 France

4161 · Model of type A9u (A9 EUROFIMA) · French State Railways' (SNCF) 1st class coach · "Corail" livery · ⊏┈┈⊐ = 7329

■ The standard coach A9, developed by the "European Community for the financing of Railroad Equipment" (EUROFIMA) is also used by the French State Railways. The SNCF has 100 of them painted in the colorful "Corail" livery.

But "Corail" is more than a color scheme. "Comfort sur rail" (Corail), in English "Comfort on the rails", is a fundamental concept for high standards in comfortable rail transportation.



TEN cars 27 cm (10-5/8")

Corail cars are used along with ÖBB cars (Märklin model 4149) on German rails in the consist of the express train D 265 "Mozart". This train travels between Paris and Vienna, using French engines as far as Kehl, and Austrian power after Munich.

Finely detailed bodies · Windows set in plastic frames · Interior details · Length 27 cm (10-5/8") · Accepts interior lighting kits (page 68)

■ The TEN (Trans-Europ-Night) is a sleeping car pool service organized on July 1, 1971 by the national railroads of Belgium, Denmark, France, Italy, Netherlands, Switzerland, Luxemburg, Austria, and the German Federal Republic.

Presently, the pool has 265 sleeping cars, primarily revised versions of the type T2S.

These "rolling hotels" register about 1 million check-ins per year and the TEN pool looks forward to a great future.

5

4150 · Model of type WLABsmh[166] of the German Federal Railways · 1st and 2nd class sleeper for the TEN pool · = 7329

6 Netherlands

4151 · Model of Dutch Railways' 1st and 2nd class sleeper for the TEN pool · = 7329

7 Italy

4152 · Model of the type WLABm of the Italian State Railways (FS) · 1st and 2nd class sleeper · Classes as T2S for the TEN pool · = 7329

The EUROFIMA cars 4147 – 4149 and 4161 have automatic couplers. The TEN cars 4150 – 4152 have RELEX couplers (pages 72/83). All cars will accept interior lighting kit (page 68) and have assorted destination signs.

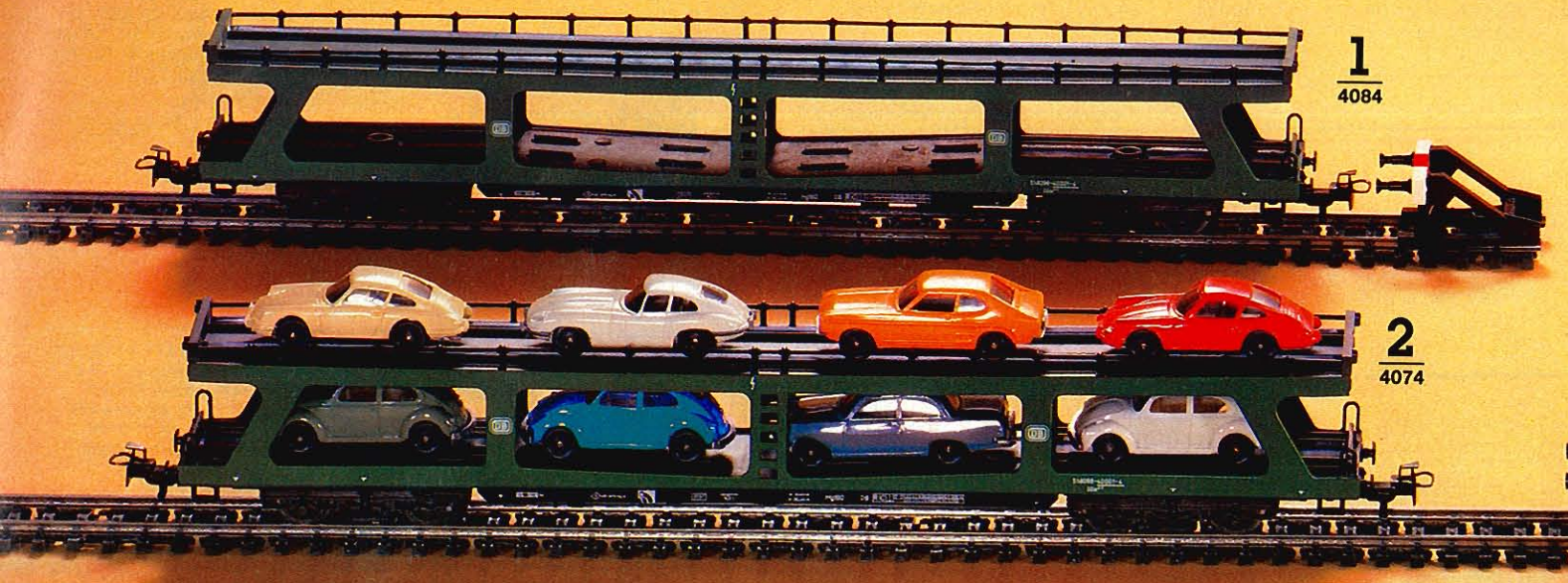


Express coaches 27 cm (9-½")

German Federal Railways' passenger train auto carriers

1
4084 · Model of type DDm[915] · Same as 4074 but with no autos · Length 26.4 cm (10-⅜")

2
4074 · Model of type DDm[915] · Length 26.4 cm (10-⅜") · Includes 8 WIKING miniature automobiles





All cars, except 4157, have RELEX couplers (pages 72/83). All cars, except 4074 and 4084, will accept interior lighting kits (page 68) and include assorted destination signs.

Mail car of the German Federal Postal Service

3

4157 · Model of type mrz 73076 · Finely detailed body · Windows set in plastic frames · Interior details · Length 26.4 cm (10-3/8") · Accepts interior lighting [track] = 7329

Express cars of the German Federal Railways

Finely detailed bodies · Windows set in plastic frames · Length 27 cm (10-5/8") · Accepts interior lighting kits [track] (page 68)

4

4093 · Model of type Dm[902] (Düms 902) · Baggage car · Operating bagage doors on each side · [track] = 7329

5

4094 · Model of type WRmh[132] (WRümh 132) · Diner · Interior details include kitchen and dining area · [track] = 7329

6

4091 · Model of type Am[203] (Aüm 203) · 1st class coach · Interior details · [track] = 7329

7

4092 · Model of type Bm[234] (Büm 234) · 2nd class coach · Interior details · [track] = 7329

8

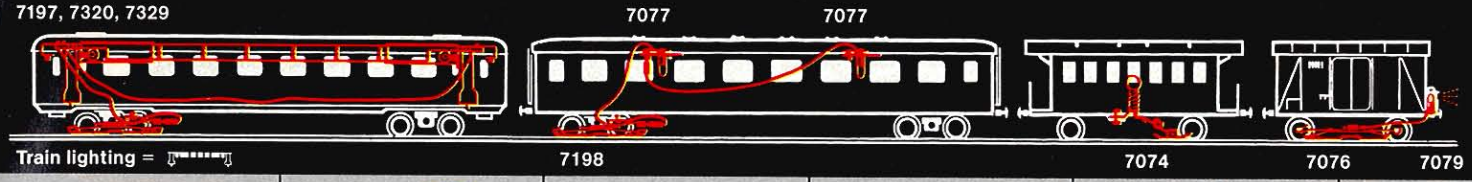
4154 · Model of type Bm[234] (Büm 234) · Same as 4092 but has illuminated end markers · [track] = 7329

[car] = 41494



Train lighting

This schematic illustrates the various styles of train lighting. Instructions are included with each set.





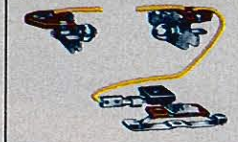
7074
Interior lighting set for coaches 4004, 4005, 4067, 4079, and 4080 · Has socket for connecting additional sets · Bulb
= 60020



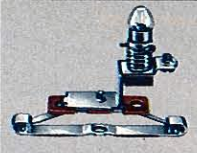
7077
Interior lighting set for most of the 24 cm (9-½") long coaches · Has socket for connecting additional sets · Bulb
= 60000



7198
Current collector for interior lighting set 7077
= 7175



7322
Interior lighting set for TEE coach 4090 · Includes current collector 7198, 2 lamp sockets, and 2 bulbs, plus instructions
= 7175
= 60015



7323
Interior lighting set for cars 4107 and 4108 · Bulb
= 7175
= 60010

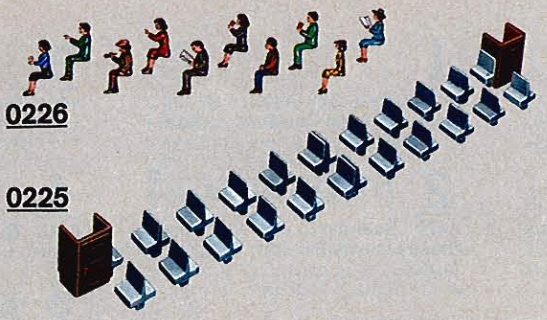


7079
Tail light with bulb · Clips onto buffer · For use on cars with metal buffers only · To illuminate use 7074, 7076, or 7198
= 60001 (red)



7076
Current collector for use on coach 4040 and to illuminate tail light 7079





0226

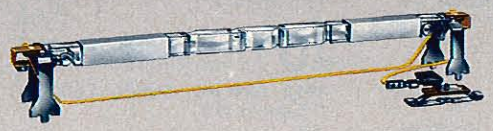
0225

Interior details for cars 4045, 4049, 4066, 4067, 4072, 4073, 4079, and 4080

Interior details and figures are made of finely cast plastic; figures are handpainted. Illustrated instructions included with each set.

0226
Package of 10 seated passengers · Each is handpainted

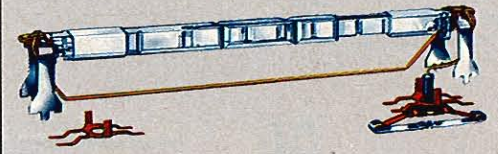
0225
Interior details for express coaches · Includes 18 double seats, 6 single seats, and 2 rest rooms



7197
Interior lighting set for express coaches 4072, 4073, and 4076 · Includes current collector 7198, light diffuser, 2 lamp sockets, 2 bulbs, and instructions
= 7175 = 60015



7320
Interior lighting set for TEE cars 4085, 4087, and Express cars 4049, 4054, 4064, and 4066 · Includes current collector 7198, light diffuser, 2 lamp sockets, 2 bulbs, and instructions
= 7175 = 60015



7329
Interior lighting set · Has variable length light diffuser · For cars 4091 – 4099, 4135 – 4152, 4154, 4157, and 4161 · Includes current collector, light diffuser, 2 lamp sockets, 2 bulbs, and instructions
= 41494 = 60015



Freight Cars

All cars have RELEX couplers (pages 72/83). Frames and super structures are made of plastic; wheels made of die cast zinc.

1
4418 · **Beer car** · Lettered for the König-Brauerei Duisburg · Length 11.5 cm (4-½")

2 **Switzerland**
4420 · **Beer car** · Lettered for the Swiss brewery Eichhof · Length 11.5 cm (4-½")

3
4414 · **Banana car** · Model of German Federal Railways' type Ibbls · Length 11.5 cm (4-½")

4
4419 · **Refrigerator car** · Lettered for Pepsi · Length 11.5 cm (4-½")

5 new
4422 · **Beer car** · Lettered for Wicküler-Küpper-Brauerei · Length 11.5 cm (4-½")

6
4415 · **Refrigerator car** · Model of German Federal Railways' type Ichqs-u^{377} (Ichqrs 377) · Length 11.5 cm (4-½")

7
4421 · **Beer car** · Lettered for the Bitburger Brauerei · Length 11.5 cm (4-½")

8
4440 · **Tank car** · ARAL · Length 11.5 cm (4-½")

9
4441 · **Tank car** · ESSO · Length 11.5 cm (4-½")

10
4442 · **Tank car** · SHELL · Length 11.5 cm (4-½")



11
4432 · **Wine car** · Older style · Lettered for Upper Rhine Wine Producers · Length 11.5 cm (4-½″)

12
4431 · **Gondola** · Model of German Federal Railways' type El-u^{061} · Includes a removable simulated coal load · Length 11.5 cm (4-½″)

13
4430 · **Gondola** · Model of German Federal Railways' type El-u^{061} · Length 11.5 cm (4-½″)

14
4411 · **Box car** with illuminated end markers · Model of the German Federal Railways' type Gs-uv^{213} (Grs-v 213) · Includes current collector · Length 11.5 cm (4-½″)
⚙ = 41494 ⚙ = 60015

15
4410 · **Box car** · Model of the German Federal Railways' type Gs^{210} · Length 11.5 cm (4-½″)

16
4460 · **Box car with swivel roof** · Model of the German Federal Railways' type Taems^{890} (Taes 890) · Length 16 cm (6-5/16″)

17
4413 · **Dump car** · Bucket, latched in upright position, can be tipped to either side manually · Length 11.5 cm (4-½″)

18
4423 · **Low-side gondola** · Model of the German Federal Railways' type Kklm 505 · Length 11.5 cm (4-½″)

19
4424 · **Low-side gondola** · Loaded with a WIKING bulldozer · Length 11.5 cm (4-½″)

20
4473 · **Low-side gondola** · Model of the German Federal Railways' type Rlmms · Length 16 cm (6-5/16″)

21
4474 · **Low-side gondola** · Loaded with a WIKING bulldozer and WIKING shovel loader · Length 16 cm (6-5/16″)

22
4475 · **Low-side gondola** with tarpaulin · Length 16 cm (6-5/16″)



4600 Series
Highly detailed freight cars

1 new

4671 · **Crane car** with rotating crane, movable boom and boom supports · Hook can be raised and lowered manually · Length of underframe 9 cm (3-½") · (Low-side gondola 4423 shown is not included, but recommended as idler car)

2 new

4693 · **Telescoping Freight car** · Model of German Federal Railways' type Shimms[708] (Shis 708) · Firm ends · 3 part telescoping sides that can be shifted to either end · 5 built-in pockets with adjustable restrainers · 3 realistic looking steel rolls as freight · Length over buffers 13.8 cm (5-⅜")

■ The steadily increasing production and processing of cold-rolled steel in various sizes and weights has created a demand for a special type of freight car.

Answering this demand, an international team of experts from 5 railroads (DB, SBB, NS, SNCB, SNCF) developed a weather-proof car, the Shimms[708].

In 1978, the German Federal Railways accepted the first of about 1300 of these cars and they have been successfully employed.

Features of the Shimms[708] standard coil car:

- Firm ends
- 5 assorted bays to accept various types of steel coils
- 12 retainers to protect against lateral movement
- 3 part telescoping sides which can be shifted to either side so that ⅔ of the car is "open"
- The coils must be loaded symmetrically to avoid damage to the car

3

4613 · **Bi-level auto carrier** · Loaded with 4 WIKING miniature automobiles · Length 11.5 cm (4-½")

4

4612 · **Bi-level auto carrier** · Not loaded · Length 11.5 cm (4-½") · On the German Federal Railways', 2 of these cars are usually semi-permanently coupled and are then designated as type Laaekms[541] (Laaes 541)

5

4610 · **Ore car** · Manually operated unloading hopper · Length 9.5 cm (3-¾")



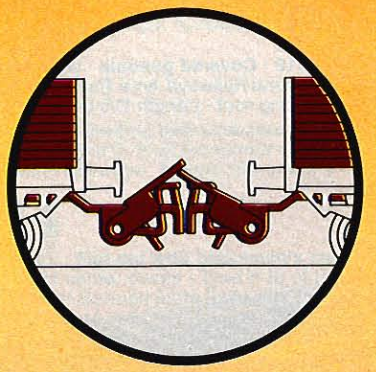
6
4618 · **Depressed-center flat car** · Loaded with crate · Length 25 cm (9-⅞″)

7
4617 · **Depressed-center flat car** · Loaded with transformer · Length 25 cm (9-⅞″)

RELEX Couplers

All Märklin freight cars have RELEX couplers.

The fundamental difference between passenger and freight rail transportation is that whereas passengers can get on and off trains by themselves, freight must be directed to destinations by human and technological means.



Freight cars are loaded und unloaded at freight houses or industrial sidings and are then conveyed to marshalling yards by peddler freights.

At marshalling yards, incoming trains are broken up and the individual cars switched onto different yard tracks based on destination.

In larger yards, this switching is facilated by a "hump" over which the cars roll to the proper ladder track. As soon as sufficient cars are assembled on a specific track, the dispatcher "calls" an outgoing freight.

These interesting switching operations can be excitingly simulated on Märklin layouts thanks to the unique RELEX couplers.

With RELEX couplers, cars can be uncoupled at uncoupling tracks (pages 83/90) yet still be pushed or dropped off at a desired point without the couplers re-engaging.

3
4613

4
4612

5
4610

6
4618

7
4617

1
4627 · **Box car** · German Federal Railways' type Gos-uv[245] (Gbrs-v 245) · Length 13.3 cm (4-¼")

2
4633 · **Gondola with sliding roof and sides** · German Federal Railways' type Tbis[870] · Roof halves and sides open · Length 15.7 cm (6-³⁄₁₆")

3
4619 · **Covered gondola** · German Federal Railways' type Tms[851] (Ts 851) · Sliding roof · Length 11.5 cm (4-½")

4
4665 · **Lumber car** · 2 "shorty" flat cars loaded with sawn lumber · Length 19.5 cm (7-¾")

5
4663 · **Flat car** · German Federal Railways' type Rs[680] · Car floor made of die cast zinc · Stakes can fold down · Length 22.7 cm (9")

6
4694 · **Flat car** · German Federal Railways' type Kbs[443] · Removable stakes · Length 15.7 cm (6-³⁄₁₆")

7
4664 · **Container car** · German Federal Railways' type "Berlin" · Loaded with 2 removable containers · Length 15.6 cm (6-⅛")



All cars have RELEX couplers (pages 72/83).

Freight cars of the former German State Railways

8

4626 · High capacity covered hopper car · German Federal Railways' type Tad-u 961 · All hatches open · Length 13.3 cm (4-¼″)

■ On many high capacity hoppers, hatches are installed as protection against the elements for items such as grain.

9

4624 · High capacity hopper car · German Federal Railways' type Fals[176] (Fads 176) · Length 13.3 cm (5-¼″)

■ These cars are usually seen in unit trains, international and domestic, for the transport of coal, coke, ore, etc.

10

4631 · Side-unloading hopper car · German Federal Railways' type Fc[090] (Ed 090) · Length 11.2 cm (4-⅜″)

The discharge chutes can be operated manually or by remote control using the uncoupling track 5112 (page 83) and 2297 (page 90).

11

4635 · Multi-section ballast car · German Federal Railways' type F-z[120] · Buckets can be tipped by unlatching holding bar · Length 10.5 cm (4-⅛″)

12 Switzerland

4691 · High-capacity cement car · Lettered in German and French for the Juracement-Fabriken-Aarau · Length 13.3 cm (5-¼″)

13

4696 · Gondola with brakeman's cab · Type O 10 of the former German State Railways · Length 10.1 cm (4″)

14

4697 · Flat car with brakeman's cab · Floor center pivots · Type H 10 of the former German State Railways · Length 11.5 cm (4-½″)

15

4695 · Box car with brakeman's cab · Type G 10 of the former German State Railways · Operating doors on each side · Length 11 cm (4-⅜″)

■ A decisive event in the development of freight cars was the creation of the "German State Railroad Car Association" in 1909. This organization established freight car construction standards which were adopted by the individual provincial railways. Besides generating great savings in construction, these standards improved interchange, and thus customer service.

Märklin models 4695, 4696 and 4697 conform to these "Verbandsbauarten" (association standards).









1
4699

2
4644

3
4646

4
4661

5
4650

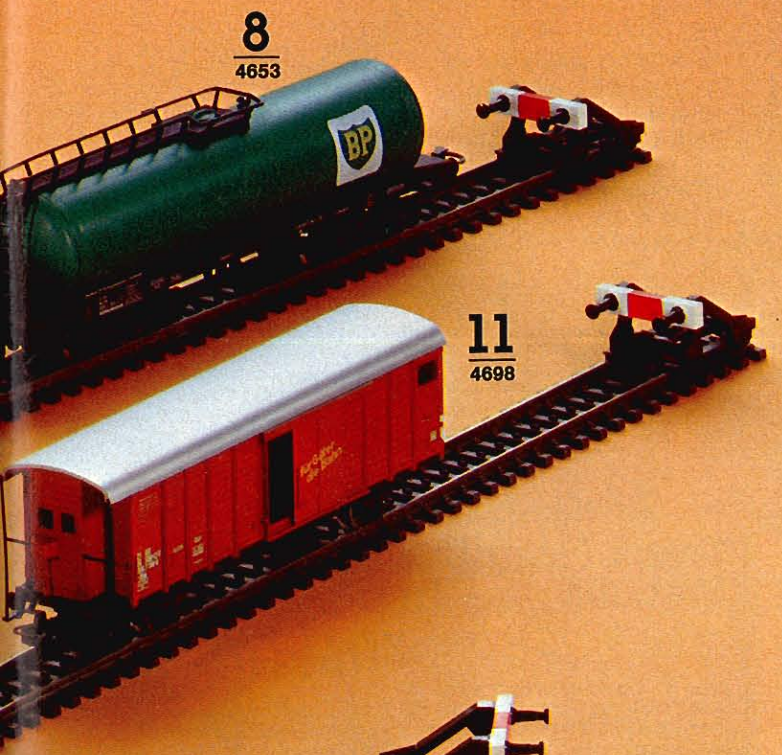
6
4651

7
4652

9
4632

10
4639

All cars have RELEX couplers (pages 72/83).



1
4699 · **Package car** · German Federal Railways' type Pwg Pr014 · Operating doors on the both sides · Windows set in plastic frames · Length 9.8 cm (3-⅞")

2
4644 · **Tank car** · Model of standard tank car lettered for BP (British Petroleum) · Length 10 cm (4")

3
4646 · **Tank car** · Model of standard tank car lettered for ARAL · Length 10 cm (4")

4
4661 · **Tank car** for fine bulk material · German Federal Railways' type Ucs^{908} · Lettered for "Quarzwerke" (quartz works) · Length 10 cm (4")

5
4650 · **Tank car** · ESSO · Length 16.4 cm (6-½")

6
4651 · **Tank car** · SHELL · Length 16.4 cm (6-½")

7
4652 · **Tank car** · TEXACO · Length 16.4 cm (6-½")

8
4653 · **Tank car** · BP · Length 16.4 cm (6-½")

9 Switzerland
4632 · **Beer car** · Length 19.5 cm (7-¾")

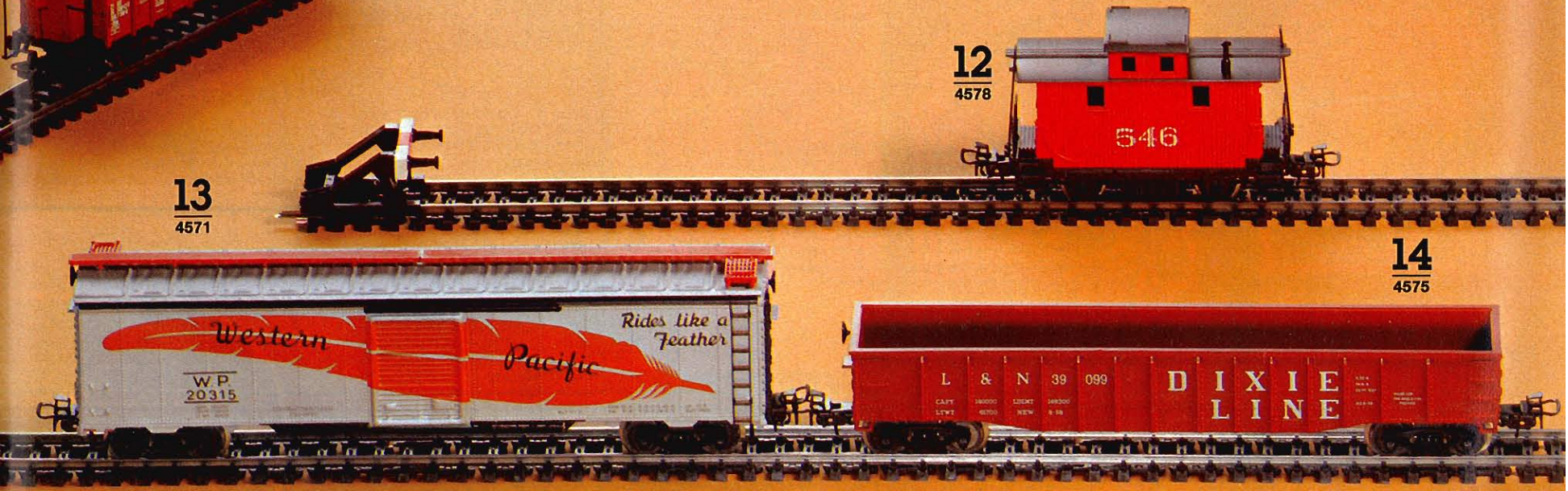
10 Netherlands
4639 · **Gondola** · Lettered for Netherlands Railways (NS) · Length 11.5 cm (4-½")

11 Switzerland
4698 · **Box car with brakeman's cab** · Swiss Federal Railways' (SBB) type J 3 d · Operating doors on both sides · Length 14 cm (5-½")

12 USA
4578 · **Bobber caboose** · Finely detailed, no roadname · Length 8 cm (3-⅛")

13 USA
4571 · **50' box car** · Lettered for Western Pacific Railroad · Catwalk on roof · Operating doors on the both sides · Length 18.4 cm (7-¼")

14 USA
4575 · **Gondola** · Lettered for the Lousville & Nashville · Length 17 cm (6-¾")



Planning a Layout

Planning a layout is fun in itself. The size and shape of available space suggests where a layout can be built and Märklin offers the hobbyists the resources and stimulation for putting the layout together.



1
0230 M



2
0231 K

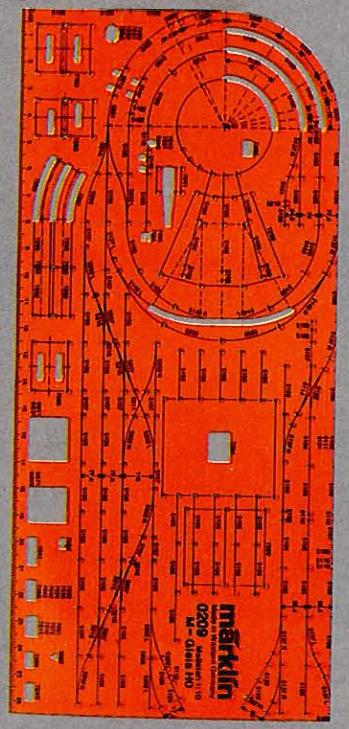
Track Planning Game

The three dimensional track planning game is an excellent way to design a layout. The easy to use game offers beginners and advanced modelers a decided advantage in layout planning.

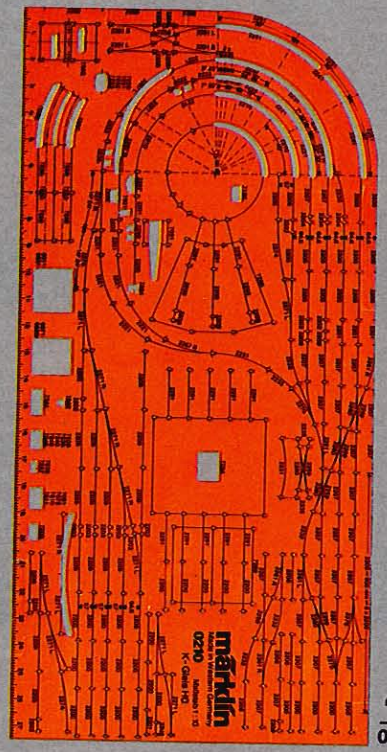
No prior knowledge of geometry is required. Each Märklin track section is represented many times and they connect with no effort. Using colors to differentiate the radii, adjustments in a layout's geometry can be made immediately.

1
0230 M · **Track Planning Game** for planning and making mock-ups of model railroad layouts · All M track sections for series 5100 and 5200 scaled 1:5 · Includes transfer table, turntable, and pillars · Enough parts to plan a medium size layout · All pieces have corresponding track part numbers on both sides · Pieces are 4 color-coded (3 curves and straight tracks) · Pieces fit snugly together

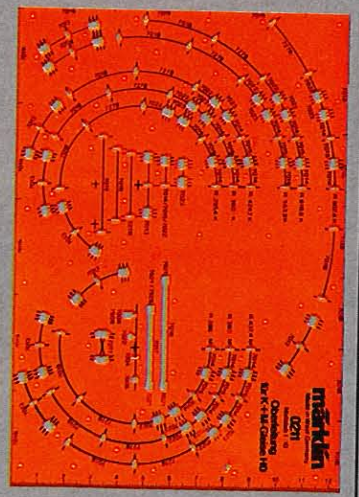
2
0231 K · **Track Planning Game** for planning and making mock-ups of model railroad layouts · All K track sections of the series 2200 (2100) scaled 1:5 · Includes transfer table, turntable, and pillars · Enough parts to design a medium size layout · All pieces have corresponding track part numbers on both sides · Pieces are 7 color-coded (5 curves, straight tracks, and a 14° 26' switch) · Pieces fit snugly together



3
0209 M



4
0210 K



5 new
0211 K+M

Track Planning Stencils

3
0209 M · **Track Planning Stencils** for designing layouts using M tracks of the 5100 and 5200 series · All track sections are scaled down 1:10 on the stencil and can be traced on paper using a sharp pencil · Instructions and practical tips are included

5 new
0211 K+M · **Catenary Stencils** · For planning an overhead system · Can be used for M or K tracks · Stencils include 1:10 scaled replicas of all wire lengths and masts in the Märklin catenary program · To trace the stencils, use a sharp pencil · How-to instructions included

4
0210 K · **Track Planning Stencils** for designing layouts using the 2200 (2100) K track series · All track sections are scaled down 1:10 on the stencil and can be traced on paper using a sharp pencil · Instructions and practical tips are included

Catenary
Prototypical operation
Page 100

Layout Book for K and M Track

6 new

0702 K+M · HO Layout Book · 30 layouts, 15 for K and 15 for M track · A supplement gives K track equivalents for 14 M layouts and M track equivalents for 15 K layouts · Each layout example includes: a 1:10 track plan with wiring schematic, catenary system, landscape design, color photos of completed layouts, tips and sugestions for laying track and adding scenery, modification possibilities, combinations with other layouts · Loose-leaf format so it can be integrated with a comprehensive Märklin HO handbook · 186 pages · Size 22 × 26.4 cm (8-¾″ × 10-½″) · English supplement



6 new

0702 K+M

The new layout book is a compilation of 30 highly interesting layouts which can be constructed by beginners and advanced modelers alike.

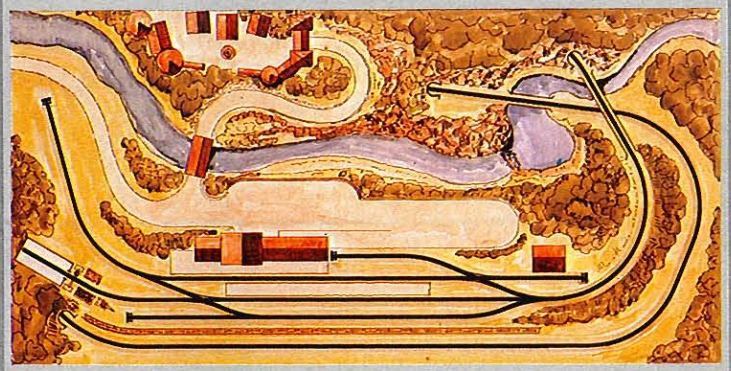
Large or small, each layout is prototypically designed to permit realistic operation.

Each layout plan includes:

- Track plan with parts list and wiring schematic
- Catenary plans with parts list
- Landscape design
- Many color photos, special motifs
- Tips and suggestions on scenery, layout theme, variations, ideas for extending the layout

Special space-saving layouts are included to allow for varying themes or available space: narrow-shelf layouts, diagonal layouts, U-shaped layouts, terminal facilities, etc. The smallest layout measures just 100 × 125 cm (3′ 4″ × 4′ 2″).









motive. Das durch den breiten Gebirgsfluß getrennte, romantische Festungsstädtchen am Hang des jenseitigen Ufers mit seinen schmucken Fachwerkhäusern ist über eine überdachte Holzbrücke erreichbar. Weiter Rußabwärts stürzt ein Wasserfall in die sich canonartig verengende Schlucht. Die zahlreichen Staustufen und letztlich auch der Wasserfall sind bei dieser Anlagenkonzeption zwingende Erfordernisse, um die für die Streckenunterführungen unter dem Fluß im linken Anlagenteil und die Überführungen der Viadukte im rechten Anlagenteil erforderlichen Höhenunterschiede zu überwinden und glaubhaft realistisch darzustellen. Im Interesse daran, möglichst viele Lösungsbeispiele zu bieten, wurde die Anlage, wie die Fotos zeigen, im Winterkleid gestaltet.

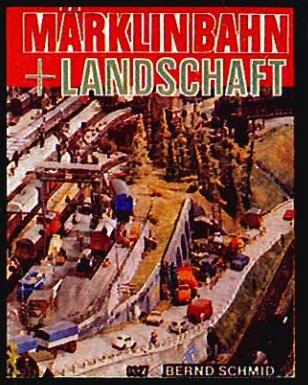
Änderungs- und Erweiterungsmöglichkeiten:

Das streng aufgelöste Anlagenthema gestattet im Bereich der sichtbar verlegten Strecken kaum noch irgendwelche Erweiterungen der Gleisanlagen. Lediglich im Schattenbahnhof könnten zwei bis drei zusätzliche Abstellgleise noch von Nutzen sein. Verzichtet man auf den Fluß, könnte man allerdings auch an die Erweiterung des Bahnhofbereichs denken und ein größeres Dampfbetriebswerk mit Drehscheibe und Ringlokschuppen einplanen.

12 M mit Metall-Gleisen

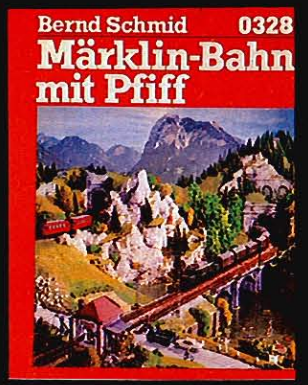
Den Alternativ-Anlagenplan zur Ausführung mit MÄRKLIN-Metall-Gleisen finden Sie unter 7 5 12 01

Märklin Tips for Track and Scenery



0327

Märklin-Bahn + Landschaft · German language book by Bernd Schmid · An excellent aid for building self-designed layouts · Technical details, roadbed design, landscape planning, and information on accessories are discussed in depth · Well illustrated, many photos in color · 192 pages · Size 16.4 × 20.3 cm (6-½″ × 8″)



0328

Märklin-Bahn mit Pfiff · German language book by Bernd Schmid · Many new tips on railroad construction for the more ambitious modeler · The "How" in book 0327 is explained as a "What" · All kinds of construction projects are discussed · Well illustrated, many photos in color · 262 pages · Size 22 × 17 cm (8-¾″ × 6-¾″)

Tips on M Track Geometry

(M = metal body)

Fig. 1:
With M track, both rails are firmly mounted on a stable frame shaped in the form of a roadbed. M tracks utilize the Märklin center-stud system, with power running through the contact studs.

Märklin M track is 37.5 mm (1-½") wide, and 11 mm (7/16") high.

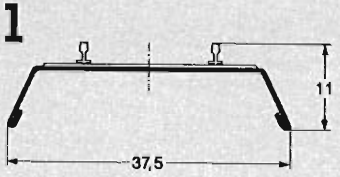
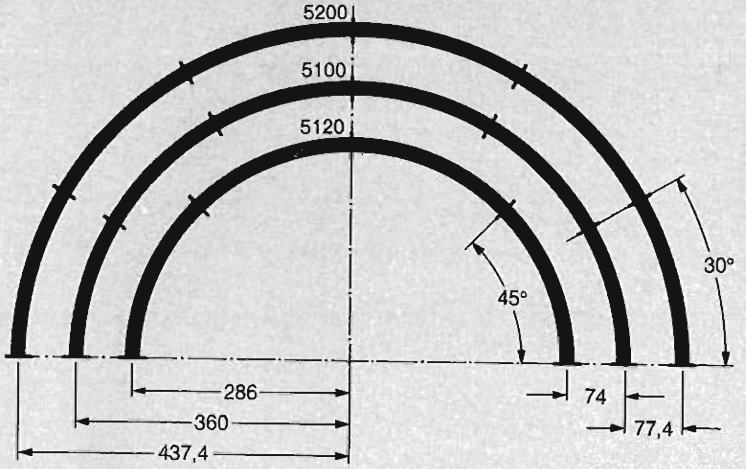


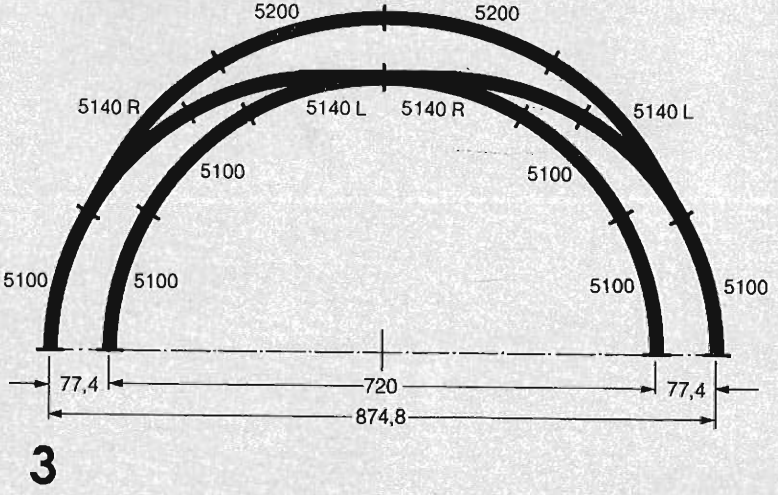
Fig. 2:
This diagram shows the three Märklin M track circles with their radii, loading gauge, curvature, and number of sections required for a semi-circle.

Circle 5200 = 12 track sections
Circle 5100 = 12 track sections
Circle 5120 = 8 track sections

Concentric circles

Concentric circles can be constructed by using the 5100 and 5200 series tracks. The distance between track centers, measured from contact stud to contact stud, is 77.4 mm (3-1/16"). Clearance is 39 mm (1-½"). Switches 5202, 5221, or 5140 can be used to connect the two loops.





Branches with 5100 Switches

Fig. 3:
To install slip tracks on curves, use the 5140 curved switches. This illustration shows one example of using curved switches on concentric circles. Note that on the outside circle, 5200 curves must be used in conjunction with the 5100 curves to maintain parallel alignment of 77.4 mm (3-1/16"). The curved switches can only be used to connect the inner circle to the outside circle, as shown, not vice-versa.

Fig. 4:
Siding can be installed with curved switch 5140.

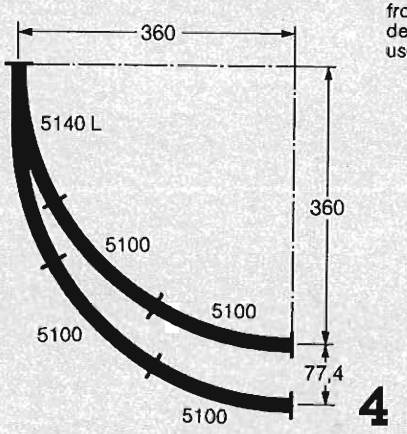
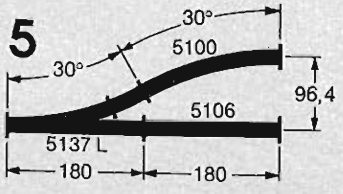


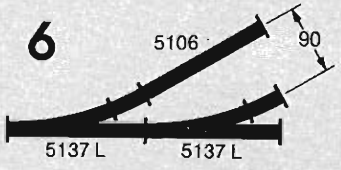
Fig. 5:
A parallel siding can be installed using a 5137 switch and a 5100 curve. The distance between siding and main track is 96.4 mm (3-¾"). Adding a 5106 to the main line allows the two tracks to maintain the same length. Track length in illustration is 2×180 mm = 360 mm (2×1-⅛ = 14-¼"), i. e. length of two 5106 straights.

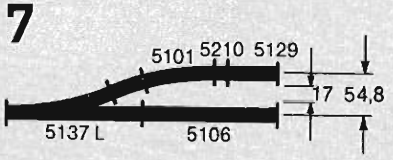
Fig. 6:
Siding of a parallel track using the 5137 switch.

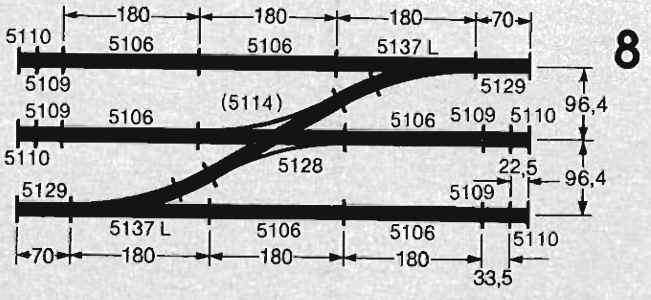
Fig. 7:
When using a 5101 curve, rather than a 5100, the two tracks will parallel closer; the distance being only 54.8 mm (2-⅛").

Fig. 8:
When there are 3 or more parallel tracks spaced 96.4 mm (3-¾") apart, a slip track can be installed by using 5137 and double switch 5128. The double slip switch enables trains on the inside track to switch over to the outside tracks. If access or egress from the middle tracks are not desired, then crossing 5114 can be used in place of the 5128.









Branches with 5200 Switches

Fig. 9:
To maintain parallel alignment with 5202 switch, use the 5206 curve. Here the distance between the tracks is just 77.4 mm (3-1/16"), the same as between the normal and larger circles. A 5106 straight is also needed to maintain parallel alignment.

Fig. 10:
Siding off a parallel track using the 5202 switch.

Fig. 11:
Parallel tracks using the 5202 switch.

Fig. 12:
When there are 3 or more parallel tracks spaced 77.4 mm (3-1/16") apart, slip tracks can be installed by using the 5202 and double slip switch 5207. Both switches will maintain the tangents of the 5106 straights since they are of the same length. Note that when using the 5215 crossing or the 5207 double slip switch on diagonal tracks, a 5208 straight track 8 mm (5/16") must also be used.

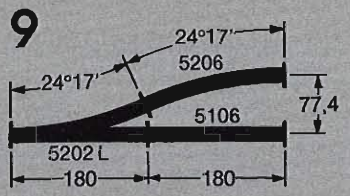
Fig. 13:
Crossovers on parallel tracks.

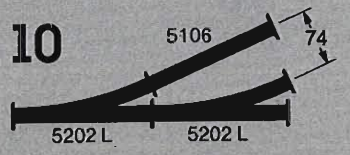
Fig. 14:
The three-way switch 5214, having the same radii as the 5202 and the same length as the 5106 straight track, is a space saving way of installing yards, station access tracks, etc.

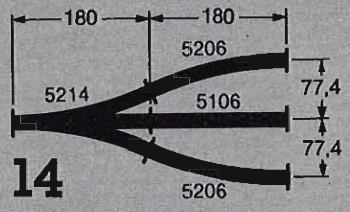
Fig. 15:
Here is an illustration of how 3-way switches can be used to install 4 sidings off the mainline in a short space.

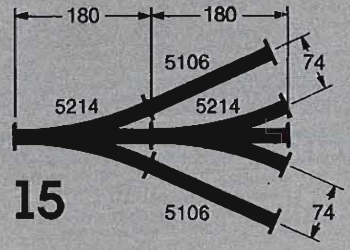
Fig. 16:
Suggested track design using 3-way switches.

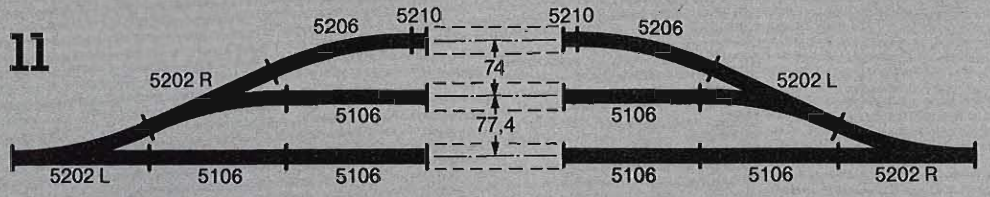
Fig. 17:
A summary of the various methods of using Märklin M switches.

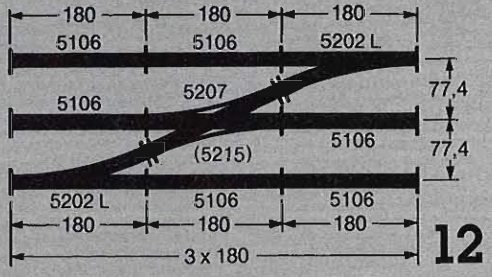


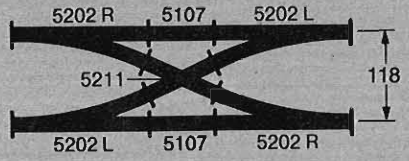


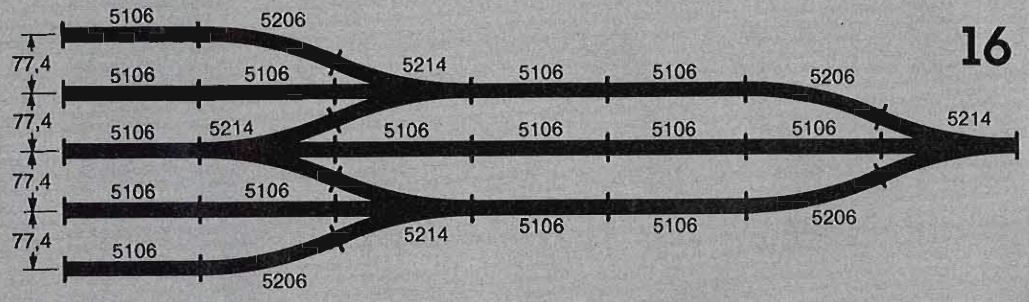


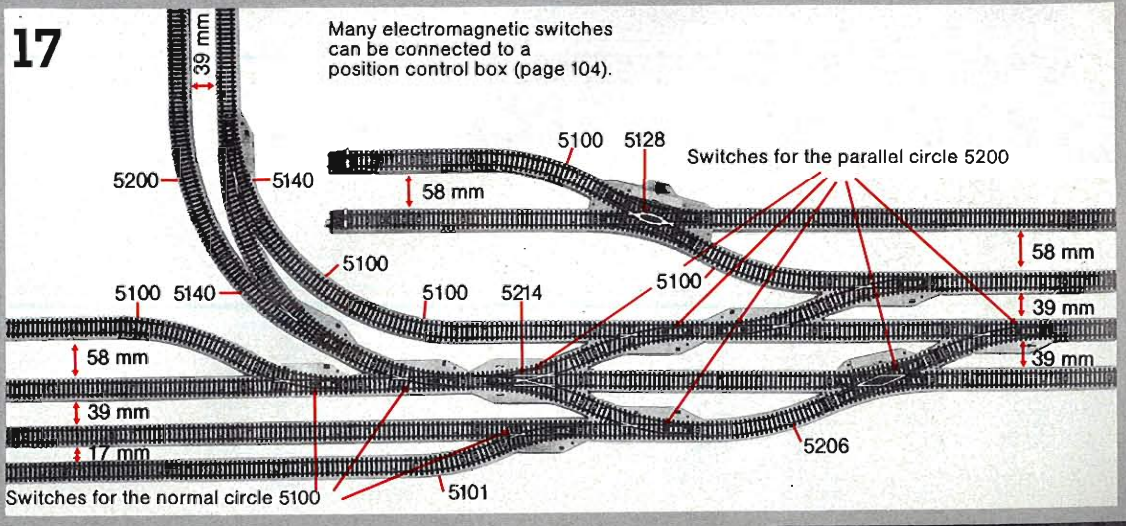












M Switches

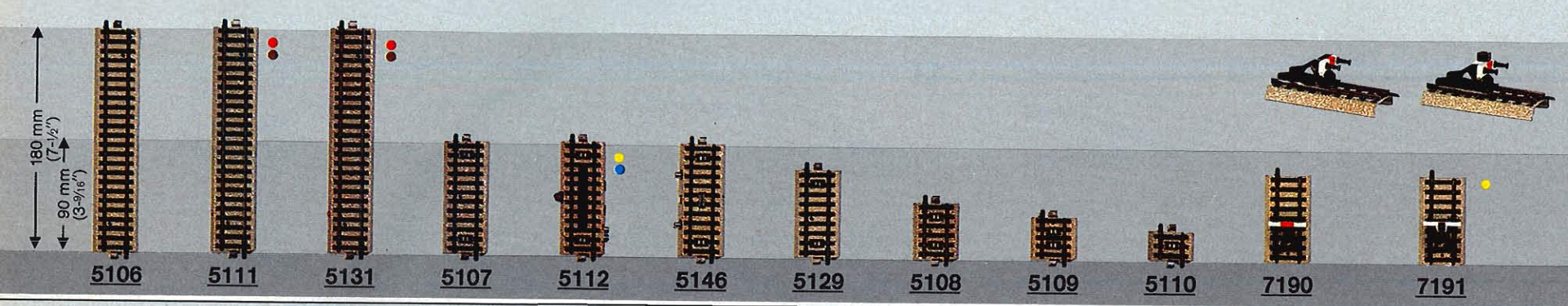
Electromagnetic switches 5137, 5140 and 5202 and the double slip switches 5128 and 5207 are operated by double solenoids. When a car approaches the switch from the "wrong" direction, its wheels automatically adjust the points to avoid a derailment. After the car clears the switch, the points return to their original position. Switches can be connected to each other.

Märklin M-Tracks

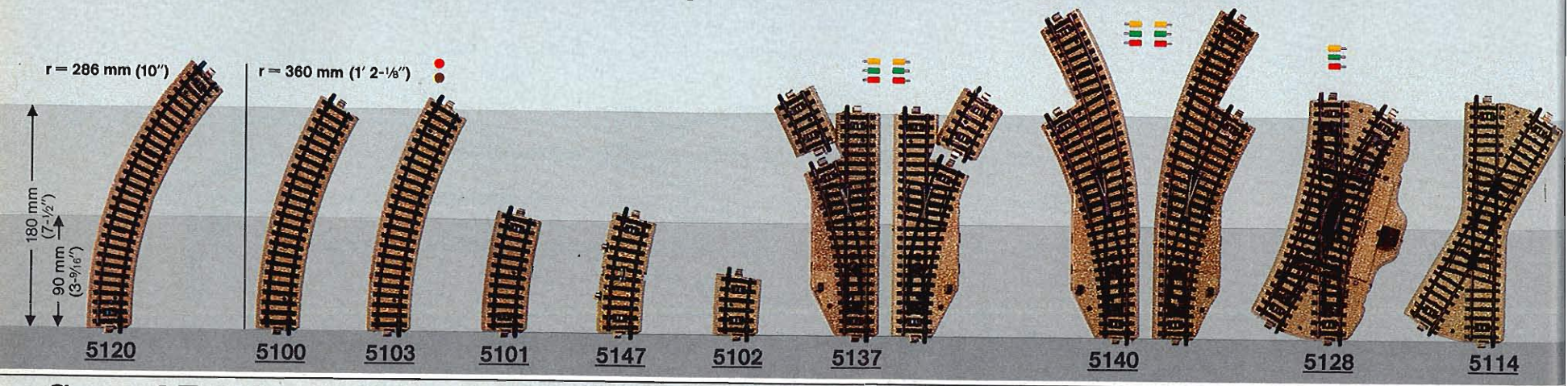
(M = Metalbody)

The exciting feature about M-track is that the roadbed is part of the track section. Thus M-tracks are excellent for layouts that are changed frequently.

