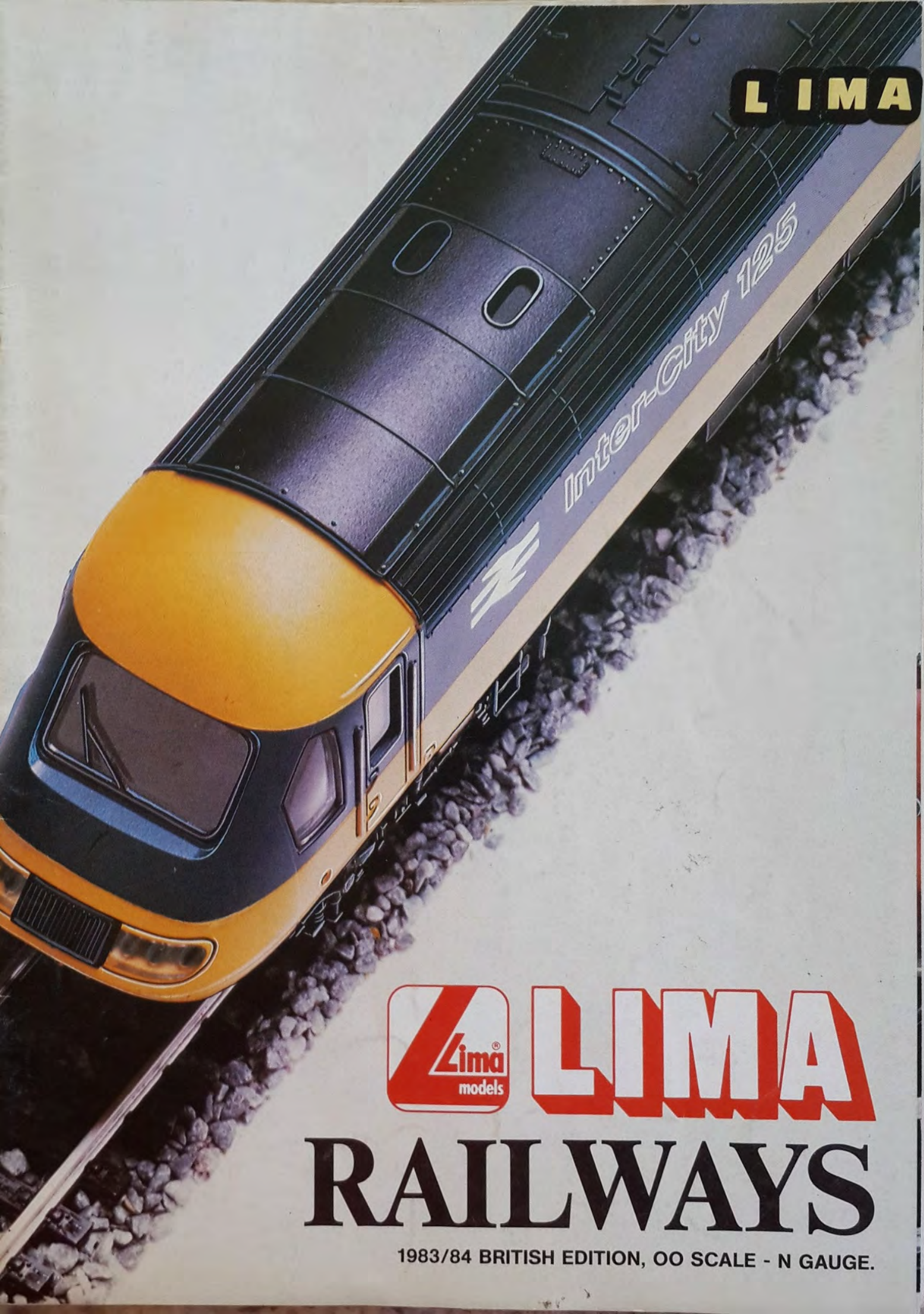


LIMA

RAILWAYS

1983/84 BRITISH EDITION, OO SCALE - N GAUGE.

Whilst every attempt is made to ensure the complete accuracy of all items in the Lima range, the manufacturers have altered/amended designs, specifications, materials, etc., as necessary, to enable them to produce such models by current production methods.

Items marked NEW are not necessary readily available at this time.

- OO Scale
- Golden Series
- N Gauge
- Micromodels
- OO Scale, N Gauge

All components contained in the Golden and Micromodels sets are available individually.

