märklin

HO

1986/87 E

ICE at night, photographed at the Märklin Service Center.

märklin

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Federal Rupublic of Germany

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Title:
Märklin model of the class 191 posed on an E 91 of the German State Railroad photographed on April 21, 1986 at the yards in Freiburg/Breisgau.

Model Size H0
Gauge 16.5 mm (5/8")
Scale 1 : 87

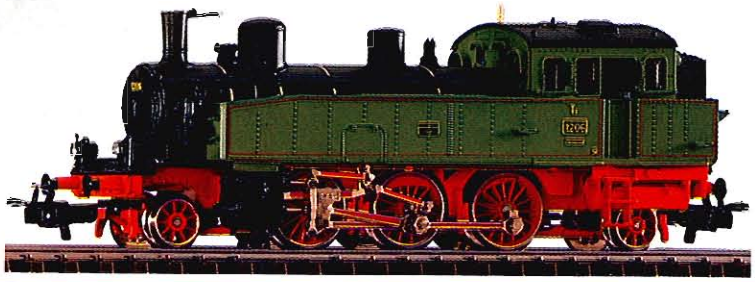
Steam locomotive impression, photographed on the layout of Georg Hirschbiegel, Mainz-Kastel, Federal Republic of Germany.

Contents

Reports and Commentary

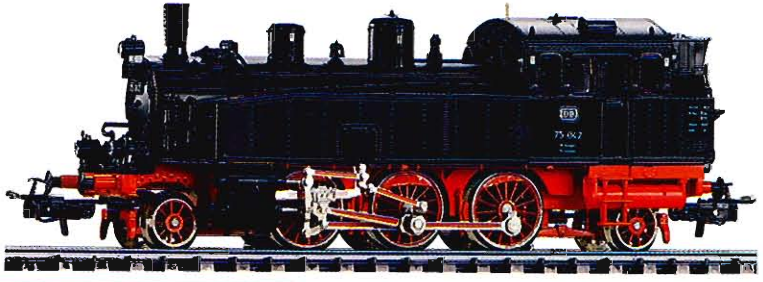
Steam Locomotives

Steam Servicing area, photographed at the Märklin Service Center.



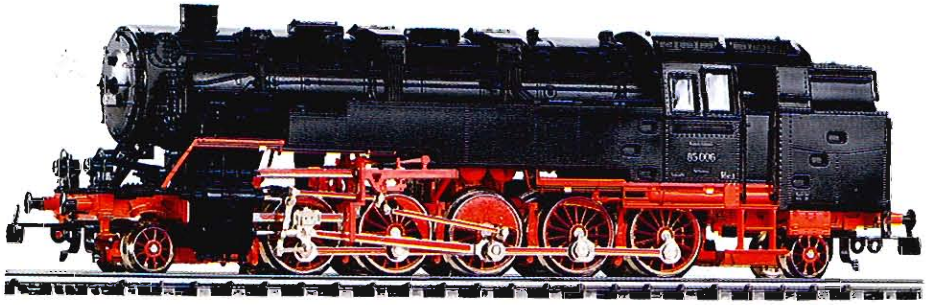
3312 · Tank Locomotive · Royal Wurttemberg State Railways class T 5, No. 1206 · 3 axles powered · 2 traction tires · Illuminated dual headlight at each end · Moveable smokestack lid · Metal boiler and frame · RELEX couplers · Electronic reverse unit · Length over buffers 14 cm (5-½")

⓪ = 7153 ⌓ = 7185 ♀ = 60019



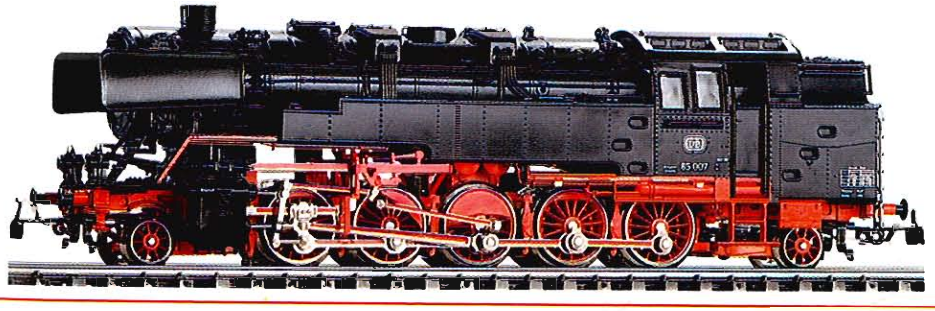
3313 · Tank Locomotive · German Federal Railroad class 75 · 3 axles powered · 2 traction tires · Illuminated triple headlight at each end · Metal boiler and frame · RELEX couplers · Electronic reverse unit · Length over buffers 14 cm (5-½")

⓪ = 7153 ⌓ = 7185 ♀ = 60019



3308 · Tank Locomotive · Class 85 of the former German State Railroad · 5 axles powered · 4 traction tires · Illuminated dual headlight at each end · Metal boiler and frame · Driving wheels divided into two coupled groups enabling the locomotive to negotiate sharp curves · Coupling hooks · Electronic reverse unit · Length over buffers 18.6 cm (7-5/16") · Equipped for installation of smoke unit 7226

⓪ = 7153 ⌓ = 7164 ♀ = 60010



TELEX-Couplers

Cars coupled to locomotives having TELEX couplers can be uncoupled at will at any place on the layout by remote control from the transformer.

3309 · Tank Locomotive with TELEX Couplers · German Federal Railroad class 85 · 5 axles powered · 4 traction tires · Illuminated triple headlight at each end · Metal boiler and frame · Driving wheels divided into two coupled groups enabling the locomotive to negotiate sharp curves · Electronic reverse unit · Length over buffers 18.6 cm (7-5/16") · Equipped for installation of smoke unit 7226

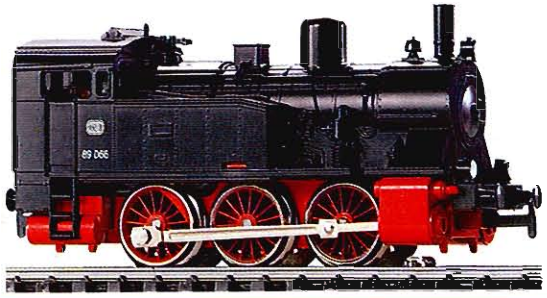
⓪ = 7153 ⌓ = 7164 ♀ = 60019

3000 · Tank Locomotive · Class 89 · 3 axles powered · 2 traction tires · Illuminated triple headlight · Metal frame · Coupling hooks · Length over buffers 11 cm (4-15/16")

=7154 =7185 =60010

3104 · Tank Locomotive · German Federal Railroad class 89⁰ · 1 axle powered · 2 traction tires · Metal frame · Coupling hooks · Length over buffers 10.8 cm (4-1/4")

=7153 =7185

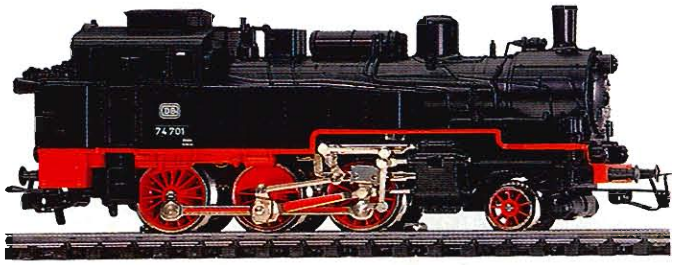


3087 · Tank Locomotive · Based on a German provincial prototype · 1 axle powered · 2 traction tires · Metal frame · Coupling hooks · Length over buffers 10.8 cm (4-1/4")

=7154 =7185

3095 · Tank Locomotive · German Federal Railroad class 74 · 3 axles powered · 2 traction tires · Illuminated triple headlight · Metal frame · Coupling hook with pre-uncoupler on the front, RELEX coupler on the rear · Length over buffers 13.5 cm (5-5/16")

=7153 =7185 =60010



Development of the Steam Locomotive

First, Full Pressure...

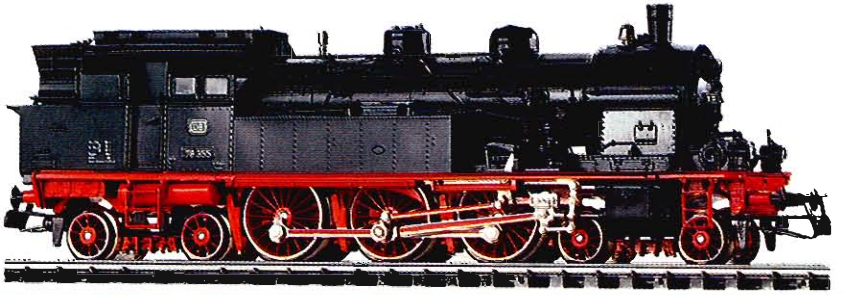
Whether Germany's "Adler", England's "Puffing Billy" or the American "Columbus", the locomotives of the 19th century were full pressure steam machines. The engineer would let steam flow into the cylinders until the piston could no longer move. Steam would then escape from the cylinders at almost full pressure. Much steam and fuel were thereby wasted because these machines were rather inefficient in their use of energy. Steam under pressure has the property of expansion. This characteristic was utilized in the development of the expansion steam engine. The cylinders were filled only 70% (later just 50%) and as the steam expanded it would move the pistons in the cylinder.

An additional possibility of increasing the efficiency of the engine was to raise the pressure of the boiler because high pressure steam has an even more marked ability to expand. In the 1860's, German steam locomotives had boiler pressures of 10 bars (approximately 142 pounds pressure per square inch), while American locomotives had boilers with pressure limits of 8 to 9 bars (approximately 114–128 pounds pressure per square inch) as early as 1836.

(continued on page 8)

3106 · Tank Locomotive · German Federal Railroad class 78 · 3 axles powered · 2 traction tires · Illuminated triple headlight at each end · Metal boiler and frame · Coupling hooks with pre-uncoupler · Length over buffers 16.9 cm (6-5/8")

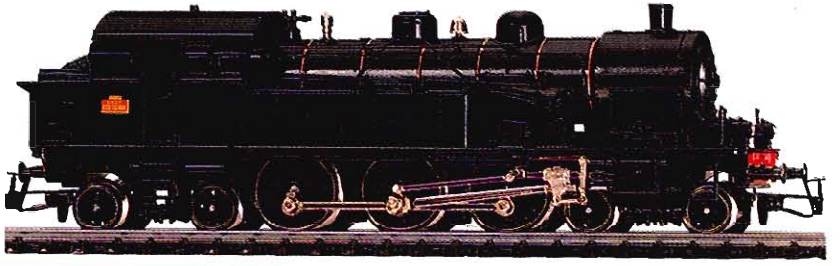
⓪=7153 ⌓=7164 ⚲=60015



France

3107 · Tank Locomotive · French State Railways (SNCF) class 232 TC · 3 axles powered · 2 traction tires · Illuminated dual headlight at each end · Metal boiler and frame · Coupling hooks with pre-uncoupler · Length over buffers 16.9 cm (6-5/8")

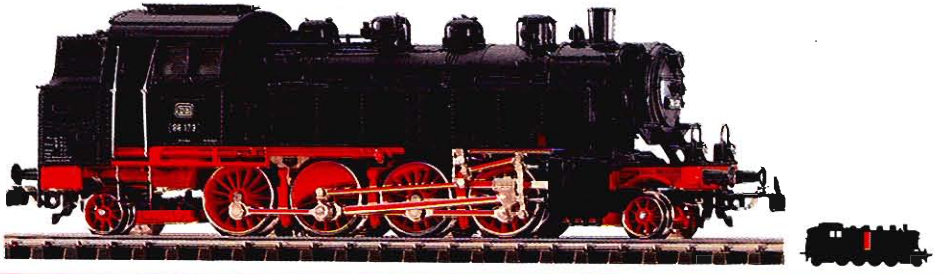
⓪=7153 ⌓=7164 ⚲=60015



3696 · Digital · Tank Locomotive with TELEX Couplers · Same as model 3096 · Different classification number

3096 · Tank Locomotive with TELEX Couplers · German Federal Railroad class 86 · 4 axles powered by means of connecting rods · 2 traction tires · Illuminated triple headlight at each end · Metal frame · Length over buffers 15.8 cm (6-5/8")

⓪=7153 ⌓=7164 ⚲=60015



TELEX Couplers

Cars coupled to locomotives having TELEX couplers can be uncoupled at will at any place on the layout by remote control from the transformer.

RELEX Couplers

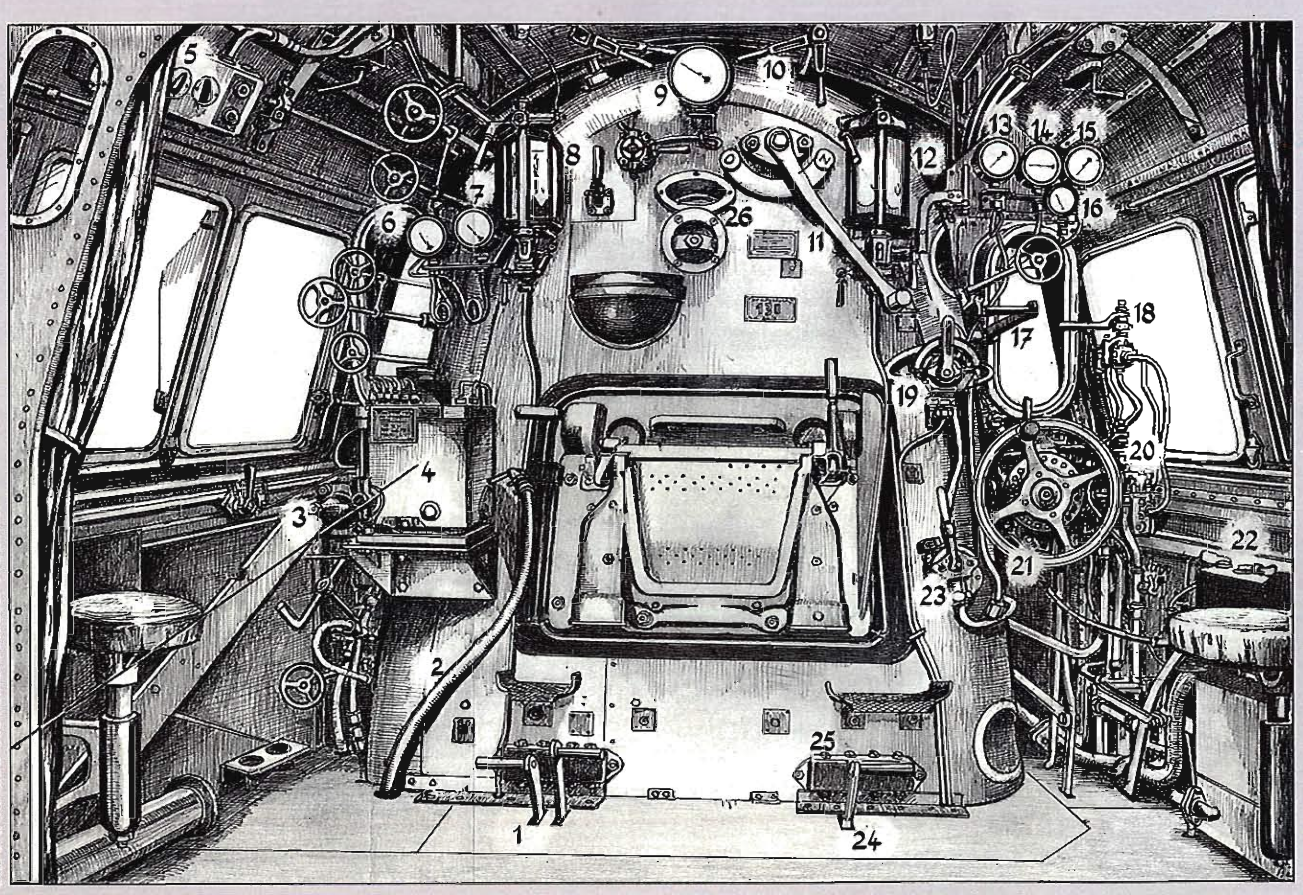
Cars with RELEX couplers are not only uncoupled at uncoupling tracks, but can be pre-uncoupled. Pre-uncoupled cars can be pushed by locomotives farther along a siding or yard track without the couplers re-engaging.

Development of the Steam Locomotive ... then Superheated Steam

(continued from page 6)

An important benchmark on the way to modern steam locomotives was the invention of the superheated steam locomotive by the German inventor Wilhelm Schmidt. Although he had neither the right education nor degree, he had rights to over 200 patents before he died in 1924.

From "Eisenbahn-Journal", special edition "Die Dampflokomotive – Technik und Funktion", Teil 1.



Cab of a standard locomotive; illustration R. Barkhoff

1 Control levers to the ashpan dampers
2 Coal stoker steam jet pipe
3 Steam injector
4 Bosch force feed lubricator
5 Light switch
6 Feedwater heater gauge
7 Train steam heat gauge
8 Water level gauge
9 Main steam gauge
10 Safety valve lever
11 Throttle lever
12 Water level gauge
13 Remote pressure gauge for steam chest
14 Brake line pressure gauge
15 Brake cylinder pressure gauge
16 Air-Brake reservoir pressure gauge
17 Whistle cord
18 Supplementary brake valve
19 Equalizing reservoir valve
20 Main brake valve
21 Controller
22 Control board for inductive train control
23 Sand box valve
24 Ashpan dump shaft arm
25 Grease dispenser for chaffing plate
26 Builder plate

3310 · Express Locomotive with Tender · German Federal Railroad class 012 · 3 axles powered · 2 traction tires · Illuminated triple headlight at front of locomotive and rear of tender · Metal boiler and frame · RELEX coupler on tender · Electronic reverse unit · Length over buffers 27.8 cm (10-15/16") · Equipped for installation of smoke unit 7226

=7152 =7164 =60019

3084 · Freight Locomotive with Brakeman-Cab Tender · German Federal Railroad class 050 · 5 axles powered · 4 traction tires · Illuminated triple headlight · Metal boiler and frame · Driving wheels divided into two coupled groups enabling the locomotive to negotiate sharp curves · Coupling hooks on front, RELEX coupler on tender · Length over buffers 26.1 cm (10-1/4") · Equipped for installation of smoke unit 7226

=7153 =7164 =60015

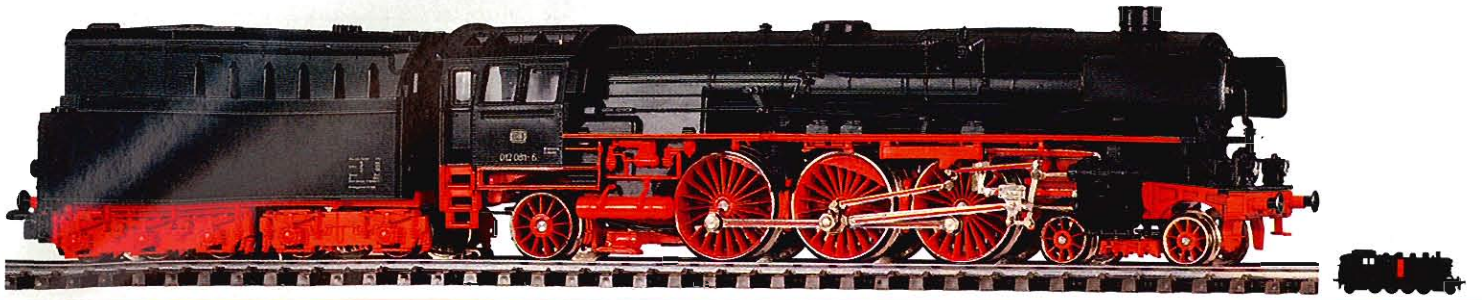
3315 · Freight Locomotive with Bathtub-style Tender · German Federal Railroad class 050 · 5 axles powered · 4 traction tires · Illuminated triple headlight · Metal boiler and frame · Driving wheels divided into two groups, enabling the locomotive to negotiate sharp curves · Coupling hook in front, RELEX coupler on tender · Length over buffers 26.7 cm (10-3/8") · Equipped for installation of smoke unit 7226

=7153 =7164 =60008

To be available Spring 1987

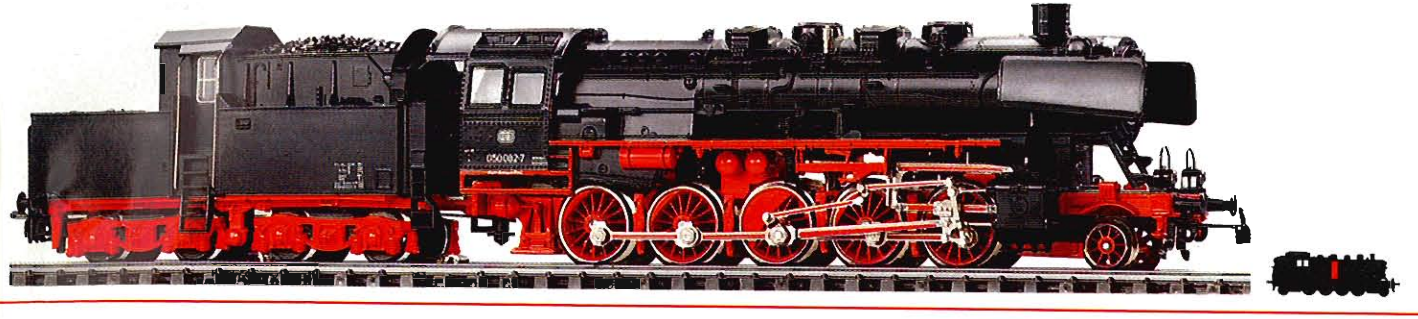
3082 · Freight Locomotive with Tender · German Federal Railroad class 41 · 4 axles powered · 2 traction tires · Illuminated triple headlight · Metal boiler and frame · Coupling hook at front of locomotive and RELEX coupler at rear of tender · Length over buffers 27.5 cm (10-13/16") · Equipped for installation of smoke unit 7226

=7153 =7164 =60015



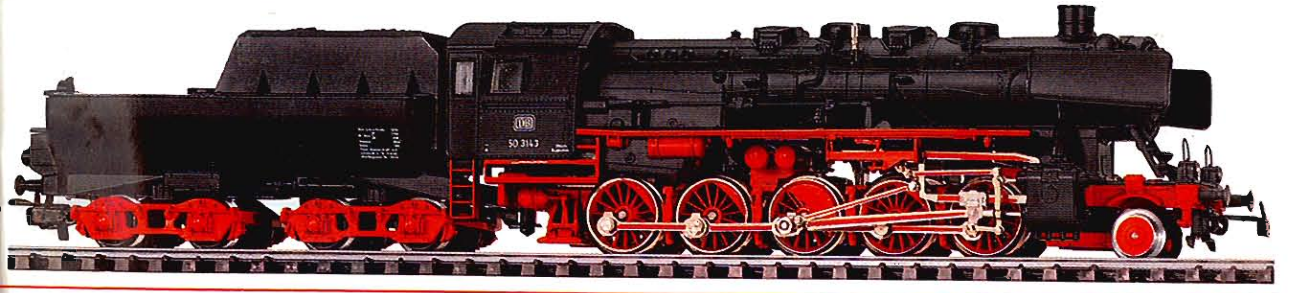
3610 · Digital · Express Locomotive with Tender · Same as model 3310 · Different classification number

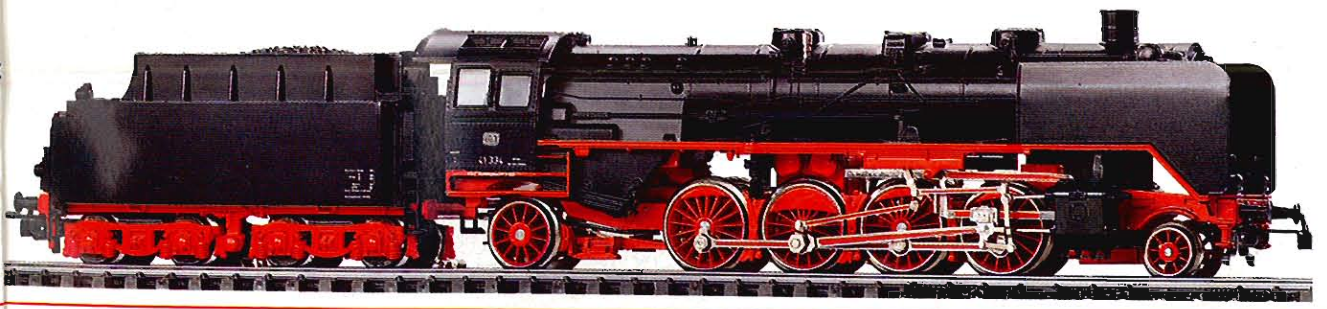
= 60010



3684 · Digital · Freight Locomotive with Brakeman-Cab Tender · Same as model 3084 · Different classification number

NEW



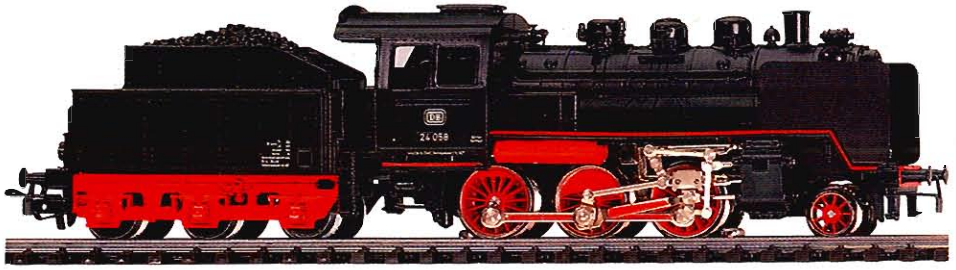


7226 · Smoke Set · Includes smoke unit (for locomotives 3082, 3084, 3085, 3102, 3308, 3309, 3310, 3610 and 3684), extra smoke stack, cleaning wire, tweezers and a capsule of smoke fluid

0241 · Smoke Oil · Plastic capsule refills for smoke set 7226

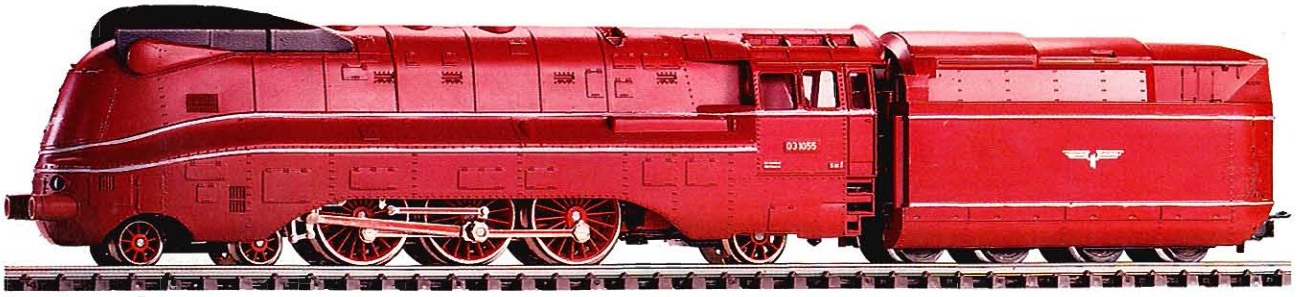
3003 · Locomotive with Tender · German Federal Railroad class 24 · 3 axles powered · 2 traction tires · Illuminated triple headlight · Metal frame · Coupling hook on front, RELEX coupler on tender · Length over buffers 20 cm (7-7/8″)

⓪=7153 =7185 =60010



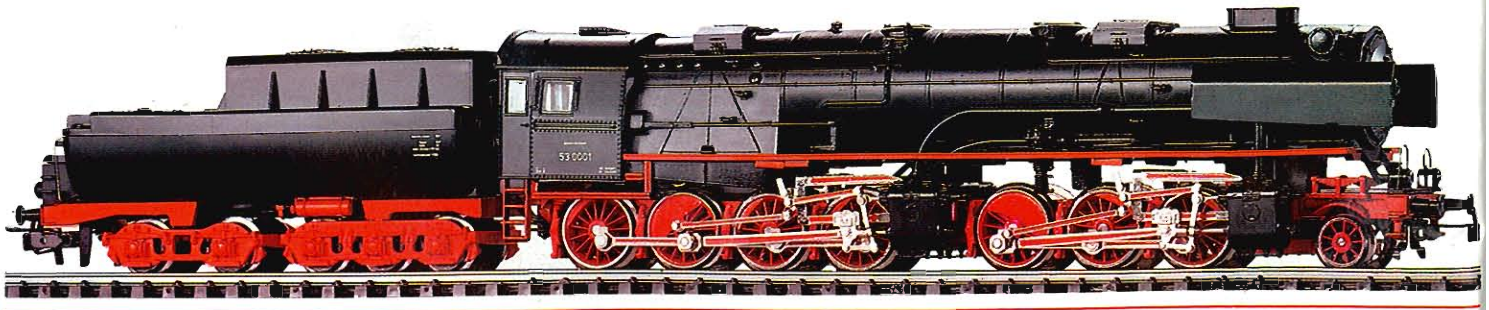
3089 · Streamlined Express Locomotive with Tender · Class 03[10] · 3 axles powered by means of connecting rods · 2 traction tires · 2 illuminated headlights · Metal body and frame · RELEX coupler on tender · Length over buffers 27.4 cm (10-3/4″)

⓪=7152 =7185 =60015



3102 · Freight Locomotive with Tender · Based on a design by Borsig for the former German State Railroad · Mallet type · 4 axles powered · 4 traction tires · Illuminated dual headlight at front of locomotive and rear of tender · Metal boiler and frame · Driving wheels divided into two groups enabling the locomotive to negotiate sharp curves · Coupling hook at front, RELEX coupler on tender · Length over buffers 31.4 cm (12-3/8″) · Equipped for installation of 2 smoke units 7226 ·

⓪=7153 =7185 =60015



The Locomotive That Was Never Built.

■ In 1943 the former German State Railroad offered several locomotive builders the commission of developing an extra strong freight locomotive. The chief requirements: Pull 1700 tons up an 0.8% grade on a 360 meter (1,181′) curve while maintaining a speed of 20 kmph (12.5 mph), top speed was to be 80 kmph (50 mph) forward and reverse, axle weight of 20 tons, negotiate switches 1 : 7 with 140 meter (459′) curves and to fit on a 23 meter (75′ 6″) turntable.

Further, the locomotive had to be constructed as rationally as possible, given the technology available at that time. Among the designs tendered were two Borsig proposals. The Borsig I design proposed a (2–6) Dh4G 78.20 locomotive. The boiler was to have a diameter of about 2 to 2.2 meters (6′ 6″ to 7′ 3″). The flues were 6 meters (39′). It was to have two sets of drivers each with 2 cylinders and the front of the long boiler was to rest on the bolster of the front drivers.

3099 · Locomotive with Tender · Class 38 of the former German State Railroad · 3 axles powered · 2 traction tires · Illuminated triple headlight · Metal body and frame · Engineer and fireman figures · Coupling hook on front, RELEX coupler on tender · Length over buffers 21.8 cm (8-9/16″)

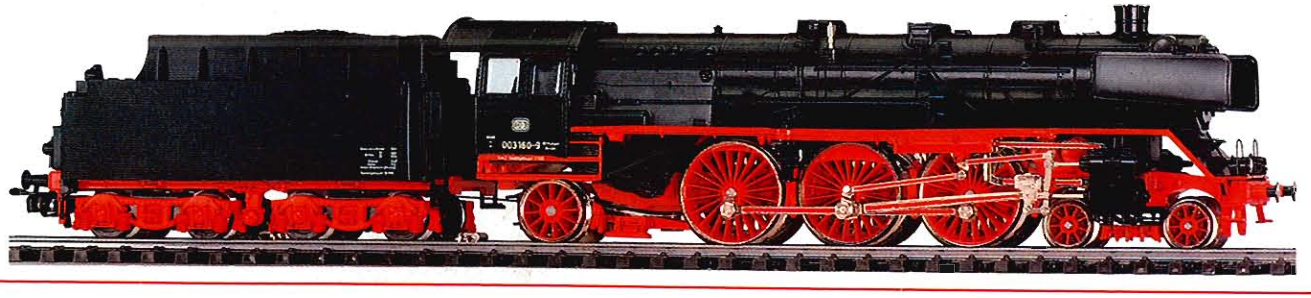
◐=7152 ⌓=7185 ⚲=60015

3092 · Express Locomotive with Tender · Royal Bavarian State Railroad class S 3/6, series i · 3 axles powered by means of connecting rods · 2 traction tires · Illuminated triple headlight · Metal body and frame · RELEX coupler on tender · Length over buffers 24.9 cm (9-13/16″) · Equipped for installation of smoke unit (Seuthe No. 20)

◐=7152 ⌓=7185 ⚲=60015

3093 · Express Locomotive with Tender · German Federal Railroad class 18[4] (ex-S 3/6) · 3 axles powered by means of connecting rods · 2 traction tires · Illuminated triple headlight · Metal body and frame · RELEX coupler on tender · Length over buffers 24.9 cm (9-13/16″) · Equipped for installation of smoke unit (Seuthe No. 20)

◐=7152 ⌓=7185 ⚲=60015



3085 · Express Locomotive with Tender · German Federal Railroad class 003 · 3 axles powered · 2 traction tires · Illuminated triple headlight · Metal boiler and frame · RELEX coupler on tender · Length over buffers 27.7 cm (10-7/8″) · Equipped for installation of smoke unit 7226

◐=7152 ⌓=7164 ⚲=60010

Diesel Locomotives

The class 260 locomotive in the old and new colors of the DB, photographed on the layout of Thomas Scherer, Senden, West Germany.

TELEX Couplers

Cars coupled to locomotives having TELEX couplers can be uncoupled at will at any place on the layout by remote control from the transformer.

3665 · Digital · Diesel Switcher with TELEX Couplers · Same as model 3065 · Different classification number · 1 traction tire

3065 · Diesel Switcher with TELEX Couplers · German Federal Railroad class 260 · 3 powered axles · 2 traction tires · Illuminated triple headlight · Metal frame · Length over buffers 12 cm (4-¾″)

⓪=7153 =7185 =60010

3672 · Digital · Multi-Purpose Diesel · Same as 3072 · Different classification number

3072 · Multi-Purpose Diesel · German Federal Railroad class 212 · One truck powered · 4 traction tires · Illuminated triple headlight · Prototypically narrow ends · Metal frame · RELEX couplers · Length over buffers 14.1 cm (5-9⁄16″)

⓪=7154 =7164 =60010

3075 · Multi-Purpose Diesel · German Federal Railroad class 216 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal frame · RELEX couplers · Length over buffers 18.2 cm (7-3⁄16″)

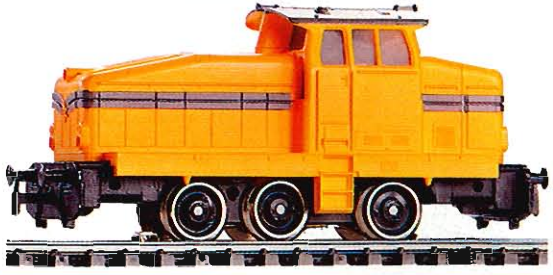
⓪=7154 =7164 =60015

3021 · Express Diesel · German Federal Railroad class 220 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal body and frame · Coupling hooks with pre-uncoupler · Length over buffers 21 cm (8-¼″)

⓪=7154 =7183 =60010

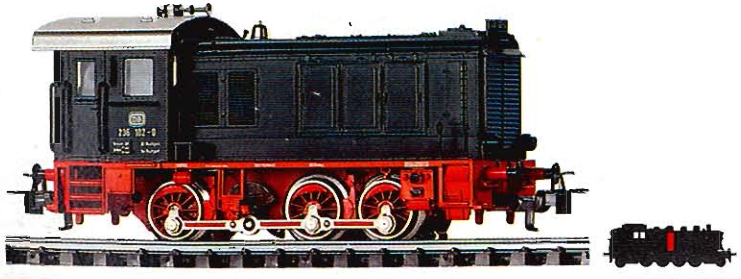
3078 · Industrial Switcher ·
Type DHG 500 · 3 axles powered · 2 traction tires · Illuminated triple headlight · Metal frame · Coupling hooks · Length over buffers 11.2 cm (4-3/8")
⓪=7154 =7185 =60015

3080 · Industrial Switcher · 3 axles powered · 2 traction tires · Metal frame · Coupling hooks · Length over buffers 11.2 cm (4-3/8")
⓪=7154 =7185



3146 · Diesel Switcher · German Federal Railroad class 236 · 3 axles powered · 2 traction tires · Illuminated triple headlight · Metal frame · RELEX couplers · Length over buffers 10.6 cm (4-3/16")
⓪=7154 =7185 =60015

3646 · Digital · Diesel Switcher ·
Same as model 3146 · Different classification number



■ Of the 250 diesel switchers WR 360 C 14 (the later class V 36 or 236), built between 1936 and 1944, 63 units joined the roster of the German Federal Railroad. Almost all were still active at the end of 1971 in West Germany.

Two sets of gear ratios (0–30 kmph/ 0–18 mph and 0–60 kmph/ 0–36 mph) permitted the 236 to be used for many kinds of service.

Because of a scarcity of diesels in the 1950s, many of the 236s saw passenger service, for example, in Bremen, Bremerhaven, Frankfurt/Main and Wuppertal. Engine 236 102-0, the prototype for the Märklin model 3146, was stationed at Ansbach, Nürnberg and ultimately Stuttgart between the years 1964 and 1978.

3141 · Diesel Switcher · German Federal Railroad class 260 · 3 axles powered · 2 traction tires · Illuminated triple headlight · Metal frame · Coupling hooks with pre-uncoupler · Length over buffers 12 cm (4-3/4")

=7153 =7185 =60010

3147 · Multi-Purpose Diesel · German Federal Railroad class 212 · One truck powered · 4 traction tires · Illuminated triple headlight · Prototypically narrow ends · Metal frame · RELEX couplers · Length over buffers 14.1 cm (5-9/16")

=7154 =7164 =60010

3674 · Digital · Multi-Purpose Diesel · Same as model 3074 · Different classification number

3074 · Multi-Purpose Diesel · German Federal Railroad class 216 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal frame · RELEX couplers · Length over buffers 18.2 cm (7-3/16")

=7154 =7164 =60015

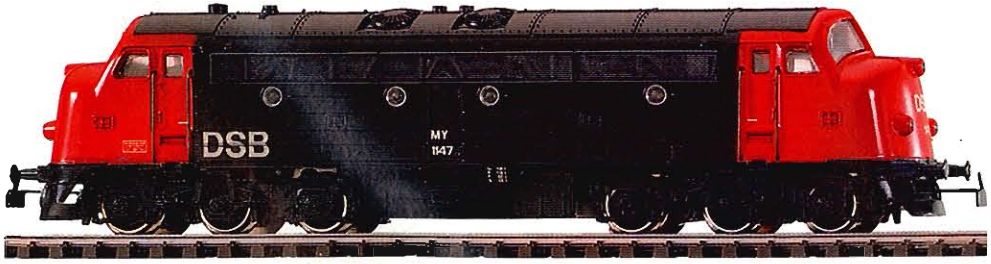
3081 · Express Diesel · German Federal Railroad class 220 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal body and frame · Coupling hooks with pre-uncoupler · Length over buffers 21 cm (8-1/4")

=7154 =7183 =60010

Belgium

3066 · **Multi-Purpose Diesel** · Belgian State Railways (NMBS/SNCB) class 204 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal body and frame · Coupling hooks · Length over buffers 20.5 cm (8-1/16")

=7154 =7164 =60015



Denmark

3067 · **Multi-Purpose Diesel** · Danish State Railways (DSB) class My 1100 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal body and frame · Coupling hooks · Length over buffers 20.5 cm (8-1/16")

=7154 =7164 =60015

Norway

3143 · **Multi-Purpose Diesel** · Norwegian State Railways (NSB) class Di.3a · One truck powered · 4 traction tires · Illuminated triple headlight · Metal body and frame · Coupling hooks · Length over buffers 20.5 cm (8-1/16")

=7154 =7164 =60015

USA

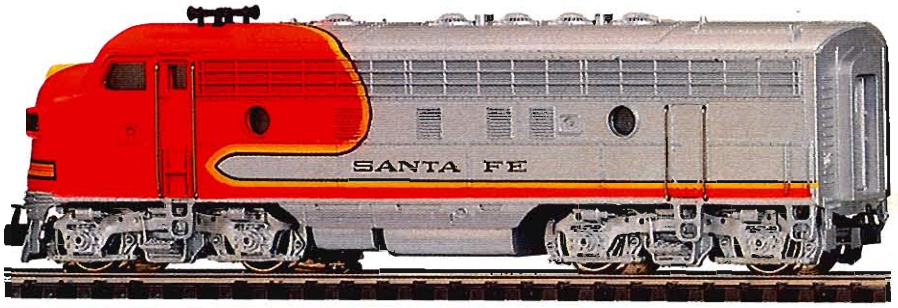
3060 · Road Diesel · General Motors EMD F 7 lettered and painted for the Atchison, Topeka and Santa Fe Railway · One truck powered · 4 traction tires · Illuminated dual headlight · Metal body and frame · Coupling hook with pre-uncoupler at cab end · RELEX coupler at other end · Length 17.5 cm (6-⅞")

⓪=7154 =7185 =60015

USA

4060 · Dummy Road Diesel · Mates with the 3060 · Illuminated dual headlight · Metal body and frame · Coupling hook with pre-uncoupler at cab end · Coupling hook at other end · Length 17.5 cm (6-⅞")

=7185 =60015



USA

3129 · Road Diesel · General Motors EMD F 7 lettered and painted for the Southern Pacific Railroad · One truck powered · 4 traction tires · Illuminated dual headlight · Metal body and frame · Coupling hook with pre-uncoupler at cab end · RELEX coupler at other end · Length 17.5 cm (6-⅞")

⓪=7154 =7185 =60015

USA

4129 · Dummy Road Diesel · Mates with the 3129 · Illuminated dual headlight · Metal body and frame · Coupling hook with pre-uncoupler at cab end · Coupling hook at other end · Length 17.5 cm (6-⅞")

=7185 =60015

4018 · **Railbus Trailer** · German Federal Railroad type 995 · Red end lights · Interior lighting · Special couplers providing close coupling designed for railbuses · Length over buffers 12 cm (4-¾")

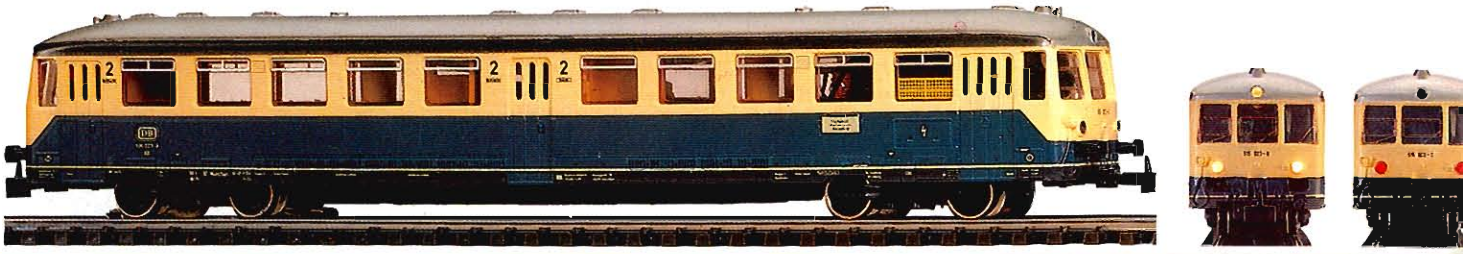
=7175 =60010

3016 · **Railbus** · German Federal Railroad type 795 · One axle powered · 2 traction tires · Illuminated triple headlight · Interior lighting · Metal frame · Special couplers providing close coupling · Length over buffers 14.7 cm (5-¾")

=7153 =7164 =60010

3028 · **Electric Railcar** · German Federal Railroad class 515, accumulator battery-powered railcar · One truck powered · 4 traction tires · Triple white headlights and dual red end lights, illuminated according to direction of travel · Interior details · Interior lighting · Metal frame · Coupling hooks · Length over buffers 24 cm (9-½")

=7154 =7164 =60001 r
=60015 w

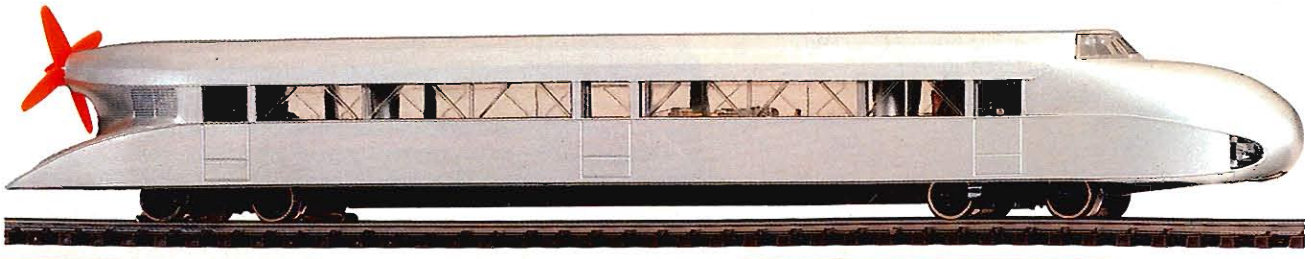


4028 · **Control Car** · For use with 3028 · German Federal Railroad type 815 · When coupled to 3028, three white headlights and two red end lights illuminate according to direction of travel · Interior details · Interior lighting · Coupler loop at one end, coupler hook at the other end of railcar · Length over buffers 24 cm (9-½")

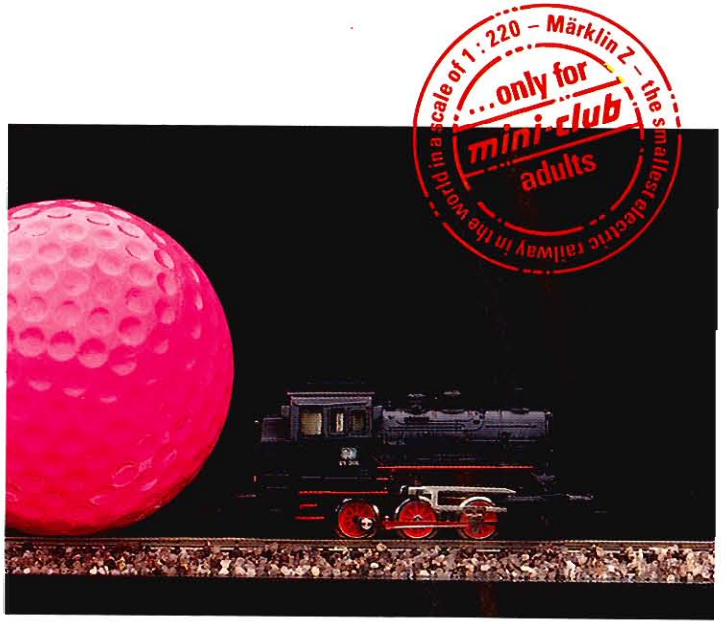
=7164 =60001 r
=60015 w

3077 · **Rail Zepplin** · Based on Kruckenberg System · One truck powered · 4 traction tires · At 4 volts, the propeller is activated by a small motor and as more power is applied, the zepplin begins to roll · Double headlight at the front · Metal frame · Length 28.8 cm (11-⅜")

=7154 =7164 =60015



märklín
Z



The smallest. For fun, simply the biggest.

See your dealer.

Electric Locomotives

The Intercity express train with a class 103 passes a long distance express with a class 120, photographed at the Märklin Service Center.

NEW

3329 · Electric Locomotive · German Federal Railroad class 191 · 3 axles powered · 4 traction tires · Triple headlights at each end, illuminated according to direction of travel · Three-part metal body and frame · Automatic couplers · Electronic reverse unit · Length over buffers 19.9 cm (7-⅞")

⓪=7153 =7185 =60008

■ Beginning in 1927 a lighter version of the E 91 heavy freight locomotive was built with resistance brakes and was classified as the E 91.9. It had a steady output of 2,200 kW, weighed 116.4 tons and could reach a maximum speed of 55 km/h (30 mph). The locomotive's three-part articulated body with two groups of driving wheels and Winterthur drive rod design was very effective on mountain lines in central and southern Germany.

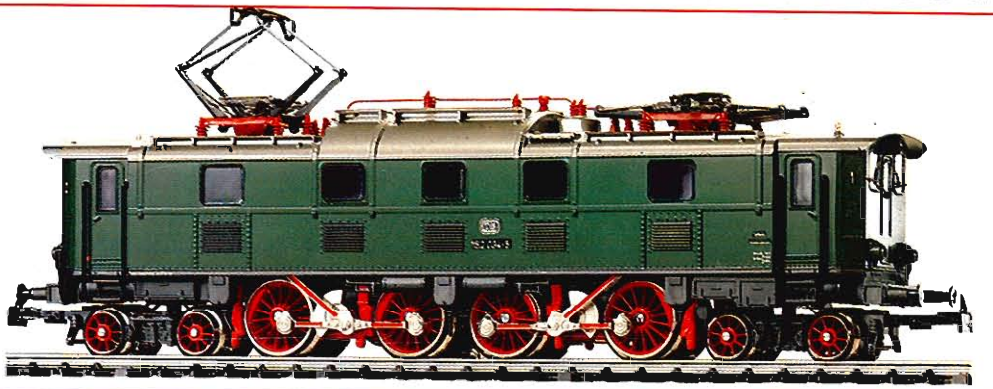
The German Federal Railroad acquired six of these powerful engines after the war and, after upgrading their equipment, used them well into the 1970's in both road and yard work. Two of the locomotives, later classified 191, have been placed in museums.

NEW

3629 · Digital · Electric Locomotive · Same as model 3329

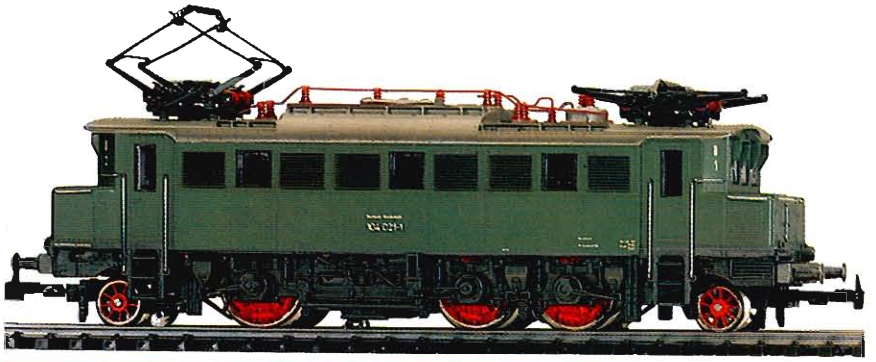
3366 · Electric Locomotive · German Federal Railroad class 152 (Bavarian EP 5) · 2 axles powered · 4 traction tires · Illuminated triple headlight · Metal frame · Articulated frame enabling the locomotive to negotiate sharp curves · 2 sprung pilot trucks · Coupling hooks · Electronic reverse unit · Length over buffers 19.8 cm (7-⅞")

⓪=7153 =7164 =60019



3049 · Express Locomotive · German Federal Railroad class 104 · Three axles powered · 2 traction tires · Illuminated triple headlight · Metal frame · 2 sprung pilot trucks · Coupling hooks · Length over buffers 17.8 cm (7")

⓪=7153 =7185 =60015



3322 · Freight Locomotive · German Federal Railroad class 194 · One truck powered · 4 traction tires · Illuminated triple headlight · Articulated three-part metal body and frame · RELEX couplers · Electronic reverse unit · Length over buffers 21 cm (8-¼")

⓪=7153 =7164 =60010

Heavy Duty Inter-Urban

Powered by locomotives between the Rhine and the Ruhr

As opposed to the inter-urbans S-Bahnen) serving cities such as Hamburg, Munich, Stuttgart or Frankfurt/M, the system which serves the Rhine and Ruhr regions has a multi-hub structure. Traffic flows to and from several major centers and the distances covered are greater. The Rhine-Ruhr district serves cities such as Cologne, Düsseldorf, Mülheim, Essen, Bochum and Dortmund. the heavy traffic demands of this wide area prompted the German Federal Railroad to use engine powered push-pull trains rather than the more conventional self-propelled train sets.

The coaches for these trains were specially developed. Engines of the class 111 (Märklin model 3355/3655) are used to power these trains. The 111's differ from their "normal sisters" in that they have a special color scheme and several technical alternations necessary for push-pull operation.

There were ten prototypes of the cars built in 1979 of light-weight aluminium (three each of ABx 791.0 and Bxf 796.0 and 4 Bx 794.0). From 1981 to 1984 the series production cars were built for the following designs: ABx 791.1 (59 cars, Märklin model 4183), Bx 794.1 (97 cars, Märklin model 4184) and Bxf 796.1 (59 cars, Märklin model 4185). The ABx cars are dual class, having 32 first class seats and 48 second class seats. Bx has an open seating configuration of 80 second class seats while the control car, Bxf, has 62 second class seats.

The cars, which ride on Wegmann LD 76 trucks, are designed to operate at 140 km/h (87 mph). The "Inter-urban" 111 is not used solely for regional commuter runs; it has already been used on a regular basis for Intercity expresses between Düsseldorf and Frankfurt/M.

Photos: E. A. Weigert

In the control car of the Rhein-Ruhr commuter train passengers have 62 second class seats while in the ABx cars there are 32 first class seats, and in the Bx coach 80 second class seats are available.