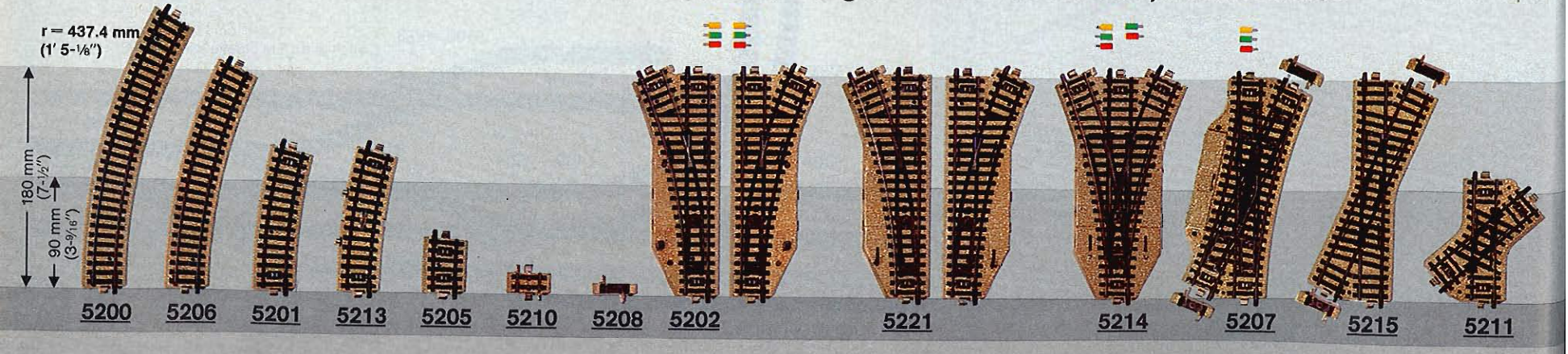
Straight Tracks, 5100 series



Curved Tracks, Switches, and Crossings for Standard Circles 5100 series



Curved Tracks, Switches, and Crossings for Larger Parallel Circle, 5200 series



5106
Regular section = 180 mm (7-1/8")

5111
Feeder track · Regular section = 180 mm (7-1/8") · Includes 2 leads

5131
Feeder track · Regular section = 180 mm (7-1/8") · Includes 2 leads · Has capacitor to suppress radio static · One 5131 required for each track circuit

5107
Half section = 90 mm (3-9/16")

5112
Uncoupling Track · Half section = 90 mm (3-9/16") · Contains ramp for releasing RELEX couplers · Includes lever for manual operation as well as solenoid for remotely controlled electric operation · Requires position control box (7072) for electric operation

5146
Remote control track · Half section = 90 mm (3-9/16")

5129
Adjustment section · Length 70 mm (2-3/4")

5108
Quarter section = 45 mm (1-3/4")

5109
3/16th section = 33.5 mm (1-5/16")

5110
1/8th section = 22.5 mm (7/8")

7190
Bumper · Riveted steel type · Clipped onto 70 mm (2-3/4") track section

7191
Bumper · Illuminated · Riveted steel type · Clipped onto 70 mm (2-3/4") track section
= 60000

5120
Regular length = 45° · Tight radius track for branches and industrial spurs · Can be negotiated by short vehicles only

5100
Regular section = 30°

5103
Feeder track · Regular section = 30° · Includes 2 leads

5101
Half section = 15°

5147
Remote control track · Half section = 15°

5102
Quarter section = 7° 30'

5137
Pair of solenoid-operated switches · One right and one left hand switch · Illuminated · Length of tangent 180 mm (7-1/8") · Radius of curve 360 mm (1' 2-1/4") · To maintain a 5100 curvature, use section 5102 (included)
= 60000

5140
Pair of solenoid-operated curved switches · One right and one left hand switch · Illuminated · Length and radii same as 5100 curve · Length of outside curve 265.4 mm (10-1/2")
= 60000

5128
Double slip switch · Crossing angle 30° · Double-solenoid operation · Illuminated to indicate direction of points · Can be operated manually also · Tangent length 193 mm (7-5/8") · Curvature same as 5100
= 60000

5114
Crossing · Length 193 mm (7-5/8") = 30° · The third rails are isolated from each other

Remote Control Tracks
The remote control tracks (5146, 5147, 5213) enable moving trains to operate solenoid-controlled accessories at various locations on the layout. The tracks include control switches which are operated by the pickup shoes on locomotives (or lighted cars), and a different operation can be performed in each direction of travel. The switching pulses are fed out through 2 sockets which are isolated from each other electrically.

5200 Regular section = 30°

5206
Length = 24° 17' · Same radius as switches 5202 and 5221

5201 Half section = 15°

5213
Remote control track · Half section = 15°

5205
Length = 5° 43' · When used with 5206, length equal a 5200

5210
Adjustment section straight · Length 16 mm (5/8")

5208
Adjustment section straight · Length 8 mm (5/16")

5202
Pair of solenoid-operated switches · One right and one left hand switch · Illuminated · Track lengths correspond to 5206 and 5106
= 60000

5221
Pair of manually operated switches · Track lengths correspond to 5202

5214
Symetrical three-way switch · Operated by 2 double-solenoids · Can be operated manually also · Tangent track measures 180 mm (7-1/8") · 5 leads included · Curvature 437.4 mm (1' 5-1/8"), same as 5200 circle · To maintain parallel spacing of 77.4 mm (3-1/16") use 5206 track section

5207
Double slip switch · Ideal for maintaining parallel track spacing of 77.4 mm (3-1/16") · Double-solenoid operation · Can be manually operated also · Tangent length 180 mm (7-1/8") · Curvature same as 5202, 5221, and 5206 · 2 adjustment tracks 5208 included

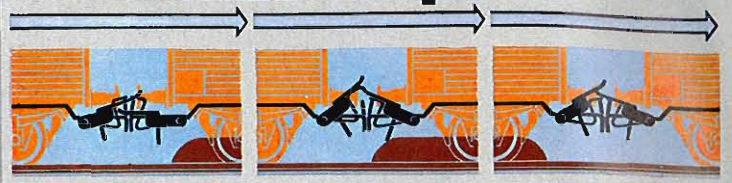
5215
24° 17' Crossing · Length 180 mm (7-1/8") · Includes 2 adjustment section 5208 · Same overall length as 5207 · Third rails isolated from each other electrically

5211
48 1/2° Crossing · Length 98 mm (3-7/8") · Third rails isolated from each other electrically

Märklin M switches 5100 and 5200 series have sprung points.

The remote control switches 5137, 5140, 5202 and the double slip switches 5128, 5207 as well as the three way switch 5214 have double-solenoids for remote control operation. To operate a position control box 7072 or remote control tracks 5146, 5147 and 5213 are needed.

Märklin RELEX Couplers



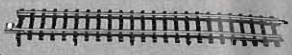
The couplers are released by raising the ramps.

A RELEX coupler is designed to remain "open" after uncoupling so the car can be spotted somewhere else on the layout without the couplers re-engaging.

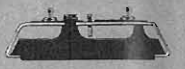
RELEX couplers bring a layout to life. No longer is it required to keep everything within arm's reach. Just use the uncoupler tracks along with the 5113 light pole, strategically placing them throughout the layout. When the desired couplers are over the uncoupler track, just press the button on the control box. The coupler will "open" automatically and the train can either proceed or push the uncoupled car to a desired location without the couplers re-engaging.
With RELEX couplers, Märklin modelers can duplicate real life yard operations on their layouts.



5113
Light pole · For use with uncoupler track · Die cast zinc · Illuminated during uncoupling · Height 85 mm (3-3/8") · Shows location of uncoupler track
= 60010



2291
Adapter track · Regular section = 180 mm (7-1/8") · For connecting 5100 and 5200 series tracks to serie 2200 series tracks



7171
Sound absorbent strips · Pack of 50, includes wood screws · These strips will absorb some of the natural sounds created when M-tracks are laid on a plywood base · These strips do not affect the mounting of a catenary system



7299
Wood screws · Ideal for securing M tracks · Pack of 200



7195
Number plate set · Ideal for use in identifying switches and signals on a layout · Includes 12 slotted bases and 24 number plates

Märklin HO SET Program

All Märklin HO basic sets (page 8–11) can be extended into larger layouts. The SET gift program is a particularly easy method and quite logical.

The first step is to acquire extension set E 5190 (with manual switches) or E 5191 (with electric switches). Additional extensions are possible by any combination of sets T1 5192, T2 5193, and T3 5194.

The track plans shown here, for example, show how beginner sets 2920 and 2930 can be enlarged. The same principle applies to the 2950 train set, which can be easily enlarged by simply connecting the SET program to the 2950 siding. The large train set 2875 already includes the E set and many items from the T3 set.

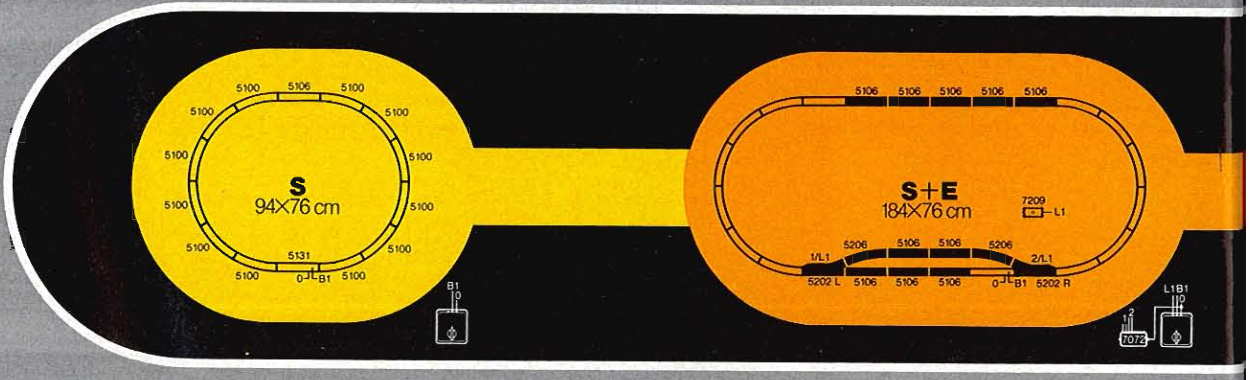


5190
Extension set E · Includes: 10 straights 5106, 2 curved tracks 5206, 1 pair of manual switches 5221, and instructions



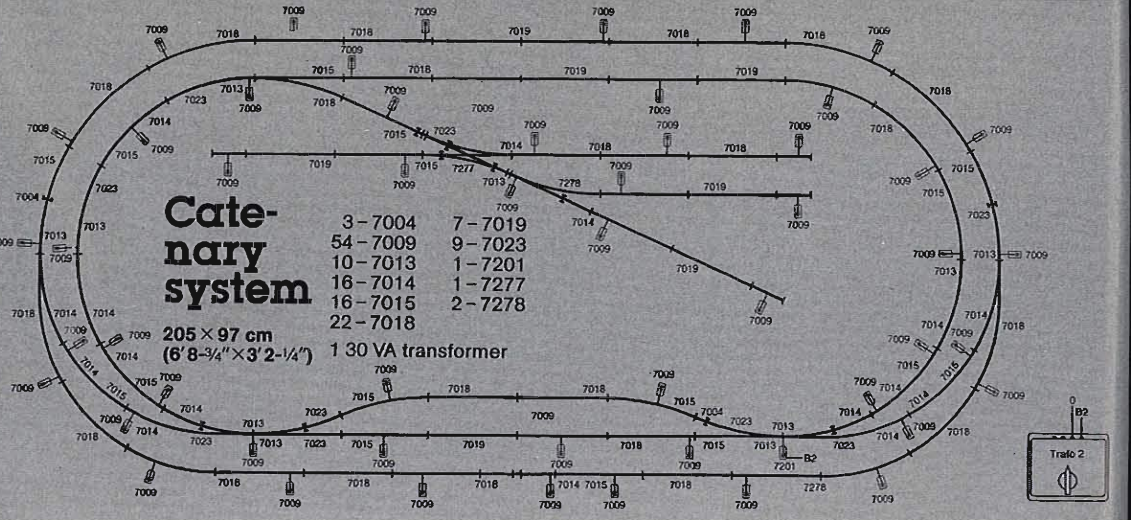
5191
Extension set E · Includes: 10 straights 5106, 1 pair of solenoid-operated switches 5202, 2 curved tracks 5206, 1 position control box 7072, 1 distribution strip 7209, plus leads, sockets, plugs, and instructions

Basic Sets
for the SET program
Pages 8–11



SET
for endless variety

1



Examples 2 and 3 show how SET can be used to make different layouts. **Any** set is thus an excellent way to enhance and enlarge **any** layout.

For more enhancement, add catenary. Example 1 offers a suggested design.



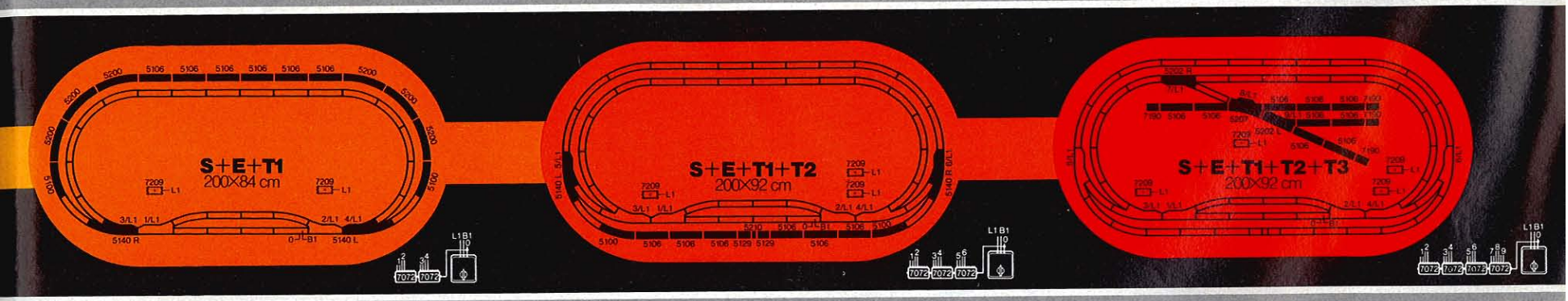
5192
Double track set T1 · Includes: 2 curved tracks 5100, 6 straights 5106, 1 pair of solenoid-operated curved switches 5140, 6 curved tracks 5200, 1 position control box 7072, 1 distribution strip 7209, plus leads, sockets, plugs, and instructions

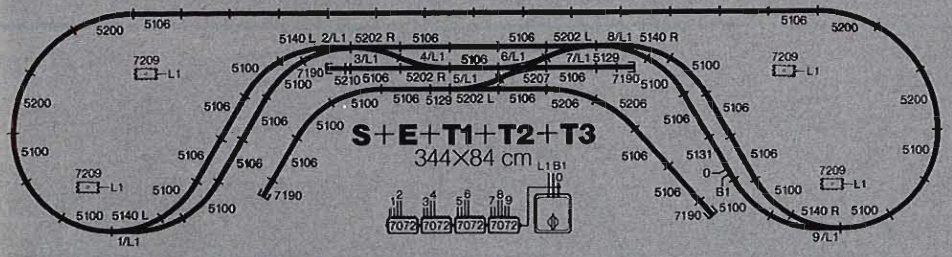


5193
Station track set T2 · Includes: 2 curved tracks 5100, 6 straights 5106, 2 straights 5129, 1 pair of solenoid-operated curved switches 5140, 1 straight 5210, 1 position control box 7072, 1 distribution strip 7209, plus leads, sockets, plugs, and instructions



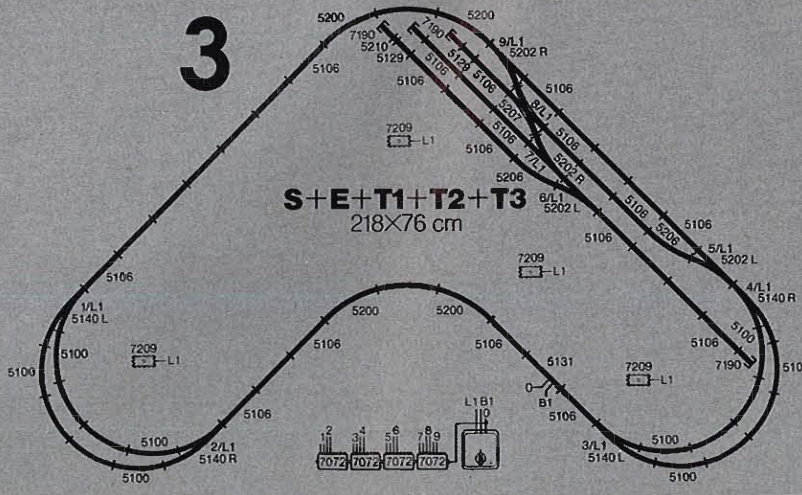
5194
Yard track set T3 · Includes: 9 straights 5106, 1 pair of solenoid-operated switches 5202, 1 double slip switch 5207, 1 position control box 7072, 4 bumpers 7190, 1 distribution strip 7209, plus leads, sockets, plugs, and instructions

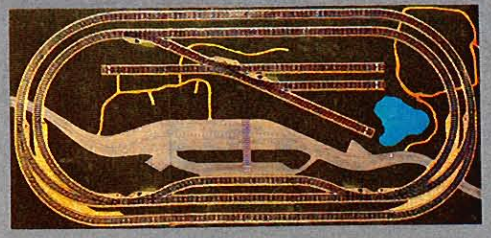




2

3





7298
Märklin-Toporama · Realistic landscape design · Ideal for use with SET extension program with basic sets 2920 – 2927 and 2930 – 2937 · Track layout to stage T3 printed on · Tufted grass adds three dimensional effect · Size 205 × 97 cm (6′ 8-¾″ × 3′ 2-¼″)

Tips on K Track Geometry

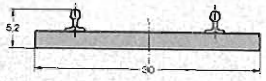
K track has realistic looking plastic ties

(K = Kunststoff, the German word for plastic)

K Track

Figure 1:
K track has a realistic prototypical appearance. As with M track, it also utilizes center stud contacts.

With K track, both running rails are laid on plastic ties. K track is 30 mm (1-3/16") wide and 5.2 mm (13/64") high.



1

Parallel Circles

Figure 2:
One of the highlights of K track geometry are the five different radii. A radius is measured from the mid-point of a circle to the track center (i. e.: center stud contacts).

The distances between track centers is 64.6 mm (2-37/64") on each radius except between Standard Circle II and the Large Circle I which is 129.3 mm (5-3/32").

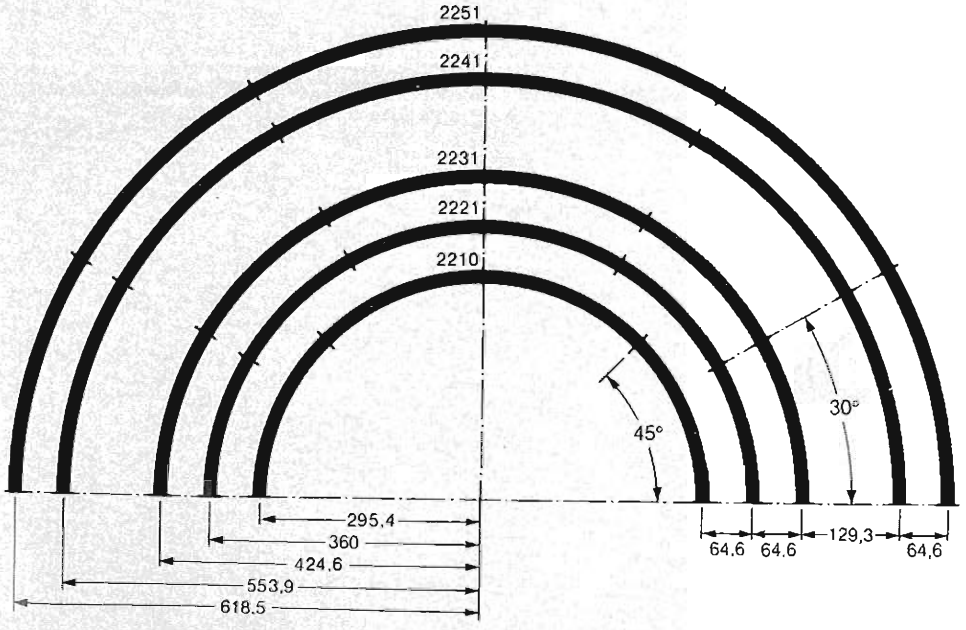
To determine the loading gauge between the tracks, subtract 30 mm (1-3/16") since the tracks themselves are that wide.

The Industrial Circle and the two Large Circles have only full length track sections. However, the Märklin K track program does include smaller sections for the standard circles. These smaller sections are clearly differentiated by their part numbers:

For Standard Circle **I**, smaller track sections have a **2** as the **third digit** in the part number (2221, 2223, 2224).

For Standard Circle **II**, smaller track sections have a **3** as the **third digit** in the part number (2231, 2232, 2233, 2234, 2235).

Part Number	Name	Diameter mm	Radius mm	Distance from track center	Sections for complete circle
2210	Industrial Circle	590.8 2' 3-1/4"	295.4 11-5/8"	64.6 2-37/64"	8
2221	Standard Circle I	720 2' 4-1/4"	360 1' 2-1/8"	64.6 2-37/64"	12
2231	Standard Circle II	849.2 2' 9-1/2"	424.6 1' 4-3/4"	129.3 5-5/32"	12
2241	Large Circle I	1107.8 3' 7-1/2"	553.9 1' 9-3/4"	64,6 2-37/64"	12
2251	Large Circle II	1237 4' 1/2"	618.5 2' 1/4"		12
The flex track 2205 can be bent to any of the above radii.					



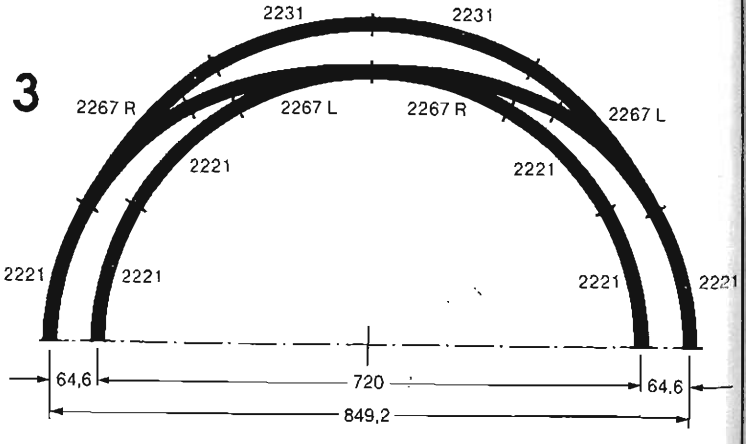
2

Curved Switches

Figure 3:
Because curved switches can be installed on curves, these switches can save space on a layout.

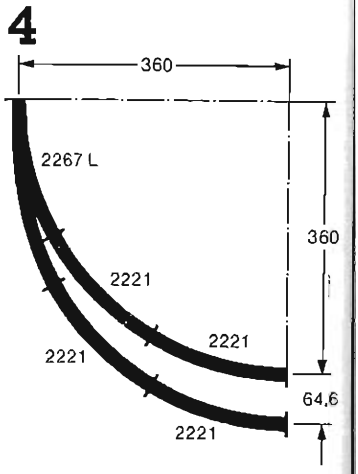
The inside track on the curved switch has the same dimensions as the curved track 2221 of the standard circle I.

To maintain symmetrical curvature and a track distance of 64.6 mm (2-1/2"), a curved track 2221 from the Standard Circle I must be installed in the Standard Circle II.



3

Figure 4:
Siding using a curved switch 2267



4

K track is versatile and lends itself well in building layouts. There are 5 different radii of curves plus a flex track offering modelers the chance to add closely parallel tracks, gentle curves and long tangents to layouts.

Realistic looking K track enables modelers to have trackwork that looks real. Yet, K track is surprisingly easy to install and its geometry is simple.

More about Track Planning Page 78

Double Slip Switch, Three-Way Switch, and Plain Switches

Figure 5:
The curve in the plain switch 2261 and 2264, the double slip switch 2260, and the three-way switch 2270 as well as the angle on the crossing 2259 are equal to that of the curved track 2232. The tangents of these switches and crossings equal that of the straight track 2206.

This is one of the special benefits of the K track geometry: Switches and crossings can be easily interchanged without affecting the track length or the distances between tracks.

Switches Offer Diversity

Figure 6:
In order to maintain the standard distance between tracks on curves of 64.6 mm (2-37/64") when using switch 2261, curved section 2232 and make-up section 2207 are required. This method eliminates any kinks in the arc.

Figure 7:
This example is identical to figure 6, but the switch 2261 is at the end of the circle.

Figure 8:
Here a make-up section 2208 is used instead of a 2207 giving it a length of 360 mm (1' 2-1/8"). This length equals that of two straight sections 2200. In this manner, an arrow straight track can be placed on the opposite end of the oval where otherwise a 2200 would be used.

Figure 9:
To keep a proper track spacing between Standard Circle II and Large Circle I when using the switch 2261, make-up tracks 2206 and 2207 as well as curved section 2232 are required.

Figure 10:
To maintain the 64.6 mm (2-37/64") distance between three or more parallel tracks, the crossing 2259 or the double slip switch 2260 is needed.

Also, adjustment sections 2208 and 2204 are required to extend this track diagram a full length 3 × 2200 (540 mm, 1' 9-3/8").

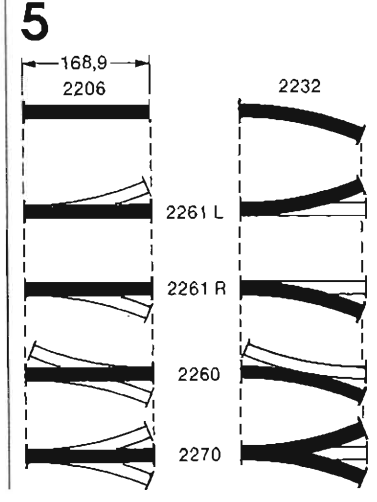
Figure 11:
A wye can be easily constructed by using the curves of the Standard Circle II with the 2261 switch, and the adjustment tracks 2204, 2208, and 2201.

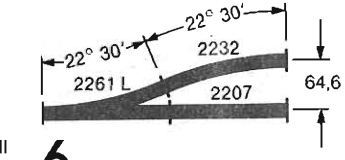
Figure 12:
When combining parallel tracks with a crossing 2258, two 2208 adjustment tracks sections are required in line being crossed.

Figure 13:
The three way switch 2270 is actually a combination of two 2261 switches. Three way switches save space and are especially useful in stations and yard areas.

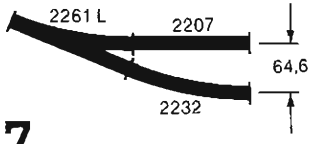
Extending the curve on switch with curved track 2232 maintains the track spacing of 64.6 mm (2-37/64"). To maintain equal spacing with all three tracks, the tangent of the switch must be extended with the adjustment track 2207.

Adjustment section 2208 extends this diagram for 2 × 2200.

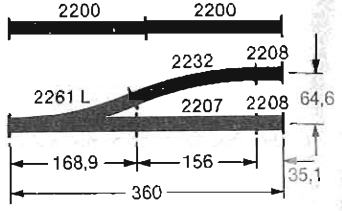




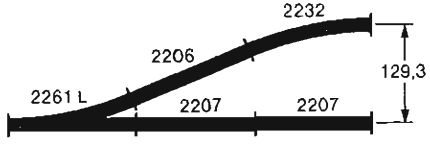
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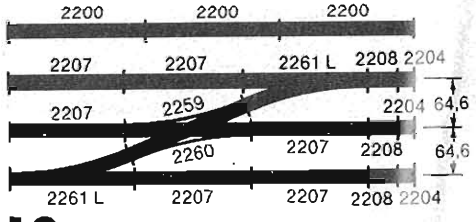
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8

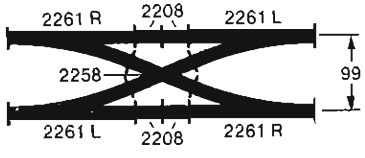


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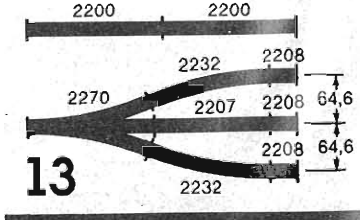


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11



12



13

Geometry of High-Speed K-Switches

Branches using the 2271 switches

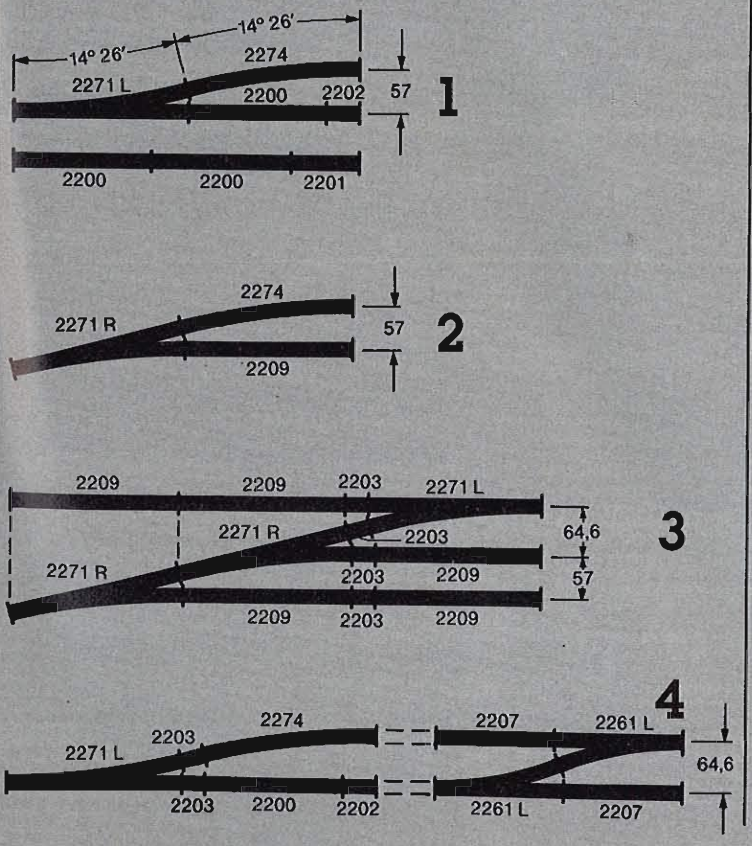
Figure 1:
To maintain parallel track spacing of 57 mm (2-¼") when using the 2271 switch, curved track 2274 and straight tracks 2200 and 2202 are required. The total diagram measures 2½ track lengths (450 mm, 1' 5-11/16").

Figure 2:
If the 2271 switch is on an angle, the length of the switch curve is kept in proportion by using the straight track 2209 (217.9 mm, 8-5/8").

Figure 3:
When the 2271 switch is used on parallel tracks having a spacing of 64.6 mm (2-37/64"), the 1/6th straight track 2203 is needed to maintain proper spacing.

In this diagram, 2271 R is on an angle and the 2209 straight track is used to maintain proportional length.

Figure 4:
An additional example showing how to maintain the 64.6 mm (2-37/64") spacing by using the 2203 straight track.



Branches using the 2275 double slip switch

Figure 5:
To maintain track spacing when adding a 2275 double slip switch, a curved track 2274 and a 2293 adjustment track as well as a 2200 straight track is required.

Figure 6:
To obtain a parellel track spacing of 114 mm (4-½"), use a right-hand 2271 switch with the 2275 double slip switch. A 2274 curved track is needed to maintain track spacing.

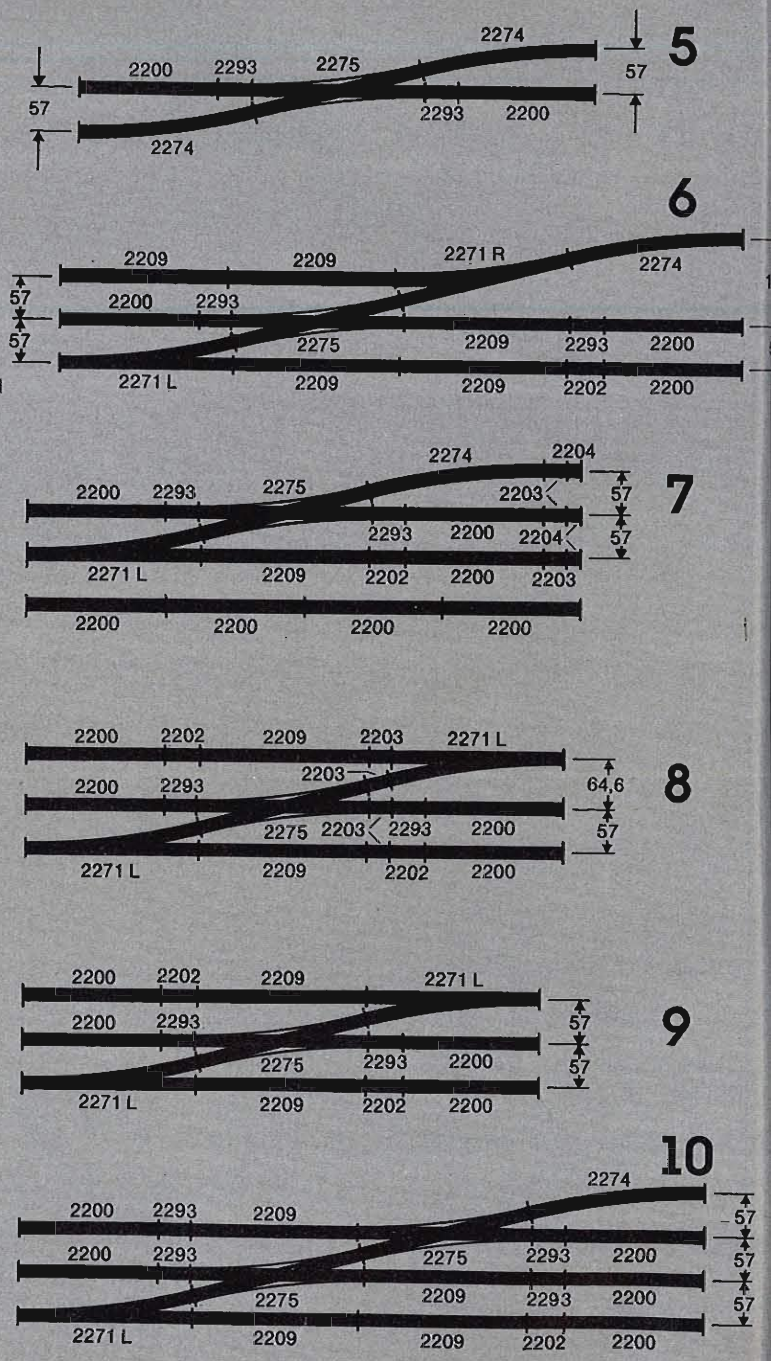
Figure 7:
To connect the tracks of a multi-track mainline having a track spacing of 57 mm (2-¼"), the double slip switch 2275 is needed.

To keep the track at an equal length parallelwise (as in this diagram, the tracks must be extended with the 2203 and 2204 adjustment sections.

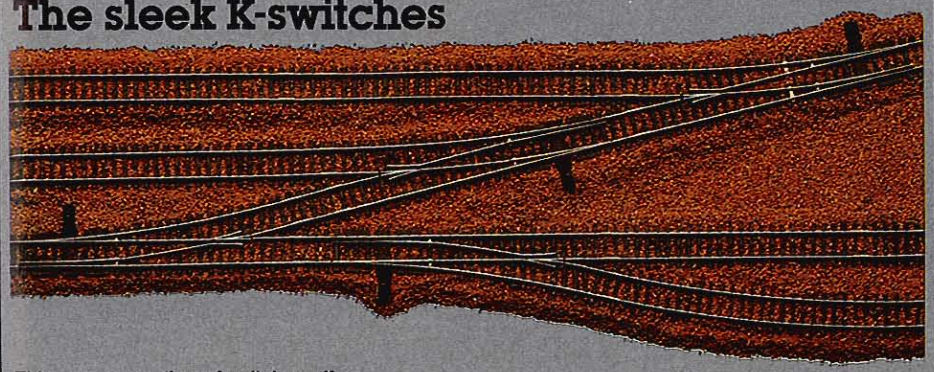
Figure 8:
The track spacing of 57 mm (2-½") on the double slip switch 2275 can be widened to the spacing of the Standard Circle by adding a 2203 adjustment track.

Figure 9:
To maintain the tangent of the straight track when adding the 2275 double slip switch, a 2293 adjustment track is need. By adding a 2209 and a 2202 adjustment track to the tangent, a length equivalent to the tangent on the 2271 switch is realized.

Figure 10:
An additional example of how the double slip switch 2275 can be used.

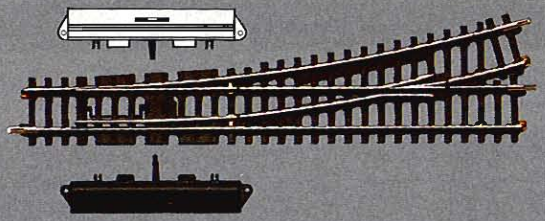


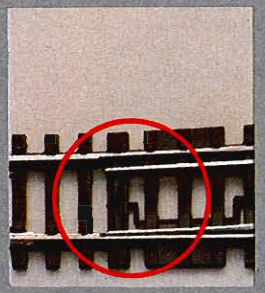
The sleek K-switches

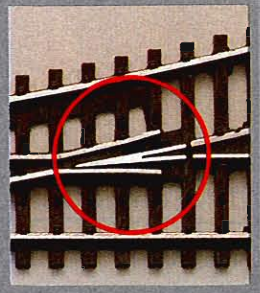


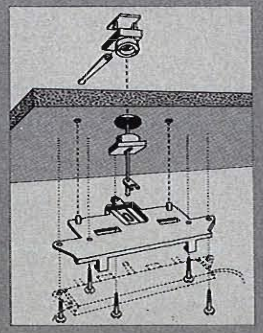
This new generation of switches offers many visual and practical advantages.

- Parallel track spacing of 57 mm (2-¼") is possible with the 2271 switch.
- Modelers can duplicate the elegant sleek turnouts used by the German Federal Railroads.
- The switch angle of 14° 26' and the radius of 902.4 mm (2' 11-⅝") offers opportunity for prototype like track configurations.
- The 2271 manual switch can be converted into an electrically operated switch by adding a solenoid operated actuator 7549 in place of the manual lever.
- The switch machines or the manual levers can be attached to either the left or right side of the switches.
- The outside running rails are indented to receive the switch points.
- The frog point is moveable, thus making the switches almost derail proof.
- The switch machine has a mechanism to allow current to flow in direction of switch points.
- The switch machines can be connected to a control panel to allow for easy monitoring.
- The switch machines can be placed "out of sight" by mounting them under the train table using the Under Layout Mounting Kit 7548. This kit is adjustable for board widths 6–16 mm (¼"–⅝"). Only the corrugated iron cover remains visible on the layout.



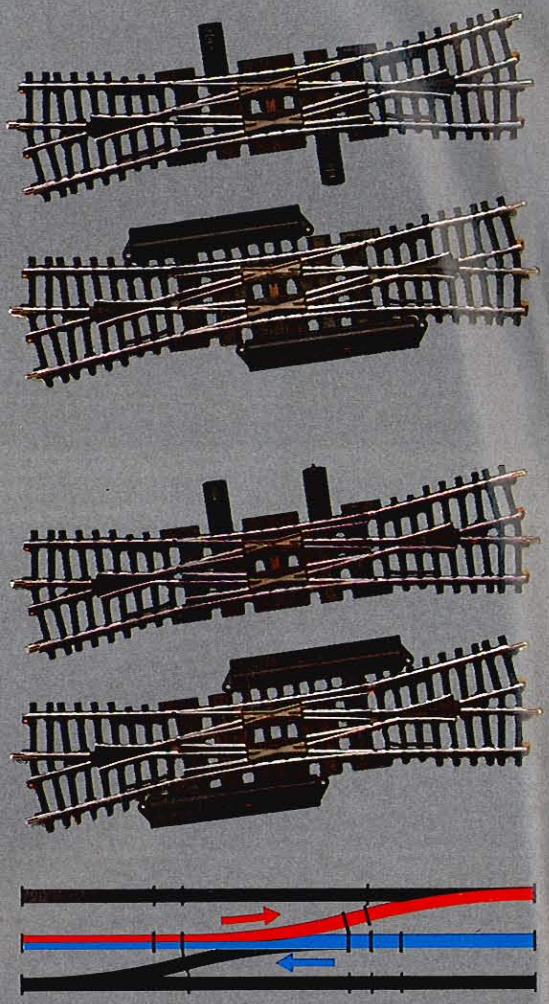


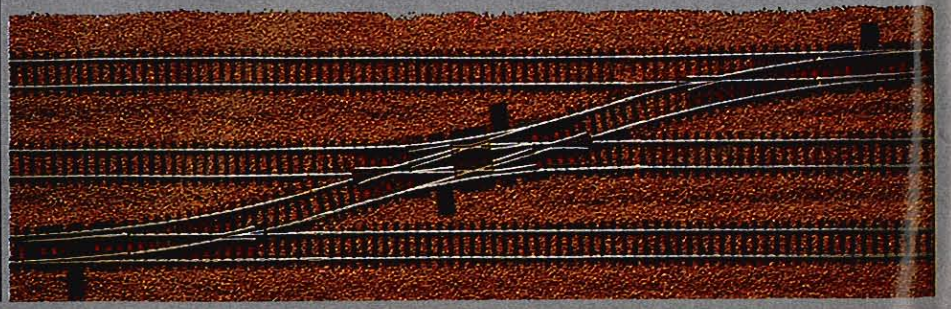




The sleek Double Slip Switch

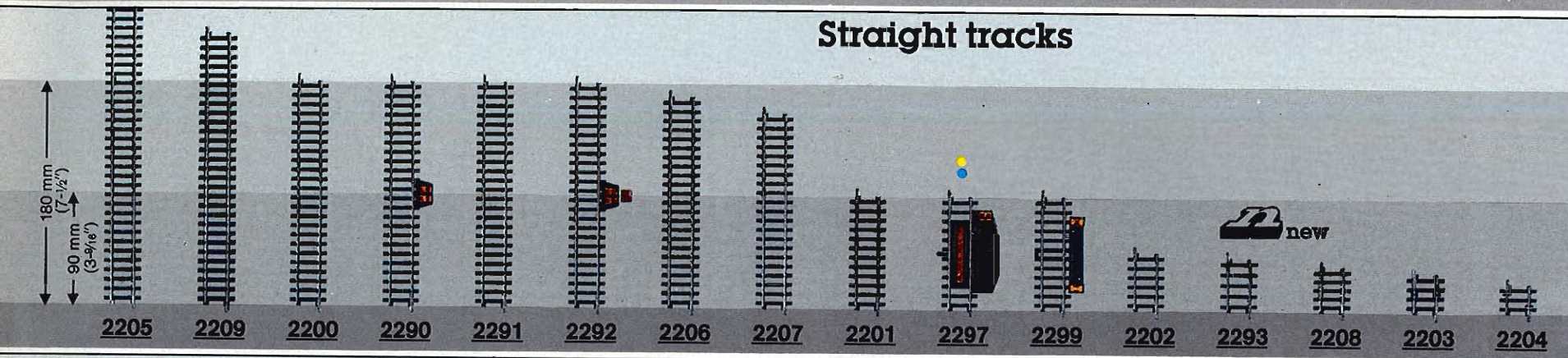
- The new double slip switch 2275 matches the 2271 switch by having the same angle 14° 26' and the same radius 902.4 mm (2' 11-⅝") and keeps the same track spacing of 57 mm (2-¼").
- The two manual levers are removeable and can be replaced with two solenoid operated actuators (switch machines) 7549.
- The switch machines or the manual levers can be placed on either side of the switch.
- A special highlight of the double slip switch 2275 is that the switch points are independent of each other. Thus the switch can be lined for two seperate routes according to how the trains enter the switch.
- By adding two Under Layout Mounting Kits 7548, the switch machines can be placed under the board.





Märklin K-Tracks with prototype profile

Straight tracks



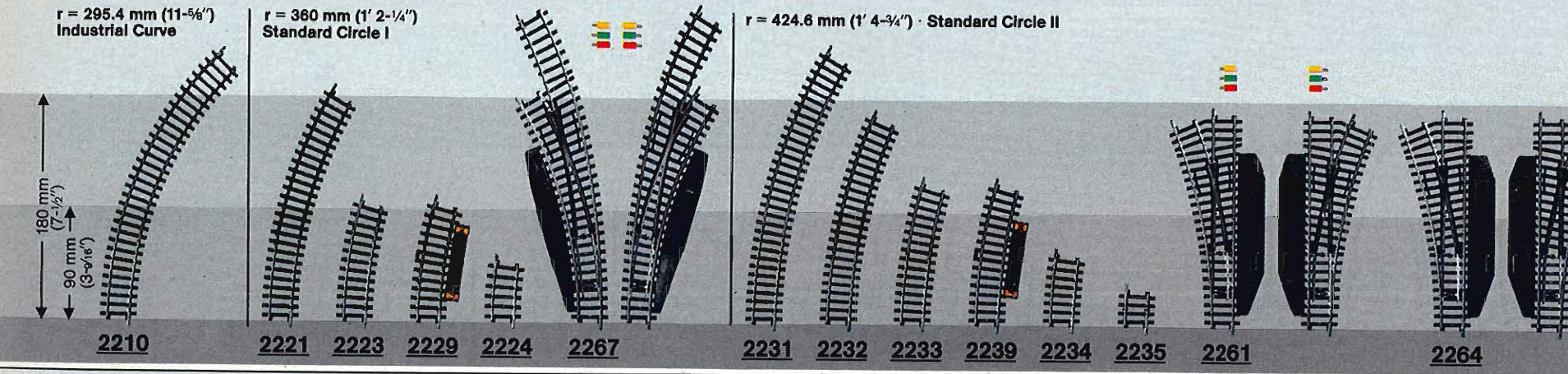
2205 2209 2200 2290 2291 2292 2206 2207 2201 2297 2299 2202 2293 2208 2203 2204

Curved Tracks, Switches and Crossings

r = 295.4 mm (11-5/8")
Industrial Curve

r = 360 mm (1' 2-1/4")
Standard Circle I

r = 424.6 mm (1' 4-3/4") · Standard Circle II



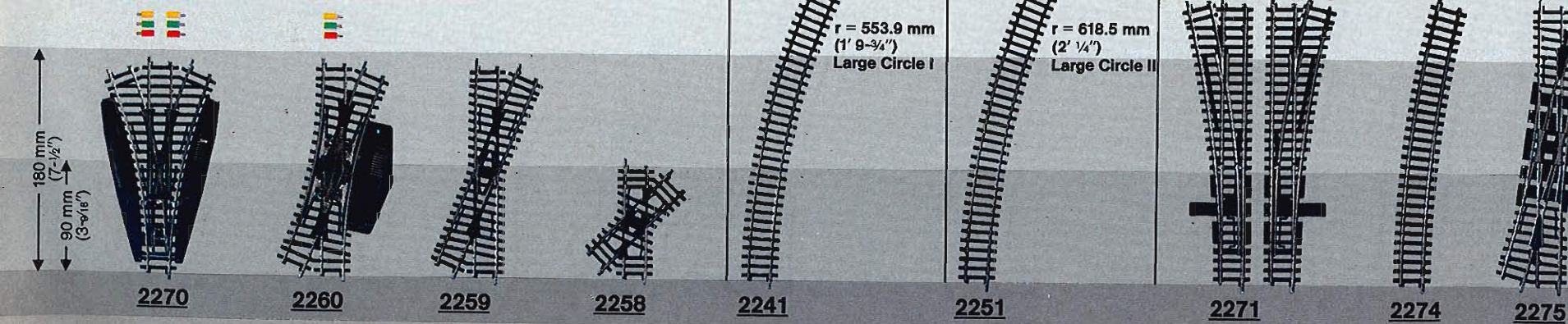
2210 2221 2223 2229 2224 2267 2231 2232 2233 2239 2234 2235 2261 2264

r = 424.6 mm (1' 4-3/4") · Standard Circle II

r = 553.9 mm (1' 9-3/4")
Large Circle I

r = 618.5 mm (2' 1/4")
Large Circle II

r = 902.4 mm (2' 11-5/8") · Sleek Switches new



2270 2260 2259 2258 2241 2251 2271 2274 2275

2205
Length of 5 regular section = 900 mm (2′ 1-½″) · Flexible · Can be carefully bent to any desired radius · Can be cut by using a track saw (be sure to add rail joiners and track clips 7595 to the "new" ends)

2209
Adjustment track · Length 217.9 mm (8-⅝″) · Can be used to maintain parallel track spacing when 2271 switch is installed on an angle

2200
Regular section = 180 mm (7-⅛″)

2290
Feeder track · Regular section = 180 mm (7-⅛″) · Includes terminals marked "O" and "B"

2291
Adapter track · Regular section = 180 mm (7-⅛″) · For connecting the 5100 and 5200 series tracks to the 2200 series

2292
Feeder track · Same as 2290 but includes suppressor for radio static · One 2292 should be used for each circuit

2206
Adjustment track · Length 168.9 mm (6-⅝″)

2207
Adjustment track · Length 156 mm (6-⅛″)

2201
Half section = 90 mm (3-9⁄16″)

2297
Uncoupling track · Half section = 90 mm (3-9⁄16″) · Contains ramp for releasing RELEX couplers · Includes lever for manual operation as well as solenoid for remotely controlled electric operation · A position control box (7072) is required to activate the solenoid

2299
Remote control track · Half section = 90 mm (3-9⁄16″)

2202
Quarter section = 45 mm (1-¾″)

2293 new
Adjustment track · Length 41.3 mm (1-⅝″) · To maintain tangent when used with the 2275 double slip switch

2208
Adjustment track · Length 35.1 mm (1-⅜″)

2203
Adjustment track · ⅛th section = 30 mm (1-3⁄16″) · Can be used to maintain parallel track spacing

2204
⅛th section = 22.5 mm (⅞″)

7595
Rail joiners and track clips · 10 of each · For 2205 track · Required for connecting 2205 track to other tracks if the flexible track has been shortened



7391
Bumper · Riveted steel type · To be clipped onto rails · Length 38 mm (1-½″) · Round head wood screws included

7599
Wood screws · Pack of 200 · Recommended for securing K tracks

Märklin K switches 2200 have sprung points.

The electromagnetic switches 2261, 2267 and the double slip switch 2260 as well as the three way switch 2270 have double-solenoids for remote control operation. To operate, a position control box 7072 or remote control tracks 2229, 2239, or 2299 are required.

2210
Regular section = 45° · Tight radius track for branches and industrial spurs · Can be negotiated by short vehicles only

2221
Regular section = 30°

2223
Half section = 15°

2229
Remote control track · Half section = 15°

Remote Control Tracks
The remote control tracks (2229, 2239, 2299) enable moving trains to operate solenoid-controlled accessories at various locations on the layout. The tracks include control switches which are operated by the pickup shoes on locomotives (or lighted cars), and a different operation can be performed in each direction of travel. The switching pulses are fed out through 2 sockets which are isolated from each other electrically.