3657 · Digital · Express Locomotive · Same as model 3357 · Different classification number

=60010

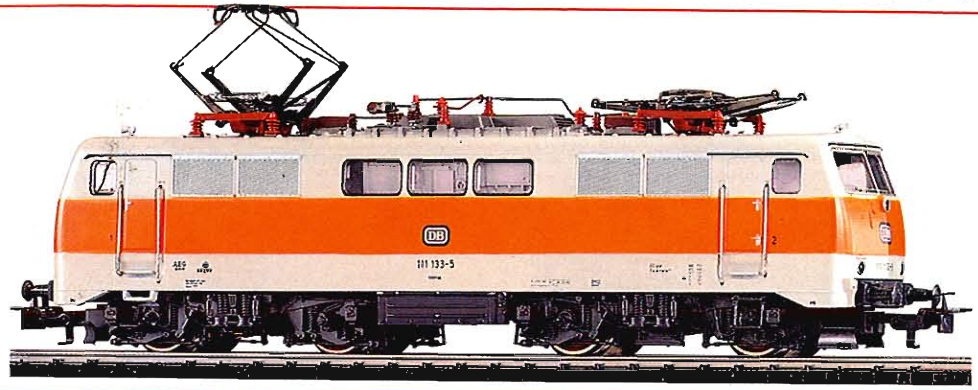
3357 · Express Locomotive · German Federal Railroad class 103 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal frame · Coupling hooks · Electronic reverse unit · Length over buffers 21.9 cm (8-5/8″)

=7153 =7164 =60019

3653 · Digital · Multi-Purpose Locomotive · Same as model 3153 · Different classification number and coat-of-arms of the City of Fürth

3153 · Multi-Purpose Locomotive · German Federal Railroad class 120 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal frame · Coupling hooks · Length over buffers 22.1 cm (8-3/4″)

=7153 =7164 =60015



NEW

3655 · Digital · Electric Locomotive · Same as model 3355

To be available Spring 1987

NEW

3355 · Electric Locomotive · German Federal Railroad class 111 · One truck powered · 4 traction tires · Triple white headlight and dual red end light illuminated according to direction of travel · Metal frame · RELEX couplers · Electronic reverse unit · Length over buffers 19.1 cm (7-1/2″)

=7153 =7164 =60007 r

=60008 w

To be available Spring 1987

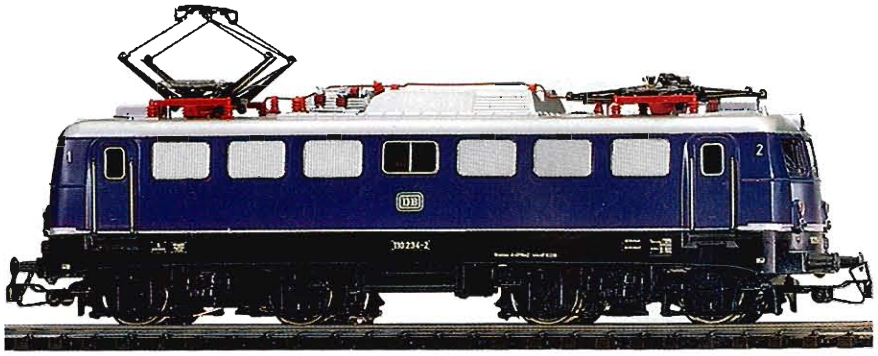
NEW

3172 · Express Locomotive · German Federal Railroad class 111 · Color scheme based on a design study for the German Federal Railroad · One truck powered · 4 traction tires · Illuminated triple headlight · Metal frame · RELEX couplers · Length over buffers 19.1 cm (7-1/2″)

=7153 =7164 =60015

3039 · Express Locomotive · German Federal Railroad class 110 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal body and frame · Coupling hooks with pre-uncoupler · Length over buffers 18.1 cm (7-⅛″)

◐=7153 ⌓=7164 ♀=60015



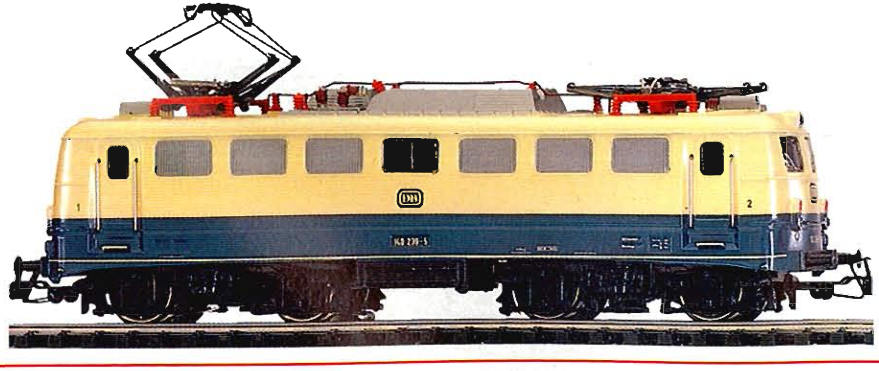
3042 · Express Locomotive · German Federal Railroad class 111 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal frame · RELEX couplers · Length over buffers 19.1 cm (7-½″)

◐=7153 ⌓=7164 ♀=60015

3642 · Digital · Express Locomotive Same as model 3042 · Different classification number

3156 · Freight Locomotive · German Federal Railroad class 140 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal body and frame · Coupling hooks with pre-uncoupler · Length over buffers 18.1 cm (7-⅛″)

◐=7153 ⌓=7164 ♀=60015

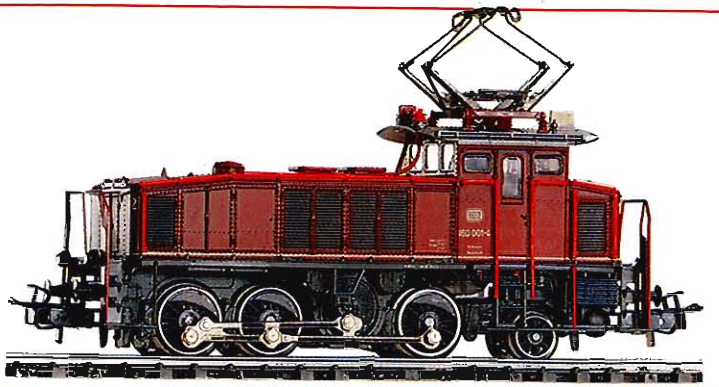


3058 · Freight Locomotive · German Federal Railroad class 151 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal frame · Coupling hooks · Length over buffers 22.2 cm (8-¾″)

◐=7153 ⌓=7164 ♀=60015

3044 · Switch Engine · Multi-system industrial switcher, type EA 800 · 3 axles powered · 2 traction tires · Illuminated triple headlight · Metal frame · Coupling hooks · Length over buffers 11.2 cm (4-3/8″)

⓪=7154 ⌓=7185 ⚲=60015



3157 · Electric Locomotive · German Federal Railroad class 160 · 3 axles powered · 2 traction tires · Illuminated triple headlight · Metal frame · RELEX couplers · Length over buffers 12.8 cm (5″)

⓪=7153 ⌓=7185 ⚲=60010

NEW France

3325 · Electric Locomotive · French State Railways (SNCF) class BB 7200 · One truck powered · 4 traction tires · Illuminated dual headlight according to direction of travel · Metal body and frame · Coupling hooks · Electronic reverse unit · Length over buffers 20 cm (7-7/8″)

⓪=7153 ⌓=7164 ⚲=60010

France

3165 · Electric Locomotive · French State Railways (SNCF) class BB 9200 · One truck powered · 4 traction tires · Illuminated dual headlight · Metal frame and body with "Corail" markings · Coupling hooks with pre-uncoupler · Length over buffers 18 cm (7-1/8″)

⓪=7153 ⌓=7164 ⚲=60015

NEW France

3625 · Digital · Electric Locomotive · Same as model 3325

■ The French State Railways (SNCF) fields two varieties of its class BB 7200 electric. One series has a top speed of 100 kmph (62.5 mph) and is a general-purpose locomotive, much like the class 140 of the German Federal Railroad. The other series is capable of doing 160 to 180 kmph (100 to 112.5 mph), ideally suited for powering heavy express and other fast passenger trains.

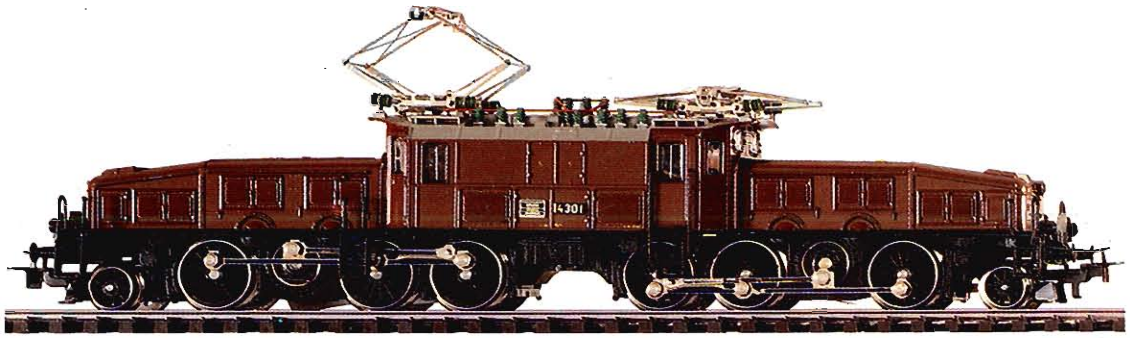
Both series have in common the unique shape of the body with its distinctive nose and angled windows on the cab. With a service weight of 85.5 tons, both series of BB 7200 have an output of 4,000 kW.

NEW Switzerland

3352 · Freight Locomotive, "Crocodile" · Swiss Federal Railways (SBB) class Ce 6/8^{III} · 3 axles powered · 4 traction tires · Three headlights and marker ligths, illuminated according to the direction of travel · Three-part metal body and frame · Driving wheels divided into two linked trucks enabling the locomotive to negotiate sharp curves · RELEX couplers · Electronic reverse unit · Length over buffers 23 cm (9-1/8")

⏀=7153 ⌓=7164 ⚲=60008

Available Spring 1987



■ Following the electrification of the Gotthard Line in 1920, the SBB developed a new heavy electric locomotive to power trains on this steep, winding route. The characteristically long, flat shape of these engines at both ends was responsible for their legendary name, "Crocodile".

After the successful introduction of the first series Ce 6/8^{II}, the improved, more powerful class Ce 6/8^{III}, the classic "Crocodile", was placed into service in 1926. These locomotives had four motors with an output of 1,800 kW as well as diagonal drive rod system, and were rated for a maximum speed of 65 kmph (35 mph). They could be used for freight and passenger service and had crossover plates at both ends for the latter. As with other Swiss locomotives of this period the Crocodiles came in a brown paint scheme.

During their service life of 50 years, the engines underwent many changes. A new green SBB color scheme was applied after several years. After being withdrawn from passenger service, the crossover plates were removed. The original pantographs were modified so that the engines could operate with one pantograph in the raised position.

Finally in 1953, the top speed for the "Crocodiles" was increased to 75 kmph (45 mph) and they were reclassed as the Be 6/8^{III}.

The "Crocodiles" saw regular freight service until well into the 1970's. Some of these historical locomotives are still kept in operating condition for fan trips.

The model 3352 represents the first locomotive of the series at the time of its delivery. The model 3356 represents the locomotive as it looked until 1977.

Switzerland

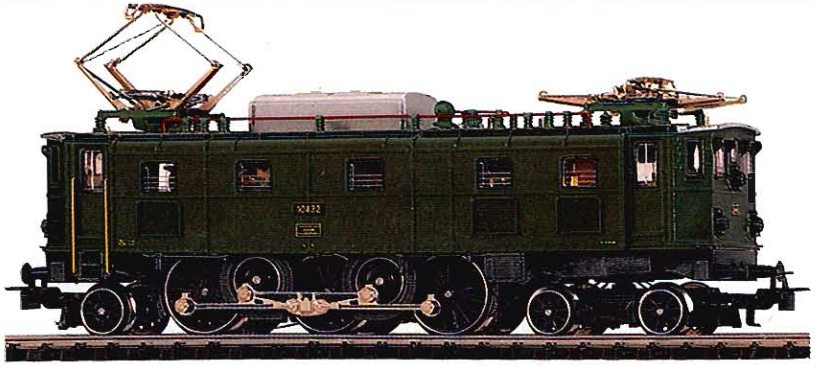
3125 · Self Propelled Railcar · Swiss Federal Railways (SBB) class RBe 2/4 "Red Arrow" · In original colors, as displayed now at the Swiss Transport Museum, Lucerne · One truck powered · 4 traction tires · Illuminated triple headlight · Inset windows · Interior details · Metal body and frame · Length over buffers 25.7 cm (10")

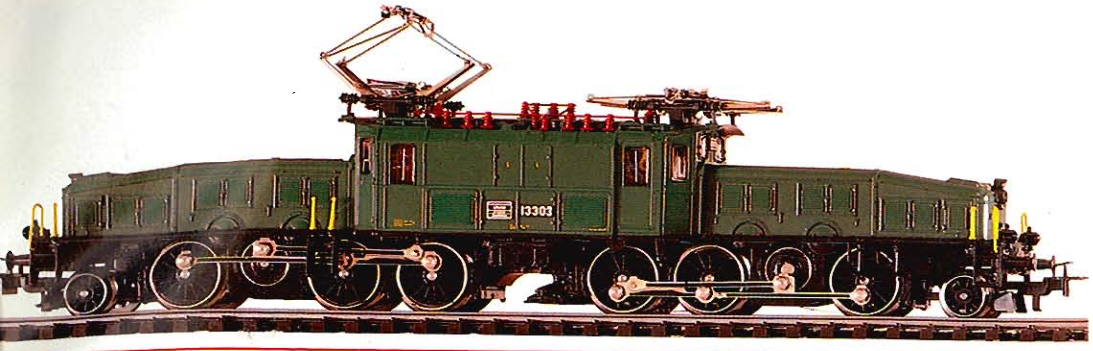
⏀=7154 ⌓=7164 ⚲=60008

Switzerland

3167 · Express Locomotive · Swiss Federal Railways (SBB) class Ae 3/6^{II} · 3 axles powered · 2 traction tires · Illuminated triple headlight · Metal frame · Sprung pilot and trailing truck · RELEX couplers · Length over buffers 16 cm (6-5/16")

⏀=7153 ⌓=7185 ⚲=60015





Switzerland

3356 · Freight Locomotive "Crocodile" · Swiss Federal Railways (SBB) class Be 6/8^{III} · 3 axles powered · 4 traction tires · Illuminated triple headlight · Three part body · Metal frame · Articulated construction enabling the locomotive to negotiate sharp curves · RELEX couplers · Electronic reverse unit · Length over buffers 22.8 cm (9″)

0 = 7153 = 7164 = 60010

0356 · The Book about the "Crocodile" · By H. S. Stammer · The most comprehensive publication on the famed Swiss "Crocodile" with dates, facts, dramatic stories and interesting anecdotes · Detailed presentation of the various models which Märklin has produced in the last 50 years · 96 pages · Size 26.4 × 22 cm (10-¼″ × 8-¾″) · German text

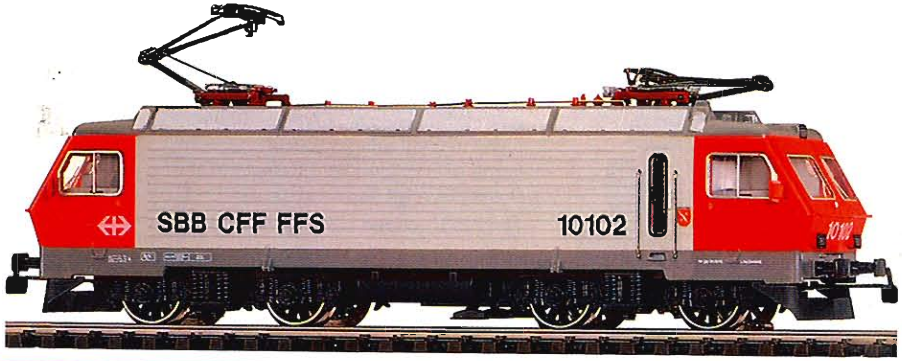
Switzerland

3650 · Digital · Multi-Purpose Locomotive · Same as model 3350 · Different classification number

Switzerland

3350 · Multi-Purpose Locomotive · Swiss Federal Railways (SBB) class Ae 6/6, No. 11439 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal body and frame · With coat of arms of the cantonal capital, Schaffhausen · Additional canton coats of arms included · Coupling hooks · Electronic reverse unit · Length over buffers 20 cm (7-⅞″)

0 = 7153 = 7164 = 60008



Switzerland

3623 · Digital · Electric Locomotive · Same as model 3323 and 3328 · Classification number 10104

= 60010

Switzerland

3323 · Electric Locomotive · Swiss Federal Railways (SBB) class Re 4/4^{IV}, No. 10102 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal body and frame · Coupling hooks · Electronic reverse unit · Length over buffers 18.1 cm (7-⅛″)

0 = 7153 = 7164 = 60019

Switzerland

3328 · Electric Locomotive · Swiss Federal Railways (SBB) class Re 4/4^{IV}, No. 10103 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal body and frame · Coupling hooks · Electronic reverse unit · Length over buffers 18.1 cm (7-⅛″)

0 = 7153 = 7164 = 60019

Austria

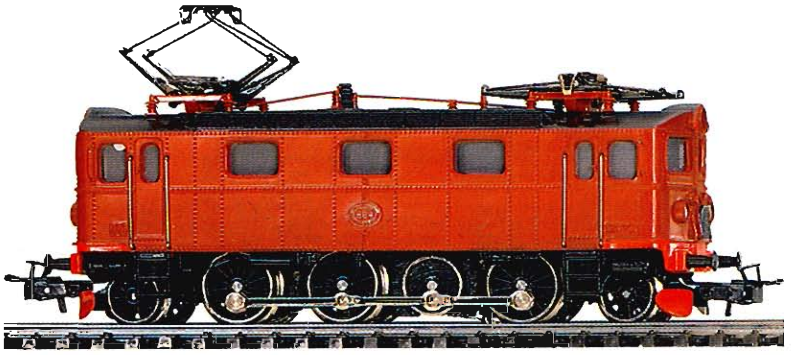
3041 · Multi-Purpose Locomotive · Austrian Federal Railways (ÖBB) class 1043 · One truck powered · 4 traction tires · Illuminated quadruple headlight · Metal frame · Coupling hooks · Length over buffers 17.5 cm (6-7/8")

=7153 =7164 =60015

Belgium

3163 · Four-System Express Locomotive · Belgian State Railways (NMBS/SNCB) class 16 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal frame · RELEX couplers · Length over buffers 19.4 cm (7-5/8")

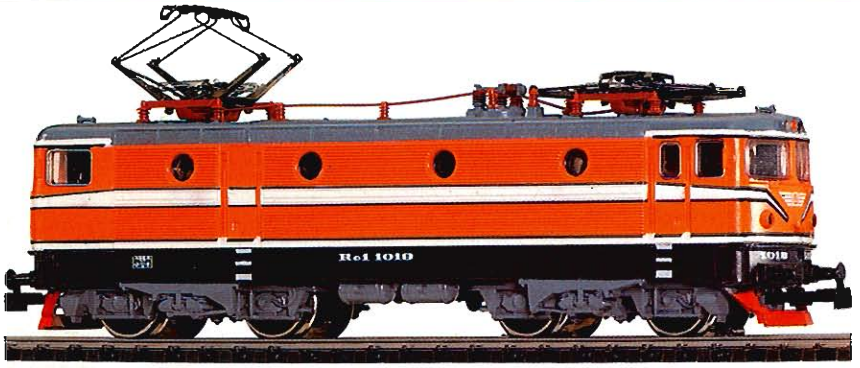
=7153 =7164 =60015



Sweden

3030 · Multi-Purpose Locomotive · Swedish State Railways (SJ) class Da · 3 axles powered · Jackshaft driven through gears · 2 traction tires · Illuminated triple headlight · Metal body and frame · RELEX couplers · Length over buffers 14.7 cm (5-3/4")

=7153 =7185 =60015



Sweden

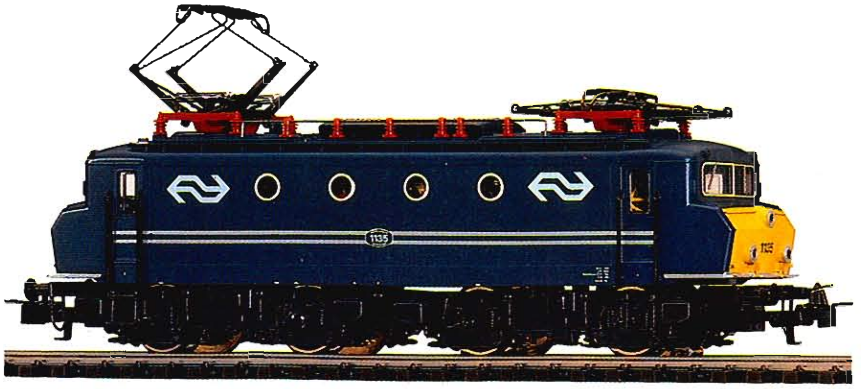
3043 · Multi-Purpose Locomotive · Swedish State Railways (SJ) class Rc1 · One truck powered · 4 traction tires · Illuminated quadruple headlight · Metal frame · Coupling hooks · Length over buffers 17.5 cm (6-7/8")

=7153 =7164 =60015

Netherlands

3327 · Multi-Purpose Locomotive · Netherlands Railways (NS) class 1100 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal frame · RELEX couplers · Electronic reverse unit · Length over buffers 16.3 cm (6-3/8")

Ⓞ = 7153 = 7164 = 60019



Netherlands

3324 · Multi-Purpose Locomotive · Netherlands Railways (NS) class 1100 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal frame · RELEX couplers · Electronic reverse unit · Length over buffers 16.3 cm (6-3/8")

Ⓞ = 7153 = 7164 = 60019

Netherlands

3168 · Electric Locomotive · Netherlands Railways (NS) class 1200 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal body and frame · Coupling hooks · Length over buffers 19.6 cm (7-3/4")

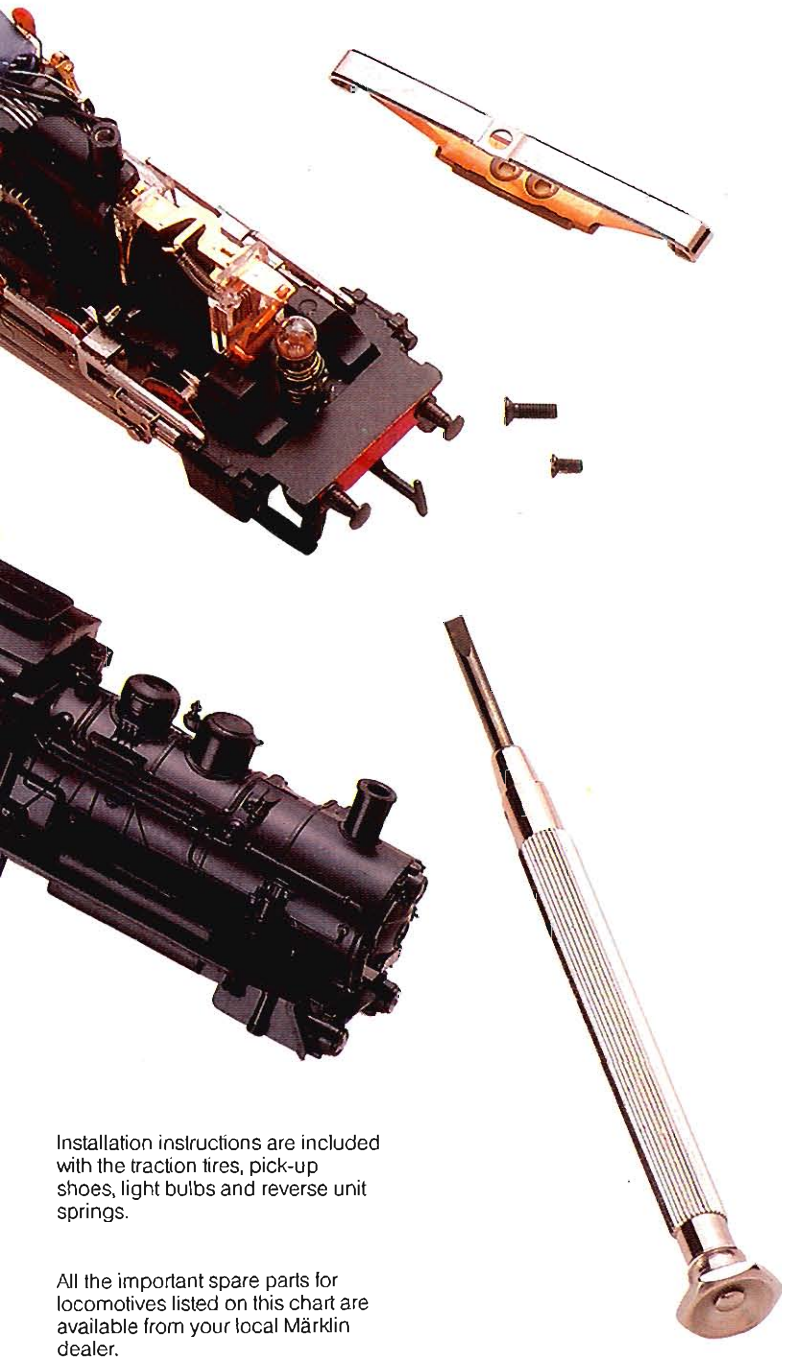
Ⓞ = 7154 = 7164 = 60015

Netherlands

3326 · Electric Locomotive · Netherlands Railways (NS) class 1600 · One truck powered · 4 traction tires · Illuminated triple headlight · Metal body and frame · Coupling hooks · Electronic reverse unit · Length over buffers 20 cm (7-7/8")

Ⓞ = 7153 = 7164 = 60019

Spare Parts for Locomotives



Installation instructions are included with the traction tires, pick-up shoes, light bulbs and reverse unit springs.

All the important spare parts for locomotives listed on this chart are available from your local Märklin dealer.

Locomotive Catalog No.	Traction Tires	Pick-Up Shoes	Panto-graphs	Light Bulbs	Brushes	Reverse Switches	Front Couplers	Rear Couplers
3000	7154	7185	–	60 010	60 030	20 824	20 001	20 001
3003	7153	7185	–	60 010	60 030	20 824	20 214	70 154
3016	7153	7164	–	60 010	60 030	20 824	20 989	20 989
3021	7154	7183	–	60 010	60 030	20 824	21 166	21 166
3028	7154	7164	–	60 001	60 030	21 899	70 412	70 412
				60 015				
3030	7153	7185	7218	60 015	60 030	20 824	21 128	21 128
3039	7153	7164	7218	60 015	60 146	20 824	21 484	21 484
3041	7153	7164	7219	60 015	60 030	20 824	70 412	70 412
3042	7153	7164	7218	60 015	60 146	20 824	70 156	70 156
3043	7153	7164	7218	60 015	60 030	20 824	70 412	70 412
3044	7154	7185	7219	60 015	60 030	20 824	20 001	20 001
3049	7153	7185	7207	60 015	60 146	20 824	70 412	70 412
3058	7153	7164	7218	60 015	60 146	20 824	70 412	70 412
3060	7154	7185	–	60 015	60 030	20 824	21 583	21 586
3065	7153	7185	–	60 010	60 030	22 970	21 376	21 376
							21 377	21 377
3066	7154	7164	–	60 015	60 030	20 824	21 783	21 783
3067	7154	7164	–	60 015	60 030	20 824	21 783	21 783
3071	7154	7164	–	60 001	60 030	22 049	–	21 929
		7175		60 015				21 951
								21 954
3072	7154	7164	–	60 010	60 030	20 824	21 842	21 842
3074	7154	7164	–	60 015	60 030	20 824	70 156	70 156
3075	7154	7164	–	60 015	60 030	20 824	70 156	70 156
3077	7154	7164	–	60 015	60 030	20 824	–	–
3078	7154	7185	–	60 015	60 030	20 824	20 001	20 001
3080	7154	7185	–	–	60 030	20 824	20 001	20 001
3081	7154	7183	–	60 010	60 030	20 824	21 166	21 166
3082	7153	7164	–	60 015	60 146	20 824	21 843	21 842
3084	7153	7164	–	60 015	60 146	20 824	21 843	21 842
3085	7152	7164	–	60 010	60 146	20 824	–	21 842
3087	7154	7185	–	–	60 030	20 824	20 001	20 001
3089	7152	7185	–	60 015	60 030	20 824	–	70 154
3092	7152	7185	–	60 015	60 030	20 824	–	21 842
3093	7152	7185	–	60 015	60 030	20 824	–	21 842
3095	7153	7185	–	60 010	60 030	20 824	22 532	21 842
3096	7153	7164	–	60 015	60 030	22 970	24 456	24 456
							22 897	22 897
							22 924	22 924
3099	7152	7185	–	60 015	60 030	20 824	22 418	21 842
3102	7153	7185	–	60 015	60 146	20 824	21 843	21 842
3104	7153	7185	–	–	60 146	20 824	20 001	20 001
3106	7153	7164	–	60 015	60 146	20 824	24 281	24 281
3107	7153	7164	–	60 015	60 146	20 824	24 281	24 281
3125	7154	7164	25 640	60 008	–	–	–	–
3129	7154	7185	–	60 015	60 030	20 824	21 583	21 586
3141	7153	7185	–	60 010	60 030	20 824	21 411	21 411

7247

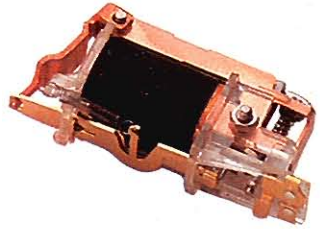
7207

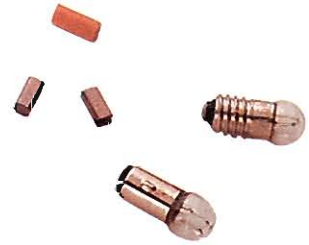
Locomotive Catalog No.	Traction Tires	Pick-Up Shoes	Panto-graphs	Light Bulbs	Brushes	Reverse Switches	Front Couplers	Rear Couplers
3143	7154	7164	–	60 015	60 030	20 824	21 783	21 783
3146	7154	7185	–	60 015	60 146	20 824	70 156	70 156
3147	7154	7164	–	60 010	60 030	20 824	21 842	21 842
3153	7153	7164	7208	60 015	60 146	20 824	70 412	70 412
3156	7153	7164	7218	60 015	60 146	20 824	21 484	21 484
3157	7153	7185	7218	60 010	60 146	20 824	21 842	21 842
3163	7153	7164	7219	60 015	60 146	20 824	70 156	70 156
3165	7153	7164	7218	60 015	60 146	20 824	21 773	21 773
3167	7153	7185	24 800	60 015	60 146	20 824	70 156	70 156
3168	7154	7164	7218	60 015	60 030	20 824	21 783	21 783
3172	7153	7164	7218	60 015	60 146	20 824	70 156	70 156
3308	7153	7164	–	60 010	60 146	25 220	24 456	24 460
3309	7153	7164	–	60 019	60 146	22 970	24 456	24 460
							24 457	24 461
3310	7152	7164	–	60 019	60 146	25 220	–	32 540
3312	7153	7185	–	60 019	60 146	25 220	21 842	21 842
3313	7153	7185	–	60 019	60 146	25 220	21 842	21 842
3315	7153	7164	–	60 008	60 146	–	21 843	21 842
3322	7153	7164	7218	60 010	60 030	25 220	21 842	21 842
3323	7153	7164	7219	60 019	60 146	25 220	24 810	24 810
3324	7153	7164	7218	60 019	60 146	25 220	70 156	70 156
3325	7153	7164	7219	60 010	60 146	25 220	24 810	24 810
3326	7153	7164	7219	60 019	60 146	25 220	24 810	24 810
3327	7153	7164	7218	60 019	60 146	25 220	70 156	70 156
3328	7153	7164	7219	60 019	60 146	25 220	24 810	24 810
3329	7153	7185	25 783	60 008	60 146	25 220	25 776	25 776
3350	7153	7164	25 069	60 008	60 030	25 220	21 708	21 708
3352	7153	7164	25 953	60 008	60 146	25 220	70 156	70 156
3355	7153	7164	7218	60 007	60 146	25 220	70 156	70 156
				60 008				
3356	7153	7164	7218	60 010	60 146	25 220	70 156	70 156
3357	7153	7164	7247	60 019	60 146	25 220	22 313	22 313
3366	7153	7164	7218	60 019	60 146	25 220	70 412	70 412
3371	7154	7164	25 445	60 007	–	–	–	–
				60 008				
Locomotive which have been discontinued in the past 3 years:								
3035	7153	7164	7218	60 015	60 146	20 824	21 484	21 484
3050	7153	7164	7218	60 015	60 030	20 824	21 708	21 708
3055	7154	7164	7218	60 015	60 030	20 824	21 783	21 783
3062	7154	7185	–	60 015	60 030	20 824	21 583	21 586
3144	7154	7185	–	60 015	60 030	20 824	20 001	20 001
3145	7154	7185	–	60 015	60 146	20 824	70 156	70 156
3149	7153	7185	–	60 010	60 030	20 824	21 411	21 411
3151	7153	7185	7218	60 015	60 146	20 824	70 156	70 156
3152	7153	7164	7219	60 015	60 146	20 824	70 156	70 156
3155	7153	7164	7218	60 015	60 146	20 824	70 156	70 156
3159	7153	7164	7218	60 015	60 030	20 824	21 842	21 842
3346	7154	7185	–	60 019	60 146	25 220	70 156	70 156

7247 · Single Arm Pantograph · German Federal Railroad type SBS 65 · With mounting screw · Base measures same as 7218 · For the 3357 and the engine in the 2856 set

7207 · Pantograph · Type SBS 10 · With mounting screw · Base measures same as 7218 · For older classes of electric locomotives (3049, 3157, 3322, 3366, etc.)

7194 · Reverse Unit Springs · Pack of 5 springs suitable for all conventional locomotives





7001 · Coupling Guide · Nickel plated steel · For testing couplers

7199 · Bottle of Oil · Contains 9 ml of a special oil for lubricating locomotives and cars

A practical Test of the Märklin

The Fun New Way to Operate

It has been on the market only a few months and the sales figures are something to look at. Many hobby shops have demonstration layouts in which hobbyists can see for themselves what this new electronic system can accomplish. The topic is Märklin Digital, "the new dimension in fun" (according to the manufacturer in Göppingen, West Germany). But just what is this new system all about? The following test should show what Märklin Digital can do, what it is like in operation and what possibilities it can offer.

What Can the System Do?

Perhaps the most important function is that the system allows multi-train operation on a single track with each train individually controlled. Each powered unit is given a particular number. When this number is entered into the throttle control ("control 80"), the affected power unit (locomotive, train, etc.) will respond only to commands sent from this throttle control. Any throttle control unit can be used for any locomotive. Several throttle control units can be connected together and up to 80 locomotives can be addressed, of which, theoretically at least, any number can be operated at the same time.

A side benefit of this system is constant train lighting – without any alteration to the cars being necessary.

A second important function of Märklin Digital is that electrical accessories – switches and signals – can be activated (with the keyboard) and up to 256 switches can be operated with only two wires from the control panel to the track. The switches and signals are connected to "decoder" panels mounted near them on the layout which are in turn connected to the two wires coming from the control panel. The result is simplified wiring and the possibility of controlling even switches from a central point.

Since all commands go out via a microprocessor in the "central unit", it is also possible to control all functions externally via an interface with the help of a home computer. Specialists, take note: This opens up undreamed-of possibilities for combining a computer with model railroading, possibilities beyond the purely model railroad technical advantages of the system.

How Does Märklin Digital Work?

Let us look for a moment at the schematic diagram of a Märklin Digital system in its simplest form. The "brains" of the system is the central unit. It sits accordingly in the center gathering control impulses from the control units for switches and the throttle units to its left and right, respectively, and receiving power from the transformer. The central unit is naturally connected to the track. Of interest is the fact that the decoder panels for switches are also connected to the same circuit. The locomotives also have a built-in decoder panel which controls the motor.

From the foregoing, the "philosophy" of the system becomes clear: The rails serve as a common conductor for the power to all electrically powered units and at the same time transmit information about switch settings, locomotive speed, etc. in the form of encoded, superimposed electrical impulses.

This describes the most important functions of the system. It is called "digital" because all of these functions are encoded as impulses of current ("current or no current"). The system is reasonable in price because of its highly developed, efficient microprocessor technology.

How Is the System Hooked Up?

Connecting and wiring the system is easy. The control units are plugged into the sides of the central unit using multi-pin plugs; the control 80 units go on the right side and the keyboards go on the leftside. No additional wiring is necessary. An auxiliary power booster is available for large layouts with many trains operating simultaneously.

Digital H0 Electronic Control System

– Simply Digital (Part 1)

The transformer for supplying power is connected to the central unit with two wires.

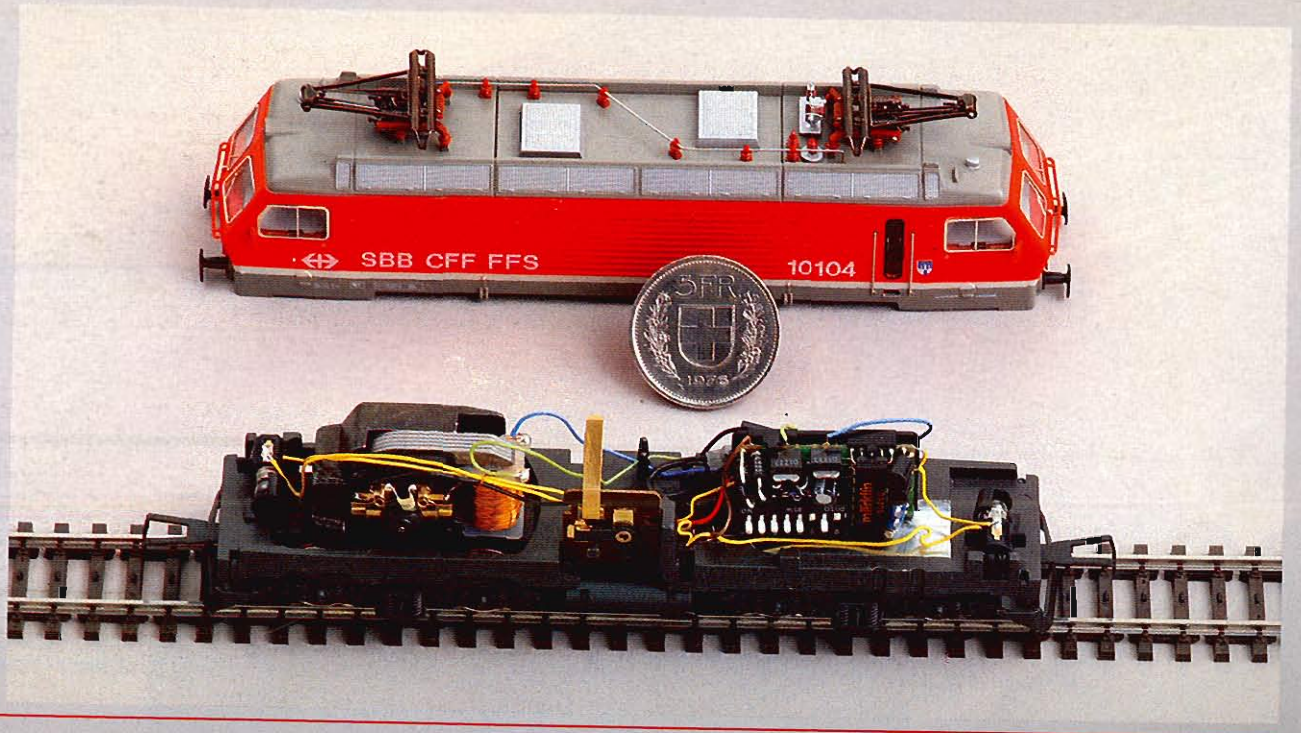
Operating a Control 80 – Very Simple

When the two-digit code for a locomotive is keyed into the control 80 unit, the locomotive obeys the unit's commands in the same manner as it would those of a conventional transformer: Starting, stopping, as well as reversing, using the time-honored Märklin method of turning the speed control knob left past the zero or stop position. If you try out the remaining buttons on the control 80, you find out that pressing the "function" button causes the locomotive headlights to come on – a rather neat trick. With TELEX locomotives this button operates the couplers. The "off" button turns this function off. The red "stop" button is the emergency brake; it cuts off power to the entire system.

(continued on pages 142 and 143)

From the German model railroad magazine "MIBA", December 1985 issue "Praxistest Digital & Interface".

A cut-away of a digital locomotive in which the decoder panel has replaced the conventional reversing unit.

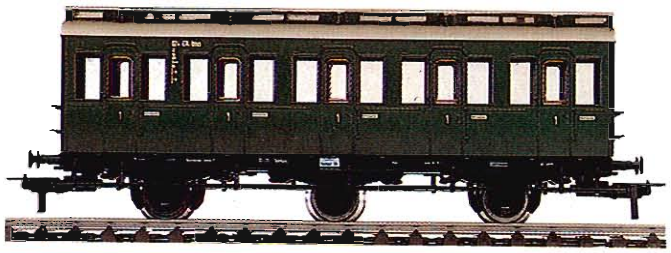


Passenger Cars

Station scene, photographed on the layout of Dr. Bonitz, Hamburg, Federal Republic of Germany.

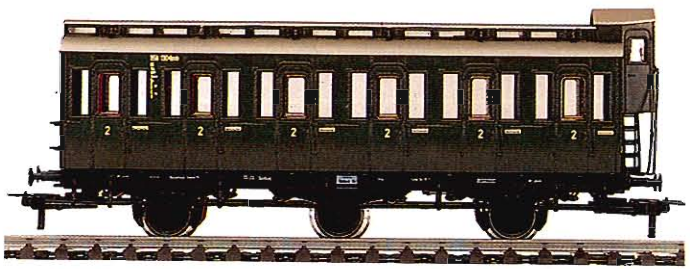
■ The compartment car is considered the first railroad passenger car. Essentially a stagecoach body mounted on railroad trucks, compartment cars were widely used, mainly in northern Germany. These cars were especially common on the rails of the Prussian State Railroad, representing the typical passenger train on its mainlines. By 1920 there were only 3,363 three-axle cars with corridor connections versus 23,300 three-axle compartment cars in service. Following the union of the German provincial railroads, compartment cars saw service throughout the nation, and many were stationed in southern Germany. Well into the 1950's these three-axle compartment cars of Prussian origin were the backbone of the German Federal Railroad's passenger car fleet. Ultilmately, however, the cars underwent a major rebuilding program. The frames were retained as the running gear for the well-known three-axle rebuild cars.

German Federal Railroad (DB)



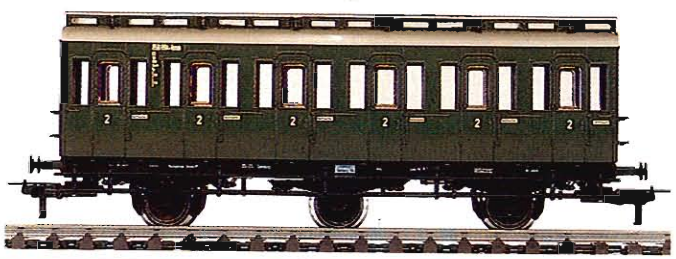
NEW

4200 · **Compartment Car** · A3 Pr 14 · 1st class · Interior details · **Automatic close couplers** · Length 13.5 cm (5-¼")



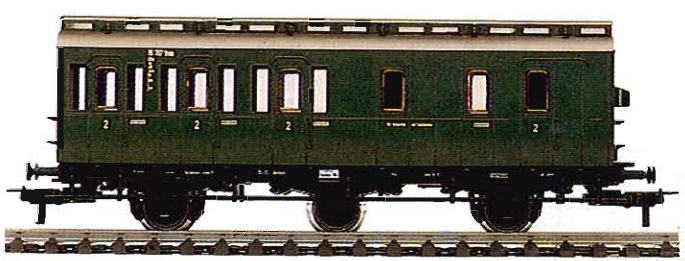
NEW

4201 · **Compartment Car with Brakeman's Cab** · B3 Pr 11a · 2nd class · Interior details · **Automatic close couplers** · Length 13.8 cm (5-5⁄16")



NEW

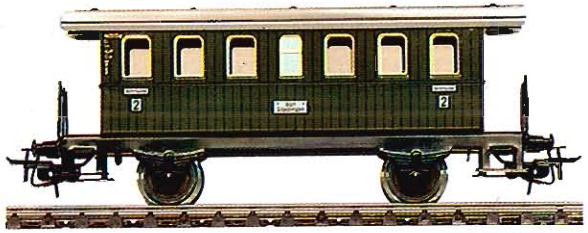
4202 · **Compartment Car** · B3 Pr 11b · 2nd class · Interior details · **Automatic close couplers** · Length 13.5 cm (5-¼")



NEW

4203 · **Compartment Car** · B3Ir Pr 14a · 2nd class for travelers with baggage · Interior details · **Automatic close couplers** · Length 13.8 cm (5-5⁄16")

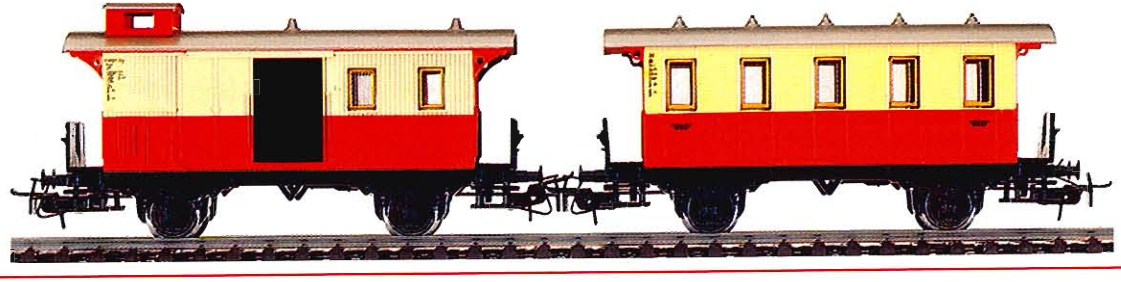
4040 · Coach · 2nd class · RELEX couplers · Length 11.5 cm (4-½")



Cars of Privately Owned Railways

4108 · Baggage Car · With conductor's coupola · RELEX couplers · Length 11 cm (4-⅜") · Equipped for installation of lighting kit 7323

4107 · Coach · Interior details · RELEX couplers · Length 11 cm (4-⅜") · Equipped for installation of lighting kit 7323



French State Railways (SNCF)

France

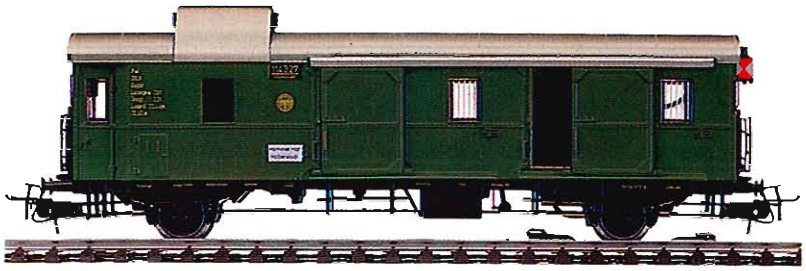
4104 · Coach · B²C³ ½tmfp former BCi 29 of the German State Railroad · 2nd and 3rd class · Interior details · RELEX couplers · Length 16 cm (6-5/16")

France

4105 · Coach · C⁶tmfp, former Ci 29 of the German State Railroad · 3rd class · Interior details · RELEX couplers · Length 16 cm (6-5/16")

France

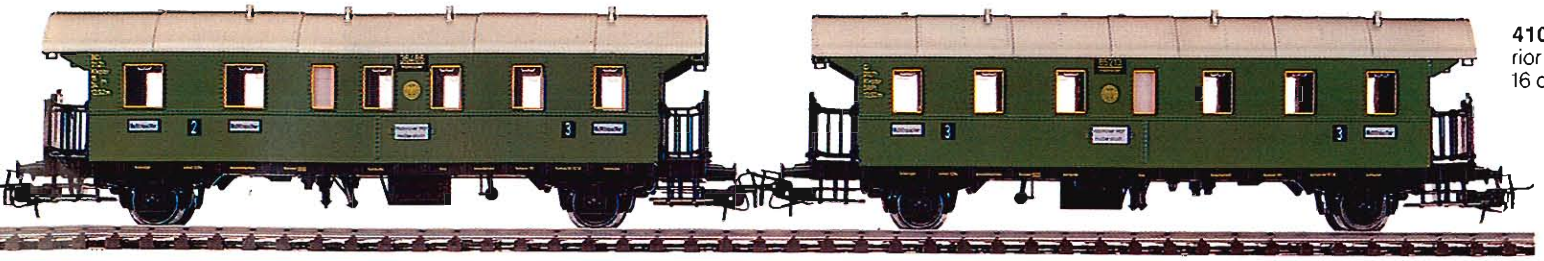
4106 · Baggage Car · Dmp, former Pwi 30 of the German State Railroad · 4 sliding doors · Interior details · RELEX couplers · Length 16 cm (6-5/16")



Standard Passenger Cars of the former German State Railroad (DR)

4102 · Baggage Car · Pwi 30 · 4 sliding doors · Interior details · RELEX couplers · Length 16 cm (6-5/16")

4103 · Baggage Car · Same as 4102 but with illuminated end marker lights
= 31051



4100 · Coach · BCi 29 · 2nd and 3rd class · Interior details · RELEX couplers · Length 16 cm (6-5/16")

4101 · Coach · Ci 29 · 3rd class · Interior details · RELEX couplers · Length 16 cm (6-5/16")

Passenger Cars in Real Life Operation

Clear Board for the "Donnerbüchsen"

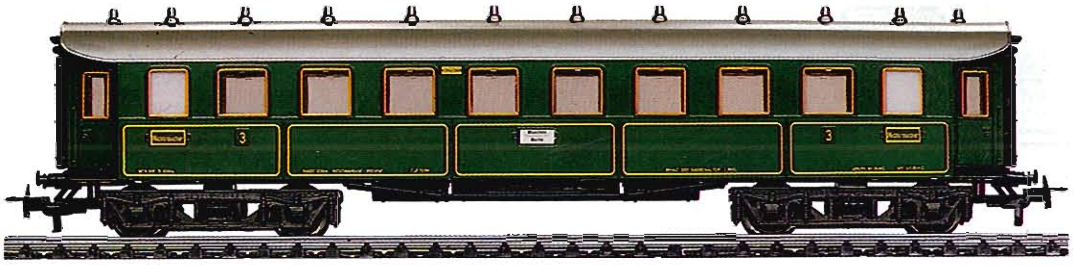
A review of the German State Railroad shortly after it was founded revealed that it had inherited 91 different designs for passenger cars in more than 200 versions from the provincial railroads. Standard designs for passenger cars were adopted to make passenger service and its maintenance more economical. The two-axle cars with their characteristic barrel-shaped roofs had at first steel body frames with wood planking. Beginning in 1926 cars were produced in a riveted, all-steel design. These cars were particularly noisy in operation and this quickly earned them the nickname "Donnerbüchsen" (Thunder Boxes).

During the years 1929 und 1930, the German State Railroad produced 500 of the class BCi 29 coaches (Märklin model 4100). This car had 15 second class seats and 34 third class seats. The type Ci 29 (Märklin model 4101) offered the riding public 58 third class seats on wooden benches. The German Federal Railroad replaced these wooden seats with upholstered seats. In 1930 the German State Railroad built 150 standard-design baggage cars Pwi 30 (Märklin models 4102 and 4103) which, at 13.92 meter (50'), were the same length as the passenger cars and could carry seven tons of freight.

Express Coaches

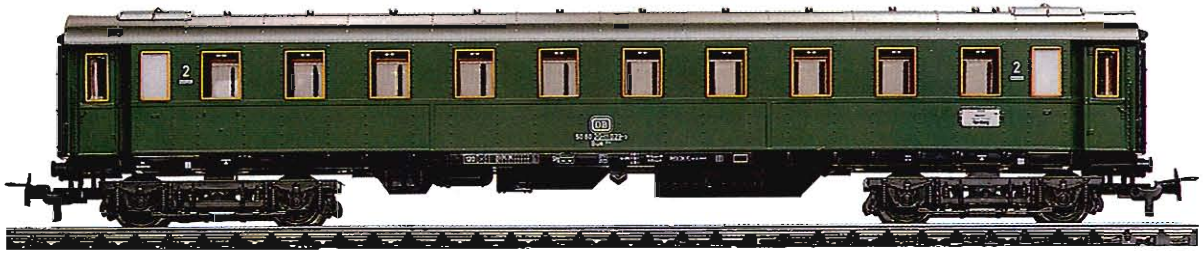
Royal Bavarian State Railroad (K.BAY.STS.B.)

4135 · Coach · CCü · 3rd class · Interior details · Automatic couplers · Length 22 cm (8-5⁄8″) · Equipped for installation of lighting kit 7329

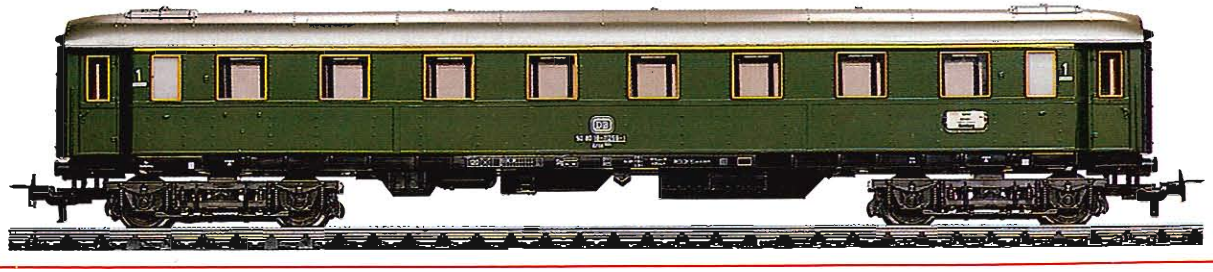


Standard Passenger Cars of the German Federal Railroad (DB)

4139 · Coach · Büe354 · 2nd class · Interior details · Görlitz trucks · Automatic couplers · Length 24.3 cm (9-7⁄16″) · Equipped for installation of lighting kit 7329



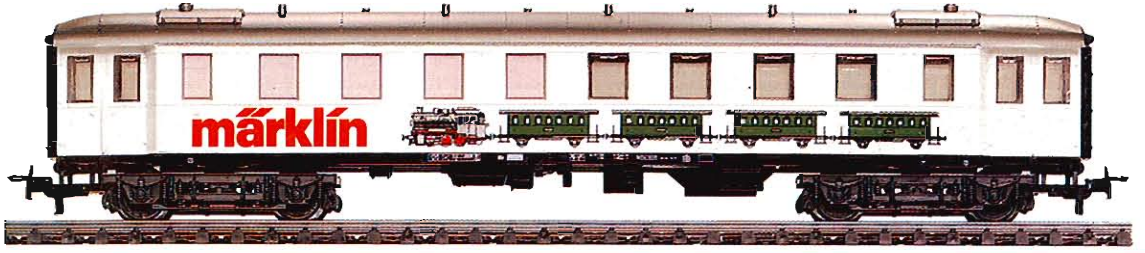
4145 · Coach · Ayse604 · 1st class · Interior details · Görlitz trucks · Automatic couplers · Length 24.3 cm (9-7⁄16″) · Equipped for installation of lighting kit 7329



4140 · Baggage Car · Düe932 · Görlitz trucks · Automatic couplers · Length 22 cm (8-3⁄4″) · Equipped for installation of lighting kit 7329

German Federal Railroad (DB)

4134 · **Coach** · Bye 664 · 2nd class · Interior details · Automatic couplers · Length 23 cm (9-1/16") · Equipped for installation of lighting kit 7329



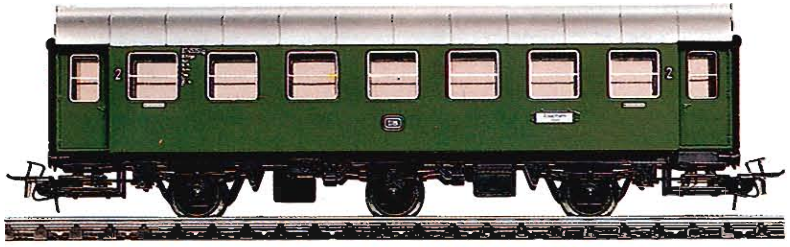
4122 · **Exhibition Car** · D(Ausst.) 997 · Automatic couplers · Length 23 cm (9-1/16") · Equipped for installation of lighting kit 7329

4121 · **Exhibition Car** · Lettered for Shell Oil · Automatic couplers · Length 23 cm (9-1/16") · Equipped for installation of lighting kit 7329

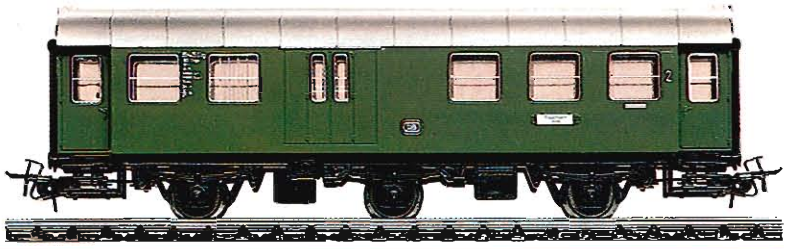
German Federal Railroad (DB)

4067 · Coach · AB3yge^{756} · 1st and 2nd class · RELEX couplers · Length 15.2 cm (6") · Equipped for installation of lighting kit 7074

4079 · Coach · B3yge^{761} · 2nd class · RELEX couplers · Length 15.2 cm (6") · Equipped for installation of lighting kit 7074



4080 · Coach with Baggage Compartment · BD3yge^{766} · 2nd class · RELEX couplers · Length 15.2 cm (6") · Equipped for installation of lighting kit 7074



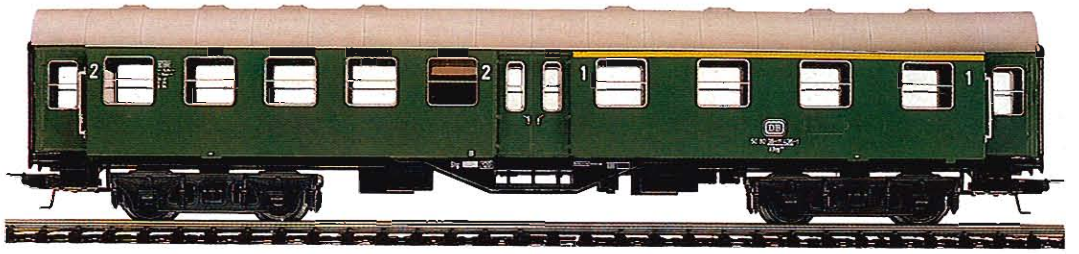
Four-Axle Rebuild Cars in Real Life Operation

Cushioned Seats for All Passengers

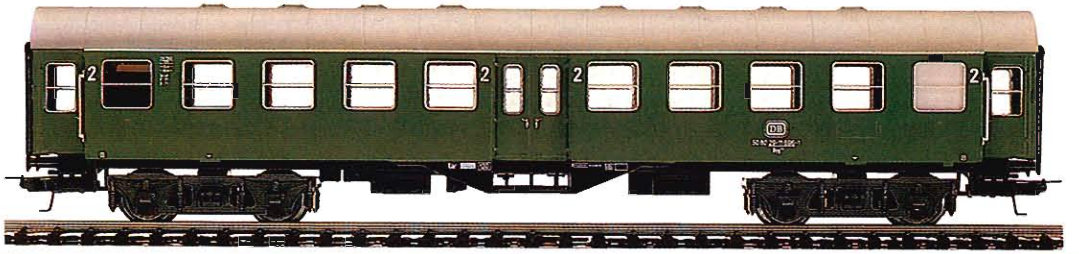
After the war, the railroad had many obsolete passenger cars, some dating back to the old provincial lines. They were all modernized as part of a major rebuilding program: The old car bodies were scrapped and the frames were rebuilt to a standard length for the "new" cars. The most noticeable improvement: cushioned seats for all the passengers. The first of the rebuild cars entered service in 1954; a year later the first four-axle rebuild car was introduced. 1821 of the standard 19.46 meter (70') rebuilt coaches were constructed at several locations in Germany. Märklin car 4131 (AByg 503) was produced between 1959 and 1961.

Originally, 339 cars of class AByg 503 were produced. The Byg 515 (Märklin model 4132) was built in the largest numbers, 666. This car was divided into two compartments with a total of 72 seats. The 127 models of the BDyg 533 baggage-coach combination (Märklin model 4133) were built at the Munich-Neuaubing shops in 1959.