2224
Quarter section = 7° 30′

2267
Pair of solenoid-operated curved switches · One right and one left hand switch · Length and curvature of inside curve same as 2221 · Length of outside curve is 244.6 mm (9-⅝″)

2231
Regular section = 30°

2232
¾ section = 22° 30′

2233
Half section = 15°

2239
Remote control track · Half section = 15°

2234
Quarter section = 7° 30′

2235
⅛th section = 3° 45′

2261
Pair of solenoid-operated switches · One right and one left hand switch · Illuminated · Radius of curve 424.6 mm (1′ 4-¾″) · Length of tangent track 168.9 mm (6-⅝″)
= 60000

2264
Pair of manually operated switches · One right and one left hand switch · Radius of curve 424.6 mm (1′ 4-¾″) · Length of tangent track 168.9 mm (6-⅝″)



7500
Ground connector with terminal, for use with ground leads on 2200 series tracks



7504
Third rail connector with terminal · To be connected to center rail (studs) where 2200 track sections join



7522
Third rail isolator · For isolating track circuits · Install in place of regular connectors where 2200 tracks join

2270
Symmetrical three way switch · Operated by 2 double-solenoids · Can be operated manually · Both curves symmetrical for multi-track parellel alignment · Tangent 168.9 mm (6-⅝″) · Curvature 424.6 mm (1′ 4-¾″)

2260
Double slip switch · Radius 424.6 mm (1′ 4-¾″) · Operated electrically by remote control · Can be operated manually also · Tangent length 168.9 mm (6-⅝″)

2259
Crossing · Angle 22° 30′ · Tangent length 168.9 mm (6-⅝″)

2258
Crossing · Angle 45° · Tangent length 90 mm (3-9⁄16″)

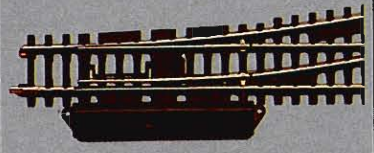
2241
Regular section = 30°

2251
Regular section = 30°

2271
Pair of manual switches · Includes one right and one left hand switch · Radius of curve 902.4 mm (2′ 11-⅝″) · Length of tangent 225 mm (8-⅛) · Switch angle 14° 26′ · The manual lever can be replaced with a solenoid-operated actuator 7549

2274
Curved track · Radius 902.4 mm (2′ 11-⅝″) · 14° 26′ length · Same curvature as the 2271 switch

2275 new
Double slip switch · Matches the 2271 switch · Length of tangent 225 mm (8-⅛″) · Switch angle 14° 26′ · 2 removeable manual levers which can be replaced by 2 solenoid-operated actuators 7549 · Each point can be separately lined



7549
Solenoid-operated actuator (switch machine) · For converting 2271 Switch or 2275 double slip switch from manual to solenoid operation · 2275 requires two actuators · Fits on either side of the switches · Can be placed under the layout by using the under layout mounting kit 7548 · Requires position control box 7072



7548 new
Under layout mounting kit · For mounting the 7549 switch machines out or sight, under the layout · Works with the 2271 switch and the 2275 double slip switch · With this kit it is possible to place the 7549 actuator out of sight under the layout · Adjustable for board widths 6–16 mm (¼″–⅝″)


BOSCH

Multi-train operation

Wide variety of model railroad operations possible with

1+2+3

Running several trains at once on a model railroad captures the throbbing sprit of real railroading. The Märklin HO system, with its wide variety of switches, signals, and accessories offers countless opportunities to depict real life situations. Even automatic block signals can be installed. Of course this requires additional circuitry, but even that is designed to imitate the real thing.

1. Multi-train operation with signals

Signals are essential for the safe operation of railroads whenever there is more than one train. If a train gets too close to another, a "Halt" signal will stop it while the other train continues to gain distance. Signals prevent collision and assure the efficient operation in railroads, model or prototype.

Signals can be controlled in two ways:

1. With position control box 7072 (page 104)
2. By locomotives tripping a remote control switch (page 82 for M-track and page 90 for K-track)

Märklin signal manuals 0342 and 0361 (page 94) describe these methods.

2. Multi-train operation using separate electric circuits

An easy way to run more than one train on a layout is to have each locomotive controlled by a separate transformer. Separate circuits can be established for any size section from a simple siding to a major portion of the layout. Each separate circuit must be isolated electrically from other circuits.

For more details, see page 98.

3. Multi-train operation with catenary system

With a growing number of prototype lines being electrified, modelers may consider using an overhead (catenary) system. Using the fully-functional Märklin catenary system, it is possible to control two trains independently on a single track. Also, track signals can be installed. Märklin has developed overhead line signal connectors for this purpose. Further, the catenary system can be divided into separate electrical circuits.

For more details on the catenary system, see pages 100–103.

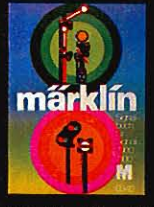
1.

Signals

Multi-train operation with signals

Home and distant signals are used for train control – in real life as well as on Märklin HO.

Distant signals do not control trains directly; they only advise what the home signal is saying. Distant signals add authentic realism to model layouts. Home signals are used to control trains and installation instructions are included with each signal. Additional information appears in the Signal Manuals 0342 and 0361.



0342 M

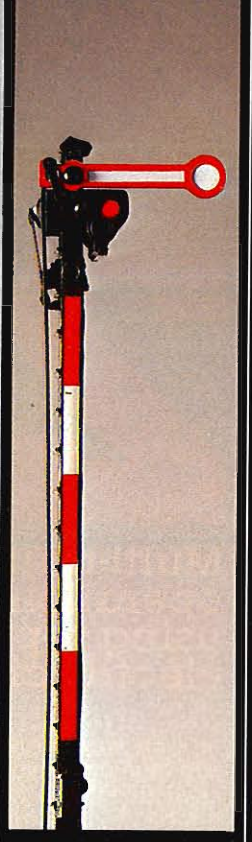
Märklin Signal Manual for 7000 and 7100 Signals · Offers detailed instructions, with full color illustrations, on the installation and uses of the 7000 and 7100 signals as well as the universal remote control switch with M tracks · 28 pages · Size 18 × 25 cm (7-1/8″ × 9-7/8″) · English text



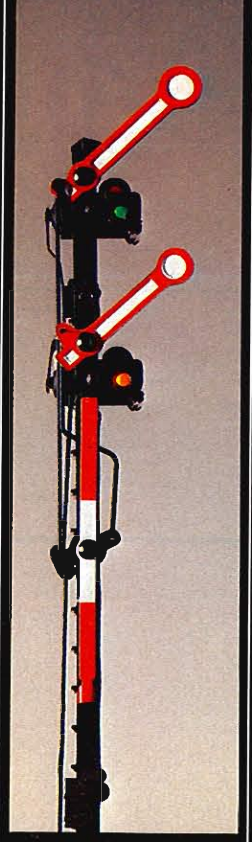
0361 K

Märklin Signal Manual for the 7200 Signals · Offers detailed instructions, with full color illustrations, on the installation and uses of the 7200 signals and universal remote control switch with K tracks · 48 pages · Size 18 × 25 cm (7-1/8″ × 9-7/8″) · English text

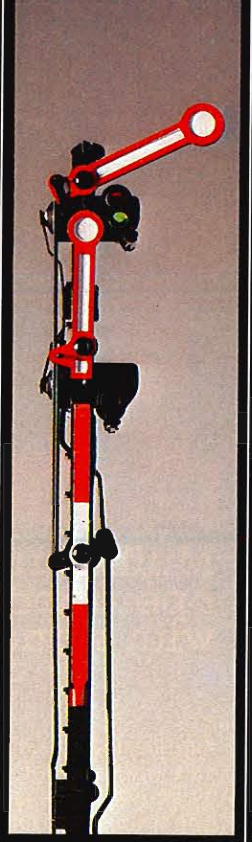
Signals for M tracks



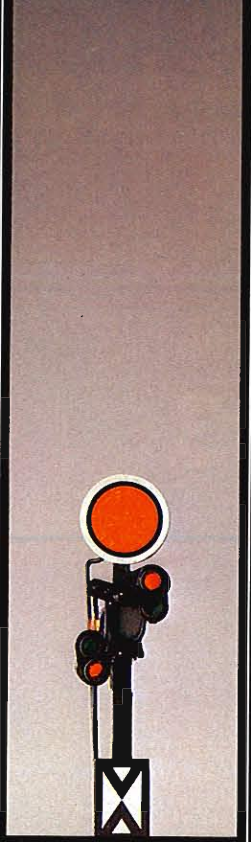
7039
Home signal with one semaphore arm · Lights change from red to green · Double-solenoid · With base plate · W 27 mm (1-1/16″) · L 70 mm (2-3/4″) · H 125 mm (5″)
= 60000



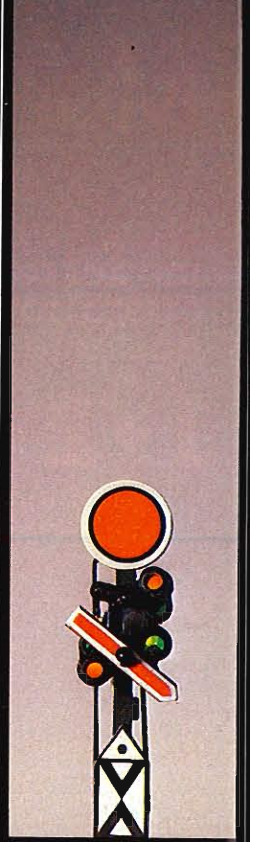
7040
Home signal with two coupled semaphore arms · Lights change from red to green/amber · Double-solenoid · With base plate · W 27 mm (1-1/16″) · L 70 mm (2-3/4″) · H 125 mm (5″)
= 60000



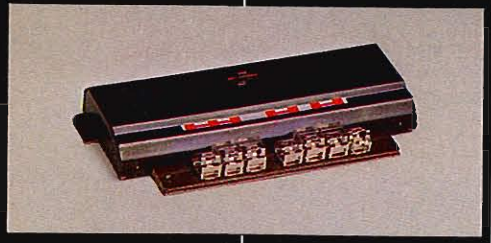
7041
Home signal with 2 independent semaphore arms · Lights change from red to green or red to green/amber · 3 double-solenoids · With base plate · W 27 mm (1-1/16″) · L 97 mm (3-13/16″) · H 125 mm (5″)
= 60000



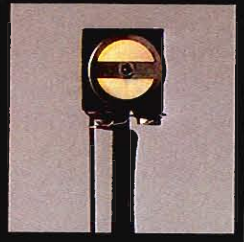
7036
Distant signal with movable disc · Lights change from amber/amber to green/green · Double-solenoid · With base plate · W 28 mm (1-1/8″) · L 65 mm (2-9/16″) · H 73 mm (2-7/8″)
= 60000



7038
Distant signal with movable disc and movable semaphore arm · Light sequence same as 7036 or from amber/amber to amber/amber/green · 2 double-solenoids · With base plate · W 28 mm (1-1/8″) · L 65 mm (2-9/16″) · H 73 mm (2-7/8″)
= 60000



7245
Universal remote control switch with 2 single pole switches and one changeover switch for various circuits · It can operate 3 accessories simultaneously · Lots of possible applications are shown in Signal Manuals 0342 and 0361 · Double-solenoid operation · Can be operated by remote control track, position control box, or manually · W 30 mm (1-3/16″) · L 70 mm (2-3/4″) · H 8 mm (5/16)



7042
Track closure signal · Mast with movable front and rear discs · Double-solenoid · With plate · W 28 mm (1-1/8″) · L 70 mm (2-3/4″) · H 70 mm (6-3/4″)
= 60000

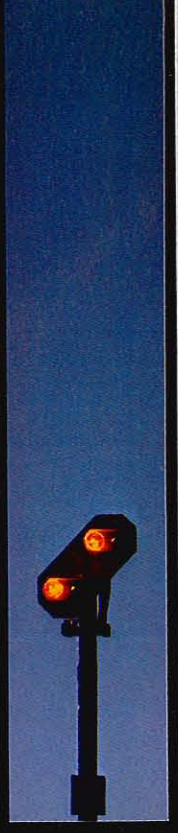
Signals for K and M Tracks



7339
Color light home signal · Changes from red to green manually · When red, there is no current in block controlled by signal · Includes track section 90 mm (3-½") long with gap in center rail · W 55 mm (2-3/16") · L 90 mm (3-½") · H 90 mm (3-½")
= 60001 red
= 60002 green



7188
Color light home signal · Red and green lights · Double-solenoid · Includes hand lever · Pair of sockets for connection to a distant signal 7187 · With base plate · W 28 mm (1-⅛") · L 70 mm (2-¾") · H 90 mm (3-½")
= 60001 red
= 60002 green



7187
Color light distant signal · Colors change from green/green to amber/amber · W 16 mm (⅝") · L 11 mm (7/16") · H 60 mm (2-⅜")
= 60202 green
= 60204 orange

The color light home signals and track closure signals of the 7200 series have trips enabling them to control track current in the catenary as well as the center "rail". **The signal masts, and the lighting unit of track closure signal 7242, can be set up independent of track current.** Bracket 7230 is required to secure the masts.

Center "rail" isolators, connectors and instructions are included with signals 7239, 7240, 7241 and 7242.



7239
Color light home signal · Lights change from red to green and track current is controlled by double-solenoid · Includes hand lever · With base plate · W 30 mm (1-3/16") · L 70 mm (2-¾") · H 90 mm (3-½")
= 60201 red
= 60202 green

7242
Track closure signal · Changes from red/red to white/white and track current is controlled by double-solenoid · Includes hand lever · W 30 mm (1-3/16") · L 70 mm (2-¾") · H 18 mm (11/16")
= 60200



7240
Color light home signal · Lights change from red to green/amber and track current is controlled by double-solenoid · Includes hand lever · With base plate · W 30 mm (1-3/16") · L 70 mm (2-¾") · H 90 mm (3-½")
= 60201 red
= 60202 green
= 60204 orange





7241
Color light home signal · Changes from red to green or green/amber and track current is controlled by double-solenoid with an additional solenoid for the green/amber setting · 2 additional hand levers · With base plate · W 30 mm (1-3/16") · L 95 mm (3-¾") · H 90 mm (3-½")
= 60201 red
= 60202 green
= 60204 orange



7236
Color light distant signal · Lights change from amber/amber to green/green · Includes bracket 7230 and base plate · W 16 mm (⅝") · L 28 mm (1-⅛") · H 67 mm (2-⅝")
= 60202 green
= 60204 orange

7230
Bracket · For securing masts of color light signals 7238, 7239, 7240, 7241, and the track closure signal 7242 when they are set up independent of track current



7237
Color light distant signal · Lights change from amber/amber to amber/green · Includes bracket 7230 and base plate · W 16 mm (⅝") · L 28 mm (1-⅛") · H 67 mm (2-⅝")
= 60202 green
= 60204 orange



7238
Color light distant signal · Ligths change from amber/amber to green/green or amber/green · Double-solenoid operation for the amber/green setting · With base plate · W 30 mm (1-3/16") · L 70 mm (2-¾") · H 67 mm (3-½")
= 60202 green
= 60204 orange

Signals and their Application

Prototype Signals

Signals are the most important equipment employed for the safe and smooth flow of railroad traffic. Various types of signals are used: semaphores or disks which are illuminated for night service; and, especially on modern lines, daylight signals with various color light combinations. Signals advise the engineer whether or not a given section of track can be traversed or not, and in what speed. These regulations are standard because often certain switches or stalled trains may not be readily visible by oncoming trains. For this reason the home signal, which protects the immediate section, is connected to a distant signal which is located far enough ahead (400 to 1,000 m, or 1,280' to 3,100') so if braking is required, the train will stop before it reaches the home signal. In addition, many modern signals are also equipped with safety trips (e. g.: Inductive signalling) so the signal itself can stop the train automatically in an emergency.



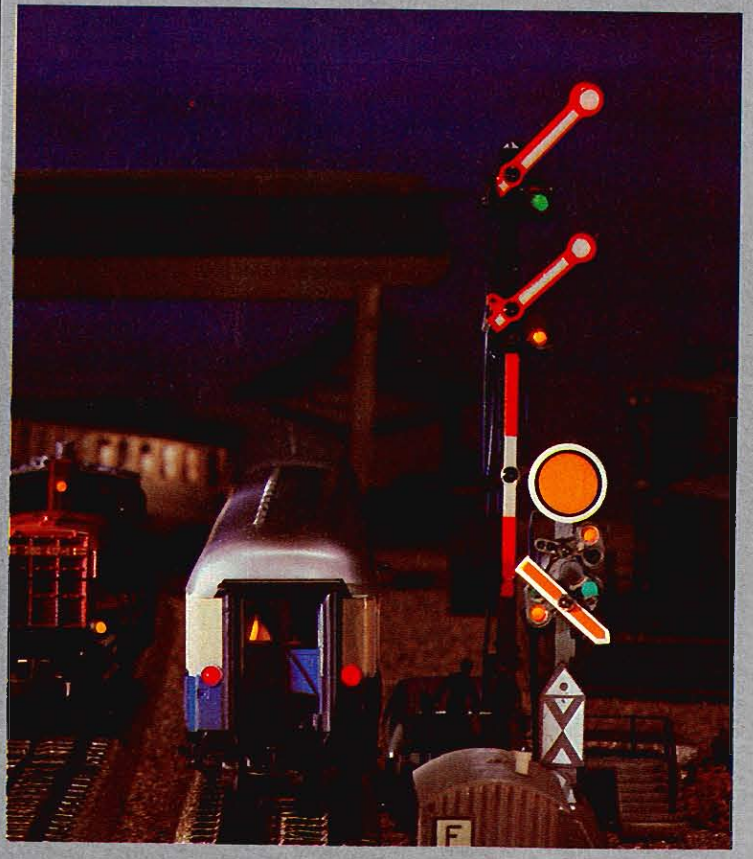
Model Signals

For prototype like layouts, Märklin signals are very necessary. They have the realistic details, and, most important, function just like real signals. The signals "read" just like real ones, and when connected to the track current, can actually control train traffic.

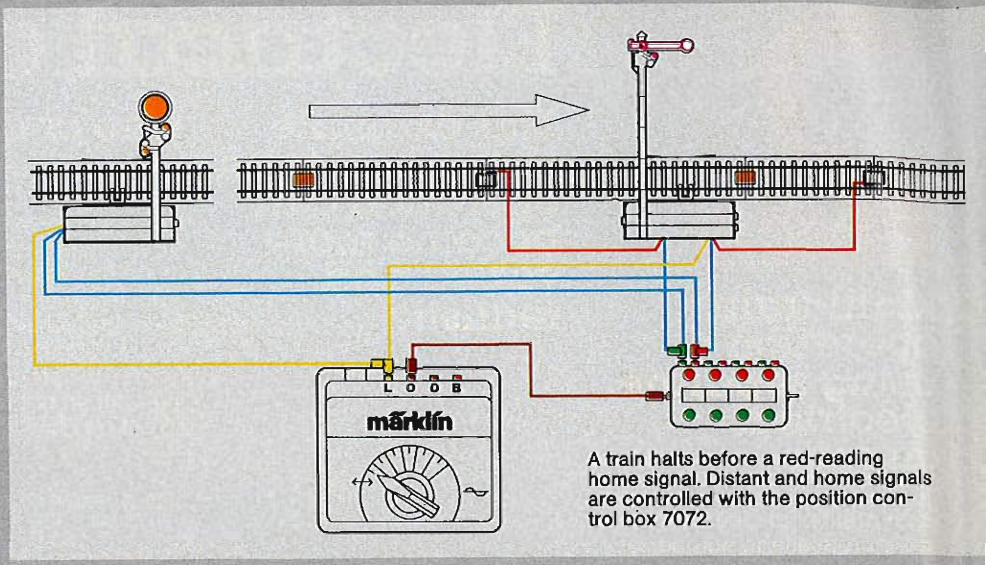
Home signals are usually placed on the right side of the tracks on right-hand running lines, and on the left side of the tracks on left-hand running lines. In terminal areas, they direct in and outgoing traffic for through tracks and for sidings. Out on the mainline, these signals protect the block behind them. Accordingly, for a layout one selects the type of signal required and positions it in the right place. When installing a block system, the connections with the track current (third rail or overhead) should be spaced far enough apart so that trains can safely brake within the block. The distant signal (also called advance signal) should be placed closer to the home signal.

Track closing signals (protective signals) are special signals for yard duty, and are usually placed at the entrance to a yard or siding area advising whether trains may enter the area or not. For optimal use of a yard area on a layout, a track closing signal should be used for every siding.

The universal remote control switch 7245 has the same electronic functions as the Märklin signals. For example it can control the track current on hidden sections, or it can operated as a multi-sided relay for function that are controlled by track contacts or position control boxes.



Signal positioning (i. e.: red, green, etc.) can be realistically directed with the position control box 7072. Using remote control tracks (pages 82 and 90), the trains themselves can position the signals – ideal for setting up a fully automatic block system. In both cases, the connection between the signal unit and the track current is revealed by the position of the signals.



A train halts before a red-reading home signal. Distant and home signals are controlled with the position control box 7072.

Usually used on tangents or in stations, where there are no sidings or branches.		Usually used near stations where trains may be switched from main track.		Usually used at station where diversion or direct routing is possible.			For controlling switching operations in stations.
7036 7039	7036 7039	7038 7040	7038 7040	7038 7041	7038 7041	7038 7041	7042 7042
7236 7239	7236 7239	7237 7240	7237 7240	7238 7241	7238 7241	7238 7241	7242 7242
Distant signal: "Halt" signal ahead Home signal: "Halt"	Distant signal: "Proceed" signal ahead Home signal: "Proceed"	Distant signal: "Halt" signal ahead Home signal: "Halt"	Distant signal: "Proceed slowly" signal ahead Home signal: "Proceed signal"	Distant signal: "Halt" signal ahead Home signal: "Halt"	Distant signal: "Proceed slowly" signal ahead Home signal: "Proceed slowly"	Distant signal: "Proceed" signal ahead Home signal: "Proceed"	Track closure signals: Left side means "Do not enter" Right side means "Entry permitted"

2.

Multi-train operation using separate electrical circuits

Each additional electrical circuit increases the number of ways trains can be controlled and operated.

Electrical circuits do not have to be circular. Sidings, branches, and marshalling yards can each have their own circuit.

An additional circuit can be used on grades. A transformer used for this purpose can regulate the speeds on the grade so ascending trains do not lose momentum, nor will descending trains go too fast. The speeds are controlled automatically.

Isolating circuits is simple: All that is required is the "third-rail" isolator 5022 (page 104) or 7522 (page 91) a transformer for each circuit (page 105) plus feeder tracks (page 82 for M-track and page 90 for K-track).

Electrical circuits

This example shows how train operation can become more varied and realistic:

One circuit

Two trains are powered by the same track current. They both run faster, slower, or change direction at the same time, by using the same transformer. Adding signals, one train can be halted while the other continues running. Trains "in the hole" (i. e.: stopped by a red signal) can not have their direction changed.

Two circuits

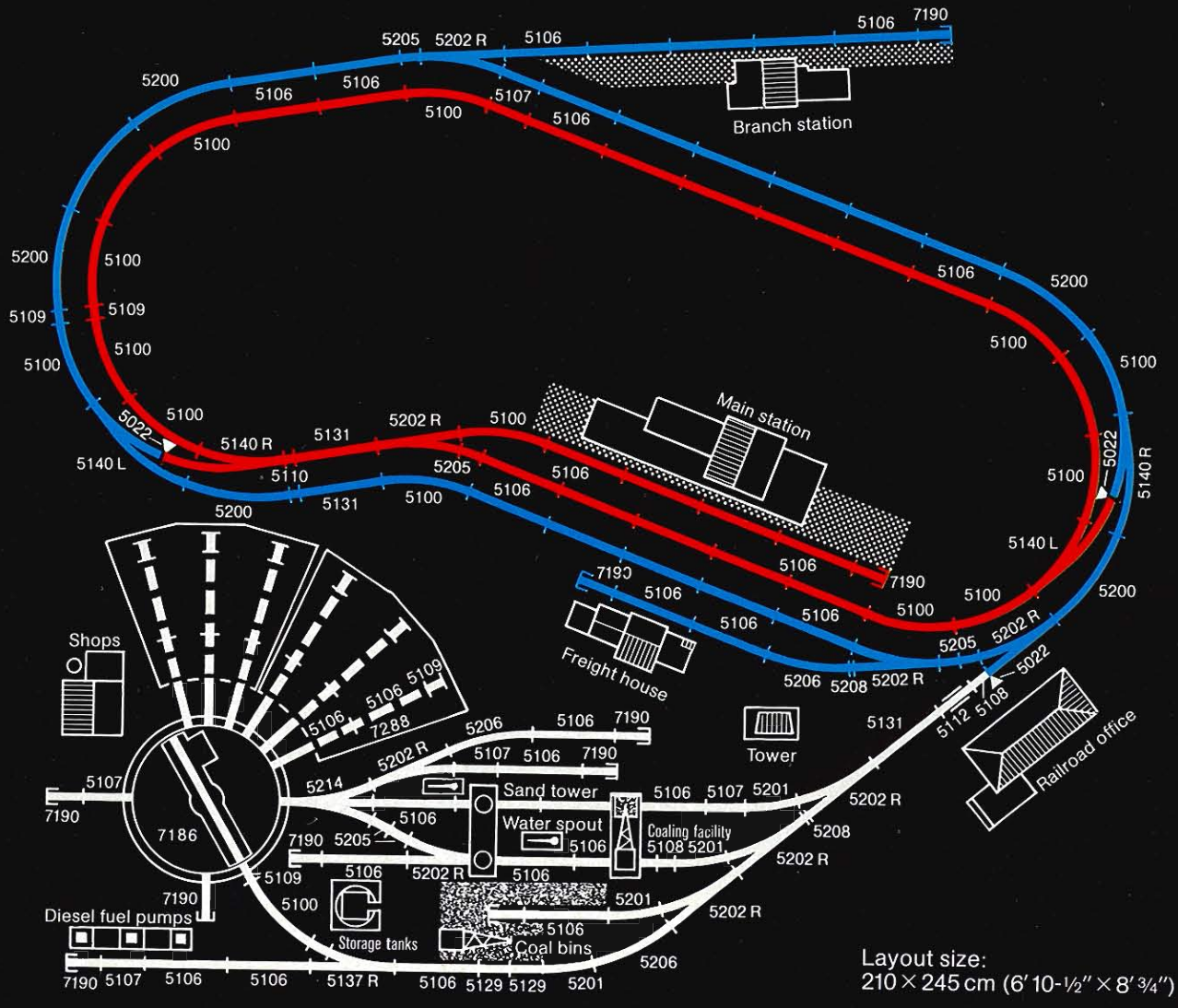
When the engine service facility tracks are on a separate circuit, locomotives can be shuttled and serviced at proper (i. e.: slower) speeds without affecting operation of the mainline.

Three circuits

When the outer parallel track is connected to a third circuit, railroad operation becomes even more realistic.

For example:

A railbus can operate at low speed on the inside track, while an express train blurs by on the outer track.



Layout size:
210 × 245 cm (6′ 10-½″ × 8′ ¾″)



Märklin magazine
Information for model railroaders
Back cover

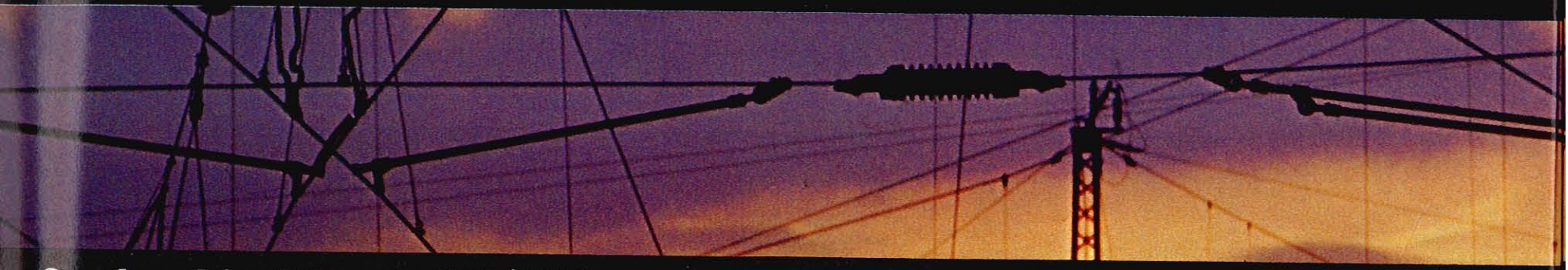
3. Catenary System

Multi-train operation with catenary system

Locomotives equipped with pantographs can pick up current as reliably from the overhead (catenary) as from the studs. To select either system, just adjust the lever on the engine. If the catenary is connected to a different transformer, it is possible to operate two trains independently of each other on the same track.

The catenary systems shown here are suitable for both K tracks and M tracks. The entire system is based on actual prototype practice. The sprung contact line supports at the masts ensure a reliable flow of current.

Practical snap-on connections, for example, of contact wires 7013 and 7023, enable the contact lines to be set at any length.



Overhead for M tracks 5100/5200



7009
Catenary mast · Basic element · Height 100 mm (4″)



7010
Feeder mast · For supplying current · Includes 2 leads and instructions · Height 100 mm (4″)



7012
Feeder mast for signals with one lead · Height 100 mm (4″)



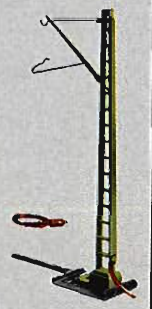
7201
Feeder mast for current supply · Includes red and brown lead · Additional brown lead · Built-in capacitor to suppress radio static · 1 mast required for each circuit · Instructions included · Height 100 mm (4″)

7005
Catenary set for train control with 7000 series signals which are not mounted on tower masts · Includes 2 feeder masts 7012, 2 insulator sections 7022 and 2 overhead line sections 7014

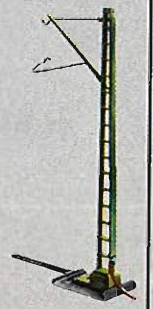
Overhead for K tracks 2200



7509
Catenary mast · Basic element for construction of an overhead on the 2200 tracks · Height 97 mm (3-⅞″)



7510
Feeder mast with red lead and plug attached to the mast · Brown lead with plug unattached · Includes instructions · Height 97 mm (3-⅞″)



7512
Feeder mast with red lead attached, for connecting overhead to home signals · Height 97 mm (3-⅞″)



7501
Feeder mast with red and brown leads attached · Includes capacitor to suppress radio static · One mast required for each circuit · Instructions included · Height 97 mm (3-⅞″)

7505
Catenary set for train control on 7200 signals not mounted to tower masts · Includes 2 feeder masts 7512, 2 insulator sections 7022 and 2 contact line sections 7014 · For use with 2200 track sections

All contact line sections are nickel plated.

7277
Crossing sections · For 2258, 2259, 2260, 2275, 5114, 5128, 5207, 5211, and 5215

7017
Cross-span · Spans 3 tracks · To be hooked to tower masts · Length 280 mm (11″)

7016
Cross-span · Spans 5 tracks · To be hooked to tower masts · Length 390 mm (1′ 3-⅜″)

7019
Contact line section for straight tracks only · Length 360 mm (1′ 2-¼″)

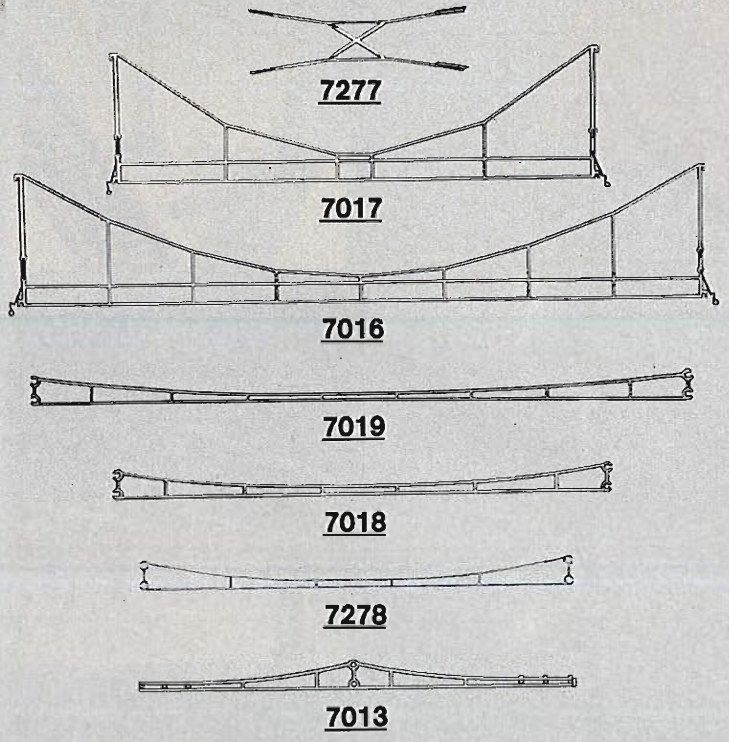
7018
Contact line section for straight and curved tracks · Length 270 mm (10-⅝″)

7278
Contact line section for straight and curved tracks · Length 235 mm (9-¼″)

7013
Contact line section · Designed especially for switches · Length 240 mm (9-½″)



Märklin overhead for K and M tracks



7277

7017

7016

7019

7018

7278

7013



7014
Contact wire section · Female portion for snap-on connection · Length 115 mm (4-½″)



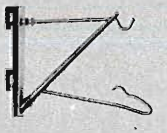
7015
Contact line section · Male portion for snap-on connection · Length 115 mm (4-½″)



7022
Insulator section · Male portion (for snap-on connection) for interrupting overhead current flow · Length 115 mm (4-½″)



7023
Adjustment section for snap-on connections · Length 100 mm (4″)



7525
Cantilever support arm for use with tower mast 7021 · Can hold one or two overhead lines



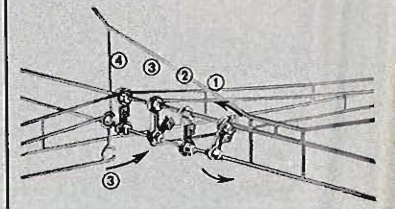
7511
Bridge mast · For attaching to sides of plastic bridges and ramps · Height 97 mm (3-⅞″)

7021
Tower mast with recesses for hooking on cross-spans 7016 and 7017 and the cantilever support arm 7525 · For tower mast with arc light see page 111 · Height with M tracks 157 mm (6-¹³⁄₁₆″) · Height with K tracks 154 mm (6-¹⁄₁₆″)



7003
Catenary system connector lead for connection to signals when tower masts are used, and for supplying current to any point · Length 600 mm (1′ 11-⅝″)

7004
Fastening kit · Includes 5 bolts, 5 nuts, and 5 washers · Ideal for use when usual methods of assembly are not possible



7006
Contact wire insulation · For insulating sections of contact line from cross-spans · One required for each track and cross-span · 15 × 6 mm (⅝″ × ¼″)

Advantages with Catenary

The fully functional Märklin catenary can be utilized as an additional circuit by having its own transformer. The operating possibilities on a layout are thereby greatly expanded.

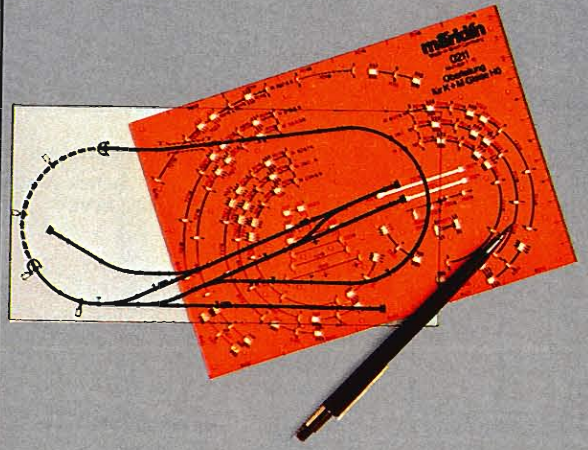
- On the same stretch of track, two trains can be operated totally independent of each other; i.e., completely different speeds and/or directions.
- Prototypical traffic patterns can be realized on a layout.
- By using the overhead for supplying train power, the third rail circuit can be used to supply a steady current for constant lighting.
- The towers and wires give a visually pleasing, realistic look to a layout.

These advantages are possibile on any size layout, large or small.



Planning

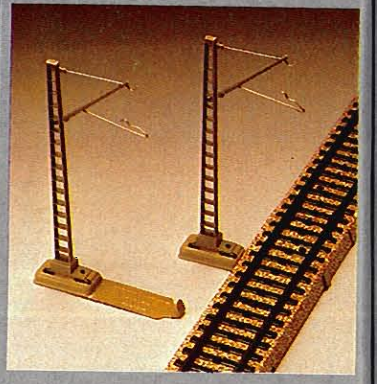
The best way to erect an overhead system on a layout is to begin planning with the catenary stencils 0211. Scaled 1:10, the stencils include all lengths of Märklin straights, and curves. When tracing, be sure to mark where the masts are to be placed. Important also, is that at crossings and switches, special wire sections such as the crossing section 7277 or the 7013 contact section for switches be used. Finally, the article numbers of the respective catenary parts should be marked while designing the overhead system.

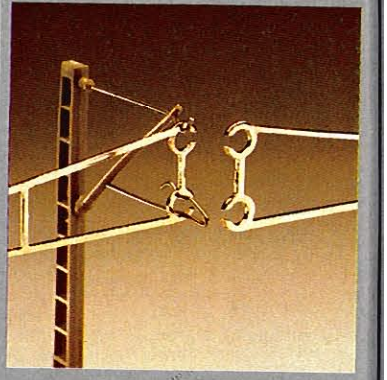


Installation

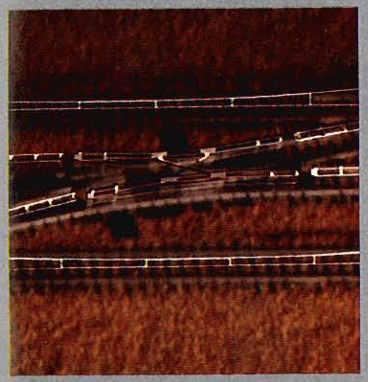
When installing the overhead, it is suggested to begin at crossings or switches. First add the crossing section 7277 over the crossing, or the contact section 7013 over the switches. Regular contact sections 7014 and 7015 are connected to these sections. The radius of the wires should always agree with the track radius when installing the overhead on curves.

Securing the mast 7009, 7010, 7012 or 7201 to M tracks



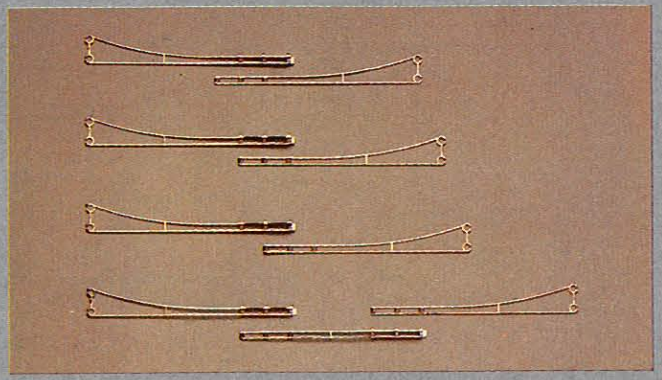


Connecting the contact wires to the masts



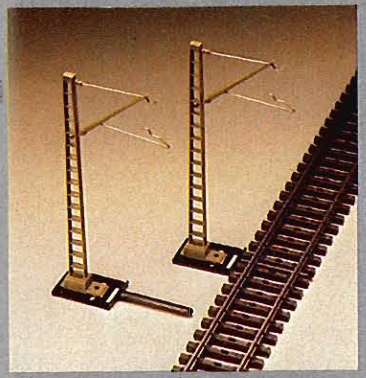
For lengthy straight sections, any combination of 7014, 7015 and 7023 may be possible for lengths between 177 mm (7") to 360 mm (1' 2-¼").

After the proper wires have been selected, then begin by installing the masts.



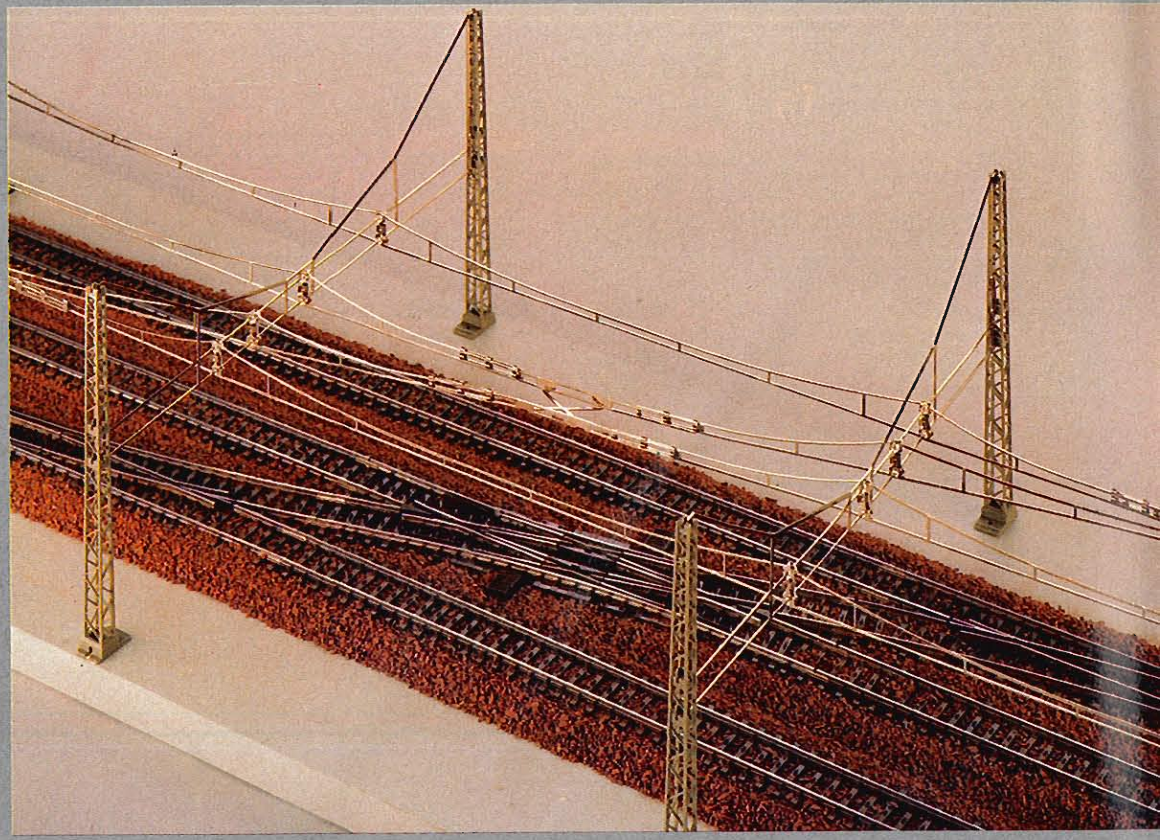
More about Layout Planning Page 78

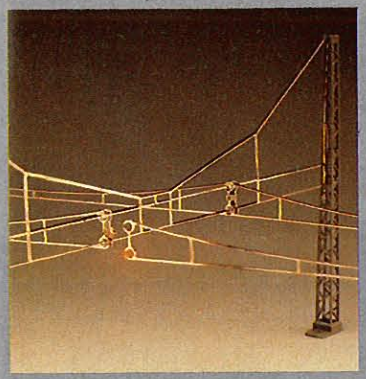
Securing the masts 7509, 7510, 7512 or 7501 to K tracks



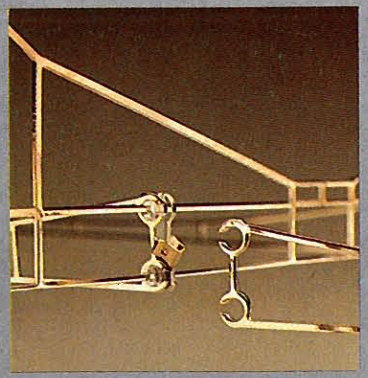
Single and double track lines can be spanned using masts 7009 or 7509; three tracks require the tower mast 7021 and cross span 7017. Four and five track lines are spanned with the tower mast 7021 and the cross span 7016. Six tracks require the cross span 7016 plus a support arm 7525, while seven tracks require the cross span 7016 and two support arms 7525.

On multi-track sections it is important to position the masts opposite from each other as in prototype.





Connecting the contact wires to cross spans with tower masts



The contact wire insulators 7006, which can also be installed on cross spans, permit separate circuits in the overhead system. An insulator section

7022 is used as the transition piece between two overhead circuits on the same track.

Simple Electrical Engineering

Märklin HO electric engineering is based on simple rules. Variable track voltage for locomotives and constant power for accessories are provided by transformers 6631, 6671, and those included with beginner sets. Color leads identify which wire is connected to which plug.

Solenoid-operated items such as switches or signals are normally controlled by activating a current return path. The position control box 7072 determines the position of the solenoid armature and, hence, the position of the switch or signal.



Wires

Copper wires consist of 24 separate strands 0.10 mm (0.004″) in diameter each, for an overall circumference of 0.19 mm² (0.03 sq. in.) This is strong enough to withstand a short circuit on a 40 VA transformator.

7100 **Wire** · Single core · Gray · 10 m (33′)

7101 **Wire** · Single core · Blue · 10 m (33′)

7102 **Wire** · Single core · Brown · 10 m (33′)

7103 **Wire** · Single core · Yellow · 10 m (33′)

7105 **Wire** · Single core · Red · 10 m (33′)

Standard colors for wires in Märklin circuits:

Red = Track current connection (transformer to center "rail" or overhead line)

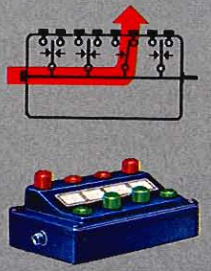
Yellow = Lights and solenoid-operated items

Brown = Ground lead from track (running rails) or from position control box to transformer

Blue = Return lead for solenoid-operated items to position control box or remote control track (with green, red, and orange plugs)

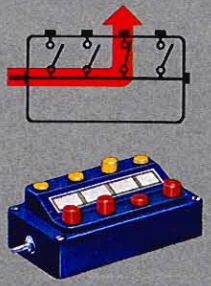
Accessories by remote control

Schematic of 7072 (with line 3 closed)



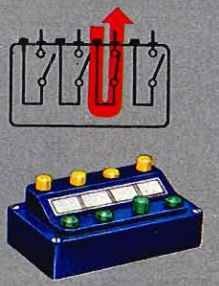
7072
Position control box with 8 sockets for connecting 4 double solenoid-operated items · Position buttons correspond to position of signals, switches, etc. · Length 80 mm (3-⅛″) · Width 40 mm (1-9⁄16″)

Schematic for 7210 (with line 3 closed)



7210
Control box for distributing track or accessory current on 4 different circuits using indicator buttons · Can be used for isolating as many as 4 sidings connected to a single track current · Length 80 mm (3-⅛″) · Width 40 mm (1-9⁄16″)

Schematic of 7211 (with line 3 closed)



7211
Control box for controlling 4 different track or light circuits using indicator buttons · Can be used to isolate up to 4 sidings connected to a single track current · Length 80 mm (3-⅛″) · Width 40 mm (1-9⁄16″)

Sockets



7111 = brown
7112 = yellow
7113 = green
7114 = orange
7115 = red
7117 = gray

Plugs with side sockets



7131 = brown
7132 = yellow
7133 = green
7134 = orange
7135 = red
7137 = gray



5004
Connector wire for center "rail" · Length 750 mm (2′ 5-½″)



5022
Center "rail" isolators · Strip of 5



7000
Staples · Bag of 50 · For securing wires to wooden bases



7209
Distribution strips · With 11 single-pole sockets · Size 50 × 20 mm (2-¾″)

Märklin heavy-duty transformers

Every Märklin transformer is completely safe: its insulation has been tested to several thousand volts. In addition, a built-in circuit breaker protects against overloads and shorts. All transformers include wire for plugging into conventional household outlets.

Locomotive speed is proportional to track voltage, i. e.: the further to the right the knob is turned, the faster the train goes. To reverse an engine, just turn the control knob to the left of zero and release. A short spurt of 24 V trips the reversing mechanism in the locomotives.

We guarantee trouble-free operation of Märklin railroads only when genuine Märklin transformers are used.

Märklin 16 VA and 30 VA transformers have outlets for supplying current to tracks, lights, and solenoid-operated items.

The transformers in the gift packs (pages 8–10) have the same features as those described here, the only difference is less power output.

Transformers must be protected from dampness and are not designed for outdoor operation.

For connection with household AC current only

Power consumption by locomotives and lights

A rule of thumb:
Add up VA of engines, subtract from transformer total; the remainder can be used for lights. For example: switcher 3000 and express steamer 3085 each require about 9 VA and express diesel 3021 about 12 VA. Any margin of power left after totalling up these VAs can be used for lights, allowing 1 VA for each bulb. Further details and more examples are in booklet 0380 "Die Märklin-Bahn HO und ihr großes Vorbild".

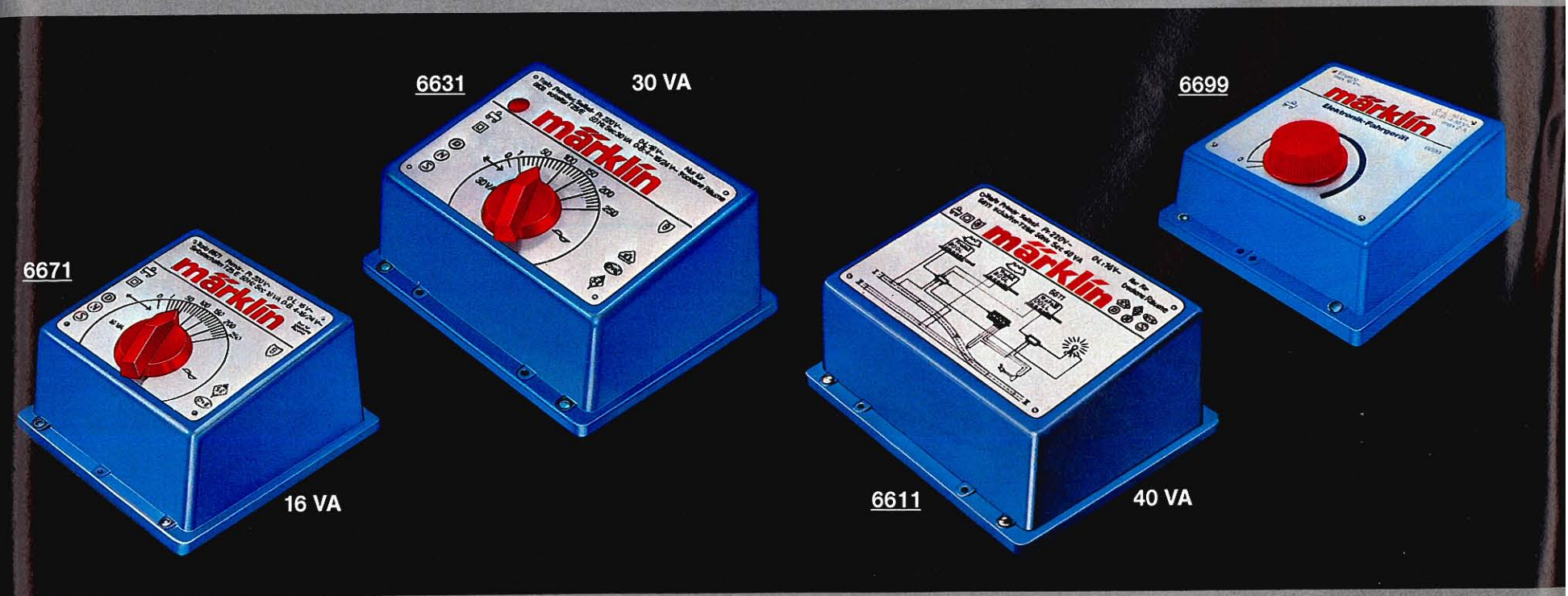
6671 220 Volt
6660 100 Volt Japan
6667 110 Volt (60 Hz) USA
6669 240 Volt
Transformer · Output 16 VA · Track current adjustable between 4 and 16 V · Lighting voltage 16 V · Plastic housing · Weight 1.2 kg (2½ lb) · Dimensions 125 × 135 × 75 mm (5″ × 5-⅜″ × 3″)

6631 220 Volt
6620 100 Volt Japan
6627 110 Volt (60 Hz) USA
6629 240 Volt
Transformer · Output 30 VA · Track current adjustable between 4 and 16 V · Lighting voltage 16 V · Plastic housing · Red pilot light · Weight 2.1 kg (4¾ lb) · Dimensions 158 × 135 × 75 mm (6-½″ × 5-⅜″ × 3″)
= 60015

6611 220 Volt
Transformer for lights and solenoid-operated items · Output 40 VA · Voltage output approximately 16 V AC · Plastic housing · Weight 2.0 kg (4½ lb) · Dimensions 158 × 135 × 75 mm (6-½ × 5-⅜″ × 3″)

6699
Electronic power pack for prototype operation · For use with Märklin lighting transformer 6611 or it can be connected to lighting sockets of a 30 VA Märklin transformer · Lighting voltage 16 V · Electronic control of engine speed and direction · Maximum permitted load 1.8 amperes · Plastic housing · Weight 315 grams (11 oz) · Dimensions 125 × 135 × 55 mm (5″ × 5-⅜″ × 2-⅛″) · Use Märklin wires and plugs to extend connector leads if necessary

Ideal for HO gauge:
Locomotives can now operate prototypically, i. e.: gradual starts, gentle braking, and occasional slow running.