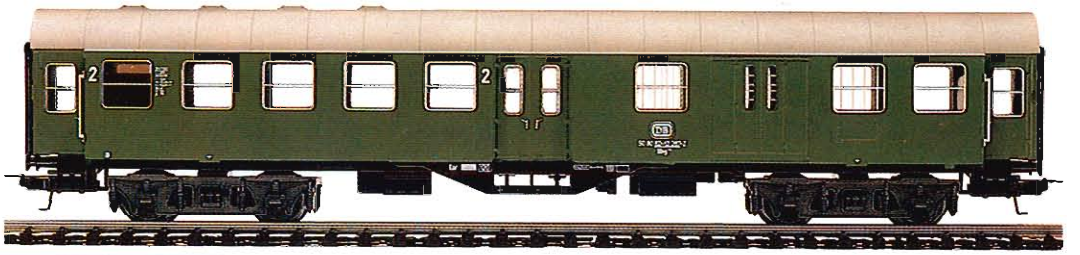
German Federal Railroad (DB)



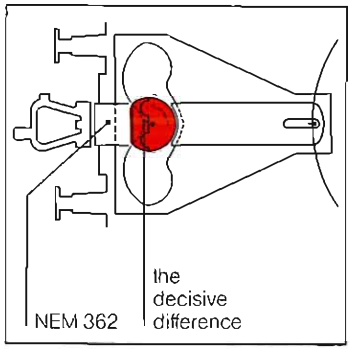
4131 · Coach · AByg 503 · 1st and 2nd class · Interior details · **Automatic close couplers** · Length 22.4 cm (8-¾") · Equipped for installation of lighting kit 7329



4132 · Coach · Byg 515 · 2nd class · Interior details · **Automatic close couplers** · Length 22.4 cm (8-¾") · Equipped for installation of lighting kit 7329



4133 · Coach with Baggage Compartment · BDyg 533 · 2nd class · Interior details · **Automatic close couplers** · Length 22.4 cm (8-¾") · Equipped for installation of lighting kit 7329



The new Märklin Close Couplers

The rebuild cars 4131–4133, the suburban coaches 4183–4185 and the compartment cars 4200–4203 are equipped with the new Märklin close couplers. Coupled cars operate almost diaphragm to diaphragm and present a very prototypical image on any track configuration, forward or reverse.

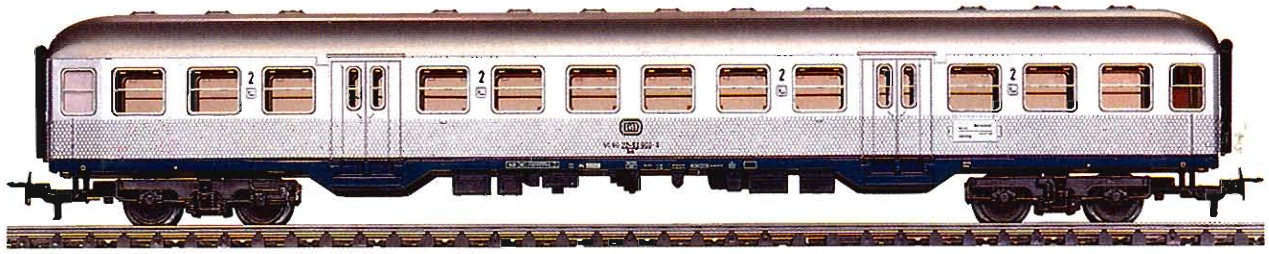
The coupler pocket conforms to the NEM-norm 362. What is even more exciting about Märklin close couplers is that they mate perfectly with the standard Märklin couplers. Thus, just like on real railroads, all Märklin H0 cars can be freely coupled with each other and uncoupled using remote controlled uncoupling tracks.

"Silberlinge"

Commuter Cars of the German Federal Railroad (DB)

4158 · Commuter Car · ABnrzb 704 · 1st and 2nd class · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329

4159 · Commuter Car · Bnb 719 · 2nd class · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329



4160 · Control Car with Baggage Compartment and Engineer's Cab · BDnf 735 · 2nd class · Interior details · Headlight or marker lights illuminated according to direction of travel · Illuminated destination signs at the end · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329

■ After several test runs, the German Federal Railroad replaced older passenger cars in the 1960s with these new four-axle cars having a length of 26.4 m (83' 7"). Because of the cars' shiny, silver, stainless steel finish, they were quickly dubbed "Silberlinge" (Silverliners).

When operated control car first, triple white headlights shine.

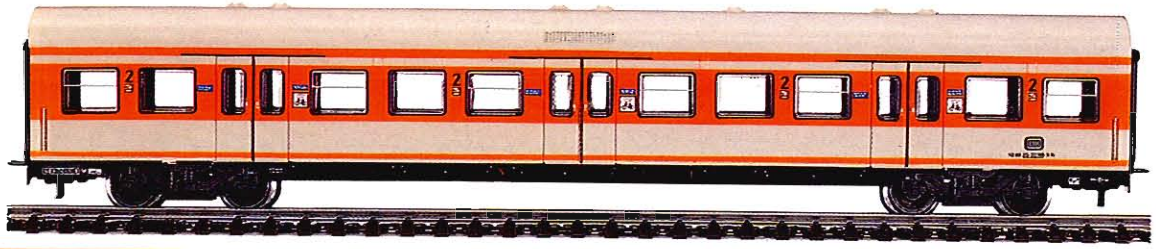
When operated control car last, dual red marker lights shine.

Commuter Cars of the German Federal Railroad (DB)

NEW

4183 · Suburban Coach · ABx 791 · 1st and 2nd class · Interior details · **Automatic close couplers** · Length 24.5 cm (9-¾") · Equipped for installation of lighting kit 7330

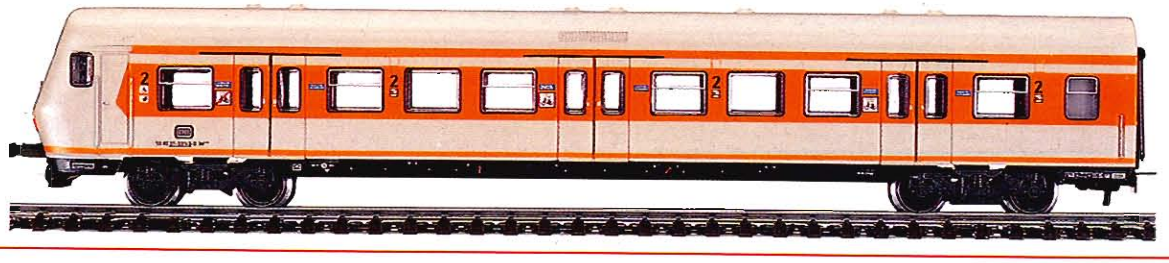
Available Spring 1987



NEW

4184 · Suburban Coach · Bx 794.1 · 2nd class · Interior details · **Automatic close couplers** · Length 24.5 cm (9-¾") · Equipped for installation of lighting kit 7330

Available Spring 1987



NEW

4185 · Suburban Control Car · Bxf 796.1 · 2nd class · Interior details · Headlights or marker lights illuminated according to direction of travel · Illuminated destination signs at the end · **Automatic close couplers** · Length 25.3 cm (10-⅛") · Equipped for installation of lighting kit 7330

Available Spring 1987

When operated control car first, triple white headlights shine.

When operated control car last, dual red marker lights shine.

■ Unlike the suburban routes in centers like Munich, Hamburg, Berlin, Stuttgart or Frankfurt/Main, whose networks are relatively confined, the suburban network of the Ruhr region serves several large cities. Research conducted by the German Federal Railroad confirmed that locomotive-powered trains are better suited for the Ruhr suburban network than self-propelled cars. As a result, the German Federal Railroad, in cooperation with the German railroad car industry developed an entirely new generation of commuter cars.

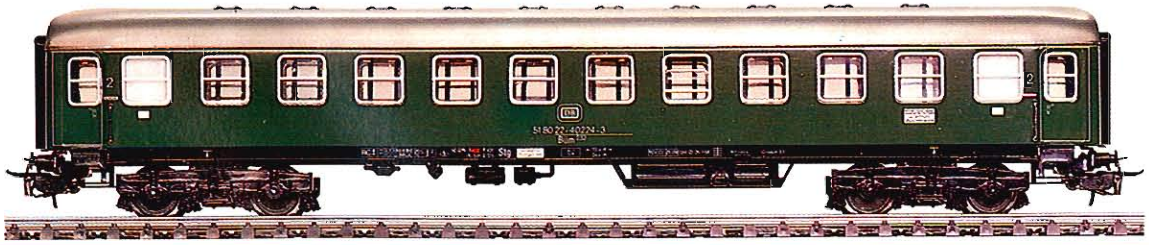
Special features include additional doors for quicker entraining and detraining of passengers, appealing interior decoration as well as the exterior paint scheme with orange striping. The class 111 electrics are push-pull engines and have the same suburban commuter train color scheme. The engine and cars form a complete unit.

Passenger Cars 24 cm (9-½")

German Federal Railroad (DB)

4026 · Baggage Car · Dyl[961] (Dym 961) · RELEX couplers · Length 24 cm (9-½") · Equipped for installation of lighting kit 7077 with pickup shoe 7198

4052 · Coach · Bm[232] (Büm 232) · 2nd class · Interior details · RELEX couplers · Length 24 cm (9-½") · Equipped for installation of lighting kit 7077 with pickup shoe 7198



4051 · Coach · Am[202] (Aüm 202) · 1st class · Interior details · RELEX couplers · Length 24 cm (9-½") · Equipped for installation of lighting kit 7077 with pickup shoe 7198

4053 · Coach · Same as 4051 but with illuminated marker lights · Equipped for installation of lighting kit 7077

=7175

German Federal Railroad (DB)

4054 · **Dining Car** · WRm[132] (WRümh 132) · Interior details · RELEX couplers · Length 24 cm (9-½") · Equipped for installation of lighting kit 7320

4111 · **Coach** · Am[202] (Aüm 202) · 1st class · Interior details · RELEX couplers · Length 24 cm (9-½") · Equipped for installation of lighting kit 7077 with pickup shoe 7198

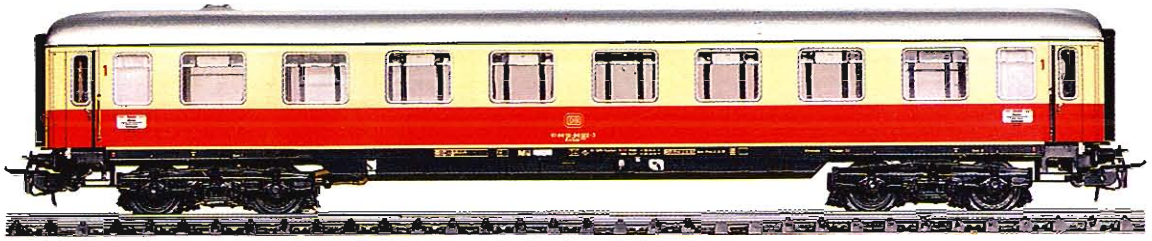
4112 · **Coach** · Bm[232] (Büm 232) · 2nd class · Interior details · RELEX couplers · Length 24 cm (9-½") · Equipped for installation of lighting kit 7077 with pickup shoe 7198

German Sleeping Car Company (DSG)

4064 · **Sleeping Car** · WLABm[174] (WLABüm 174) · Series 33200 · 1st and 2nd class · RELEX couplers · Length 24 cm (9-½") · Equipped for installation of lighting kit 7320

TEE/IC Passenger Cars 24 cm (9-½")

German Federal Railroad (DB)

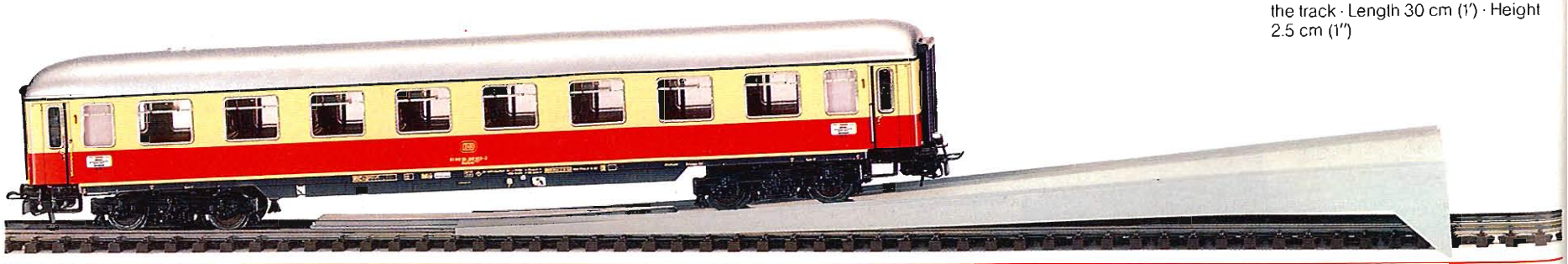


4085 · TEE/IC Compartment Car · Avmh[111] (Avüm 111) · 1st class · Interior details · RELEX couplers · Length 24 cm (9-½") · Equipped for installation of lighting kit 7320

4089 · TEE/IC Compartment Car · Same as 4085 but with interior illumination and illuminated marker lights
=7175 =60015

4087 · TEE/IC Dining Car · WRmh[132] (WRümh 132) · Interior details · RELEX couplers · Length 24 cm (9-½") · Equipped for installation of lighting kit 7320

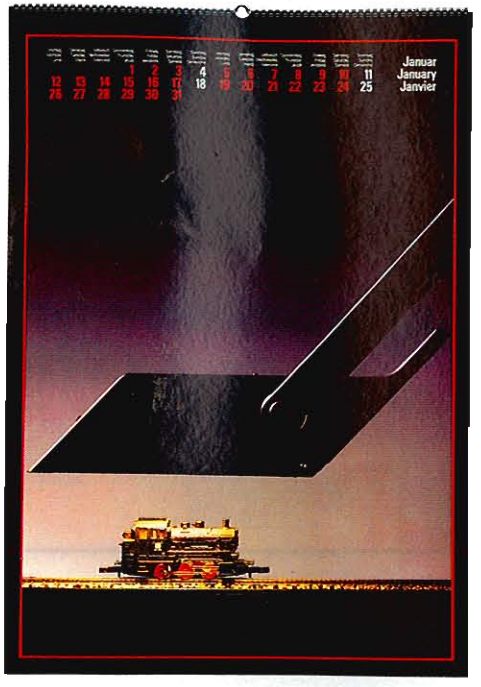
4090 · TEE Vista Dome Car · ADm[101] (ADüm 101) · 1st class · Interior details · RELEX couplers · Length 24 cm (9-½") · Equipped for installation of lighting kit 7322

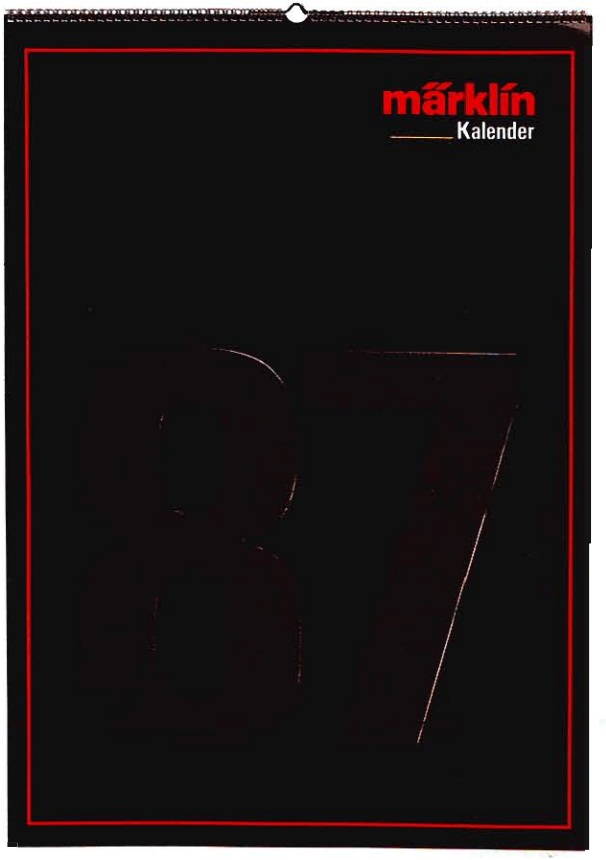


7224 · Re-Railer · Enables the placing of multi-axle cars and locomotives on the track · Length 30 cm (1') · Height 2.5 cm (1")

märklin
kalender

(High quality printed stock, size 59.4 X 42 cm – 22-7/8" X 16-½")





Märklin from January to December. The big calendar.

Available at your dealer.

New Colors for the German Federal Railroad

Variations Seen in Hockenheim

On September 23, 1985 the board of directors for the German Federal Railroad was shown the first two suggested paint schemes for express and commuter trains and for the class 111 locomotive at Hockenheim's new station on a new route between Mannheim and Stuttgart. Both proposals, that of the design center in Munich as well as that of a private company, use only a few colors but in different patterns.

The placement of the car class, classification number, DB logo and other technical data on the car side is identical for all cars. The color of the striping indicates what types of trains a given passenger car will be used for: Inter-City = red, Express = green, Local Through trains = blue, and Commuter trains = orange. The German Federal Railroad Design Center's specially painted train consists of engine 111 068-3 and coaches Avmz 111, Bm 234, Bnb 719 and Dms 905 (Märklin models 3172, 4220, 4221, 4222 and 4223). The private train had the same consist and the engine 111 069-1 repainted (Märklin Special Set 2859) for this design study.

A few coaches will initially bear these new paint schemes, but a system-wide repainting has not yet been approved.

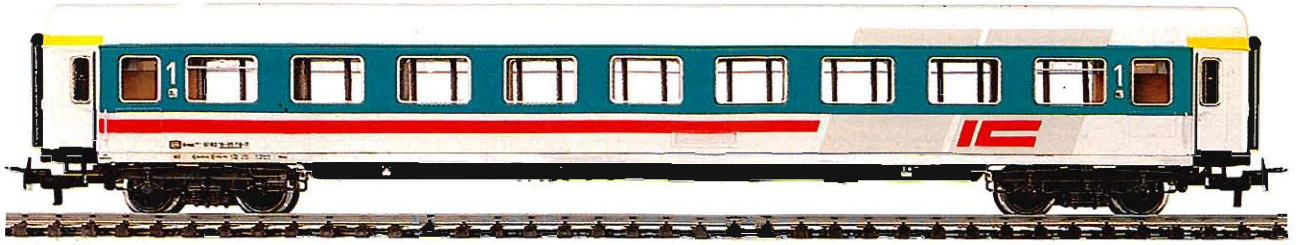
A final decision has not been made for either of the two concepts, and in 1986 yet a third proposal was placed before the German Federal Railroad. The third suggestion is a cooperative effort between the private company and the German Federal Railroad Design Center.

From "Eisenbahn-Kurier" (issue: November 1985) "Neue Farben für die DB".

Fotos: E. A. Weigert

Presentation of the new German Federal Railroad colors at Hockenheim on September 23, 1985: Commuter car (private company), engine 111 068-3 (German Federal Railroad Design Center), IC coach (private company), IC coach and commuter car (German Federal Railroad Design Center).

Proposed Passenger Car Color Schemes of the German Federal Railroad (DB)

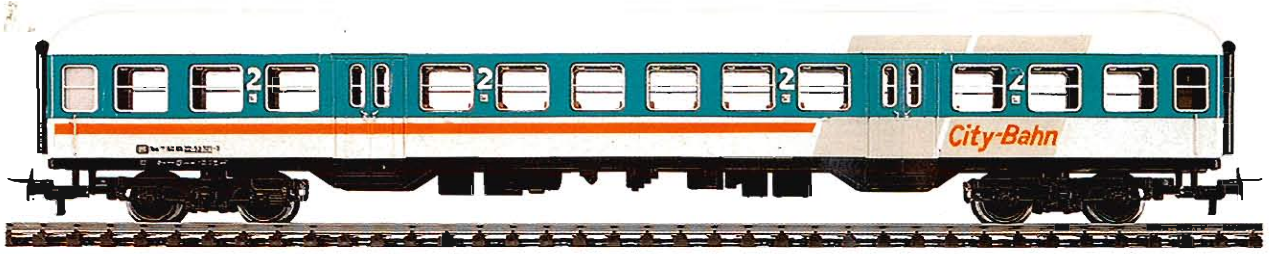


NEW

4220 · IC Compartment Car · Avmz 111 · 1st class · Proposed color scheme as presented by the DB · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

NEW

4221 · Coach · Bm 234 · 2nd class · Proposed color scheme as presented by the DB · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329



NEW

4222 · Commuter Car · Bnb 719 · 2nd class · Proposed color scheme as presented by the DB · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329

NEW

4223 · Baggage Car · Dms 905 · Proposed color scheme as presented by the DB · Sliding roll-doors on both sides · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

Passenger Cars 27 cm (10-5/8")

German Federal Railroad (DB)

4091 · **Coach** · Am^{203} (Aüm 203) · 1st class · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

4092 · **Coach** · Bm^{234} (Büm 234) · 2nd class · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

4154 · **Coach** · Same as 4092, but with illuminated marker lights

⇦ = 41494

4093 · **Baggage Car** · Dm^{902} (Düms 902) · Sliding roll-doors on both sides · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

Mail Car of the German Federal Post Office (BP)

4157 · **Mail Car** · Post mrz 73076 · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329

German Federal Railroad (DB)

4175 · **Coach** · Entertainment Car WGm 842.0 · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

4176 · **Coach** · Entertainment Car WGm 842.1 "German Wine Route" · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

4177 · **Sleeping Car** · Bcm for charter trains of Hapag-Lloyd Tours · 2nd class · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

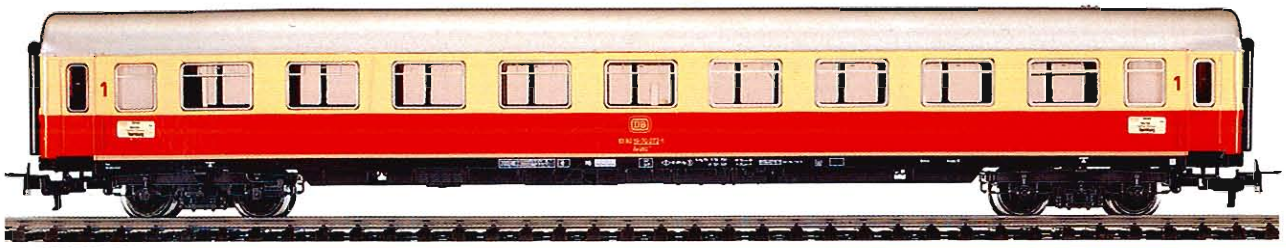
TEE/IC Passenger Cars 27 cm (10-5/8")

German Federal Railroad (DB)

4095 · TEE/IC Compartment Car · Avmhz^{111} · 1st class · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

4098 · TEE/IC Compartment Car · Same as 4095, but with illuminated marker lights

⌓ = 41494



4096 · TEE/IC Open Seating Coach · Apmz^{122} · 1st class · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

4097 · TEE/IC Dining Car · WRmh^{132} (WRümh 132) · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

4153 · TEE/IC Dining Car · WRmz 135 · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

German Federal Railroad (DB)

4099 · TEE Vista Dome Car · ADm[101] · 1st class · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

4169 · Panorama Car · Swiss Travel Bureau Mittelthurgau · ADm[101] · 1st class · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

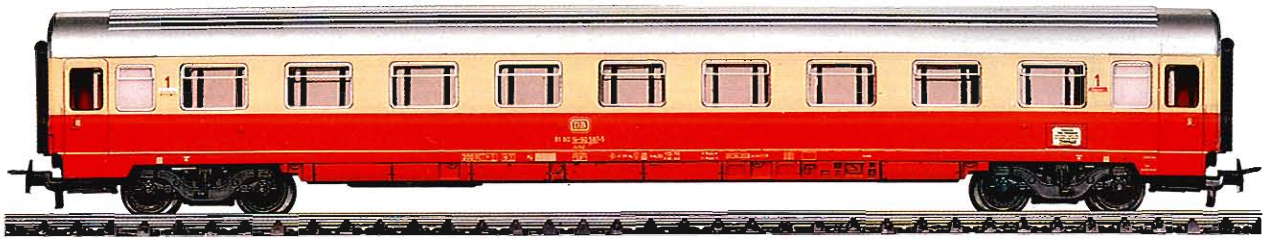
4084 · Passenger Train Auto Carrier · DDm[915] · Without autos · RELEX couplers · Length 26.4 cm (10-3/8")

4074 · Passenger Train Auto Carrier · DDm[915] · 8 Wiking miniature cars · RELEX couplers · Length 26.4 cm (10-3/8")

EUROFIMA Passenger Cars 26.4 cm (10-3/8")

German Federal Railroad (DB)

4147 · **Coach** · Avmz^{207} (A9 EUROFIMA) · 1st class · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329



Austrian Federal Railways (ÖBB)

Austria

4149 · **Coach** · Amoz (A9 EUROFIMA) · 1st class · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329

Swiss Federal Railways (SBB)

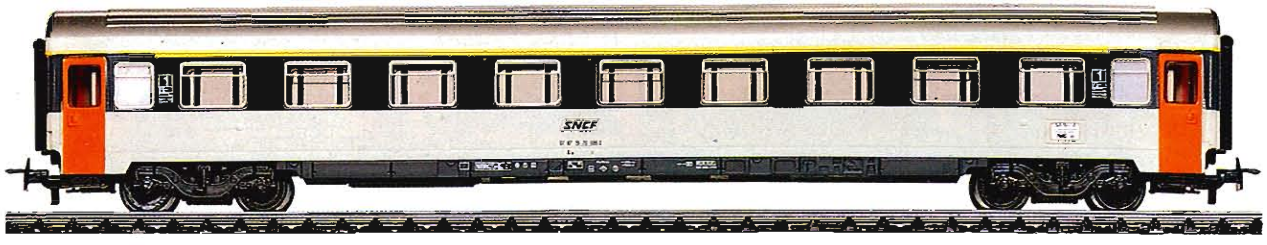
Switzerland

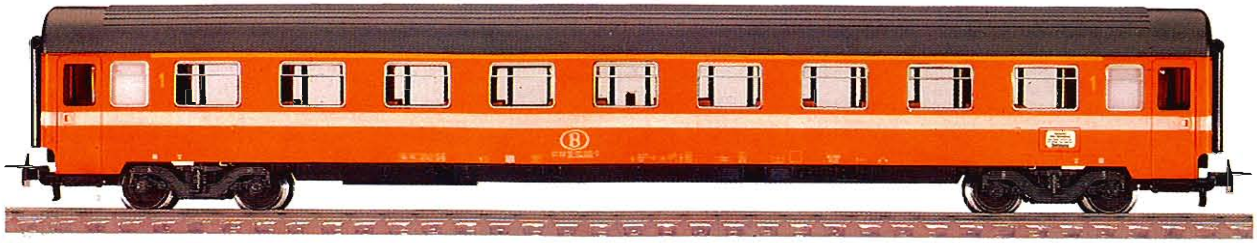
4162 · **Coach** · (A9 EUROFIMA) · 1st class · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329

French State Railways (SNCF)

France

4161 · **Coach** · Type A9u (A9 EUROFIMA) · 1st class · "Corail" colors · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329





Belgian State Railways (NMBS/SNCB)

Belgium

4148 · **Coach** · (A9 EUROFIMA) · 1st class · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329

Belgium

4166 · **Coach** · (B11 EUROFIMA) · 2nd class · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329

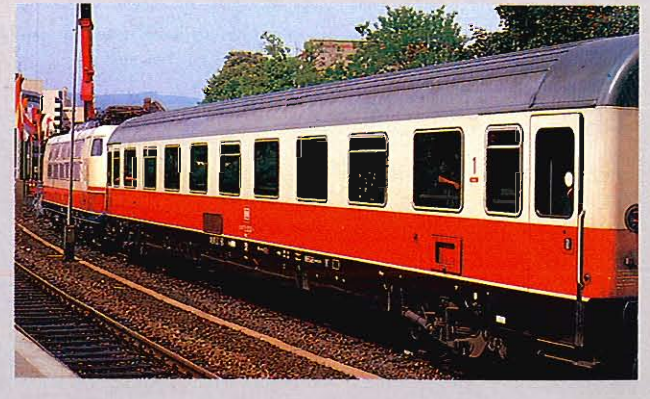
Passenger Cars in Real Life Operation

The Long Way...

When the first Orient Express left the Paris Gare de l'Est station on June 5, 1883 for its maiden 4-½ day trip to Constantinople, it was only a matter of time before serious efforts were undertaken to build long-distance passenger cars that could serve all of Europe. Travel on these early international trains was a type of privilege of the upper classes. Contrary to what this fact might have suggested, there was little or no regard among the individual European railroads for compatibility of rolling stock and fixed plant with that of neighboring systems.

By the middle of the 19th century, however, there was a need for cooperation as the first railroads converged on each other and it was recognized that there had to be a means of linking these individual lines together into a continuous network. This could already be seen in the splintered German Reich where there were agreements among the petty German states concerning

(continued on page 56)



Type Avmz 207 (Eurofima A9) of the German Federal Railroad. Photo: E. A. Weigert

(continued from page 55)

couplers, track gauge and buffer placement.

Eleven years after the initial trip of the "Adler", the German Railroad Association was founded in 1846. Austria, Hungary and Switzerland also joined this association as a first effort at coordination... Two "Technical Standards" treaties were signed in 1882 and 1886 in which the signatory states of Switzerland, Germany, Italy, France and Austria-Hungary and, later, other European countries pledged themselves to establish a set of international standards with respect to railroads, regardless of whether the latter were government or privately controlled.

The legal side – it dealt with the liability of the railroads – was regulated after 1890 by the International Convention for the Rail Transport of Passengers and Baggage (CIV). 1922 was a time in which concepts were being rejected as utopian concerning the political unity of Europe, whereby the individual sovereignty of participating countries was observed. A truly pioneering achievement was realized that year when the European railroads established the Union Internationale des Chemins de Fer (UIC – International Union of Railroads), an umbrella organization with headquarters in Paris. In the same year the Regolamento Internazionale Carozze (RIC) was organized, an agreement which legalized the interchange of baggage and passenger cars among the signatory railroads.

Until then, border crossings of rolling stock were regulated by the European Timetable Conference of 1872. The cars of the Orient Express, for example, rolled through all of Central Europe and belonged to the legendary "Compagnie Internationale des Wagon-Lits" (International Sleeping Car Company). These elegant trains were considered as "Separate Special Trains", according to the text signed in 1883 by the Wagon-Lits and the participating railroads.

During the 1930's and 1940's there was very little activity by supranational organizations; the political events of that era worked against a union of equals. The second area of concern for the UIC – next to the compatibility of equipment – did not receive attention until the 1950's: the standardization of new equipment. Except for very minor deviations, the rolling stock should not only be compatible with each other, but identical to each other to a large extent.

For passenger cars, that meant the major dimensions, the external shape and minimal standards for seating, heating and air-conditioning capacity; choice of paint color was left up to the individual railroads. The advantages of standardization: the cars were "cheaper by the dozen", and there would be less down time for maintenance and repairs.

In the mid-1950's Eurofima was founded, a corporation for the financing of railroad equipment, with headquarters in Basel. By 1976 sixteen state railways were shareholders, with the German and French State Railroads being the principal shareholders at 25% of the shares each. In the first 25 years of its existence Eurofima has financed 2,500 locomotives, 900 self-propelled cars, 2,800 passenger cars and 57,000 freight cars for European railroads. It is best known for the project which developed the 500 passenger cars for extra class service on six West European railroads.

This equipment operates as compartment cars with 1st and 2nd class seating on long distance trains for the German Federal, the Italian State, the Austrian Federal, the Swiss Federal, the Belgian State, and the French State Railroads. In railroad jargon, these cars are called "Eurofima Cars" even though the corporation only supplied the financing and not the technical know-how. That

came from a working group put together by the participating railroads. The German firm, Linke-Hoffmann-Busch of Salzgitter managed the project.

In 1971 the establishment of the Intercity network seemed to do away with the necessity for a European system of premium fare, long distance trains on close schedules to meet the competition from airlines. At this time eight European railroads organized the Trans-Europe-Night-Pool (TEN) which was designed to improve international sleeping car service. TEN cars are operated in international trains providing useful overnight connections for business travelers and tourists and are equipped with one, two or three bed compartments. In addition to the traditional "Bettkarte" (sleeping car ticket), reservations can be booked according to compartment size and car type with a first or second class ticket.

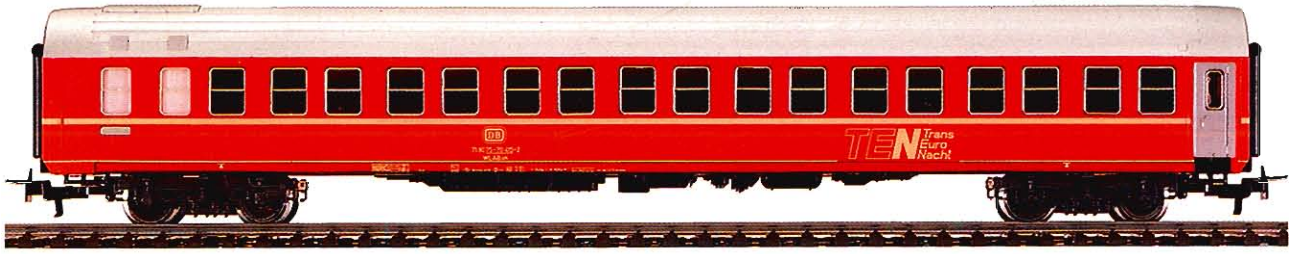
Left: Interior of the diner WRmz of the German Federal Railroad. Right: Eurofima car B11 of the Belgian State Railways.

Photos: E. A. Weigert

TEN Passenger Cars 27 cm (10-5/8")

German Federal Railroad (DB)

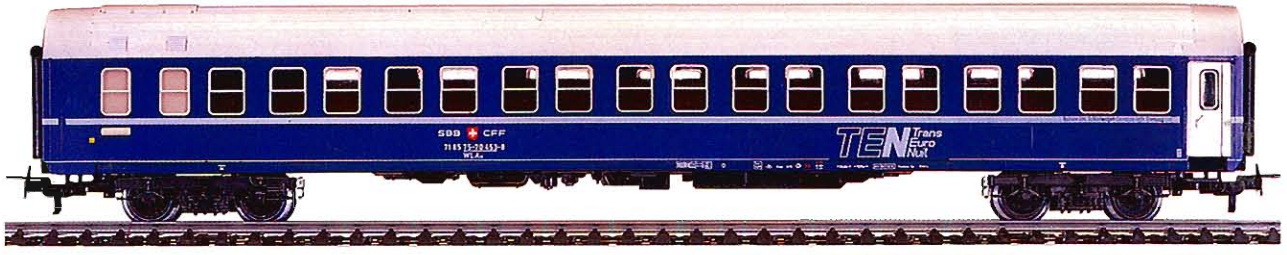
4150 · Sleeping Car · WLABsmh[166] · 1st and 2nd class for TEN sleeping car pool · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329



Swiss Federal Railways (SBB)

NEW Switzerland

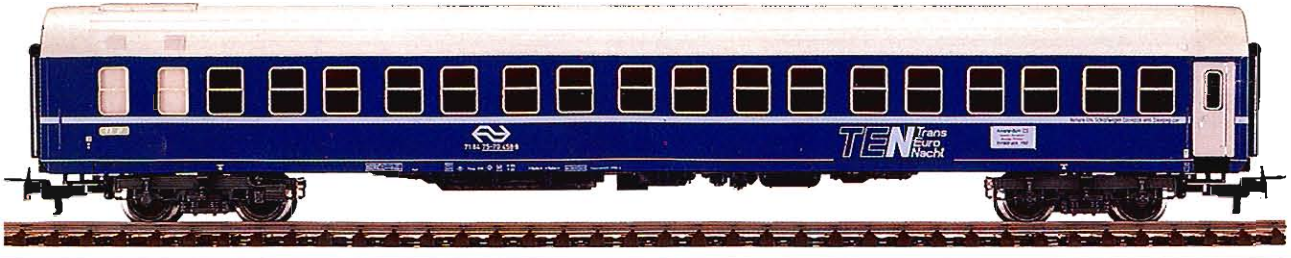
4182 · Sleeping Car · 1st and 2nd class for the TEN sleeping car pool · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

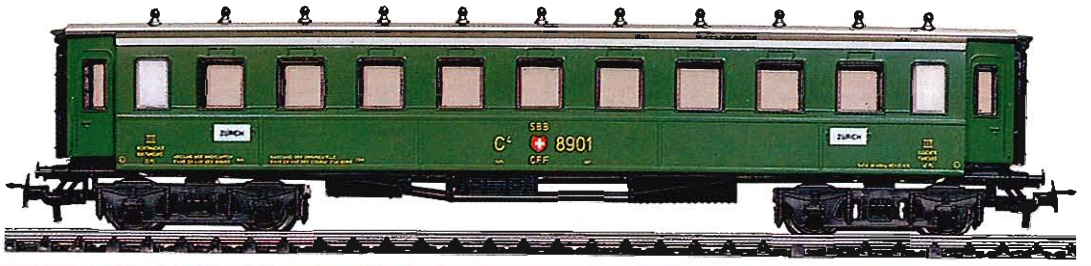


Netherlands Railways (NS)

Netherlands

4151 · Sleeping Car · 1st and 2nd class for TEN sleeping car pool · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

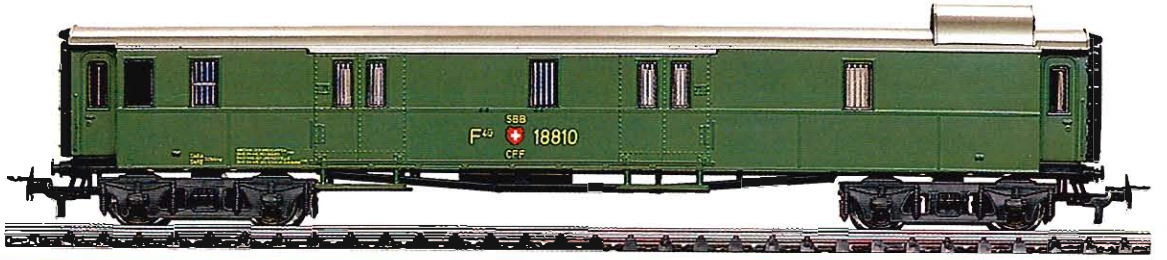




Swiss Federal Railways (SBB)

Switzerland

4138 · **Coach** · Older C4ü · 3rd class · Interior details · Automatic couplers · Length 22.2 cm (8-¾") · Equipped for installation of lighting kit 7329

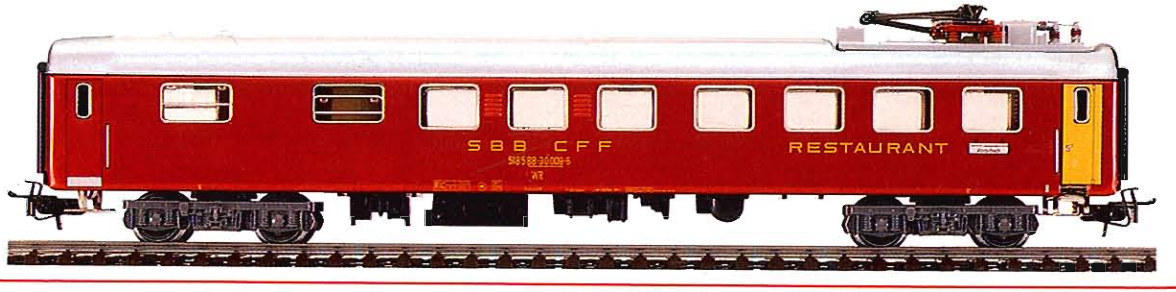


Switzerland

4146 · **Baggage Car** · Older F4ü · Automatic couplers · Length 23.2 cm (9") · Equipped for installation of lighting kit 7329

Switzerland

4066 · **Coach** · Series A 2500 · 1st class · RELEX couplers · Length 24 cm (9-½") · Equipped for installation of lighting kit 7320



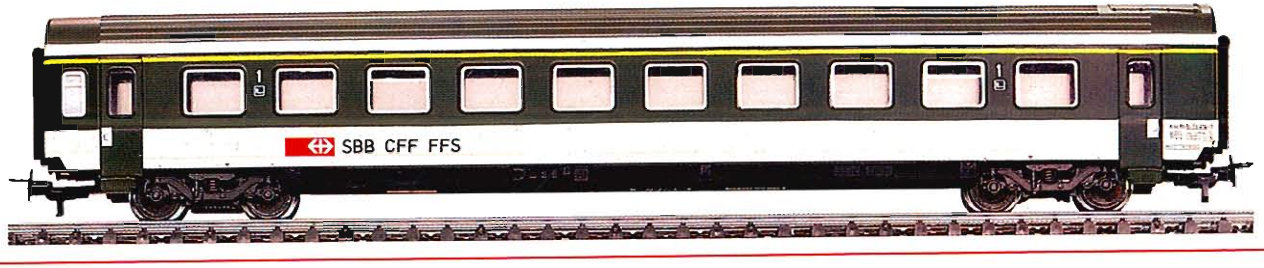
Switzerland

4068 · **Dining Car** · RIC · RELEX couplers · Length 24 cm (9-½") · Equipped for installation of lighting kit 7077

Swiss Federal Railways (SBB)

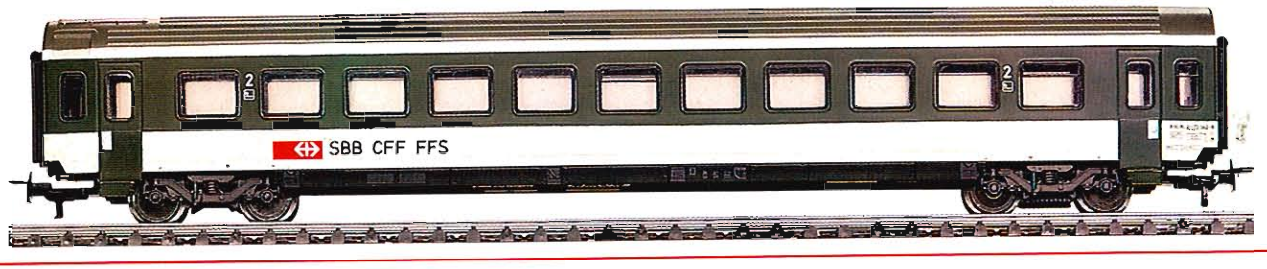
Switzerland

4123 · Coach · A, standard type IV · 1st class · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329



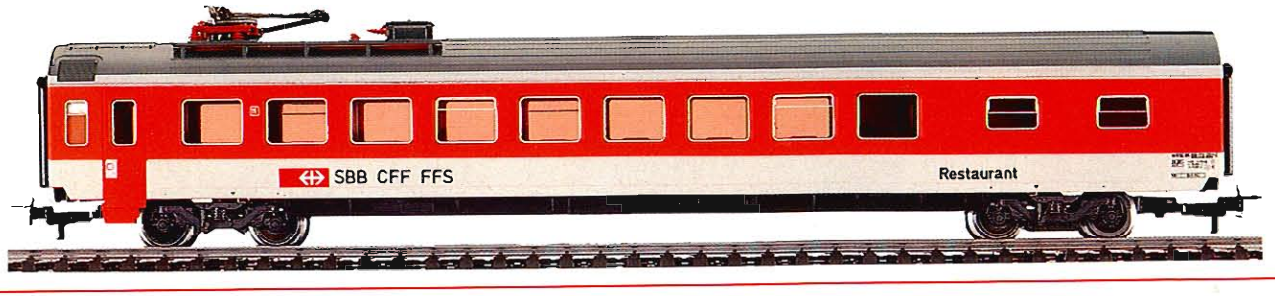
Switzerland

4124 · Coach · B, standard type IV · 2nd class · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329



Switzerland

4125 · Dining Car · WR, standard type IV · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329



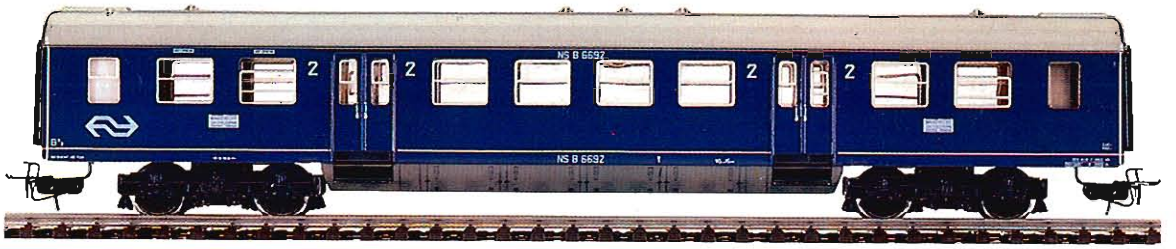
Switzerland

4180 · Entertainment Car · SRm "Cafeteria" · Interior details · Automatic couplers · Length 27 cm (10-5/8") · Equipped for installation of lighting kit 7329

Swiss Federal Railways (SBB)

Switzerland

4168 · Sleeping Car · Bcm type UIC-Z1 · 2nd class · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329



Netherlands Railways (NS)

Netherlands

4049 · Coach · B 6600 · 2nd class · RELEX couplers · Length 24 cm (9-1/2") · Equipped for installation of lighting kit 7320

Netherlands

4164 · Intercity Coach · 1st class · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329

Netherlands

4165 · Intercity Coach · 2nd class · Interior details · Automatic couplers · Length 26.4 cm (10-3/8") · Equipped for installation of lighting kit 7329

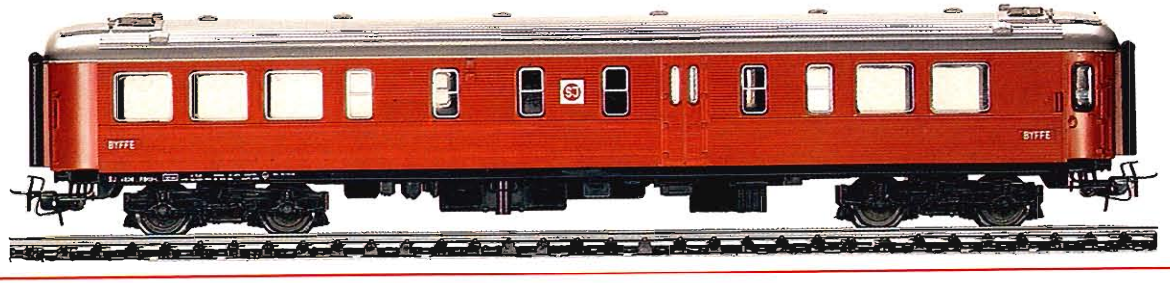
Swedish State Railways (SJ)

Sweden

4072 · Coach · B1 · 2nd class · RELEX couplers · Length 24.4 cm (9-5⁄8") · Equipped for installation of lighting kit 7197

Sweden

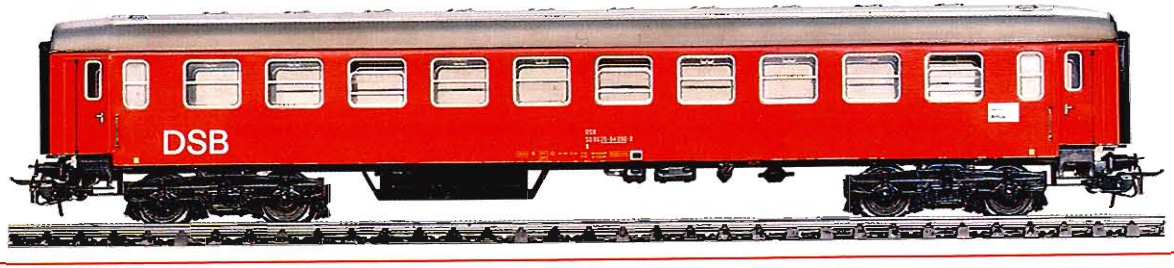
4073 · Dining Car · R1 · RELEX couplers · Length 24.4 cm (9-5⁄8") · Equipped for installation of lighting kit 7197



Danish State Railways (DSB)

Denmark

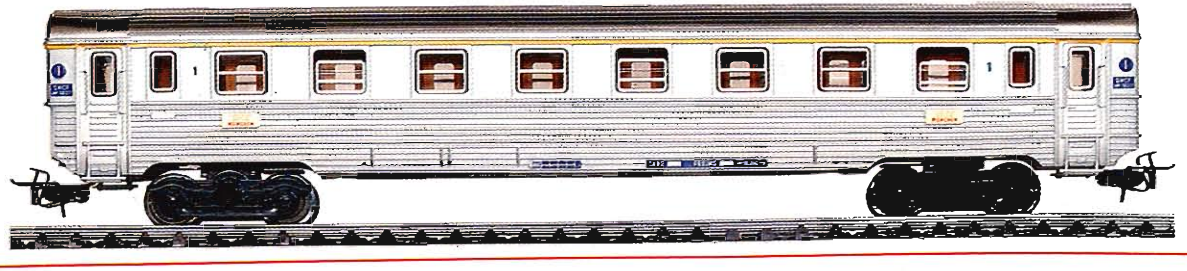
4045 · Coach · B 2300 · 2nd class · RELEX couplers · Length 24 cm (10-3⁄8") · Equipped for installation of lighting kit 7077 with pickup shoe 7198

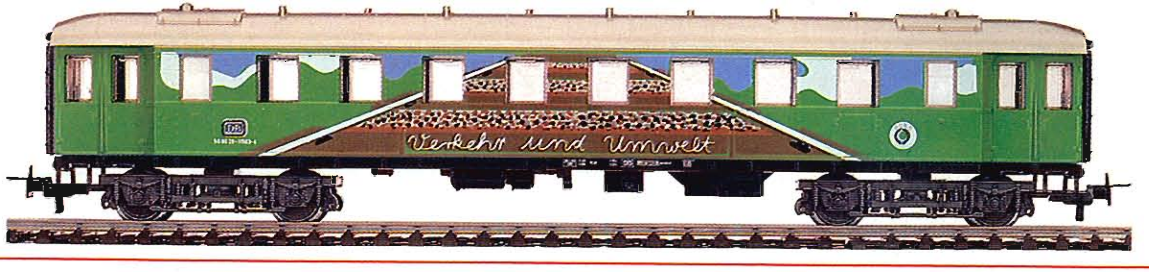


French State Railways (SNCF)

France

4076 · Coach · A8myfi · 1st class · Interior details · RELEX couplers · Length 24 cm (10-3⁄8") · Equipped for installation of lighting kit 7197





German Federal Railroad (DB)

4190 · Special Set "Environment Train" · Includes 3 renovated coaches of the German Federal Railways in cooperation with the German Association for the Environment and Defense of Nature (BUND) · Coach sides painted with various environmental motifs · Cars available as a set only · Automatic couplers · Combined length 72 cm (28-3/8") · Equipped for installation of lighting kit 7329

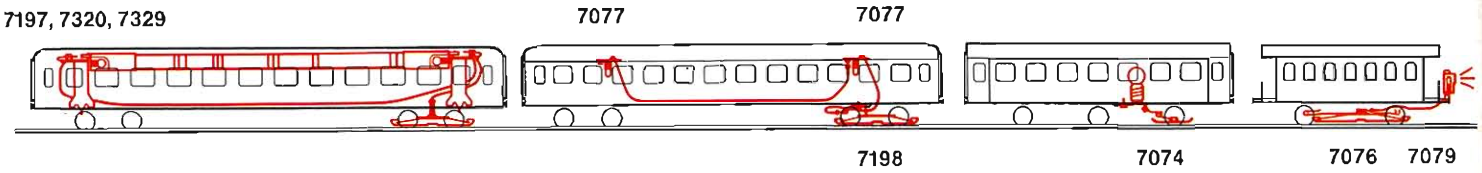
■ A cooperative education program has been organized by the German Federal Railroad and the German Association for the Environment and Defense of Nature to better explain to the general public the environmental benefits to society offered by railroads. The symbol of this cooperation is the Environmental Train. Comprised of modified coaches, the colorful exhibition train concentrates on two important themes.

During discussions on new surface transportation routes, it has been clearly shown how railroads disturb the environment less than roads and highways. Less than half as much land is required. Furthermore, trains require only one-fourth as much energy to move freight as trucks would. In addition, most of the energy used by German railroads is generated by water power, which means less air pollution.

The second part shows how railroad embankments are favored biotopes for plants and animals which otherwise would have no place to live.

Car Lighting

The various styles of car lighting are illustrated in this schematic. Instructions for installation are included with each lighting kit.



7197 · Interior Lighting Kit · For coaches 4072, 4073 and 4076 · Includes pick-up shoe 7198, light diffuser, 2 lamp sockets, 2 bulbs, instructions

=7175 =60015

7320 · Interior Lighting Kit · For TEE coaches 4085, 4087 and coaches 4049, 4054, 4064 and 4066 · Includes pick-up shoe 7198, light diffuser, 2 lamp sockets, 2 bulbs, instructions

=7175 =60015

7329 · Interior Lighting Kit · With variable length light diffuser · For coaches 4091 – 4093, 4095 – 4099, 4121 – 4125, 4131 – 4135, 4138 – 4140, 4145 – 4151, 4153, 4154, 4157 – 4162, 4164 – 4166, 4168, 4175 – 4177, 4180, 4182, 4190, 4220 – 4223 and for train set 2856 · Includes pick-up shoe, light diffuser, 2 lamp sockets, 2 bulbs, instructions

=41494 =60015

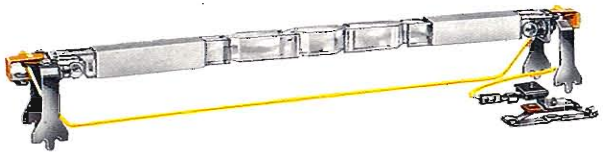
Interior Details for cars 4045, 4049, 4066, 4067, 4072, 4073, 4079 and 4080

Interior details and figures are made of finely detailed plastic. Figures are hand painted.
Each set includes illustrated instructions.

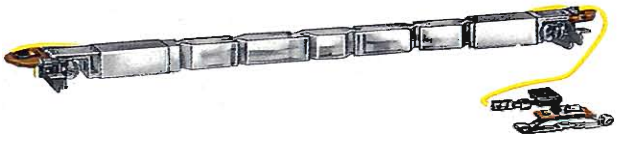
0226 · Set of 10 Colorfully Painted Figures · For complimenting interior details

0225 · Interior Details Kit · Includes 18 double seats, 6 single seats, 2 rest rooms

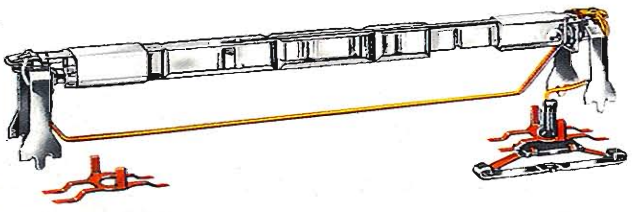
7197



7320



7329



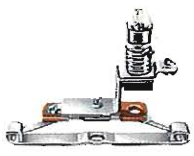
0226

0225

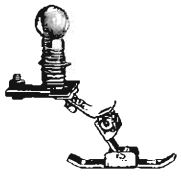
7077

7198

7322



7323



7074

7079

7076

7077 · Interior Lighting Kit · For cars 4026, 4045, 4051 – 4053, 4068, 4111 and 4112 · Has socket for connecting additional kits · Bulbs

=60000

7198 · Pick-up Shoe · For interior lighting kit 7077

=7175

7322 · Interior Lighting Kit · For TEE coach 4090 · Includes pick-up shoe 7198, 2 lamp sockets, 2 bulbs, instructions

=7175 =60015

7323 · Interior Lighting Kit · For cars 4107 and 4108

=7175 =60010

7074 · Interior Lighting Kit · For cars 4067, 4079 and 4080 · Has socket for connecting additional lighting kits · Bulbs

=60020

7079 · End Marker Light · With bulb · Clips onto buffer · Only for cars with metal buffers · Requires a 7074, 7076 or 7198 pick-up shoe to illuminate

=60001 (red)

7076 · Pick-up Shoe · For illuminating end marker light 7079 when used on a 4040 coach

märklin

(Illus. 1:1, Scale 1:32, Gauge 45 mm [1-3/4"])

Powerful and fascinating. The Big Railroad.

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Freight Cars

Local freight area, photographed at the Märklin Service Center.

Germany Federal Railroad (DB)

4423 · Low-Sided Gondola · Kklm 505 · RELEX couplers · Length 11.5 cm (4-½")

4424 · Low-Sided Gondola · Kklm 505 · Loaded with Wiking bulldozer · RELEX couplers · Length 11.5 cm (4-½")

4473 · Low-Sided Gondola · Rlmms · RELEX couplers · Length 16 cm (6-5/16")

4474 · Low-Sided Gondola · Rlmms · Loaded with Wiking bulldozer and front end loader · RELEX couplers · Length 16 cm (6-5/16")

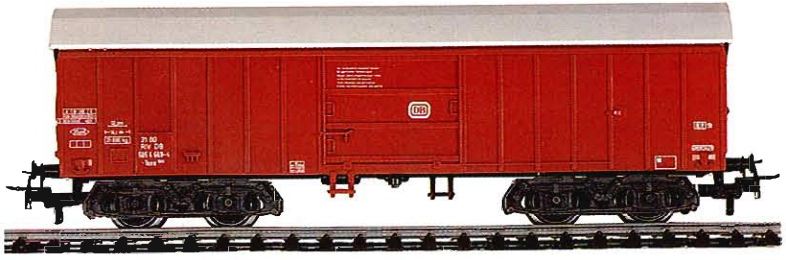
German Federal Railroad (DB)

4430 · **Gondola** · El-u^{061} · RELEX couplers · Length 11.5 cm (4-½")

4431 · **Gondola** · El-u^{061} · With removable simulated coal load · RELEX couplers · Length 11.5 cm (4-½")

4475 · **Low-Sided Gondola** · Rlmms · With tarpaulin · RELEX couplers · Length 16 cm (6-5/16")

4460 · **Boxcar with Tilting Roof** · Taems^{890} (Taes 890) · RELEX couplers · Length 16 cm (6-5/16")



4410 · **Boxcar** · Gs^{210} · RELEX couplers · Length 11.5 cm (4-½")

4411 · **Boxcar** · With illuminated marker light · Gs-uv^{213} (Grs-v 213) · Pickup shoe for electrical pickup · RELEX couplers · Length 11.5 cm (4-½")

⏥ = 41494 ⏚ = 60015

4481 · **Container Car** · With one container · RELEX couplers · Length 11.5 cm (4-½")

■ The sales slogan "Fahrrad am Bahnhof" (Bike at the Station) is quite popular along the Austrian Federal Railways. In order to be prepared for sudden demands such as from travel groups, local events, etc., the ÖBB converted some type Gs boxcars into rolling bike rental depots. Depending upon the demand, these cars can be added to charter trains and transported to where the bikes are needed.

Austrian Federal Railways (ÖBB)

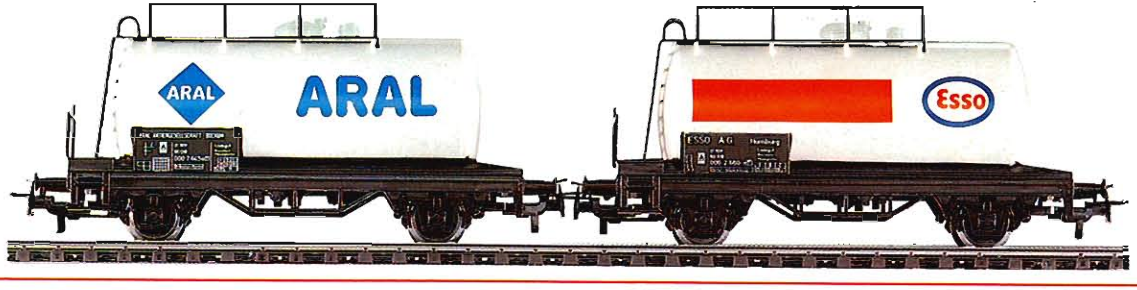
Austria

4412 · Boxcar · For carrying bicycles · RELEX couplers · Length 11.5 cm (4-½")

4413 · Dump Car · Bucket can be tipped to either side manually and locked in a stationary middle position · RELEX couplers · Length 11.5 cm (4-½")

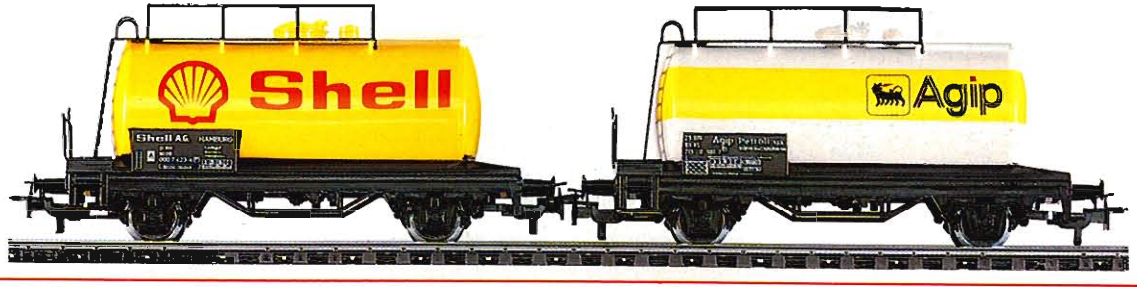
4432 · Wine Car · Privately owned · RELEX couplers · Length 11.5 cm (4-½")

4440 · Tank Car · Aral · RELEX couplers · Length 11.5 cm (4-½")



4441 · Tank Car · Esso · RELEX couplers · Length 11.5 cm (4-½")

4442 · Tank Car · Shell · RELEX couplers · Length 11.5 cm (4-½")

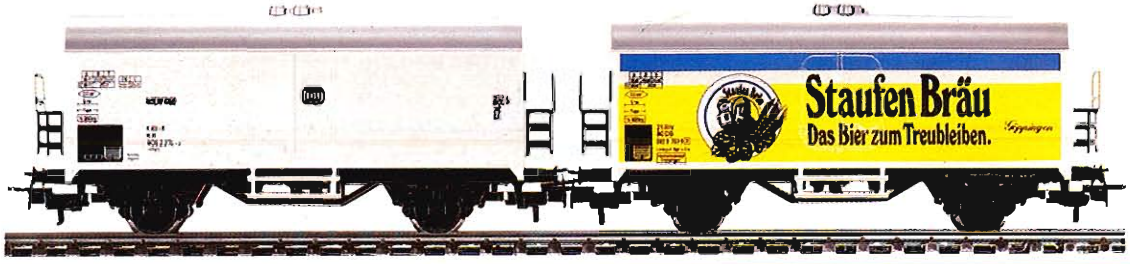


Italy

4443 · Tank Car · Agip · RELEX couplers · Length 11.5 cm (4-½")

German Federal Railroad (DB)

4415 · **Refrigerator Car** · Ichqs-u^{377} (Ichqrs 377) · RELEX couplers · Length 11.5 (4-½")



4429 · **Beer Car** · Staufen Bräu · RELEX couplers · Length 11.5 cm (4-½")

NEW

4437 · **Beer Car** · Badischer Staatsbrauerei Rothaus AG · RELEX couplers · Length 11.5 cm (4-½")

4436 · **Beer Car** · C. Dinkelacker, Stuttgart · RELEX couplers · Length 11.5 cm (4-½")

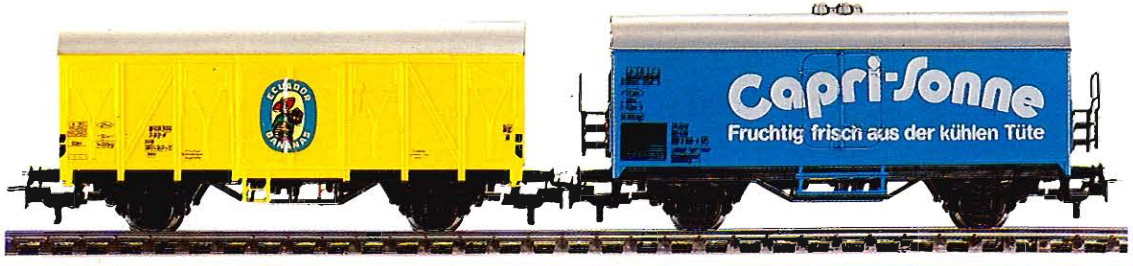
Switzerland

4428 · **Refrigerator Car** · Ovomaltine · RELEX couplers · Length 11.5 cm (4-½")

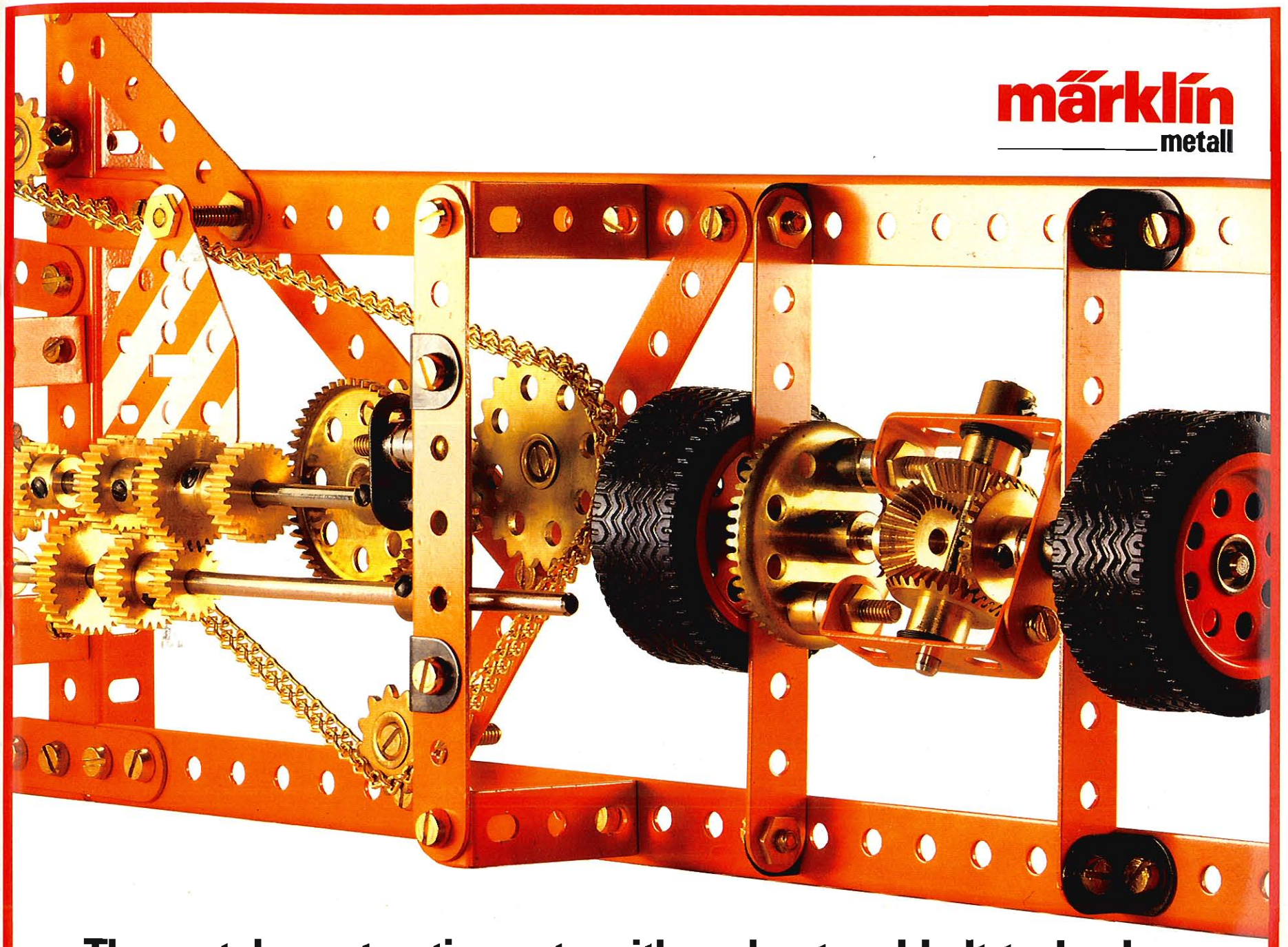
4426 · **Refrigerator Car** · Apollinaris · RELEX couplers · Length 11.5 cm (4-½")

German Federal Railroad (DB)

4414 · **Boxcar** · Ibbls · For carrying bananas · RELEX couplers · Length 11.5 cm (4-½")



4425 · **Refrigerator Car** · Capri-Sonne · RELEX couplers · Length 11.5 cm (4-½")

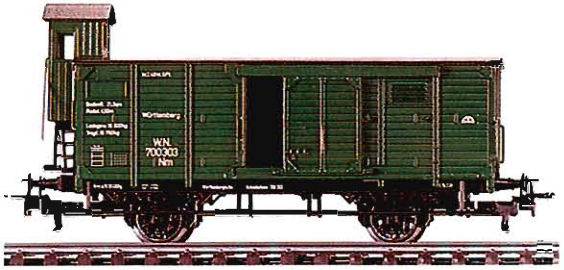


The metal construction sets with real nut and bolt technology.

See your dealer.

Royal Württemberg State Railways

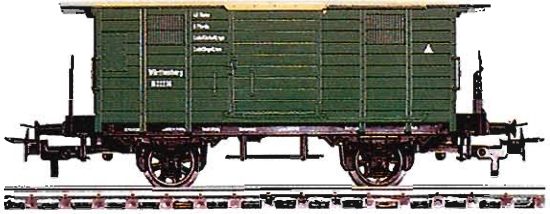
4679 · Boxcar with Brakeman's Cab · Class Nm as used on Württemberg branch lines around 1910 · Sliding doors · RELEX couplers · Length 11 cm (4″)



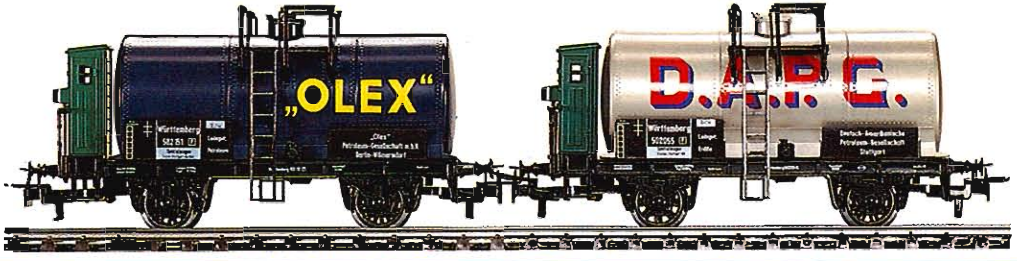
■ Around 1910, the Württemberg Branch Line Railways owned many boxcars which were also operated in a common pool of cars (the German State Railway Car Association) including those of the German State Railroad.

Cars 700 302 and 700 303 were built according to Prussian specifications in 1906 by the Uerdingen Car Works and thus resembled the later designs used in the Association pool.

4685 · Boxcar · Ni · Brakeman's platform · RELEX couplers · Length 10.7 cm (4-3/16″)



4675 · Tank Car · Olex Petroleum GmbH · As used on the Royal Württemberg State Railways · Brakeman's cab, running boards and ladders · RELEX couplers · Length 10.1 cm (4″)



4674 · Tank Car · German American Petroleum GmbH · As used on the Royal Württemberg State Railways · Brakeman's cab, running boards and ladders · RELEX couplers · Length 10.1 cm (4″)

4677 · Beer Car · Württemberg-Hohenzollern Brewery English Gardens, Stuttgart · As used on the Royal Württemberg State Railways · RELEX couplers · Length 11 cm (4-3/8″)

4678 · Beer Car · Wulle Brewery, Stuttgart · As used on the Royal Württemberg State Railways · RELEX couplers · Length 11 cm (4-3/8″)

■ A decisive event in the development of freight car standards was the creation of the German State Railway Car Association in 1909. Freight car designs were standardized, with cars of the individual provincial railroads being built strictly to the detailed Association specifications. This resulted in enormous savings in the cars' construction and maintenance and made possible the wider utilisation of these cars within the Association's territory.

The Märklin models 4695, 4696 and 4697 are examples of Association designs.

German State Railroad (DR)

4696 · Boxcar with Brakeman's Cab · O 10 · RELEX couplers · Length 10.1 cm (4")

4697 · Flat Car with Brakeman's Cab and Pivoting Transport Cradle · H 10 · RELEX couplers · Length 11.5 cm (4-½")

4692 · Boxcar · Gr 20 "Kassel" · Sliding doors · RELEX couplers · Length 10.5 cm (4-⅛")

■ After the merger of the German provincial railways into a unified national network in 1920, the standardization of freight car designs continued. The "Kassel" class boxcar is a prime example.

4695 · Boxcar with Brakeman's Cab · G 10 · Sliding doors · RELEX couplers · Length 11 cm (4-⅜")

4680 · Beer Car · Schwabenbräu Leicht Brewery, Stuttgart · As used on the former German State Railroad · RELEX couplers · Length 11 cm (4-⅜")

NEW

4676 · Tank Car · German Shell GmbH · As used on the former German State Railroad · Brakeman's Cab, running boards and ladders · RELEX couplers · Length 10.1 cm (4")

Freight Cars "Off the Rack"

Two agreements with the abbreviations "RIV" and "EUROP" are the basis for the free movement of freight cars among European railroads. The RIV (Regolamento Internationale Veicolli), to which 32 European and non-European railroads belong, regulates the use of freight cars in international service. The EUROP pool consists of nine European railroads and goes beyond the RIV agreement in allowing the rolling stock of a member railroad to be used anywhere in the EUROP network without the necessity of returning it directly to its owner each time.

Standardized design features for freight cars and car components are a prerequisite for the efficient use of rolling stock. The minimum requirements encompass coupling ability, brakes, buffer placement, and interchangeability of spare parts such as wheel sets, coupler hooks, buffers, springs or coupler links.

These minimum requirements are defined by the UIC (Union Internationale des Chemins der Fer), the International Association of Railroads, founded in 1922 and comprising 86 railroads from around the world. The UIC has developed a five-tier program of norms for the standardization of cars and their components. The end product of this cooperative effort has been the four-axle gondola car Eaos (Märklin model 4689 and 4690). The levels range from 1 "Efficiency and Dimension Norms" to 5 ("Standardization"). Here all material must be identical. Only minor deviations are allowed.

The ability to interchange spare parts is important because RIV and EUROP agreements require that a host railroad repair all damages done to cars of a foreign railroad. The purpose of level 5 is to enable the production of cars and car components for more than one railroad and to facilitate a universal level of maintenance, as well as provide shippers with freight cars which are identical in equipment and capacity regardless of the railroad owning them.

The research and Development Office of UIC (Office de Recherche et d'Essai) began to develop standardized two-axle flat cars and refrigerator cars as well as the self-unloading hopper car and the 19.9 meter (70') flat car in 1950. A second series of standardized cars was begun in the early 1970's and includes cars such as 14 meter (50') and 19.9 meter (70') flat cars with eight wheel trucks. These cars come with or without side boards. Other cars include new gondolas, boxcars with sliding walls, container cars, telescoping cars for the shipment of weather-sensitive sheet metal coils, cars with roofs that open and ballast cars with side unloaders for faster unloading of heavy material.

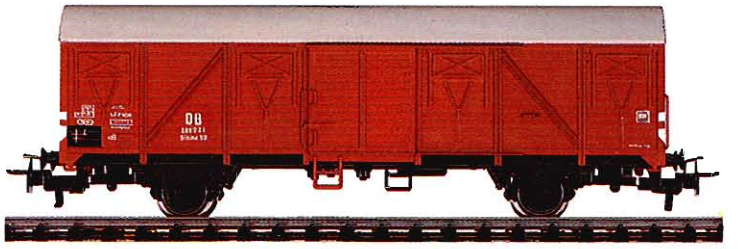
The four-axle freight car Eaos 106 of the German Federal Railroad at the Duisburg freight yards.

Finally, testing of the cars has also been standardized. All criteria for the review and testing of equipment as well as the standards for evaluating the test results have been assembled into one catalog which is now used by all European car builders.

Standardized cars allow railroads which do not have their own car building facilities to buy equipment "off the shelf" such as you would buy a suit off the rack. With this system proven and tested freight cars are available for use which, if damaged away from their home railroad, can be repaired by the host railroad quickly and efficiently.

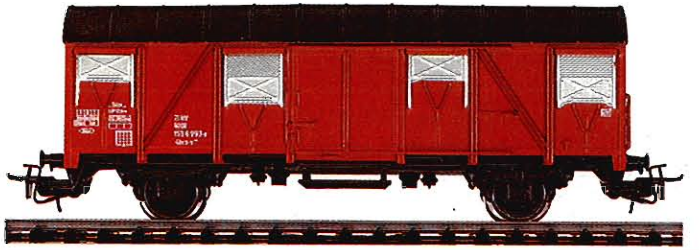
Photo: G. Wolff

German Federal Railroad (DB)



NEW

4700 · **Boxcar** · Glmhs 50 (Gbs 245) · RELEX couplers · Length 14.2 cm (5-5/8")



4627 · **Boxcar** · Gos-uv^{245} (Gbrs-v 245) · RELEX couplers · Length 13.3 cm (4-1/2")

4664 · **Container Car** · With 2 removable TFG containers · RELEX couplers · Length 15.6 cm (6-1/8")

4693 · **Telescoping Freight Car** · Shimms^{708} (Shis 708) · Fixed end walls · 3 telescoping body parts which can be slid to both ends of the car · 5 built-in bays with adjustable restraint arms · 3 realistic looking steel coils for freight · RELEX couplers · Length 13.8 cm (5-3/8")

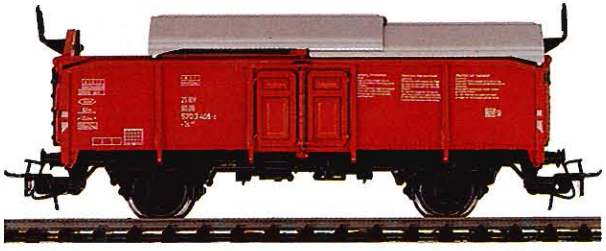
German Federal Railroad (DB)

4699 · **Package Car** · Pwg Pr014 · Sliding doors · RELEX couplers · Length 9.8 cm (3-7/8")

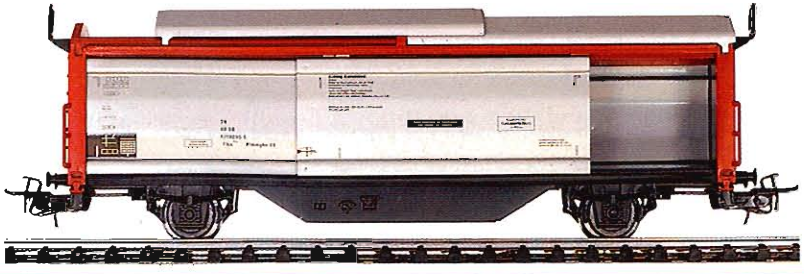
RELEX Couplers

Cars equipped with RELEX couplers cannot only be uncoupled but also pre-uncoupled at uncoupling tracks. Pre-uncoupled cars can be pushed by a locomotive farther onto a siding, for example, without the couplers re-engaging.

4619 · **Covered Gondola** · Tms^{851} (Ts 851) · Sliding roof halves · RELEX couplers · Length 11.5 cm (4-½")



4633 · **Gondola with Sliding Roof and Sides** · Tbis^{870} · Roof halves and sides slide to either end · RELEX couplers · Length 15.7 cm (6-3/16")

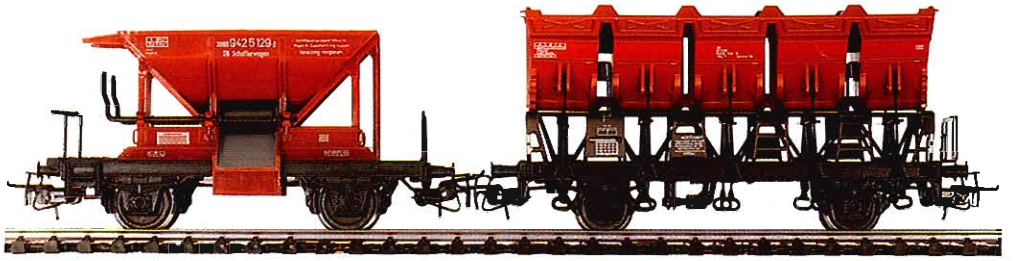


4613 · **Auto Carrier** · With loading ramp · With 4 Wiking miniature automobiles · RELEX couplers · Length 11.5 cm (4-½")

■ On the German Federal Railroad auto carriers are permanently coupled together and carry the designation Laaekms^{541} (Laaes 541).

4612 · **Auto Carrier** · With loading ramp · Without automobiles · RELEX couplers · Length 11.5 cm (4-½")

4610 · Ballast Car · Manually operated hopper · RELEX couplers · Length 9.5 cm (3-¾″)

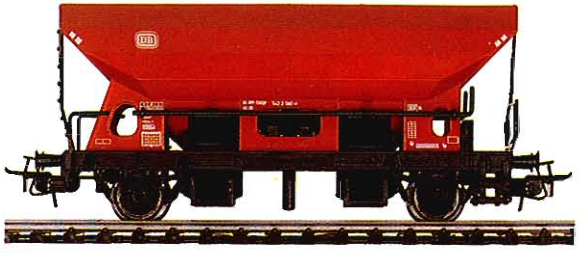


German Federal Railroad (DB)

4635 · Multi-Section Dump Car · F-z^{120} · Buckets can be tipped by releasing latch · RELEX couplers · Length 10.5 cm (4-⅛″)

This car can be unloaded manually or by using the remote controlled uncoupling tracks 2297 or 5112.

4631 · Side-Unloading Hopper Car · Fc^{090} · (Ed 090) · RELEX couplers · Length 11.2 cm (4-⅜″)

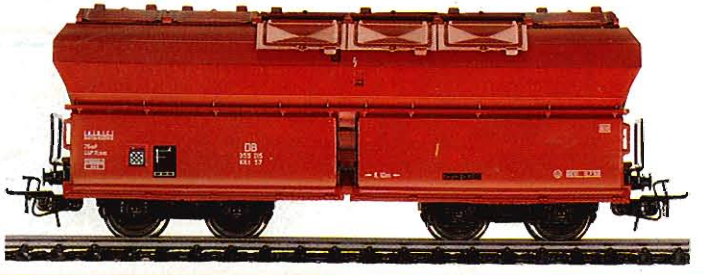


■ This car is used international service for the transport of coal, coke, ore, etc. It is usually seen in unit trains.

4624 · High Capacity Hopper Car · (Saddle car) · Fals^{176} (Fads 176) · RELEX couplers · Length 13.3 cm (5-¼″)

■ Many high capacity hopper cars are covered to permit the shipment of weather-sensitive products such as grain.

4626 · High-Capacity Covered Hopper Car · Tad-u 961 · Roof hatches open · RELEX couplers · Length 13.3 cm (5-¼″)



German Federal Railroad (DB)

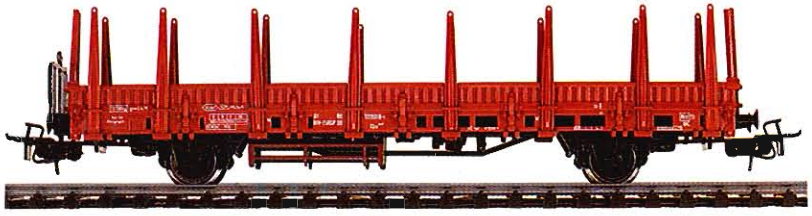
NEW

4690 · **Gondola** · Eaos 106 · RELEX couplers · Length 16.1 cm (6-½")

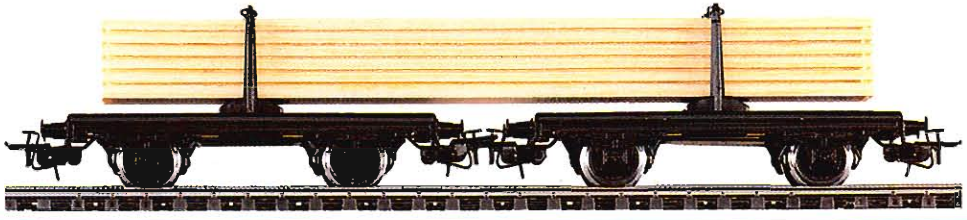
■ The type Eaos cars are gradually replacing the conventional two-axle gondolas due to the former's greater capacity.

Different kinds of freight such as stone, coal, pulp wood, ballast, barrels and much more are transported in these cars. Weather-sensitive freight can also be carried in the Eaos gondolas because the sides are equipped with rings to which tarpaulins can be tied down.

4694 · **Flat Car** · Kbs^{443} · Removable stakes · RELEX couplers · Length 15.7 cm (6-3/16")



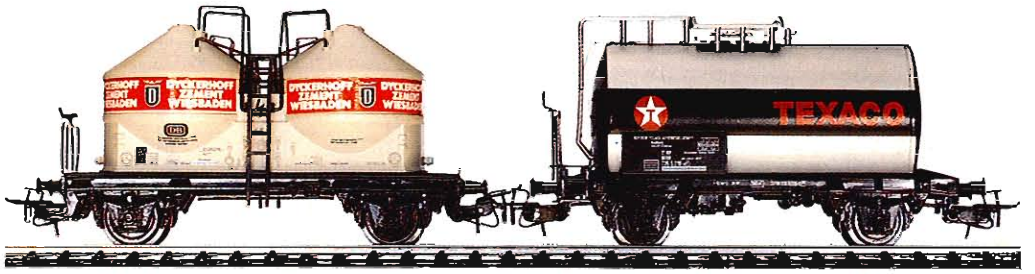
4665 · **Lumber Car** · 2 short flat cars · With finished lumber load · RELEX couplers · Length 19.5 cm (7-¾")



4671 · **Crane Car** · With rotating crane, movable boom and boom supports · Hook operates manually · RELEX couplers · Length 8.3 cm (3-¼") · (Low-sided gondola 4423 is not included but is recommended as a support for the crane boom during transport)

NEW

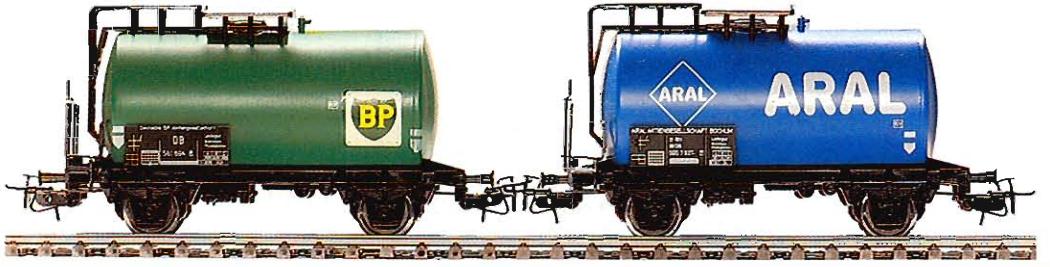
4761 · **Cement Car** · Ucs[908] of the German Federal Railroad · Lettered for Dyckerhoff Cement, Wiesbaden · RELEX couplers · Length 10 cm (4″)



NEW

4750 · **Tank Car** · Texaco · RELEX couplers · Length 10 cm (4″)

4644 · **Tank Car** · BP · RELEX couplers · Length 10 cm (4″)



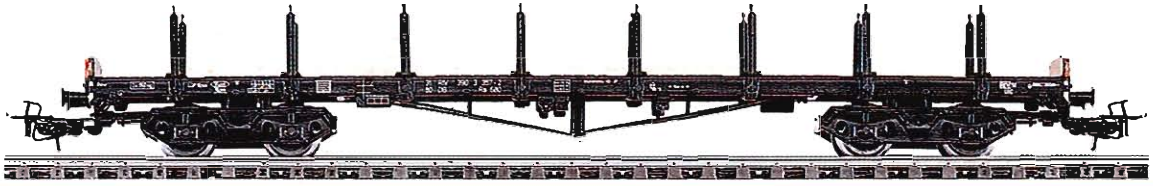
4646 · **Tank Car** · Aral · RELEX couplers · Length 10 cm (4″)

4650 · **Tank Car** · Esso · RELEX couplers · Length 16.4 cm (6-½″)

4651 · **Tank Car** · Shell · RELEX couplers · Length 16.4 cm (6-½″)

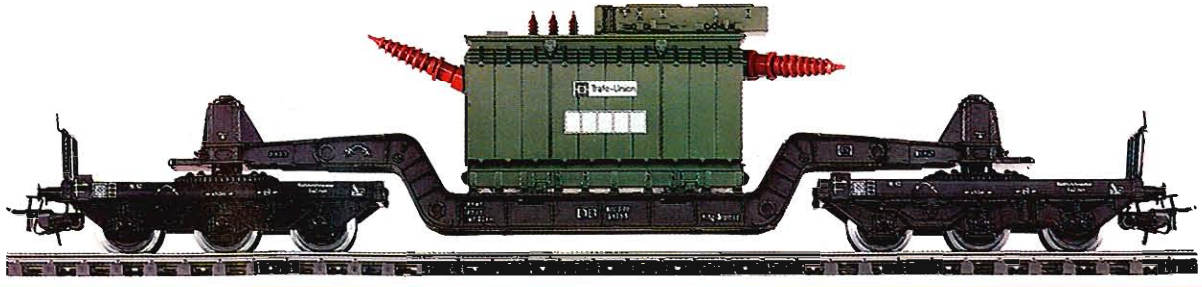
German Federal Railroad (DB)

4663 · **Flat Car** · Rs^{680} · Collapsible stakes · Metal body · RELEX couplers · Length 22.7 cm (9″)



4618 · **Depressed-Center Flat Car** · Loaded with crate · RELEX couplers · Length 25 cm (9-⅞″)

4617 · **Depressed-Center Flat Car** · Loaded with transformer · RELEX couplers · Length 25 cm (9-⅞″)



French State Railways (SNCF)

France

4681 · **Gondola** · E 3 01 · RELEX couplers · Length 11.5 cm (4-½″)

Netherlands Railways (NS)

Netherlands

4639 · **Gondola** · RELEX couplers · Length 11.5 cm (4-½″)

Swiss Federal Railways (SBB)

NEW Switzerland

4689 · **Gondola** · Eaos · RELEX couplers · Length 16.1 cm (6-⅛")

Switzerland

4698 · **Boxcar with Brakeman's Cab** · Hhk · Sliding doors · RELEX couplers · Length 14 cm (5-½")

Switzerland

4691 · **High Capacity Cement Car** · Lettered for Juracement Company Aarau · Bilingual inscriptions (German, French) · RELEX couplers · Length 13.3 cm (5-¼")

Switzerland

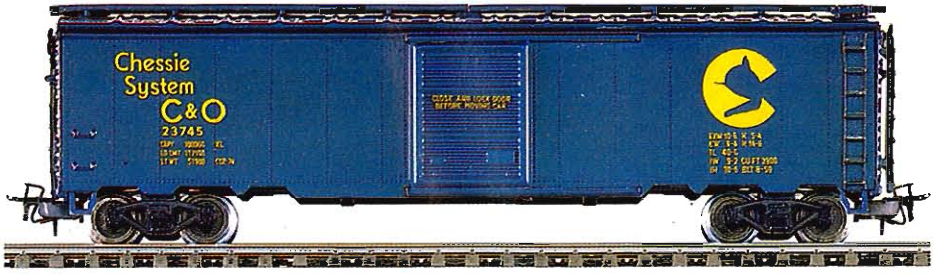
4632 · **Beer Car** · Feldschlösschen · RELEX couplers · Length 19.5 cm (7-¾")

USA

4574 · **Gondola** · Union Pacific Railroad Company · Trucks have pivoting sideframes · RELEX couplers · Length 17 cm (6-⅝")

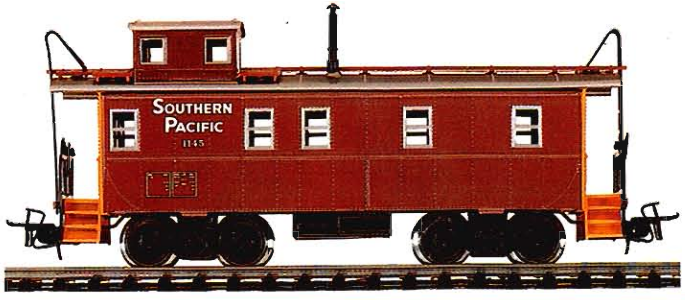
USA

4564 · **Boxcar** · Chesapeake & Ohio Railway Company · Removable roof with catwalk · Sliding doors · Trucks have pivoting sideframes · RELEX couplers · Length 18.4 cm (7-¼")



USA

4563 · **Caboose** · Southern Pacific Railroad Company · Catwalk and ladders · RELEX couplers · Length 12.5 cm (5")



■ American railroads are quite a bit different from their European counterparts. This is reflected in the fact that American railroad builders had practically unlimited space in which to build; hence, the rolling stock is considerably larger in size than in Europe. As a rule, freight cars ride on two two-axle trucks.

Numerous American railroad lines date from the previous century. Often they are obsolete and worn out. Railroad car construction takes this condition into account, and the trucks used on the cars allow them to roll well on poor track.

American freight trains are usually quite long. Several locomotives, operating in tandem, pull countless boxcars, gondolas, and other frieght cars. The conductor and rear brakeman ride in the caboose. These typically American cars are used by all of the railroads in the USA. Even boxcars and gondolas of the various railroads often differ only in their paint and lettering schemes.

Six times yearly the Märklin-Magazin brings a carload of tips, ideas and information.

In 60 pages of color and black/white photos the Märklin-Magazin offers:

- Layout construction with scenery details
- Märklin modelers report on their layouts
- Märklin models and their prototypes
- Topical and historical reports on real railroads
- Foreign railroads
- Construction articles for engines, cars and accessories
- New Märklin items unveiled
- Reader forum and book reviews
- Model railroad electronics
- Reports form the House of Märklin

The magazine for everyone who wants more from their hobby.

(German text)

Available at your dealer*

*and from book dealers or Modellbahnen-Welt Verlags-GmbH, Postfach 9 40, D-7320 Göppingen, Federal Republic of Germany.

Spare Parts for Cars

All spare parts are available from your dealer.

Couplers

21 005	Car	4018
21 583	Cars	4060, 4129 (front)
21 622	Cars	4060, 4129 (rear)
21 842	Cars	4631, 4635
21 951	Car	4071
21 954	Car	4071
32 399	Cars	4632, 4650, 4651, 4663
32 402	Car	4632
32 540	Cars	4067, 4079, 4080, 4100, 4101, 4102, 4103. 4104, 4105, 4106, 4107, 4108, 4633, 4644, 4646, 4664, 4694, 4750
70 154	Cars	4040, 4610, 4612, 4613, 4617, 4618, 4619, 4627, 4639, 4665, 4671, 4681, 4761
70 157	Cars	4074, 4084, 4410, 4411, 4412, 4413, 4414, 4415, 4423, 4424, 4425, 4426, 4428, 4429, 4430, 4431, 4432, 4436, 4437, 4440, 4441, 4442, 4443, 4460, 4473, 4474, 4475, 4481, 4674, 4675, 4676, 4677, 4678, 4679, 4680, 4685, 4692, 4693, 4695, 4696, 4697, 4698, 4699, 4700
70 158	Cars	4091, 4092, 4093, 4095, 4096, 4097, 4098, 4099, 4121, 4122, 4123, 4124, 4125, 4134, 4135, 4138, 4139, 4140, 4145, 4146, 4147, 4148, 4149, 4150, 4151, 4153, 4154, 4157, 4158, 4159, 4160, 4161, 4162, 4164, 4165, 4166, 4168, 4175, 4176, 4177, 4180, 4182, 4220, 4221, 4222, 4223, 4689, 4690
70 162	Cars	4131, 4132, 4133, 4183, 4184, 4185, 4200, 4201, 4202, 4203
70 412	Car	4028

Trucks with Couplers

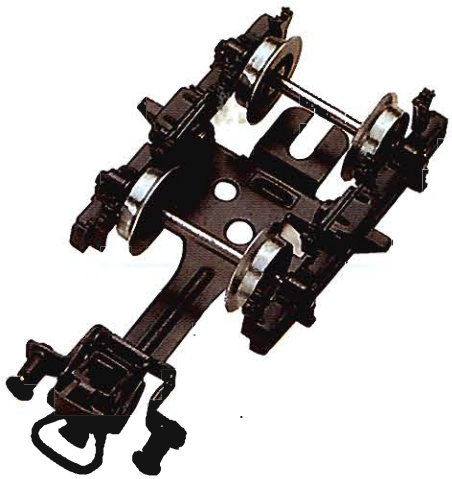
30 256	Car	4076
30 339	Cars	4026, 4045, 4051, 4052, 4053, 4054, 4064, 4085, 4087, 4089, 4090, 4111, 4112
30 417	Cars	4049, 4072, 4073
30 547	Cars	4066, 4068
32 289	Car	4563
32 311	Car	4564
32 339	Cars	4624, 4626, 4691
32 570	Car	4574

Pick-up Shoes

7164	Car	4028
7175	Cars	4018, 4053, 4089
	Car lighting kits	7197, 7198, 7320, 7322, 7323
7185	Cars	4060, 4129
31 051	Car	4103
31 100	Cars	4160, 4185
41 494	Cars	4098, 4154, 4411
	Car lighting kit	7329

7001 · **Coupling Guide** · Nickel plated steel · For testing couplers

7199 · **Bottle of Oil** · Contains 9 ml of a special oil for lubricating locomotives and cars



Light Bulbs

	60 000	Car lighting kit 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
		Car lighting kit 7079
		Signals 7188, 7339
green	**60 002**	Signals 7188, 7339
	60 010	Car 4018
		Car lighting kit 7323
		Light pole 5113
		Lamps 7046, 7047, 7048
	60 015	Cars 4028, 4060, 4089, 4129, 4411
		Car lighting kit 7197, 7320, 7322, 7329
	60 020	Car lighting kit 7074
	60 200	Signal 7242
red	**60 201**	Signals 7239, 7240, 7241
		Railroad grade crossings 7292, 7592
green	**60 202**	Signals 7187, 7236, 7237, 7238, 7239, 7240, 7241
orange	**60 204**	Signals 7187, 7236, 7237, 7238, 7240, 7241

The airport train meets a freight train, photographed at the Märklin Service Center.


111 105-3
DB

Can Motor with a Flywheel in the Märklin ICE

The Fast One from Göppingen

There were many jubilee activities this past year – from the 150th anniversary of German railroading to the 50th anniversary of H0 railroading – and Märklin put the "icing on the cake" for these events when it rolled out a model of the current ICE train in Göppingen using some remarkable model technology. The new ICE is the first mass-produced H0 model to use a can motor with a flywheel.

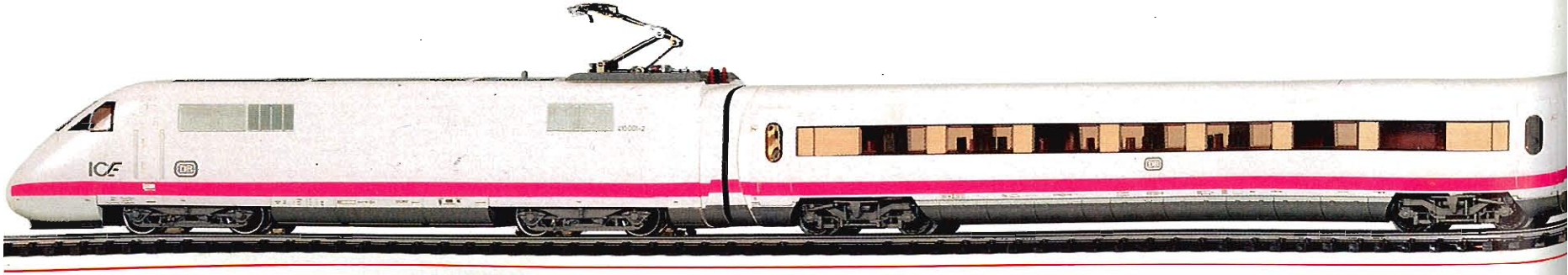
Cylinder-shaped motors with a motor shaft mounted lengthwise in the locomotive require a worm gear drive in order to transmit power to the wheels. Märklin has built a totally enclosed gear drive which powers both axles of the front truck in the power unit. The gear ratio for this drive is rather low in order to achieve the scale equivalent of the prototype's extremely high speed. Understandably, this means slow crawling speeds are not possible (the slowest scale speed is 25 kmph [15 mph]). The relatively low gear reduction is also the reason for the absence of any coasting characteristics despite the presence of a flywheel, but this is to be expected from this kind of gear drive design.

Märklin has motorized both end power units on the ICE model and electronic circuitry insures that both motors operate at the same speed.

An additional, technological extra is offered in the form of the functional, prototypical diaphragm connections between cars. Even on sharp curves these connections, used in conjunction with a close coupler, make it possible to maintain the appearance of a single unit which is particularly important with self-propelled multi-unit trains.

The total impression of the real-life ICE is captured in the Märklin model down to the perfect paint scheme and lettering, the finely inset window frames and the different interior details. With this model Märklin opens an exciting new chapter in model railroading technology.

From "eisenbahn-Magazin" February 1986 issue "Der Schnelle aus Göppingen".



■ On the occasion of the 150th anniversary of German railroading the German Federal Railroad presented a new concept in high speed train travel for the future: the Inter-City-Experimental. It embodies the latest knowledge of vehicle technology and is a cooperative effort of the Federal Ministry of Research and German industry. The ICE was operated on demonstration runs at over 250 kmph (150 mph) and on one special test stretch it even reached 317 kmph (190 mph).

For aerodynamical reasons, the ICE was conceived as a self propelled train set composed of two powered end units and six intermediate cars. The powered end units are of steel construction with streamlined, visually attractive nose pieces of fiber glass. The running gear is a refinement of technology tested for high speed applications. The four three-phase AC motors are identical in design to those of the German Federal Railroad's most modern locomotive, the class 120, and have an output of 4,200 kw (5,700 hp). The propulsion and braking are computer controlled.

The intermediate cars run on newly developed trucks which are designed to provide the greatest possible comfort at high speed. The car bodies consist chiefly of light weight metal in which the doors and windows are installed almost flush with the walls. The interior utilizes modular construction so that seating configurations can be altered easily. With this in mind, one of the cars was initially equipped as an electronic measuring center.

All cars have special corridor end connections which are flush with the car walls. This gives the entire train an almost seamless appearance and minimizes wind resistance and noise.

Test runs of the ICE were conducted in mid-1985. Its introduction to the public took place during the 150th anniversary celebrations for German railroading in the Autumn of 1985. By 1990 the German Federal Railroad wants to have another 20 ICE trains built.

High Speed Train of the German Federal Railroad (DB)

3371 · Self Propelled Train · 4-Part · 2 powered end units and 2 intermediate cars

Power Unit: One powered truck · 2 traction tires · Metal frame

Intermediate Cars: Interior lighting

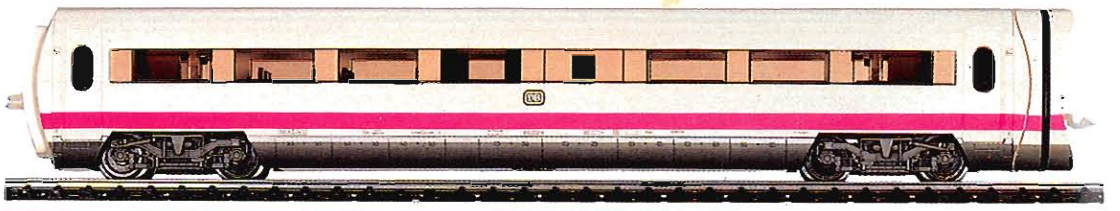
Special couplers connect the 4 units very closely with each other · The special corridor end connections give an almost seamless appearance · Triple headlight and dual red end lights illuminated according to the direction of travel · Each powered end unit has its own pick-up shoe which serves as electrical pick-up for the entire train according to the direction of travel · Electronic reverse unit · Train length 91.5 cm (36")

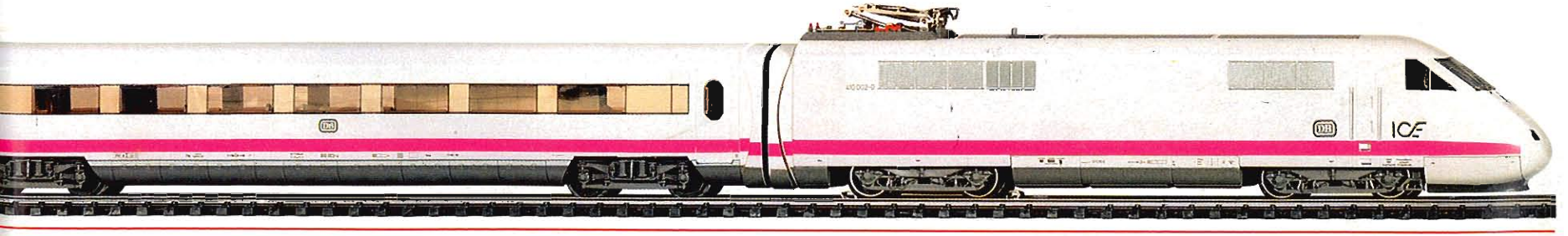
=7154 =7164 =60007 r
=60008 w

3671 · Digital · Self Propelled Train · Same as model 3371

3871 · Self Propelled Train · Same as model 3371 but designed for three-rail DC layouts · For Märklin layouts operated on DC current · Train reversing takes place by reversing the polarity of the track current

4171 · Intermediate Car · Mates with ICE self propelled train sets 3371, 3671 and 3871 · Flexible corridor end connections · Interior illumination · Special couplers mate only with ICE train · Length 24.5 cm (9-3/8")





These trains are treasured gifts, beautifully packaged faithful reproductions of real trains. The sets contain items not available separately.

2858 · Passenger Train of the German Federal Railroad · Contents: 1 class V 36 239 diesel locomotive, 1 1st/2nd class 2-axle coach and 3 2nd class 2-axle coaches with individual car numbers · Locomotive and cars have special paint schemes and lettering · Cars and locomotive not available separately · Train length 79 cm (2′ 6″)

■ During the 1950's, the German Federal Railroad had a pressing need for self propelled train sets for commuter service. Because there was a shortage of equipment, the class V 36 diesels were used with standard passenger cars as commuter trains. Cars used in this type of service received the red paint scheme normally applied to self-propelled trains used for commuters.

These trains were used in suburban service and on branch lines.

4071

2856 · Airport Train of the German Federal Railroad · Includes: 1 class 111 electric locomotive with new road number and single-arm pantograph, 1 1st/2nd class commuter car and 2 2nd class commuter cars with individual car numbers · Entire train has special lettering · Cars and locomotive not available separately · Train length 102 cm (3' 4-½") · Cars equipped for installation of interior lighting kit 7329

■ The German Federal Railroad employs the "Airport Train" as a direct connection between Ludwigshafen and the Frankfurt/M airport. The train makes three round trips daily and offers intermediate stops at Mannheim, Weinheim, Heppenheim, Bensheim and Darmstadt.

3071 · TEE Self Propelled Train · Dutch-Swiss TRANS-EUROP-EXPRESS train · 3 part

Locomotive: One power truck · 4 traction tires · Metal frame

Combined dining and first class car and a control car with a large first-class seating area

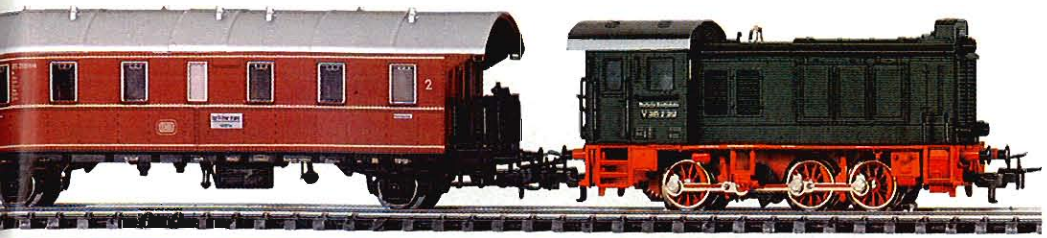
Special couplers provide very close spacing between the cars · Closely fitting corridor end connections · Triple white headlights and dual red end lights in each end car, illuminated according to the direction of travel · Each end car equipped with a pick-up shoe which acts as an electrical pick-up according to the direction of travel · Train length 70 cm (27-⅝")

⓪ = 7154 = 7164 = 60001 r
= 7175 = 60015 w

4071 · Compartment Car · Mates with TEE Self Propelled Train set 3071 · 1st class · Flexible corridor end connections · Special couplers mate only with TEE equipment · Length 23.3 cm (9-3/16")

The TEE train illustrated here is composed of the 3 unit 3071 train set and the 4071 coach, a composition often seen in regular service. The 4 unit train measures 93.3 cm (36-¾")

2858



2856

3071

By Train Through Europe

Sound Sleep from Copenhagen to Paris

If there were no international agreements among European railroads regarding the reciprocal use of passenger cars, a trip from Copenhagen to Paris would be a genuine hardship. Now a passenger can board the North Express, train 232, in the evening in Copenhagen, rest in the slumber coach of the Danish State Railways, and arrive fresh and relaxed the next morning in Paris, without having his sleep disturbed. And his trip passes through four European countries.

In this manner, Austrian cars find their way to Frankfurt/M, and French cars get to Warsaw (via train 243 "East-West Express"). A colorful array of European passenger cars belonging to various railroads is a normal sight at many railroad stations of Central Europe. It is also possible to have "pure" trains on the railroad operating on the rails of another, for example the TEE Rheingold, which is equipped exclusively with cars from the German Federal Railroad, running on Dutch track.

Due to the voltage differences in the catenary of the various European railroads, international trains are powered by electric locomotives which can operate off of different voltage frequencies. An example of this is the Belgian four-phase class 16 locomotive (Märklin model 3163) which can operate off of practically any European catenary system. It can be seen, for example, in the Cologne station with trains from and to Brussels and Ostend and often these trains are made up of comfortable Eurofima cars.

Photo: E. A. Weigert

Eurofima Car A9 of the French State Railways.

Information about freight trains is easily obtained. In the Federal Republic of Germany information about the international origin and destination of any car in a freight train can be called up on a computer terminal screen in a freight classification yard. This is made possible by the German Federal Railroad's Vehicle Information and Reporting System which facilitates acess to information about 900,000 European freight cars.

Train 41765, for example, which is on its way between Bebra and Frankfurt/M on a cold February morning, has 26 cars, is 415 meters (1349') long and has a combined weight of 1206 tons. The engine on the point is not listed by the computer – it could be a 140 or a 151 – but the computer does know that 15 cars are carrying DB reporting marks. On this international train, only one car originated in the German Federal Republic and none of the cars are destined for German points. Most of the cars began their trip in Scandinavia at places such as Iggesunds, Trelleborg or Domnarvet and are bound for southern destinations such as Chiasso, Milan, Domodossola or Genoa.

How international the consist of the train is, is noted by the second car which is a privately-owned box car registered with the French State Rail-

Shimms from Trelleborg to Domodossola

ways. This car will only be passing through its country of origin on this trip. According to the computer, it was picked up in Schwerin (Federal Republic of Germany) and is bound for Lisbon (Portugal). On the French-Spanish border the car will have to be transferred to wheelsets for the wide gauge (5') track in use in Spain and Portugal.

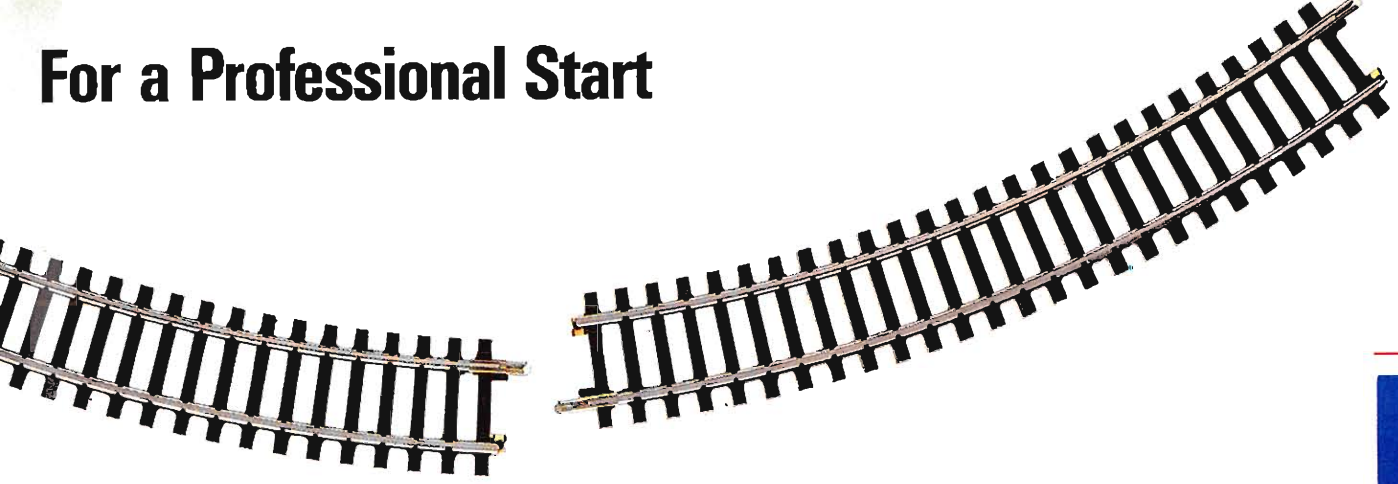
At each classification yard through which the international freight train passes, cars are dropped and added according to destination. By the time the train is ready to depart Bebra, a yard clerk has already updated the information in the computer so that his colleague in Frankfurt/M can call up the order in which cars are traveling in a train and thus plan the switching moves for his yard. The computer also gives information about special requirements for a given car, for example, whether is must be placed directly behind the locomotive for safety reasons. Moreover, the computer not only "knows" the 12 digit identification number for a car, but also the easily remembered alphabetic code giving the car's classification.