Accessories

Locomotive maintenance facilites are some of the most interesting aspects of railroad operation, whether prototype or model. The layout and functions of a maintenance depot depend on the type of locomotive being serviced.

(Note: the BW, often seen in German railroad publications, is the German abbreviation for their term for locomotive maintenance facilities, "Bahnbetriebswerk".)

Steam locomotive maintenance facilities
After each trip, an engine usually coals up, then it is spotted over an ash pit. After cleaning out the ashes, it is moved to a water spout (on German railroads the water is stored and pumped from underground, American style water towers are not used, as a rule) to refill the tender. Fresh sand is also poured in the sand domes found atop the boilers (sand is needed for traction on slippery rails). The locomotive is then ready for service and is either spotted on a ready track or stored in the roundhouse, rear end first.

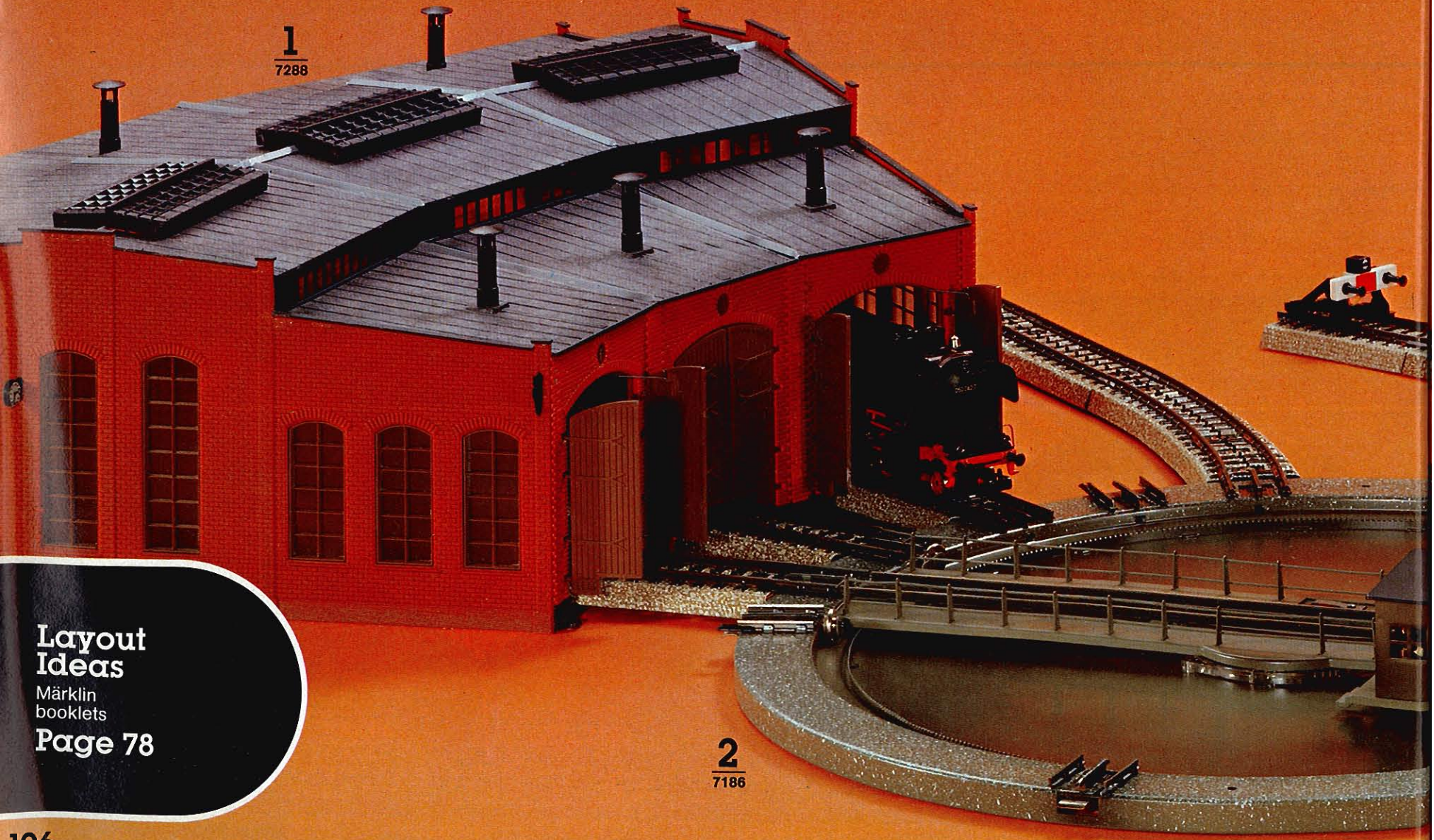
1

7288 · Locomotive roundhouse kit · 3-bay roundhouse with molded plastic parts · Operating track doors · (Track not included) · Dimensions 442×350 mm (1′ 5-⅜″) · Height 128 mm (5″)

2

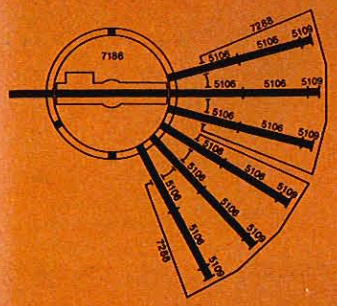
7186 · Operating turntable · Operates by remote control · Bridge turns either direction · Outside diameter 360 mm (1′ 2-⅛″) · Control switch and wires included · Spoke tracks not in allignment with turnable bridge receive no current

Adapter track 2291
(page 90) for connecting K-tracks 2200 to the turntable 7186.

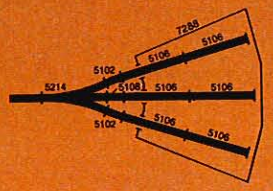


Layout Ideas
Märklin booklets
Page 78

This illustration shows a track diagram for the turntable and two roundhouses. Design based on prototype.



Märklin's 3-bay roundhouse 7288 can also be connected to a siding with a 3-way switch 5214.



3

7051 · Operating crane with magnet · Operates by remote control · Crane rotates 360° · Separate motors rotate crane and lift hook · Electrically operated magnet can lift iron or iron-containing objects · Boom elevation adjustable by hand · Control cab illuminated when magnet powered · Height 260 mm (10-¼"). Base measures: 90 × 90 mm (3-½" × 3-½") · 1 combined position control and on/off switch panel

= 60000

This crane introduces a touch of realism to a layout. The operating magnet loads and unloads gondolas and other open-top freight cars. Also, with a little ingenuity, this crane can lift non-metallic items (just place a few small steel screw strategically). Or remove the magnet a la prototype practice, and use the big hook. Truly, this crane offers unlimited possibilities for bringing "life" to a layout.

Diesel-era Engine Facilities

A major benefit of diesel and electrics is that they need very little servicing. Diesels are fueled up at pumps and what little water they need is easily replenished with a simple hose connection. Electrics require almost no servicing. Also, since European diesels and electrics are almost all bi-directional with equal speeds either way, they do not require turning facilities. Thus space saving transfer tables are used in place of turntables near engine houses.

Provide prototype-like facilities for your diesels, add a diesel-era depot to your Märklin layout.

1

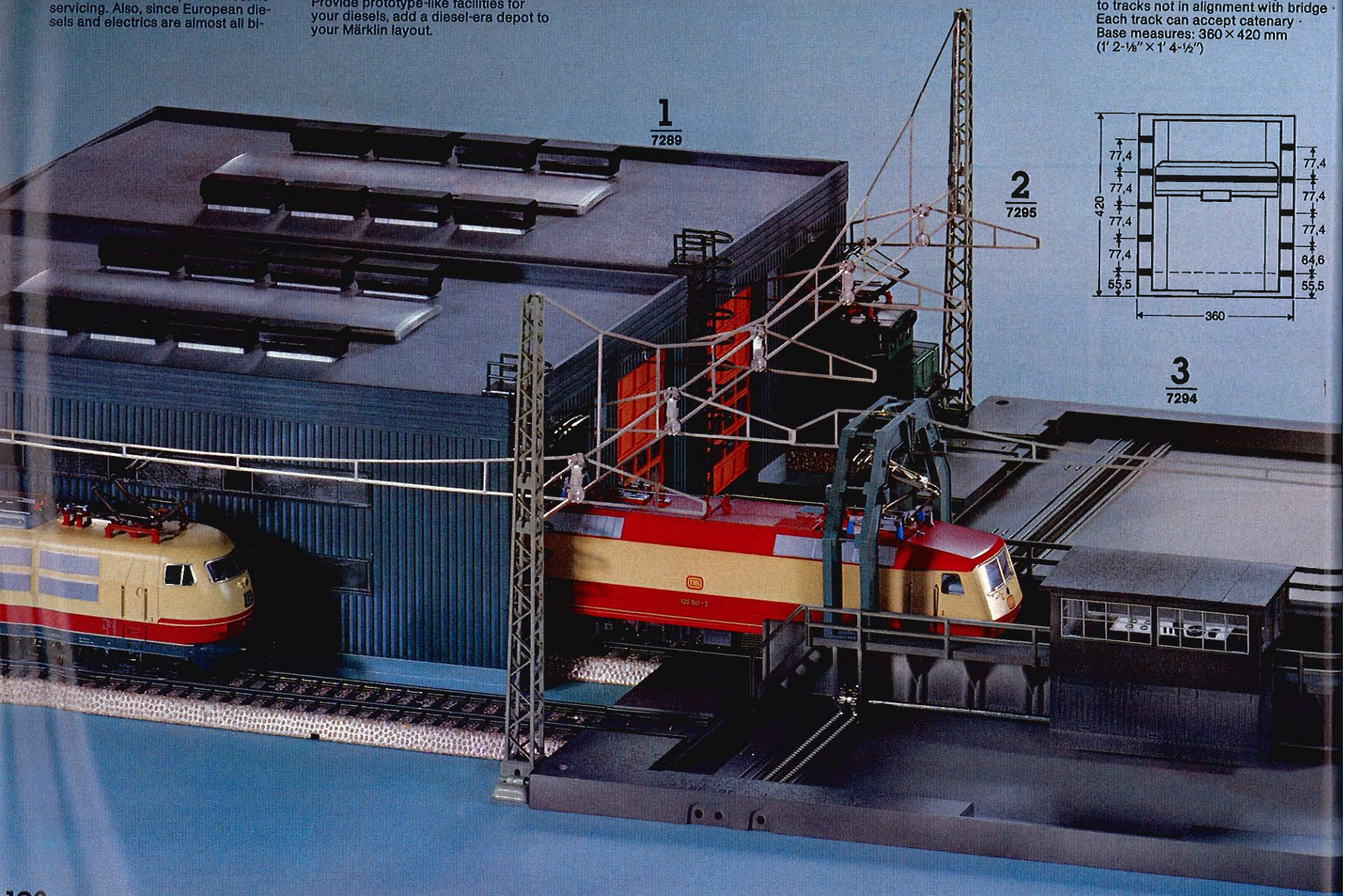
7289 · 2-bay engine house kit · Features pre-colored plastic parts · 4 hand-operated track doors · (Track sections not included) · Measures: 280 × 150 mm (11″ × 6″)

2

7295 · Overhead kit for transfer table · Includes 2 overhead support gantries · One piece catenary wire with leads soldered on · 10 short catenary wires for spur tracks

3

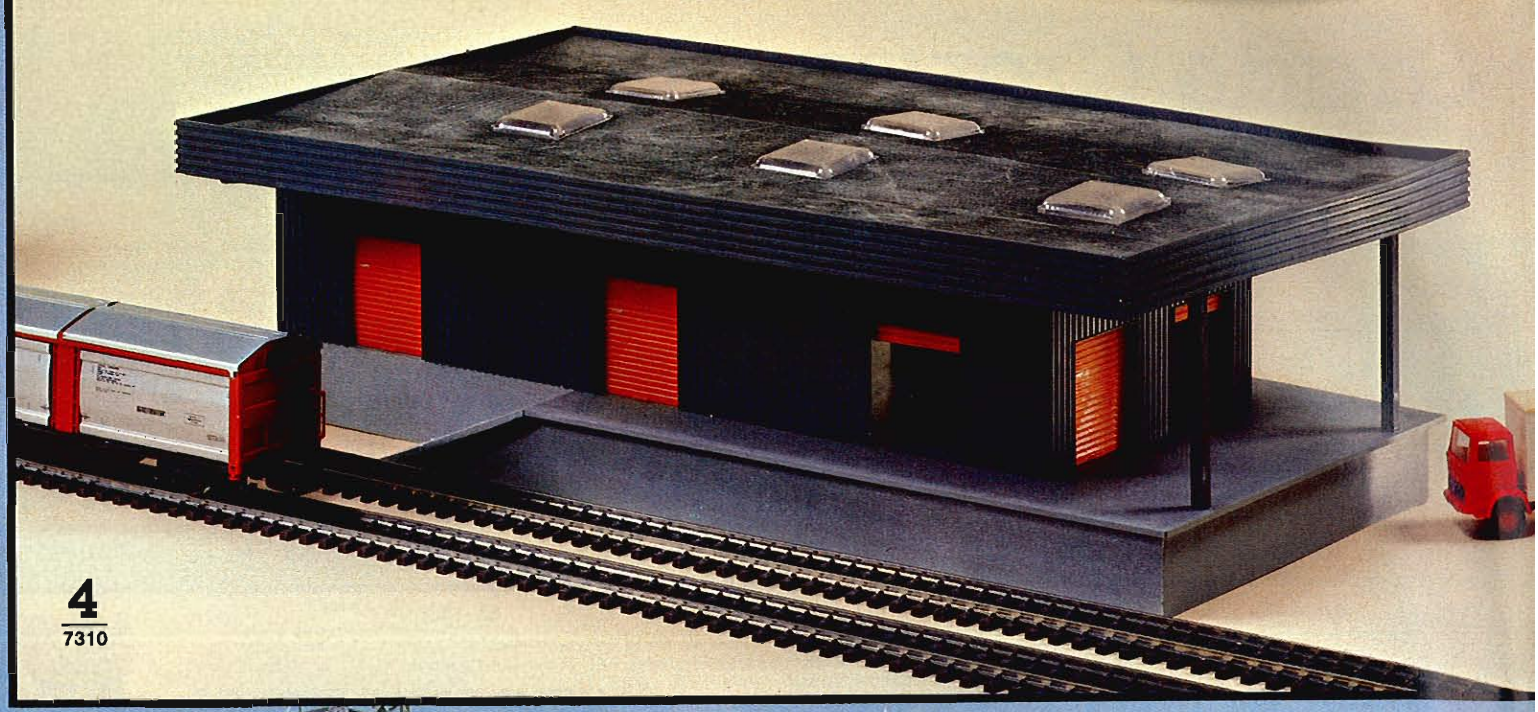
7294 · Transfer table · 2 approach tracks and 8 stall tracks · Mates with engine house 7289 · Includes operating switch · Operated by electric motor · Current automatically cut off to tracks not in alignment with bridge · Each track can accept catenary · Base measures: 360 × 420 mm (1′ 2-⅛″ × 1′ 4-½″)



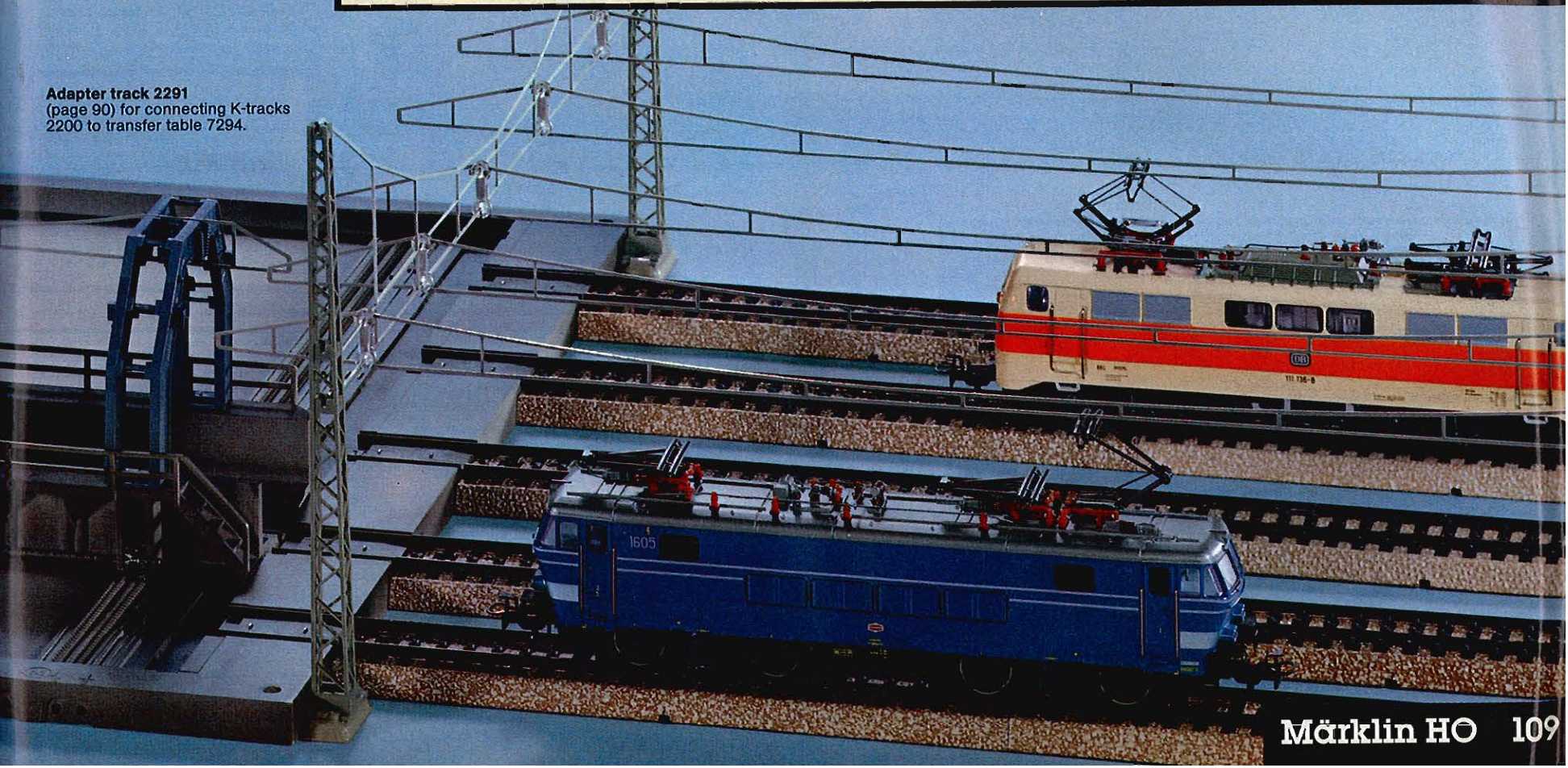
4

7310 · **Freight house kit** · Features pre-colored plastic parts · Modern prototype · 8 hand-operated roller doors · Measures: 355 × 200 mm (1′ 2″ × 7-⅞″)

The prototype for this kit stands at Maschen, Germany, site of Europe's most modern classification yard.



Adapter track 2291
(page 90) for connecting K-tracks 2200 to transfer table 7294.



Grade Crossings

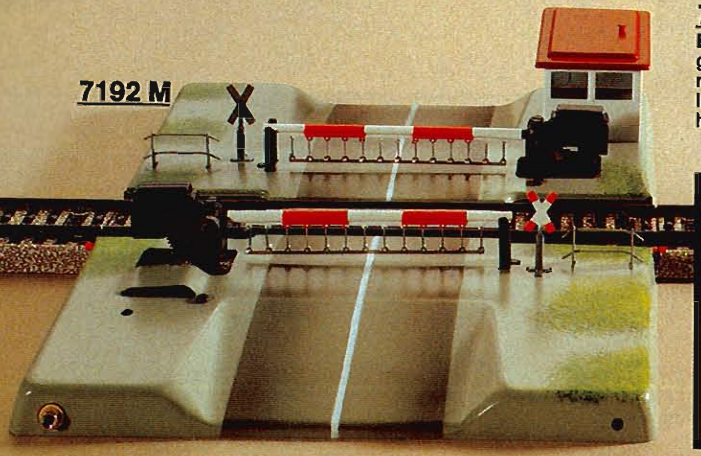
Fully automatic grade crossings

The gates close automatically when an approaching train trips the contacts. As soon as the last car clears the contacts, the gates open automatically. The length of the contact track section can be varied as required. For M-tracks use 5115 and 5116, for K-tracks use regular track sections.



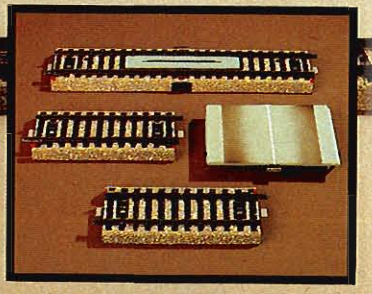
7192 M

Fully automatic grade crossing · For M-track · Includes 2 solenoid-operated gates, watchman's shanty, crossing bucks, and 2 lengths of contact track sections · Base measures: 180 × 90 mm (7-1/8″ × 3-9/16″) · (No other track sections included)



7193 M

Extension set for fully automatic grade crossing 7192 · One set required for each additional track · Includes set of contact tracks plus highway extension



Contact track sections

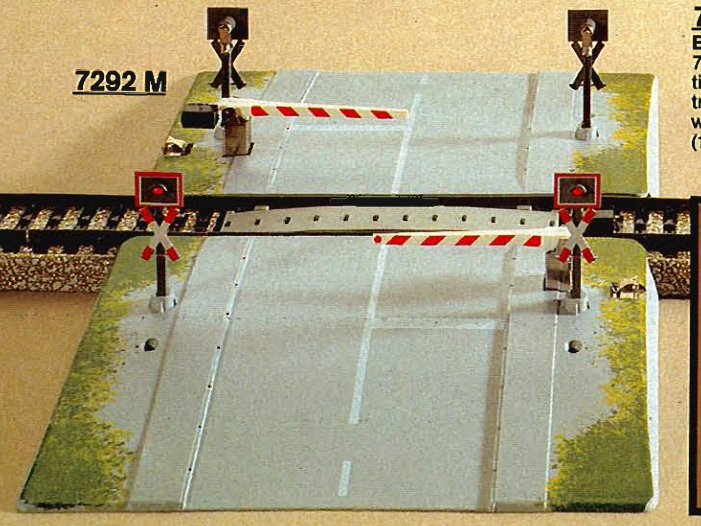
These M-track sections, 5115 and 5116, are used to extend the contact track included with grade crossings 7192 and 7292. Note: the 5115 and 5116 are the **only** tracks that can extend the activation range of the crossing gates.

5115
Straight · Length 180 mm (7-1/8″)



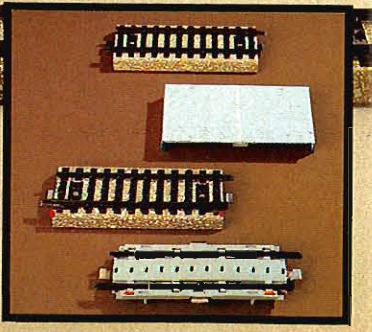
5116
Curved · Radius 360 mm (1′ 2-1/8″)





7293 M

Extension set for grade crossing 7292 · One set required for each additional track · Includes: set of contact track sections, plus a length of highway adjustable between 43 mm (1-11/16″) and 78 mm (3-1/16″)



7292 M

Fully automatic grade crossing · Half-length crossing gates · For M-track · Includes 2 solenoid-operated gates, 4 red warning lights (activated when gates are down), and a set of contact tracks (length of one and one-half straight tracks) · Base measures: 137 × 95 mm (5-3/8″ × 3-3/4″) · (No other track sections included)

= 60201

Lighting

These lights can be switched on and off by using control boxes 7210 or 7211 (page 104). The lights can also be activated by a passing train. For more information, see signal manuals 0342 M or 0361 K (page 94).

7046

Arc lamp with lattice mast · Can be used with M-track overhead · Height 192 mm (7-9/16″) · Base measures: 14 × 28 mm (9/16″ × 1-1/8″)

= 60010

7048

Arc lamp · Height 156 mm (6-1/8″) · Base diameter: 29 mm (1-1/8″)

= 60010

7283
Floodlight · Mounted on lattice mast · Includes base plate · Can be used with overhead systems · Height 170 mm (6-¾")
= 60000

7280
Street lamp · Height 117 mm (4-⅝") · Base diameter: 25 mm (1")
= 60000

7281
Platform light · 2 lamp arms · Height 97 mm (3-⅞") · Base diameter: 25 mm (1")
= 60000

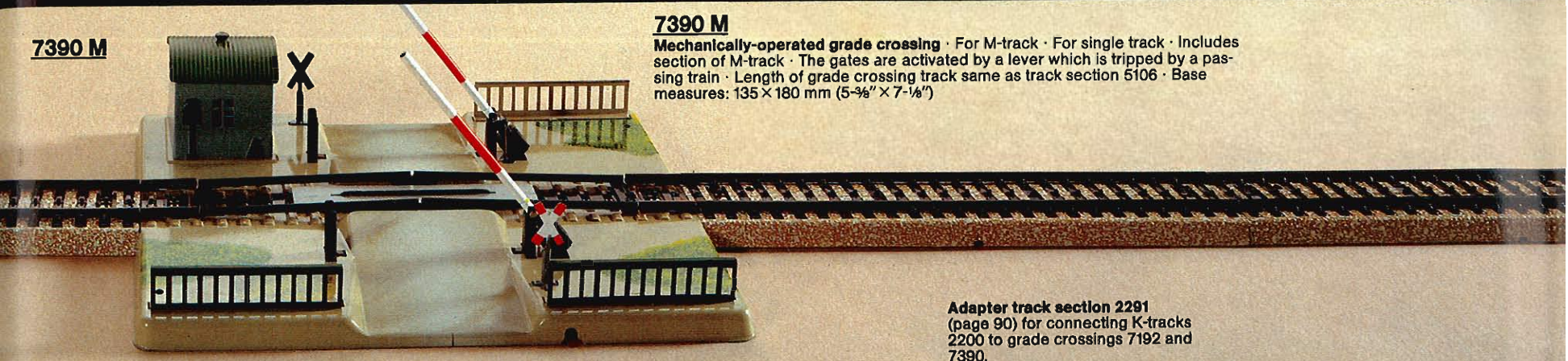


7282
Twin-lamp street light · 2 lamp arms · Height 120 mm (4-¾") · Base diameter: 25 mm (1")
= 60000

7284
Park light · Height 63 mm (2-½") · Base diameter: 15 mm (⅝")
= 60000

7047
Modern streetlight · Height 127 mm (5") · Base diameter: 27 mm (1-1/16")
= 60010

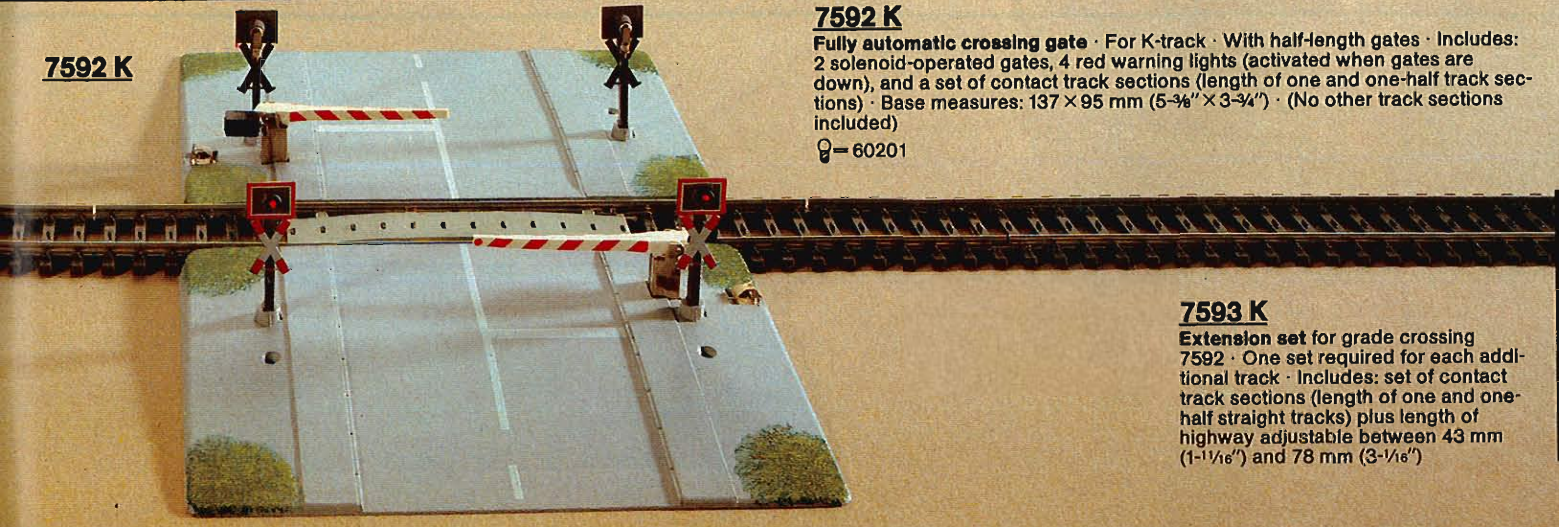
7390 M



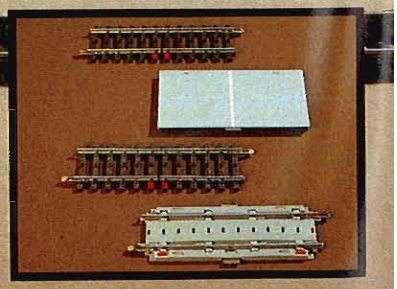
7390 M
Mechanically-operated grade crossing · For M-track · For single track · Includes section of M-track · The gates are activated by a lever which is tripped by a passing train · Length of grade crossing track same as track section 5106 · Base measures: 135 × 180 mm (5-⅜" × 7-⅛")

Adapter track section 2291 (page 90) for connecting K-tracks 2200 to grade crossings 7192 and 7390.

7592 K



7592 K
Fully automatic crossing gate · For K-track · With half-length gates · Includes: 2 solenoid-operated gates, 4 red warning lights (activated when gates are down), and a set of contact track sections (length of one and one-half track sections) · Base measures: 137 × 95 mm (5-⅜" × 3-¾") · (No other track sections included)
= 60201



7593 K
Extension set for grade crossing 7592 · One set required for each additional track · Includes: set of contact track sections (length of one and one-half straight tracks) plus length of highway adjustable between 43 mm (1-11/16") and 78 mm (3-1/16")

Bridges
more tracks in less space

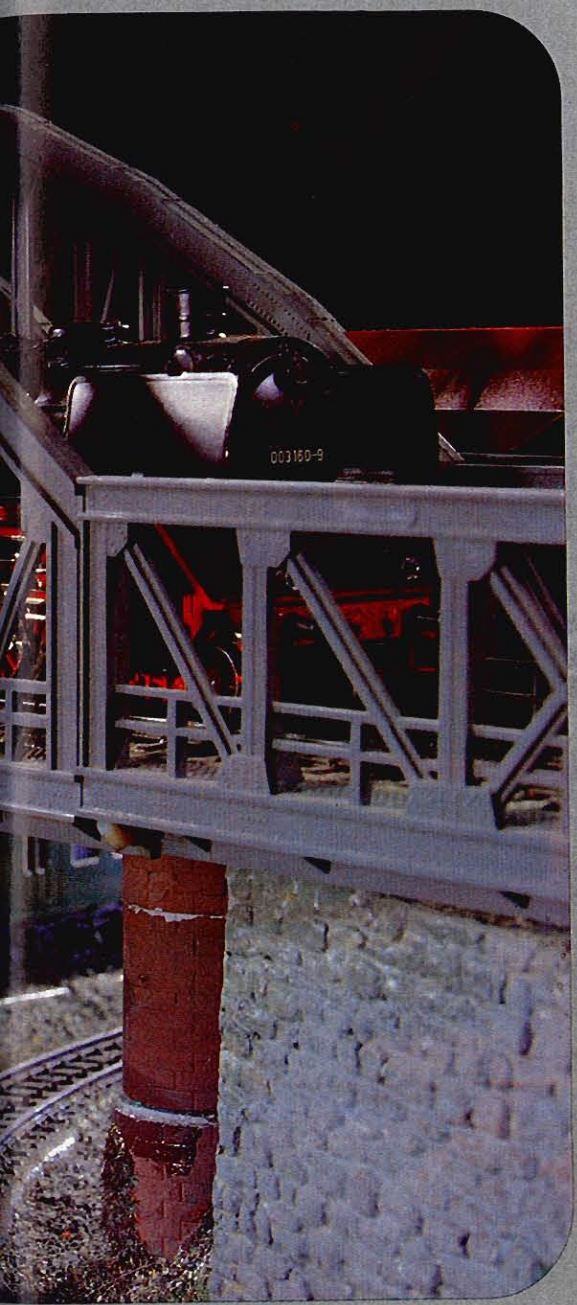
Bridges and ramps add beauty and versatility to model railroads. For example: valleys, roads and urban areas can be bridged. Most importantly, however, bridges enable more track to be added to a same given area.

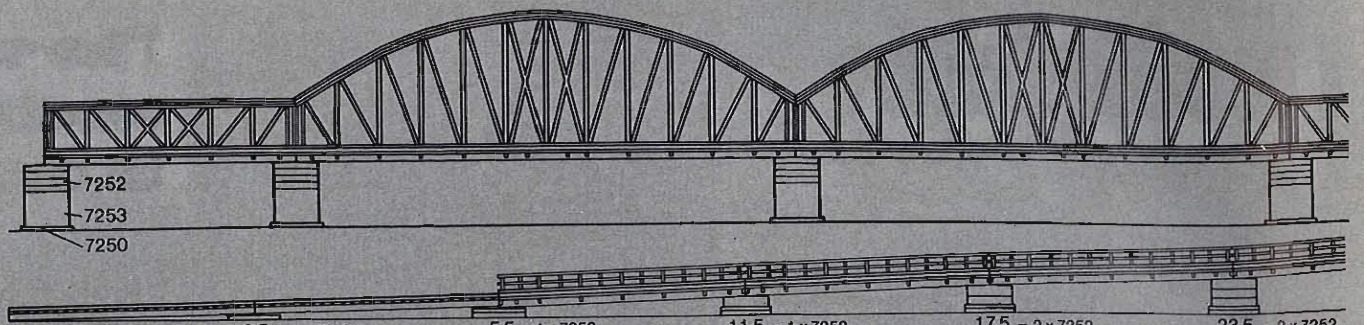
With Märklin bridges, any size or combination of bridges and ramps can be built. The pillar sections 7252 and 7253 interlock, enabling pillars to be constructed to any heights in increments of 6 mm (¼"). By pairing together the base plates 7250 and 7251, it is possible to raise pillar heights in increments of 3 mm (⅛"). Flat head wood screws 7599 are recommended for securing pillar sections and plates.

Detailed instructions for the assembly of bridges are included with bridges 7262 and 7263.



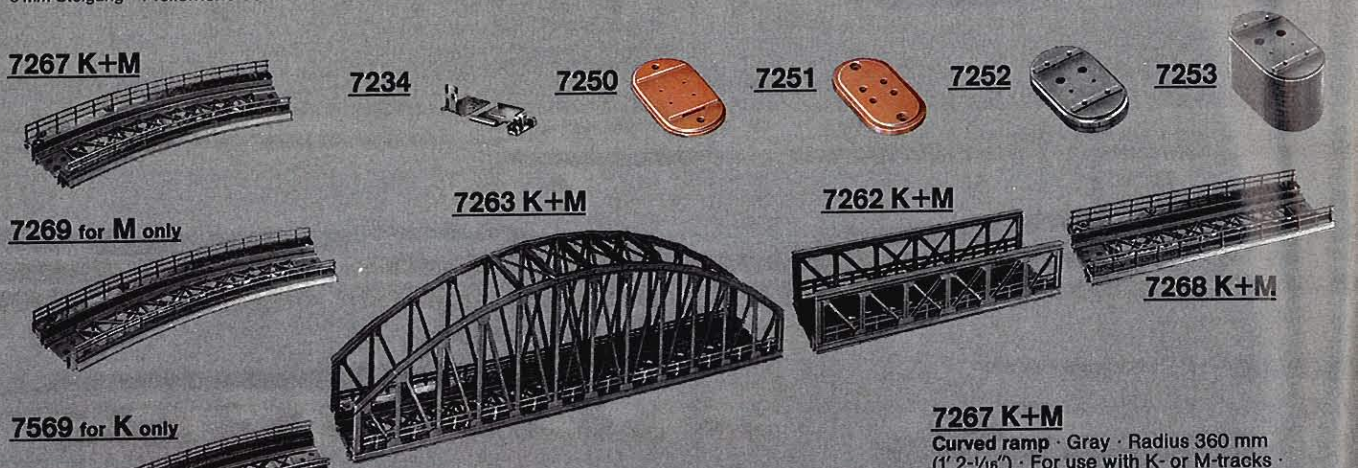
Examples of bridges and ramp construction





0	2,5 = 1 x 7250	5,5 = 1 x 7250 1 x 7251	11,5 = 1 x 7252 1 x 7250 1 x 7251	17,5 = 2 x 7252 1 x 7250 1 x 7251	23,5 = 3 x 7252 1 x 7250 1 x 7251
6 mm Steigung	Pfeilerhöhe bei M-Gleisen				
0	2,5 = 1 x 7250	2,5 = 1 x 7250	8,5 = 1 x 7252 1 x 7250	14,5 = 2 x 7252 1 x 7250	20,5 = 3 x 7252 1 x 7250
6 mm Steigung	Pfeilerhöhe bei K-Gleisen				

0	2,5 = 1 x 7250	5,5 = 1 x 7250 1 x 7251	11,5 = 1 x 7252 1 x 7250 1 x 7251	20,5 = 3 x 7252 1 x 7250	29,5 = 4 x 7252 1 x 7250 1 x 7251
9 mm Steigung	Pfeilerhöhe bei M-Gleisen				
0	2,5 = 1 x 7250	2,5 = 1 x 7250	8,5 = 1 x 7252 1 x 7250	17,5 = 2 x 7252 1 x 7250 1 x 7251	26,5 = 4 x 7252 1 x 7250
9 mm Steigung	Pfeilerhöhe bei K-Gleisen				



7262 K+M
Truss bridge · Gray · Can be used in conjunction with through bridge 7263 · For use with K- or M-tracks · Includes 3 clips for securing K-tracks · Instructions · Height 45 mm (1-3/4") · Length 180 mm (7-1/8")

7263 K+M
Through bridge · Gray · For use with K- or M-tracks · Includes 6 clips for securing K-tracks · Instructions · Center height 117 mm (4-5/8") · Length 360 mm (1' 2-1/8")

7234
Base plate · For securing 7200 series signal masts to bridges

7250
Base plate · For pillar foundation · Light brown · 2.5 mm (1/10") thick

7251
Base plate · Should only be used in conjunction with 7250 · Light brown · 3 mm (1/8") thick

7252
Pillar sections · 6 mm (1/4") high · Gray · Suitable for building ramps in 6 mm (1/4") increments

7253
Pillar sections · 30 mm (1-3/16") high · Gray

7267 K+M
Curved ramp · Gray · Radius 360 mm (1' 2-1/16") · For use with K- or M-tracks · Includes 3 clips for securing K-tracks · Length and radius same as track sections 2221 and 5100

7268 K+M
Straight ramp · Gray · For use with K- or M-tracks · Includes 3 clips for securing K-tracks · Length 180 mm (7-1/8")

7269 for M only
Curved ramp · Gray · Radius 437.4 mm (1' 5-1/8") · For use with 5200 M-track only · Length and radius same as track section 5200

7569 for K only
Curved ramp · Gray · Radius 424.6 mm (1' 4-3/4") · For use with K-track only (standard circle II, see page 91) · Includes 3 clips for securing track · Length and radius same as track section 2231

märklin
mini-club

The smallest electric railway in the world



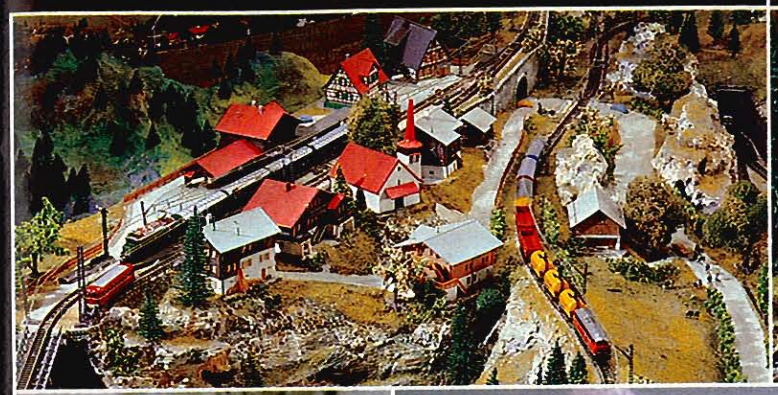
The best gift idea in the world

mini-club trains are an excellent gift idea for men. Deciding what to give is no problem since the mini-club program includes engines, cars, and much more.



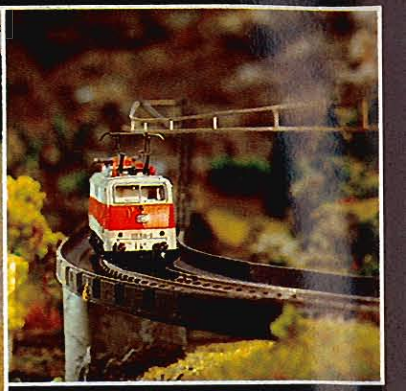
1982. Märklin's mini-club is ten years old and is an integral part of the fabulous world of model railroading. It has brought a new dimension to the hobby and its stunning, yet operable miniatures are treasured as masterpieces.

mini-club continues to grow as more modelers opt for this intriguing scale. Besides pure fascination, there are many advantages to mini-club. In fact, it is hard to believe how much railroading can fit in so small a space.









The fully operational overhead system adds even more fun to a layout. A prototypically correct electrified mainline enables one to run two trains, totally independent of each other, on the same track.







Accessories enrich a mini-club layout considerably. To really appreciate the wonder and magnificence of a mini-club train is to see it operate on a fully scenicked layout as the little trains ply the routes between city and country.

Model size Z
Gauge 6.5 mm (1/4")
Scale 1:220

Beginner Sets

Enjoy the maxi-pleasures of mini-club trains

1

8163 S 220 Volt
8164 S 100 Volt Japan
8165 S 110 Volt (60 Hz)
8166 S 240 Volt

Freight train with power pack · Includes: 1 tank engine (0-6-0T) 8800, 1 box car 8606, 1 low-side gondola 8610, 1 straight track 8500, 4 curved tracks 8520, 6 curved tracks 8521, 1 feeder track 8590 and 1 power pack · Train measures 160 mm (6-5/8")

Both beginner sets can be extended into larger layouts by using the "SET" program, and/or adding catenary, signals, accessories and your own imagination!

2

8158 220 Volt
8159 100 Volt Japan
8160 110 Volt (60 Hz)
8161 240 Volt

Freight train with power pack · Includes: 1 tank engine (2-6-0T) 8895, 1 beer car 8603, 1 box car 8605, 1 box car 8606, 1 freight train baggage car 8609, 19 straight tracks 8500, 4 curved tracks 8520, 6 curved tracks 8521, 1 double-slip switch 8560, 1 pair remote controlled switches 8561, 1 right-handed remote control switch 8561, 1 feeder track 8590, 2 curved tracks 8591, 3 bumpers 8991, 1 water spout, 1 position control box 7072, 1 distribution strip 7209, leads, plugs, sleeves, and 1 power pack · Train measures 273 mm (10-3/4")



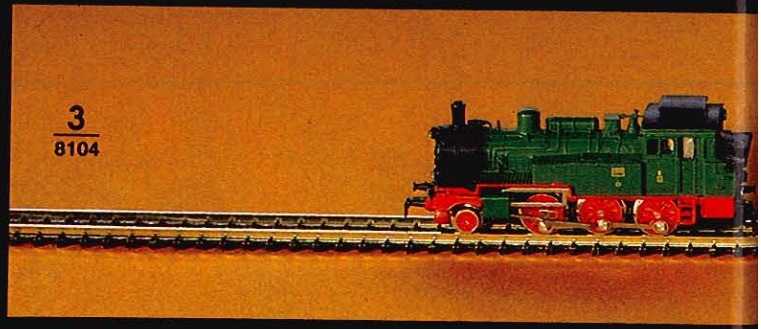


Train Sets

Train after Train Gift Ideas

mini-club train sets are "dream" gifts – beautifully packaged and thoughtfully arranged, these, sets often include items not available separately.









3

8104 · Passenger train of the former Prussian State Railways · Includes: 1 tank engine (series T 12, built for passenger service), 1 6-wheel baggage car, and 4 6-wheel coaches (one 2nd class, one 2nd and 3rd class, one 3rd class, and one 4th class) · Train measures 420 mm (1′ 4-½″)

These cars feature accurate colors and stenciling. Cars are not available separately.

The official name of the Prussian railways was: Königliche Preußische Eisenbahnverwaltung (Royal Prussian Railway Administration), often called KPEV for short.

■ At the beginning of the 20th century, Prussian passenger trains were made up of 6-wheel (3 axle) compartment cars. In those days, trains were the only reliable means of transportation and these compartment cars were the mainstay of passenger service.

A benefit of the compartment cars was quick entraining and detraining. At that time, there were 4 classes of service based on seating comfort. To help passengers find their cars, each class hat its own livery and was also distinguished by Roman numerals.

The exterior color for 1st and 2nd class cars was dark green, for 3rd class rustbrown, and 4th class dark gray.

4

8101 · Push-Pull train · Includes: 1 E 111 electric locomotive, 1 commuter coach 8716, 1 commuter coach 8717, 1 commuter combine with engineer's compartment 8718 · The locomotive and combine car have operational direction lights so that the train end going forward will show the prototypically correct 3 white lights, while the other end shows the two red lights · Train measures 449 mm (1′ 5-¾″)

Note: Only the locomotive included with this set has this special directional light feature. Engine not available separately.

This train set is a model of a typical German commuter train (Nahverkehrszug) seen regular service from Flensburg to Konstanz.

5

8102 · Express train · Includes: 1 steam engine (4-6-2) 8892, 2 coaches 8730, and 1 baggage car · Train measures 372 mm (1′ 2-¾″)

The baggage car is not available separately.

■ The first S 3/6 locomotives were based in Munich until 1941 and were the backbone of passenger service in Bavaria, powering limiteds to Lindau, Ulm, Würzburg, Nürnberg, Regensburg, Salzburg, and Kufstein.

Note: Express trains are called D-Züge in German. The D stands for Durchgang (Through) and was originally meant to advertise that the train had diaphragms enabling safe passage between cars while train is in motion.

6

8103 · Track work train · Includes: 1 diesel switcher 8864, 1 crane car 8621, 1 low-side gondola 8610 with boom support, 1 low-side gondola 8610 with stacks of crossties, 1 low-side gondola 8610 with rail sections, 2 high-side gondolas 8622 loaded with ballast, and 1 crew car · Train measures 440 mm (1′ 5-¼″)

■ Construction trains have varied consists, e.g., the number of crew and work cars, depending in the type of work (MOW, B&B, etc) to be done. If the trains will be working far from major terminals, retired sleepers and diners are added for the convenience of the workers.



Steam Engines

Illustrations shown actual size, 1:1

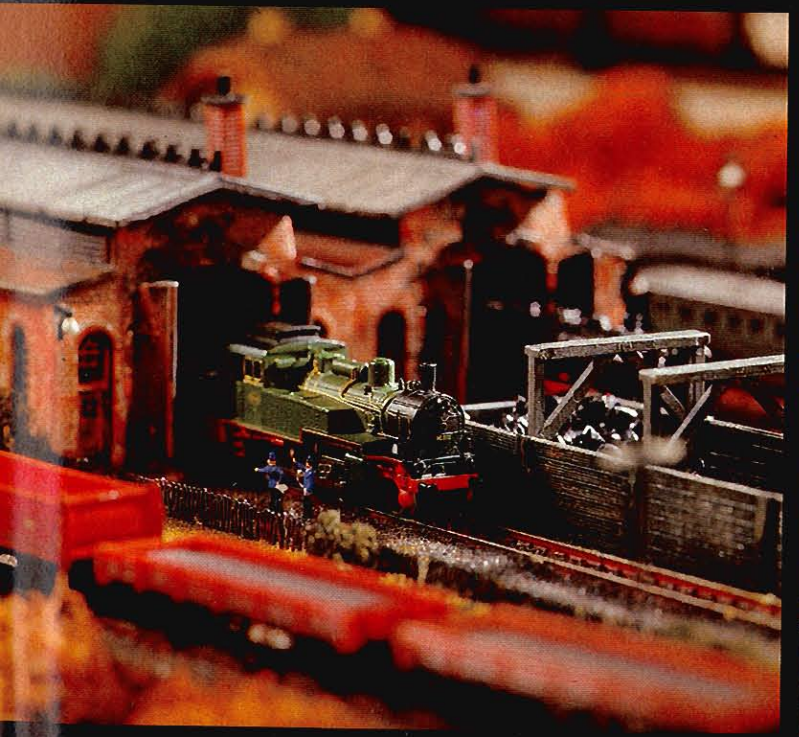
1

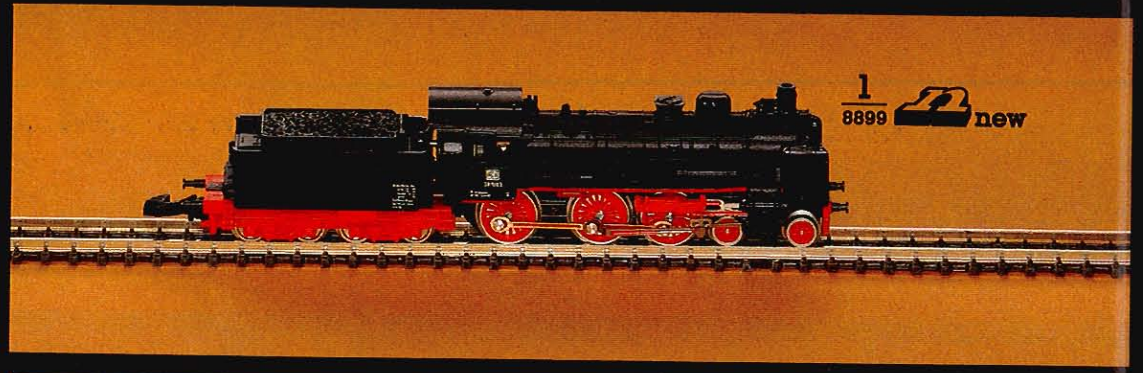
8899 · Passenger engine with tender · German Federal Railways' class 038 · 4-6-0 wheel arrangement · Length over buffers 89 mm (3-½")

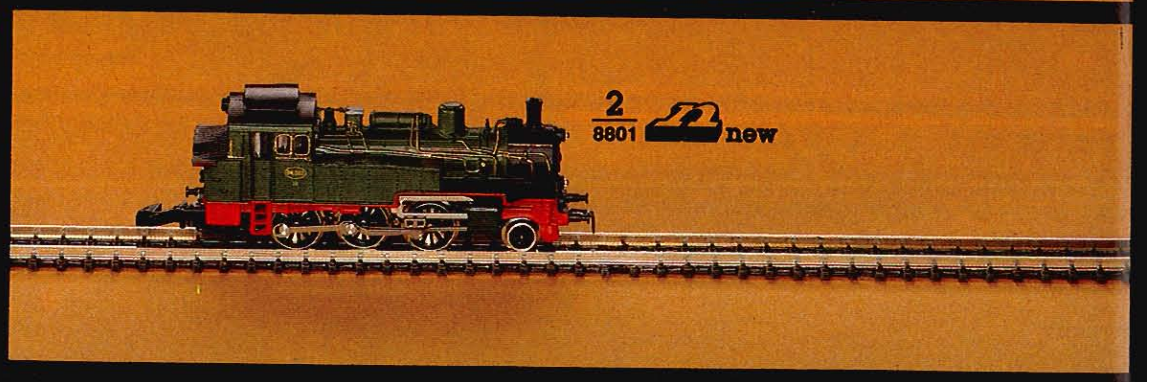
■ Designed by Robert Garbe, the Prussian P8 was a fine tuned machine well liked by railroaders everywhere. By 1928, 3,800 of these moguls were plying the rails of several European lines. The German State Railways re-designated the P8 as the 38^{10-40}. In the late 40s, the newly organized German Federal Railways classed them as the 038.