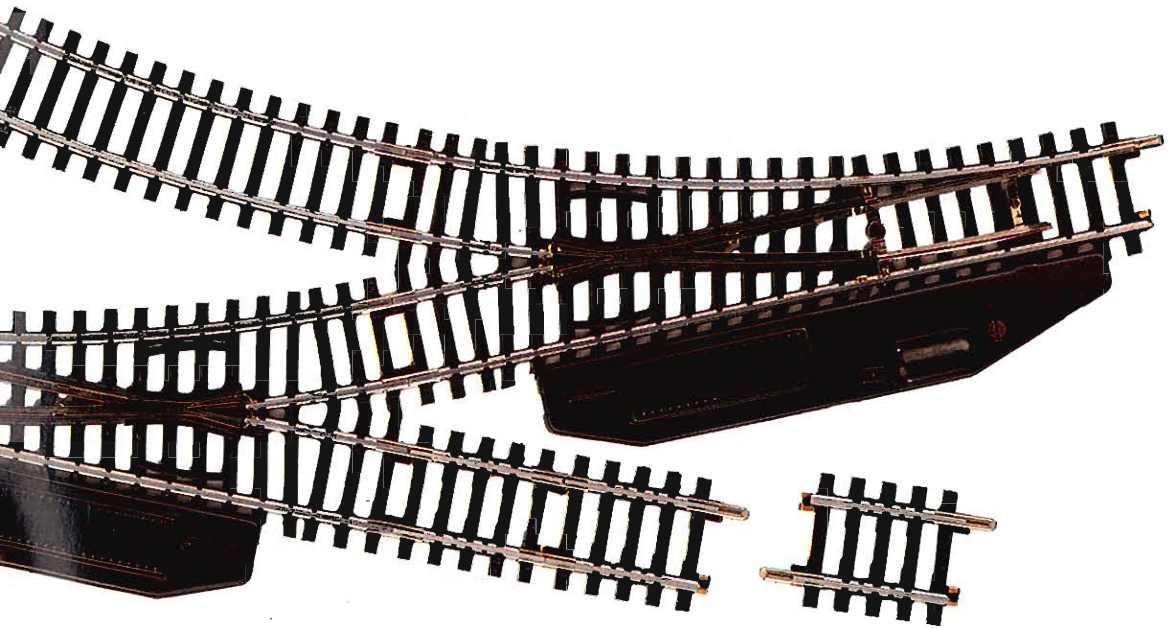
In the Basel Bad switch yard, cars bound for Italy and southern Switzerland are separated from cars going to France, Portugal and western Switzerland and are placed in one of the legendary Gotthard freight trains. On their trips throught the Alps these trains are sometimes pulled by a Ae 6/6 (Märklin model 3350). In Basel, computer observation of the train by German authorities ceases. But plans are afoot to create a European database which would combine the data of the national database in order to significantly improve the efficiency of freight operations.

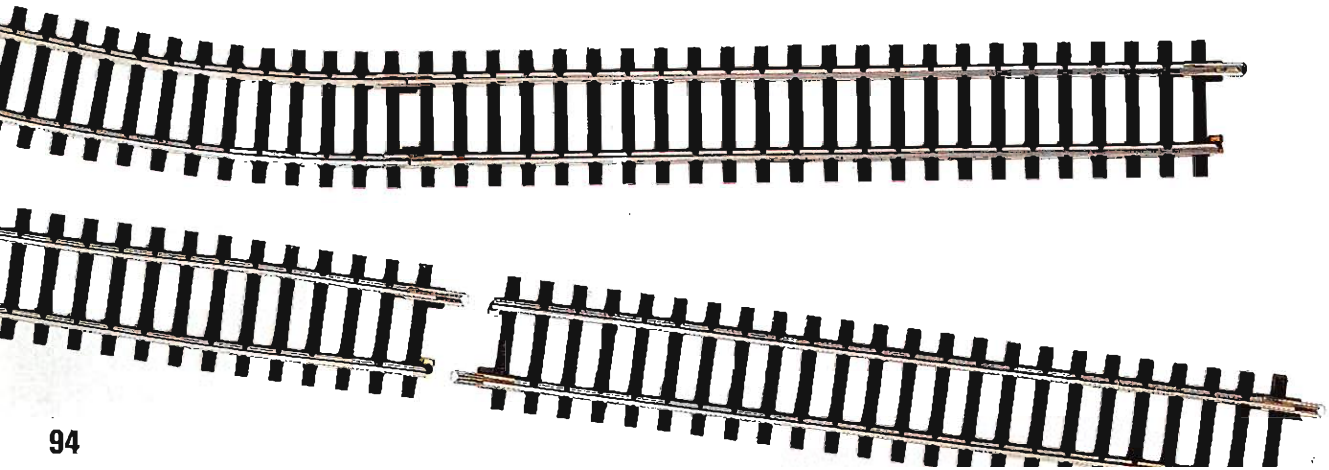
The four axle Shimms 708 is a telescoping car. It is especially designed to carry weather sensitive metal coils.

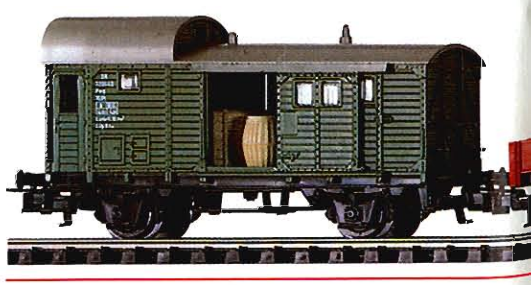
Photo: G. Wolff

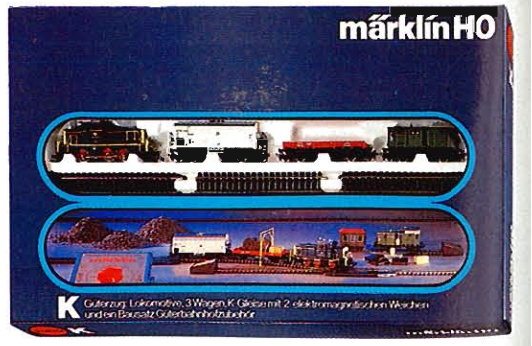
For a Professional Start









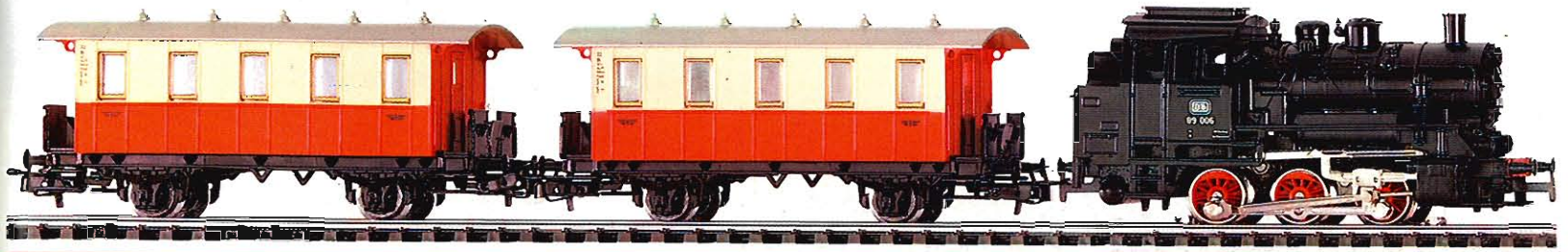


NEW

2970 220 Volt
2971 100 Volt Japan
2972 110 Volt (60 Hz)
2973 240 Volt

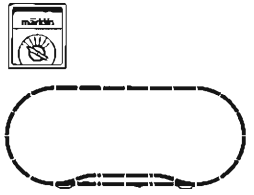
Passenger Train Set with K Track Oval and Transformer · Includes: Illuminated tank locomotive 3000, two 4107 passenger cars with interior details, 1 straight track 2200, 12 curved tracks 2221, 1 feeder track 2292 with hookup wires and a built-in condenser to prevent radio and television interference, 1 10 VA transformer with speed controller and connections for accessories · Illustrated information brochure on introduction to building and operating a model railroad · Extension possibilities with the entire K track program · The ideal start for the realistic model railroading

2970
94 × 76 cm
(3′ 1″ × 2′ 5-7/8)



2980 220 Volt

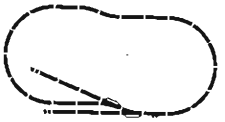
Freight Train Set with K Track Oval and Transformer · Includes; Diesel locomotive 3141, 1 refrigerator car 4415, 1 low-side gondola car 4423, 1 package car 4699, 9 straight tracks 2200, 2 straight tracks 2207, 4 straight tracks 2208, 12 curved tracks 2221, 2 curved tracks 2232, 1 pair remote control switches 2261, 1 feeder track 2292 with hook-up wire and a built-in condenser to prevent radio and television interference, 1 freight house kit, 1 control box 7072, wires, sockets, plugs, 1 10 VA transformer with speed controller and connections for accessories · Instructional leaflet with many construction ideas · Extension possibilities with entire K track program · A great way to enter the world of model railroading



2980 186 × 78 cm (6′ 2″ × 2′ 6-¼″)

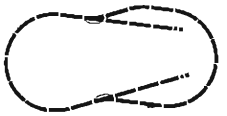
The track supplied with this starter set can also be used to make the following layouts:

150 × 78 cm (4′ 11-½″ × 2′ 6-¼″)



165 × 85 cm (5′ 5″ × 2′ 9″)

168 × 85 cm (5′ 6″ × 2′ 9″)



163 × 92 cm (5′ 4-½″ × 2′ 11-¾″)

The transformer with the starter sets has connections to hook up the train and accessories. Larger locomotives or additional switches or signals can also be operated with the transformer.

The transformer from the starter sets is not available separately.

Connect the transformer to AC outlets only

For a Larger Start (S)

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

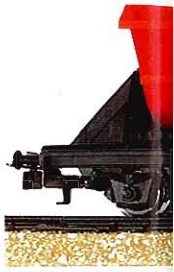
Freight Train Set with M Track and Transformer · Includes: Illuminated tank locomotive 3000, 1 dump car 4413, 1 low-side gondola car 4423, 1 gondola car 4430, 13 curved tracks 5100, 5 straight tracks 5106, 1 straight track 5107, 1 uncoupling track 5112, 1 light pole 5113, 1 feeder track 5131 with built-in condenser to prevent radio and television interference, 1 left-hand manual switch 5221, 1 control box 7072, 1 bumper 7190, wires, sockets, plugs, freight, 110 VA transformer with speed controller and connections for accessories · Illustrated introduction brochure with many tips and suggestions · Extension possibilities with entire M track program · The versatile way into the fun-filled world of model railroading

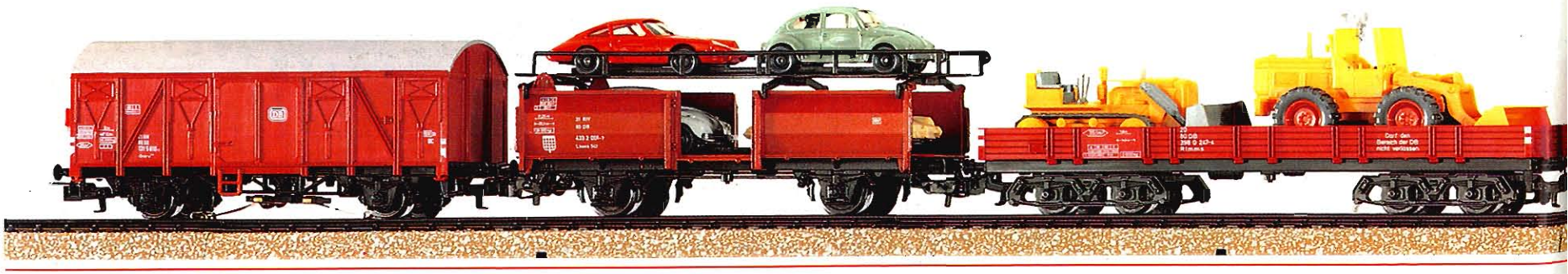
2950 130 × 76 cm
(4′ 4″ × 2′ 5-7/8″)

The transformer with the starter set has connections to hook up the train and accessories. Larger locomotives or additional switches or signals can also be operated with this transformer.

The transformer in this starter set is not available separately.

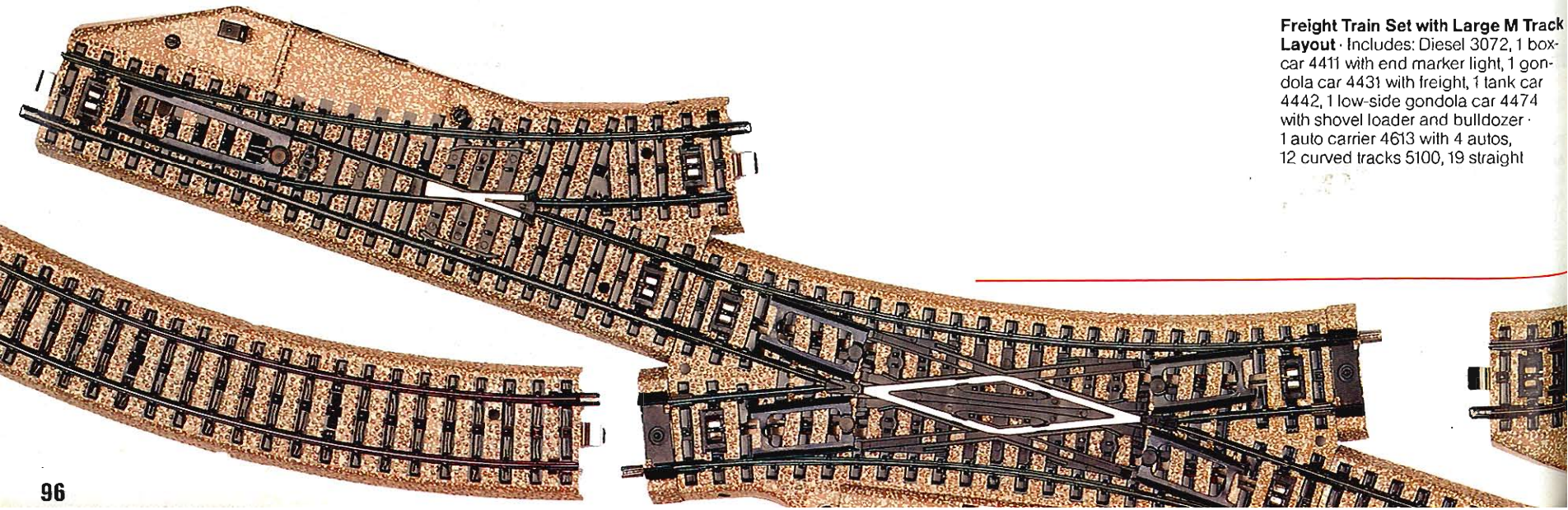
Connect the transformer to AC outlets only





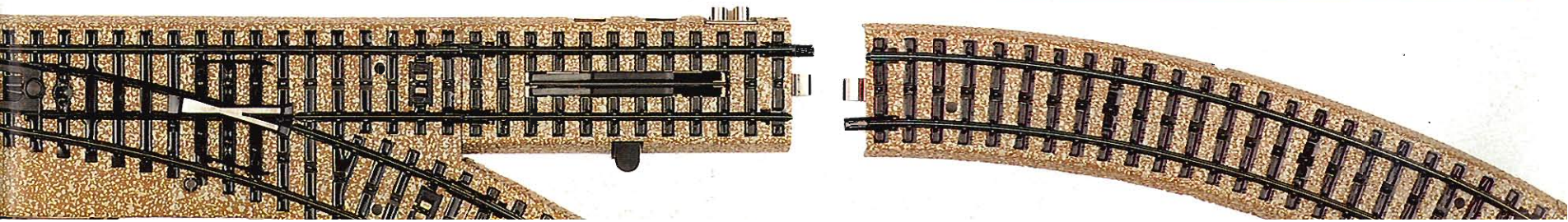
2875

Freight Train Set with Large M Track Layout · Includes: Diesel 3072, 1 boxcar 4411 with end marker light, 1 gondola car 4431 with freight, 1 tank car 4442, 1 low-side gondola car 4474 with shovel loader and bulldozer · 1 auto carrier 4613 with 4 autos, 12 curved tracks 5100, 19 straight



tracks 5106, 1 feeder track 5131 with built-in condenser to prevent radio and television interference, 1 pair remote control switches 5202, 1 right-hand remote control switch 5202, 2 curved tracks 5206, 1 double slip switch 5207, 1 control box 7072, 3 bumpers 7190, 1 distribution strip 7209, wire sockets, plugs · Requires either a 16 VA or 30 VA Märklin transformer · Extension possibilities with entire M track program · The big step into the world of model railroading

2875 184 × 76 cm (6′ 1″ × 2′ 5-⅞″)

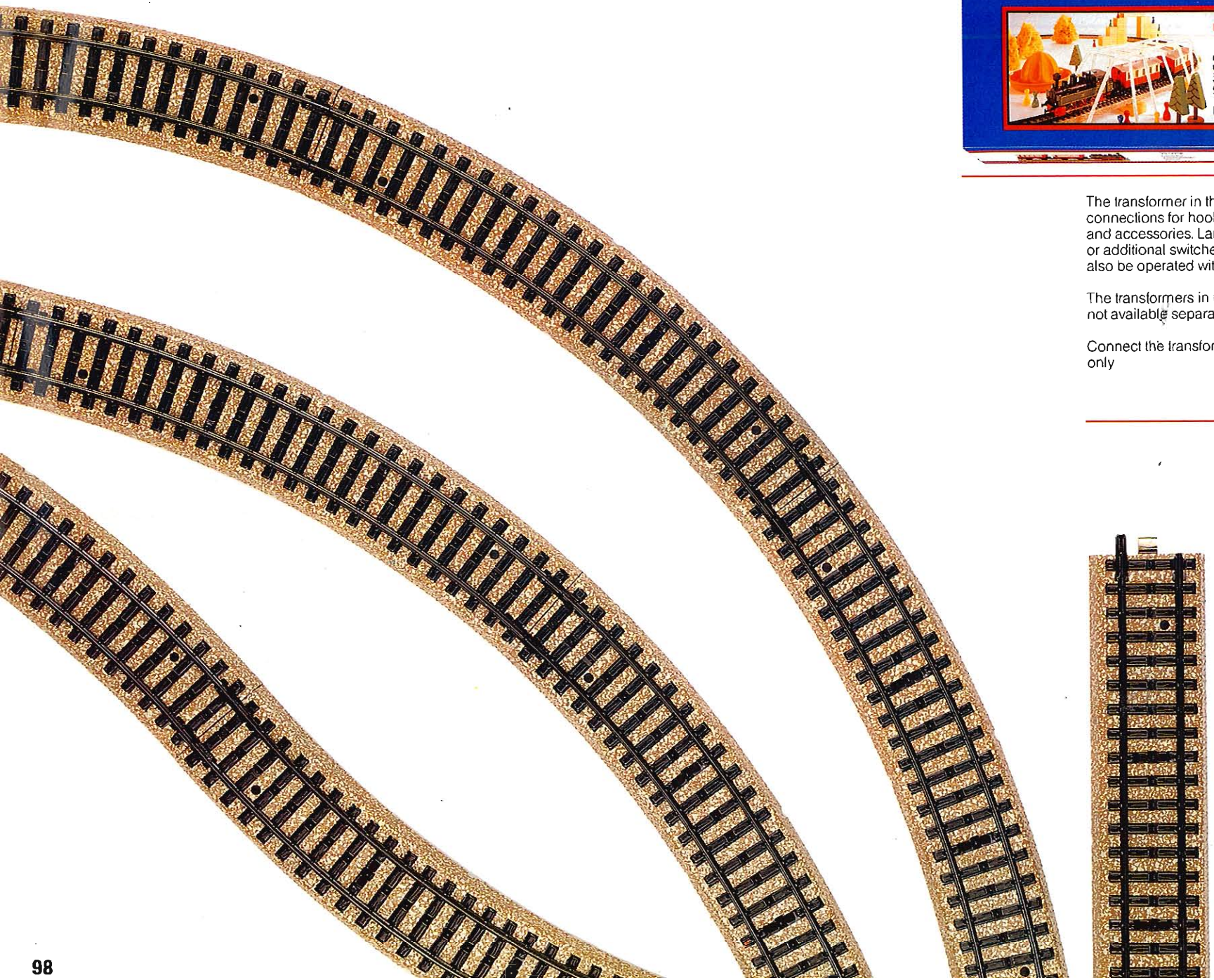


For a Smaller Start (S)

The transformer in the starter sets has connections for hooking up the train and accessories. Larger locomotives or additional switches or signals can also be operated with the transformer.

The transformers in the starter sets are not available separately.

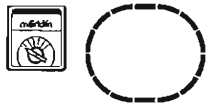
Connect the transformer to AC outlets only



NEW

2900 220 Volt
2901 100 Volt Japan
2902 110 Volt (60 Hz)
2903 240 Volt

Passenger Train Set with M Track Oval and Transformer · Includes: Tank locomotive 3087, 2 passenger cars, 12 curved tracks 5100, 1 straight track 5106, 1 feeder track 5131 with built-in condenser to prevent radio and television interference, 1 10 VA transformer with speed controller and connections for accessories · Illustrated instruction brochure with many tips and suggestions · Extension possibilities with the SET program or with the entire M track program · The ideal start into the world of model railroading

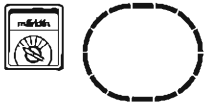


2900
94 × 76 cm
(3′ 1″ × 2′ 5-⅞″)

NEW

2910 220 Volt
2911 100 Volt Japan
2912 110 Volt (60 Hz)
2913 240 Volt

Freight Train Set with M Track Oval and Transformer · Includes: Illuminated diesel DHG 500, 1 dump car, 1 low-side gondola car with shovel loader, 12 curved tracks 5100, 1 straight track 5106, 1 feeder track 5131 with built-in condenser to prevent radio and television interference, 1 10 VA transformer with speed controller and connections for accessories · Dump car and shovel loader can be used for loading and unloading functions · Illustrated instruction brochure with many tips and suggestions · Extension possibilities with SET program or with entire M track program · The ideal start into the world of model railroading

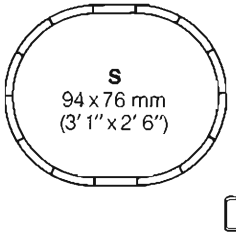


2910
94 × 76 cm
(3′ 1″ × 2′ 5-⅞″)

For a Well Planned Layout (E + T)

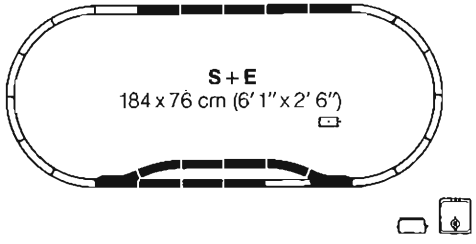
A lot begins with the simple oval included with beginner sets 2902 (S), 2912 (S) and 2957. The first add-on can be either the extension set 5190 (E) with manual switches or set 5191 (E) with electric switches. Additional add-ons can be installed in any sequence and include set 5192 (T1), 5193 (T2) and 5194 (T3). Even the large beginner set 2875 can be expanded with extension set 5192 (T1) and 5193 (T2).

These track plans illustrate the step by step construction

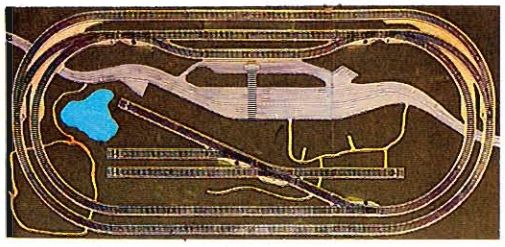


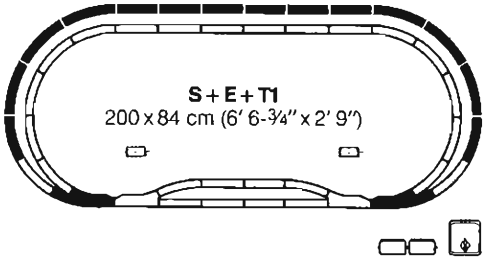
5190 · Extension Set E · Includes: 10 straight tracks, 2 curved tracks, 1 pair manual switches and instructions

5191 · Extension Set E · Includes: 10 straight tracks, 2 curved tracks, 1 pair electric switches, control box, distribution strip, wiring and instructions

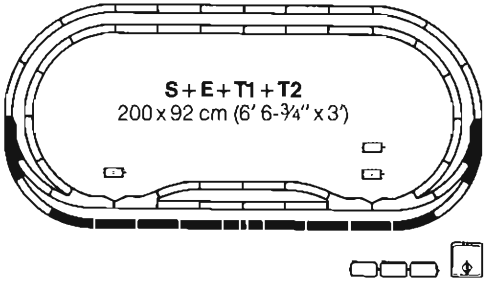


7298 · Toporama for the Set Extension Program · Realistic landscaping rolled in a tube · Multi-colored · Printed track layout · Realistic effect provided by flocked grass · Size 205 × 97 cm (6′ 8-3/4″ × 3′ 2-3/16″)

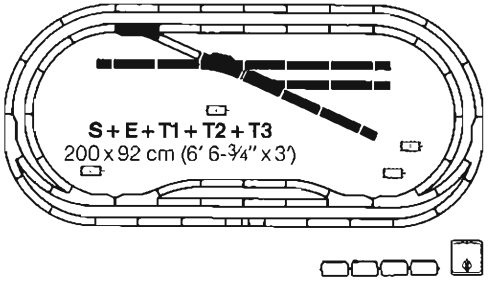




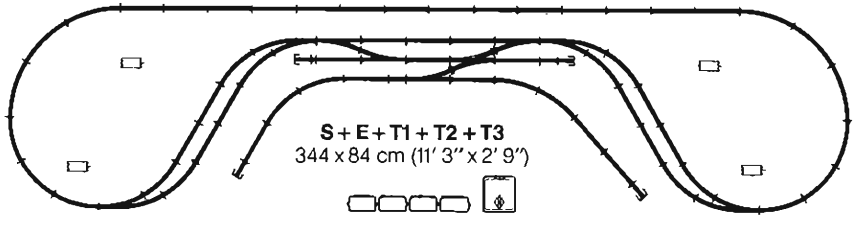
5192 · Double Track Set T1 · Includes: 6 straight tracks, 8 curved tracks, 1 pair electric switches, control box, distribution strip, wiring and instructions



5193 · Station Track Set T2 · Includes: 9 straight tracks, 2 curved tracks, 1 pair electric switches, control box, distribution strip, wiring and instructions



5194 · Yard Track Set T3 · Includes: 9 curved tracks, 1 pair electric switches, double slip switch, 4 bumpers, control box, distribution strip, wiring and instructions

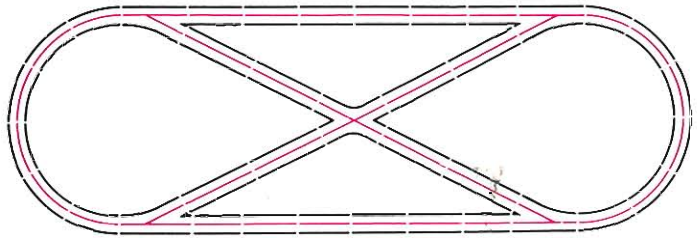


This example shows that other layouts can be built using the track sets from the SET program. A little tip: The SET program makes excellent gifts for any layout. Because **every** SET add-on can be used to expand **any** layout.

M Track

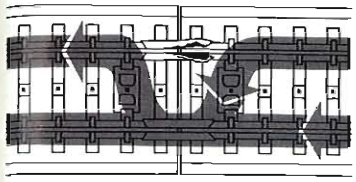
Märklin has two track systems – M track and K track. Both have one thing in common; the unique center stud system. (Third rail).

Current reaches the locomotive through pick-up shoes which glide over these center studs. Return flow of the current is via the running wheels and the running rails. This system guarantees trouble-free layout construction and reliable operation.

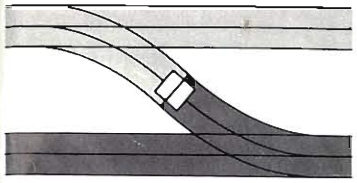


No special wiring tricks are necessary to lay any track configuration. Märklin H0 – the system with easy-to-understand wiring.

Complicated track configurations such as return loops and wyes require no special wiring.



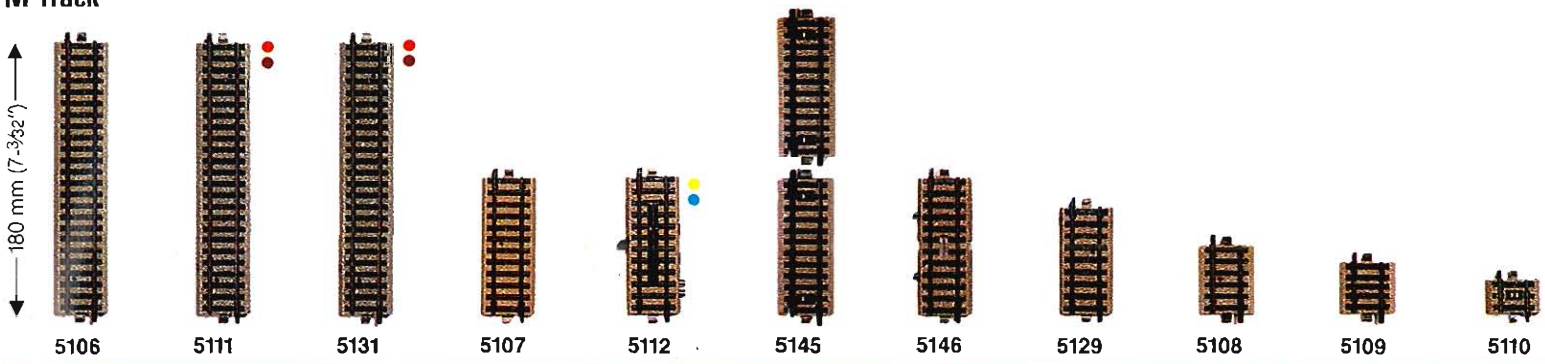
If one of the rail joiners is bent, current will continue to flow uninterupted via the other joiner. Märklin H0 – the system with good electrical conductivity.



Third rail insulators can be installed on any piece of track to form insulated track blocks. Special insulated track sections are not needed. Märklin H0 – the system with easy-to-use track insulators.

The switches of either track system can be operated conventionally with the control boxes or electronically with the new Märklin Digital control system.

M Track



5106 5111 5131 5107 5112 5145 5146 5129 5108 5109 5110

5106 · Straight Track · Length 180 mm (7-3⁄32″) · Full section

5111 · Feeder Track · Length 180 mm (7-3⁄32″) · 2 leads · Full section

5131 · Feeder Track · Length 180 mm (7-3⁄32″) · Full section · Has capacitor to suppress radio interference · 2 leads · One 5131 should be used on each track circuit

5107 · Straight Track · Length 90 mm (3-9⁄16″) · ½ section

5112 · Uncoupling Track · For releasing automatic couplers · Uncoupling ramp raised by remote control operation from 7072 controller · 2 leads · Track length 90 mm (3-9⁄16″) · ½ section

NEW

5145 · Contact Track Set · With isolated rail section to enable the train's wheels to activate a track detection unit · Can be extended with track sections 5115 or 5116

5146 · Contact Track · Length 90 mm (3-9⁄16″) · ½ section

5129 · Straight Track · Length 70 mm (2-3⁄4″)

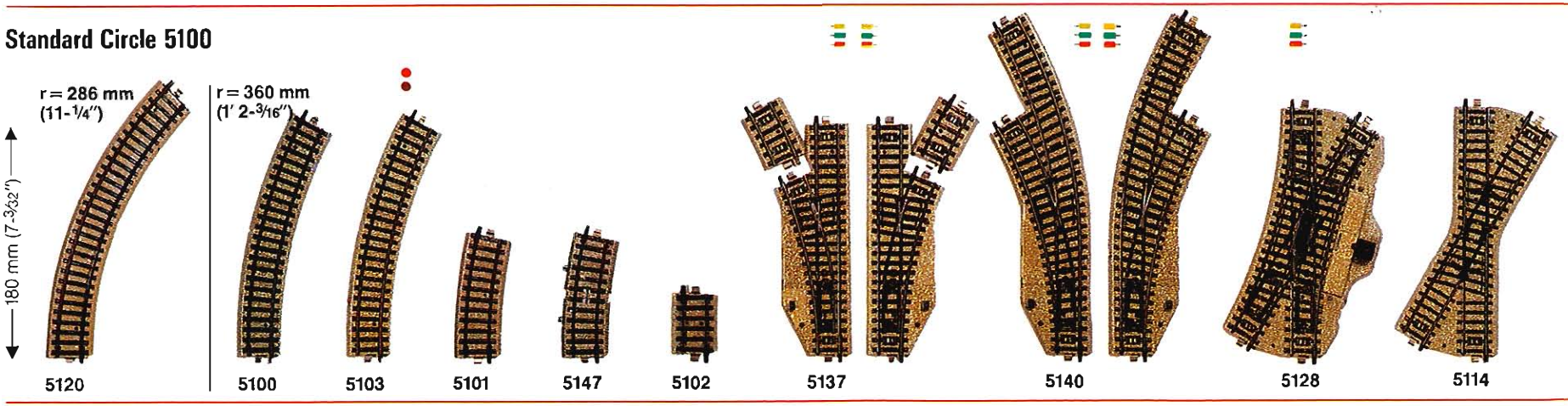
5108 · Straight Track · Length 45 mm (1-3⁄4″) · ¼ section

5109 · Straight Track · Length 33.5 mm (1-5⁄16″) · 3⁄16 section

5110 · Straight Track · Length 22.5 mm (7⁄8″) · ⅛ section

Contact Tracks
The contact tracks (5146, 5147, 5213) enable passing trains to trip magnetically-operated accessories. The controls are activated by the pickup shoe on the locomotives and cars and many operations can be performed regardless of the direction of travel. The control impulses are fed through 2 sockets which are insulated from each other electrically.

Standard Circle 5100



5120 5100 5103 5101 5147 5102 5137 5140 5128 5114

5120 · Curved Track · Full section = 45° · Sharp radius for branch lines and industrial sidings · For use with short locomotives and cars only

5100 · Curved Track · Full section = 30°

5103 · Feeder Track · Full section = 30° · 2 leads

5101 · Curved Track · ½ section = 15°

5147 · Contact Track · ½ section = 15°

5102 · Curved Track · ¼ section = 7° 30′

5137 · Remote Control Switches · Consisting of one right and one left switch, each with double solenoid operation · Illuminated lanterns · Length of straight side = 180 mm (7-3⁄32″) · Radius of curved branch 360 mm (14-1⁄8″) · Add 5102 curved section (included) to form 5100 section

⚲ = 60000

5140 · Remote Control Curved Switches · Consisting of one right and one left curved switch, each with double solenoid operation · Illuminated lanterns · Length and radius of inside curve same as 5100 curve · Length of outside curve 265.4 mm (10-1⁄2″)

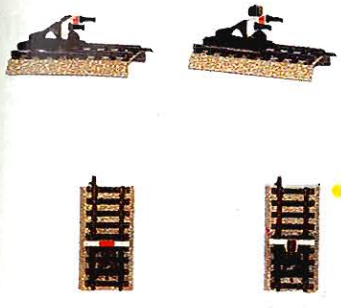
⚲ = 60000

5128 · Double Slip Switch · 30° crossing angle · Double solenoid operation · Illuminated lantern to indicate switch setting (crossing or curves) · Can be operated manually · Length of straight section 193 mm (7-5⁄8″) · Curvature same as 5100 curve

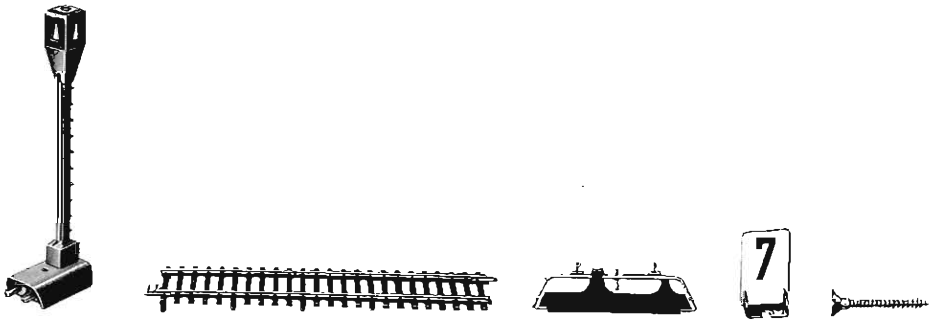
⚲ = 60000

5114 · 30° Crossing · Length 193 mm (7-5⁄8″) · Third "rails" insulated from each other electrically

All switches 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 operation. To activate, use either a controller 7072 or a contact track 5146, 5147 or 5213.



7190 7191



5113 2291 7171 7195 7299

7190 · Bumper · Riveted steel type · Clipped onto 70 mm (2-¾") track section

7191 · Illuminated Bumper · Working lantern · Riveted steel type · Clipped onto 70 mm (2-¾") track section
⚲=60000

5113 · Light Pole · For uncoupling track 5112 · Lantern illuminates during uncoupling procedure · Height 85 mm (3-⅜")
⚲=60010

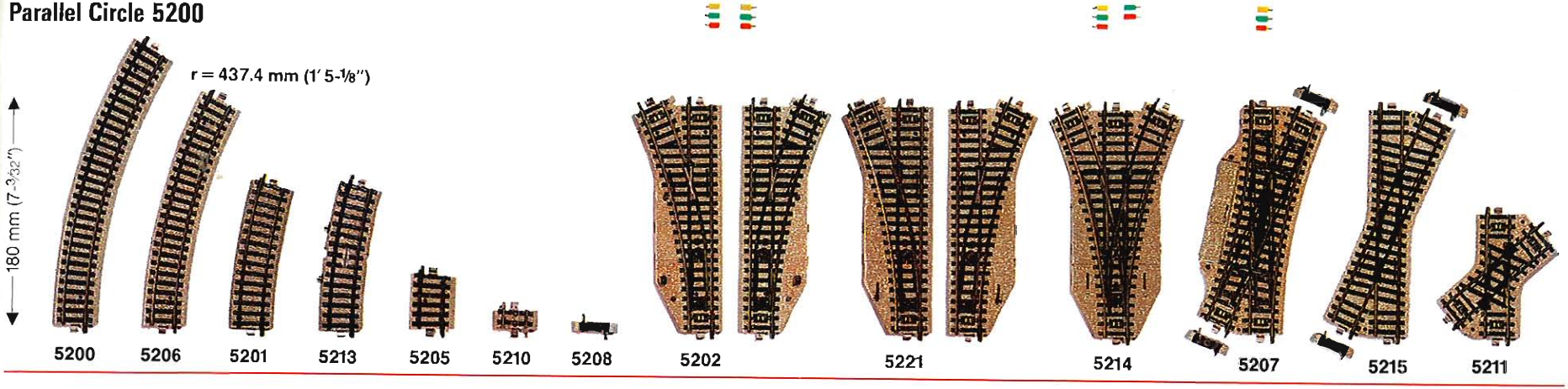
2291 · Adapter Track · Length 180 mm (7-³⁄₃₂") · For connecting 5100 and 5200 series M track to 2200 K track

7171 · Sound Absorption Strip · Pack of 50 with 50 wood screws · Strips absorb some of the natural sound created when trains run on M tracks laid on a wood base · Strips do not affect mounting of catenary

7195 · Number Sign Set · For use in identifying switches and signals on a layout · Includes 12 slotted bases and 24 numbered signs

7299 · Wood Screws · For mounting M tracks · Pack of 200

Parallel Circle 5200



5200 5206 5201 5213 5205 5210 5208 5202 5221 5214 5207 5215 5211

5200 · Curved Track · Full section = 30°

5206 · Curved Track · Section = 24° 17' · Same radius as 5202 and 5221 switches

5201 · Curved Track · ½ section = 15°

5213 · Contact Track · ½ section = 15°

5205 · Curved Track · Section = 5° 43' · Forms a 5200 section when combined with a 5206 section

5210 · Straight Track · Length 16 mm (⅝")

5208 · Straight Track · Length 8 mm (5⁄16")

5202 · Remote Control Switches · Consisting of one right and one left switch, each with double solenoid operation · Illuminated lanterns · Dimensions same as 5206 and 5106 sections
⚲=60000

5221 · Manual Switches · Consisting of one right and one left switch with hand levers · Dimensions same as 5202

5214 · Symmetrical Three Way Switch · With two double solenoids · Can be operated manually · 5 leads · Length of straight section 180 mm (7-³⁄₃₂") · Radius of curved sections is same as parallel circle 437.4 mm (17-⅛") · Use a 5206 section to maintain track spacing of 77.4 mm (3-1⁄16")

5207 · Double Slip Switch · For maintaining track spacing of 77.4 mm (3-1⁄16") · Double solenoid operation · Can be operated manually · Length of straight section 180 mm (7-³⁄₃₂") · Curved section same as 5202, 5221 and 5206 · Two 5208 straight sections included, each 8 mm (5⁄16") long

5215 · 24° 17' Crossing · Length 180 mm (7-³⁄₃₂") · Third "rails" insulated from each other · Same measurements as 5207 · Includes two 5208 straight sections

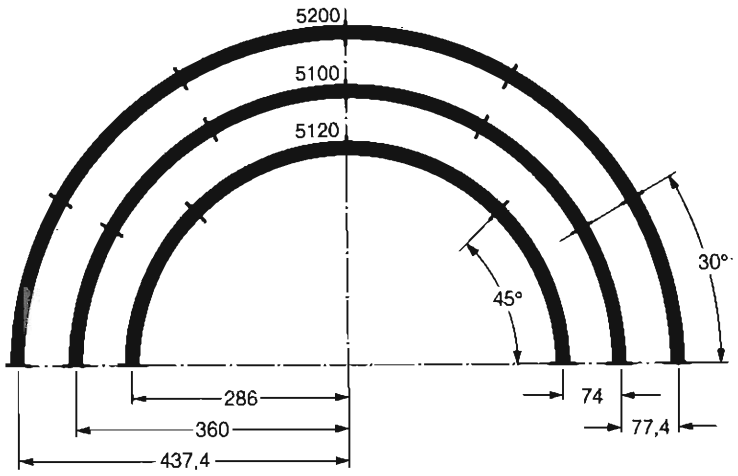
5211 · 48-½° Crossing · Length 98 mm (3-⅞") · Third "rails" insulated from each other

Tips on Using M Track

The special feature about M track is that the roadbed is an integral part of the track section giving it the durability necessary for layouts that are changed often. M track is easy for children to put together.

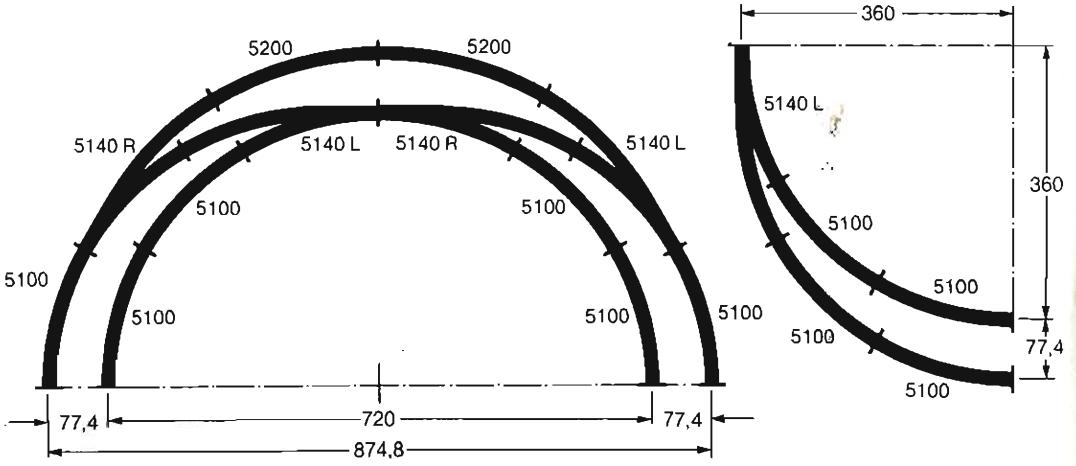
For those who wish to combine M track and K track on the same layout, the adapter track 2291 is available from Märklin.

The 3 Track Radii



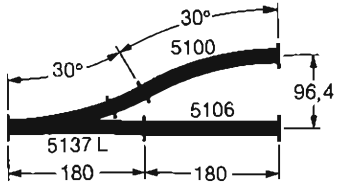
Switches 5202, 5221 or 5140 are necessary for the transition from standard circle 5100 to parallel circle 5200.

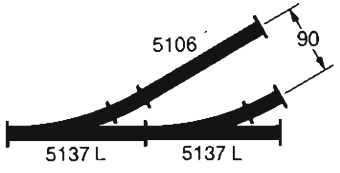
Branches with Curved Switch 5140

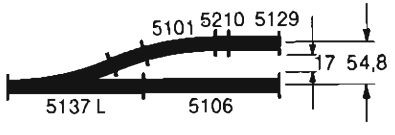


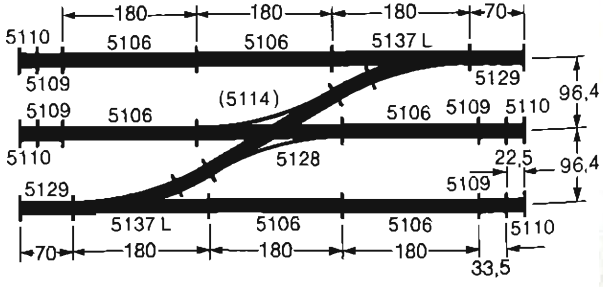
Curved switches permit operation of longer trains on small layouts since switches can be added on a curve.

Branches with Switches for Standard Circle 5100



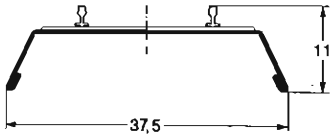


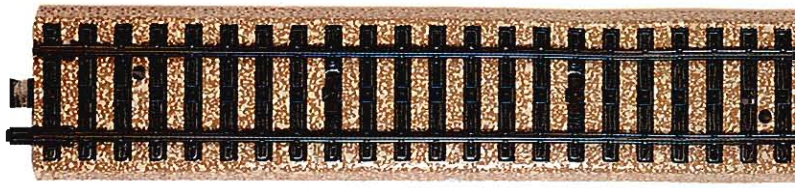




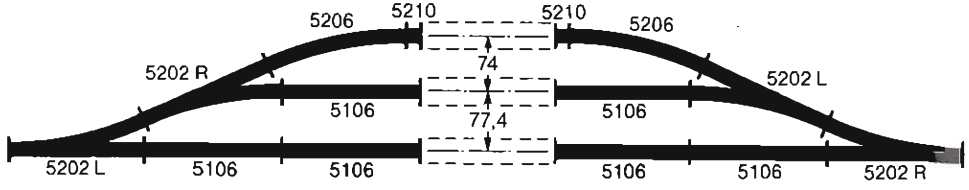
The Distance Between Tracks

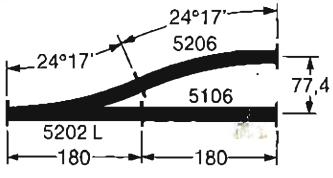
A track section is 37.5 mm (1-½") wide. On parallel tracks, the distance between two tracks should never be less than 37.5 mm (1-½"), figured center to center.

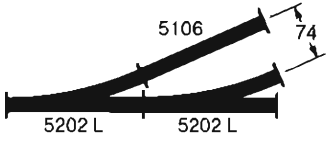


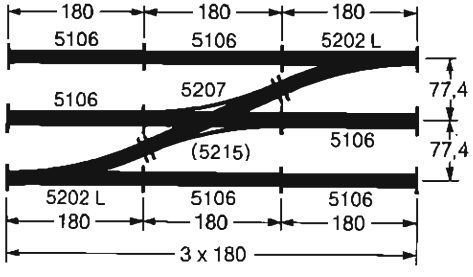


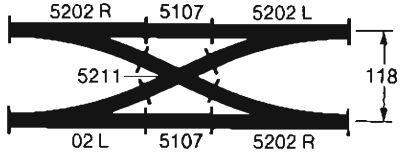
Branches with Switches for Parallel Circle 5200





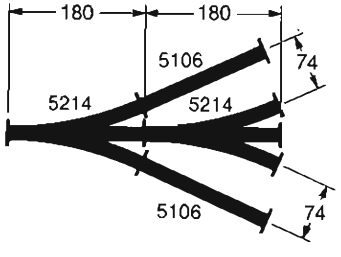


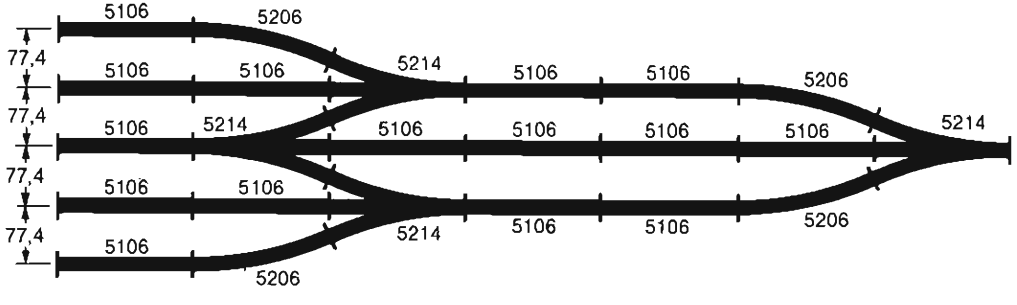




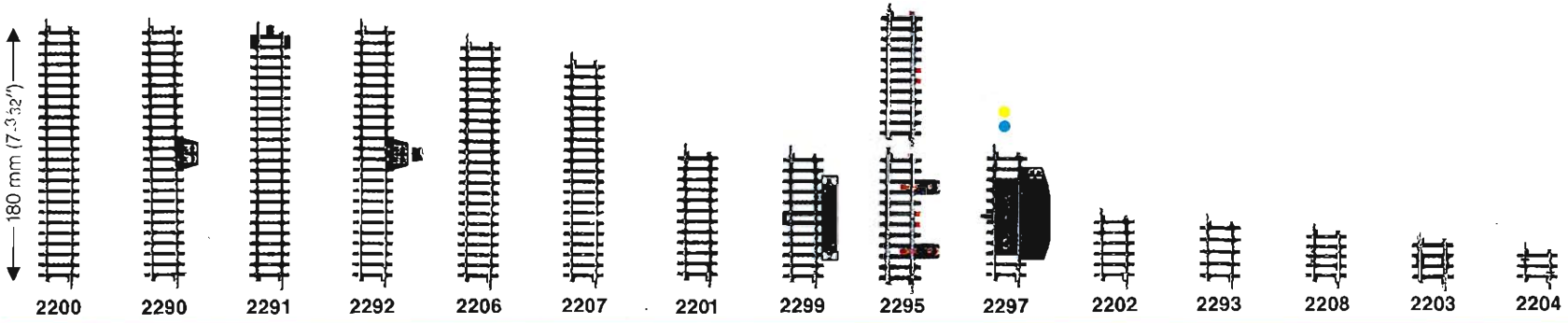
Branches with the Three Way Switch 5214

This saves a lot of space, especially at junction points and station areas.





K Track



2200 · Straight Track · Length 180 mm (7-3⁄32″) · Full section

2290 · Feeder Track · Length 180 mm (7-3⁄32″) · Full section · Includes terminals marked "O" and "B"

2291 · Adapter Track · Length 180 mm (7-3⁄32″) · Full section · For connecting 5100 and 5200 M track to 2200 K track

2292 · Feeder Track · Same as 2290, but with a capacitor to prevent radio interference · One should be used on each track circuit

2206 · Straight Track · Length 168.9 mm (6-5⁄8″)

2207 · Straight Track · Length 156 mm (6-1⁄8″)

2201 · Straight Track · Length 90 mm (3-9⁄16″) · ½ section

2299 · Contact Track · Length 90 mm (3-9⁄16″) · ½ section

NEW

2295 · Contact Track Set · With isolated rail section to enable the train's wheels to activate a track detection unit · Can be extended with straight or curved track sections

2297 · Uncoupling Track · Length 90 mm (3-9⁄16″) · ½ section · To release automatic couplers · Uncoupling ramp is activated by using a 7072 controller

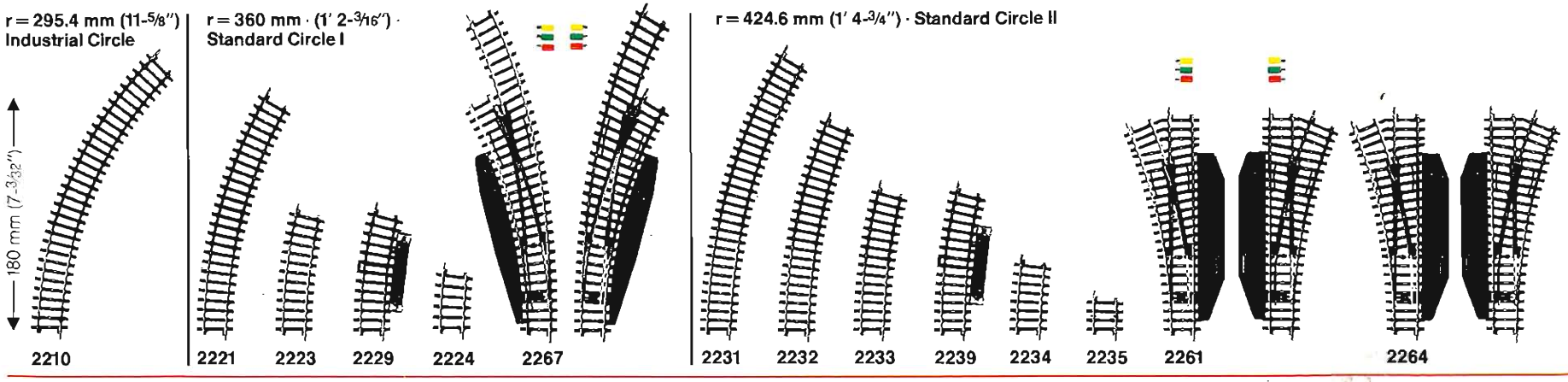
2202 · Straight Track · Length 45 mm (1-3⁄4″) · ¼ section

2293 · Straight Track · Length 41.3 mm (1-5⁄8″) · To maintain equal length parallel tracks with the 2275 double slip switch or the 2257 crossing

2208 · Straight Track · Length 35.1 mm (1-3⁄8″)

2203 · Straight Track · Length 30 mm (1-3⁄16″) · 1⁄6 section · For maintaining track spacing on parallel lines

2204 · Straight Track · Length 22.5 mm (7⁄8″) · 1⁄8 section



2210 · Curved Track · Full section = 45° · Sharp radius for branch lines and industrial sidings · For short locomotives and cars only

2221 · Curved Track · Full section = 30°

2223 · Curved Track · ½ section = 15°

2229 · Contact Track · ½ section = 15°

2224 · Curved Track · Section = 7° 30′

2267 · Remote Control Curved Switches · Consisting of one right and one left curved switch with double solenoid operation · Length and curvature of inside curve same as 2221 track · Length of outside curve 244.6 mm (9-5⁄8″)

2231 · Curved Track · Full section = 30°

2232 · Curved Track · ¾ section = 22° 30′

2233 · Curved Track · ½ section = 15°

2239 · Contact Track · ½ section = 15°

Contact Tracks
The contact tracks 2229, 2239, 2299 enable the operation of magnetic accessories by passing trains. The controls are activated by the pickup shoe on the locomotive and cars, and several operations can be performed regardless of the direction of travel. The control pulses are fed through two sockets which are insulated from each other electrically.