Besides being constructed in several styles, the 4-6-0 P8 was regularly modified by the different roads to suit individual preferences.

The example shown here, as used by the German Federal Railways, had a smooth smoke box door. Witte smoke deflectors, and an 8-wheel tub tender inherited from scrapped 42s and 52s.







mini-club steam engines feature:

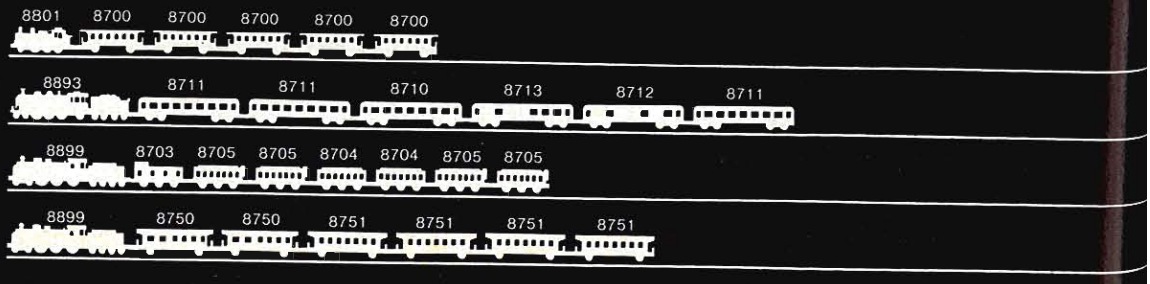
Remote control forward and reverse drive · Prototypically correct three working headlights · All driving axles powered · Automatic couplers at rear of tender or tank engine · Die cast zinc frame · Metal body

= 8953

mini-club locomotives should only be powered by Märklin power packs 6701 or 6727 (with maximum track voltage of 8 V) or with the power packs included with the train sets.

The locomotives are fitted with radio interference suppressors. These suppressors, which are also built into the power packs and feeder tracks 8590, virtually eliminate the chance of mini-club operation disturbing a neighbor's radio or TV reception.

Examples of trains consists:



2 Belgium

8801 · Tank locomotive · Belgian State Railways' (NMBS/SNCB) class 96 · 2-6-0 wheel arrangement · Hook coupler in front · Length over buffers 55 mm (2-3/16")

3

8892 · Express locomotive with tender · Former Royal Bavarian State Railways' class S 3/6 · 4-6-2 wheel arrangement · Length over buffers 106 mm (4-3/16")

4

8891 · Express locomotive with tender · Former German State Railways' class 18^4 · 4-6-2 wheel arrangement · Length over buffers 106 mm (4-3/16")

5

8893 · Express locomotive with tender · German Federal Railways' class 18^4 · 4-6-2 wheel arrangement · Length over buffers 106 mm (4-3/16")

■ The increasing demand for express passenger service prompted the Bavarian State Railways to order these reliable engines in the Spring of 1907. Fifteen months later, the road took delivery of the first S 3/6s. In this record time, a new locomotive was created whose shape and achievement created new standards.

After the merger of the provincial railways into the German State Railways, the S 3/6 was reclassified as the 18^4 and the 18^{4-5}. These engines are easily identified by railfans because of their powerful cylinders, the distinct barrier frames, and the wreathed smokestack as of the most beautiful engines ever built.

The first S 3/6 left the Maffei Works on June 16, 1908. On the first trail run of the engine, it achieved 135 kmph (83 mph) pulling 420 tons.

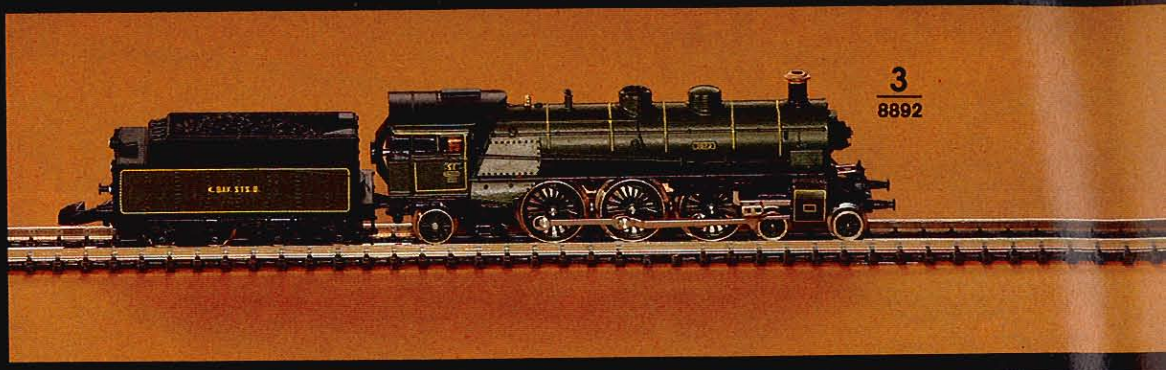
During the 1930s, these engines racked up approximately 160,000 km (98,132 miles) per year.

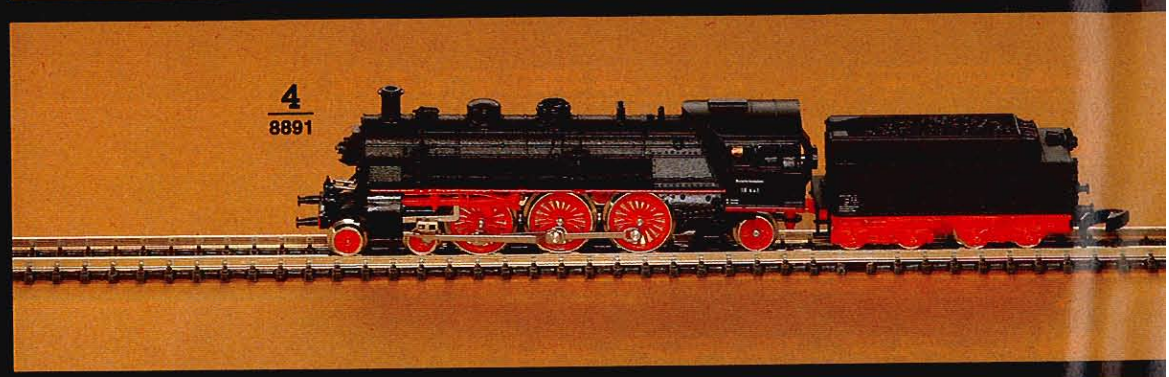
Among some of the more famous trains powered by the the S 3/6 were: the Rheingold, the Orient Express, the Paris-Karlsbad-Prague Express, and the Ostende-Wien Express.

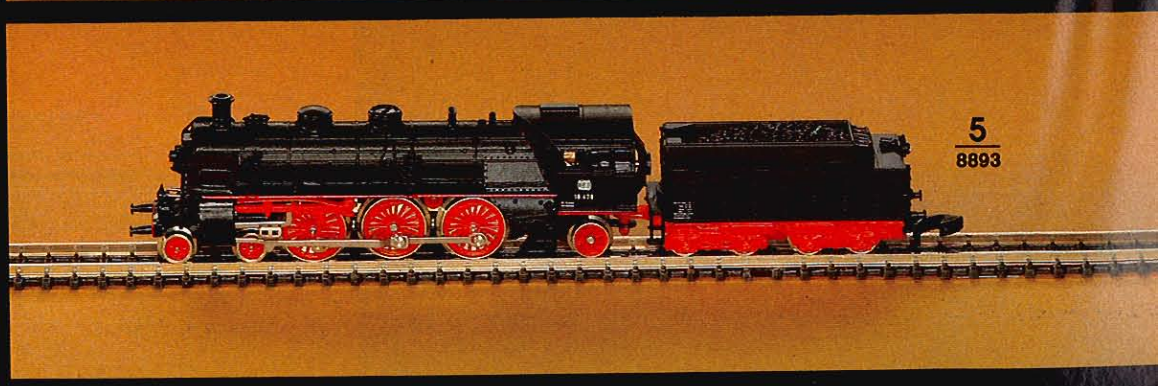
For economic reasons, only 5 units were retired in 1946 when the German Federal Railways was being organized. But the winds of change were blowing, and the old glory of these Pacifics would never return.

The prototype for our mini-club model, the 18 478 of the DB, made its last trip in July, 1960. The last of the S 3/6s was retired on May 17, 1967.









The Märklin mini-club program offers one of the most famous German steamers in three popular versions. The S 3/6 of the Royal Bavarian State Railways (8892), the German State Railways' class 18 (8891), and the German Federal Railways class 18^4 (8893).

mini-club steam engines feature:

Remote control for forward and reverse drive · Prototypically correct three working headlights (except 8800 which has no lights and 8803 which requires lighting set 8953) · All driving axles powered · Automatic couplers at rear of tender or tank engine · Die cast zinc frame · Metal body

💡 = 8953

1

8800 · Tank locomotive · German Federal Railways' class 89 · 0-6-0T wheel arrangement · Automatic couplers on both ends · Length over buffers 45 mm (1-¾")

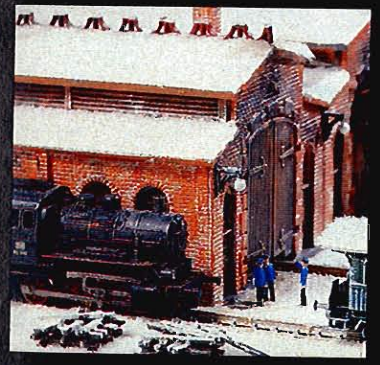
2

8803 · Passenger locomotive with tender · German Federal Railways' class 24 · 2-6-0 wheel arrangement · Length over buffers 82 mm (3-¼")

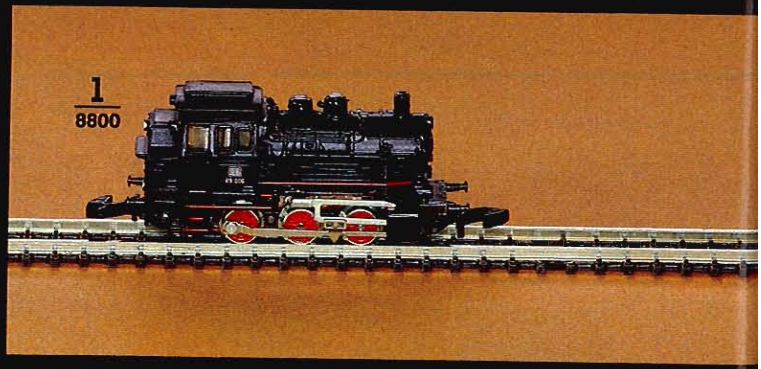
3

8827 · Freight locomotive with tender · German Federal Railways' class 41 · 2-8-2 wheel arrangement · Length over buffers 112 mm (4-⅜")

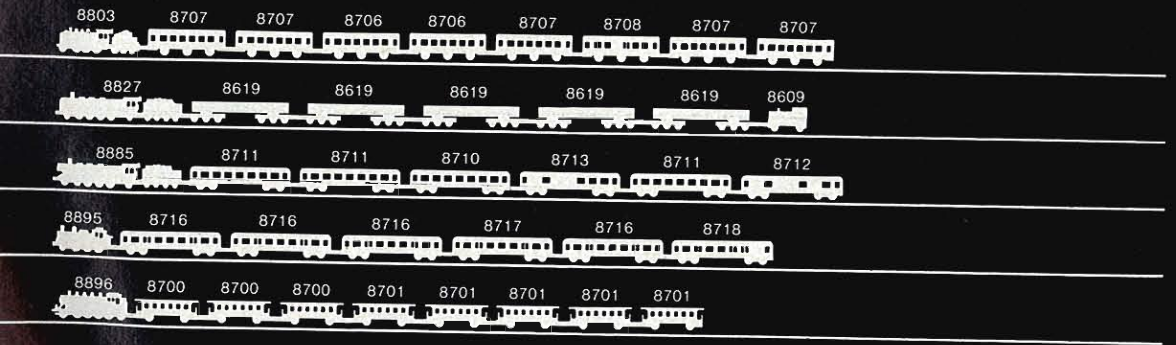
■ The first of a total of 366 of these engines were produced in 1936. They were designed as a fast freight locomotive and were employed as the workhorse on medium-weight freight trains. Their top speed was 90 kmph (56 mph).

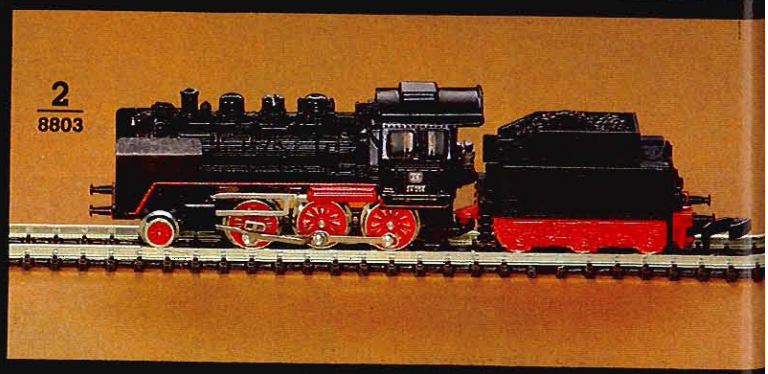


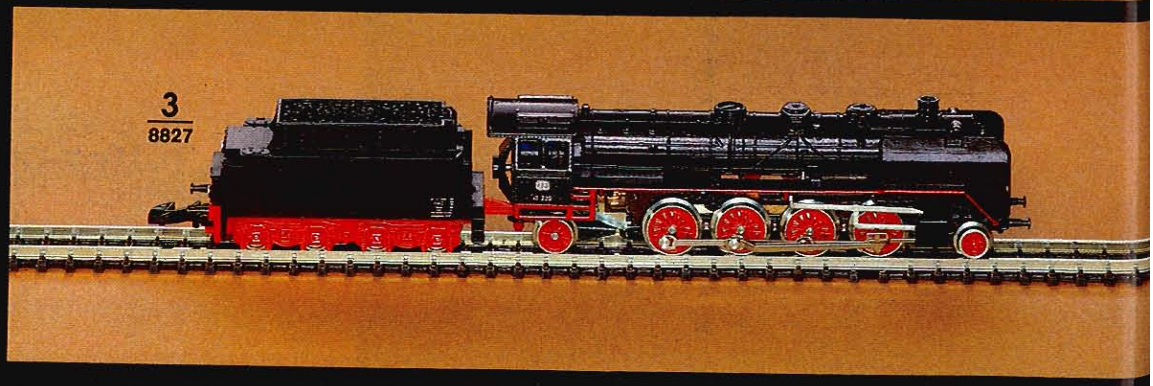




Examples of train consists:







4

8895 · Tank locomotive · German Federal Railways' class 74 · 2-6-0T wheel arrangement · Coupling hook in front · Length over buffers 55 mm (2-3/16")

5

8896 · Tank locomotive · German Federal Railways' class 86 · 2-8-2T wheel arrangement · Three working headlights at each end · Red driving assemblies · Automatic couplers at each end · Length over buffers 63 mm (2-1/2")

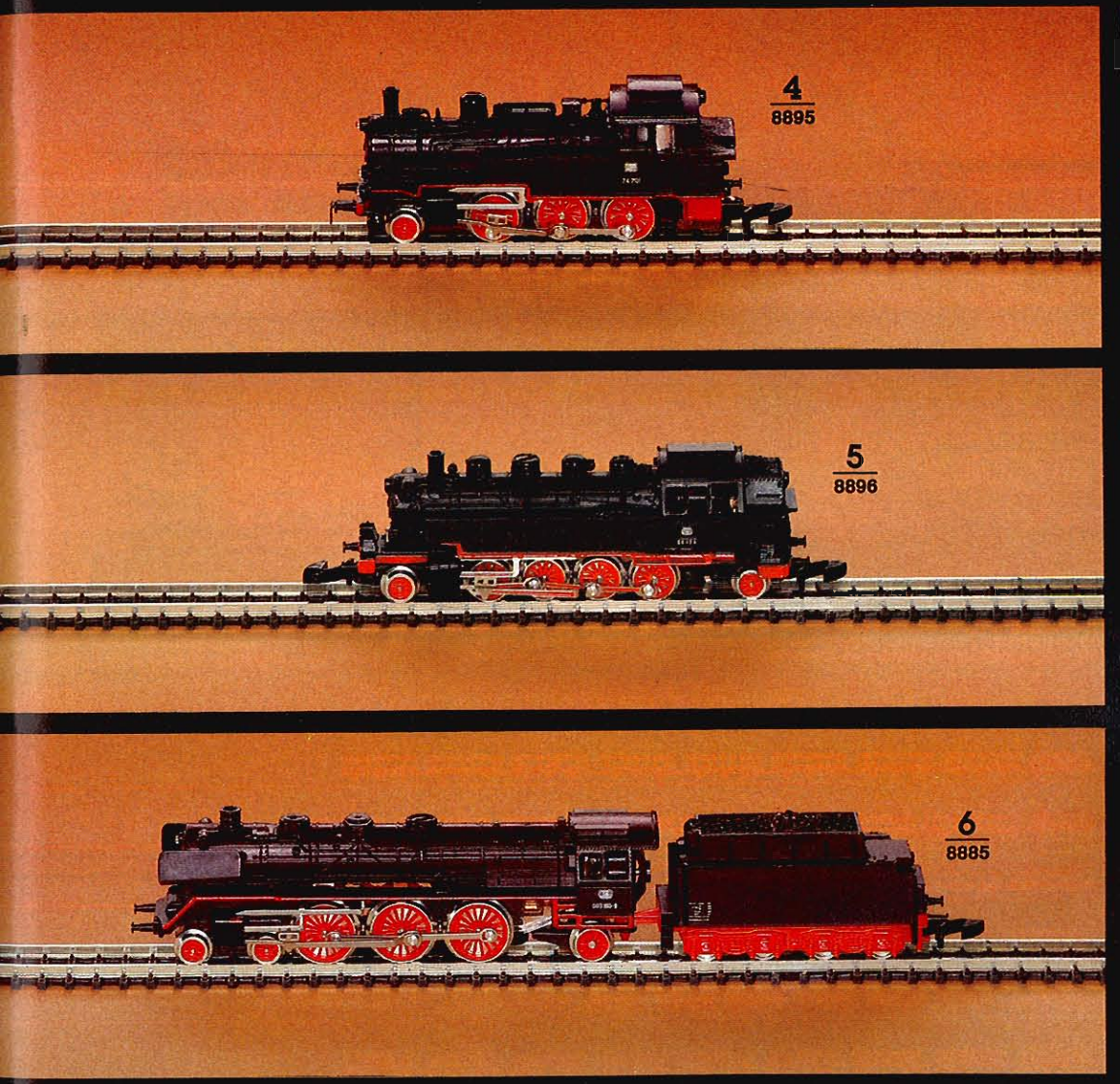
= 60210 (rear)

■ Engine class 86 was produced by various manufacturers from 1928 to 1943. An efficient locomotive, it was used in passenger and freight service, particularly on branches and in mountainous districts. Of the 774 engines built for the German State Railways, 385 were assigned to the German Federal Railways in 1945.

6

8885 · Express locomotive with tender · German Federal Railways' class 003 · 4-6-2 wheel arrangement · Length over buffers 112 mm (4-3/8")

Engine 8885 has set a world record for endurance. Pulling 6 coaches, the engine operated continuously for 1,219 hours, covering a distance of 720 km (447 miles), about the distance between Cincinnati and Atlanta. According to the "Guinness Book of Records", the previous endurance record was only 440.7 km (273.8 miles) covered in about 300 hours.
This record was established at an impartial testing institute.







Electric Locomotives

Illustrations shown actual size, 1:1

1

8854 · Electric high-speed locomotive · German Federal Railways' class 103 · C-C wheel arrangement · Length over buffers 88 mm (3-½″)

2

8842 · Electric express locomotive · German Federal Railways' class 111 · B-B wheel arrangement · Length over buffers 76.8 mm (3″)

3

8853 · Electric multi-purpose locomotive · German Federal Railways' class 120 · B-B wheel arrangement · Length over buffers 87 mm (3-⅜″)

■ The class 120 engines include the latest state-of-the-art locomotive development. For the first time, a German Federal Railways engine includes a 3-phase motor. This is possible because of recent developments in semi-conductor technology, which also enables the engines to achieve better performance. The locomotive has a power output rating of 5,600 kW and achieves a top speed of 160 kmph (100 mph).

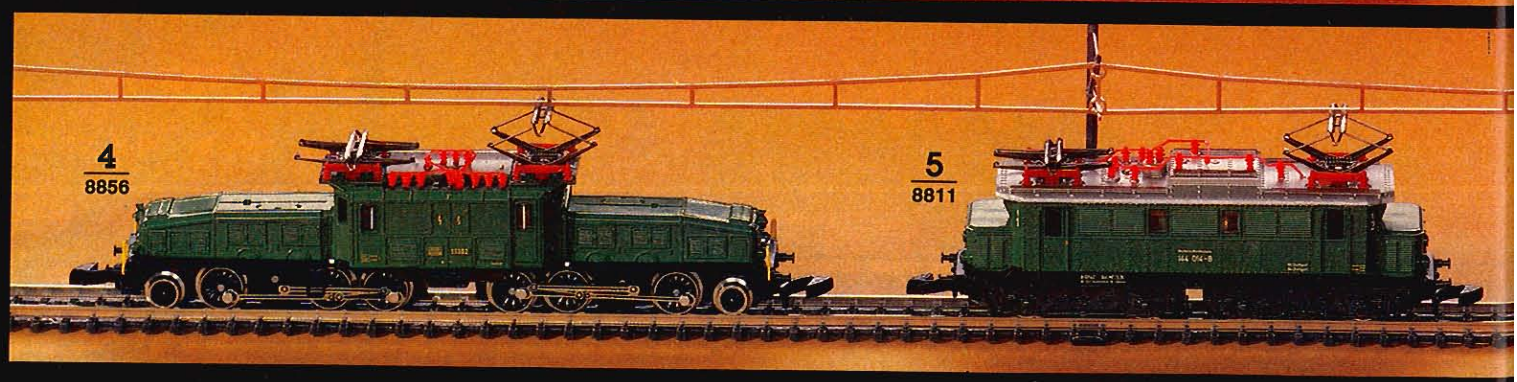
The engine has unique features which make it the locomotive of the future:
– All-around general purpose engine. It can be used on freights and passenger trains.
– Improves the life of the railbed. Only 40% of its mass is dead weight, as compared to 60% on other engines.
– Frugal use of energy. It requires only 86% of the energy of other locomotives.
These engines carry a price tag of DM 4 million (about $ 2 million).



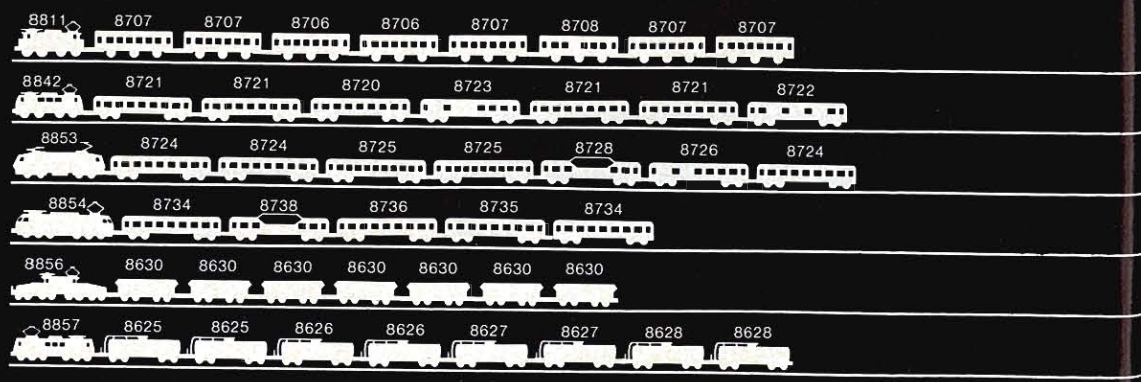
Although only 40% of the German Federal railnetwork is electrified, it accounts for 80% of the traffic load. The environmently sound electric system is also free of world crisis, since the railroad uses domestic coal to fuel the power stations. Electric power is also the most energy-efficient means of operating trains. For example, the German Federal Railways' electric use is equivalent to that used by the city of West-Berlin.

Further, rail transportation requires only 0.8% of Bonn's energy resources, while road traffic needs 8% – ten times as much energy, but provides only 2.3 times as much transportation.





Examples of train consists:



4

8856 · Electric freight locomotive · Swiss Federal Railways' (SBB) Be 6/8III, popularly known as the Crocodile · 2-C-C-2 wheel arrangement · Length over buffers 91 mm (3-5/8")

The "Crocodile" is one of the world's most intriguing locomotives. Even the mini-club's version of this mighty machine measures 91 mm (3-5/8") long. Like the prototype, it is articulated so it can negotiate all mini-club curves. The three body sections, i.e.: center and two ends, are finely detailed and feature insulated electrical cables on the roof as well as handrails on the buffer beams.

■ 40% of all transalpine traffic goes via the Gotthard line, a major Swiss trunk line. By the 1920s, traffic had become so heavy that special locomotives were needed, which could handle two round trips in 28 hours between Arth-Goldau and Chiasso. This first engine was a Ce 6/8II which soon evolved into the heavy freight motor, class Be 6/8III, the famous "Crocodile".

Performance: It could pull 2,000 tons at 60 kmph (37 mph) on level track, and it could pull 520 tons (about 15 cars) up a 2.6% grade at 40 kmph (25 mph).

5

8811 · Electric passenger locomotive · German Federal Railways' class 144 · B-B wheel arrangement · Length over buffers 68 mm (2-11/16")

■ In 1931, the German State Railways ordered 20 B-B electrics from the Siemens-Schuckert-Works, for use on the newly electrified Augsburg – Stuttgart line. Capable of both freight and passenger service, 174 units were built between 1931 and 1945. Seven more were purchased by the Federal Railways after 1945.

The E 44 was soon being used on all electrified sections and was quickly dubbed "Mädchen für alles" (Maid of all work). These engines averaged 20,000 km (12,440 miles) per month.

The E 44 was driven by 4 axle-mounted motors located on two double-axled trucks. All tractive and braking forces were absorbed by the trucks, which are coupled together. Total power was 1,860 kW continuous rating, or 2,200 kW hourly rating, and maximum speed was 90 kmph (56 mph).

6

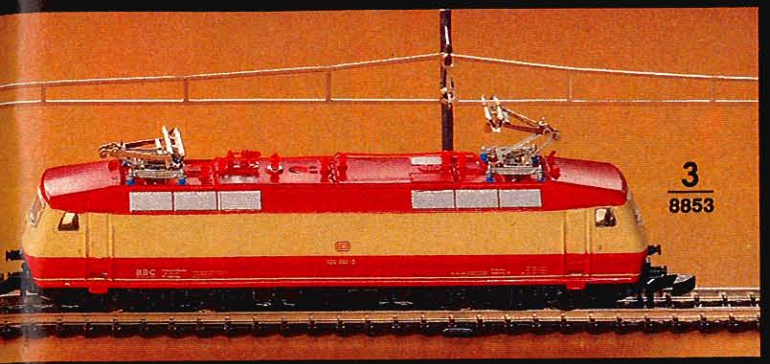
8855 · Electric locomotive · German Federal Railways' class 111 (This engine powers the high-speed limiteds in the Rhine-Ruhr district) · B-B wheel arrangement · Length over buffers 76.8 mm (3")

7

8857 · Electric freight locomotive · German Federal Railways' class 151 · C-C wheel arrangement · Length over buffers 88 mm (3-1/2")

8

8858 · Electric freight locomotive · German Federal Railways' class 151 · C-C wheel arrangement · Length over buffers 88 mm (3-1/2")





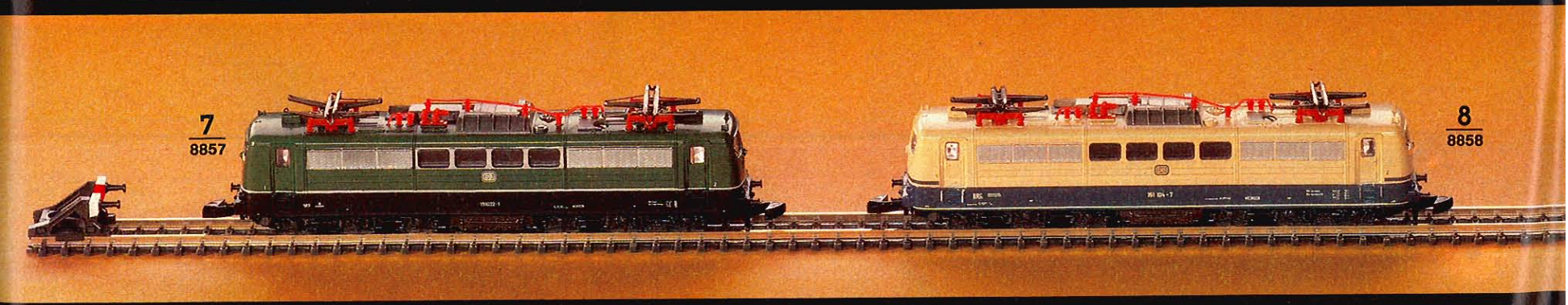


The electric locomotives feature:

Remote control for forward and reverse drive · Both trucks powered · Three working headlights at each end, illuminated according to engine's direction · Can operate from track current or overhead · 2 spring-powered pantographs · Automatic coupling at each end · Die cast zinc frame · Windows inserted in plastic frames on colorful bodies

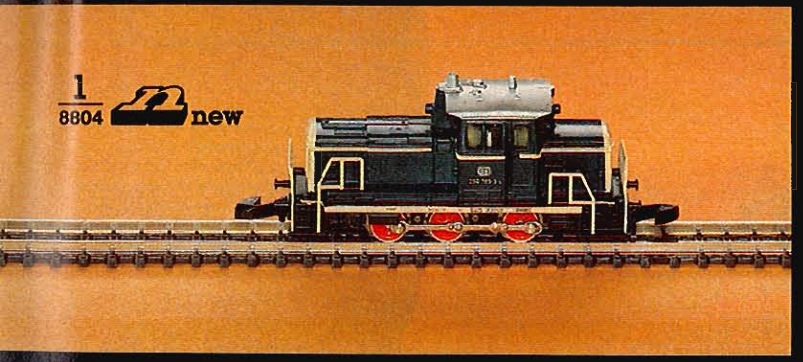
= 8953

Overhead wiring is a natural with electrics. mini-club has a fully functional catenary system.



Diesel Locomotives Self-propelled Cars

Illustrations shown actual size, 1:1





The diesels and self-propelled cars feature:

Remote control for forward and reverse drive · All axles powered · Three working headlights at each end (except 8802, 8804, and 8864) · Automatic couplers at both ends (except 8802) · Die cast zinc frames · Colorful bodies

💡 = 8953

1

8804 · **Diesel switcher** · German Federal Railways' class 260 · C wheel arrangement · Sea blue/beige metal body · Length over buffers 49 mm (1-15/16")

■ Large numbers of the German Federal Railways' class 260 switchers were built from 1956 on for yard duty. They have a single motor rated at 478 kW and use hydraulic transmission.

Originally, the 260s were painted red, the color for switchers. Recently, they have been given a new livery: sea blue and beige.

2

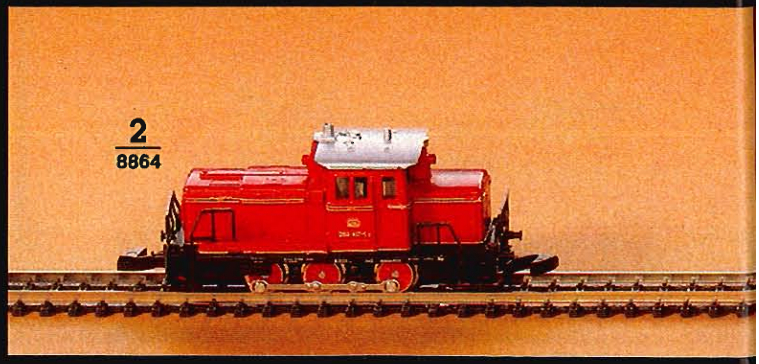
8864 · **Diesel switcher** · German Federal Railways' class 260 · C wheel arrangement · Red metal body · Length over buffers 49 mm (1-15/16")

■ The class 260 diesels date from 1956. Originally designated V 60, it has a 12 cylinder 478 kW diesel engine under the long hood with the air and fuel tanks under the short hood.

Steam enthusiasts should be pleased to know that pre-warming the 260s power plant depends partly on coke-fired boilers.

As an aid for safe and efficient switching, the 260 has radio-telephones for constant communication contact between engineer, yardmaster, and other rail personnel. This engine can also be operated by remote control.

Like the class 261, the 260 locos are also used on freight trains.



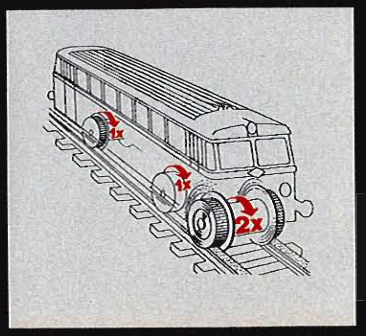
Locomotive Parts

Locomotive	8800	8801	8802	8803	8804	8811	8816	8821	8827	8842	8853	8854	8855	8856	8857	8858	8864	8874	8875	8885	8891	8892	8893	8895	8896	8899
Carbon Brushes	8987	8987	8988	8987	8987	8989	8988	8989	8989	8989	8989	8988	8989	8989	8988	8988	8987	8988	8988	8989	8989	8989	8989	8987	8989	8989
Lights		8953		(8953)		8953	8953	8953	8953	8953	8953	8953	8953	8953	8953	8953		8953	8953	8953	8953	8953	8953	8953	8953	8953
Pantograph						8955				8955 (8956)	8956	8955 (8956)	8955 (8956)	8955	8955	8955										

3
8816 · **Railbus** · German Federal Railways' class 798 · Length over buffers 62 mm (2-7/16")

4
8817 · **Trailer for railbus** · German Federal Railways' class 998 · Length over buffers 62 mm (2-7/16") · Non-motorized

How the Track-Cleaning Car works



5
8802 · **Track-cleaning car** · 2 powered axles · Automatic couplers on rear end · Length over buffers 62 mm (2-7/16")

The vehicle has two powered axles. The rear wheels are ridged to provide better traction. Two track-cleaning ridged wheels are located ahead of the front axle, these rotate faster than the driving wheels causing the dirt to be thrown off the tracks.

6
8821 · **Diesel-hydraulic express locomotive** · German Federal Railways' class 221 · B-B wheel arrangement · Three working headlights at each end, illuminated according to direction · Length over buffers 84 mm (3-3/8")

■ The class 221 engines are successors of the earlier class 220. The 221s were required because of the demands of heavier payloads and longer trains were taxing the 220s. Between 1962 and 1965, 50 of these 221s were built for the German Federal Railways. Both diesels have a power output of 993 kW. Utilizing hydraulic transmission, the 221s can achieve 140 kmph (87 mph). These diesels are outfitted with oil-fired boilers.

7199
Bottle of oil · Contains about 10 cc lubricating oil for locomotives and cars

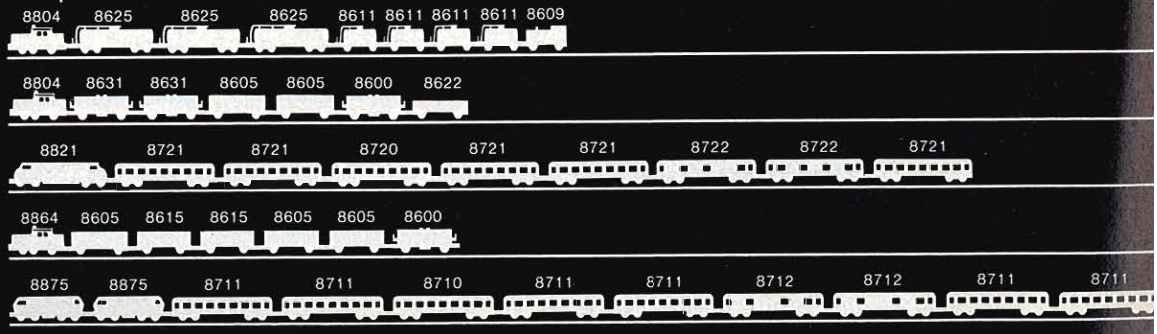


7
8874 · **Road diesel** · German Federal Railways' class 216 · B-B wheel arrangement · Three working headlights at each end, illuminated in direction of travel · Length over buffers 75 mm (3")

8
8875 · **Road diesel** · German Federal Railways' class 216 · B-B wheel arrangement · Three working headlights at each end, illuminated in direction of travel · Length over buffers 75 mm (3")

■ In the mid-50s, the German Federal Railways began to dieselize in earnest. Because diesels are more utilitarian, there was a subsequent reduction in the number of types of locomotives rostered on the DB – a development unique in the railroad world. As part of this dieselization program, the Krupp Works at Essen developed the standard road diesel, the 216.

Examples of trains consists:



Passenger Cars

Passenger Cars of the German Federal Railways

Cars used by the German Federal Railways · 4 wheels · Windows set in plastic frames · Platforms and doors at each end · Length 63 mm (2-½″)

■ Shortly after the founding of the German Railway Association in 1924, efforts were undertaken to establish a standard coach to replace those inherited from the provincial railroads.

These standard 4-wheel coaches were originally built with wood roofs and interiors. Later versions were all-steel.

The type 29 coaches were an all-steel version. Because of their noisy operation, they quickly acquired the nickname "Donnerbüchsen" (rattling crates).

1
8750 · **Coach** · Type ABi 29 · 1st and 2nd class

2
8751 · **Coach** · Type Bi 29 · 2nd class

Passenger cars of the German Federal Railways

Cars of the German Federal Railways · 6 wheels · Windows set in plastic frames · Length 57 mm (2-¼″)

3
8703 · **Baggage car** · Formerly type Pw3-pr02

4
8704 · **Compartment car** · Formerly type BC3-pr03

5
8705 · **Compartment car with brakeman's cab** · Formerly type B3-pr03

Passenger cars of the German Federal Railways

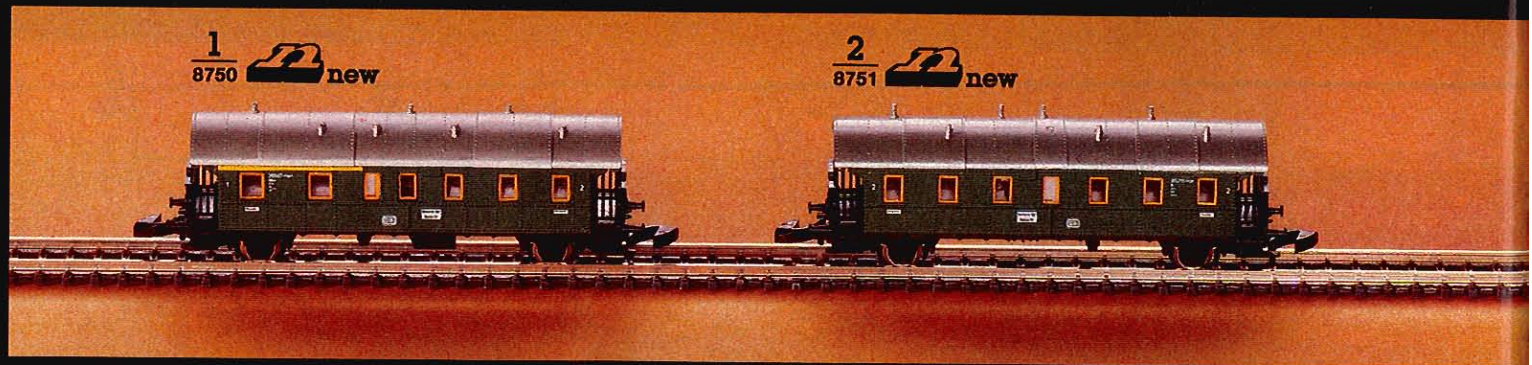
Cars of the German Federal Railways · 6 wheels · Windows set in plastic frames · Length 61 mm (2-⅜″)

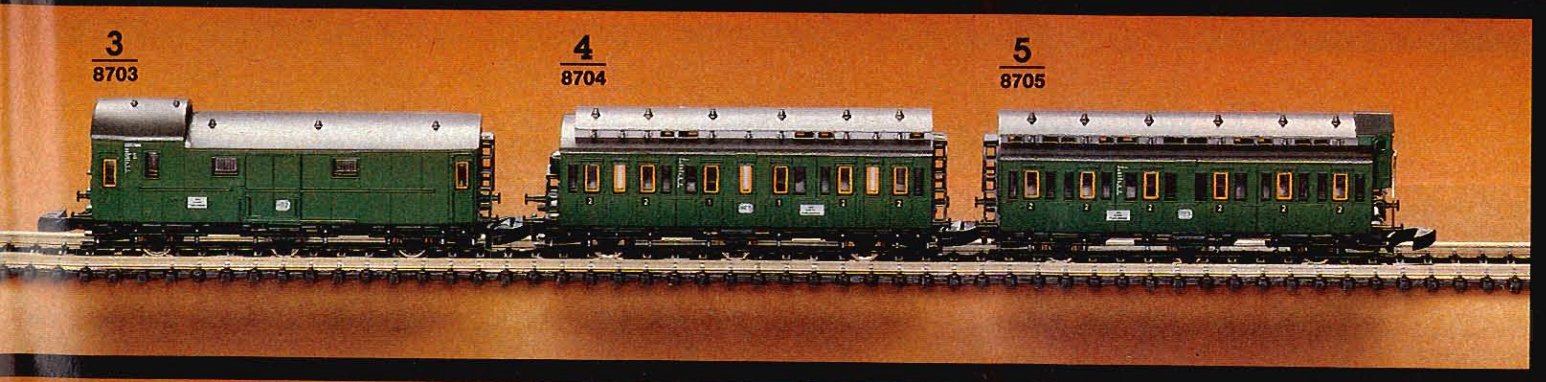
6
8706 · **Coach** · Type AB3yge · 1st and 2nd class

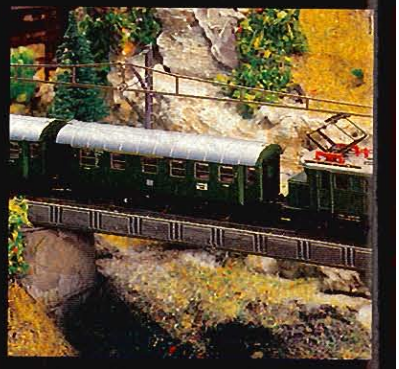
7
8707 · **Coach** · Type B3yge · 2nd class

8
8708 · **Combine car** · Type BD3yge · 2nd class

■ At the beginning of the 1950s, there were many obsolete and damaged 4- and 6-wheel coaches on the rip tracks of the German Federal Railways. By modifying the underframes of these cars, new types of 6-wheeled coaches for 2nd class service were built. Some were further modified to include a 1st class section or a baggage compartment. All cars were fitted with beaded walkways.









Passenger cars of the German Federal Railways

Cars of the German Federal Railways · 8 wheels · Windows set in plastic frames · Length 120 mm (4-¾″)

■ These commuter cars (Nahverkehrswagen) of the German Federal Railways were nicknamed "Silverliners" (Silberlinge) because the bodies were made of stainless steel with an intriguing Peacock's eye livery.

9
8716 · **Commuter car** · Type Bnb[720] · 2nd class

10
8717 · **Commuter car** · Type ABnb[703] · 1st and 2nd class

11
8718 · **Commuter car with baggage compartment and control cab** · Type BDnrzf[740] · 2nd class · Three white headlights and two red taillights, illuminated according to direction of travel

■ Most commuter trains are Push-Pull and consist of a diesel, several coaches based on traffic demands, and a control car at one end. Push-Pull trains require no terminal turnaround; the engineer merely walks to the other end to resume operation for the return trip.

Passenger cars of the former German State Railways

Cars of the former German State Railways · 8 wheels · Windows set in plastic frames

12
8731 · **Express coach** · Type C4ü bay 11 · 3rd class · Length 87 mm (3-⅜″)

13
8732 · **Express baggage car** · Type Pw4ü bay 09 · Length 78 mm (3-⅜″)

Passenger cars of the former German provincial railways

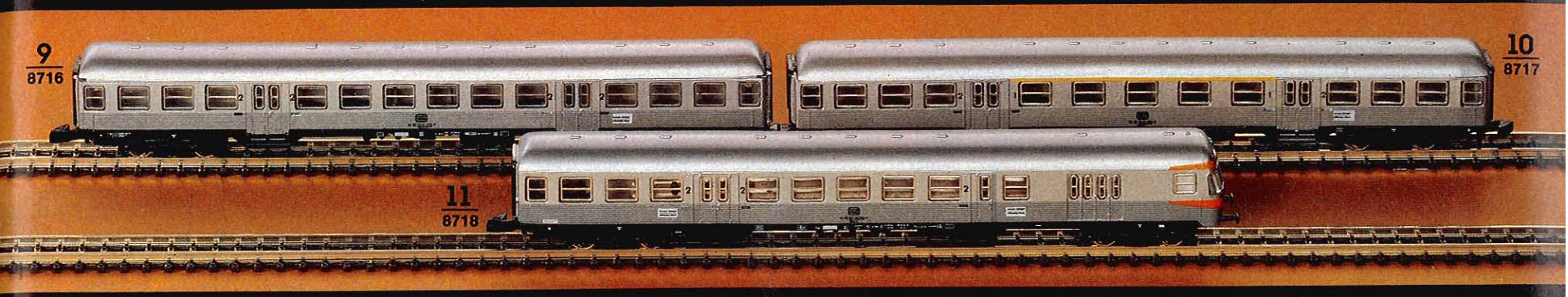
Cars used by the **Württemberger Railways** · 4 wheels · Platform and entrance at both ends · See-through windows with "Cellon" panes · Length 60 mm (2-⅜″)

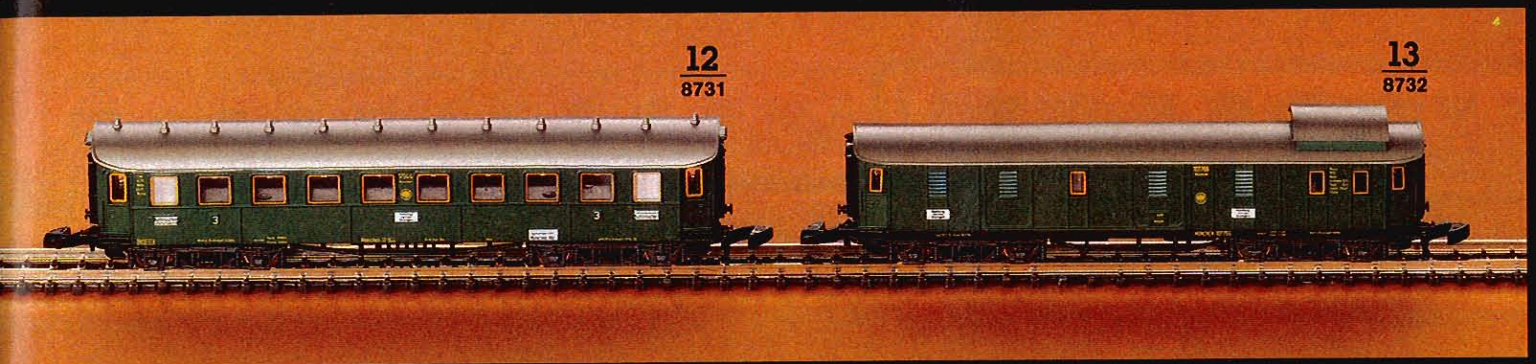
14
8700 · **Coach**

15
8701 · **Coach**

Cars of the **Bavarian Railways** · 8 wheels · Windows set in plastic frames · Length 87 mm (3-⅜″)

16
8730 · **Express coach** · Type CCü of the former Royal Bavarian State Railways · 3rd class

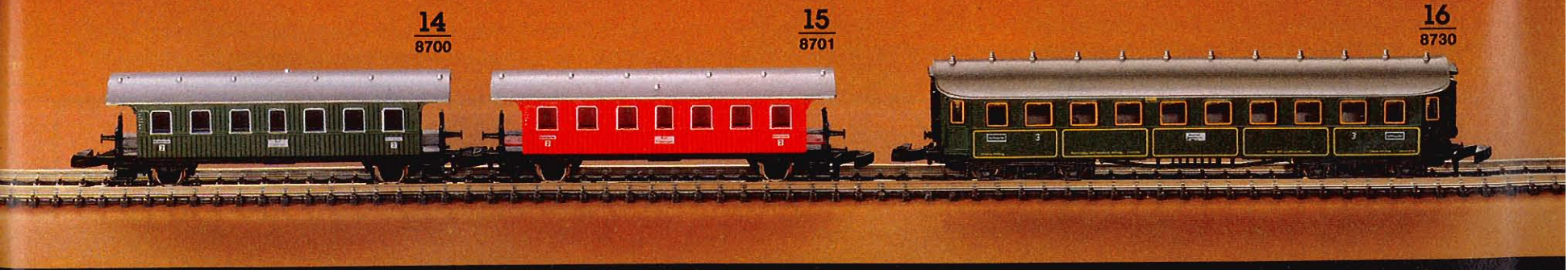






When the train runs control car-first, three white lights shine from the control car.

When the train runs diesel-first, two red lights shine from the control car.



Passenger cars of the German Federal Railways

All models have these features: 8 wheels · Windows set in plastic frames · Length 120 mm (4-¾")

1

8740 · **Express coach** · German Federal Railways' type Avmz[207] (EUROFIMA type A9) · 1st class

■ The type A9 EUROFIMA coach was developed through a consortium of six European railroads. These cars incorporate many features of the German Federal Railways' first class coaches. Today 500 EUROFIMA cars, including 100 first class coaches, are operating on the western German network.

The mini-club TEE (**T**rans **E**urope **E**xpress) cars are available with or without lighting.

2

8724 without lighting
8734 with lighting

TEE-Compartment car · Type Avmz[111] (earlier Avümz 111)

3

8728 without lighting
8738 with lighting

TEE-Dome car · Type ADm[101] (earlier ADümh 101) · Dome shell made of transparent plastic

4

8725 without lighting
8735 with lighting

TEE-American style coach · Type Apmz[121] (earlier Apümz 121)

5

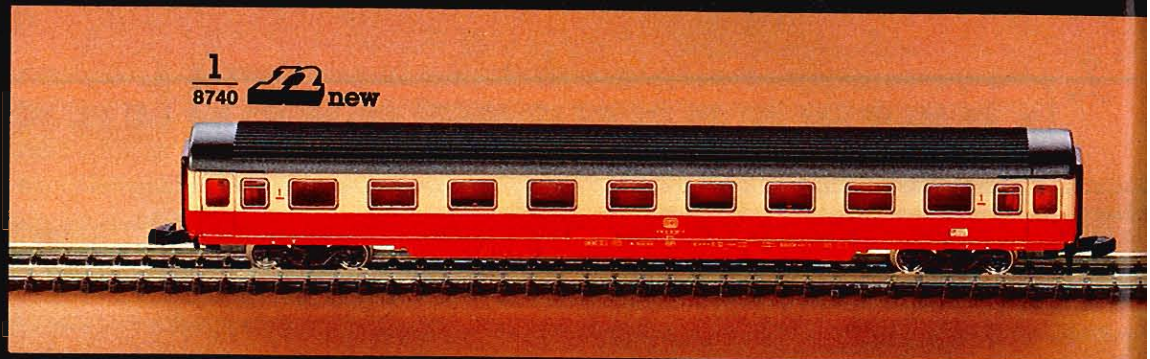
8726 without lighting
8736 with lighting

TEE-Diner · Type WRmh[132] (earlier WRümh 132)

■ TEE trains are the varnish flagships of the German Federal Railways. All trains are completely 1st class; coaches have American style 2-2 seating, the entire train is air conditioned, and passenger comfort is a TEE trademark.

TEE-Intercity trains travel at speeds up to 160 kmph (100 mph) and can reach 200 kmph (125 mph) on suitable track.









6
8722 · **Baggage car** · For express (D-Zug) trains · Type Dm^{902} (earlier Düm 902)

7
8723 · **Diner** · For express (D-Zug) trains · Type $WRmh^{132}$ (earlier WRümh 132)

8
8714 · **Auto carrier** · Type DDm^{915} · Includes 8 autos

■ Auto train are fairly common in Germany and are often operated as part of the D-Zug (express train) network. Autos are driven onto the cars under their own power using ramps to reach different levels. Drivers and occupants leave and return to their cars by walking along the ramps or climbing ladders on the cars.

9
8720 · **Express coach** · Type Am^{203} (earlier Aüm 203) · 1st class

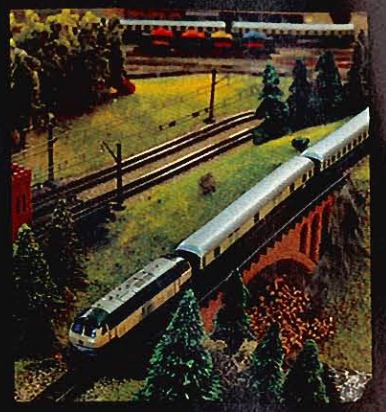
10
8721 · **Express coach** · Type Bm^{234} (earlier Büm 234) · 2nd class

11
8713 · **Diner** · For express (D-Zug) trains · Type $WRmh^{132}$ (earlier WRümh 132)

12
8710 · **Express coach** · Type Am · 1st class

13
8711 · **Express coach** · Type Bm · 2nd class

14
8712 · **Baggage car** · For express (D-Zug) trains · Type Dm^{902} (earlier Düm 902)





Freight Cars

1
8631 · **Refrigerated car** · Lettered for Sinalco and Sinalco COLA a German soft drink company · Length 54 mm (2-1/8″)

2
8609 · **Package car** · German Federal Railways' type Dg · Operating doors at each end · Length 40 mm (1-9/16″)

3
8610 · **Low-side gondola** · Length 54 mm (2-1/8″)

4
8622 · **High-side gondola** · German Federal Railways' class E^{037} (earlier Omm 52) · Length 54 mm (2-1/8″)

5
8605 · **Box car** · German Federal Railways' class Gos-u^{253} (earlier Gbrs 253) · Length 54 mm (2-1/8″)

6
8615 · **Container car** · German Federal Railways · Length 54 mm (2-1/8″)

7
8630 · **Self-unloading hopper car** · German Railways' class Fals^{176} (earlier Fads 176) · Length 53 mm (2-1/16″)

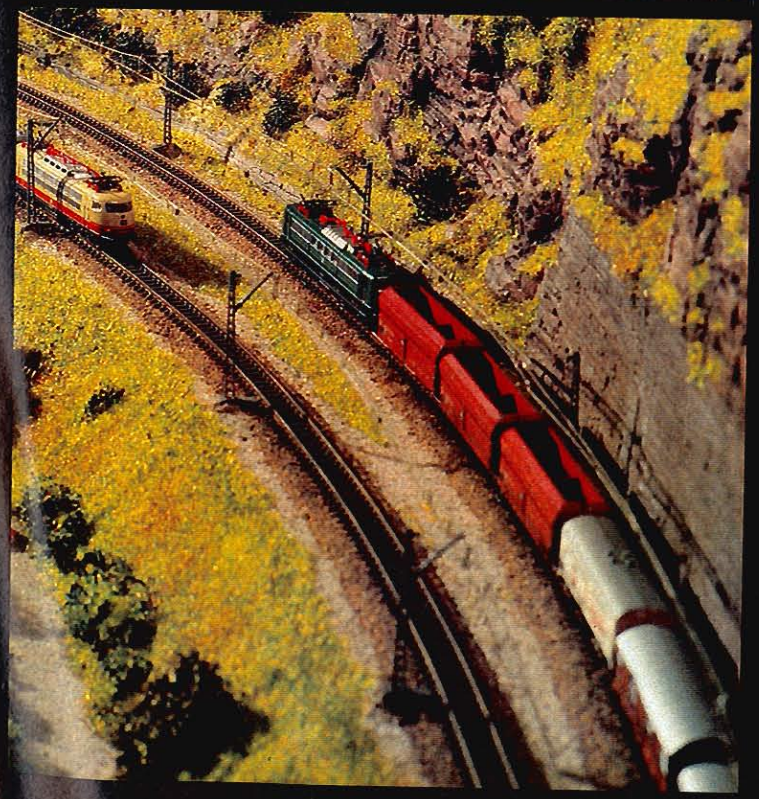
8
8600 · **Refrigerated car** · German Federal Railways' class Ichqs-u^{377} (earlier Ichqrs 377) · Length 54 mm (2-1/8″)

9
8602 · **Beer car** · Spatenbräu München · Length 54 mm (2-1/8″)









Ladder tracks

Marshalling yards are the junction points for rail freight service. This is where incoming trains are broken up – often uncoupled by hand – and new trains are formed.

The exciting world of a freight yard can also be captured on mini-club layouts. Cars can be uncoupled using the 8587 uncoupling track.

10
8603 · **Beer car** · Kulmbacher Mönchshof-Bräu · Length 54 mm (2-1/8")

11
8607 · **Beer car** · Feldschlösschen · Length 54 mm (2-1/8")

12
8608 · **Beer car** · Carlsberg · Length 54 mm (2-1/8")

13
8606 · **Box car** · German Federal Railways' class Ibbls · Length 54 mm (2-1/8")

14
8623 · **Bulk-freight car** · German Federal Railways' class Tbis[870] · Length 64 mm (2-7/10")

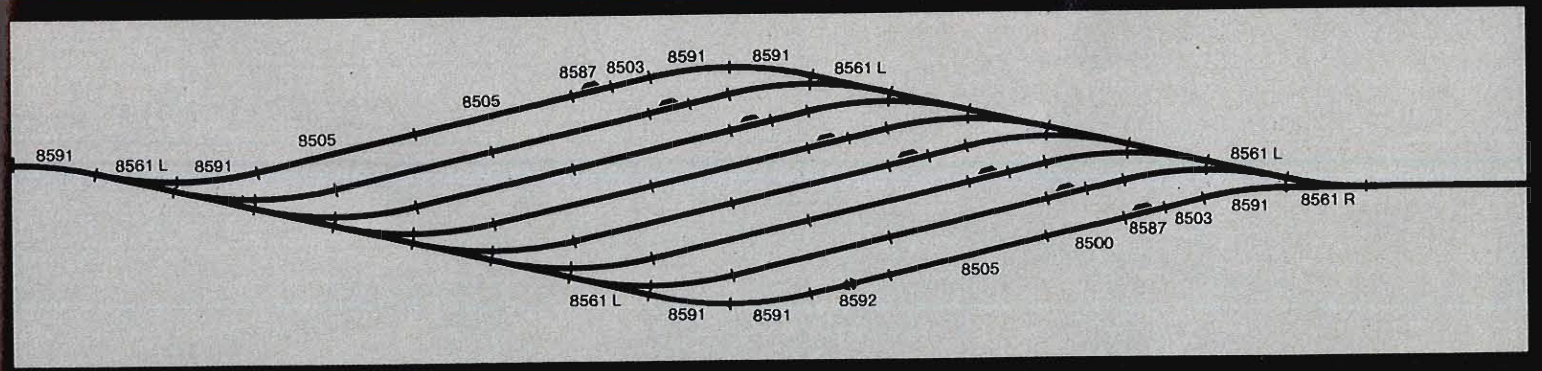
■ This special purpose car with sliding doors and sides was designed for the economical loading and unloading of damp and bulk items. Every part of the interior can be reached by a crane or fork-lift.

15
8624 · **Ballast car** · Equipped with Talbot self-unloader · Used primarily in work trains · Length 33 mm (1-3/10")

■ The German Federal Railways has special Maintenance Of Way cars. This car, for example, has trap doors along the sides which are manually operated by a lever. When a door opens, the sheer weight of the ballast allows for "selfunloading".









■ The German Federal Railways field about 290,000 freight cars for general transportation, plus about 16,000 maintenance and special purpose cars. In addition, about 50,000 privately owned freight cars operate on German Federal tracks.

Some 65% of the freight cars are conventionally designed while 35% are specially-built cars.

The trend is definitely toward more specially-designed freight cars as the German Federal Railways, responding to market demands, cooperates with shippers to build cars offering customers optimum protection against damage, automated unloading and loading systems, plus taking into consideration price and service life.

1
8611 · **Tank car** · Shell · 4 wheels · Length 40 mm (1-9/16″)

2
8612 · **Tank car** · Esso · 4 wheels · Length 40 mm (1-9/16″)

3
8613 · **Tank car** · Aral · 4 wheels · Length 40 mm (1-9/16″)

4
8614 · **Tank car** · BP · 4 wheels · Length 40 mm (1-9/16″)

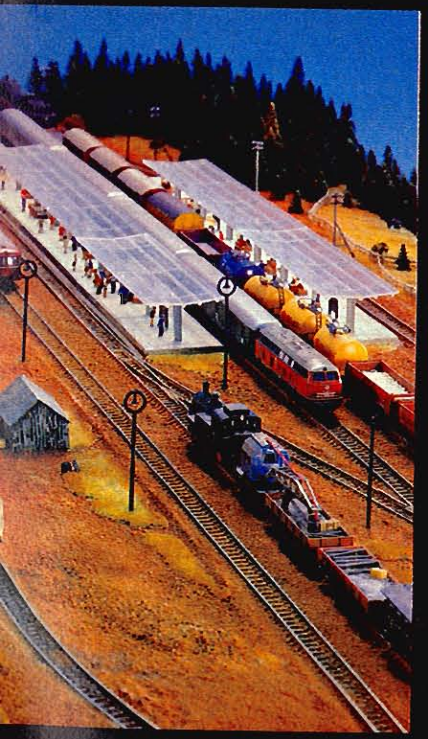
5
8625 · **Tank car** · Shell · 8 wheels · Length 75 mm (3″)

6
8628 · **Tank car** · BP · 8 wheels · Length 75 mm (3″)

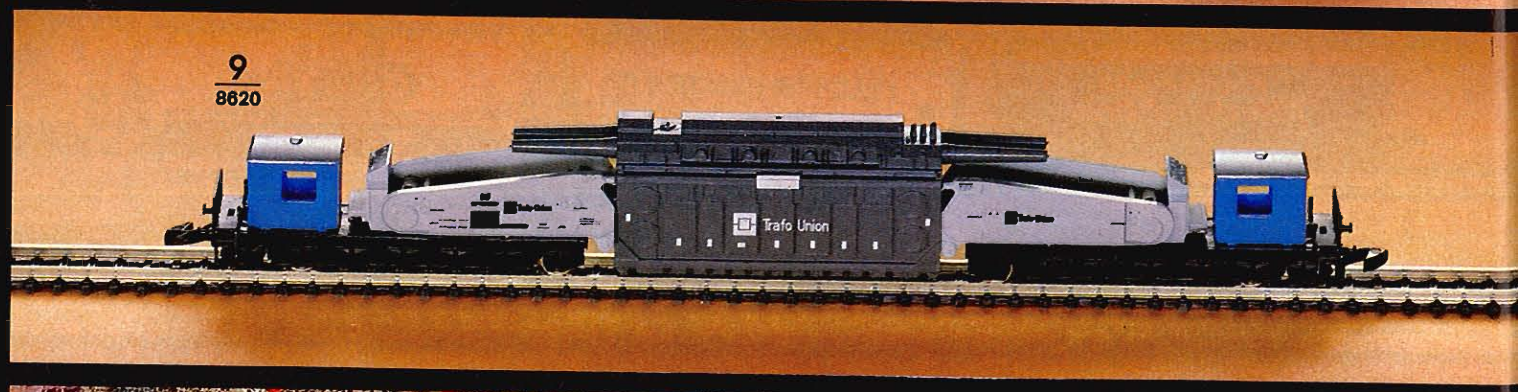
7
8626 · **Tank car** · Esso · 8 wheels · Length 75 mm (3″)

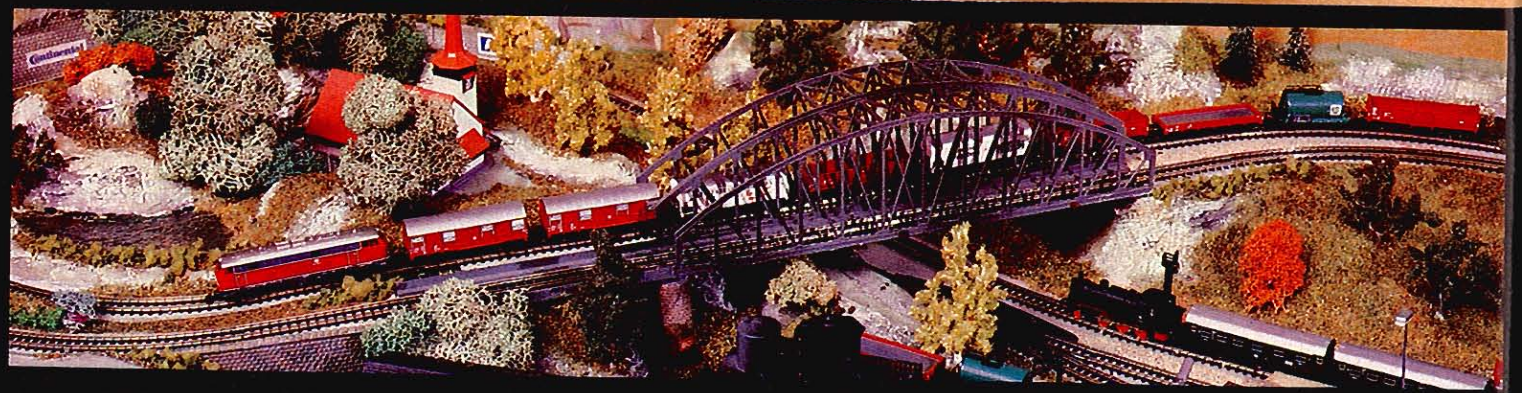
8
8627 · **Tank car** · Aral · 8 wheels · Length 75 mm (3″)

9
8620 · **Depressed-center flat car** · Loaded with transformer · Length 154 mm (6-1/16″)



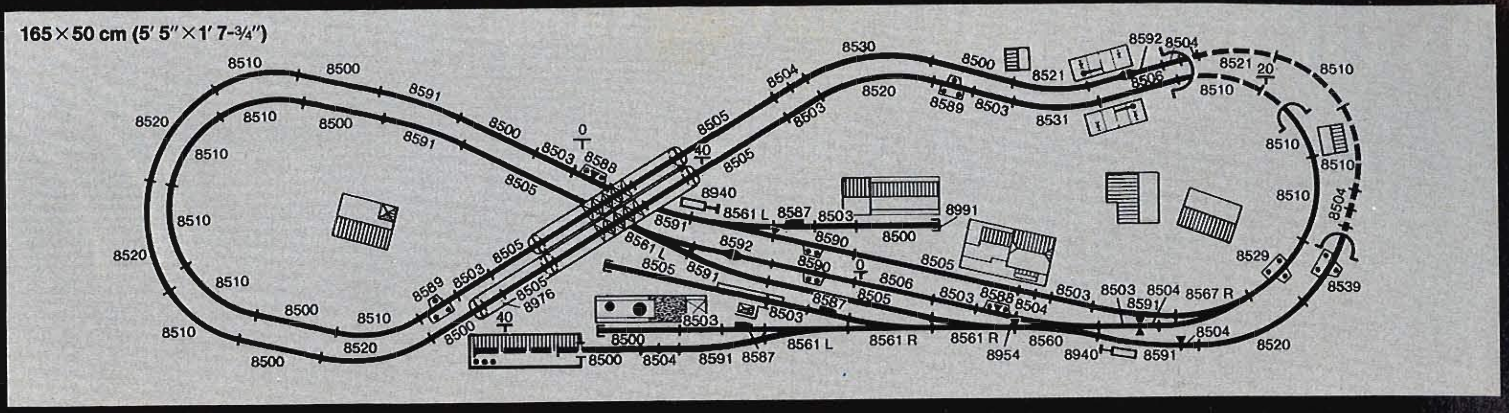




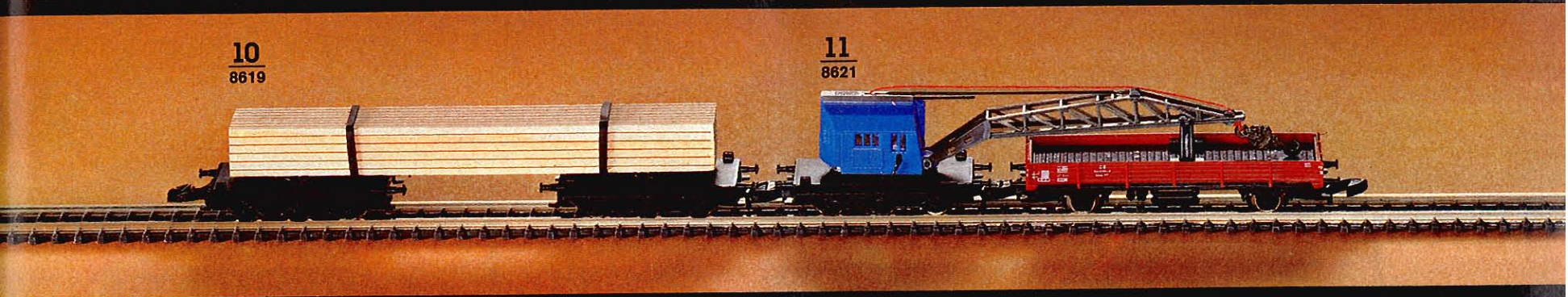


10
8619 · **Disconnected Lumber car** · In 2 parts · Loaded with finished lumber · Length 93 mm (3-5/8″)

11
8621 · **Crane car** · Rotating crane with movable boom and boom support · Hook can be raised and lowered by hand · Length of underframe 35 mm (1-3/8″) · (Low-side gondola 8610 is not included in the price, but is recommended for use when moving the crane car)









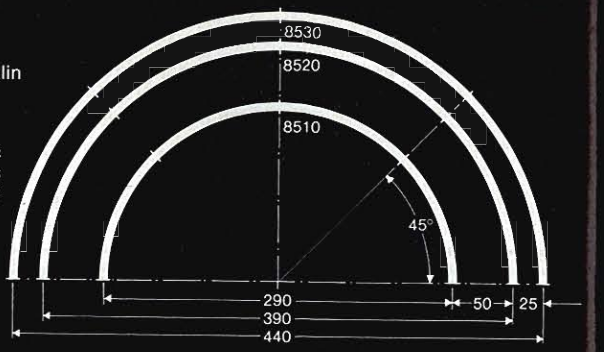
Track Work

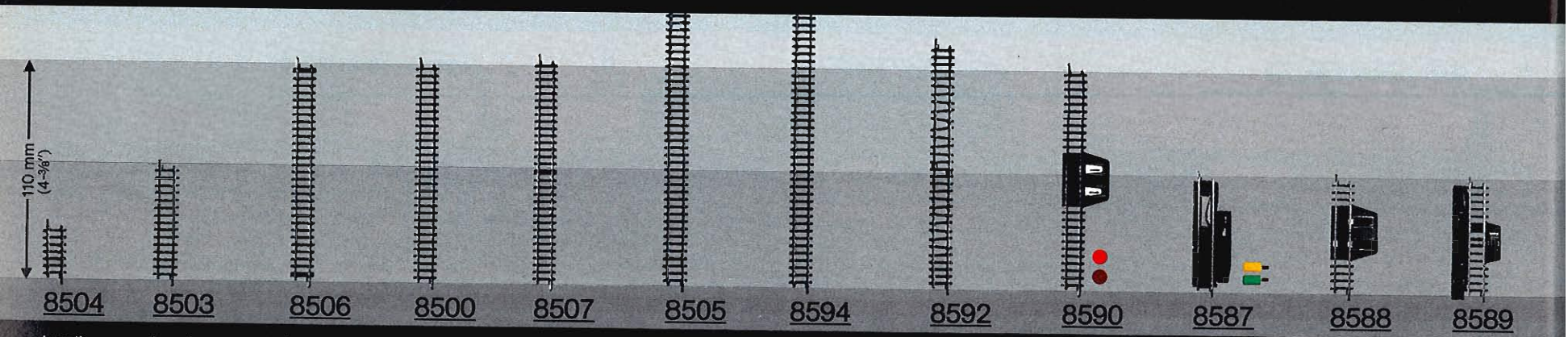
The Track System

The remarkable mini-club track sections have a gauge of only 6.5 mm (¼″), tie width of 11.5 mm (7/16″), and a rail height of 2.5 mm (1/10″), yet are amazingly detailed. The accurately scaled nickel-silver rails are mounted on plastic ties. As with other scales, the track sections are joined together by means of clips (fishplates). To insure a firmer connection, the fishplates are strengthened with claw couplings on the end ties, just beneath the rails.

This diagram shows the 3 Märklin mini-club track radii, including diameter and loading gauge.

Radius 8510 = 8 track sections
Radius 8520 = 8 track sections
Radius 8530 = 8 track sections





8504 Length 25 mm (1″)

8503 Length 55 mm (2-3/16″)

8506 Length 108.6 mm (4-5/16″) · Extension track for use with crossing 8559 and double-slip switch 8560

8500 Length 110 mm (4-3/8″)

8507 Length 112.8 mm (4-7/16″) · Same length as diagonal on crossing 8559 and double-slip switch 8560

8505 Length 220 mm (8-13/16″)

8594 Length 660 mm (2′ 2″) · Can be made into flex-track by selectively notching the ties · When doing so, rails and tie-strip should be shortened to conform to curves and new track clips (8954) installed

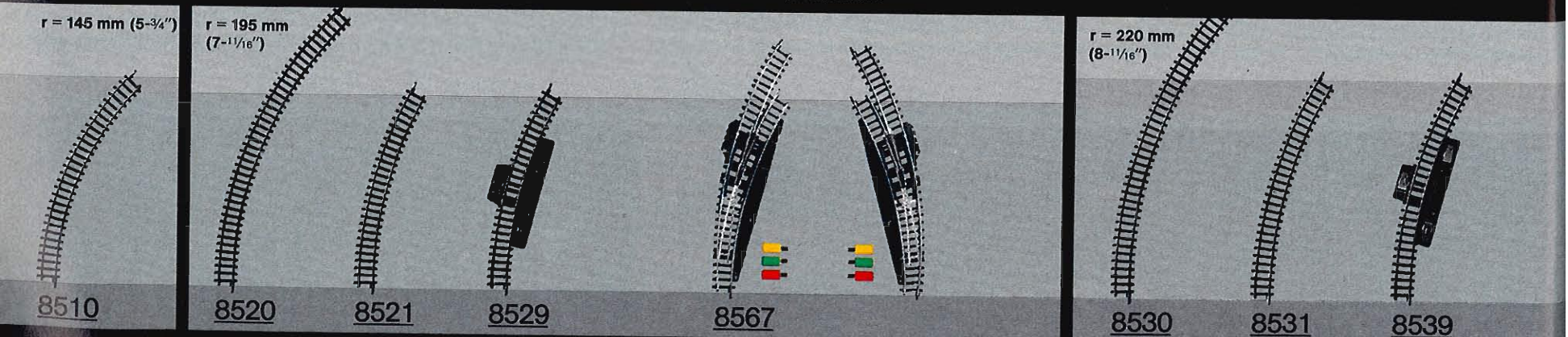
8592 Length varies from 100 to 120 mm (3-15/16″ to 4-¾″) · Excellent extension track for use with switches or filling odd gaps

8590 **Feeder track** · With radio interference suppressors · Includes two track terminals and leads · Length 110 mm (4-3/8″)

8587 **Uncoupling track** · Can be operated manually or by remote control (using position HP control switch 7072) · Length 55 mm (2-3/16″)

8588 **Isolating track** · For block circuits · One rail is cut to allow circuit selection · Includes connecting clamp · Length 55 mm (2-3/16″)

8589 **Circuit track** · Includes connecting clamps · Circuit tripped when train passes over track · Length 55 mm (2-3/16″)



8510 Radius 145 mm (5-¾″) · 45°

8520 Radius 195 mm (7-11/16″) · 45°

8521 Radius 195 mm (7-11/16″) · 30°

8529 **Circuit track** · Radius 195 mm (7-11/16″) · 30° · With terminal · Circuit tripped when train passes over track

8567 **Pair of solenoid-operated curved switches** · Radius 195 mm (7-11/16″) · 30° (same as 8521) · Length of outside track 125 mm (4-15/16″) · (Fig 4)

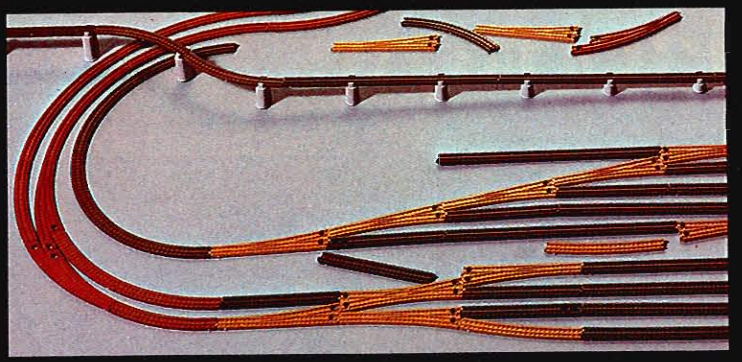
8530 Radius 220 mm (8-11/16″) · 45°

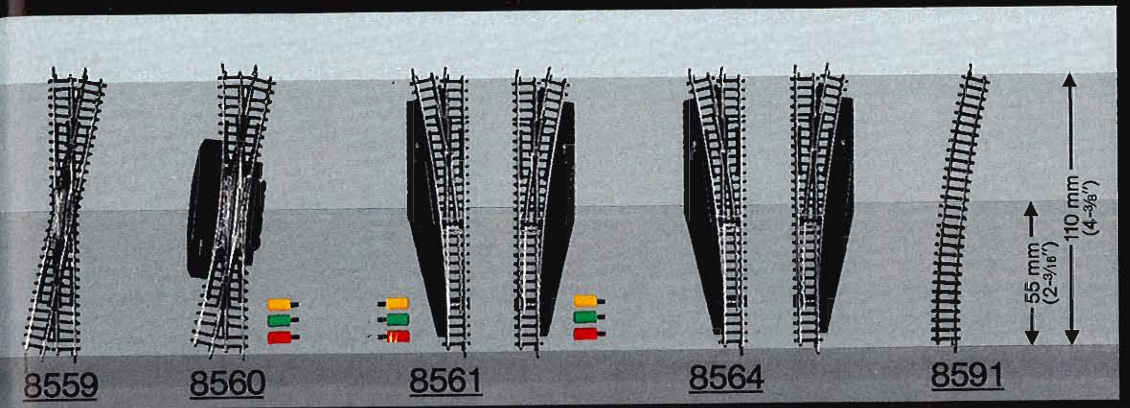
8531 Radius 220 mm (8-11/16″) · 30°

8539 **Circuit track** · Radius 220 mm (8-11/16″) · 30° · Includes terminals · Circuit tripped when train passes over track

Layout Planning

It's easy to plan your mini-club layout by using these specially-prepared "how-to" books, templates, and planning game. You'll know exactly what is necessary to realize your dream empire with these aids.





Crossing · Length 112.8 mm (4-7/16") · 13° · (Fig 1)

Double-slip switch · Length 112.8 mm (4-7/16") · 13° · Radius 323 mm (1' 3/4") · (Fig 1) · Solenoid operated

Pair of solenoid-operated switches · Length 110 mm (4-3/8") · 13° · Radius 490 mm (1' 1-1/4") · (Figs 2 + 3)

Pair of manually switches · Length 110 mm (4-3/8") · 13° · Radius 490 mm (1' 7-1/4") · (Figs 2 + 3)

Radius 490 mm (1' 7-1/4") · 13° · Matches the curve on switches 8561 and 8564

All solenoid switches can also be operated manually. For electric operation, they can be controlled by Position Control Box 7072 or by Switching Tracks 8529, 8539 or 8599.

Figure 1 for 8559 and 8560

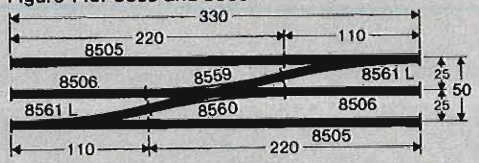


Figure 2 for 8561 and 8564

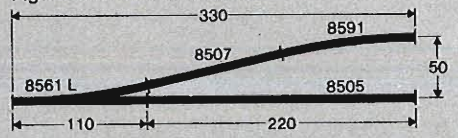


Figure 3 for 8561 and 8564

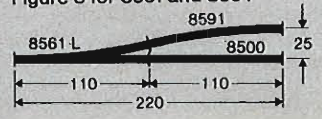
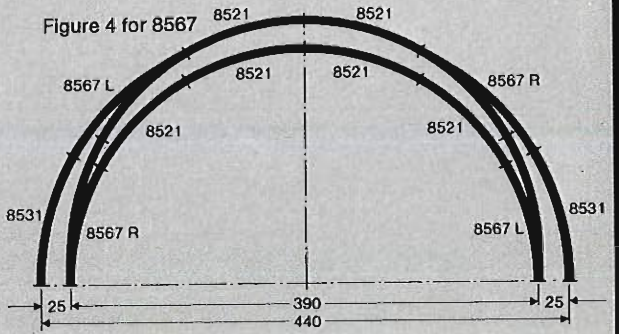


Figure 4 for 8567



0232

mini-club layout planning game for designing scale-size layouts and general layouts · Includes half-sized replicas of mini-club track sections · Enough "track" to design a medium large layout · Each "track" piece has the corresponding track number printed on the bottom · Arranged in 5 colors (3 curves, straight track sections and switches) · "Track" sections can be coupled together

With this game it is possible to plan your layout without referring to complicated geometry for curves. The color-coded "track" sections takes the guesswork out of layout planning.

To make this a game, just add dice! And make up your own rules. For example, if someone throws a six, he gets a double-slip switch.



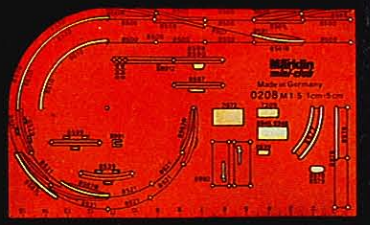
0322

Booklet "Märklin-Spaß mit mini-club" by Bernd Schmid · Ideal for beginners and advanced modelers alike · Wide assortment of "how-to" tips for building mini-club layouts · Easy-to-understand text · Ideas for track work, scenery, plus novel suggestions posible only with mini-club · Well illustrated, many color photos · 126 pages · 22 × 17 cm (8-3/4" × 6-3/4") · German text



0292

Booklet · 54 pages of layout designs · Includes wiring schematic, catenary and bridgework · English text supplement included



0208

Layout templates for mini-club tracks · Scaled 1 : 5





8931

Illuminated bumper · Includes screw for connecting to track · Length 16 mm (1 1/16")

8991

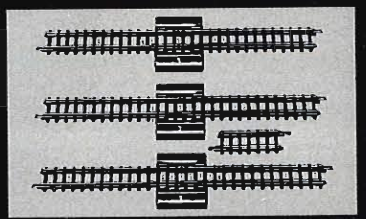
Bumper · Clips onto track · Length 15 mm (5/8")

8954

Pack of 10 insulated and 20 non-insulated rail joiners

8999

100 track nails · 0.5 × 6 mm (1/64" × 1/4")



8993

Reversing loop set · Easy way to ensure proper polarity on reversing loops



8974

Re-railing ramp · Easy way to get cars on the track

SET Expansion Program

The ideal way to develop a mini-club layout is to begin with one of the basic sets 8158–8160 or 8163 S–8165 S.

To Expand with 8163 S

First, expand the oval and add a passing track by using one of the "E" sets 8190 or 8191. Further expansion is possible by using the three "T" sets:

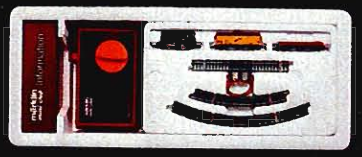
T1 8192 for double-tracking the oval
T2 8193 for passing track in the station area
T3 8194 for marshalling yard

The three "T" sets can be added in any sequence. A suggested sequence is shown on this page.

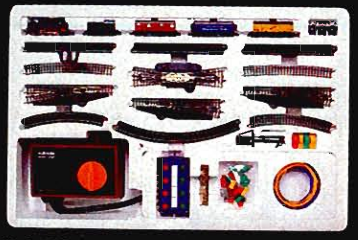
The basic sets 8158–8160 already include all the track for the expansion sets S, E, and T3 except for a siding. Expansion sets T1 and T2 is all that is needed to build the layout shown on this page. Also, these sets lend themselve to free-lancing.

Overhead Kits

Operate your electric locomotives realistically. The catenary kits shown here specifically designed for use with SET expansion program, but are also excellent for use on free-lanced layouts.



8163
Freight train with power pack S



8158
Freight train with power pack



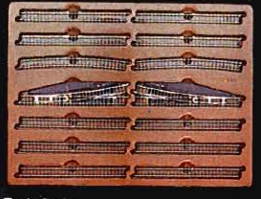
8198
Overhead system kit S+E · Contains all necessary items necessary for adding catenary to the S and E sets · Includes: 18×8911 · 1×8912 · 9×8922 · 11×8923 · 1×8926



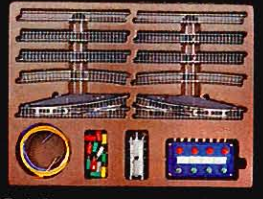
8199
Overhead system kit T1+T2+T3 · Contains all items necessary for adding catenary to the three T sets · Includes: 4×8911 · 16×8914 · 3×8921 · 6×8922 · 24×8923 · 2×8924 · 6×8925 · 1×8926 · 1×8927



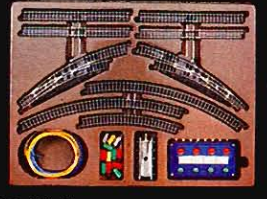
8930
Toporama · Landscape-guide for the SET program · Right-of-way clearly marked · Made of heavy-duty cloth · Colorful · Can be used with sets S+E onwards · Size 50×120 cm (1′ 7-¾″×1′ 11-¼″)



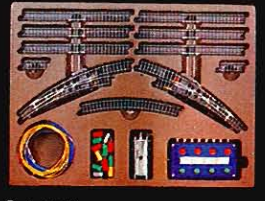
8190
Expansion set E with manual switches · Includes: 1×8564 · 2×8591 · 10×8500 · Instructions



8191
Expansion set E with solenoid-operated switches · Includes: 1×8561 · 2×8591 · 10×8500 · 1×7072 · 1×7209 · Leads, sockets, plugs · Instructions



8192
Double track set T1 · Includes: 1×8567 · 2×8521 · 4×8530 · 6×8500 · 1×7072 · 1×7209 · Leads, sockets, plugs · Instructions



8193
Station passing track set T2 · Includes: 1×8567 · 2×8521 · 2×8504 · 6×8500 · 1×7072 · 1×7209 · Leads, sockets, plugs · Instructions



8194
Marshalling yard set T3 · Includes: 1×8560 · 1×8561 · 10×8500 · 1×7072 · 1×7209 · 4×8991 · Leads, sockets, plugs · Instructions











Multiple Train Control

Multiple train control adds interest and excitement to any model railroad.

Multiple train operation is possible by using separate electric circuits; with each circuit controlling a different stretch of track. Each circuit requires a separate power pack.

Wires

Copper wires consist of 24 separate strands 0.10 mm (0.004″) in diameter each, for an overall circumference of 0.19 mm² (0.03 sq. in.). Can withstand short-circuits.

Once the tracks are laid, it is then time install wiring. Märklin makes the easy with color-coding:
Red: for supplying power to the rails.
Brown: for returning current from the ralls. These brown wires are grounded.
Yellow: for supplying constant voltage to accessories and lights.

Gray: for return of constant voltage from accessories and lights. These gray wires are also grounded and are also used for returning current from solenoid-operated switches.
Blue: for supplying current to solenoid-operated switches. These blue wires also have color-coded plugs for proper operation of the switches.



7000 **Staples** · Bag of 50 · For stapling wires on wood

7100 **Wire** · Single-core · Gray · 10 m (33′)

7101 **Wire** · Single-core · Blue · 10 m (33′)

7102 **Wire** · Single-core · Brown · 10 m (33′)

7103 **Wire** · Single-core · Yellow · 10 m (33′)

7105 **Wire** · Single-core · Red · 10 m (33′)



Sockets

7111 = brown
7112 = yellow
7113 = green
7114 = orange
7115 = red
7117 = gray



Plugs with side sockets
7131 = brown
7132 = yellow
7133 = green
7134 = orange
7135 = red
7137 = gray



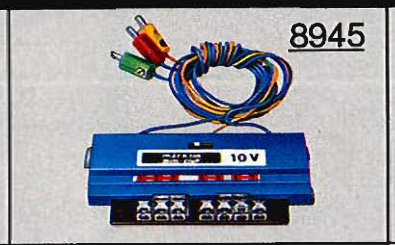
7209 **Distribution strip** · With 11 single sockets · Measures 50×20 mm (2″×¾″)



6701



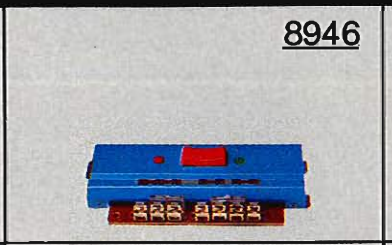
6727



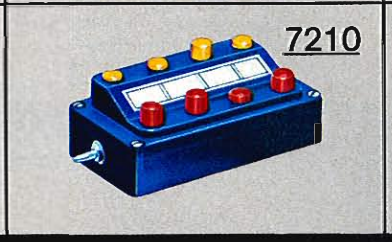
8945



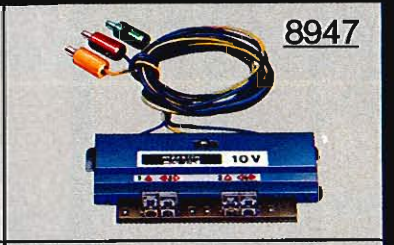
7072



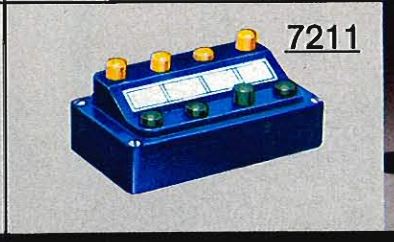
8946



7210



8947



7211



8939



8940

6701 220 Volt
Märklin mini-club Power Pack electronic 08 for use with AC power supply · Uses a programmed diode-circuitry to supply a steady flow of current at any range for smooth operation · Ideal for prototypically slow starts with realistic acceleration and deceleration · Single knob controls both the **DC track voltage** (between 0 and 8 V) as well as direction of travel (by rotating knob from center position) · Power output to 8 VA DC for tracks and 10 volt 8 VA **AC for accessories** · Brown plastic housing · Weight 0.8 kg (1-¾ oz) · Measures 85×117×70 mm (3-11/32″×4-5/8″×2-¾″)

6720 100 Volt Japan
6727 110 Volt (60 Hz) USA · UL-Approved
6729 240 Volt
Märklin mini-club power pack for use with AC power supply · Output 12 VA · **DC track current** adjustable between 2 and 8 volts · Polarity reversing switch for determining direction of travel · 10 V **AC current for accessories** · Blue plastic case · Weight 1.2 kg (2-½ lb) · Measures 125×135×75 mm (4-15/16″×5-5/16″×3″)

8945
Universal remote control commutator (switch) uses 2 single-pole switches and one changeover switch for various circuits · The Universal can perform many functions – up to three simultaneously · For examples see booklet 0292 · Operates on 10 V · Double-solenoid operation · Operated in conjunction with a circuit track, a position control box or by hand · Width 30 mm (1-3/8″) · Length 70 mm (2-¾″) · Height 8 mm (5/16″)

8946
Manual signal control panel with 2 single-pole switches and one changeover switch · Used for controlling signal 8939, track current, etc. · Width 30 mm (1-3/8″) · Length 70 mm (2-¾″) · Height 8 mm (5/16″)

8947
Double-pole changeover switch (for reversing polarity) · Operates on 10 V · Double-solenoid operation · Operates in conjunction with a circuit track, position control box or by hand · Width 30 mm (1-3/16″) · Length 70 mm (2-¾″) · Height 8 mm (5/16″)

7072
Position control box with 8 sockets for connecting up to 4 double-solenoid operated items · Position of buttons correspond to position of signals, switches, etc. · Length 80 mm (3-1/8″) · Width 40 mm (1-9/16″)

7210
Circuit breaker box for distributing track or accessory current on 4 different circuits by means of indicating buttons · Length 80 mm (3-1/8″) · Width 40 mm (1-9/16″)

7211
Circuit breaker box · On-off switch for 4 different track and accessory circuits · Uses push-buttons · Length 80 mm (3-1/8″) · Width 40 mm (1-9/16″)

8939
Color light home signal · Operating red/green lights · 2 bulbs · Controlled by universal remote control switch 8945 or by manual switch 8946 · Height 34.5 mm (1-3/8″)
= 8953

8940
Home signal with 1 semaphore · Operating red/green lights · Double solenoid operated · Can be used for automatic train control · Controlled by Position Control Box 7072 or by a switching track · Height 45 mm (1-¾″)
= 8953

8954
Pack of rail joiners · Includes 20 metal joiners and 10 insulating joiners

Overhead System

Add prototype realism to a mini-club layout by installing a catenary system (overhead). Electric locomotives will operate off the catenary. Using separate power packs, two trains can then be operated on the same stretch of track.

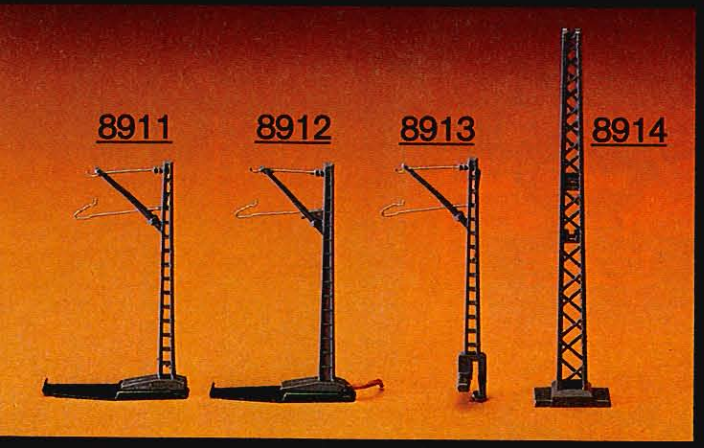
For single or double track lines, the simple masts are sufficient. On double-track lines, the masts are placed on the outside of the tracks. The sprung wire clamps insure good contact with the wires.

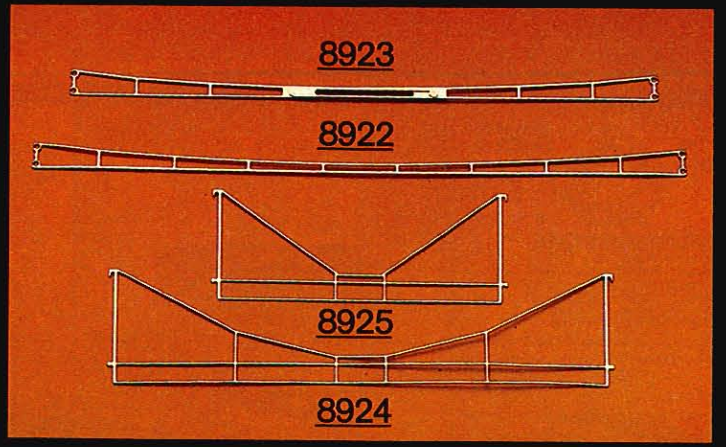
8911
Single track mast · Includes supporting plate · Height 38 mm (1-½")

8912
Feeder mast to connect power supply to overhead · Includes supporting plate and leads · Height 38 mm (1-½")

8913
Bridge mast for clipping on side of bridges, ramps, etc. · Height 41 mm (1-⅝")

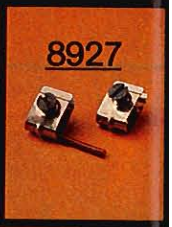
8914
Tower mast for multiple track overhead · Can accept cross-spans 8924 and 8925 · Base 7 × 13 mm (¼" × ½") · Height 61 mm (2-⅜")





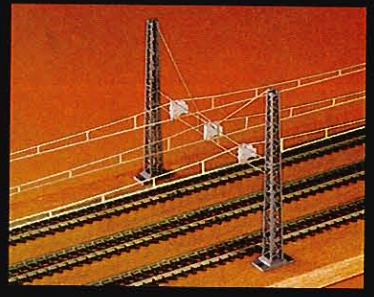












On multi-track sections (e.g.: stations, yards, etc.) tower masts and cross spans are required. With catenary insulators the individual circuits are kept separate.





8922
Catenary wire for straight and curved tracks · Length 165 mm (6-½")

8923
Catenary wire · Adjustable length 150 to 180 mm (5-⅞" to 7-⅛")

8924
Cross-span · Hooks onto tower masts · Spans 5 tracks · Length about 123 mm (4-⅞")

8925
Cross-span · Hooks onto lower masts · Spans 3 tracks · Length about 72 mm (2-⅛")

8921
Catenary insulators · Pack of 8 white and 2 gray insulators for insulating catenary wires from cross-spans · White insulators hold 2 wires, gray insulators hold 3 wires

8926
Pack of 8 insulator sections and 6 connecting springs · Required for insulating points on overhead and at switches

8927
Catenary wire terminals · Contains 2 screw terminals with leads and 3 without leads · For feeding power to catenary wires and for holding wire sections together (such as over crossings etc.)

8955
Standard pantographs · Includes screw for mounting

8956
Modern-style pantograph · Includes screw for mounting

Accessories

General scenery material (mats, grass, trees, etc.) is also available at any reputable hobby shop.

Structure kits listed here can be illuminated with lighting set 8950.