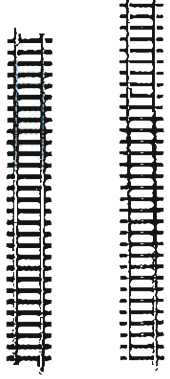
2234 · Curved Track · ¼ section = 7° 30′

2235 · Curved Track · 1⁄8 section = 3° 45′

2261 · Remote Control Switches · Consisting of one right and one left switch, each with double solenoid operation · Illuminated lanterns · Radius of curved branch 424.6 mm (16-3⁄4″) · Length of straight section 168.9 mm (6-5⁄8″)

Q = 60000

2264 · Manual Switches · Consisting of one right and one left switch with hand levers · Dimensions same as 2261



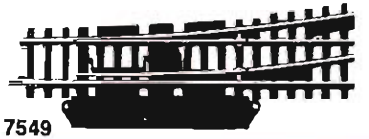
2209

2205

2209 · Straight Track · Length 217.9 mm (8-9/16") · For maintaining parallel spacing when a 2271 switch is installed on an angle

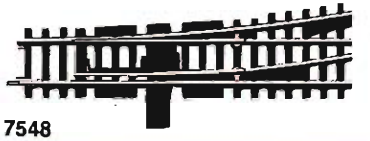
2205 · Flex Track · Length 900 mm (2' 11-7/16") · Same as 5 regular straight sections · Flexible · Can be carefully bent to any desired radius · Can be cut with a track saw · Add rail joiners and track clips 7595 to sawed ends

7595 · Rail Joiners and Track Clips · 10 of each · For 2205 track · Required for connecting sawed off sections of 2205 with other track



7549

7549 · Switch Machine · For converting the 2271 and 2275 manual switches to remote control operation · Can be mounted to either side of the switch · Can also be mounted under the layout by using under-layout mounting kit 7548 · Momentary current contacts · Can be connected to a detection circuit



7548

7548 · Under-Layout Mounting Kit · For mounting the 7549 switch machines beneath the layout · For use with the 2271 and 2275 manual switches · Adjustable for board thicknesses 6 – 16 mm (1/4" to 5/8")

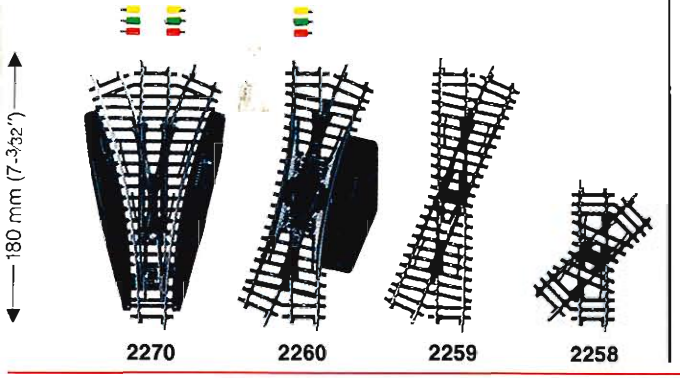
7391

7391 · Bumper · Riveted steep type · Clips onto rails · Length 38 mm (1-1/2") · Round head wood screws included

7599

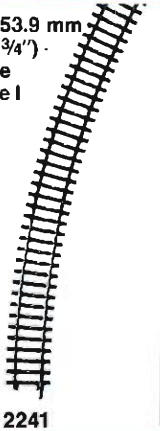
7599 · Wood Screws · Pack of 200 · For mounting K track

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



2270 2260 2259 2258

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

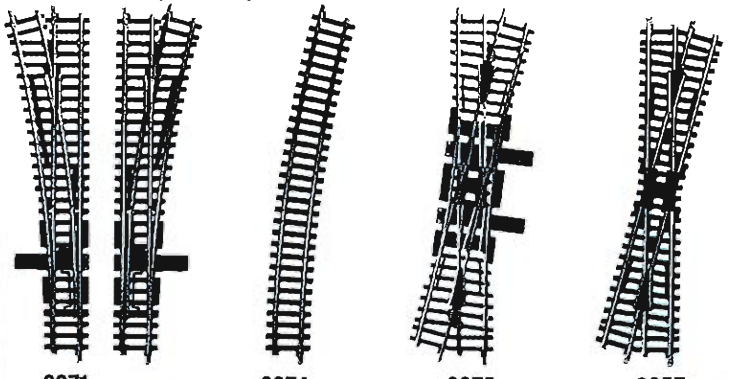


2241

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

2251

r = 902,4 mm · (2' 11-5/8") · Wide Radius Switches



2271 2274 2275 2257

All switches have sprung points. The remote control switches 2261, 2267 and the double slip switch 2260 as well as the three way switch 2270 have double solenoids for remote operation. To activate, use either a controller 7072 or a contact track 2229, 2239 and 2299.

2270 · Symmetrical Three Way Switch · With two double solenoids · Can be operated manually · Straight section 168.9 mm (6-5/8") · Radius of curved branches 424.6 mm (16-3/4")

2260 · Double Slip Switch · Radius 424.6 mm (1' 4-1/4") · Remote control operation · Can be operated manually · Straight section 168.9 mm (6-5/8")

2259 · 22° 30' Crossing · Straight section 168.9 mm (6-5/8")

2258 · 45° Crossing · Straight Section 90 mm (3-9/16")

2241 · Curved Track · Full section = 30°

2251 · Curved Track · Full section = 30°

2271 · Manual Switches · Consisting of one right and one left switch · Radius of curved branch 902.4 mm (2' 11-5/8") · Length of straight section 225 mm (8-1/8") · Angle 14° 26' · Manual switch lever can be replaced with a 7549 switch machine

2274 · Curved Track · Section = 14° 26' · Radius 902.4 mm (2' 11-5/8") · Same radius as 2271 switch

2275 · Double Slip Switch · Matches the geometry of the 2271 switch · Length of straight section 225 mm (8-1/8") · Angle 14° 26' · Two manual levers can be replaced with 7549 switch machines · Each point lined separately

2257 · 14° 26' Crossing · Length of straight section 225 mm (8-1/8")

Tips for Using K Track

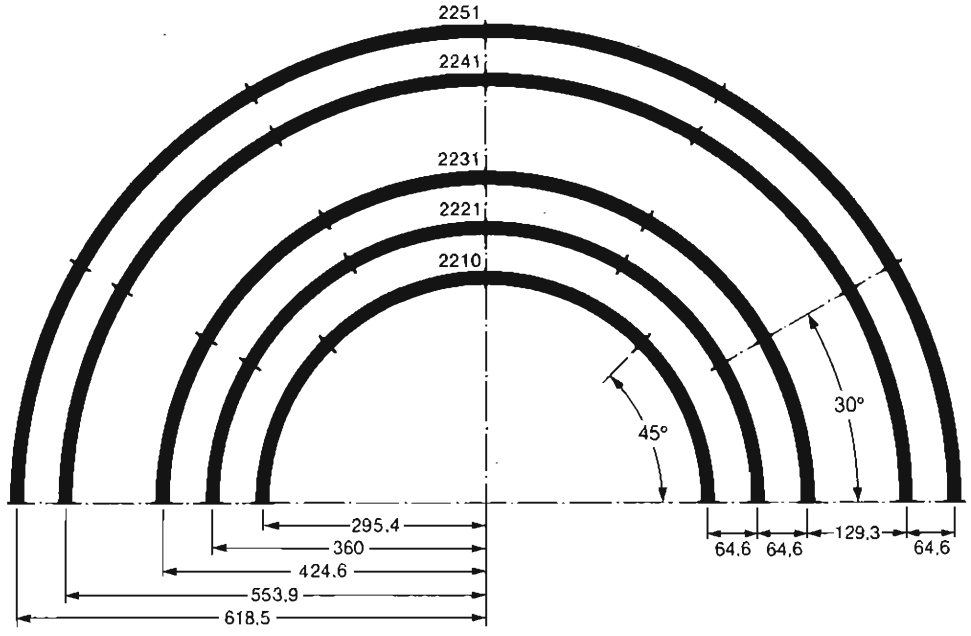
The realistic looking K track offers 5 different radii, flex track and wide radius switches enabling modelers to duplicate many prototype track configurations such as elegant, sweeping main lines, parallel tracks with minimum center-to-center spacings, gentle curves and magnificent straight stretches.

For modelers who wish to combine M track and K track on the same layout, adapter track 2291 is available from Märklin.

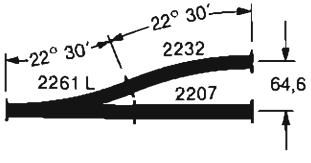
The 5 Radii

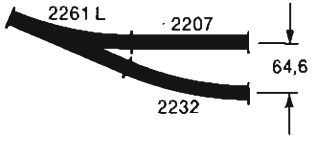
For Standard Circle **I** (22**2**1), all track sections have a **2** for the **third digit** (22**2**1, 22**2**3, 22**2**4).

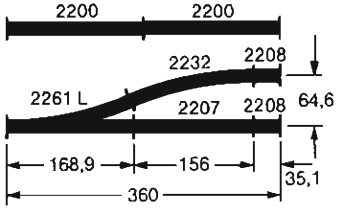
For Standard Circle **II** (22**3**1), all track sections have a **3** for the **third digit** (22**3**1, 22**3**2, 22**3**3, 22**3**4, 22**3**5).

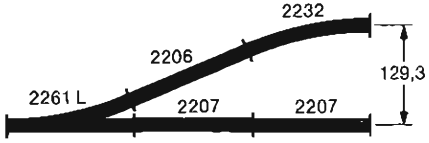


Branches, Sidings and Crossovers



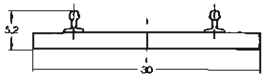


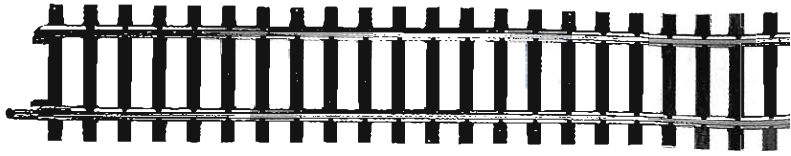




The Distance Between Tracks

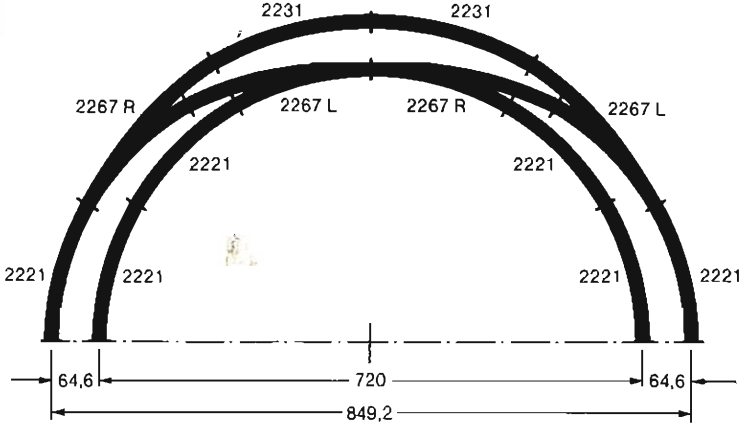
The tracks are 30 mm (1-3/16") wide and spacing on parallel tracks should be at least that much, center to center.

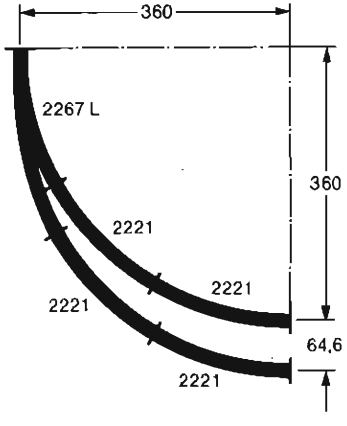




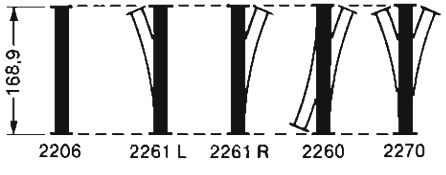
Branches with Curved Switches 2267

Curved switches allow the use of longer trains on small layouts because crossovers can be placed on curves.

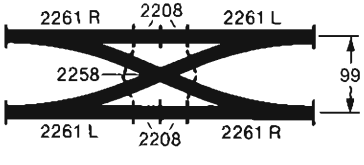


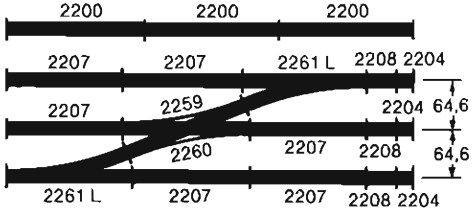


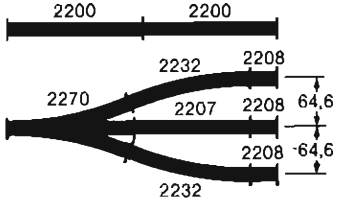
The curved branches for switches 2260, 2261, 2264 and 2270 are the same as the 2232 curved track and the straight sections on these switches are the same as the 2206. Thus switches and crossings can be interchanged without affecting the layout's geometry.



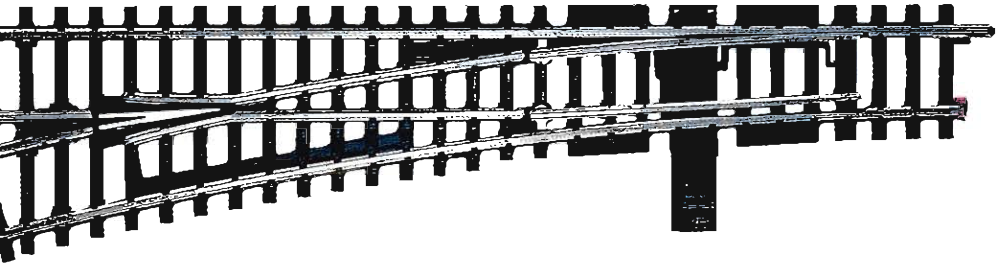
Branches, Sidings and Crossovers





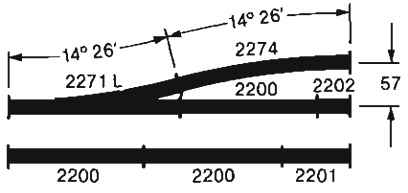


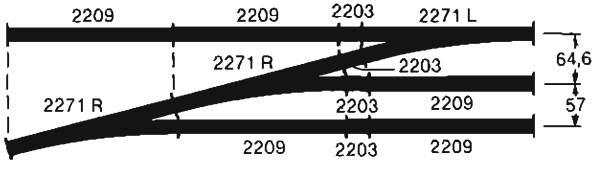
Tips for Using K Track

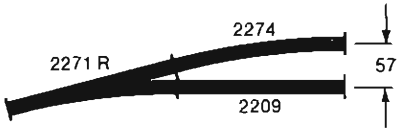


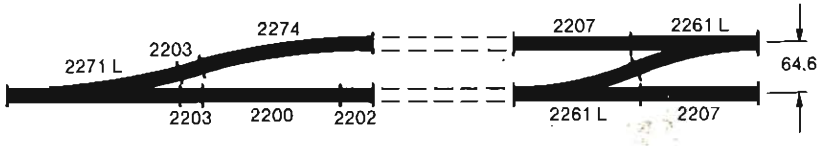
- The 2271 switches permit parallel track spacing of only 57 mm (2-¼").
- The elegant wide radius switches seen on modern high speed rail lines can be modeled on Märklin layouts.
- Realistic track configurations are possible because the switch angle is 14° 26' and its radius is 902.4 mm (35-⅝").
- The 2271 manual switch can be converted to remote control operation simply by adding a 7549 switch machine.
- The switch machine or the manual lever can be mounted to either side.
- The outside running rails are indented to receive the switch points.
- The frog lines up with the switch points for almost derailproof operation.
- The switch machines include contacts to provide momentary contact to the double solenoids.
- The switch machines can be connected to detection circuits for prototypical control panels.
- The switch machines can be placed out of sight by mounting them under the layout, using the 7548 under layout mounting kit. The kit is adjustable for board thicknesses 6 – 16 mm (¼"–⅝"). Only the corrugated iron cover remains visible on the layout.

Branches with Wide Radius Switches 2271



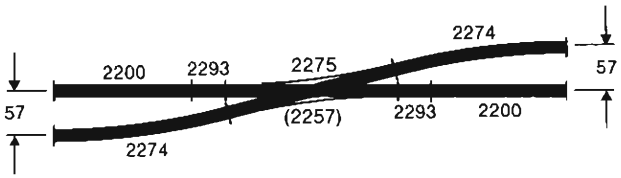


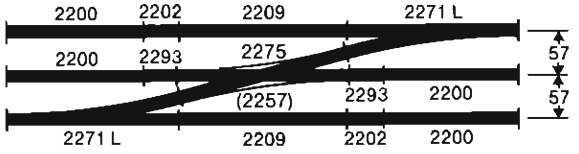


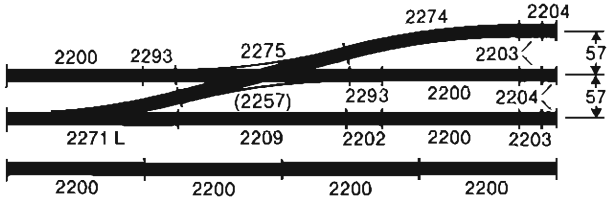


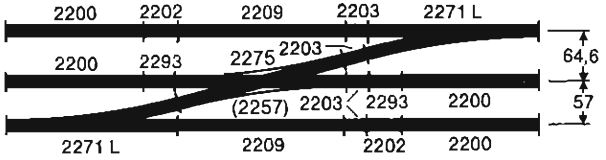
- The 2275 double slip switch matches the 2271 switch in its geometry with a 14° 26′ angle, thus allowing a track spacing of only 57 mm (2-¼″).
- The two manual levers can be replaced with 7549 switch machines.
- The switch machines or manual levers can be placed on either side.
- A special highlight of the 2275 switch is that the points are independent of each other. Thus points can be aligned for two separate routes.
- The switch machines can be placed under the layout by using two under-layout mounting kits 7548.

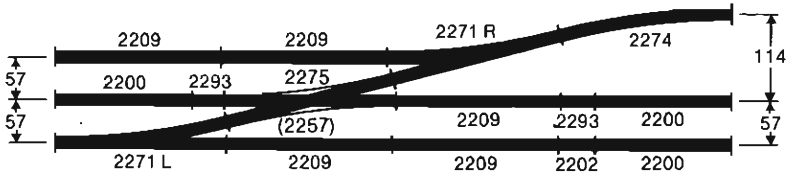
Branches with the wide radius 2275 Double Slip Switch or the 2257 Crossing

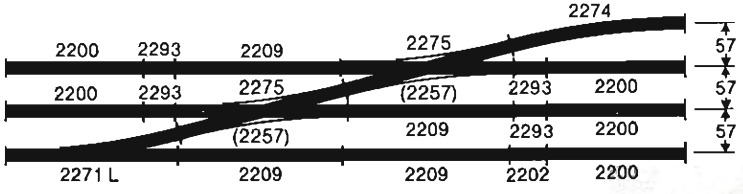








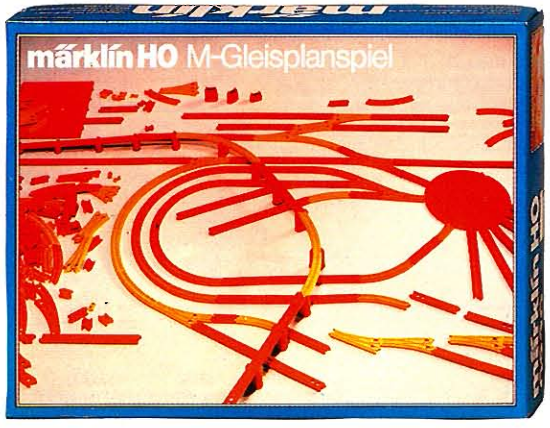




With Märklin the fun of model railroading begins right at the planning stage. Using the track planning game or the track planning stencils, each modeler can design his own layout to express his individuality. Märklin literature is full of tips and ideas on layout construction and creating scenery for all friends of Märklin model railroading.

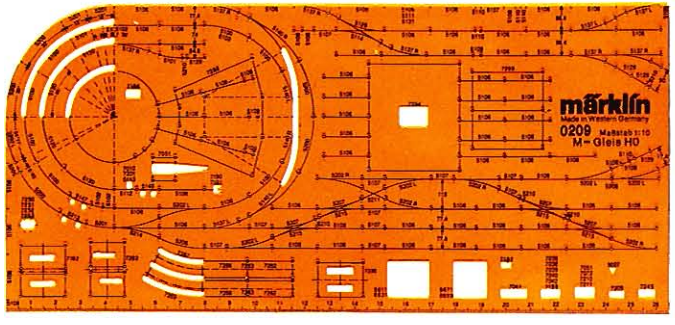
Track Planning Games

0230 M · Track Planning Game · For planning and designing M track layouts · All M track sections scaled 1:5 · Has transfer table, turntable and pillars · Enough parts to plan a medium-sized layout · All pieces have corresponding part numbers on both sides · Pieces have one of 4 colors (3 curve radii and straight tracks) · Pieces can be connected to each other snugly and easily

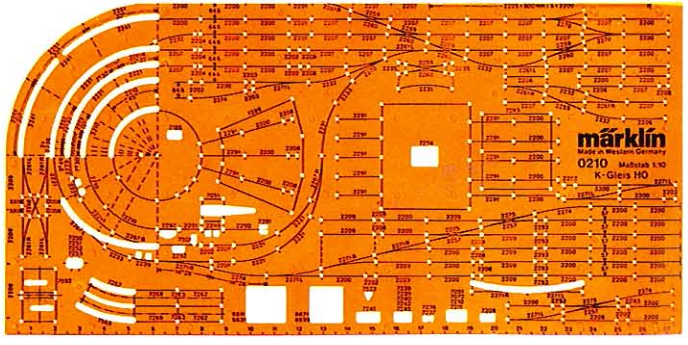


0231 K · Track Planning Game · For planning and designing K track layouts · All K track sections scaled 1:5 · Has transfer table, turntable and pillars · Enough parts to plan a medium-sized layout · All pieces have corresponding part numbers on both sides · Pieces have one of 7 colors (5 curve radii, straight tracks and the 14° 26' switch) · Pieces can be connected to each other snugly and easily

Track Planning Stencils

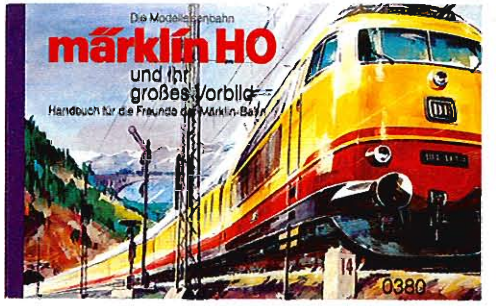


0209 M · Track Planning Stencils · For planning M track layouts, 5100 and 5200 series · All track sections are scaled 1:10 on the stencil and can be traced on paper with a sharp pencil · Instructions included

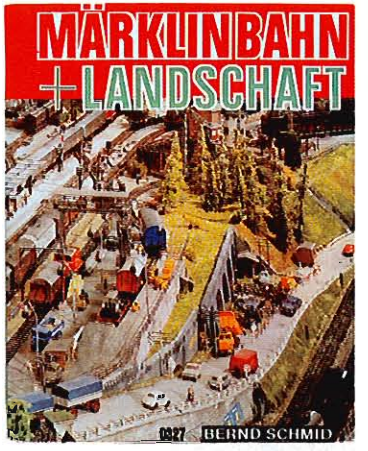


0210 K · Track Planning Stencils · For planning K track layouts, 2200 series · All track sections are scaled 1:10 on the stencil and can be traced on paper with a sharp pencil · Instructions included

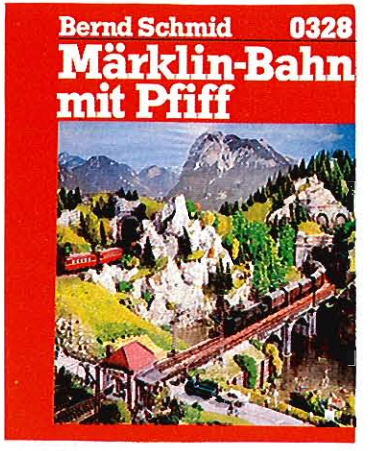
Right-of-Way and Scenery Tips



0380 · Die Modelleisenbahn Märklin H0 und ihr großes Vorbild · A handbook for Märklin railroaders · Suggestions on building Märklin layouts, Märklin models and their prototypes; includes signals, operating rules of the prototype railroads, the railroad traffic department, examples of switching circuits for multi-train operation and much more · 228 pages · Size 15 × 24 cm (5″ × 9″) · German text



0327 · Märklin-Bahn + Landschaft · By Bernd Schmid · An excellent aid for building free-lance layouts · Technical details, roadbed design, landscaping and accessory information · Well illustrated, many color photos · 192 pages · Size 16.4 × 20.3 cm (6-½″ × 8″) · German text



0328 · Märklin-Bahn mit Pfiff · By Bernd Schmid · Many additional tips on railroad construction for the more demanding modeler · Mr. Schmid's first book (0327) described how to do things; this second book describes what to do in model railroading · In-depth discussion of all kinds of construction topics · Well illustrated, many color photos · 262 pages · Size 22 × 17 cm (8-¾″ × 6-¾″) · German text

H0 Layout Book

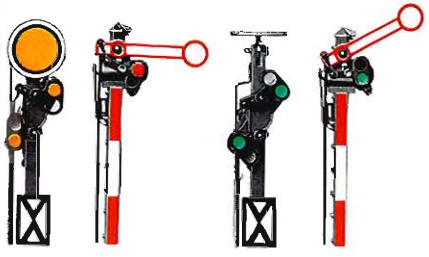
0702 K + M · H0 Layout Book · 30 Layouts, 15 for K track and 15 for M track · A supplement has M track equivalents for 14 K track layouts and K track equivalents for 15 M track layouts · Each layout example includes a 1 : 10 track plan with wiring schematic, catenary, landscaping, color photos of completed layout, tips and suggestions for laying track and adding scenery · Special space saving layout ideas such as narrow shelf layouts, diagonal layouts, U-shaped layouts, as well as schematic layouts which can stand by themselves or be add-ons for existing layouts · 186 pages · Size 22 × 26.4 cm (8-¾″ × 10-½″) · English text

Signals

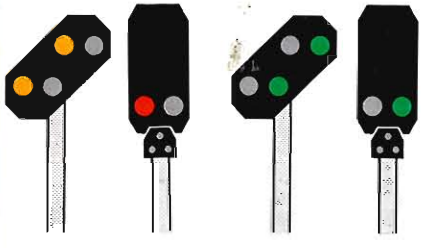
Signal-controlled yard operations, photographed at the Märklin Service Center.

Signals are necessary for safe and efficient train operation. They are not only visually attractive, they increase the fun of model railroading considerably: Trains remain still at a "halt" signal and begin moving only after the signal turns "green." Märklin's signals are ruggedly built to operate flawlessly and can be installed quickly and easily.

Usually used on mainlines or at stations where there are no branches or sidings.



7036 7039 7036 7039



7236 7239 7236 7239

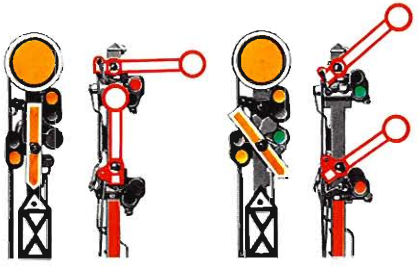
Distant Signal: Prepare to stop

Home Signal: Stop

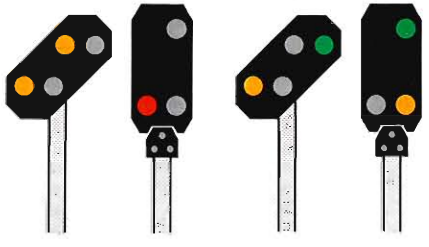
Distant Signal: Prepare to proceed at speed

Home Signal: Proceed at speed

Usually used at or near station where trains are switched from the main track.



7038 7040 7038 7040



7237 7240 7237 7240

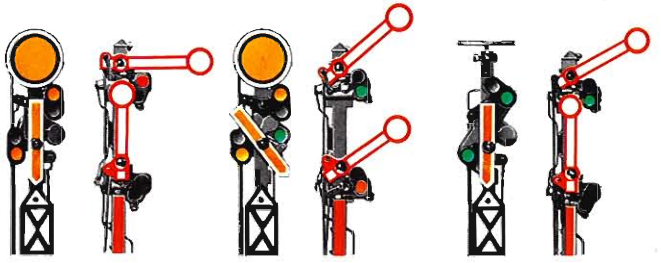
Distant Signal: Prepare to stop

Home Signal: Stop

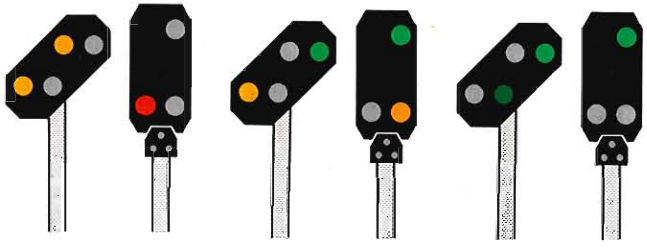
Distant Signal: Prepare to slow down

Home Signal: Proceed slowly

Used at or near stations where diversion or direct routing is possible.



7038 7041 7038 7041 7038 7041



7238 7241 7238 7241 7238 7241

Distant Signal: Prepare to stop

Home Signal: Stop

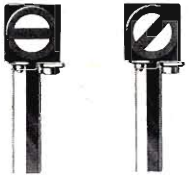
Distant Signal: Prepare to slow down

Home Signal: Proceed slowly

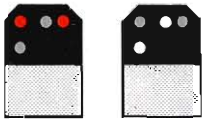
Distant Signal: Prepare to proceed at speed

Home Signal: Proceed at speed

Usually used in terminal or yard areas.



7042 7042



7242 7242

Block Signal: Stop

Proceed

The signals can be operated conventionally with the control boxes or electronically with the new Märklin Digital control system.

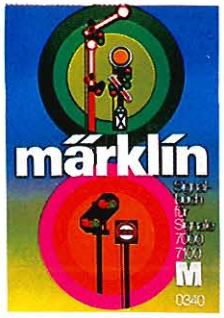
Signals

Signals for M Track

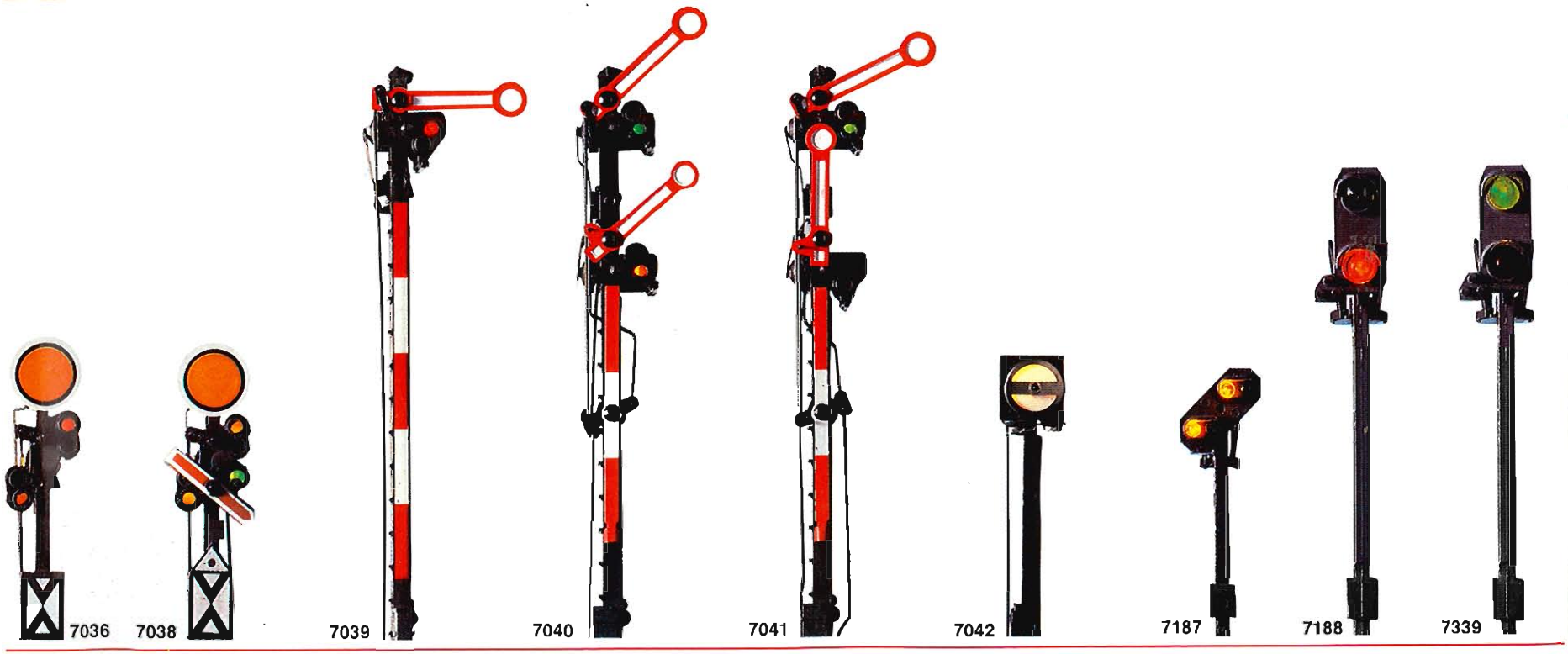
All Märklin home signals and block signals have train control functions. The signals are activated either by a controller 7072 or by a train passing over a contact track. Center-rail insulators and connectors are included with these signals.

Distant signals do not have train control functions. They operate in conjunction with home signals.

Instructions are included with each signal.



0342 M · Märklin Manual for the 7000 and 7100 Signals · Detailed explanations with many color photos showing how to install and use the 7000 and 7100 signals as well as how to use the universal relay · For M track · 28 pages · Size 18 × 25 cm (7-⅛" × 9-⅞") · English text



7036 · Distant Signal · Moveable disc · Lights change from yellow/yellow to green/green · Double solenoid · Base plate · W 28 mm (1-⅛") · L 65 mm (2-9⁄16") · H 73 mm (2-⅞")
=60000

7038 · Distant Signal · Moveable disc and moveable semaphore arm · Lights change as 7036 or from yellow/yellow to yellow/yellow/green · 2 double solenoids · Base plate · W 28 mm (1-⅛") · L 65 mm (2-9⁄16") · H 73 mm (2-⅞")
=60000

7039 · Home Signal · One semaphore arm · Lights change from red to green · Double solenoid · Base plate · W 27 mm (1-1⁄16") · L 70 mm (2-¼") · H 125 mm (5")
=60000

7040 · Home Signal · Two coupled semaphore arms · Lights change from red to green/yellow · Double solenoid · Base plate · W 27 mm (1-1⁄16") · L 70 mm (2-¾") · H 125 mm (5")
=60000

7041 · Home Signal · Two independent semaphore arms · Lights change from red to green or red to green/yellow · 3 solenoids · Base plate · W 27 mm (1-1⁄16") · L 97 mm (2-9⁄16") · H 125 mm (5")
=60000

7042 · Block Signal · Mast with moveable front and rear discs · Double solenoid · Base plate · W 28 mm (1-⅛") · L 70 mm (2-¾") · H 70 mm (2-¾")
=60000

7187 · Color Light Distant Signal · Lights change from green/green to yellow/yellow · W 16 mm (⅝") · L 11 mm (7⁄16") · H 60 mm (2-3⁄8")
=60202 green =60204 orange

7188 · Color Light Home Signal · Lights change from red to green · Double solenoid · Has hand lever · Pair of sockets for connecting to a distant signal 7187 · Base plate · W 28 mm (1-⅛") · L 70 mm (2-¾") · H 90 mm (3-½")
=60001 red =60002 green

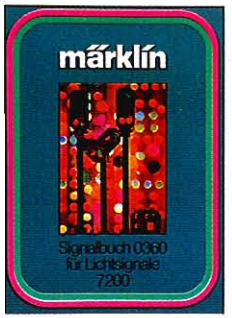
7339 · Color Light Home Signal · Manually operated signal · Lights change from red to green with simultaneous control of track current in M track section attached to signal base · Includes special 90 mm (3-½") track section with gapped center rail · W 55 mm (2-3⁄16") · L 90 mm (3-½") · H 90 mm (3-½")
=60001 red =60002 green

Signals for K Track and M Track

The 7200 series color light home signals and block signals have relays enabling them to control current in the catenary or center rail within the block governed by the signal.

The light housing for the 7242 block signal and the signal masts of the other 7200 series signals can be detached from their relays and mounted separately. When doing so, a 7230 bracket is required.

7230 · Bracket · For mounting the masts of the signals 7238, 7239, 7240, 7241, and the light housing of the 7242 block signal when these are detached from their relays



0361 K · Märklin Manual for the 7200 Signals · Detailed explantations with color photos on how to use and install 7200 series signals and advice on using the universal relay switch with K track · 48 pages · Size 18 × 25 cm · (7-⅛″ × 9-⅞″) · English text

7236 7237 7238 7239 7240 7241

7242

7245

7236 · Color Light Distant Signal · Lights change from yellow/yellow to green/green · With bracket 7230 and base plate · W 16 mm (⅝″) · L 28 mm (1-⅛″) · H 67 mm (2-⅝″)

=60202 green =60204 orange

7237 · Color Light Distant Signal · Lights change from yellow/yellow to yellow/green · With 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 · Lights change from yellow/yellow to green/green or yellow/green · Double solenoid for the yellow/green position · Base plate · W 30 mm (1-3⁄16″) · L 70 mm (2-¾″) · H 67 mm (3-½″)

=60202 green =60204 orange

7239 · Color Light Home Signal · Lights change from red to green and track current is controlled by a double solenoid · Has hand lever · Base plate · W 30 mm (1-3⁄16″) · L 70 mm (2-¾″) · H 90 mm (3-½″)

=60201 red =60202 green

7240 · Color Light Home Signal · Lights change from red to green/yellow and track current is controlled by a double solenoid · Has hand lever · 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 · Lights change from red to green or green/yellow and track current is controlled by a double solenoid; a third solenoid governs the green/yellow position · Has two hand levers · Base plate · W 30 mm (1-3⁄16″) · L 95 mm (3-¾″) · H 90 mm (3-½″)

=60201 red =60202 green

=60204 orange

7242 · Block Signal · Lights change from red/red to white/white and track current is controlled by a double solenoid · Has hand lever · W 30 mm (1-3⁄16″) · L 70 mm (2-¾″) · H 18 mm (1⁄16″)

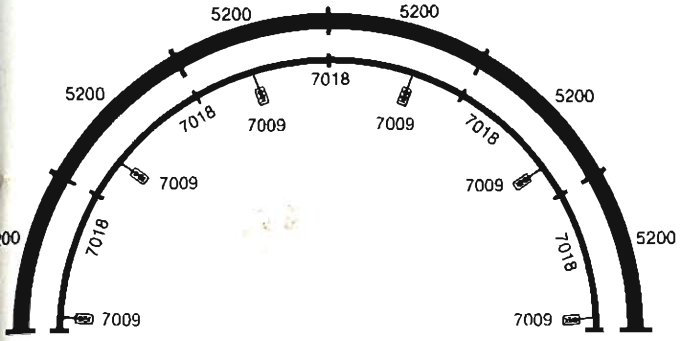
=60200

7245 · Universal Relay · Two single-pole switches and one double throw switch for various circuits · Operates 3 functions simultaneously · Possible uses described in signal manuals 0342 and 0361 · Double solenoid operation · Can be operated with a contact track, control box or manually · W 30 mm (1-⅛″) · L 70 mm (2-¾″) · H 8 mm (5⁄16″)

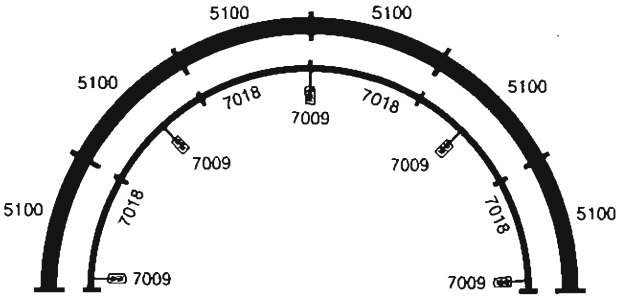
Catenary

Two trains pulled by electric locomotives pass each other, photographed at the Märklin Service Center.

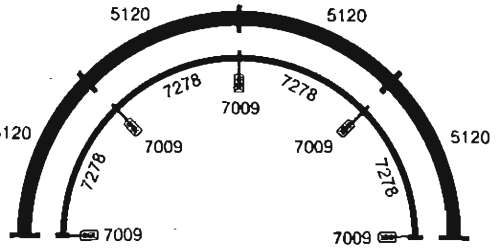
Large Parallel Circle



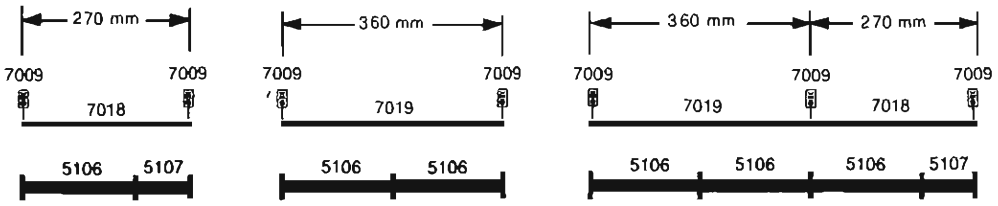
Normal Circle



Industrial Circle



Straight Sections

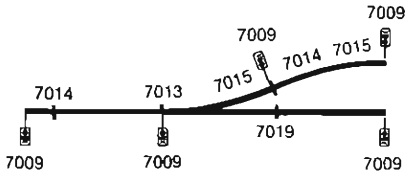


These illustrations show the required number of wire sections and masts for adding catenary to M track.

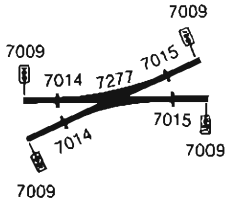
The number of required masts is always one higher than the number of 7018 or 7019 wire sections. Intermediate lengths using a 7014/7015 or 7014/7023/7015 can be treated as a single unit.

Finally, catenary is quite flexible and the difference between theory and practice is often only one or two masts or wire sections.

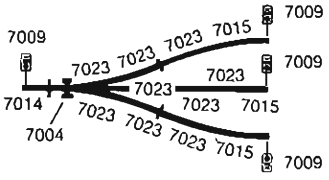
Switches



Switches
5137, 5140, 5202, 5221

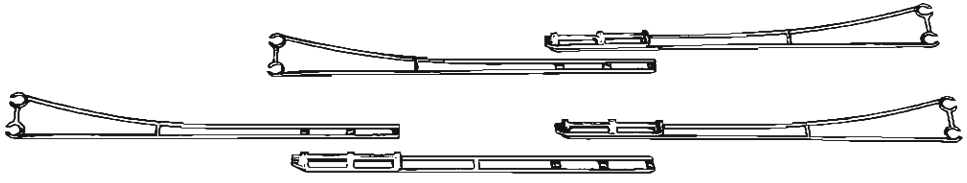


Crossings
5114, 5128, 5207, 5211, 5215



Three Way Switch
5214

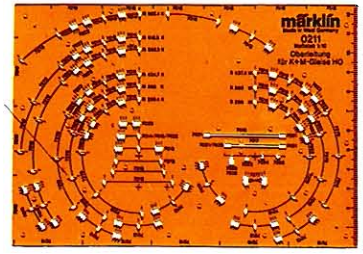
Intermediate Lengths



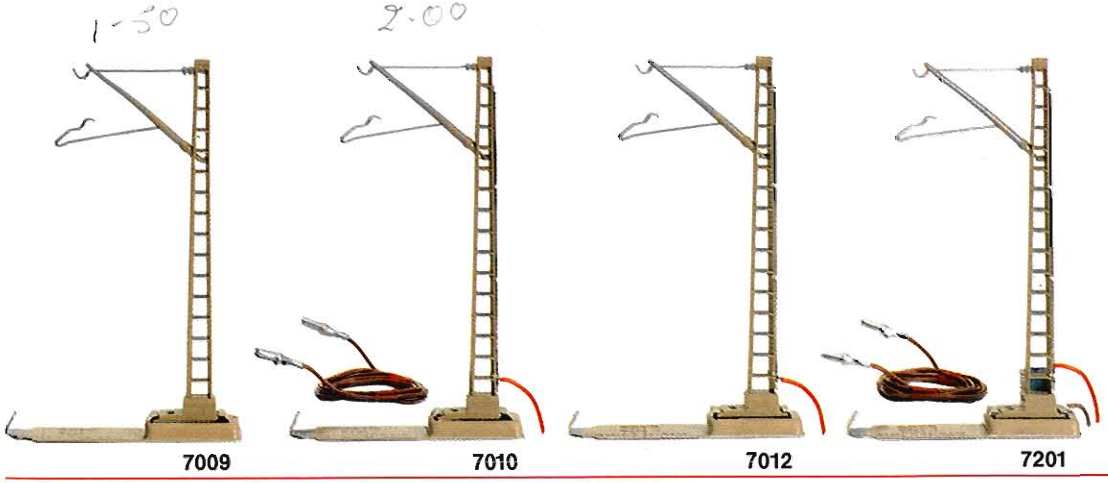
from 175 to 205 mm (7" to 8-⅛")
from 235 to 285 mm (9-¼" to 11-¼")

Catenary (or overhead wires) provides more than just realism and added enjoyment to a layout. It can also be used to control trains.

The contact wire of the catenary serves the same function as the center rail in the track. By connecting the catenary to an additional transformer, two trains can be operated independently of each other on the same track. The track current can also be used for constant train lighting.



0211 · K + M · Catenary Stencil · For designing an overhead system · For K or M tracks · All masts and wire sections on the stencil scaled 1 : 10 for straight sections and all M and K curve radii · Use a sharp pencil to lay out the position of the catenary wires and masts · Instructions included



Catenary for the 5100/5200 M Track

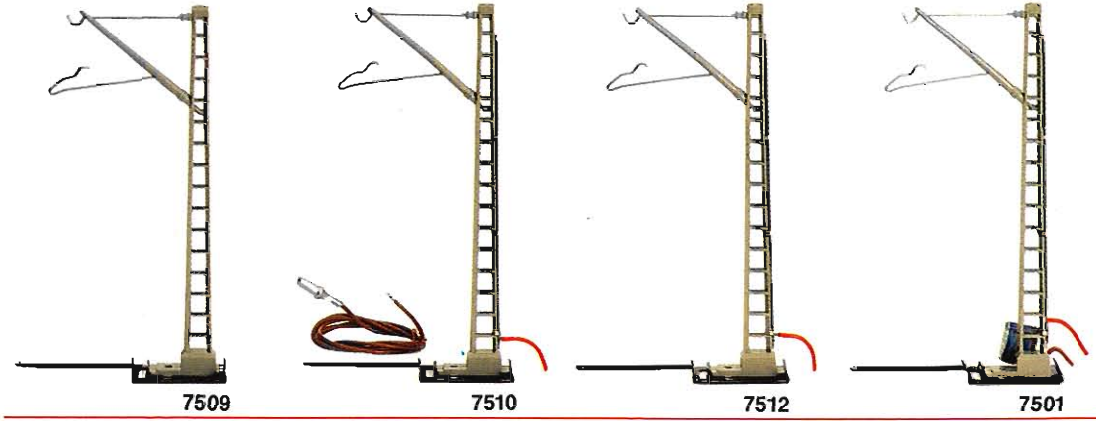
7009 · Catenary Mast · Basic mast for catenary on 5100/5200 M track · Height 100 mm (4")

7010 · Feeder Mast · For supplying current, has two leads with plugs and instruction sheet · Height 100 mm (4")

7012 · Feeder Mast · For use with signals in conjunction with catenary · Has one lead with plug · Height 100 mm (4")

7201 · Feeder Mast · For supplying current, has red and brown leads with plugs · Additional brown lead with plugs · Built-in capacitor for suppressing radio interference · One mast required for each circuit · Instructions included · Height 100 mm (4")

7005 · Catenary Set · For train control using 7000 series signals not located near tower masts · Includes two feeder masts 7012, two insulated wire sections 7022 and two wire sections 7014



Catenary for 2200 K Track

7509 · Catenary Mast · Basic mast for adding catenary to 2200 K track · Height 97 mm (3-7/8")

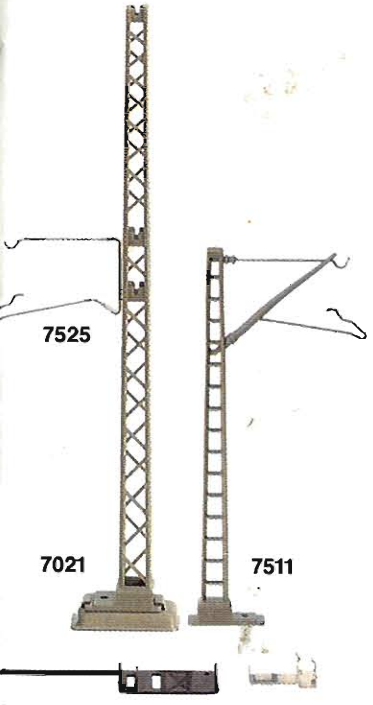
7510 · Feeder Mast · With red lead and plug attached to mast · Brown lead with plug · Instructions included · Height 97 mm (3-7/8")

7512 · Feeder Mast · For use with home signal in conjunction with catenary, red lead with plug attached · Height 97 mm (3-7/8")

7501 · Feeder Mast · With red and brown leads with plugs · Built in capacitor to suppress radio interference · One mast required for each circuit · Instructions included · Height 97 mm (3-7/8")

7505 · Catenary Set · For train control with 7200 series signals not located near tower masts · Includes two feeder masts 7512, two insulated wire sections 7022 and two wire sections 7014 · For 2200 series K track

Catenary for K and M Track



7003 · Catenary System Feeder Lead · For use with signals when tower masts are used and for supplying current to any point · Length 600 mm (23-5/8")

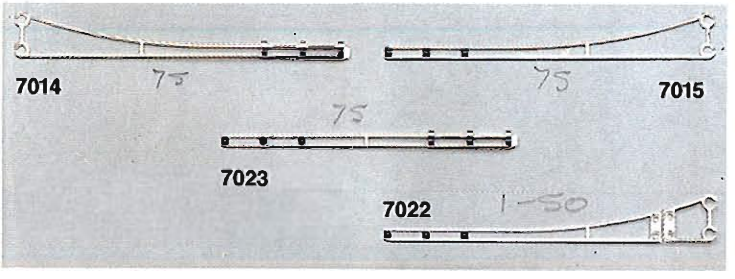
7004 · Fastening Kit · Includes 5 bolts, 5 nuts, 5 washers · For use in special situations where the normal push-in connection cannot provide a secure connection

7006 · Contact Wire Insulation · For insulating sections of contact wires from cross spans · One required for each track and cross span connection · 15 × 6 mm (5/8" × 1/4")

7525 · Cantilever Support Arm · For hanging a single or double catenary line in conjunction with tower mast 7021

7021 · Tower Mast · With recesses for mounting cross spans 7016 or 7017 and the cantilever support arm 7525 · For mast with arc light see page 129 · Height with M track 157 mm (6-13/16") · Height with K track 154 mm (6-1/16")

7511 · Bridge Mast · For attaching to sides of plastic bridges and ramps · Height 97 mm (3-7/8")

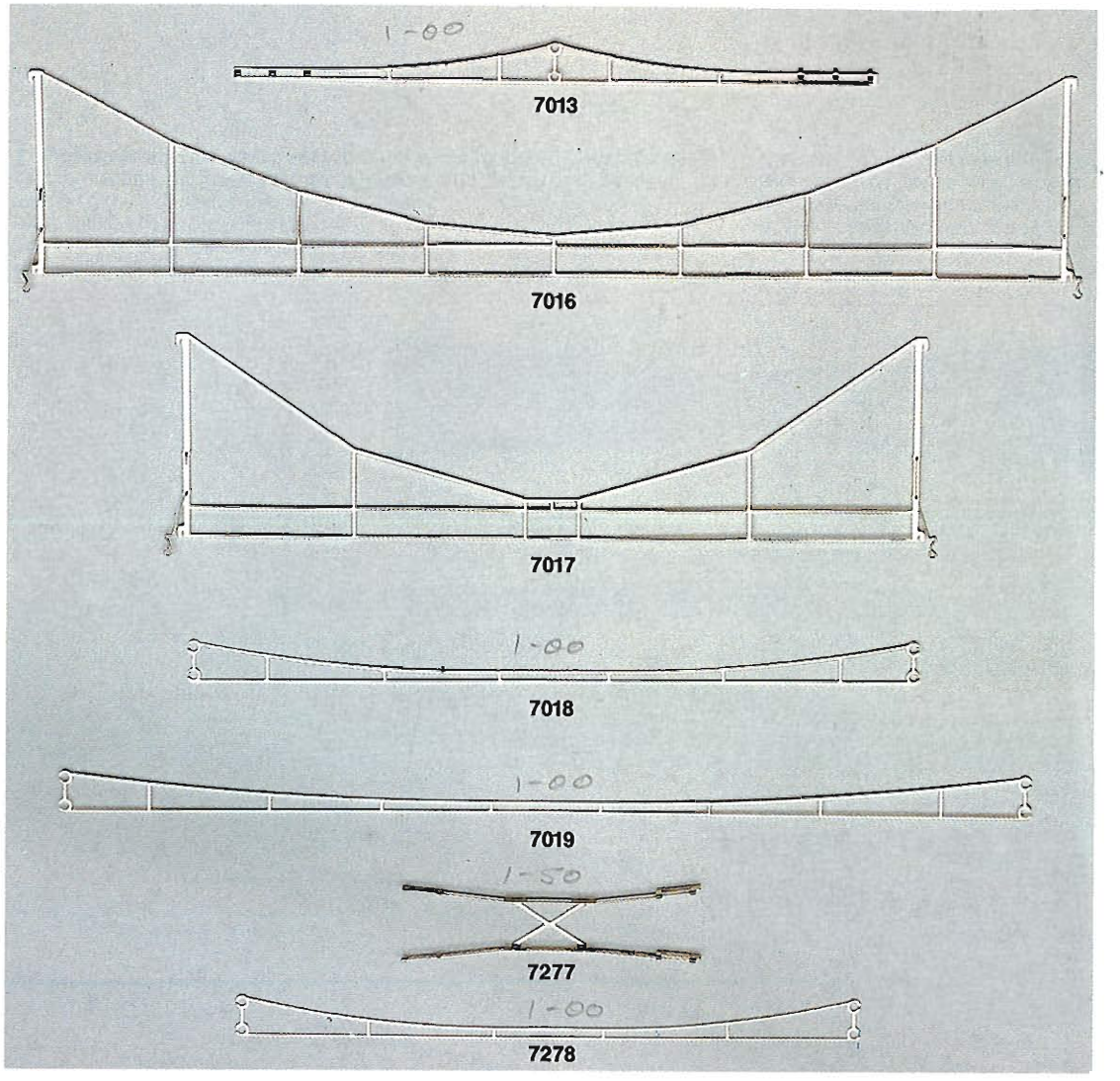


7014 · Contact Wire Section · Female section for push-in connection · Length 115 mm (4-1/2")

7015 · Contact Wire Section · Male section for push-in connection · Length 115 mm (4-1/2")

7022 · Insulated Section · Male section for push-in connection · For interrupting current flow · Length 115 mm (4-1/2")

7023 · Adjustment Section · For push-in connections · Length 100 mm (4")



All contact wire sections are nickel-plated.

7013 · Contact Wire Sections · Especially for switches · Length 240 mm (9-1/2")

7016 · Cross Span · Connects to tower masts · Spans up to 6 tracks · Length 390 mm (15-1/4")

7017 · Cross Span · Connects to tower masts · Spans up to 4 tracks · Length 280 mm (11")

7018 · Contact Wire Section · For straight and curved tracks · Length 270 mm (10-5/8")

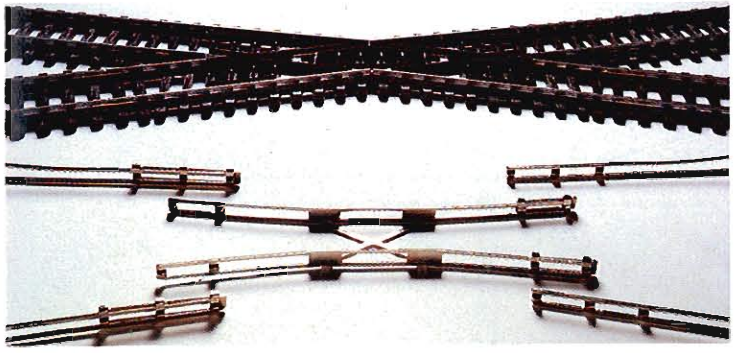
7019 · Contact Wire Section · For straight tracks only · Length 360 mm (14-3/8")

7277 · Crossing Section · For 2257, 2258, 2259, 2260, 2275, 5114, 5128, 5207, 5211 and 5215

7278 · Contact Wire Section · For straight and curved tracks · Length 230 mm (9-1/16")

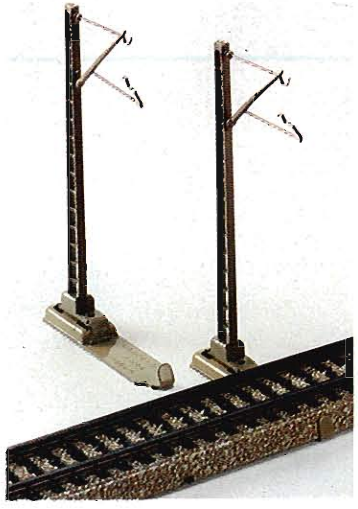
3. Now position the first masts and string the wire.

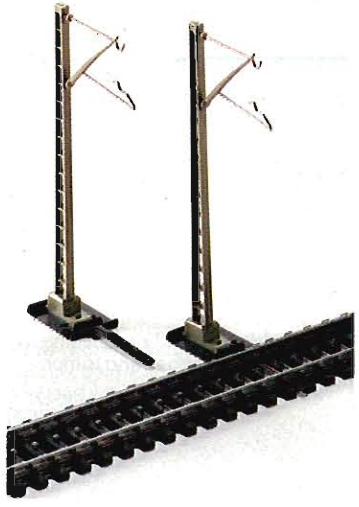
4. On one or two track lines continue adding wire sections and masts until a switch or crossing is reached which must be handled as above.