1
8957 · **Street light** · Height 46 mm (1-¾″) · Base 8 × 14 mm (5/16″ × 9/16″)
= 60210

2
8958 · **Station light** · Height 46 mm (1-¾″) · Base 8 × 14 mm (5/16″ × 9/16″)
= 60210

3
8959 · **Park light** · Height 25 mm (1″) · Base 8 × 14 mm (5/16″ × 9/16″)
= 60210

4
8980 · **Two-bay engine house with operating doors** · Kit includes 2 insulated track sections which automatically stop engines · Can accomodate overhead wires · Length 152 mm (6″) · Width 74 mm (2-⅞″) · Height 51 mm (2″)

5
8995 · **Overhead kit for transfer table** · Includes: 2 support masts, 1 catenary wire 8922 with lead soldered on, and 10 short catenary wires for approach tracks

6
8994 · **Transfer table** with 2 approach tracks and 8 stall tracks · Mates with engine house 8980 · Can be flush-mounted on layout · Power pack for remote control of table and locomotives · Operates with electric motor · Power is automatically disconnected to tracks not alligned with table · Width and length, both 220 mm (8-⅝″)

8950
Lamp with socket · Includes leads · Ideal for stations, building, etc.
= 8953

8953
Lamp · 10 V bulb · For use with socket 8950, signals 8939 and 8940, grade crossing 8992, and for illuminated locomotives

7
8986 · **Right-of-way detail assortment** · Includes 2 gripping levers · 4 crossing bucks · 4 sets of three railroad crossing approach highway signs · A telephone booth and a foot bridge

60210
Light bulb · For items 8896, 8957, 8958, and 8959



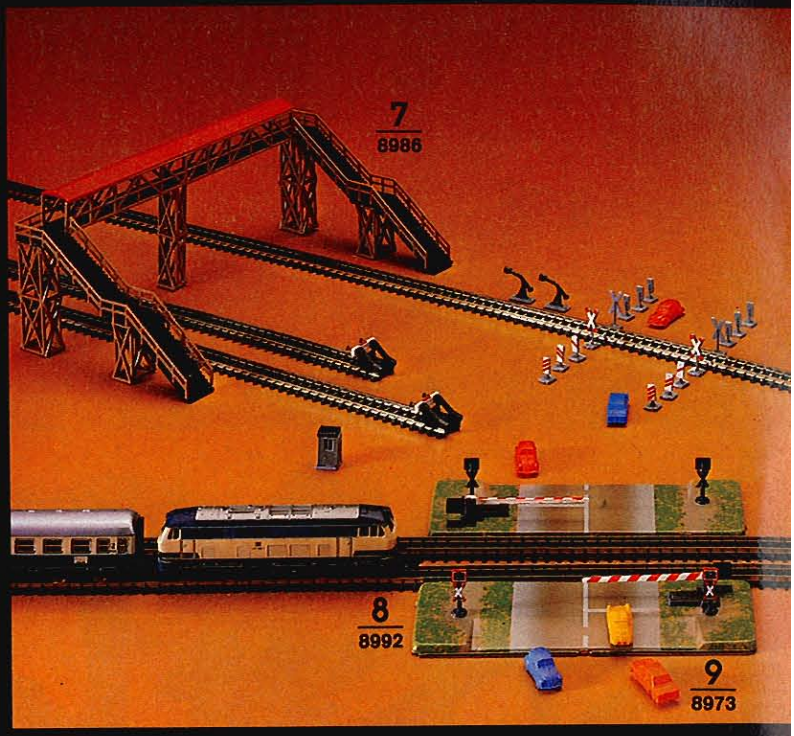
8
8992 · **Grade crossing kit with gates** · Includes 2 solenoid-operated crossing gates · 2 pair of crossing bucks (illuminated when gates are down) · Each half measures 96 × 37 mm (3-¾″ × 1-½″)
= 8953

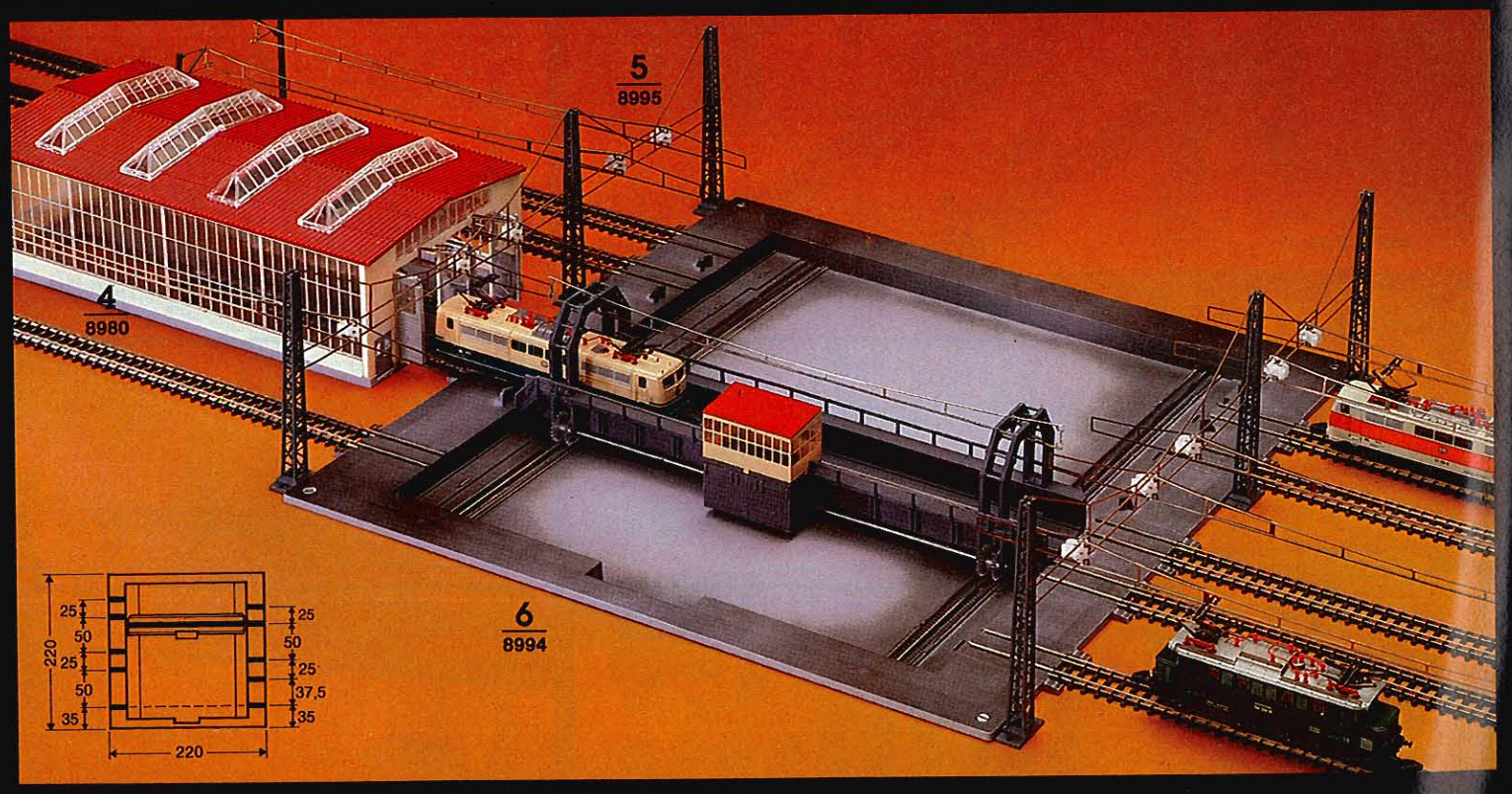
For exciting prototype operation of the grade crossing, set requires:

a) for **manual operation:** 1 manual signal control box 8946

b) for **automatic operation** by approaching train: 1 universal remote control switch 8945, 2 circuit tracks (be sure to use appropriate type, e.g.: 8529, 8539, or 8589)

9
8973 · **Package of assorted mini-club automobiles**





1
8972 · **Container terminal kit** · Overhead gantry with movable crane, containers and trucks · Base measures: 135 × 65 mm (5-5/16″ × 2-9/16″)

2
8975 · **Through bridge** · Gray · Length 220 mm (8-5/8″)

3
8977 · **Curved ramp** · Radius 145 mm (5-3/4″) · Track curvature 45°

4
8976 · **Straight ramp** · Length 110 mm (4-3/8″)

7599
Flat head wood screws · Ideal for connecting bridges to pillars · Pack of 200

5
8979 · **Set of bridge pillars** · Includes 5 pillars 40 mm high (1-9/16″)

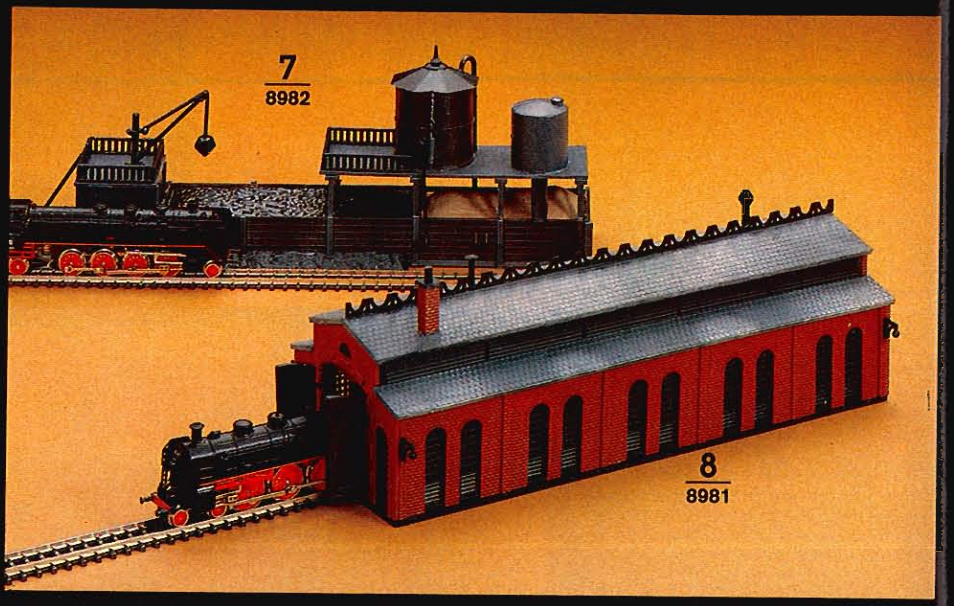
6
8978 · **Set of approach ramp pillars** · Includes 10 pillars, one each of 4, 8, 12, 16, 20, 24, 28, 32, 36, and 40 mm (0.157″ to 1-9/16″)

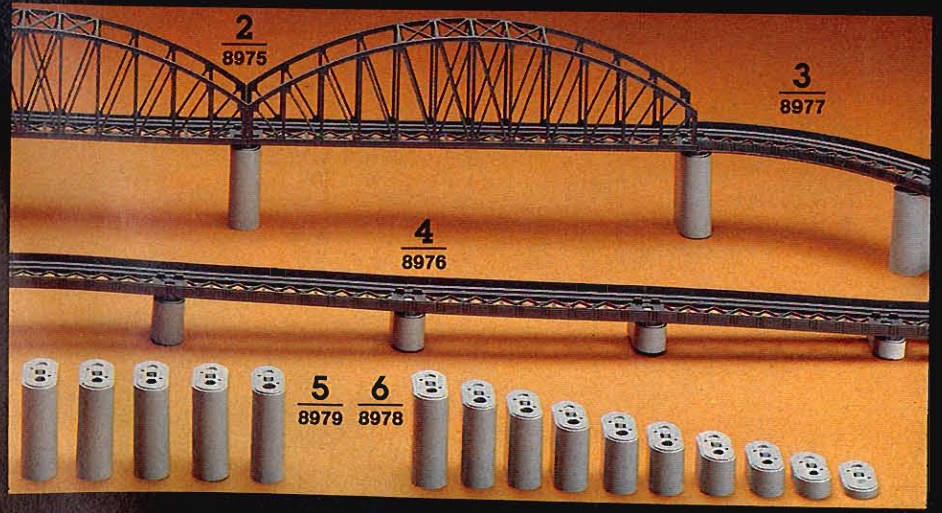
7
8982 · **Steam locomotive servicing area kit** · Includes crane, coal bunker, water tower, sand bunker with spout · Base measures: 150 × 35 mm (5-7/8″ × 1-3/8″)

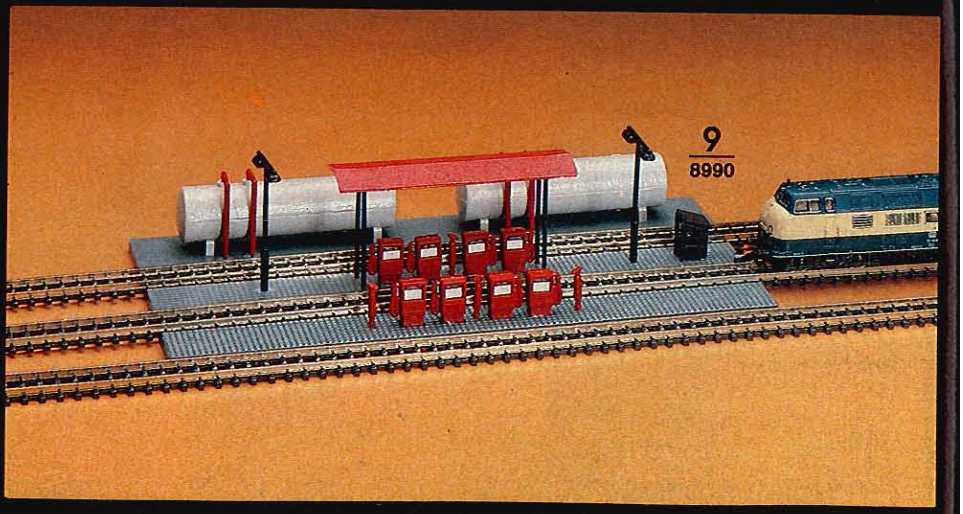
8
8981 · **Single-bay engine house with operating doors** · Kit includes insulated track which automatically stops engines · Base measures: 150 × 50 mm (5-7/8″ × 2″)

9
8990 · **Diesel servicing kit** · Includes fuel pumps, heating oil pumps, storage tanks, and roof · Base measures: 150 × 75 mm (5-7/8″ × 3″)









10
8970 · **Wintersdorf station kit** · Includes main building, annex and canopy · Can be used alone or in conjunction with 8971 freight house · Base measures: 72 × 112 mm (2-7/8″ × 4-3/8″) · Height 54 mm (2-1/8″)

11
8971 · **Freight house kit** · Includes warehouse, platform, and equipment storage area · Can be used alone or in conjunction with 8970 station · Base measures: 53 × 130 mm (2-1/8″ × 5-1/8″) · Height 38 mm (1-1/2″)

12
8985 · **Freight station detail kit** · Includes loading gauge, scale (non-working) with shed, 2 bumpers, 5 stacks of crossties, 2 cable reels, 2 crates and 2 drums

13
8996 · **Water tower kit** · With spout · Base measures: 52 × 52 mm (2-1/16″ × 2-1/16″) · Height 75 mm (3″)

14
8962 · **Dürnau station kit** · Multi-purpose building with annex and platform · Base measures: 70 × 50 mm (2-3/4″ × 2″) · Height 30 mm (1-3/16″)

15
8960 · **Göppingen station kit** · Model of center wing of actual station · Base measures: 228 × 114 mm (9″ × 4-1/2″) · Height 44 mm (1-3/4″)

(Göppingen, Märklin's hometown, is in the state of Baden-Württemberg, lies astride the main Stuttgart – Munich line.)

16
8965 · **Interlocking tower kit** · Base area 69 × 39 mm (2-3/4″ × 1-1/2″) · Height 46 mm (1-3/4″)

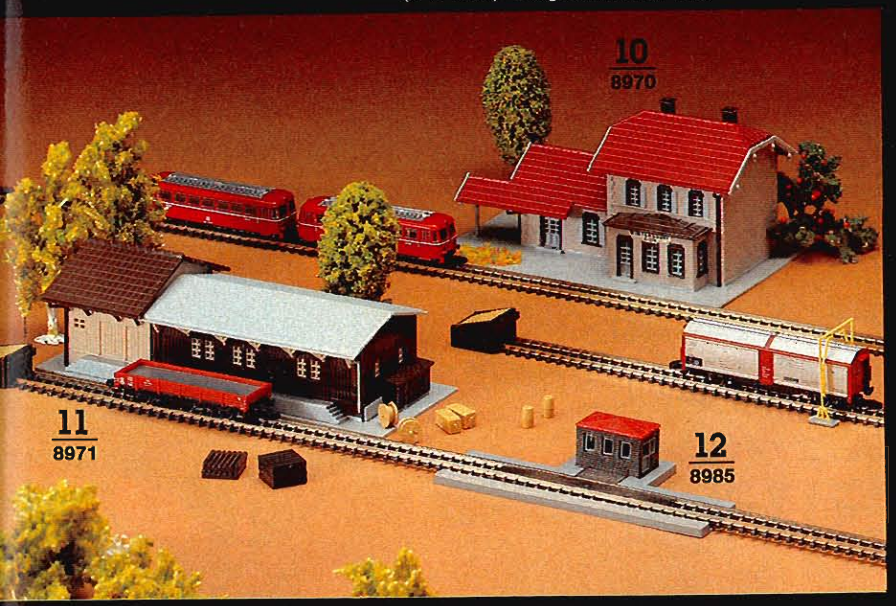
17
8961 · **Platform kit** · 2 complete kits · Total overall length 440 mm (1′ 5-1/4″) · Width 38 mm (1-1/2″) · Height 23 mm (7/8″)

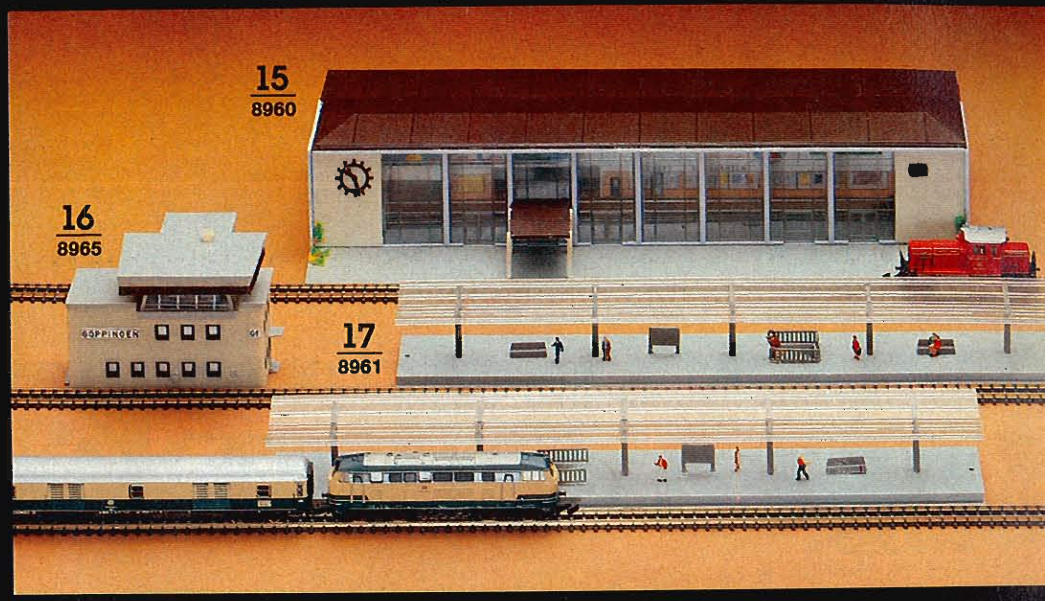
18
8964 · **Private residence kit** · Includes garage · Can be made into a one or two story house · Base measures: 91 × 71 mm (3-5/8″ × 2-3/4″) · Height 45 mm (1-3/4″)

19
8963 · **Apartment house kit** · Includes penthouse which can be used separately as a bungalow, newsstand, etc. · Base measures: 86 × 84 mm (3-3/8″ × 3-5/16″) · Height 97 mm (3-7/8″)

20
8968 · **Bungalow with terrace** · Kit includes garage · White sides · Can be built as a one or two story home in many variations, or as a terrace house · Base measures: 81 × 45 mm (3-1/4″ × 1-3/4″) · Height 29 mm (1-1/8″)

21
8969 · **Bungalow with terrace** · Kit include garage · Same as kit 8968 except sides are blue










märklin
I
DB
55 3964
DB
212 225-7
110V
01 RIV EUROP
80 DB
507 8 895-1
-E 040
0mm 55

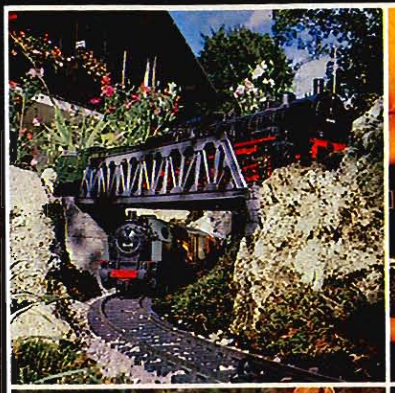
The Big One for outdoors and indoors

Märklin I trains command attention. Besides their size, they are prototypically correct and can perform real-life functions. They are versatile: as a garden railroad offering fun for visitors and family. Or indoors, since their sturdy tracks can be put up and taken down with ease, the trains can be placed anywhere in the house. These models are also treasured by collectors.

With a wide array of accessories (signals, station engine house, signal tower, and water tower), the operating possibilites are many. Also, this scale is especially appropriate for club layouts as members operate a "real" railroad. Like all Märklin systems, Märklin I trains are scaled in proper proportion to their prototypes.

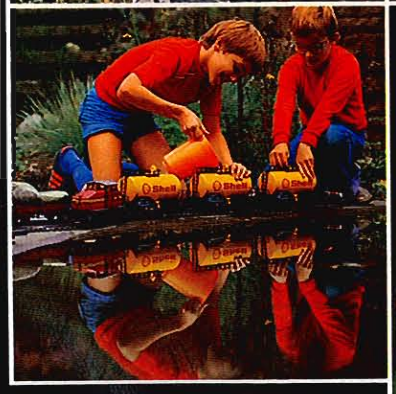


The Big One offers children a lot of enjoyment. They can load the freight cars, pour water in the tank cars, unload the freight cars, and drain the tank cars. Many items from sand to chocolate ice cream can be transported in I scale cars. The practical benefits of I scale trains in the house are numerous.

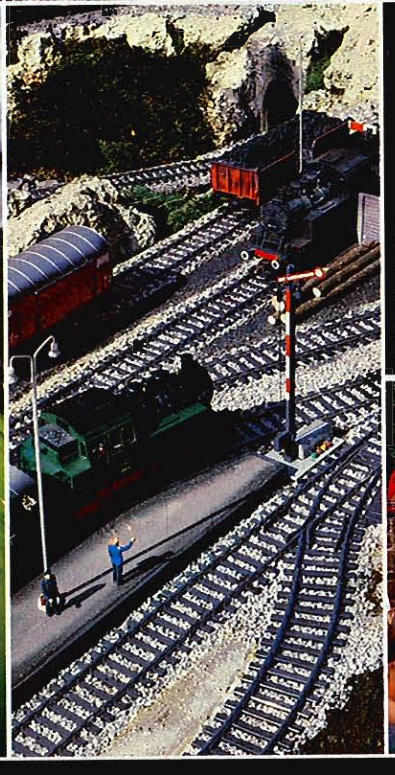




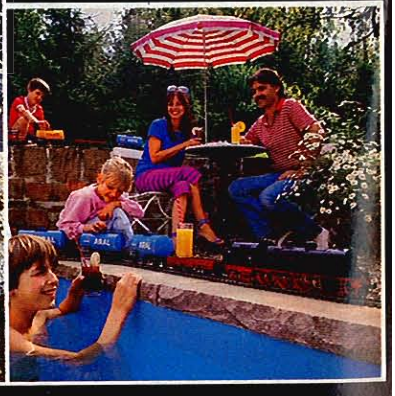








Operating the Märklin I trains is an excellent form of relaxation. Watching the trains run is almost like taking a vacation. A breezy, merry means for leisure time fun.



Model size I
Gauge 45 mm (1-3/4")
Scale 1:32
2-rail AC system

All Aboard!

Yes, a model railroad that can be placed anywhere in and around the house. Märklin's large scale trains offer endless hours of fun for people of all ages. The size and sturdy construction provide ample scope for a wide variety of railroad operations.

The Märklin I trains are excellent attractions at parties (picture the reaction of guests as drinks arrive "by train"!).

The high quality and prototypical accuracy will impress even the most experienced model railroaders.

The best way to begin is with the Beginner's Set 5531. It includes everything necessary to get rolling. Or, a layout can be developed individually with the cars, engines, and track being acquired as needed.

Märklin I can be placed easily, and be relaid with equal ease, anywhere in and around the house.

The locomotives are AC-powered and operate on realistic 2-rail track. Direction of motion is controlled by a switch in the locomotive.

With the Beginner's Set

The Beginner's Set is an ideal basis upon which to develop a Märklin I gauge layout.

The set can be easily extended ecomically according to preference. Build a nice long main line, install yards and switches, establish an engine maintainence depot, or explore the many ways of operating the locomotives and cars.

1

5531 220 Volt
5537 110 Volt
Freight train with transformer · Includes: 1 tank engine 5710 with remote controlled directional switch, 1 gondola 5850, 1 flat car 5853, 1 straight track 5900, 12 curved tracks 5921, 1 feeder track 5990 with capacitor to suppress radio static, engineer and fireman figures, 2 barrels, 2 sacks, 1 crate, 1 oil drum, 1 reel of cable, and 9 logs for freight loads, and 1 transformer · Train length 97 cm (3′ 2″)



Or the freelance method

A Märklin I layout can be easily developed on a piece-by-piece basis, because Märklin offers a wide variety of track sections, locomotives and cars.

For the simplest layout, an oval, all that's necessary is a feeder track 5990, a straight track 5900, and 12 curved tracks 5921. But there is no need to stop at an oval! Add a "straightaway" for more fun, all that is required is nine additional straight tracks 5900 for a 3 meter (9′ 10″) stretch.

With a lengthy straight section, hours of fun can be had loading and unloading the cars. And it is surprisingly inexpensive to add switches, additional track, stations, etc.

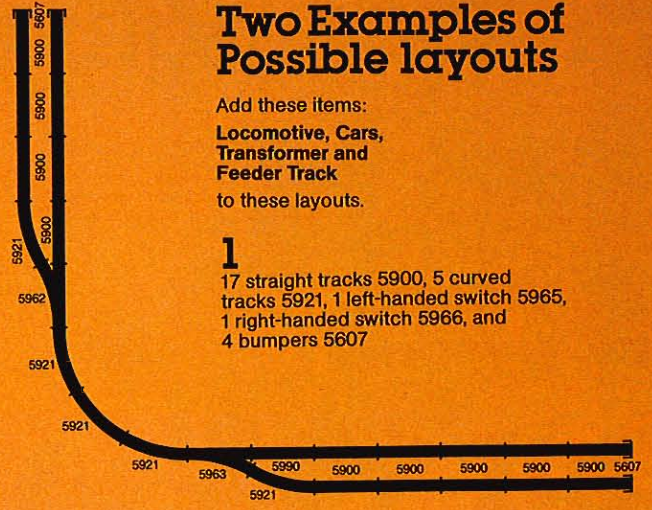
1
5531

Two Examples of Possible layouts

Add these items:

Locomotive, Cars, Transformer and Feeder Track

to these layouts.

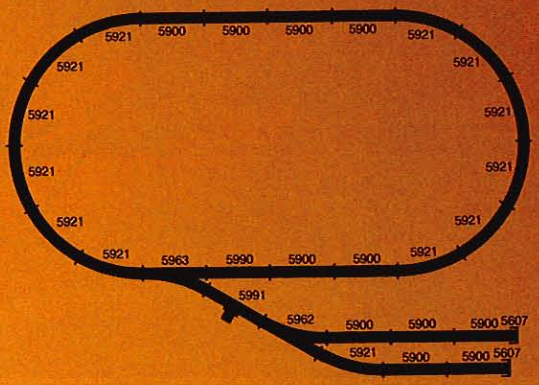


1

17 straight tracks 5900, 5 curved tracks 5921, 1 left-handed switch 5965, 1 right-handed switch 5966, and 4 bumpers 5607

2

11 straight tracks 5900, 13 curved tracks 5921, 1 left-handed switch 5962 (5965), 1 right-handed switch 5963 (5966), 1 uncoupling track 5991, 2 bumpers 5607, 1 control box 7072, wires and plugs



The cars can be spotted anywhere on these layouts for the loading/unloading of liquids and freight. The tank cars 5865–5867, for example, can be filled from the operating water spout (5619–5620). Or load the dump car 5859 with gravel, etc.

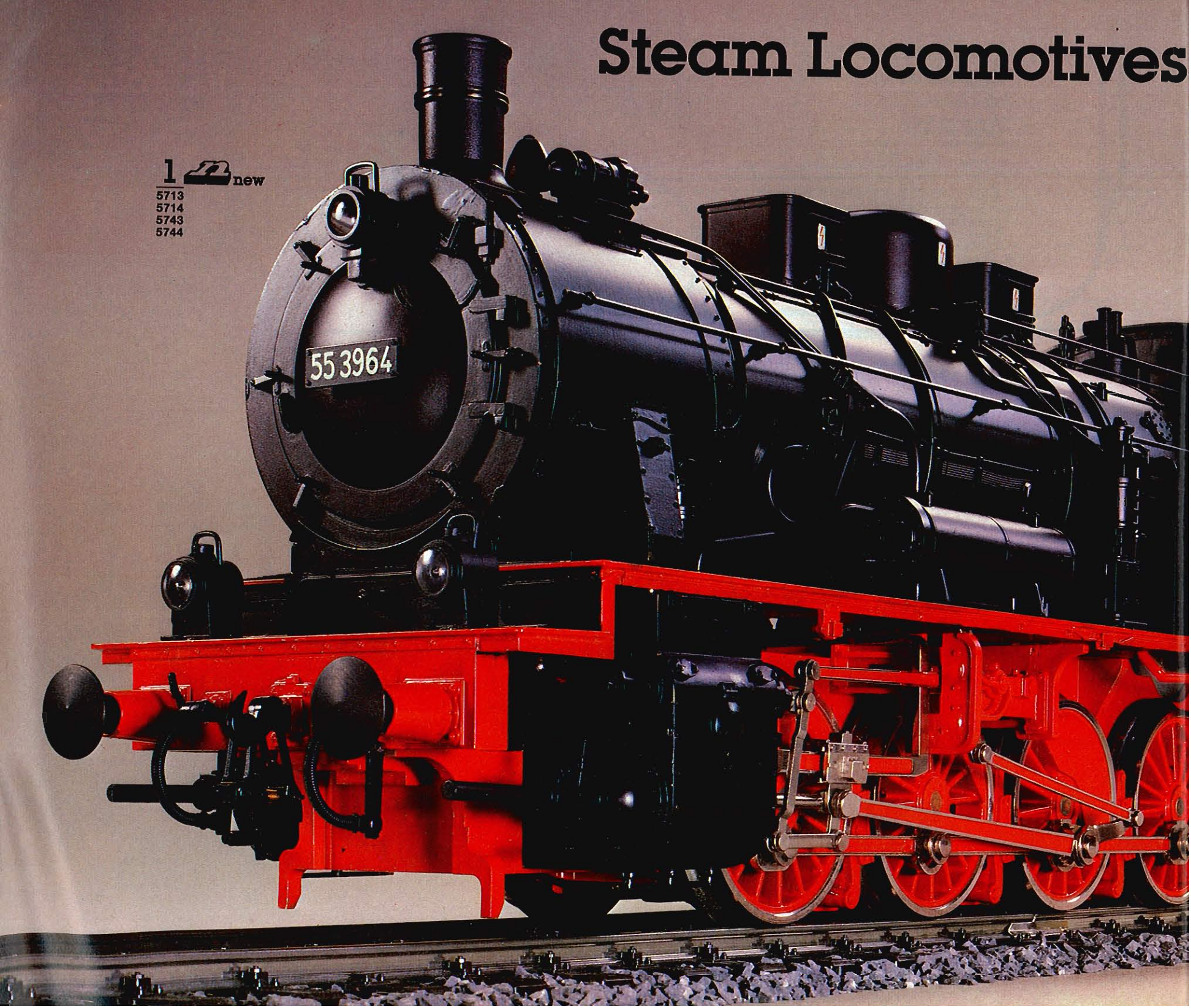


2 new

0324 · Märklin I für Haus+Garten · Authored by Bernd Schmid · 10 chapters containing many ideas on how to install an I scale layout indoors or outdoors · Plans include scratchbuilding accessories and building a large layout with classification yard. Many diagrams and photos, some in color · 182 pages · Size 22×17 cm (8-¾″×6-¾″) · German text



Steam Locomotives

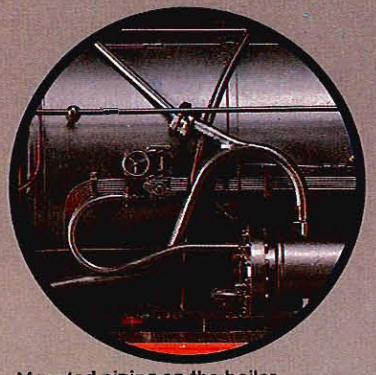


1 new

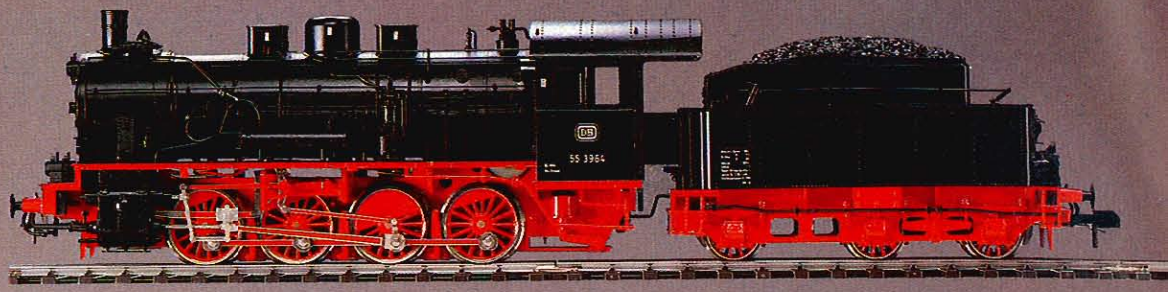
5713
5714
5743
5744



Free standing piping at the cab



Mounted piping on the boiler





1 new

5714 · Locomotive with tender · German Federal Railways' class 55 · 0-8-0 wheel arrangement · All wheels powered through hidden gears · Armature shaft mounted between ball bearings · 2 non-skid tires · Simulated Heusinger valve gears · Die cast zinc frame · Highly detailed body and cab with prototypical flat black finish · Remote control for forward and reverse · Built-in smoke set · 3 constant brightness headlights at each end · 6-wheel tender · Real coal in the tender · Sprung buffers and imitation air brake hoses on buffer beams · Prototypical screw coupler in front which can be replaced with an automatic claw coupler · Automatic claw coupler on tender · Illuminated cab · Engineer and fireman figures · Length over buffers 57.4 cm (1' 10-¾")

Light bulb = 60019
Carbon brushes = 60152
Smoke fluid = 0241

This model will not negotiate curves with a radius less than 1 meter (3' 3"). Curved tracks 5932 and switches 5972/5973 are appropriate for the 5714.

1 new

5713 · Locomotive with tender · Similar to the 5714 but has mechanism to simulate real locomotive sounds including whistles · Sound mechanism, which creates realistic exhaust sounds, is located in the tender · The whistle is activated by means of special magnets located on the track · 4 of these magnets are provided

1 new

5744 · Locomotive with tender · 2-rail DC version of the 5714

1 new

5743 · Locomotive with tender · 2-rail DC version of the 5713

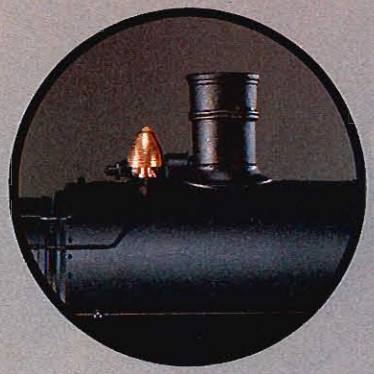
Class 55

■ The development of the Prussian G 8¹ (DB class 055) goes back to the experiences with the G 7 and G 8. The G 8¹ has been an unqualified success ever since the first unit was outshopped in 1913. By 1921, the Prussian Railways had 4,948 units in service. Over 100 others were plying the rails of other railroads, both German and foreign. In 1920, 3122 of the G 8¹ locomotives were consigned to the newly organized German State Railways. By 1945, 1,000 were still in service. The last of the 55s were retired by the German Federal Railways in 1973.

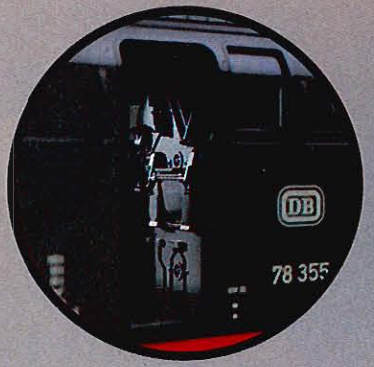
The 8 wheeler had a top speed of 55 kmph (34 mph) with a power rating of 927 kW. On level track, the G 8¹ could drag 1150 tons at 55 kmph (34 mph). In fact, it could easily scamper up a 10‰ grade with 650 tons hanging on the drawbar.

Because the engine had an axle weight of 17.5 tons, the locomotive could only be used on mainlines.


1
5712
2
5706
5746
GMEB
78 355
Unt. Tr. 7.9.65



Smokestack with bell and whistle



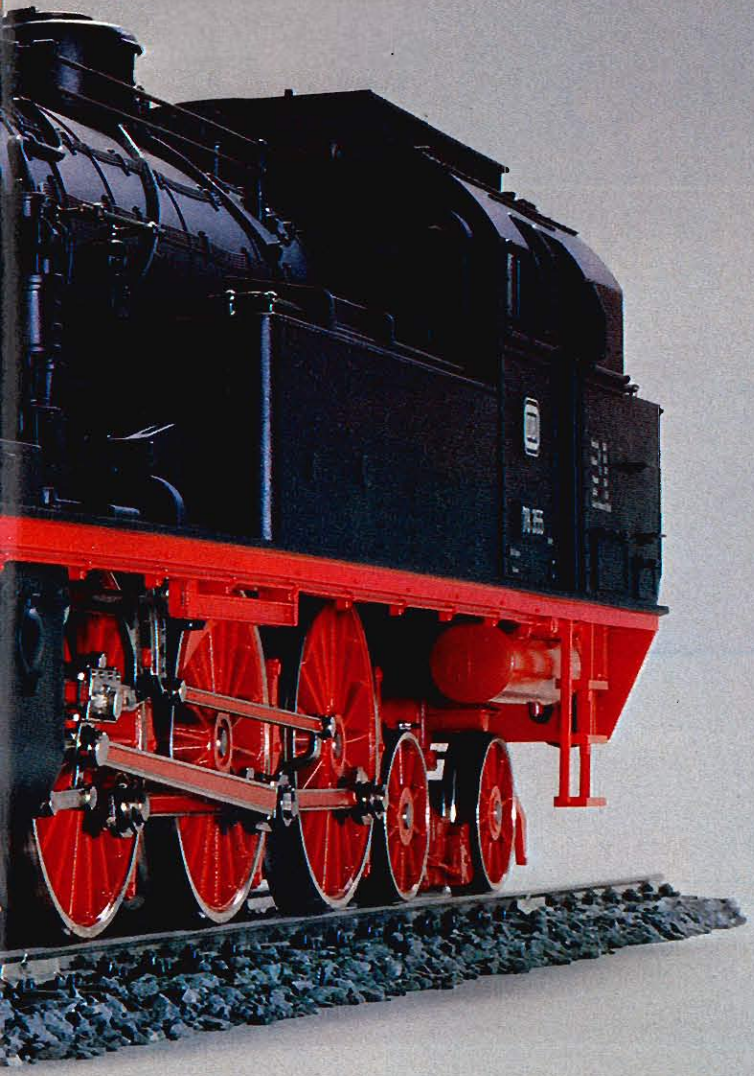
Prototypically detailed backhead

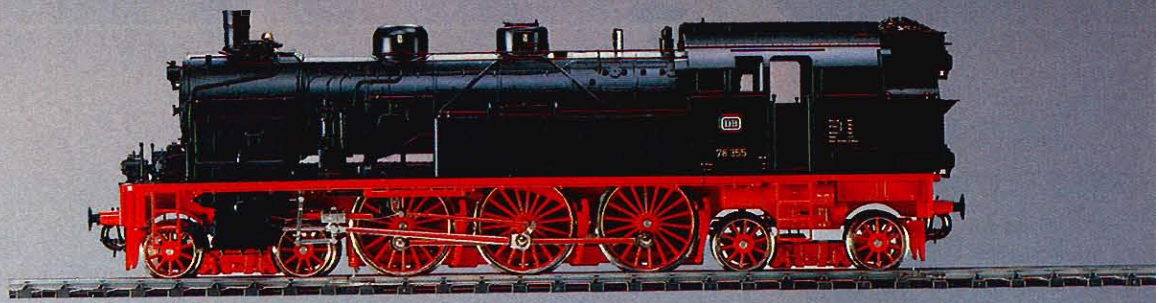


1

5712 · Tank locomotive · 0-6-0 wheel arrangement · 2 non-skid tires · Simulated Heusinger valve gears · Remote control switch for forward and reverse · 3 working headlights at each end · Colorful body with black boiler, dark green cab and tanks and brass colored window frames and hand rails · Operating cab doors · Windows have "cellon" panes · Die cast zinc frame · Automatic claw coupler and sprung buffers at each end · Length over buffers 30.25 cm (1')

Light bulb = 60019
Carbon brushes = 60035





2

5706 · Tank locomotive · German Federal Railways' class 78 · 4-6-4T wheel arrangement · All drivers powered through hidden gears · Armature shaft mounted between ball bearings · 2 non-skid tires · Simulated Heusinger valve gears · Die cast zinc frame · Highly detailed body with flat black finish · Remote control switch for forward and reverse · Built-in smoke set · 3 constant-brightness headlights at each end · Sprung buffers at each end · Automatic, removable claw couplers · Also includes 2 screws couplers and 4 simulated air brake hoses which can be installed in place of the claw couplers (in such case, the rail guards would have to be changed, both sets are included) · Engineer and fireman figures · Length over buffers 46.3 cm (1' 6-¼")

Light bulb = 60019
Carbon brushes = 60152
Smoke fluid = 0241

This model will not negotiate curves with a radius less than 1 meter (3' 3"). Curved tracks 5932 and switches 5972/5973 are appropriate for the 5706.

2

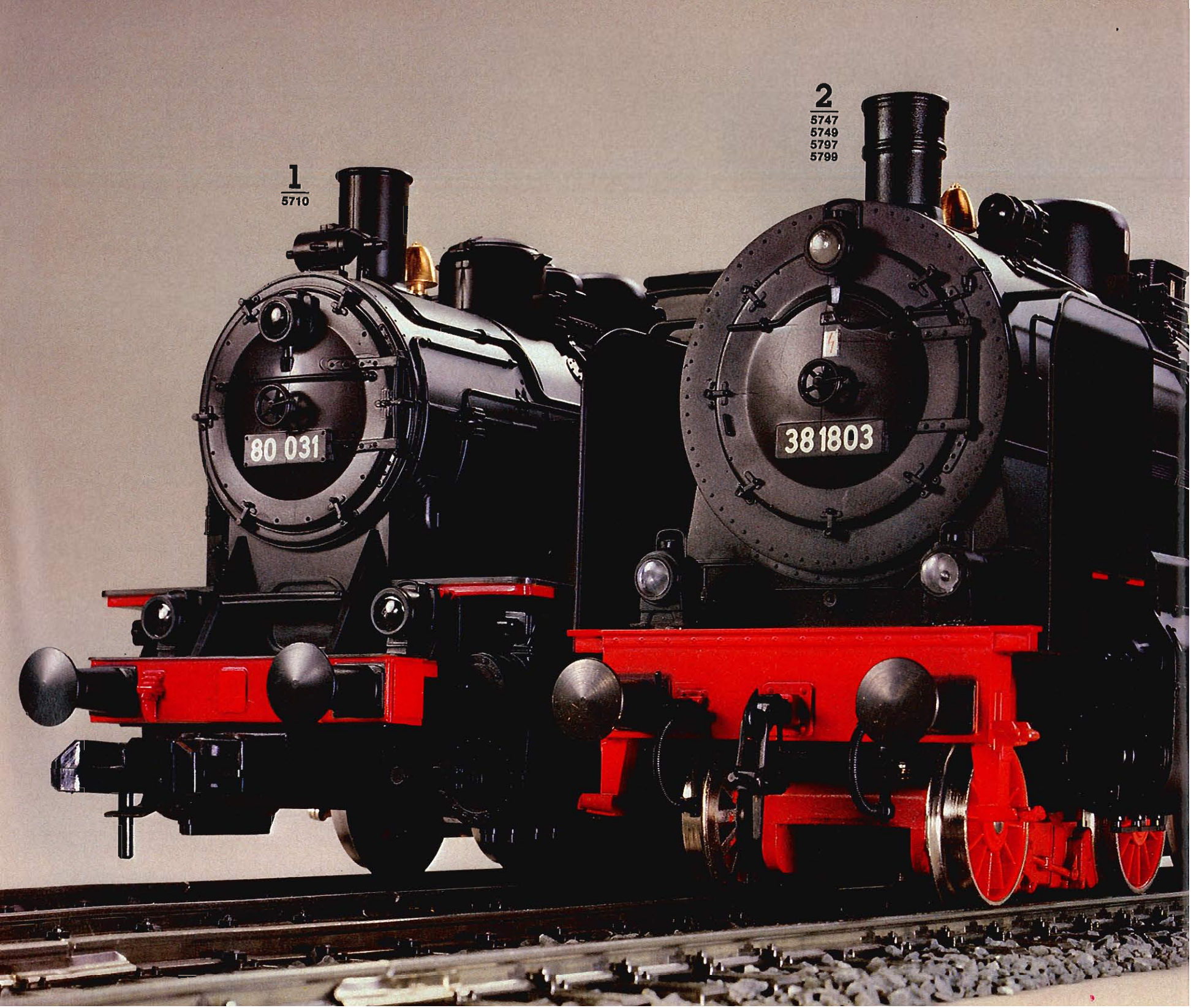
5746 · Tank locomotive · 2-rail DC version of the 5706

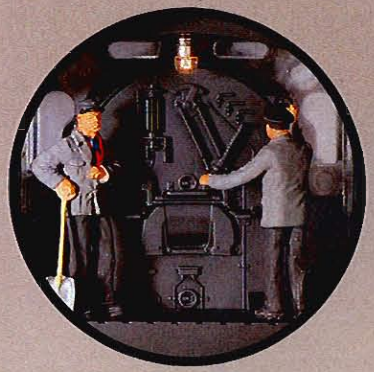
Class 78

■ Märklin's I scale class 78 engine carries the roadnumber 78 355. Its prototype had a long and busy career with the German railroads before being retired on December 11, 1968.

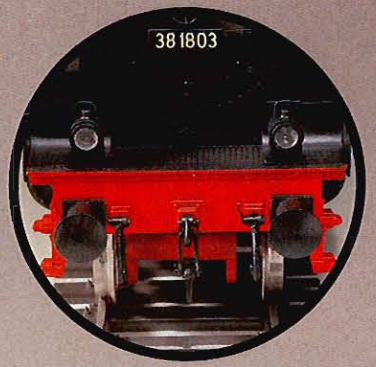
The 78 355 was the seventy-eighth of its class to be produced by Henschel. It was delivered to the Essen Division in 1922 and initially assigned the number "Essen 8930". Records are unclear as to where it spent the first 11 years, but by 1933, the 78 355 was stationed at Hanau. The locomotive remained there until 1961, when it was transferred to Aalen on the Stuttgart – Schorndorf line. That line was not yet electrified and the authorities required a steamer capable of push-pull operation.

As recently as 1963, Aalen had ten T 18 locomotives stationed there. (T 18 was the former designation of the class 78.)

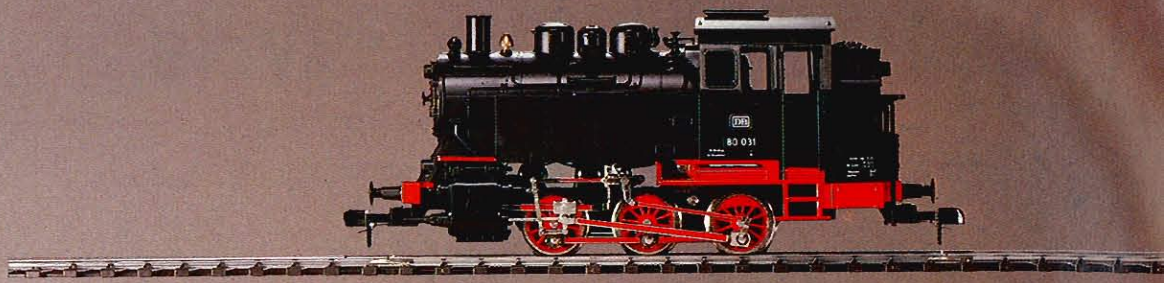

1
5710
2
5747
5749
5797
5799
80 031
38 1803



Highly detailed and illuminated cab



Sprung buffers, prototypical screw couplers, and simulated air brake hoses



1

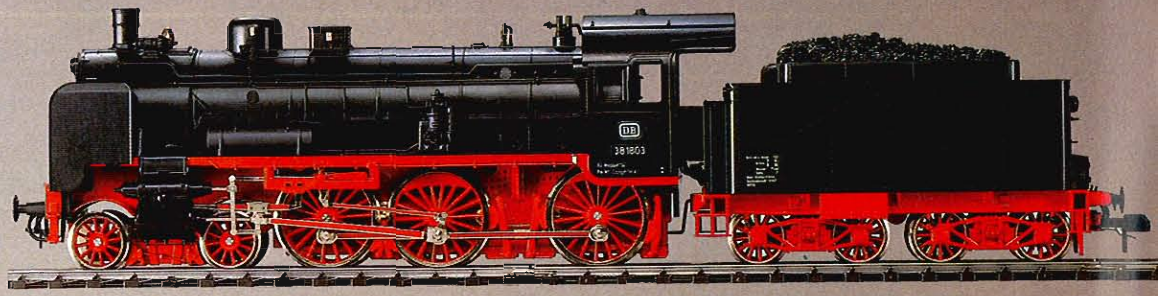
5710 · Tank locomotive · German Federal Railways' class 80 · 0-6-0T wheel arrangement · 2 non-skid tires · Simulated Heusinger valve gears · Remote control for forward and reverse · 3 headlights at each end · Operating cab doors · Windows have "cellon" panes · Die cast zinc frame · Automatic claw coupler and sprung buffers at each end · Length over buffers 30.25 cm (1')

Light bulb = 60019
Carbon brushes = 60035

■ The class 80 engines were built in 1927/28. Rated at 422 kW, they could haul 1380 tons at 35 kmph (22 mph) on level track.

The German Federal Railways had 17 of these switchers and the last one was retired in 1965. A few of these engines were also used on industrial lines in the Rhine and Ruhr districts.





2

5799 · Locomotive with tender · German Federal Railways' class 38 · 4-6-0 wheel arrangement · All drivers powered through hidden gears · Armature shaft mounted between ball bearings · 2 non-skid tires · Simulated Heusinger valve gears · Die cast zinc frame · Highly detailed body includes elephant ears and remarkably detailed backhead · Remote control for forward and reverse · Built-in smoke set · 3 constant-brightness headlights at each end · 8-wheel tender with 2 trucks · Real coal in the tender · Sprung buffers and imitation air brake hoses on buffer beams · Prototypical screw coupler in front, which can be replaced with an automatic claw coupler · Automatic claw coupler on tender · Illuminated cab · Engineer and fireman figures · Length over buffers 58 cm (1' 11")

Light bulb = 60019
Carbon brushes = 60146
Smoke fluid = 0241

This model will not negotiate curves with a radius less than 1 meter (3' 3").

Curved tracks 5932 and switches 5972/5973 are appropriate for the class 38.

2

5797 · Locomotive with tender · Similar to the 5799 but has mechanism to simulate real locomotive sounds including whistles · Sound mechanism, which creates realistic exhaust sounds, is located in the tender · The whistle is activated by special magnets located on the track · 2 of these magnets are provided

2

5749 · Locomotive with tender · 2-rail DC version of the 5799

2

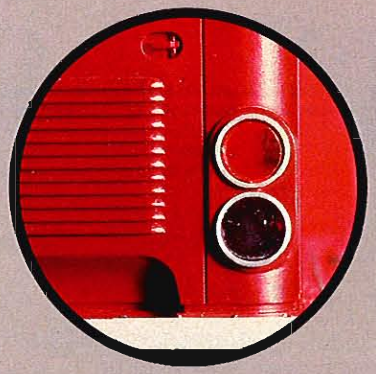
5747 · Locomotive with tender · 2-rail DC version of the 5797

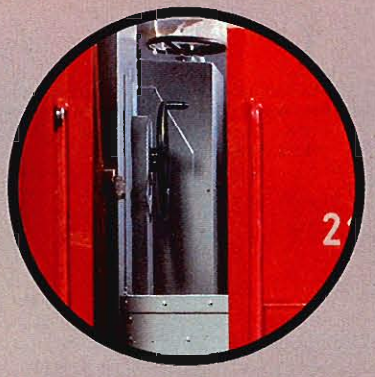
Class 38

■ The class 38 was one of the most popular passenger locomotives ever built. By 1928, 3,800 units were in service. The first of these moguls were outshopped by Schwarzkopff in 1906 for the Prussian Railways who designated them class P 8. Because they were economical and reliable, the P 8 quickly evolved into the favored Prussian passenger engine. These 4-6-0 locomotives were also popular on foreign railroads. The class 38s averaged a service life of 66 years hauling all types of varnish.

Diesel Lokomotives







Head and tail lights illuminated according to direction of travel

Both cab end interiors are completely detailed. Doors have operating handles





1

5719 · **Diesel switcher** · Industrial switcher with a C wheel arrangement · 2 non-skid tires · Remote control for forward and reverse · 3 operating headlights at each end · Red body with yellow striping · Operating cab doors · Windows with "cellon" panes · Die cast zinc frame · Automatic claw coupler and sprung buffers at each end · Length over buffers 30.25 cm (1')

Light bulb — 60019
Carbon brushes — 60035



2

5772 · **Multi-purpose diesel** · German Federal Railways' class 212 · B-B wheel arrangement · 1 worm-gear driven power truck · Ball-bearing armature shaft · 4 non-skid tires · Die cast zinc frame · Prototypical color scheme · Operating cab doors · Remote control switch for forward or reverse · Constant brightness head and tail lights, 3 white head lights and 2 red tail lights at each end illuminated according to direction of travel · 2 completely detailed cab quarters · Sprung buffers at each end · Automatic removable claw couplers · Also includes 2 screw couplers and 4 simulated air brake hoses which can be installed in place of the claw couplers · Length over buffers 38.4 cm (1' 3-¼")

Light bulb — 60019
Carbon brushes — 60152

2

5742 · **Multi-purpose diesel** · 2-rail DC version of the 5772

Class 212

■ During the late 1950s, surging traffic on the German rails demanded a versatile, powerful diesel. Thus the 212 came to be. Since 1962, 381 units have been outshopped. Its motor is rated at 993 kW, and has a top speed of 100 kmph (62 mph). The diesel is equipped with an oil-fired boiler to supply heat for passenger cars.

Like its predecessor the 211, the 212 is a multi-purpose diesel designed for branch line work and short hauls on non-electrified track.

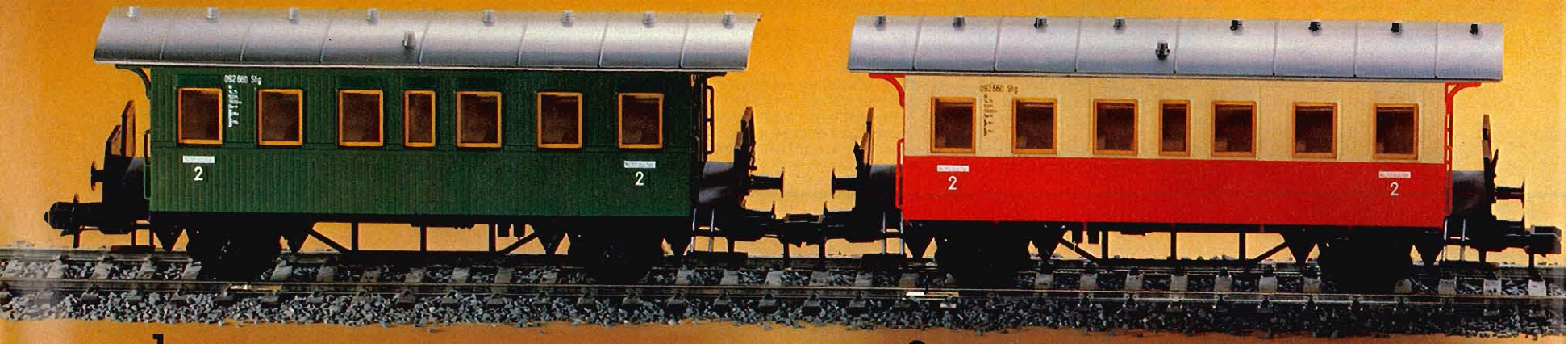
Passenger Cars

1

5801 · **Coach** · Based on type used by the Royal Württemberg state Railways · Same features as the 5800, but with a green finish

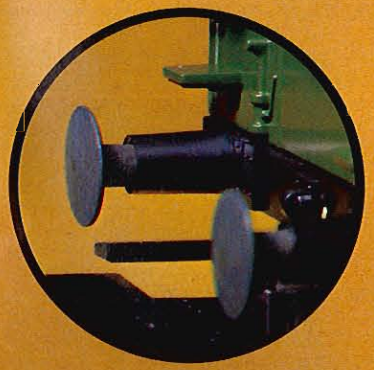
2

5800 · **Coach** · Model based on coach used by private railway · Operating doors · Simulated roof ventilators · Windows set in plastic frames · Interior features simulated wooden seats · Length 31 cm (1′ ¼″)



1
5801

2
5800



These 6-wheel coaches all have sprung buffers

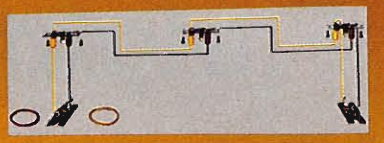
3
5808

3
5808 · **Baggage car** · German Federal Railways' type D3pr02 · 6 wheels · Axle frames articulated to accept curves · Sprung buffers · Sliding and hinged doors open · Windows set in plastic frames · Interior details · Removable roof · Length 39.1 cm (1′ 3-⅜″) · Will accept interior lighting set 5605

4
5804 · **Compartment Car** · 2nd class · German Federal Railways' type B3pr07 · 6 wheels · Axle frames articulated to negotiate curves · Sprung buffers · All doors open · Windows set in plastic frames · Interior details · Removable roof · Length 39.1 cm (1′ 3-⅜″) · Will accept interior lighting set 5605

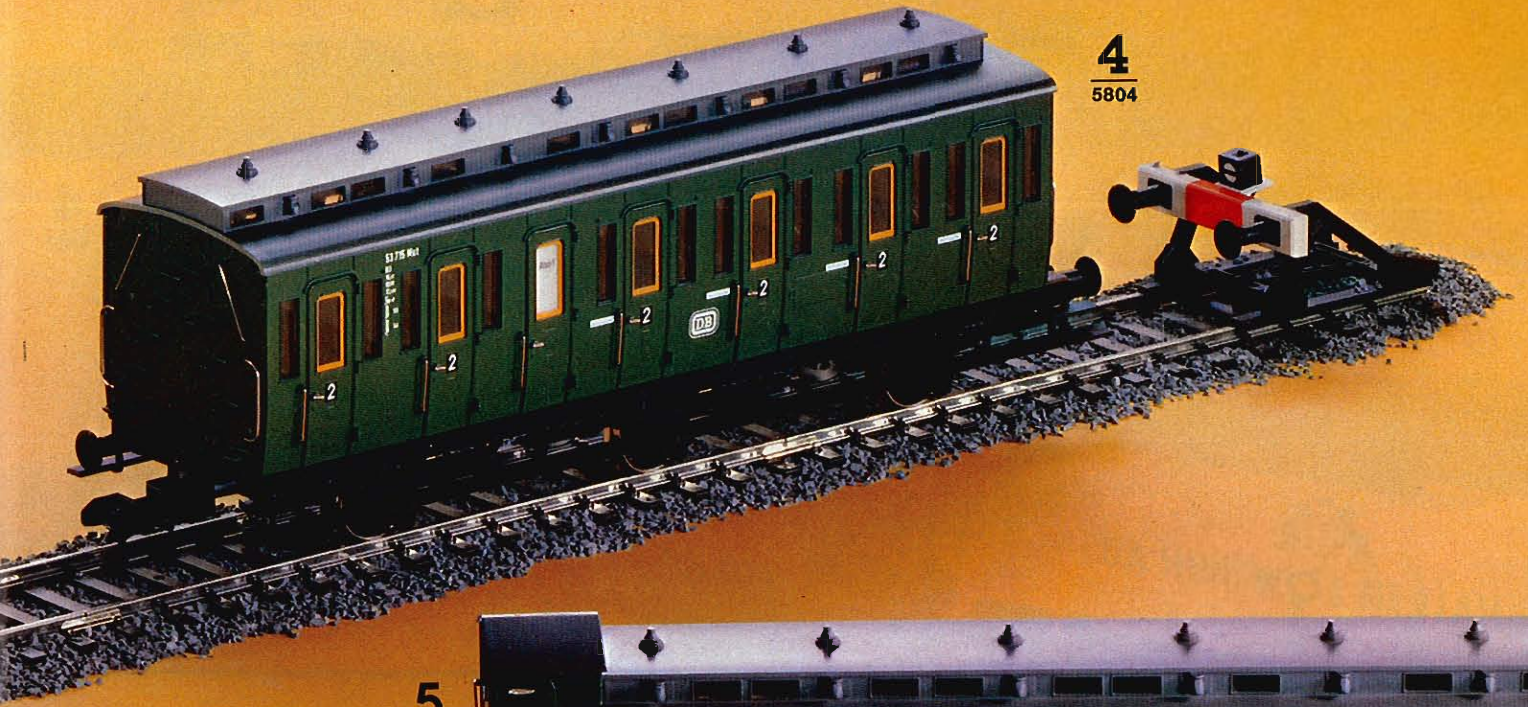
5
5805 · **Compartment car with brakeman's cab** · 2nd class · German Federal Railways' type B3pr07 · 6 wheels · Axle frames articulated to negotiate curves · Sprung buffers · All doors open · Windows set in plastic frames · Interior details · Removable roof · Length 39.1 cm (1′ 3-⅜″) · Will accept interior lighting set 5605

6
5605 · **Interior lighting set** for cars 5804, 5805, and 5808 · Includes 2 pick up shoes, 3 lighting units, leads and plugs plus instructions
= 49342 = 60000



6
5605

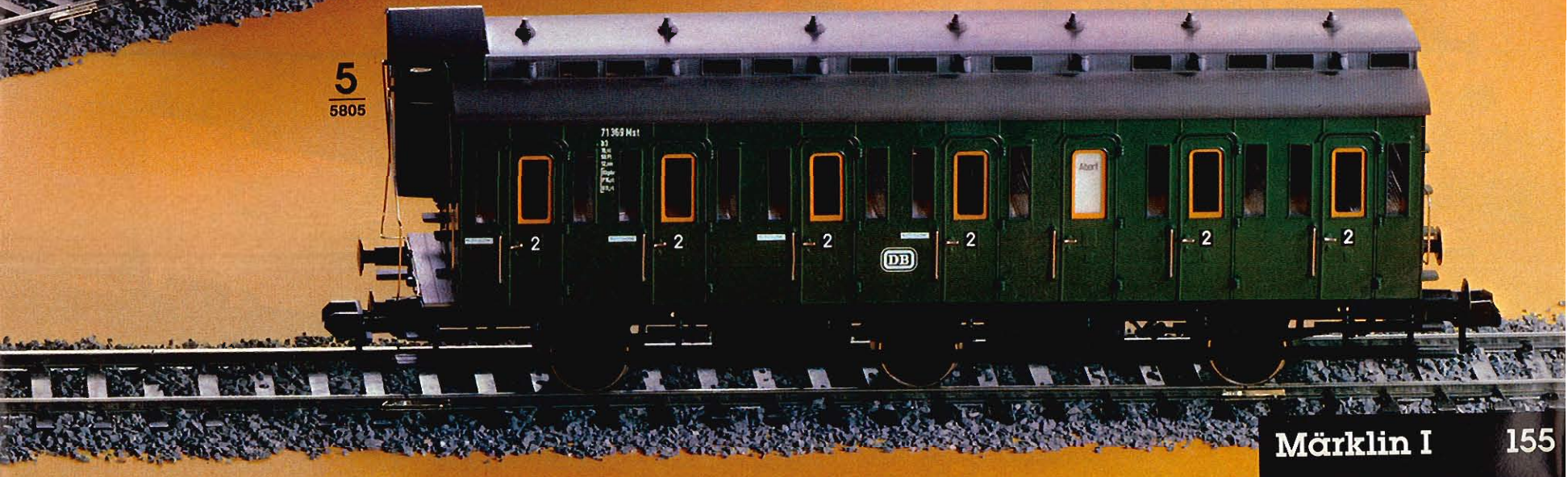
4
5804





Hinged doors have operating handles

5
5805

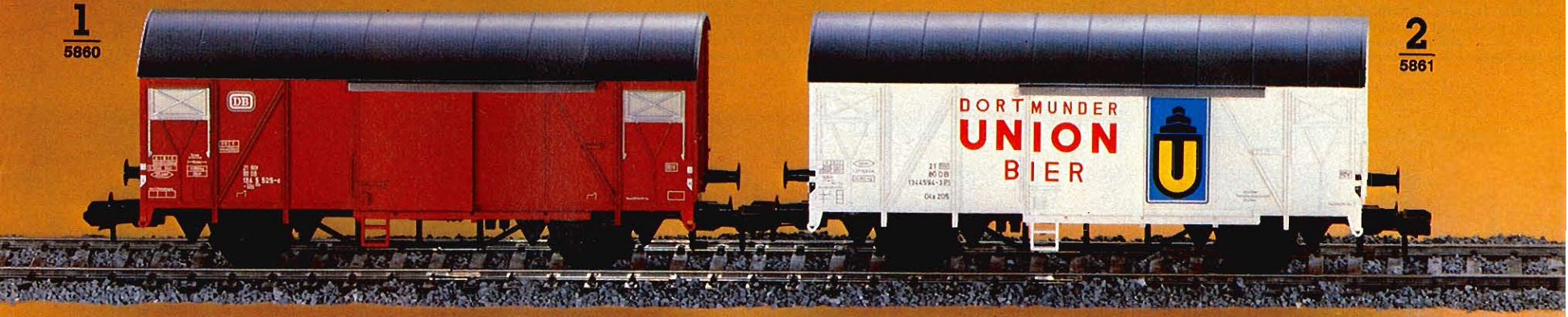


Freight Cars

1
5860 · **Box car** · German Federal Railways' type Gls[205] · Sliding doors open

2
5861 · **Beer car** · Lettered for the Dortmunder Union Brewery · Sliding doors

3
5863 · **Beer car** · Lettered for the Haller Löwenbräu brewery · Sliding doors



The finely-detailed Märklin I scale freight cars offer many possibilities for fun. Length of cars 31 cm (1' ¼").



4
5857 · **Box car** · Lettered for the Miele Washing Machine Co. · Sliding doors open

5 new
5879 · **Refrigerator car** · Lettered for the Sinalco Beverage Co. · Sliding doors

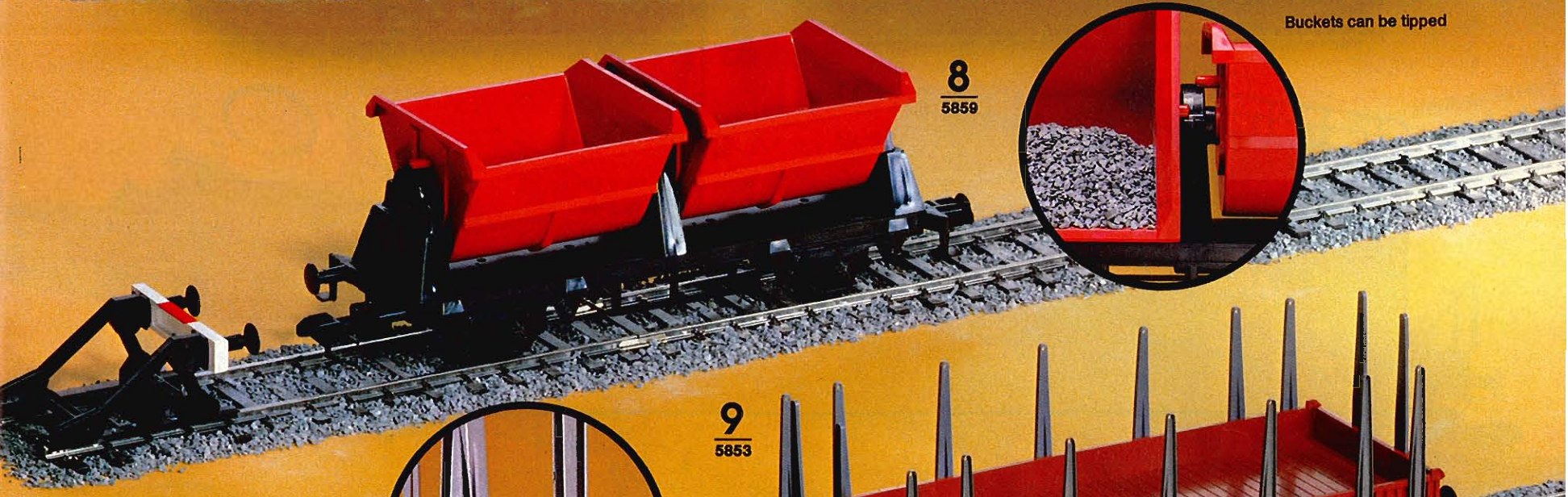
6
5850 · **Gondola car** · German Federal Railways' type Es^{040} (Omm 55)

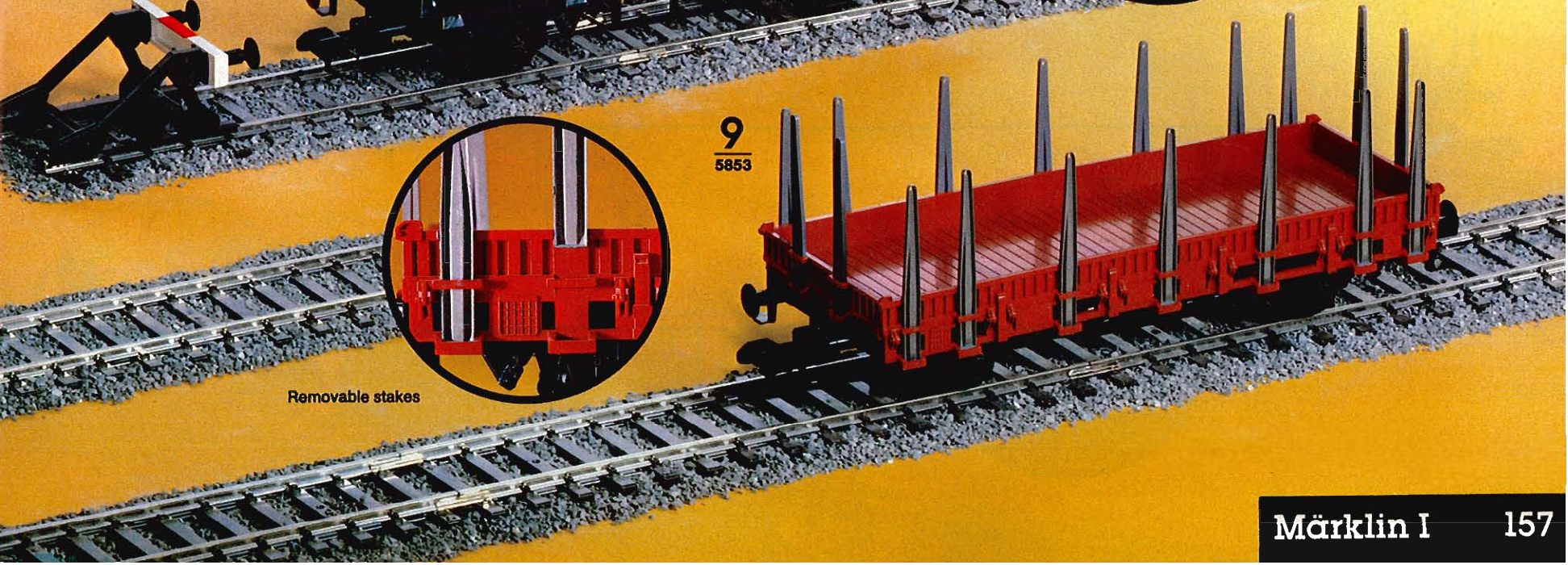
7
5851 · **Gondola car** · Lettered for the Belgian State Railways

8
5859 · **Dump car** · Buckets can be unloaded by manual tipping

9
5853 · **Flat car** with removable stakes







1

5872 · Box car with end markers · German Federal Railways' type Gls^{205} · Sliding doors · End markers have 2 LEDs and can be mounted for day or night settings · Length 31 cm (1′ ¼″)

2

5867 · Tank car · ARAL · Can carry real liquids – hatch and spigot operate · Length 31 cm (1′ ¼″)

3

5865 · Tank car · ESSO · Can carry real liquids – hatch and spigot operate · Length 31 cm (1′ ¼″)

4

5866 · Tank car · SHELL · Can carry real liquids – hatch and spigot operate · Length 31 cm (1′ ¼″)



Illuminated end markers mounted for day or night settings

Spigot pours

5

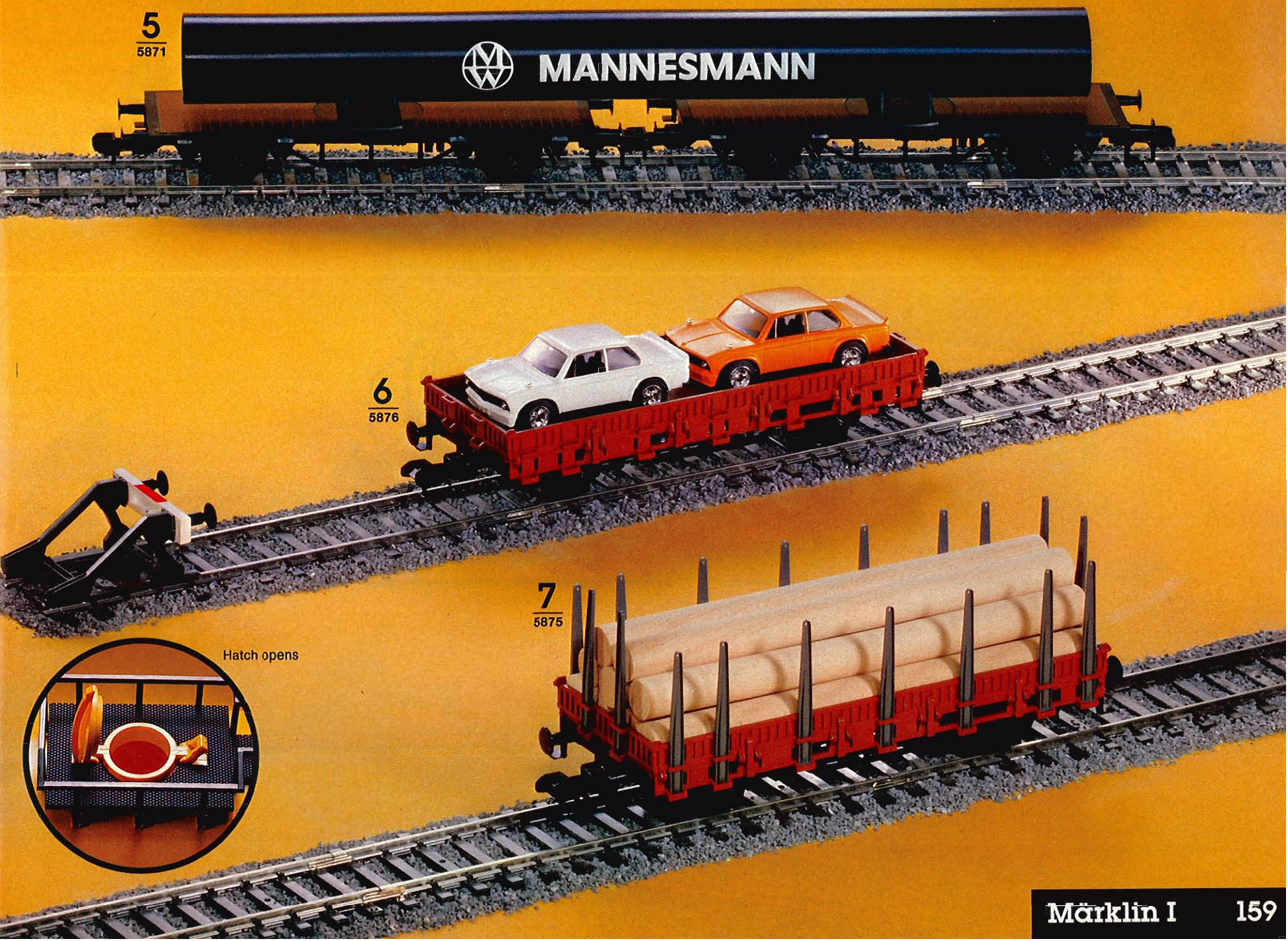
5871 · **2 flat cars with center pivots** · Includes steel pipe load · Length 64 cm (2′ 1-¼″)

6

5876 · **Low sided gondola with autos** · The 2 autos are clipped to the floor and can be removed · Length 31 cm (1′ ¼″)

7

5875 · **Lumber car** · Removable stakes · 9-piece lumber load · Length 31 cm (1′ ¼″)



1

5873 · Hopper car with rotary bar · German Federal Railways' type Fc[090] (formerly type Ed 090) · Rotary bar will open hoppers · Sprung buffers · Length 30.1 cm (11-⅞″)

■ The hold of an open hopper car is like a twin funnel. The sheer weight of the heavy cargo assures rapid unloading. With twin hopper doors on each side, the car can be unloaded on either side. The rotary bar handle is located at one end of the car. These bars can control the discharge as, for example, when unloading onto a conveyor belt.



Operating rotary bar trips hoppers

2 new

5877 · Container car with stakes · German Federal Railways' type Sgjs[716] · 4-wheel trucks · Loaded with 2 type Htt 6 252 large containers · Container doors open · Plastic floor with cast underbody · Ends and stakes removable · Containers are secured to the car by means of adjustable tie bars · Sprung buffers · Length 65.5 cm (2′ 1-¾″)

■ The 8-wheel container car, type Sgjs[716], was first used by the German Federal Railways in 1969. Its loading length is 18.8 m (61′ 1-¾″). Maximum tonnage capability is 55 tons. The cars have wood floors with additional UIC stakes so that the car can carry containers in varying dimensions. These cars can also be used for general commodity shipments as well. The containers are secured in transit by adjustable tie down bars which are recessed in the car floor.

(UIC = Union International des Chemins de Fer – International Railway Association –, a Europe wide organization of railroads that sets interchange regulations, operating procedures, etc.)

3

5874 · Hopper car with 4-wheel trucks · German Federal Railways' type Fal[168] (formerly type Fad 168) · Discharge doors open · Sprung buffers · Length 37 cm (1′ 2-½″)

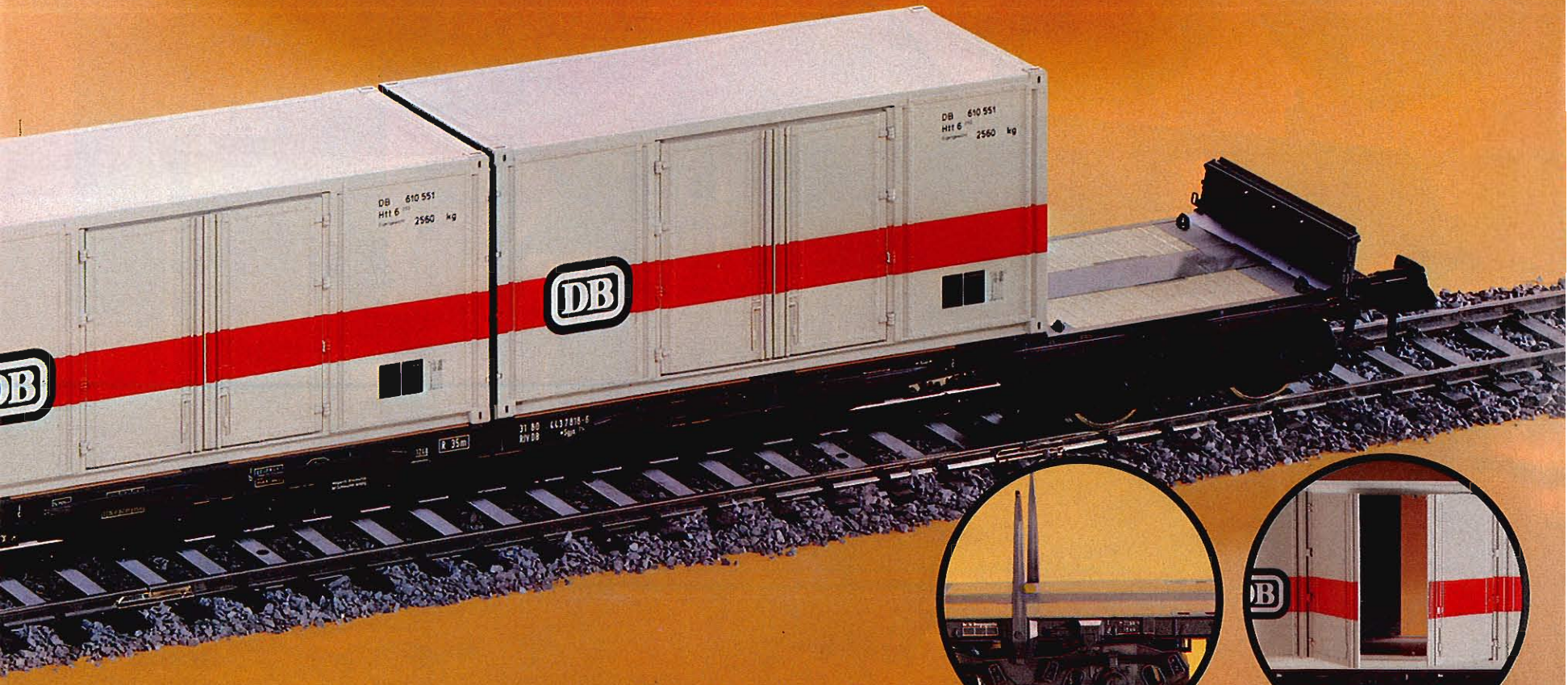
■ Bulk freight cars of this type are used for the national and international transport of coal, coke, ore, etc. They usually are coupled together in unit trains in order to make effecient use of rapid unloading ability. Often these unit trains will have as many as 40 cars.



3
5874



Operating discharge doors



Tie bars to hold containers fast

Container doors open

Layout Accessories

1

5615 · **"Altmühlhof" Station Kit** · A classic small town station · Transparent windows · Interior lighting · Accessories include station sign · Platform extensions and railings (length 31 cm (1′ ¼″) · Made of corrosion resistant material · Base area 60 × 29 cm (1′ 11-5/8″ × 11-½″)

2

5612 · **Distant signal** · For use with home signal 5611 · Movable disc · Lights change from amber/amber to green/green · Double-solenoid operation · Height 19.3 cm (7-5/8″) · Width 6 cm (2-3/8″) · Length 11 cm (4-3/8″)
= 60000

3

5611 · **Home signal** · With one arm · Red/green light · Will control trains and uses a double-solenoid · Includes 2 terminals, 2 leads, and 6 track current isolators · Height 26.5 cm (10-½″) · Width 6 cm (2-3/8″) · Length 11 cm (4-3/8″)
= 60000

4

5616 · **Signal tower kit** · Spans two tracks · Classic style · Interior details include signal levers and track schematic board · Clearance 20 cm (7-7/8″) · Made of corrosion resistant material · Base area 41 × 24 cm (1′ 4-¼″ × 9-½″)

5 new

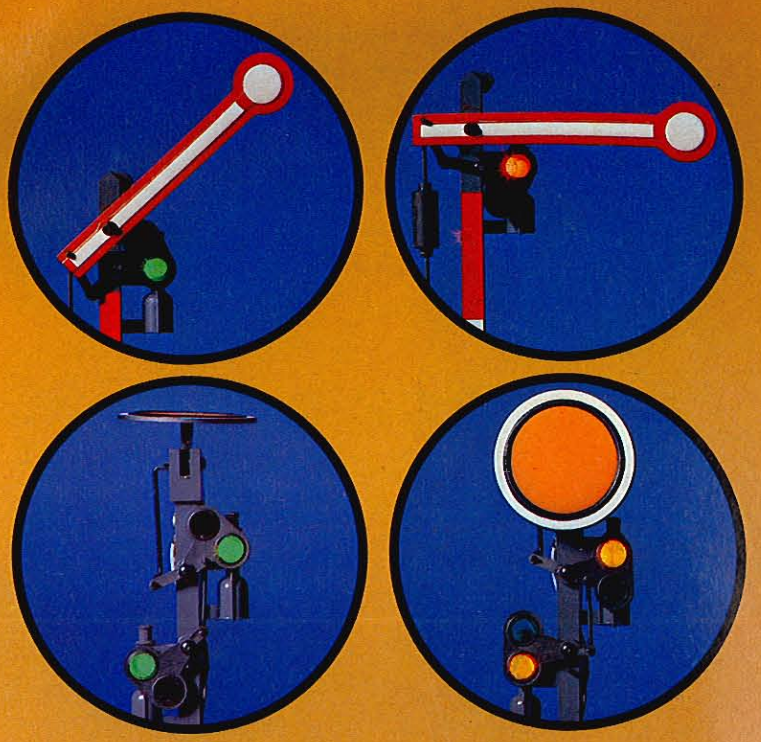
5621 · **Diesel servicing kit** · Includes fuel pumps, heating oil pumps, storage tanks, and lights · Made of corrosion resistant material · (Track sections not included) · Base area 69 × 51 cm (2′ 3-1/8″ × 1′ 8-1/8″)

■ Servicing facilities are divided into three classes based upon the amount of monthly fill-ups. Along with these classifications, enviromental protection steps are also considered. Perhaps the most important environmental protection is the use of an impervious work area so spills will not contaminate the ground water.



When the disc is horizontal (i. e. not visible to the engineer, the distant signal is reporting that the home signal is green and train can proceed.

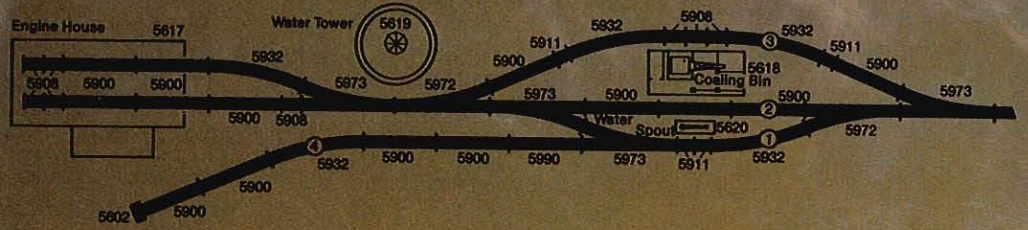
If the disc is vertical (i. e. visible to the engineer), the distant signal is reporting that the home signal is red and train must be prepared to stop.



4
5616

5 new
5621

Locomotive Maintenance Depot



■ While all locomotives require periodic maintenance and inspection, steam locomotives also require extra routine servicing before each run.

Electric locomotives require just a little sand for braking; all their energy comes from the overhead.

Diesel locomotives also require fuel oil as well as sand. However, these servicing tasks can be accomplished while at the station, on a spur, or at the engine house as well as at major diesel overhaul facilities.

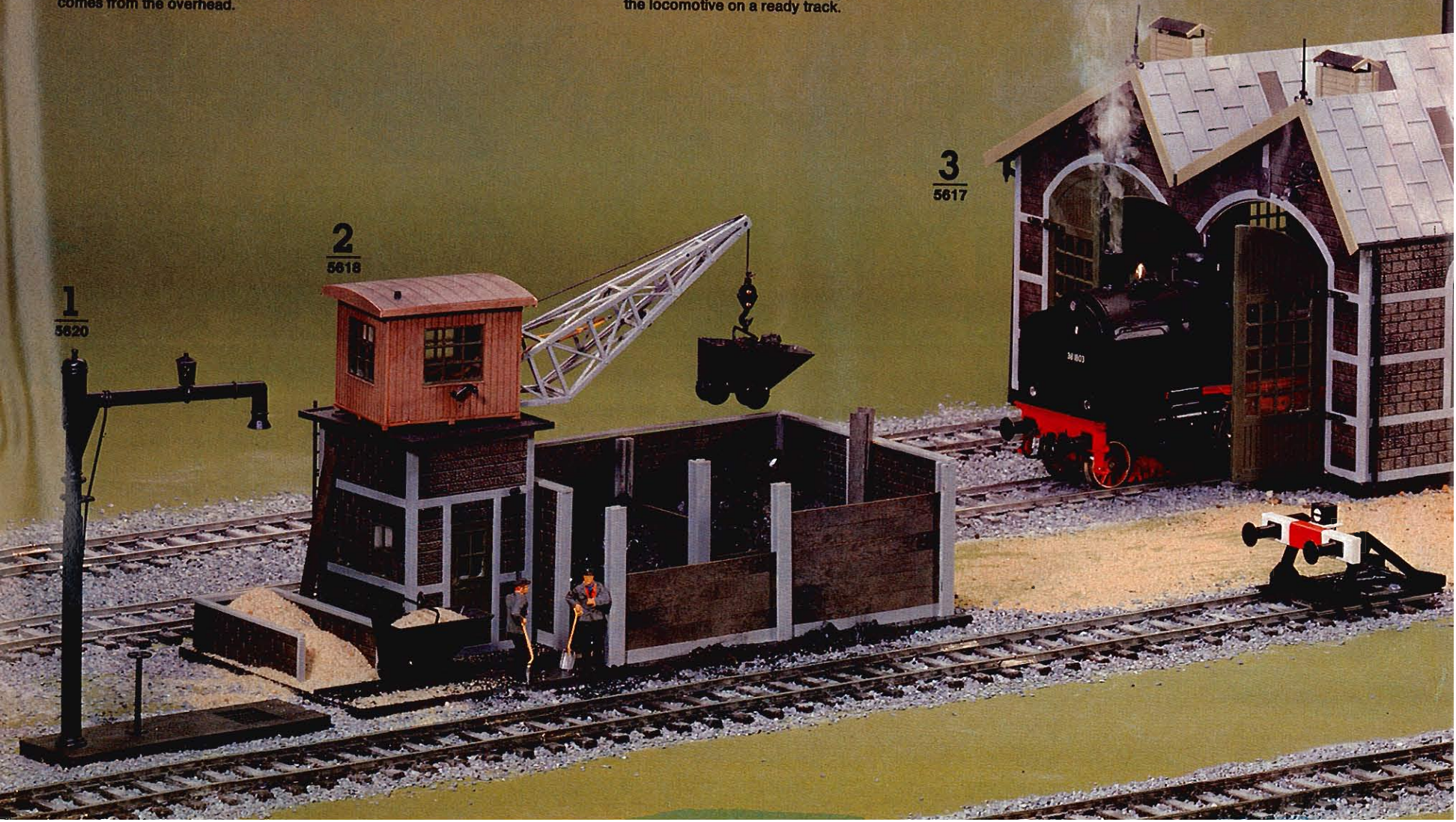
Steam locomotives, though, must undergo a regular series of servicing operations in a particular order. After each trip, the order usually is: coal-up, clean the smoke box, dump cinders, replenish water and sand, and spot the locomotive on a ready track.

1

5620 · Water Spout Kit · Includes pump and tank · Fully operational · Use with water tower 5619 for added realism · Position control box 7072 required for operation · Made of corrossion resistant material · Base area 16×5 cm (6-5⁄16″×2″)

2

5618 · Coaling Bin Kit · Includes coal bin, two narrow-gauge coal cars, and a manually operated crane · Made of corrosion resistant material · Base area 40×18 cm (1′ 3-3⁄4″×7-1⁄8″)



3

5617 · **Engine House Kit** · Classic style · Transparent windows · Interior lighting · Four individually operated track doors · Made of corrosion resistant material · (Track sections not included) · Base area 62 × 48 cm (2′ 3⅜″ × 1′ 6-⅞″)

4

5619 · **Water Tower** · Comes fully assembled · Hand painted · Holds water for use in conjunction with water spout 5620 · Prototype stands at Crailsheim, Germany · Made of corrosionresistant material · Base area 30 × 30 cm (11-⅞″ × 11-⅞″)

■ The Crailsheim water tower has been declared an historical monument and is now protected by the government of Baden-Württemberg (a German Land or province). The tower stands 22 m (72′ 2-¼″) high, and in the steam era, 50 locomotives quenched their thirst from its 600 cubic meter (2000 sq. ft.) tank.

Since January 3, 1981, the old water tower has been a community center with two floors and a permanent art gallery. In one of the halls, the seating area consists of 50 seats, with overhead baggage racks, salvaged from an old coach.

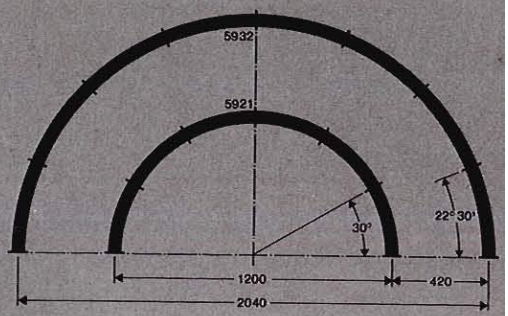
4
5619

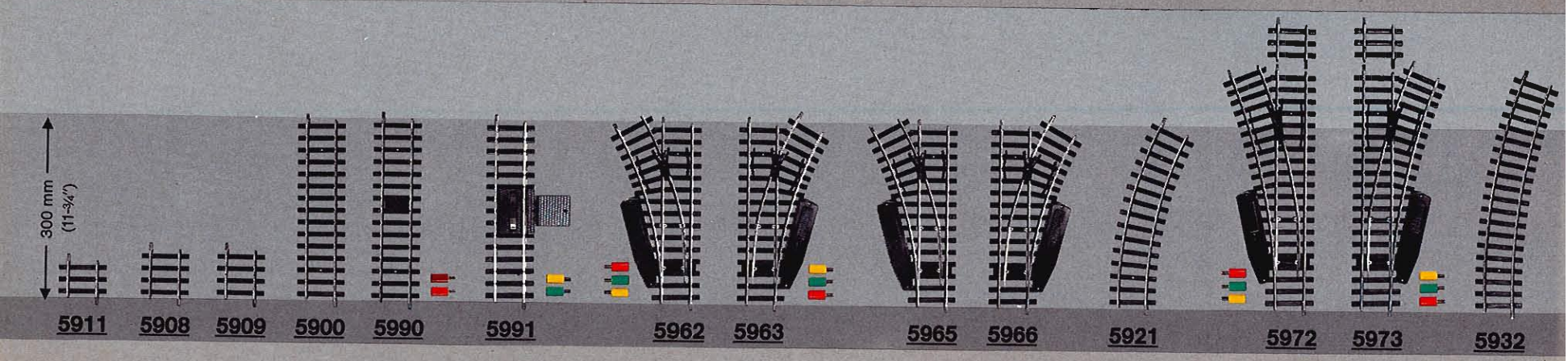
Tracks

The Märklin I track system includes curved tracks necessary for two different radii. For a circle having a diameter of 2,040 mm (6′ 8″) use 16 sections of 5932, and for a circle having a diameter of 1,200 mm (3′ 11″) use 12 sections of 5921. Engines 5706, 5713, 5714, 5797, and 5799 can only negotiate the large circle.

Although I scale is 2-rail, no polarity problems are encountered with reversing loops, crossings, or wyes because this scale also uses the AC technology that has made Märklin a trademark for flawless operation. As with Märklin's HO locomotives, a direction switch is built into the I scale engines.

The stainless rust-proof Märklin I rails have a prototype look, and the ties are made of corrosion resistant material. Thus Märklin I tracks can be laid outdoors. Any apparent rust marks are caused by contact with rusty metals lying on the tracks. These marks can be easily removed with a damp cloth.



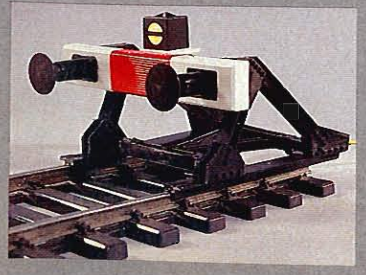


5911
Straight track · Length 59.5 mm (2-⅜″)

5908
Straight track · Length 80.4 mm (3-³⁄₁₆″)

5909
Insulated straight track · Length 80.4 mm (3-³⁄₁₆″) · For dividing the layout into electrically isolated sections

5603
Retaining clips · Package of 28 · For added strength at rail joints



5602
Bumper · Riveted steel type · Sprung buffers · Clips onto rails · Length 9.8 cm (3-⅞″)

5607
Bumper · Riveted steel type · Illuminated signal · Sprung buffers · Clips onto rails · Length 9.8 cm (3-⅞″)
= 60000

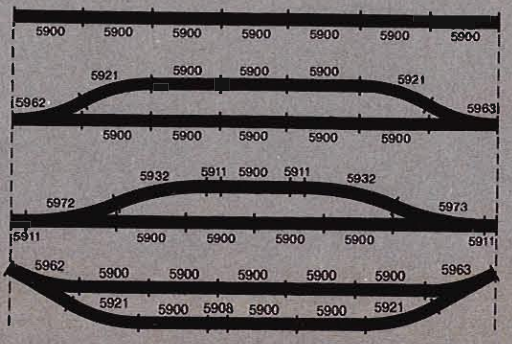
5900
Straight track · Length 300 mm (11-¾″)

5990
Feeder track, straight · Length 300 mm (11-¾″) · Built-in capacitor to supress radio static · 2 feeder wires, each 1 meter (3′ 3″) long

5991
Uncoupling track · Length 300 mm (11-¾″) · Includes electro-magnets · For remote control operation use position control box 7072

5962
Left-hand switch, remote control · Double-solenoid operation · Sprung points · Angle of curve 30° · Radius of curve 600 mm (1′ 11-⅝″) · Length of straight track 300 mm (11-¾″)

5963
Right-hand switch, remote control · Double-solenoid operation · Sprung points · Angle of curve 30° · Radius of curve 600 mm (1′ 11-⅝″) · Length of straight track 300 mm (11-¾″)



5965
Left-hand switch, manual · Sprung points · Angle of curve 30° · Radius of curve 600 mm (11-⅝″) · Length of straight track 300 mm (11-¾″)

5966
Right-hand switch, manual · Sprung points · Angle of curve 30° · Radius of curve 600 mm (1′ 11-⅝″) · Length of straight track 300 mm (11-¾″)

5921
30° curved track · Radius 600 mm (1′ 11-⅝″)

5972
Left-hand switch, remote control · Double-solenoid operation · Sprung points · Angle of curve 22° 30′ · Radius of curve 1020 mm (3′ 4″) · Length of straight track 390.5 mm (1′ 3-⅜″) · Includes straight track section 5911

5973
Right-hand switch, remote control · Double-solenoid operation · Sprung points · Angle of curve 22° 30′ · Radius of curve 1020 mm (3′ 4″) · Length of straight track 390.5 mm (1′ 3-⅜″) · Includes straight track section 5911

5932
22° 30′ Curved track · Radius 1020 mm (3′ 4″)

5600
Uncoupler · For use with straight track 5900 · Fits between the rails · Releases couplers in one direction only, thus enabling cars to be pushed after uncoupling · Length 175 mm (6-⅞″)

Power Packs and Accessories

The following transformers and power packs are ideal for powering Märklin I scale locomotives.

Locomotive speed is proportional to the track voltage, i. e.: the farther to the right the knob is turned, the faster the train goes. To activate the direction switch in the engine, turn the control knob to the left of zero and release.

6699
Power pack for indoors and outdoors · For use with Märklin lighting transformer 6611 or with light sockets of a Märklin transformer with 30 VA output · Lighting voltage 16 Volts · Electronic control of engine speed and direction · Maximum permitted load 1.8 Amps · Plastic housing · Weight 315 grams (11 oz) · Measures 125 × 135 × 55 mm (4-15/16" × 5-5/16" × 2-3/16") · Use Märklin wires and sockets to extend connecting leads

For outdoors: use the 6699 in conjunction with 6611 or 6631. Keep transformers dry.

This power pack also permits locomotives to be run very slowly.

6631 220 Volt
6620 100 Volt Japan
6627 110 Volt (60 Hz) USA
6629 240 Volt
Transformer · Output 30 VA · Track current adjustable between 4 and 16 V · Lighting voltage 16 V · Plastic housing · Red pilot light · Weight 2.1 kg (4-3/4 lb) · Measures 158 × 135 × 75 mm (6-1/4" × 5-5/16" × 3-15/16")
= 60015

6611 220 Volt
Transformer for lights and solenoid-operated items · Output 40 VA · Output voltage approximately 16 V AC · Plastic housing · Weight 2 kg (4-3/4 lb) · Measures 158 × 135 × 75 mm (6-1/4" × 5-5/16" × 3-15/16")

For connection with AC outlets only!

Every Märklin transformer is completely safe; its insulation having been tested to several thousand volts. Further, a built-in circuit breaker protects the transformer against overloads and shorts. Power pack 6699 is recommended for outdoor use.



6699



6631
30 VA



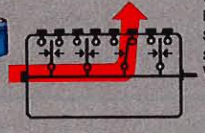
6611
40 VA

Accessories for Remote Control

7072



7072 schematic (3rd circuit closed)

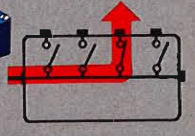


7072
Position control box with 8 sockets for connecting 4 double-solenoid operated items · Position of buttons corresponds to position of signals, switches, etc. · Length 80 mm (3-1/8") · Width 40 mm (1-9/16")

7210



7210 schematic (3rd circuit closed)

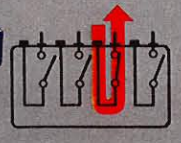


7210
Control box for distributing track or accessory current on 4 different circuits by means of indicating buttons · Length 80 mm (3-1/8") · Width 40 mm (1-9/16")

7211



7211 schematic (3rd circuit closed)



7211
Control box for controlling 4 different track or light circuits by means of indicating buttons · Length 80 mm (3-1/8") · Width 40 mm (1-9/16")

Standard colors used in Märklin circuitry:

Red = Track current

Yellow = Lights and solenoid-operated items

Brown = Track current and ground return from position control box to transformer

Blue = Return wire from solenoid-operated items to position control box (with green and red plugs)



7209
Distribution strip · With 11 single sockets · Size 50 × 20 mm (2" × 3/4")

Wires

Copper wires consisting of 24 separate strands 0.10 mm (0.004") in diameter each, for an overall circumference of 0.19 mm² (0.03 sq in). Can withstand short circuits.

7100
Wire · Single core · Gray · 10 m (33')

7101
Wire · Single core · Blue · 10 m (33')

7102
Wire · Single core · Brown · 10 m (33')

7103
Wire · Single core · Yellow · 10 m (33')

7105
Wire · Single core · Red · 10 m (33')

Sockets



7111 = brown
7112 = yellow
7113 = green
7114 = orange
7115 = red
7117 = gray

Plugs with side sockets



7131 = brown
7132 = yellow
7133 = green
7134 = orange
7135 = red
7137 = gray

märklin sprint

The sturdy raceway with refined Märklin technology

Märklin sprint offers problem-free Model Racing. The cars have steering axles and can go at top speed in Powerslide through curves. This excellent performance is possible because the cars have self-cleaning sprung skid-type current collectors. Designed for operation, Märklin motors possess a low center of gravity, are easy to rev up, and sturdily built. They have graded gearing.

All types of raceways can be built, and for more realism, add some technical accessories. For example the race control center with the digital clock and lap counter, controller's tower, and a pit stop.



A comprehensive, fully-illustrated Märklin sprint brochure is available at no charge from Märklin dealers.

Märklin sprint is available in two beginner sets. Each set contains: 2 race cars, 2 speed controllers, supply of track sections, crash barriers, sharp curves, bridge supports, and a 24-page instruction booklet. These beginner sets can be extended with accessories and more cars from the Märklin sprint collection.









märklin metall

Practical, easy-to-build construction kits using common tools

The common screw remains the most important material fastener in the world, and metal can not be replaced in the world of technology. Since both screws and metal are used in metall, these kits are very practical.
Our construction kits are clearly arranged in stages. The instructions show which models can be built and include exact plans. As one acquires keen skills, free-lanced models (such as accessories for model railroads) can be built with metall kits. Practically anything can be built: cranes, vehicles, dredgers, planes, ships, funicular railways, etc. All can be powered, or stationary. Märklin metall is the exciting, practical way to introduce youngsters to the world of technology.



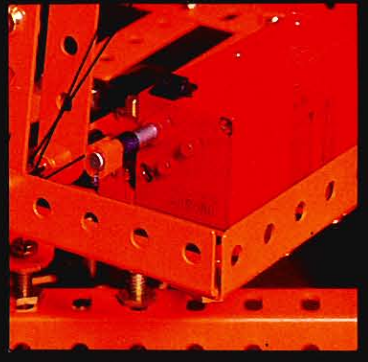
A comprehensive, fully-illustrated Märklin metall prospectus is available free of charge at your dealer.

Basic sets, extension sets, theme sets, extra parts, and special parts are all included in the metall program.

Motorizing these models brings them to life: move, lift, drop, turn, swing, etc. The motors have multi-gear operation.

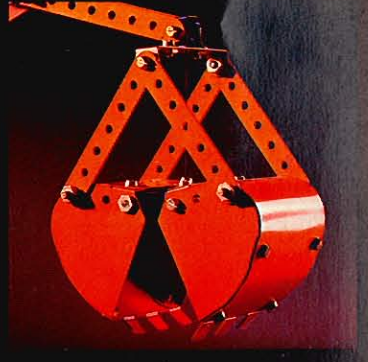
Märklin metall: the creative way to built accessories for Märklin model railroads.









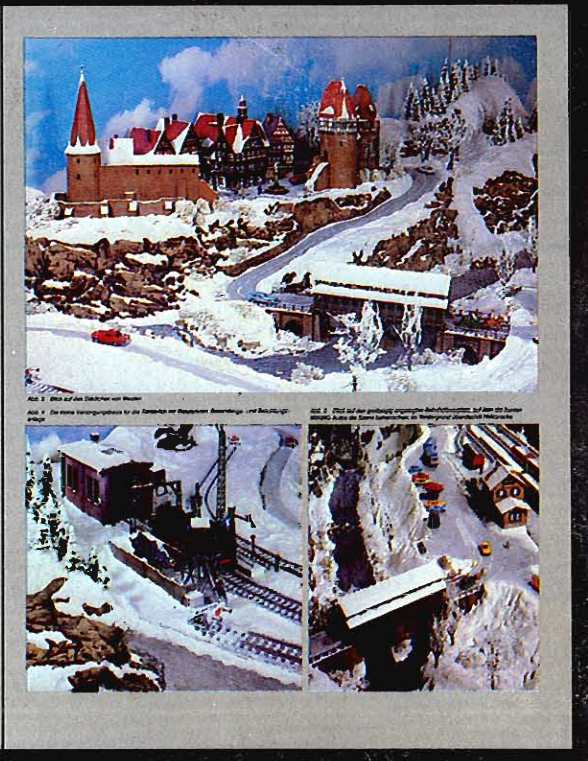


Märklin magazine

- Available through:
  Modellbahnen-Welt Verlags-GmbH, Postfach 940, D–7320 Göppingen, Federal Republic of Germany
  or from your Märklin dealer.
- German-language magazine published four times a year: February, May, August, and November.







Each issue contains a trainload of information, tips, and suggestions designed to help beginners and professional modelers enjoy Märklin railroading. Its 60 pages (many in color) contain articles on:

- Layout design and landscaping
- Märklin modelers describing their layouts
- Märklin models and their prototypes
- German railroads, histories, and current operations
- Reports on non-German railroads
- Assembly instructions for Märklin products (HO, mini-club [Z], and I scales)
- Reports on New Märklin releases
- Reader forum and book reviews
- Model railroad electronics
- Updates on the House of Märklin