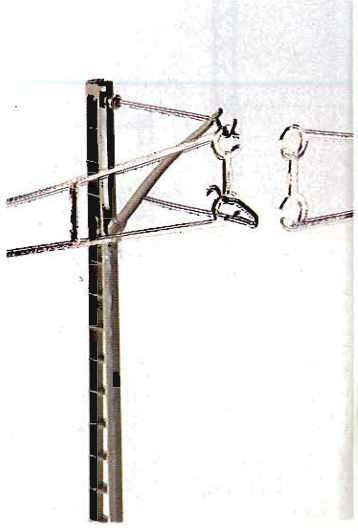


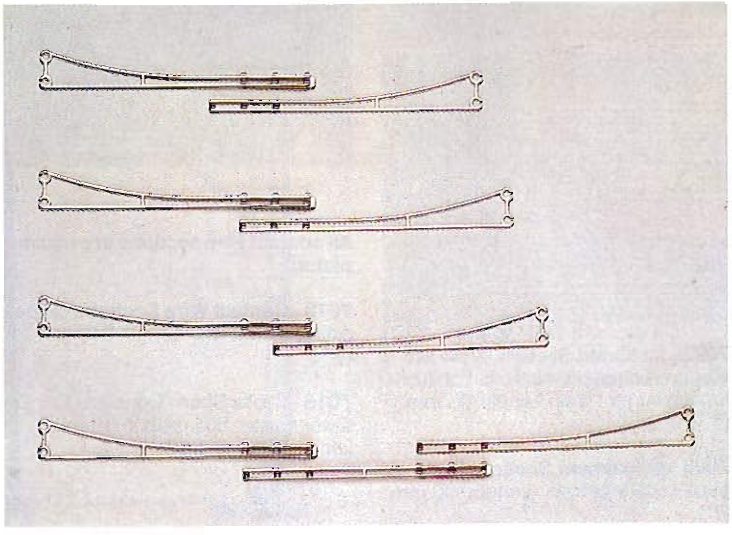
1. Always start at a crossing (with a 7277 section) or at a switch (with a 7013 section).

2. Connect a 7014 or 7015 to the above piece. Remember to bend wire to conform to track curvature.







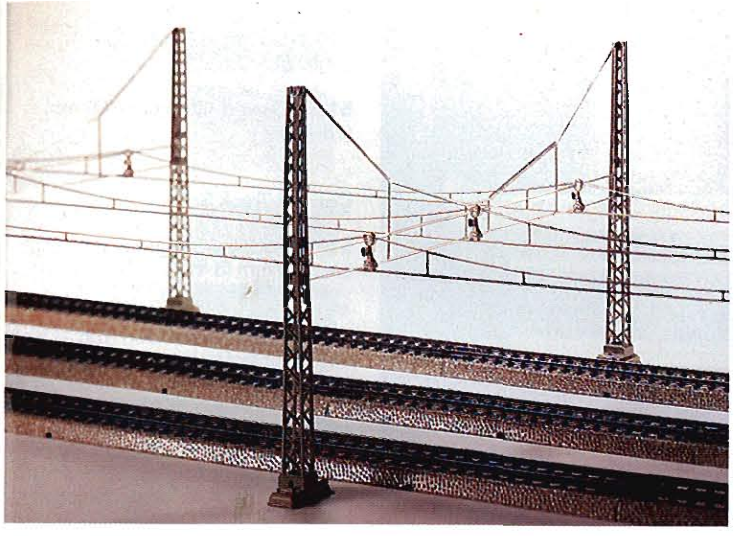


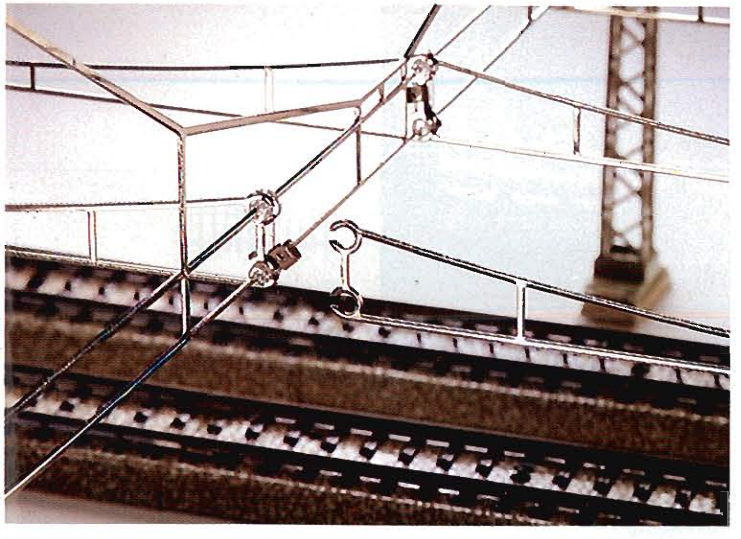
5. The stretch between the last mast and the next switch requires either a 7014–7015 or a 7014–7023–7015 combination. These sections are always used in special situations such as this.

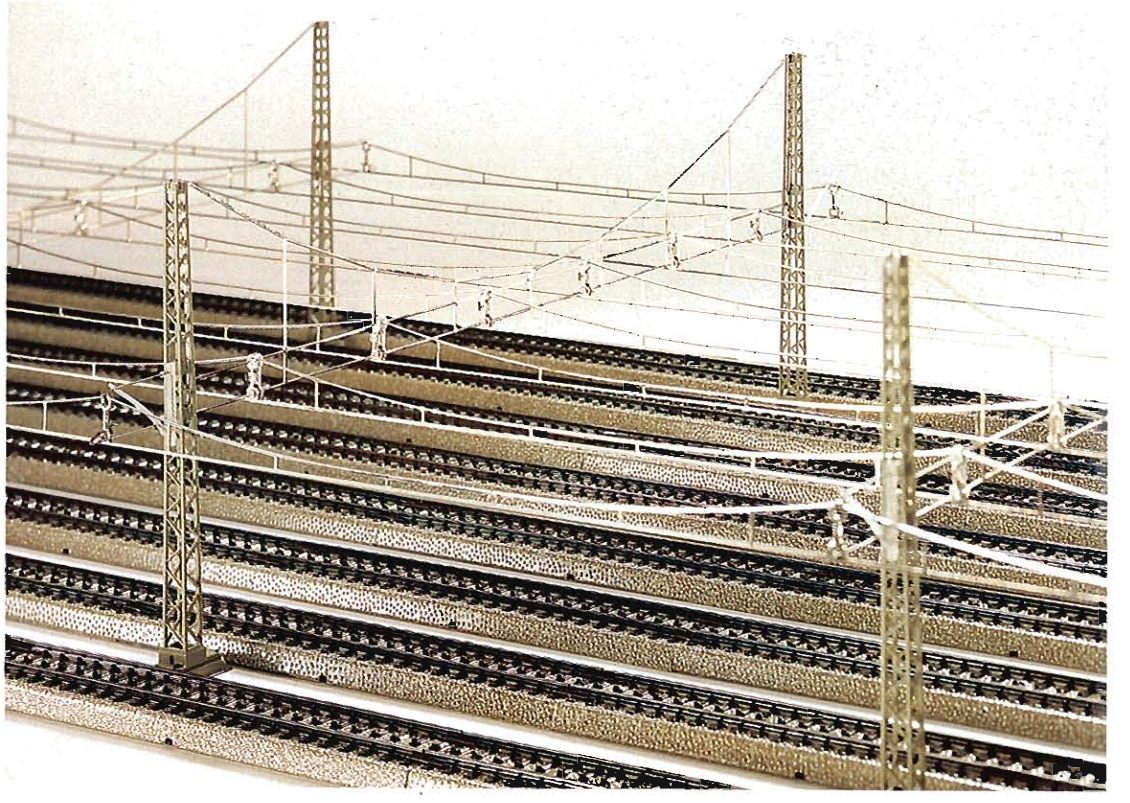
6. For three and four track lines, use tower mast 7021 and cross span 7017 for holding the contact wires.

7. On five and six track lines, use the cross span 7016. The cantilever support arm 7525 can be used to hang catenary over a single track outside of the cross spans and tower masts 7021. Remember, that on multi-track lines supporting masts should always be directly opposite each other.

Catenary construction over bridges or with signals (for train control) or with additional transformers or for more power feeds is also easy to install.

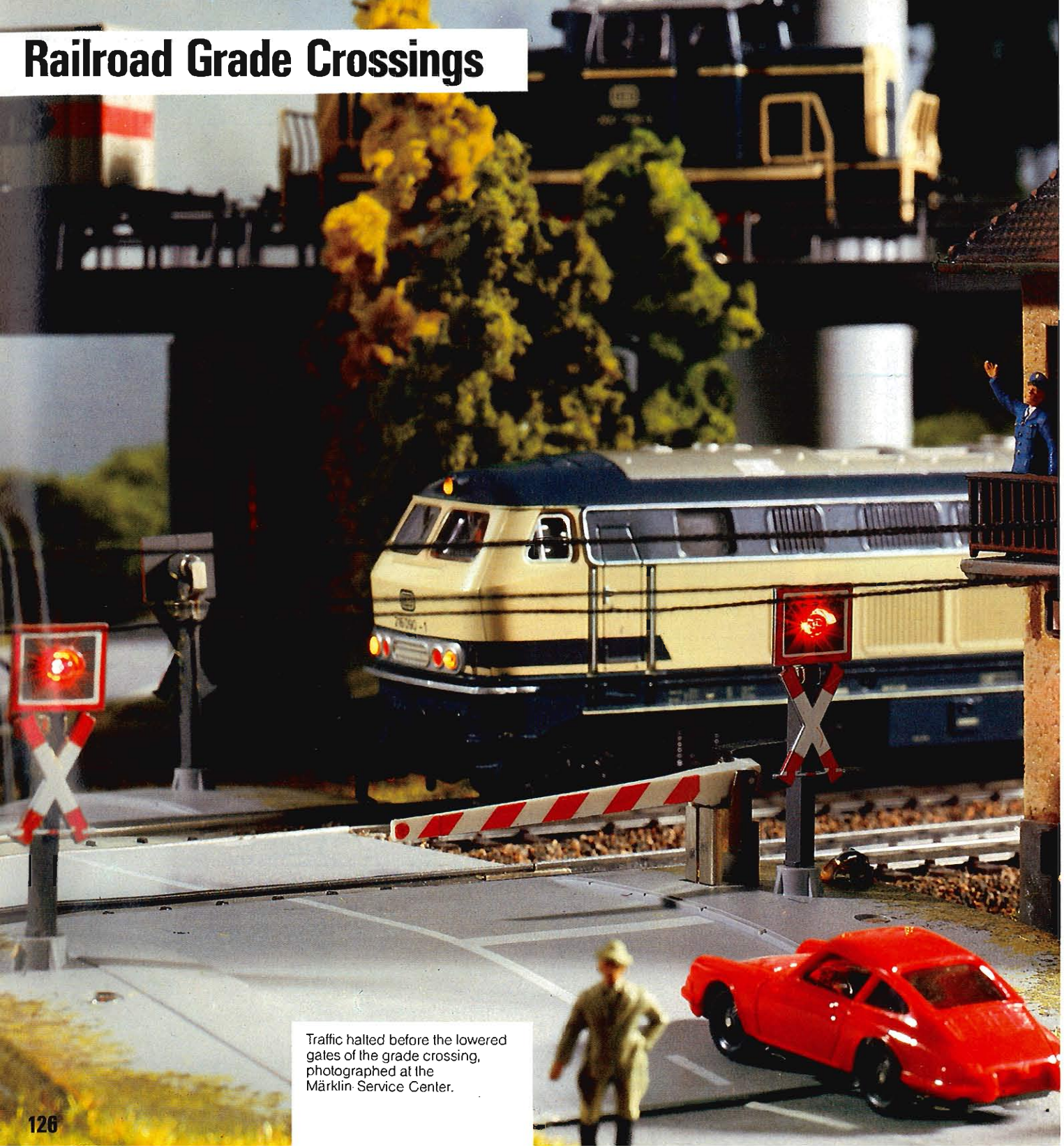






8. This photo shows how contact wires are hung on cross spans.

Railroad Grade Crossings



Traffic halted before the lowered gates of the grade crossing, photographed at the Märklin Service Center.

As a train approaches the grade crossing and rolls over the contact track sections, the crossing gates descend. The gates rise again only after the last car in the train clears the contact track sections on the other side of the grade crossing. The contact track sections can be extended to any length. With M track, use the 5115 and 5116 sections as well as the contact track set 5145. With K track, any normal section of straight or curved track will work.

Contact Track Sections

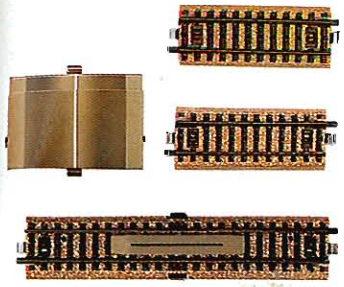
5115 · Straight · Length 180 mm (7-3/32″)

5116 · Curved · Diameter 720 mm (28-3/8″)

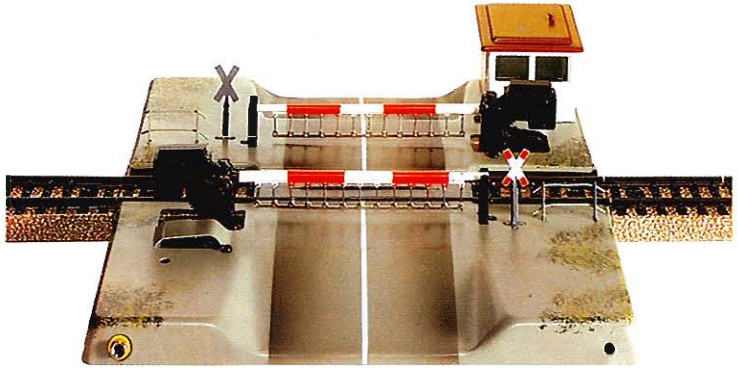
Contact Track Set

5145 · Two straight tracks · Length of each 90 mm (3-9/16″)

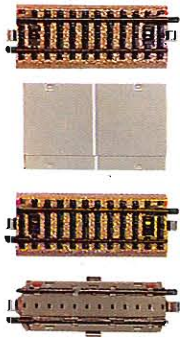
M track sections 5115 and 5116 as well as the contact track set 5145 can be used to extend the contact area of the grade crossings 7192 and 7292 as well as the add-on sets 7193 and 7293. The contact area can **only** be extended with the track sections 5115 and 5116 or with the contact track set 5145.



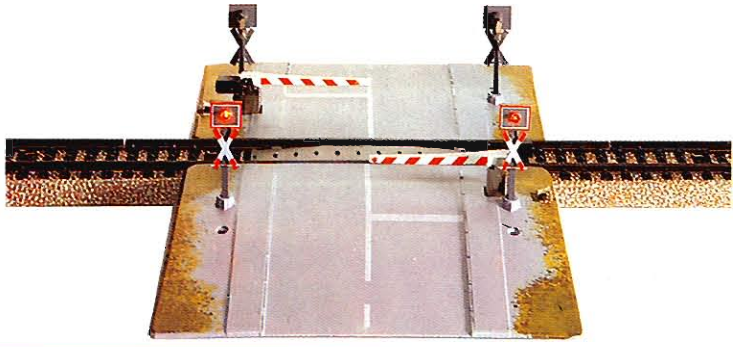
7193 M · Add-On Set · For the fully automatic grade crossing 7192 · Required for each additional parallel track · Includes a set of contact tracks (2 straight tracks) and a section of highway to be placed between the tracks



7192 M · Fully Automatic Railroad Grade Crossing · With M tracks · Set includes 2 magnetically controlled gates with gate operator's hut, warning crosses as well as a set of contact tracks (2 straight tracks) · Size of each base 180 × 90 mm (7-3⁄32″ × 3-9⁄16″)



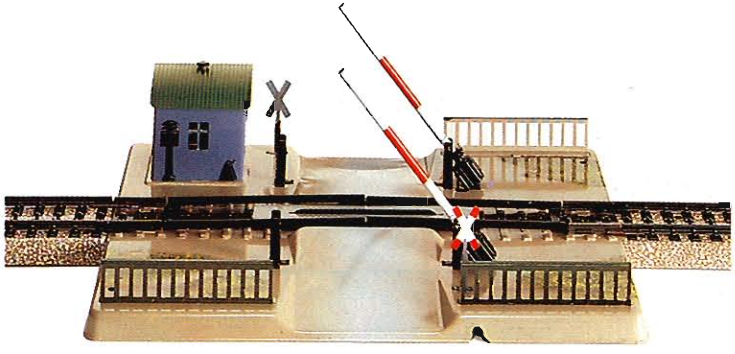
7293 M · Add-On Set · For the fully automatic railroad grade crossing 7292 · Required for each additional parallel track · Includes a set of contact tracks (one and a half straight sections) and a piece of highway adjustable between 43 and 78 mm (1-11⁄16″ to 3-1⁄16″) for the area between the tracks



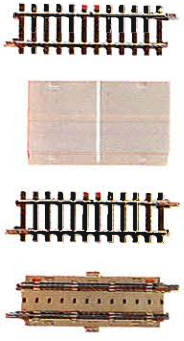
7292 M · Fully Automatic Railroad Grade Crossing · With half-length gates for M track · Set includes 2 magnetically controlled gates, 2 red warning lights which illuminate when gates are down, as well as a set of contact tracks (one and a half straight sections) · Size of each base 137 × 95 mm (5-3⁄8″ × 3-3⁄4″)

= 60201

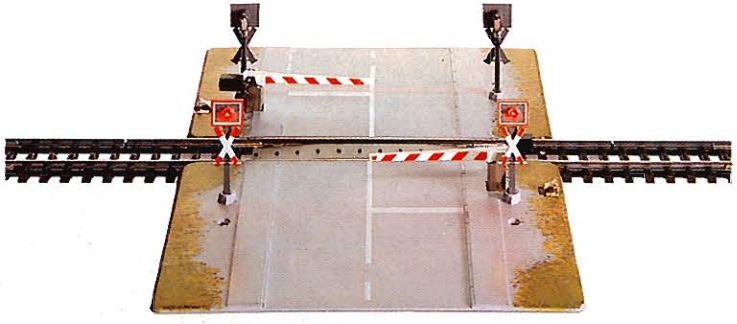
Adapter Track 2291
Allows K track to be connected to the railroad grade crossings 7192 and 7390.



7390 M · Manually Operated Railroad Grade Crossing · For single track M track routes · Gates are activated by train's weight on rocker-type running rails · Track sections have the same length as the 5106 track · Base 135 × 180 mm (5-3⁄8″ × 7-1⁄8″)



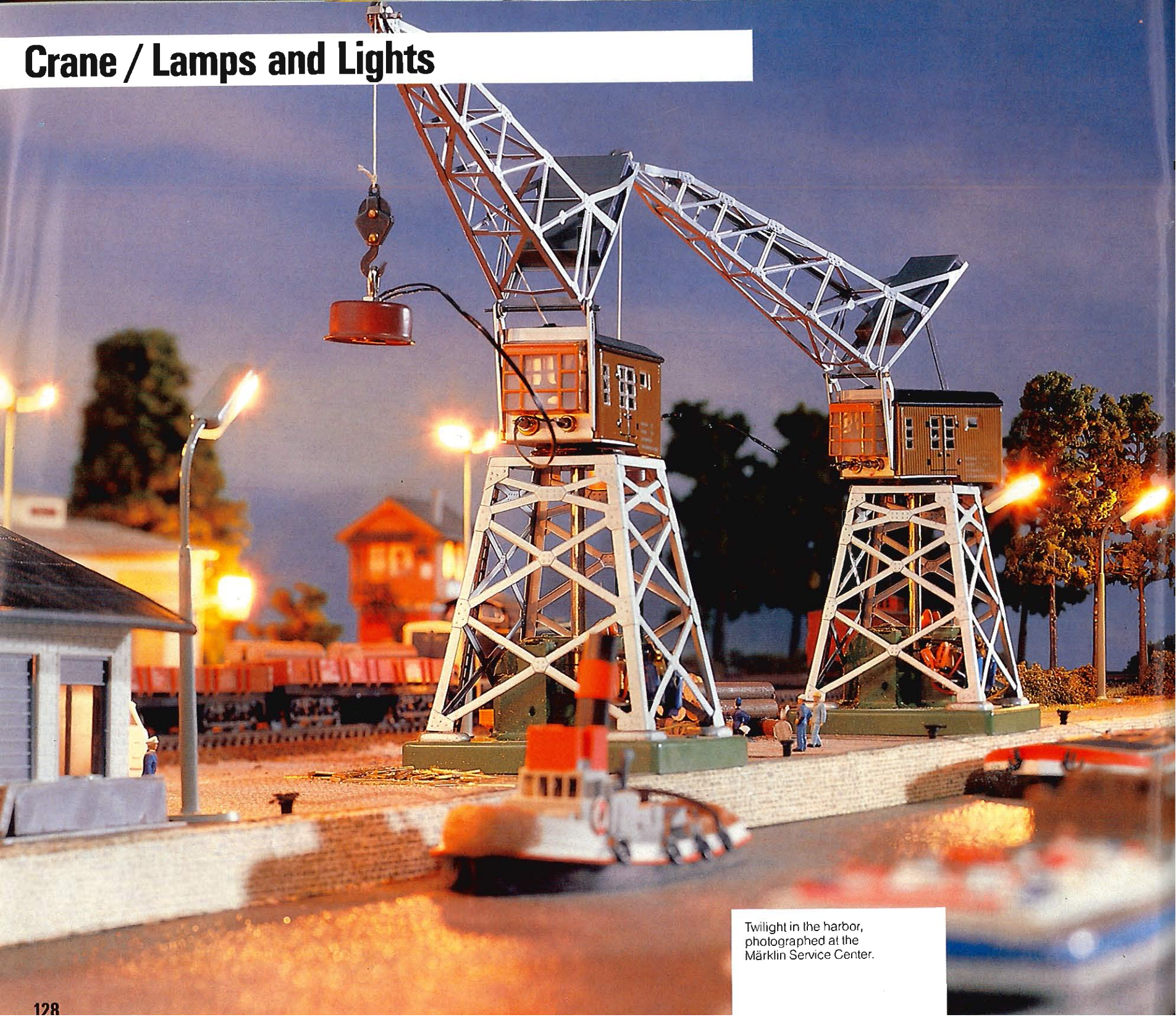
7593 K · Add-On Set · For the fully automatic grade crossing 7592 · Required for each additional parallel track · Includes a set of contact tracks (one and a half straight sections) and a piece of highway adjustable between 43 and 78 mm (1-11⁄16″ to 3-1⁄16″) for the area between the tracks



7592 K · Fully Automatic Railroad Grade Crossing · With half-length gates for K track · Set includes 2 magnetically controlled gates, 2 red warning lights which illuminate when gates are down, as well as a set of contact tracks (one and a half straight sections) · Size of each base 137 × 95 mm (5-3⁄8″ × 3-3⁄4″)

= 60201

Crane / Lamps and Lights



Twilight in the harbor, photographed at the Märklin Service Center.

Crane

7051 · Remote Control Crane with Lifting Magnet · Separate motors rotate crane and lift hook · Electrically operated magnet can lift iron or objects containing iron · Boom manually adjustable · Illuminated cab · Height 260 mm (10-¼") · Base 90 × 90 mm (3-½" × 3-½") · 1 combined controller and on/off switch panel

Bulb = 60000
Pair of brushes = 60030

Load and unload cars realistically with this crane. Although the magnet can only lift iron, other items can be lifted if iron is strategically hidden such as a screw or nail inside a model wood box or crate, or remove the magnet and let the big hook do the work. All the different activities possible with this crane can be remotely controlled, thus expanding the possibilities for fun on a model railroad and creating realistic transportation activities.

Lamps and Lights

The lights can be activated singly or in groups using the controllers 7210 or 7211. They can also be activated by passing trains tripping a contact track. Additional information is in the Signal Manuals 0342 M or 0361 K.

7046 · Arc Lamp with Lattice Mast · For use with M track catenary · Height 192 mm (7-9⁄16") · Base 14 × 28 mm (9⁄16" × 1-1⁄8")
= 60010

7048 · Arc Lamp · Height 156 mm (6-⅛") · Base diameter 29 mm (1-⅛")
= 60010

7283 · Tower Mast Lamp · Mounted on lattice mast · With base plate · Can be used with catenary · Height 170 mm (6-¾")
= 60000

7280 · Street Lamp · Height 117 mm (4-⅝") · Base diameter 25 mm (1")
= 60000

7281 · Station Platform Light · Twin lights · Height 97 mm (3-⅞") · Base diameter 25 mm (1")
= 60000

7282 · Street Light · Twin lights · Height 120 mm (4-¾") · Base diameter 25 mm (1")
= 60000

7284 · Park Light · Height 63 mm (2-½") · Base diameter 15 mm (1-1⁄16")
= 60000

7047 · Modern Street Light · Height 127 mm (5") · Base diameter 27 mm (1-1⁄16")
= 60010

Bridges

Three tiered crossing, photographed at the Märklin Service Center.

7263 K + M · Arched Bridge · For K and M tracks · Has 6 clips for securing K tracks · Instructions · Bridge height 117 mm (4-5/8") · Length 360 mm (1' 2-1/16")

7262 K + M · Truss Bridge · Can be used alone or with the 7263 bridge · For K or M tracks · 3 clips for securing K tracks · Instructions · Height 45 mm (1-3/4") · Length 180 mm (7-3/32")

7569 for K only · Curved Ramp · Radius 424.6 mm (1' 4-3/4") · Only for K track (standard circle II) · 3 clips for securing track · Length and radius same as 2231 track section

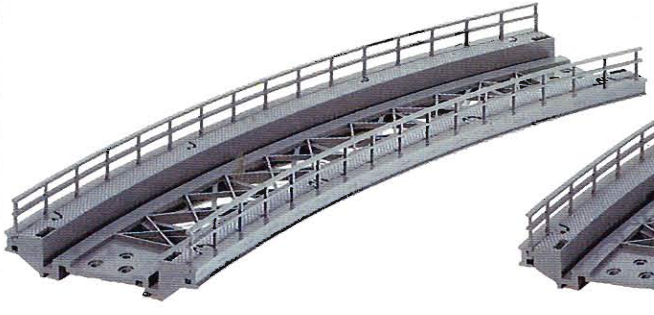
7269 for M only · Curved Ramp · Radius 437.4 mm (1' 4-1/8") · Only for 5200 series M track · Length and radius same as 5200 track section

7267 K + M · Curved Ramp · Radius 360 mm (1' 2-1/16") · For K or M track · 3 clips for securing K track · Length and radius same as track sections 2221 and 5100

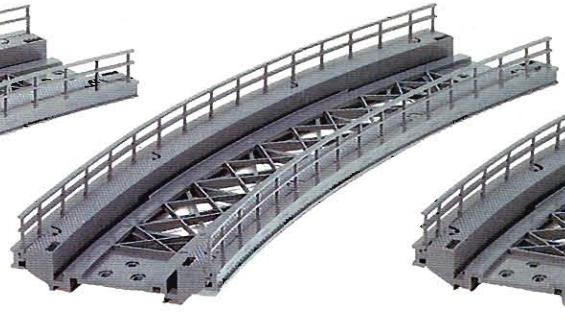
7268 K + M · Straight Ramp · For K or M track · 3 clips for securing K track · Length 180 mm (7-3/32")

7263 K+ M

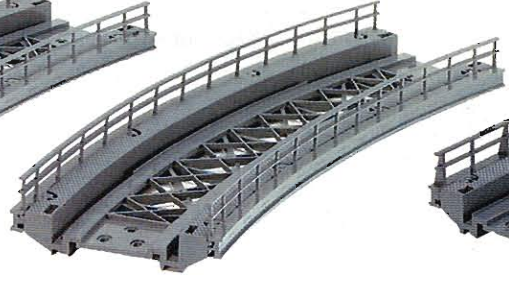
7262 K+ M



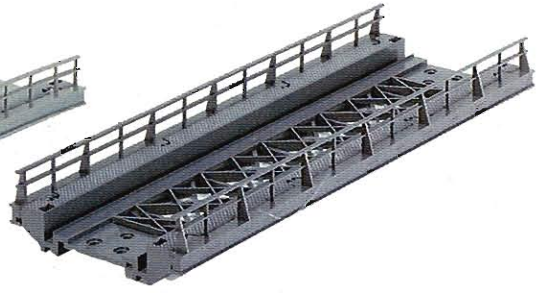
7569 for K only



7269 for M only



7267 K+ M



7268 K+ M

7250

7251

7252

7253

7234

7250 · Base Plate · 2.5 mm high (1/10") · For pillar foundation

7251 · Base Plate · 3 mm high (1/8") · Can only be used in conjunction with 7250

7252 · Pillar · 6 mm high (1/4") · For building ramps in 6 mm (1/4") increments

7253 · Pillar · 30 mm high (1-3/16")

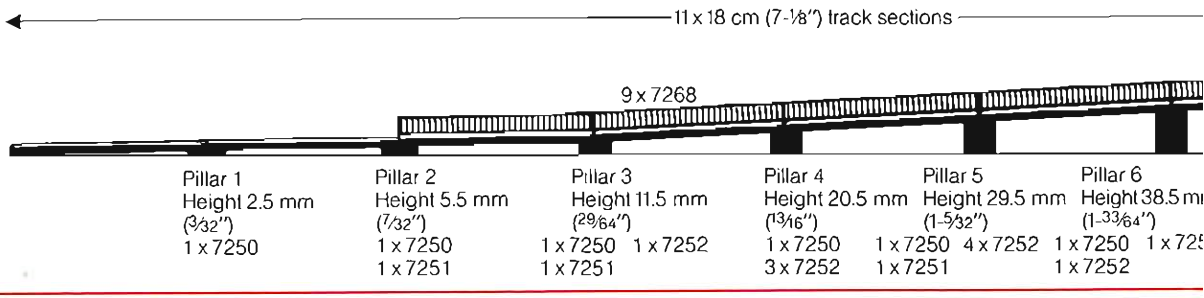
7234 · Base Plate · For attaching 7200 series signals to bridges

Bridges

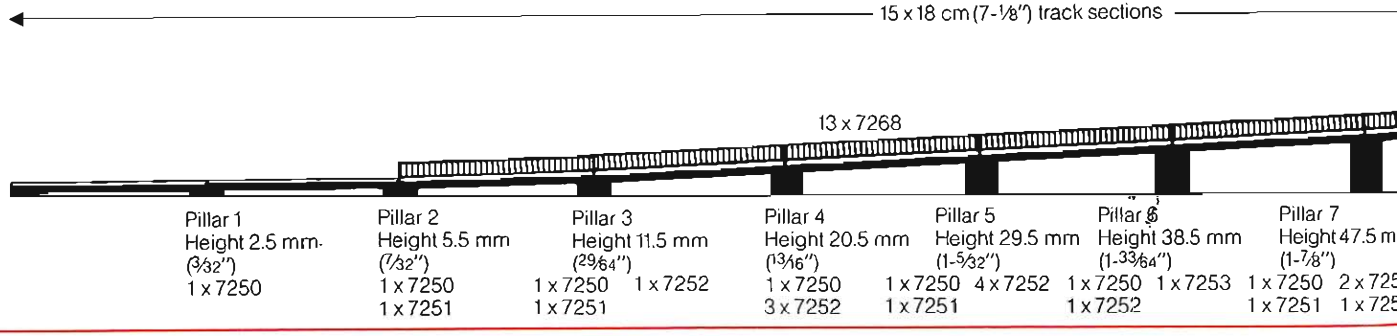
These drawings show how many track sections and bridge pillars are required for approach ramps. Thus, each modeler can check for himself how a stretch of track with grades and bridges should be constructed. The grade is 5% and is decreased at the ends of the approach ramp.

Bridges and approach ramps can be placed in any desired combination and length. The pillar sections 7252 and 7253, which connect to each other like building blocks, allow the construction of pillars in 6 mm (¼") increments. Smaller increments (3 mm – ⅛") are possible with the base plates 7250 and 7251. Pillar sections and base plates can be fastened to the trackboard with the 7599 wood screws.

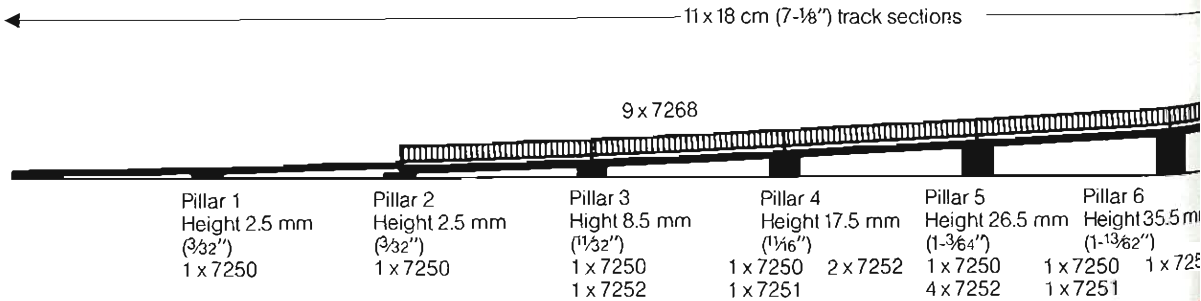
A Grade with M Track for Steam and Diesel Locomotives



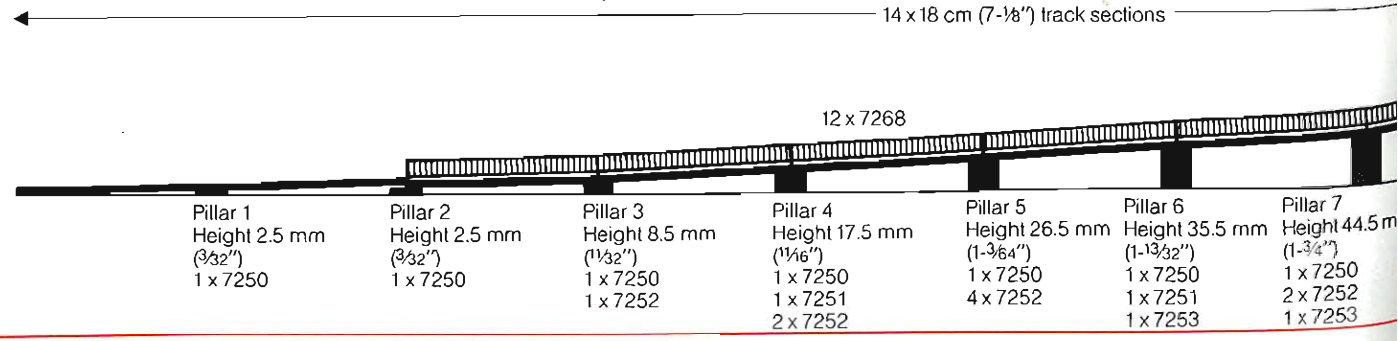
A Grade with M Track for Electric Locomotives with Catenary

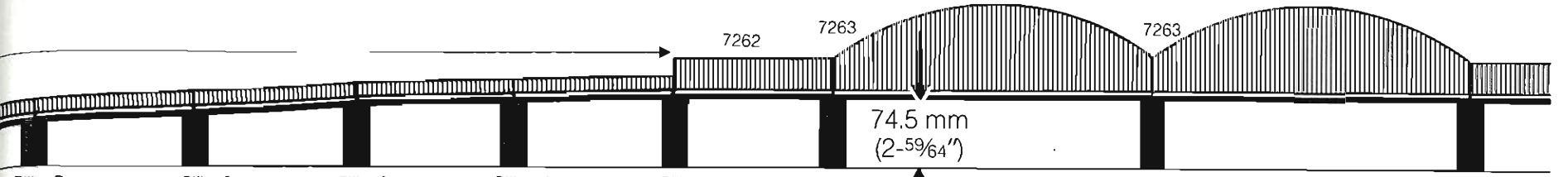


A Grade with K Track for Steam and Diesel Locomotives

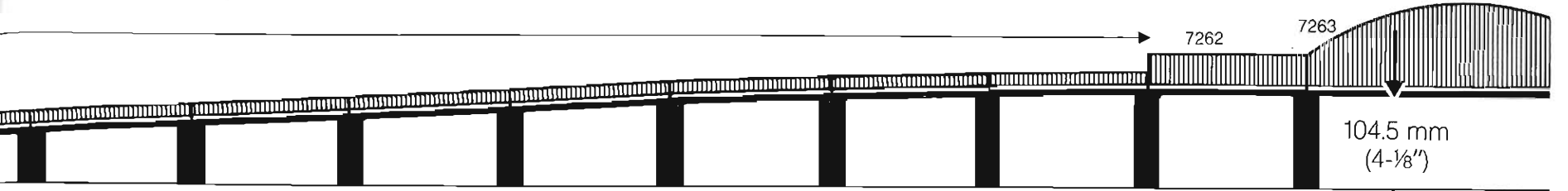


A Grade with K Track for Electric Locomotives with Catenary

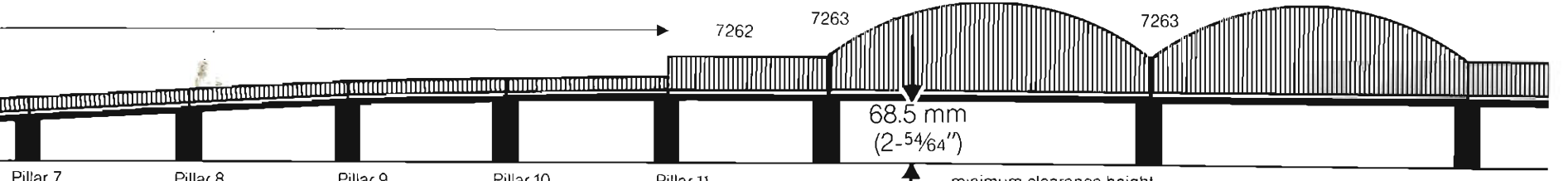




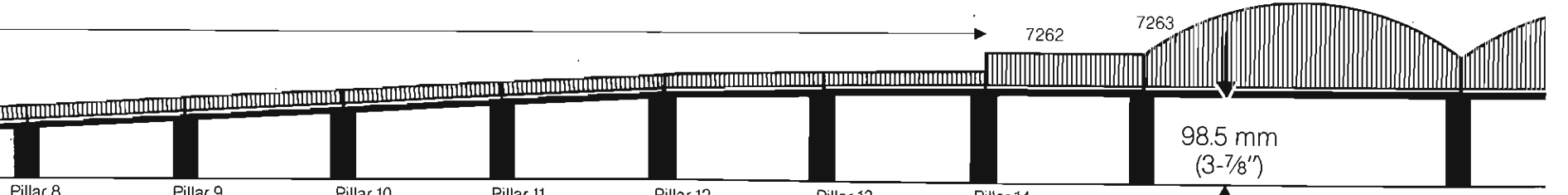
Pillar 7	Pillar 8	Pillar 9	Pillar 10	Pillar 11
Height 47.5 mm	Height 56.5 mm	Height 65.5 mm	Height 71.5 mm	Height 74.5 mm
(1-7/8")	(2-15/64")	(2-37/64")	(3-13/16")	(2-59/64")
1 x 7250 2 x 7252	1 x 7250 1 x 7253	1 x 7250 2 x 7253	1 x 7250 1 x 7252	1 x 7250 2 x 7253
1 x 7251 1 x 7253	4 x 7252	1 x 7251	1 x 7251 2 x 7253	2 x 7252



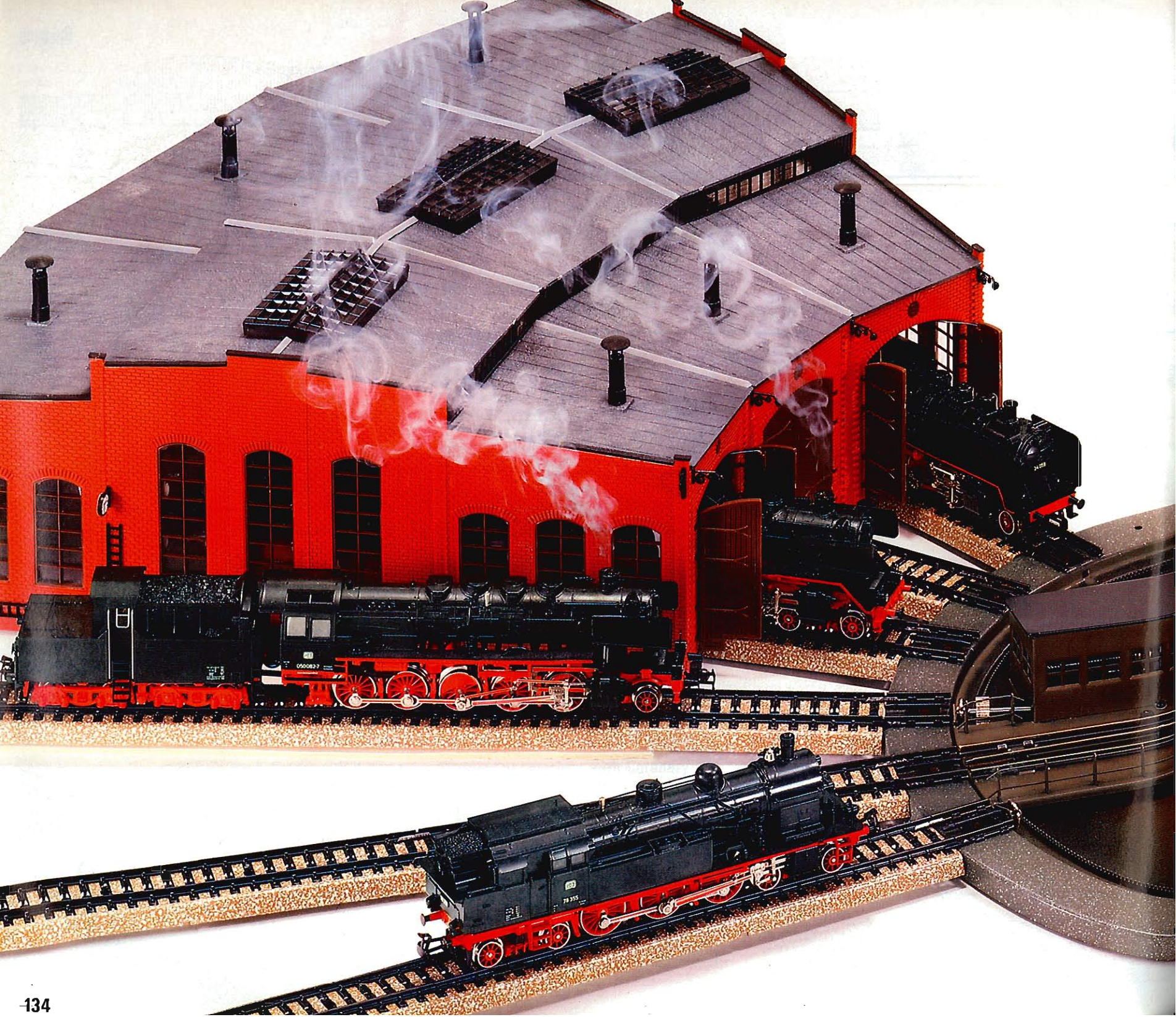
Pillar 8	Pillar 9	Pillar 10	Pillar 11	Pillar 12	Pillar 13	Pillar 14	Pillar 15
Height 56.5 mm	Height 65.5 mm	Height 74.5 mm	Height 83.5 mm	Height 92.5 mm	Height 98.5 mm	Height 101.5 mm	Height 104.5 mm
(2-15/64")	(2-37/64")	(2-59/64")	(3-9/32")	(3-31/32")	(3-7/8")	(4")	(4-1/8")
1 x 7250 1 x 7253	1 x 7250 2 x 7253	1 x 7250 2 x 7253	1 x 7250 3 x 7252	1 x 7250	1 x 7250 3 x 7253	1 x 7250 1 x 7252	1 x 7250 3 x 7253
4 x 7252	1 x 7251	2 x 7252	1 x 7251 2 x 7253	3 x 7253	1 x 7252	1 x 7251 3 x 7253	2 x 7252



Pillar 7	Pillar 8	Pillar 9	Pillar 10	Pillar 11
Height 44.5 mm	Height 53.5 mm	Height 62.5 mm	Height 65.5 mm	Height 68.5 mm
(1-3/4")	(2-7/64")	(2-15/32")	(2-37/64")	(2-54/64")
1 x 7250 1 x 7253	1 x 7250 3 x 7252	1 x 7250	1 x 7250 2 x 7253	1 x 7250 2 x 7253
2 x 7252	1 x 7251 1 x 7253	2 x 7253	1 x 7251	1 x 7252



Pillar 8	Pillar 9	Pillar 10	Pillar 11	Pillar 12	Pillar 13	Pillar 14
Height 53.5 mm	Height 62.5 mm	Height 71.5 mm	Height 80.5 mm	Height 89.5 mm	Height 95.5 mm	Height 98.5 mm
(2-7/64")	(2-15/32")	(2-13/16")	(3-11/64")	(3-17/32")	(3-3/4")	(3-7/8")
1 x 7250 3 x 7252	1 x 7250	1 x 7250 1 x 7252	1 x 7250	1 x 7250 4 x 7252	1 x 7250	1 x 7250
1 x 7251 1 x 7253	2 x 7253	1 x 7251 2 x 7253	3 x 7252	1 x 7251 2 x 7253	1 x 7251	1 x 7252
			2 x 7253		3 x 7253	3 x 7253

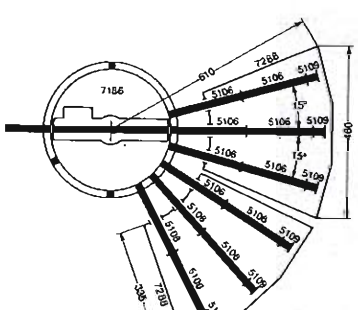


7186 · Remote Controlled Turntable · Includes a 360 mm (14-⅛″) turntable which moves in either direction by remote control, with necessary controls and wiring · Track current automatically cut off to any track not in alignment with bridge

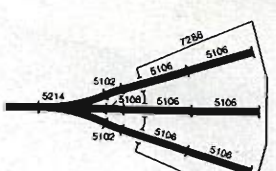
Brushes = 60030

Adapter Track 2291
For connecting K track to the 7186 turntable.

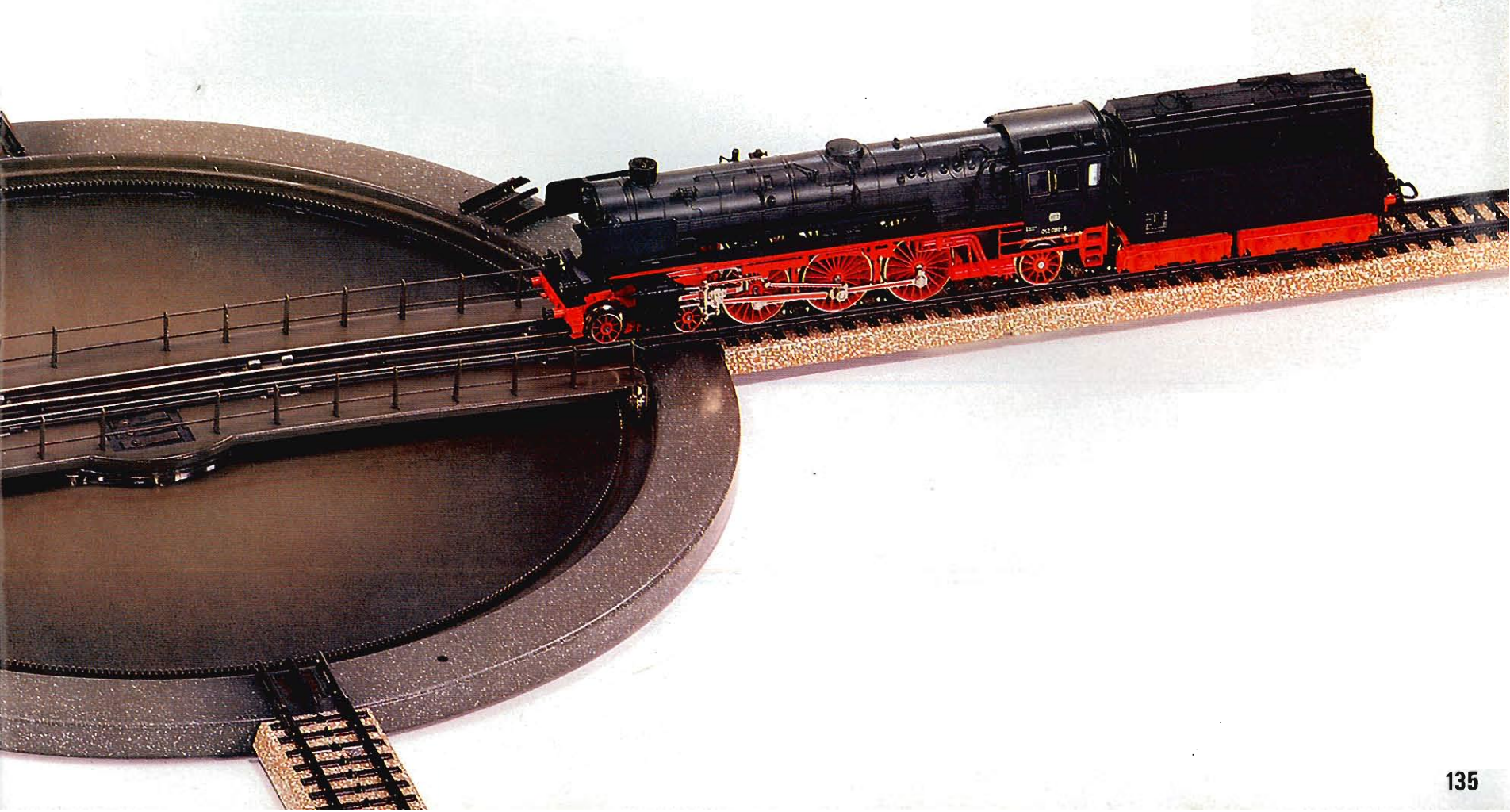
7288 · Locomotive Roundhouse Kit · 3 stall roundhouse with manually operated doors · (track not included) · Size 335 × 460 mm (1′ 5-⅜″ × 1′ 1-¾″) · Height 128 mm (5″)



This illustration shows how two 7288 roundhouses can be connected to a 7186 turntable.



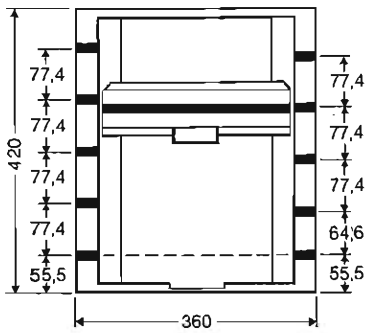
A 3 stall roundhouse 7288 can be used with a 3 way switch 5214.



7289 · Engine House Kit · 2 stall · 4 manually-operated doors for 2 tracks · (track not included) · Size 280 × 150 mm (11″ × 6″)

The prototype for this kit stands in Maschen, Federal Republic of Germany, Europe's most modern classification yard.

7294 · Transfer Table · 2 approach tracks and 8 stall tracks · Can be used with engine house 7289 · Includes controller · Operates by electric motor · Current automatically cut off to tracks not in allignment with bridge · Each stall track can be equipped with catenary · Size of base 360 × 420 mm (1′ 2-⅛″ × 1′ 4-½″)



Transfer Table

7295 · Catenary Set for Transfer Table · Includes 2 overhead support gantries, one piece catenary wire with leads soldered on and 10 short catenary wires for stall tracks

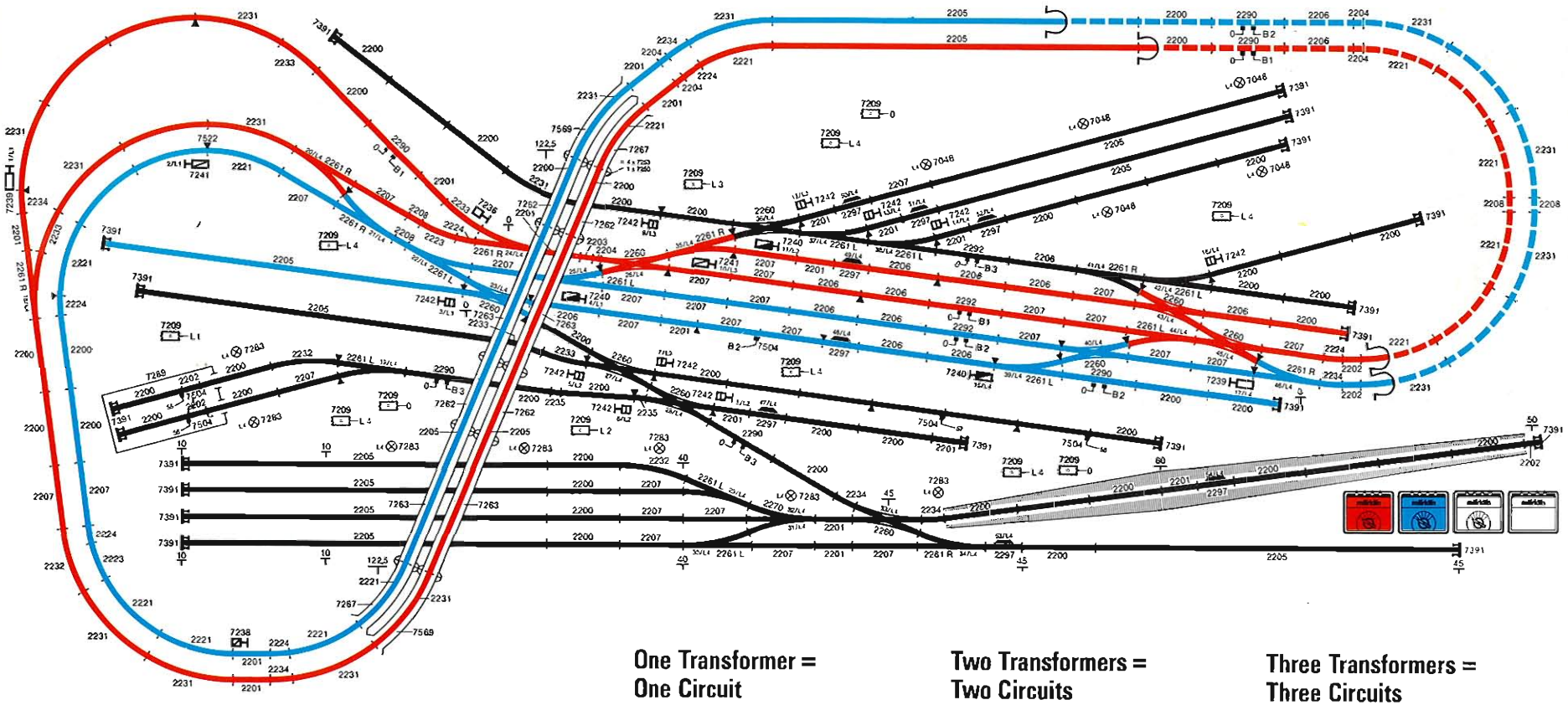
Adapter Track 2291
For connecting K track to the 7294 transfer table.

Simplified Multi-Train Operation

Busy scene on a layout built in a real railroad car by Raimund Schwertberger of the German Federal Railroad's Stuttgart office.

On conventional layouts multi-train operation is possible by adding additional track circuits. Each circuit has its own transformer and feeder tracks. The track circuits are kept insulated from each other with center rail insulators 5022 or 7522. Different trains can then be operated independently of each other.

Layout size: 385 × 175/140 cm (12′ 7-½″ × 5′ 9″ / 4′ 8″)



Parts List:

55–2200	16–2221	8–2261	12–7209	10–7242	7–7283
17–2201	2–2223	2–2261L	1–7210	10–7250	1–7289
5–2202	6–2224	1–2270	1–7236	1–7253	20–7391
1–2203	20–2231	6–2290	1–7238	40–7263	5–7504
5–2204	3–2232	3–2292	2–7239	4–7262	2–7569
13–2205	5–2233	8–2297	3–7240	4–7263	
14–2206	6–2234	5–7048	3 30 VA Transformers		
29–2207	2–2235	14–7072	1 40 VA Accessory Transformer		
			Wire, Plugs, Sockets		

One Transformer = One Circuit

On our layout all trains travel at the same speed, going faster or slower according to the speed setting on the transformer. By using signals, trains can be stopped independently of each other. Changing the direction of one train is possible only when the others are stopped before signals.

Two Transformers = Two Circuits

If the main line is wired to a second transformer, through trains can be operated independently of switching operations on sidings. Yard trains and those on the second main line are not controlled by the main line transformer.

Three Transformers = Three Circuits

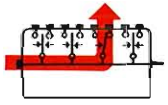
Connecting the industrial tracks to a third transformer makes layout operation significantly more varied and interesting. Now trains can run on all three circuits at separate speeds independently of each other.

Control Boxes

For Remote Control Operation

7072 · Control Box · With 8 sockets for connecting 4 double solenoid accessories · Position of button indicates position of signals, switches, etc. · Length 80 mm (3-⅛″) · Width 40 mm (1-9⁄16″)

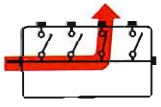
7072



Schematic of 7072
(Control switch 3 closed)

7210 · Control Box · For dividing track or accessory circuits into four separately controlled circuits · For example for controlling current to 4 sidings · Length 80 mm (3-⅛″) · Width 40 mm · (1-9⁄16″)

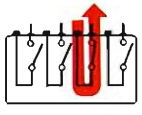
7210



Schematic of 7210
(Control switch 3 closed)

7211 · Control Box · On/off switches for 4 different track or accessory circuits · For example, controlling current to 4 sidings · Length 80 mm (3-⅛″) · Width 40 mm (1-9⁄16″)

7211



Schematic of 7211
(Control switch 3 closed)

The Standard Wire Colors of the Märklin HO System

Red = Track current (Transformer to center rail or catenary)

Yellow = Lights and accessories

Brown = Ground lead from track or control box to transformer

Blue = Return lead for accessories to control boxes or contact tracks (with green, red and orange plugs)

Wire

This flexible wire consists of 24 strands, each 10 mm (.004″) thick for a total thickness of 0.19 mm² (.096″). This is fully sufficient for carrying current supplied by 40 VA transformers, even in the event of a short circuit.

7100 · Wire · Gray · 10 m (33′)
7101 · Wire · Blue · 10 m (33′)
7102 · Wire · Brown · 10 m (33′)
7103 · Wire · Yellow · 10 m (33′)
7105 · Wire · Red · 10 m (33′)

Staples

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

Sockets

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

Plugs with cross socket

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

Distribution Plate

7209 · Distribution Plate · With 11 single pole sockets · Size 50 × 20 mm (2-¾″ × (1-1⁄16″)

5022 · Center Rail Insulators · For M track · Insulator is placed between the center rail clips of a track joint to separate track circuits

7522 · Center Rail Insulators · For K track · Insulator is placed between the center rail clips of a track joint to separate track circuits

5004 · Center Rail Feeder Wire · For M track · Connects at joints in center rail · Length 750 mm (2′ 5-½″)

7504 · Center Rail Feeder Wire · For K track · Connects at joints in center rail

7500 · Ground Connector · For K track · To establish ground connection

Transformers

6671 16 VA

6631 30 VA

6611 40 VA

6600

Märklin transformers are safe because they have insulation which has been tested to withstand several thousand volts. Also, built-in circuit breakers are included to automatically cut off power when short circuits occur or when the transformer becomes overloaded. A standard wire and plug connects the transformer to house current.

Märklin transformers – Safety tested around the world.

We guarantee trouble free operation of Märklin trains only when used with original Märklin transformers. The transformers must be protected from dampness and are not designed for outdoor operation. Connect only to AC outlets.

Power Consumption of Locomotives and Lights

Here is a way to compute how many items a given transformer can power: a 3000 tank locomotive and a 3085 locomotive each require 9 VA, the 3021 diesel about 12 watts.

The wattage left over can be used for train and layout illumination, allowing 1 watt per bulb. Additional examples appear in the brochure 0380 "Die Modelleisenbahn Märklin H0 und ihr grosses Vorbild" (German text).

6671 220 Volt
6660 100 Volt Japan
6667 110 Volt (60 Hz) USA · UL-tested
6669 240 Volt

Transformer · 16 VA output · Track current adjustable from 4 to 16 volts · 16 volts accessory current · Plastic housing · Weight 1.2 kg (2-½ lb) · Dimensions 125 × 135 × 75 mm (5″ × 5-⅜″ × 3″)

6631 220 Volt
6620 100 Volt Japan
6627 110 Volt (60 Hz) USA · UL-tested
6629 240 Volt

Transformer · 30 VA output · Track current adjustable between 4 and 10 volts · 16 volts accessory current · Plastic housing · Red pilot light · Weight 2.1 kg (4-¾ lb) · Dimensions 158 × 135 × 75 mm (6-½″ × 5-⅜″ × 3″)

6611 220 Volt

Transformer for Lights and Accessories · 40 VA output · Approximately 16 volts available for accessories · Plastic housing · Weight 2.0 kg (4-½ lb) · Dimensions 158 × 135 × 75 mm (6-½″ × 5-⅜″ × 3″)

6600 · Electronic Throttle with Additional Functions · Connects to Märklin accessory transformer 6611 or to the accessory sockets of Märklin transformers having 30 VA output · Controls speed and direction electronically · Automatic rates of acceleratin and deceleration as well as duration of stops can be set and switched on or off. Internal load-dependent voltage control to provide constant speed on grades · Duration of stop and automatic direction reversing can be effected by external momentary contacts · Emergency brake button · Circuit breaker · Plastic housing · Weight 350 g (15 oz) · Size 125 × 135 × 55 mm (5″ × 5-⅜″ × 2-⅛″) · Additional wire and plugs available from Märklin

The Fun New Way to Operate

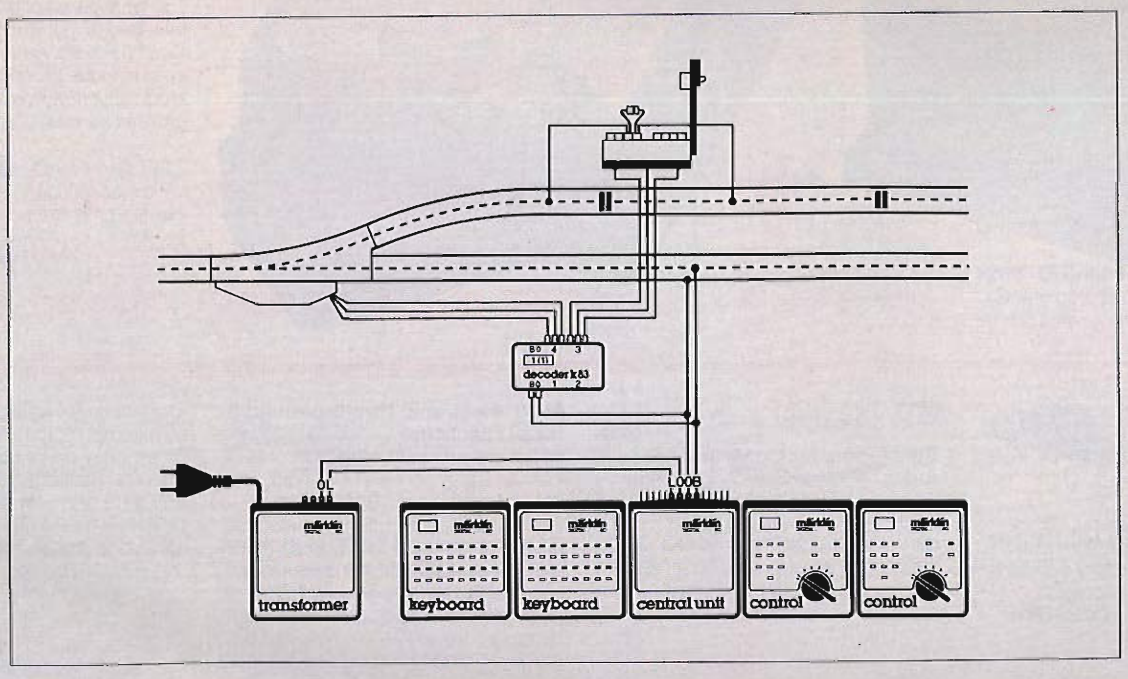
(continued from pages 32 + 33)

The function "go" allows all trains to resume their previous speeds.

The locomotive address codes are selected, as previously described, with the number keys. A two-digit LED indicator displays the address of the last locomotive called up. The next to the last locomotive called up continues at the speed it was operating at when the last locomotive was entered. It is thus possible to keep one or more locomotives running while calling up still another locomotive. Each additional control 80 unit connected to the system allows independent control of another locomotive. Theoretically, several locomotives can be operated which are not being addressed directly by the control 80 unit. The emergency brake function also controls these trains of course. Thus, multi-train operation is possible with only the control 80 unit.

This is practically everything about the control 80 unit. It is really fascinating because it is so easy to use. Its controls are clear and easy to read and there are no unnecessary double functions. The control 80 is for the average model railroader as well as the technical fan.

Connecting the Digital System is simple: The control 80 and the keyboard plug into the sides of the central unit which, in turn, is connected to the transformer and track.



The „Built-in-Engineer" Does a Lot More: Decoder c 80

The Digital system uses decoders in place of the conventional reverse unit in Märklin locomotives. This unit decodes, as noted, information issued by the central unit and controls the engine's motor accordingly. There is a small 8-pole coding switch on the decoder panel which can be set easily using a small screw driver and following the code table in the instructions. In addition to Digital locomotives with factory-installed decoders, decoders are also available to add to existing conventional locomotives. A second decoder designed for permanent magnet motors is planned (for example for DC locomotives altered for AC operation).

Digital H0 Electronic Control System

– Simply Digital (Part 2)

The "Keyboard" as Switch Controller

16 switches (signals or other double solenoid accessories) can be operated with the 32 buttons on the "keyboard". This can be done without any other additional gadgets and in the same manner as with a conventional control box. In total, up to 256 switches can be hooked up (by using 16 keyboards).

The switches are connected as usual with three wires – but not to the keyboard, but rather to a k 83 decoder, which can handle four switches.

Compatibility With Existing Layouts

Having read this far, one might ask the following:

Can one convert an existing layout gradually to the Digital System?

It is possible, for example, to have one track of a two-track layout connected to the Digital System while the other track is conventionally operated. At crossovers where the two circuits meet, the center rail must be properly insulated. When a "conventional" Märklin train enters a Digital area, it will travel at a constant speed – it can not be controlled any more until it leaves the Digital area and re-enters a conventionally controlled area. On the other hand, a digital locomotive can be operated conventionally in non-digital areas. It will operate in every way like "normal" Märklin engines; it will even change directions like always. The Märklin Digital System is thus surprisingly compatible and well thought out.

Outlook For The Future: Interface and Detection Module

The "interface" is the link between the Märklin Digital System and the home computer. It is plugged into the digital control panel on the right side just like a control 80.

The function of the interface is, in short, to "translate" computer commands for the Digital system and to transmit information from detection units in response to inquiries from the computer.

The Detection Module 6088 is used to "detect" or report the position of a train. This component can be used to monitor the position of 16 contacts which complete their respective circuits through the layouts' common ground (track contracts, relays, push buttons on control boxes, etc.) The detection module "takes notice" of the contact's completing a circuit and transmits this information on demand to the computer.

It won't be difficult for a computer owner with a little programming skill to write a program. In fact, based on the experience of the computer world, it will not be long before commercially available programs for the more popular computers will be on the market – for example, a track schematic with routing that can appear on the screen.

From the model railroad magazine "MIBA", December 1985 "Praxistest Digital & Interface"

Digital

Each engine digitally controlled, photographed at the Märklin Service Center.

An entirely new dimension was added to the exciting world of model railroading when Märklin unveiled its Digital System on Semptember 13, 1984 as part of the firm's 125th anniversary. During 1985 the Märklin digital electronic control system was offered to the public.

Märklin Digital is a digital electronic control system using modern micro-processor technology. With Märklin Digital any arrangement of H0 locomotives, switches and signals can be operated without the wiring that is so necessary in conventional systems.

Your conventional H0 layout can be converted to Digital operation at any time: Passenger trains, freight trains, tracks, catenary, signals, contact tracks, blocks do not need to be altered.

Märklin H0 layouts are quickly converted to Märklin digital operation. Only two wires lead to the layout.

Your have direct control of each locomotive on your layout. Up to 80 locomotives can be individually controlled.

Up to 256 signals or switches can be controlled via these two wires.

The unique Märklin H0 system with the "third rail" stud contact system assures reliable train operation with Märklin Digital.

With Märklin Digital the same circuit is used for train operation and accessories. Only two wires lead from the Central Unit to the layout with Märklin Digital. A constant voltage is supplied from the digital circuit to the layout. This digital circuit transmits commands from the Central Unit to the decoders on the H0 locomotives, switches, signals, and uncoupling tracks. The Central Unit coordinates all control information and relays it with the track current throughout the layout.

The transformer supplies current for Märklin Digital H0 layouts. With an output of 52 VA the transformer is sufficient to supply the electronic components of the digital system as well as all locomotives, switches and signals with electricity.

Since the digital components themselves use an insignificant amount of current, virtually the entire output is available for layout use.

Energy use

for H0 locomotives:
approx. 10 VA
(only when in operation)

for switches, signals:
approx. 6 VA
(only when in operation)

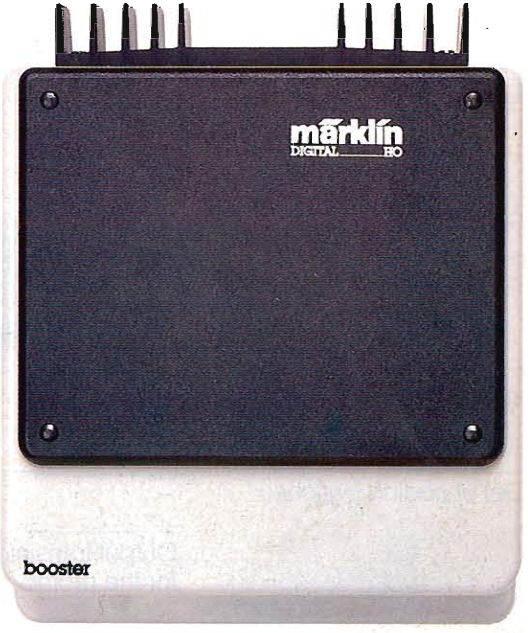
for light bulbs:
approx. 1.5 VA

If energy requirements exceed the 52 VA output of the transformer, additional power is available by means of a booster to which a second transformer is connected. Thus, layouts of any size can be digitally operated.

In principle any Märklin transformer supplying 16 volts AC at 30 VA can be used to power a Märklin Digital layout.

central unit

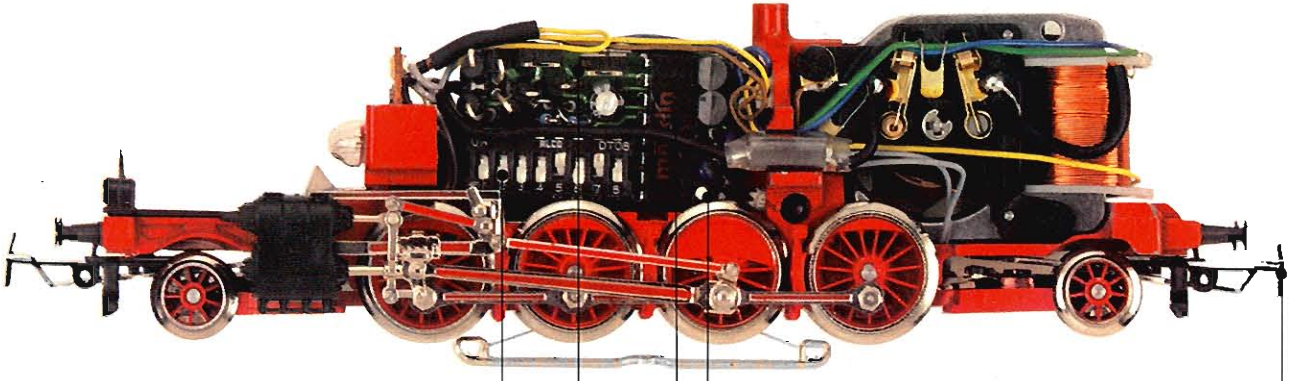
transformer



booster

The special advantage of Märklin Digital is most evident in all kinds of train operation. The system yields new, startling and extraordinary operating possibilities: Just as with the prototype, several locomotives can do switching on a given stretch of track. An engine can overtake a train in motion and couple onto it for doublehead operation. After the grade has been conquered, the extra locomotive uncouples itself. Passing on the fly, realistic pusher service with a second locomotive, directional changes without regard to other locomotives, prototypical push-pull operation and much more are all possible. Now several locomotives on the same Märklin H0 layout can be in control of "their" train. All that is possible with Märklin Digital.

The brain of the Märklin Digital H0 locomotives: The exclusive Märklin chip shown actual size.



Set of coding switches

Output transistor for the motor

Märklin chip

Quartz for exact frequency

TELEX coupler

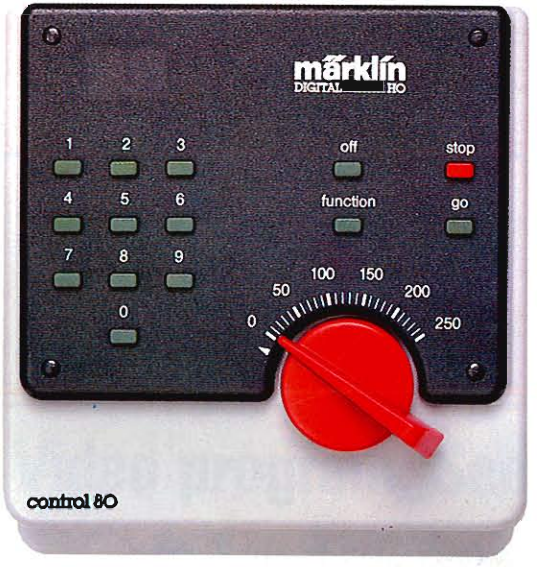
Each Märklin Digital H0 locomotive is factory-equipped with a decoder.

Conventional Märklin H0 locomotives can have a Decoder c 80 installed for digital operation.

The Decoder c 80 is equipped with a set of 8 coding switches with which you can code (or address) each locomotive individually. The codes can be changed at any time.

With the Control 80 (universal throttle control) up to 80 locomotives can be called up and individually operated at the same time on a layout

Additional Control 80's can be connected to each other. Each locomotive can be called by each Control 80.



The number of the engine addressed is indicated on the Control 80 panel by LED's. If a Märklin Digital H0 locomotive has already been called up by another Control 80, the locomotive number selected will blink on the first Control 80.

When calling another locomotive number, the locomotives called up previously retain the commands last sent to them – i.e., speed, direction of travel and auxiliary function. Thus several Märklin Digital H0 locomotives can be operated with a single Control 80.

Each digital locomotive can have its additional functions – lighting, smoke, TELEX couplers – activated by the Control 80.

The lighting of the digital locomotives remains constant – even when the train is stopped.

Cars with interior lighting and end lights are illuminated with constant brightness.

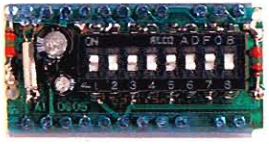
After pausing at a signal, a digital locomotive will proceed according to the last command transmitted to it.

The emergency button will stop all locomotives on a Märklin Digital H0 layout immediately.

Märklin Digital H0 locomotives will also operate on conventional layouts.

All Märklin Digital locomotives are denoted by this symbol. They are produced with the Decoder c 80 installed at the factory.

Conventional Märklin H0 locomotives can be equipped with the Decoder c 80 for digital operation.



The locomotive decoder shown actual size.

A 12-month guarantee is offered for Decoder c 80's installed by a dealer.

Märklin locomotives equipped with DC motors (ex. 3125) or locomotives made by other manufacturers for the Märklin three-rail system can be retrofitted with Decoder c 81 for digital operation.

The Decoders c 80 and c 81 are equipped with a set of 8 coding switches with which you can code (or address) each locomotive individually. The codes can be changed at any time.

Märklin Digital H0 locomotives can be operated on conventional layouts. They can be controlled with standard transformers or throttle controls. Only the auxiliary functions cannot be activated.

All conventional Märklin H0 locomotives (except the 3371) can be operated on Märklin Digital H0 layouts at a constant speed.

Märklin Digital can be used in conjunction with conventional Märklin H0 with each system controlling a different portion of the layout.

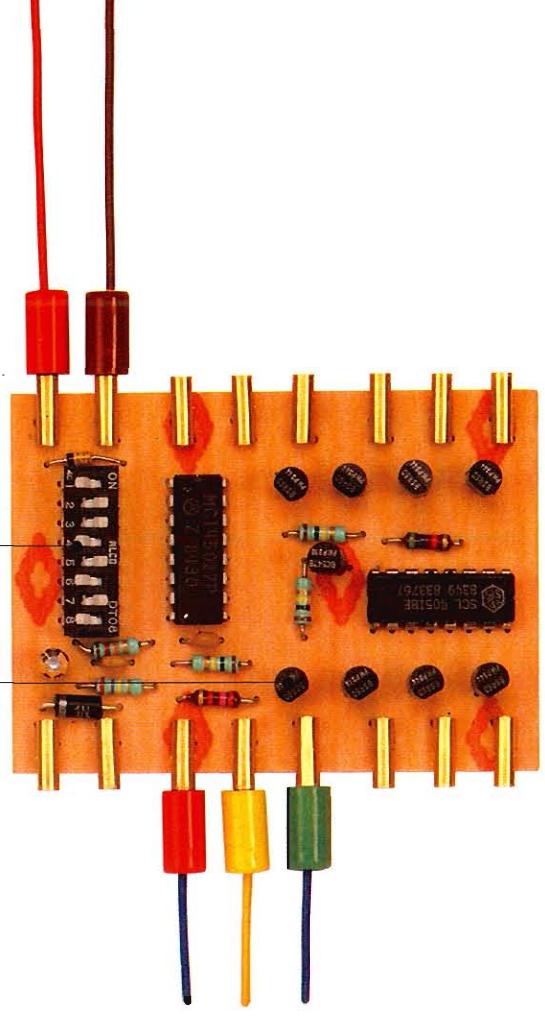
märklín
video

(The Märklin Video Store is constantly expanding)

Our New Video program. See it for yourself.

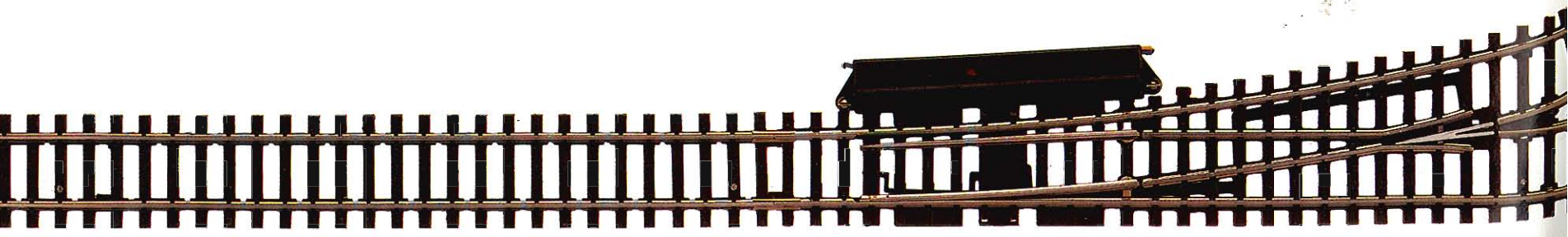
Available at your dealer.

The decoder for 4 switches or signals:



Set of coding switches

Output transistors for the 8 solenoids of electrical accessories



Current and commands are fed through the "third rail" stud contact system to signals, switches and uncoupling tracks.

4 switches or signals can be connected to a Decoder k 83.

16 switches or signals can be controlled with the Keyboard. LED's indicate their positions.

Up to 16 Keyboards can be connected to a Central Unit.

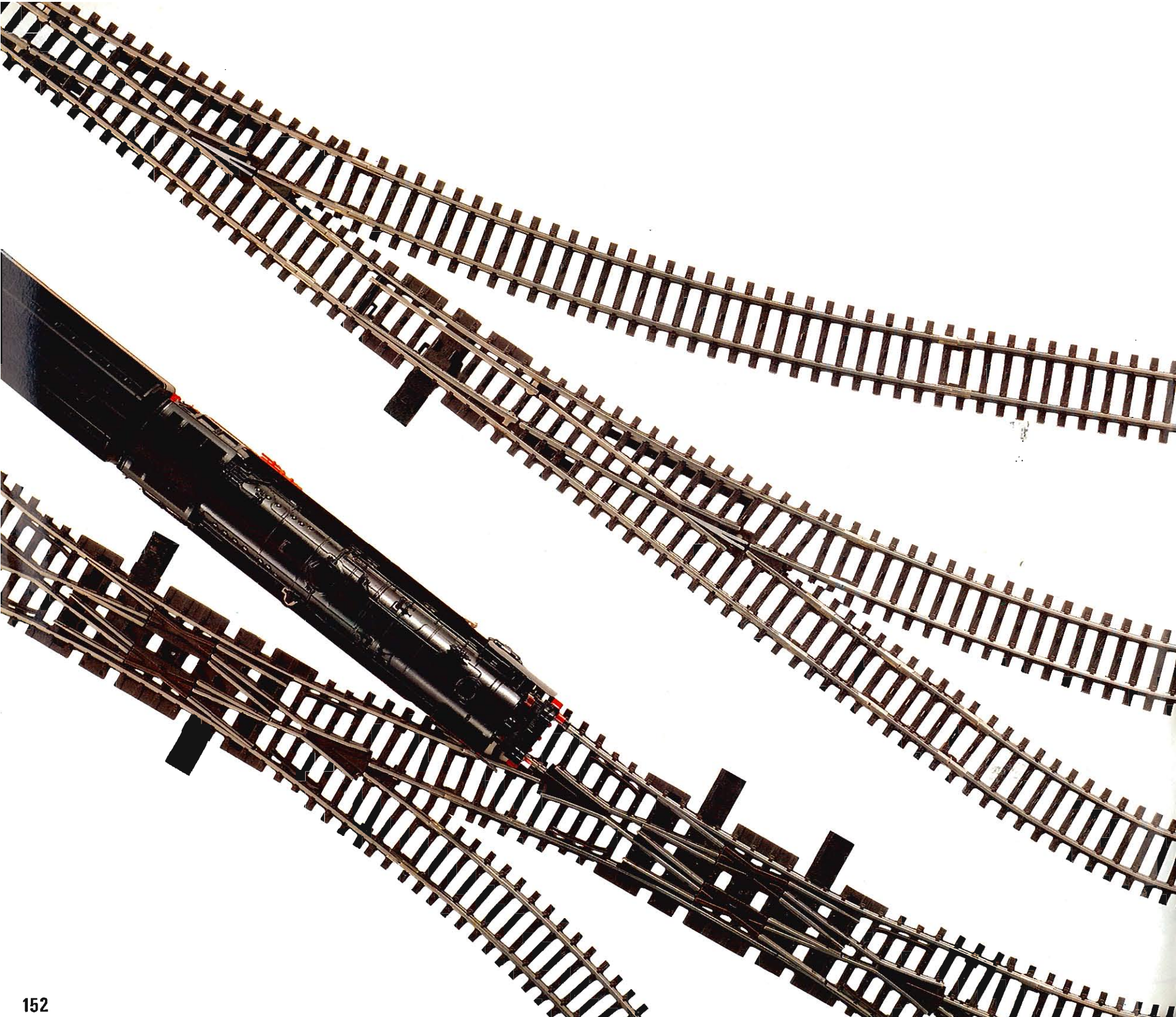
Thus up to 256 switches or signals can be remote-controlled by a single Central Unit.

The electrical accessories in the Märklin H0 program can be used on Märklin Digital layouts. Railroad crossings, station lights, and other illumination can be powered from the nearest feeder track.

Switches and signals connected to a Decoder k 83 can also be connected to a contact track and have their functions activated by passing trains (ex. signal block operation).

Switches and signals can also be controlled conventionally.

Digital control of switches and signals can be operated independently from the train control circuit. Hence, it can be used for 2 or 3 rail systems using AC or DC current for powering the trains.



Memory is a digital routing control unit with a central intelligent memory. Memory makes possible the control of switches and signals along given routes independently of the computer.

Memory opens up many new model railroading opportunities on digital layouts; for example, the planning of a prototypical routing concept, automatic block control operation and the control of switches and signals in hidden stations.

Memory is fully integrated into the digital system. It adds ease of operation and safety to operations.

Memory is a decisive step towards universal digital control of all model railroad systems.

Memory makes possible routes with any combination of signals and switches.

Each Memory can store up to 24 routes.

Each route can store up to 20 positions for switches or signals.

Routes can be extended to any length by means of automatic interlinking. Thus the length of a given route can be changed.

Memory is connected to the Central Unit. Up to 4 Memories can be connected with each other.

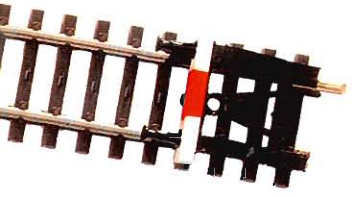
The positions for switches and signals on a particular route can be entered into the Memory with a Keyboard or computer. The routes can be programmed and changed as desired.

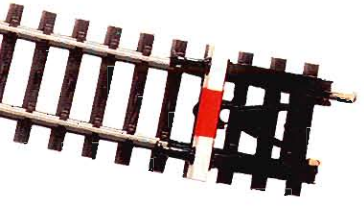
When a route is selected, the switches and signals involved in it align themselves in succession one after another. After the last switch or signal in the route is activated, an LED indicates that the route is now ready for operation.

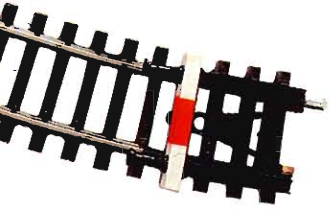
Each route can be protected, and this interlocking protection feature can be switched on or off. Routes set up in this manner are protected against other routes being called up which touch or cross them in any way.

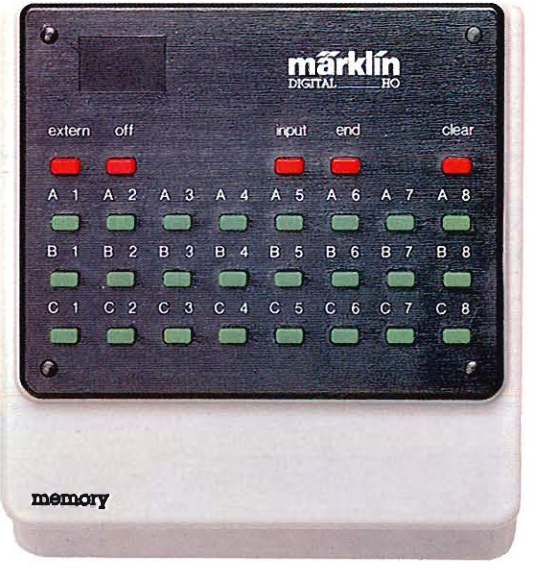
The routes can be controlled by a button on the Memory or by a contact track in conjunction with a Decoder s 88.

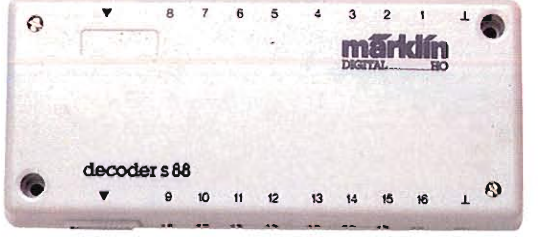
The programmed routes remain stored until changed or erased and can be called up at any time.

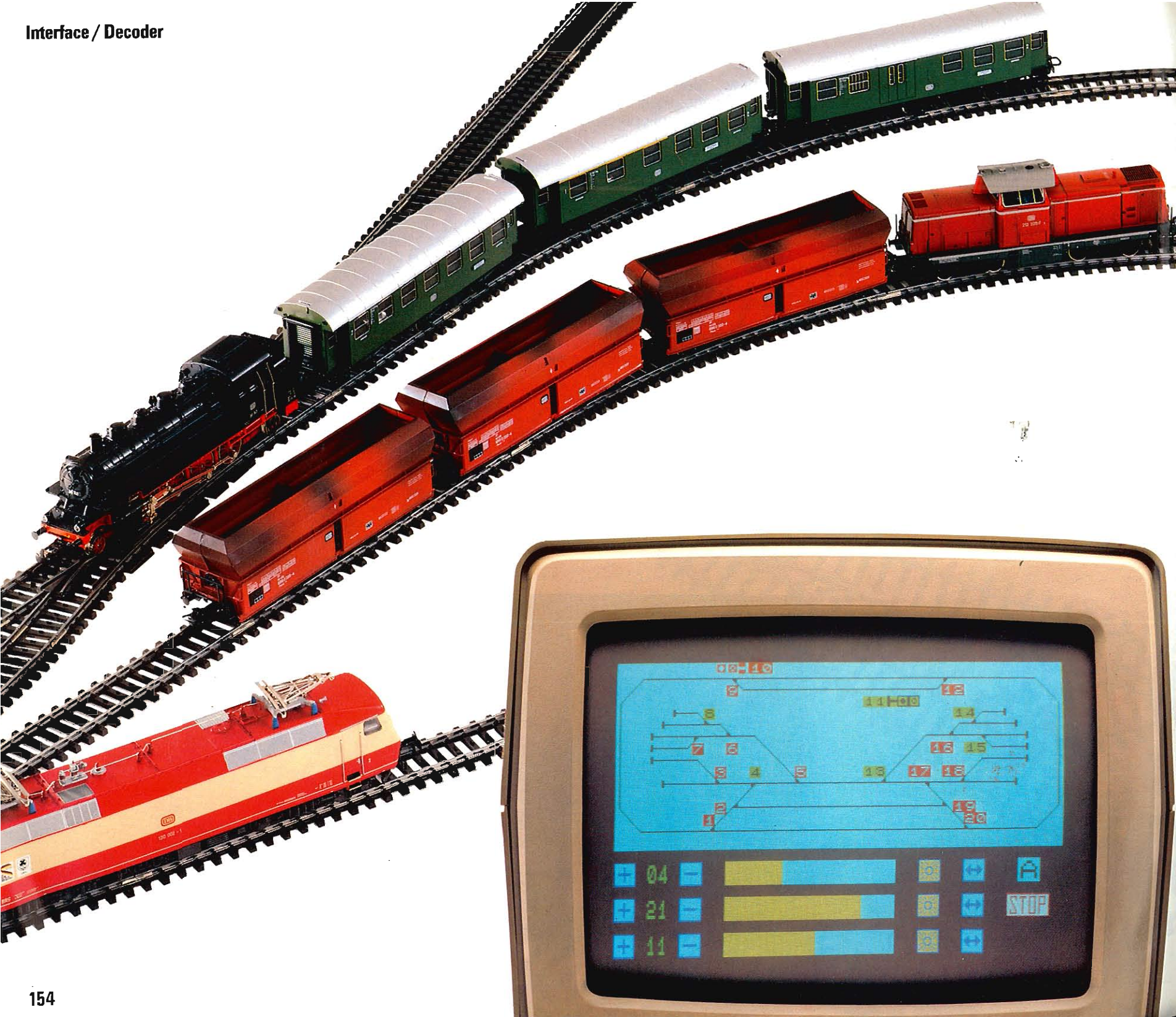











04
21
11
STOP

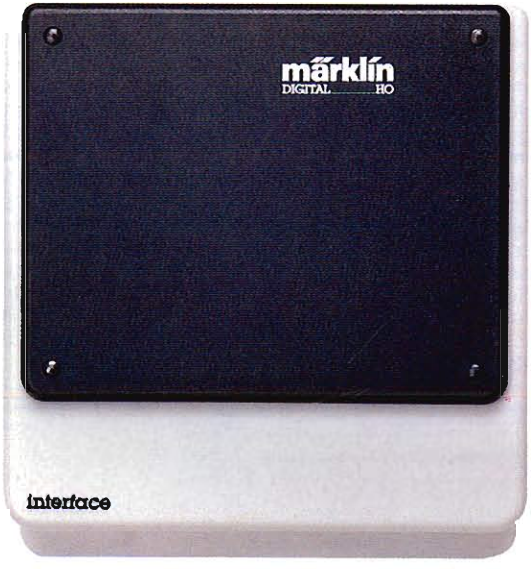
Märklin Digital is a model railroad for the computer age. Many computer owners have long sought a "peripheral" which goes beyond the two dimensions of the screen. With Märklin Digital two of the most popular recreational activities are combined: Model railroading and home computers.

The Interface is the unit which links the home computer with a model railroad.

With this serial interface connection a Märklin Digital H0 layout can be connected to almost any computer system.

The Decoder s 88 (Track Detection Module) is used to transmit data about the settings of contact tracks via the Interface to the computer.

Thus, you can now program as many schedules as you wish. With contact tracks as the controlling element, all sorts of automatic train operations are possible.

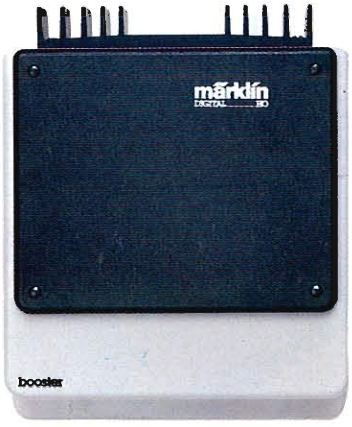


You do not need to install the system all at once in order to have the model railroad of the future. A digital railroad can be started and expanded gradually – and with a 12-month guarantee.

Still have questions about Märklin Digital? Feel free to contact us; we will be happy to answer any question.

6000 100 volt Japan
6001 110 volt (60 Hz) USA · UL approved
6002 220 volt
6003 240 volt

Transformer · Transformer to power layouts, Central Unit and Booster · LED pilot light · 2 pairs of terminal clips · 52 VA output · 16 volts AC · Plastic housing · Weight 1.6 kg (3.52 lb) · Size 135 x 120 x 80 mm (5-½" x 4-⅞" x 3-½")

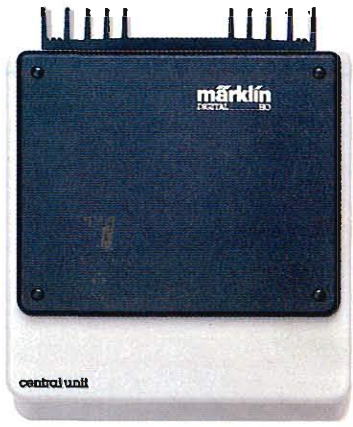


6015 · **Booster** · For Märklin Digital layouts requiring more than 52 VA power · To be connected to an additional transformer · For operating large sections of a layout · Output current up to a maximum of 2.5 amps · LED pilot light · Two clips connecting each for transformer and track · One connecting socket for Central Unit and for additional Booster · One adaptor wire for connecting to Central Unit · Size 135 x 120 x 80 mm (5-½" x 4-⅞" x 3-½")

NEW

6043 · **Memory** · Routing Control Unit · Stores the positions of digitally controlled accessories (switches and signals) for up to 24 routes for immediate access · Routes can be programmed from the Keyboard or Interface (computer) · Direct call-up using buttons or track detection contacts · LED's indicate route availability · Microprocessor · Side plugs and sockets for connecting to Central Unit or additional Keyboards or Memories · Socket for a Decoder s 88 · Routes remain in memory storage even when the layout is turned off · Size 135 x 120 x 80 mm (5-½" x 4-⅞" x 3-½")

6040 · **Keyboard** · Controller for 16 double solenoid or 32 single solenoid magnetically-operated accessories · LED's indicate position of switches or signals · Microprocessor · Side plugs and sockets for connecting to Central Unit and additional Keyboards or Memories · Group of 4 coding switches which can be set to control a particular group of 16 magnetically-operated accessories · The last LED position entered remains in storage when the layout is turned off · Size 135 x 120 x 80 mm (5-½" x 4-⅞" x 3-½")



6020 · **Central Unit** · Supplies the layout with power and command controls via two wires · Microprocessor · Sockets on each side · Up to 10 Control 80 units and/or 1 Interface can be connected on the right side · Up to 10 Keyboards and/or 4 Memory units can be connected on the left side · 2 pairs of terminal clips for connections to the transformer and track · 2.5 amps maximum output · LED pilot light · Size 135 x 120 x 80 mm (5-½" x 4-⅞" x 3-½")

6038 · **Adapter 180** · Extension cable for remote installations of Control 80 or Keyboard or Memory Units · Flat strip wire with 2 plugs for connections to the side sockets on Digital units · Length 180 cm (71")

6039 · **Adapter 60** · Extension cable for remote installations of Control 80 or Keyboard or Memory units · Flat strip wire with 2 plugs for connections to the side sockets on Digital units · Length 60 cm (23-½")

6035 · **Control 80** · Universal-throttle control · Controls up to 80 digital-locomotives · Ten key buttons for inputting engine numbers · Two-digit LED indicator lights · Microprocessor · Side plugs for connecting to Central Unit and additional Control 80 units · Buttons for emergency stop and resumption of operation · On/off switch for additional functions · Size 135 x 120 x 80 mm (5-½" x 4-⅞" x 3-½")

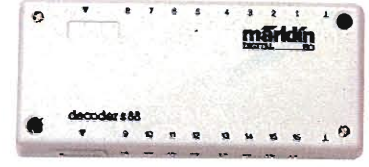
6050 · **Interface** · For connecting with a computer · Serial interface connections RS 232 C (V 24), can be switched to TTL level · Positive or negative logic can be used · Microprocessor · Side plugs for connecting to Central Unit or Control 80 · Standard socket for connecting to computer · Socket for Decoder s 88 · Size 135 x 120 x 80 mm (5-½" x 4-⅞" x 3-½")

6080 · **Decoder c 80** · For converting conventional Märklin H0 locomotives to digital operation · Does not have a factory-installed address · Set of coding switches for setting address · Connection for remote-controlled auxiliary function · Size 10 x 18 x 35 mm (½" x ¾" x 1-½") · **Installation by Digital dealers guaranteed**

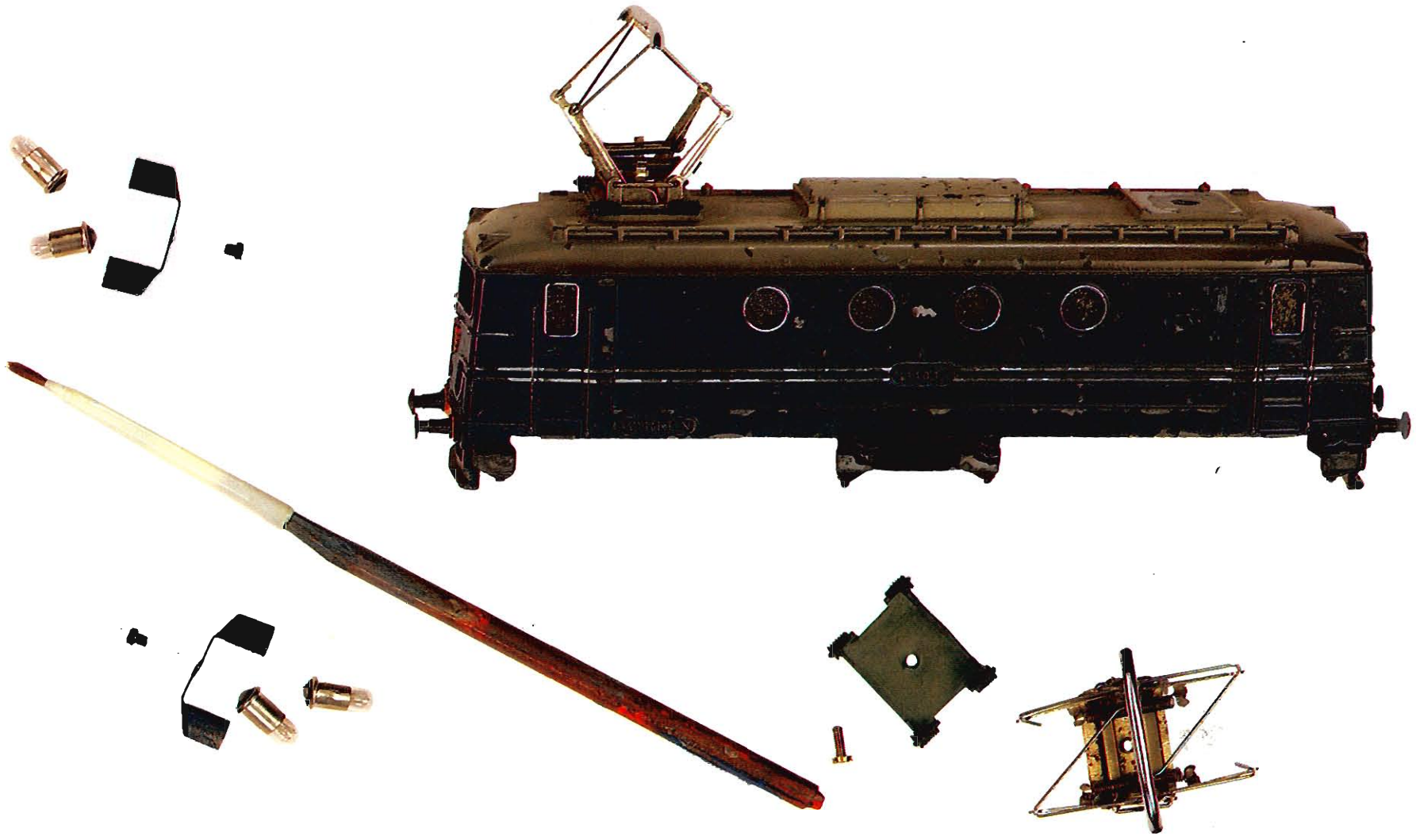
NEW

6081 · **Decoder c 81** · For DC powered H0 locomotives · For converting DC powered engines to "third rail" center stud digital operation · The existing reverse unit is no longer needed and must be removed · Set of coding switches to set address · Connection for remote-controlled auxiliary function

6083 · **Decoder k 83** · For switches, signals or uncoupling tracks on Märklin Digital layouts · For 4 double solenoid or 8 single solenoid magnetically operated accessories · 4 triple sockets for accessories · Two sockets each for connecting to track and an additional decoder · Coding switches can be set for any address · Two resistors for signals are included · Size 22 x 54 x 100 mm (1" x 2" x 4")



6088 · **Decoder s 88** · Track detection module for contact tracks on Märklin Digital layouts · Works in conjunction with a Memory unit, Interface or computer · Connections for additional Decoder units s 88 · 16 sockets for contact track connections · Size 23 x 54 x 124 mm (1" x 2-¼" x 5")



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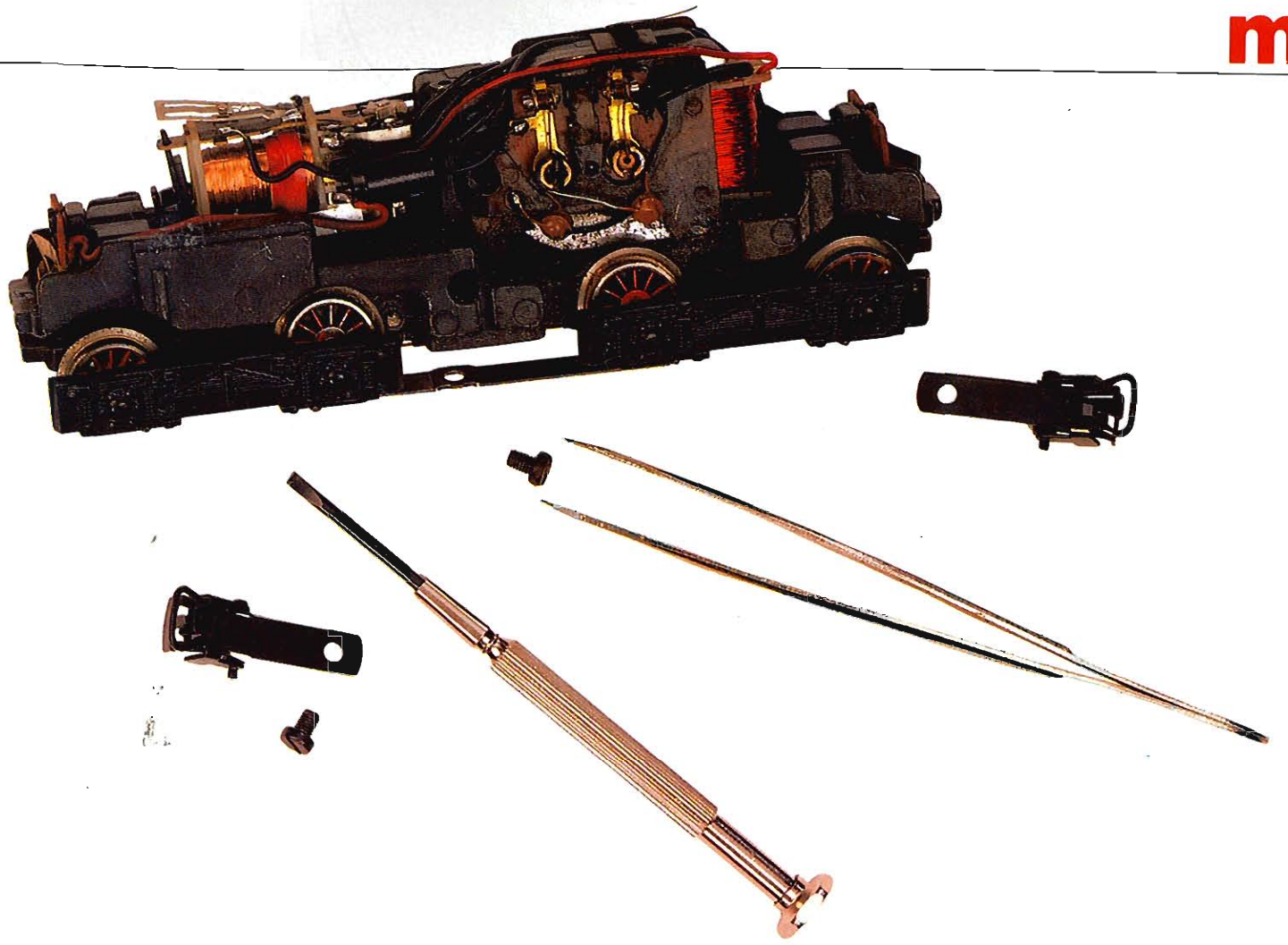
service



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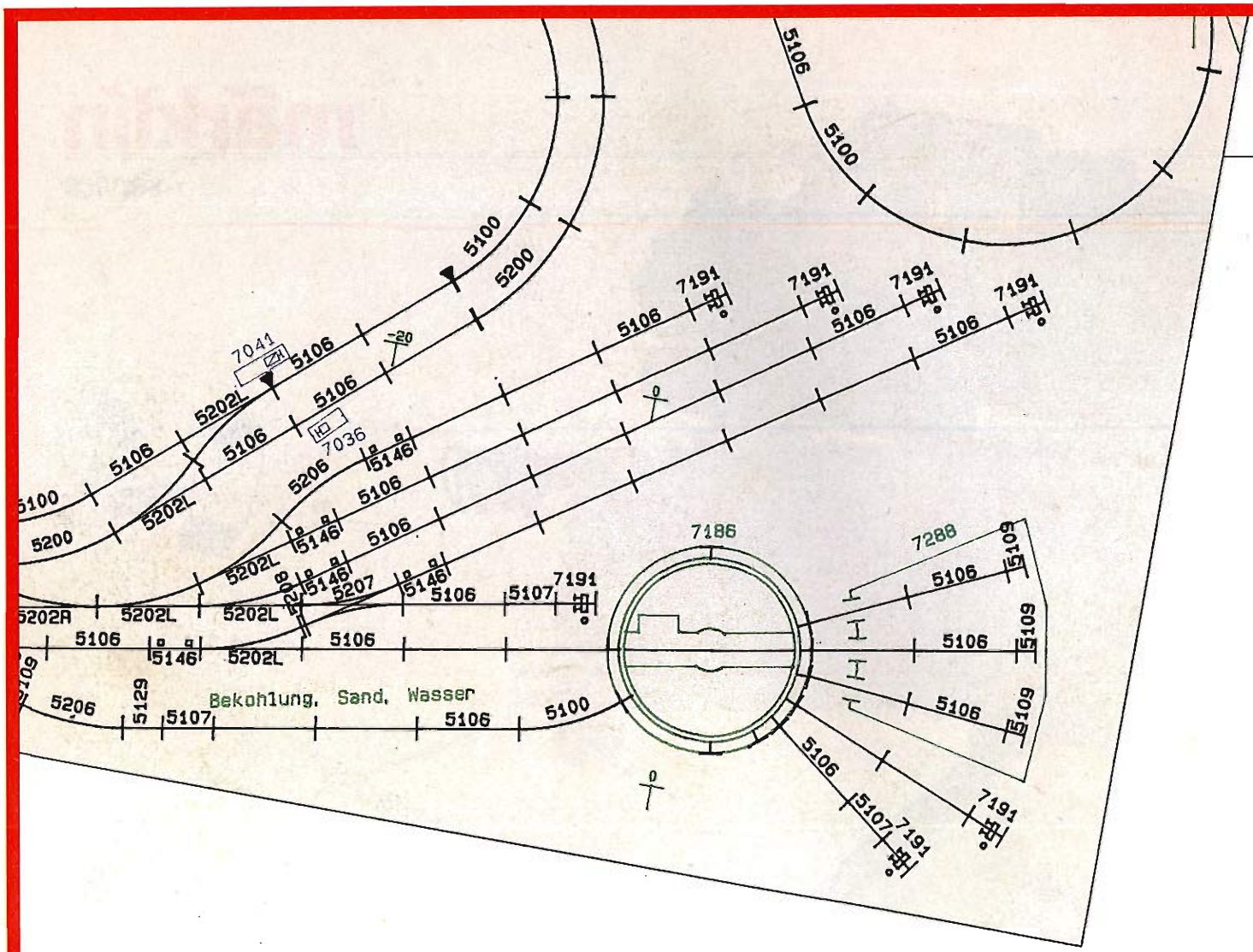

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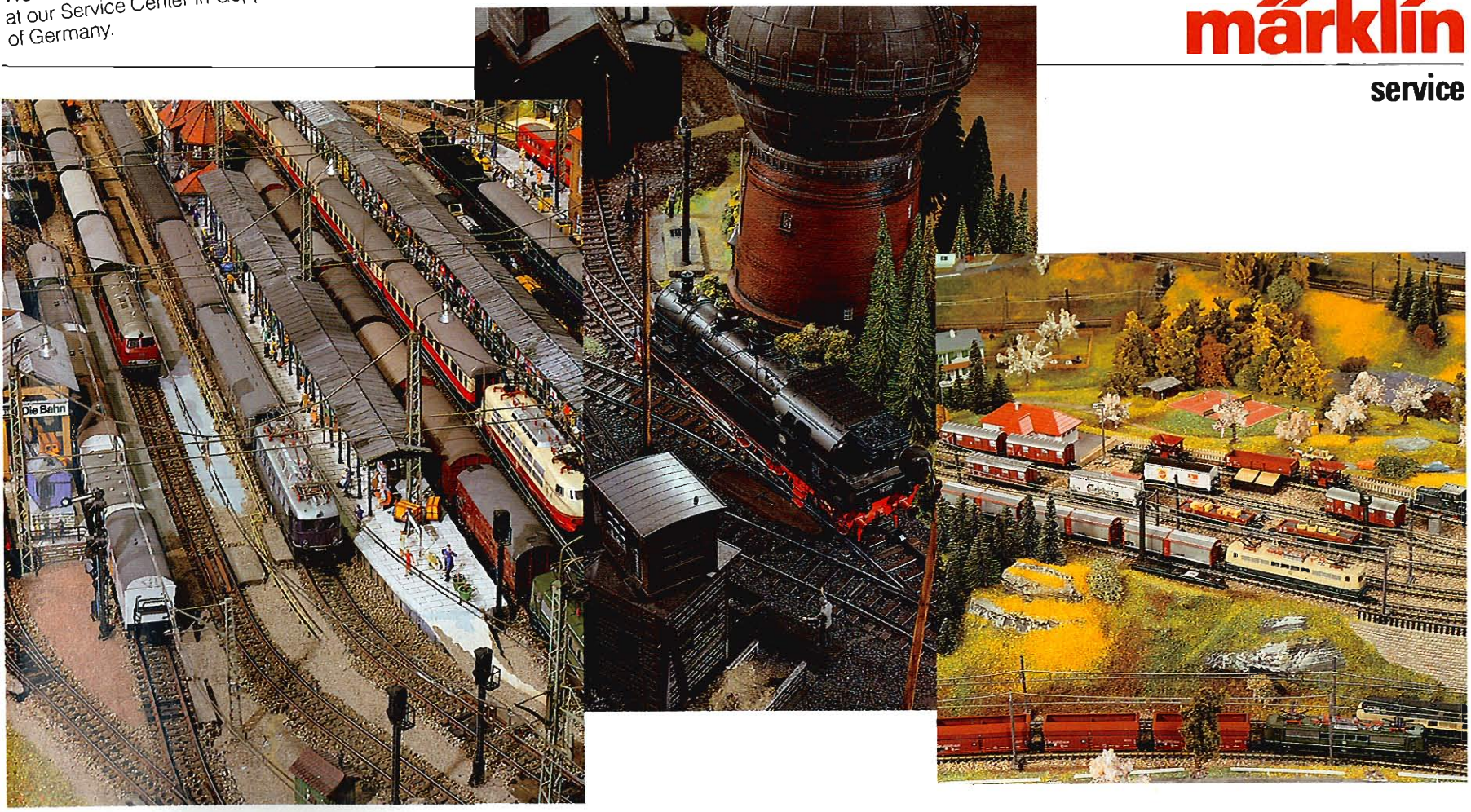

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