INDEX

WHY

Model railways on a grand scale – at the right price.
The attractive town of Vicenza in Italy is probably best known throughout the world, as the home of Lima. Our factory here has continually expanded over the past few years, and today Lima clearly ranks as world

leader in the production of model railways.
High technology, and our vast experience has resulted in modern manufacturing processes that keep production costs to a minimum. For you that means a great range of models, at very affordable prices.
Today's latest materials and our painstaking research into every prototype assures you of a consistent high quality and fine detail in every Lima model.
Buy Lima and you'll get great value for money.
And with the vast Lima range you'll find endless possibilities to build up a fabulous layout, and an absorbing hobby.

From prototype to finished model!
Buying Lima means you are buying the best in technology and experience. Every new model we introduce demands months of patient research, into original drawings, photographs and, wherever possible, studying the life-size original.
The prototype model, perfect in every detail, only goes into production after stringent checks and running tests.
Every single component is examined closely before becoming part of the final assembly.
And close attention to liveries, applied with our own special process, completes a model that you'll be proud to run on your railway.
Finally, long term tests on durability and reliability are your guarantee that you have a model worthy of the standards we set ourselves as World leaders.

The right scale for you.
Choosing the right scale is important, and depends both on the space you have available and on personal preference. Lima gives you that choice.

00 Scale (16.5 mm gauge) is probably the most well known and popular scale.
N Gauge (9 mm) is the perfect miniature railway, precise in every detail that, can accomodate almost twice the track "mileage" of 00 scale in a given area.

LIMA ARE NO. 1 IN THE WORLD OF MODEL RAILWAYS

LIMA Locomotives: Built for power.
Every Lima 00 locomotive uses the tried and tested Lima 'G' motor for long life and reliability. This high performance motor is both efficient and strong – capable of pulling long trains of

coaches and wagons – even on a gradient – without fear of overheating. It's a result of many years' development – based on the characteristics we know that modellers demand – and a design that features very efficient noise reduction, and elimination of T.V. and radio interference.

LIMA Train Sets – starting you on the right track.
Your first Lima Train Set will open up infinite possibilities for building that layout you always dreamed of. Model railways, even from the most modest beginnings, soon becomes a passion and Lima Train Sets are the easy way to begin the fascinating hobby of model railways. It won't be long before you can call yourself a true enthusiast, well on the way to building a railway network of your own that runs exactly along the lines of the real thing.
Lima Train Sets are the ideal way to start.
Many contain accessories based on real railway operations that immediately bring your layout to life.
From there the limits for development are endless.

LOCOMOTIVES 00

Lima's fine models of classic locomotives like the Great Western 'Kings' and LMS 'Crabs', truly bring to life the glorious days of thundering steam power.

The early days of the diesels, even now just a memory, are also captured in the superb. Warship and Western models, and modern day traction is well represented in the Lima range. In all, we offer the biggest selection of British outline locomotives and liveries in 00 which has long been the most popular scale in the U.K.

In 00 scale, the distance between the rails is 16.5 mm exact scale of 4 mm to one foot. Pa
dard

Supertraction.
Lima have alwais striven toward model railways realism. For scale speeds we offer you a choice of two power units based on our famous 'G' motor.
"Supertraction" is a low-ratio gearing, faithfully reproducing acceleration from a slow crawl to scale maximum speed.
"Supertraction" also gives you greater pulling power, transmitting energy more efficiently through the axles so that even steep gradients can be tacken at a steady climb.

High-speed.
"High-speed" high-ratio gearing is also available and is most suitable for locomotives renowned for their crack express speeds.
Trust Lima to get as near as possible to the real subject.
Both motors feature self lubricating gears that require no maintenance and of course they meet our standards of low noise and are suppressed against T.V. and radio interference.

THE FAMOUS INT

149751G

305366 BR Mark 3 2nd Class Inter-City Open Coach.

INTER-CITY 125

205160MG HST 125 Class 253 Power Car incorporating working headlights. - **205164** HST 125 Class 253 Non Powered Trailer. - **205161** BR MK 111 First Class Open Coach. - **205163** BR MK 111 Buffet Restaurant Coach.

205164 205163 205161

INTER-CITY ET 403/404

201075LGP 201076

149711GP

NEW

T.G.V.

201095LG Electric locomotive fot the TGV train. - (**201095LGP** With operating pantograph) - **201096** 1st class coach for the TGV train. - **201098** 2nd class dining coach for the TGV train. - **201099** Dummy locomotive for the TGV train.

201099 201096

RNATIONAL HIGH SPEED TRAINS

NEW **305367**

305367 BR Mark 3 Sleeper Inter-City Coach.

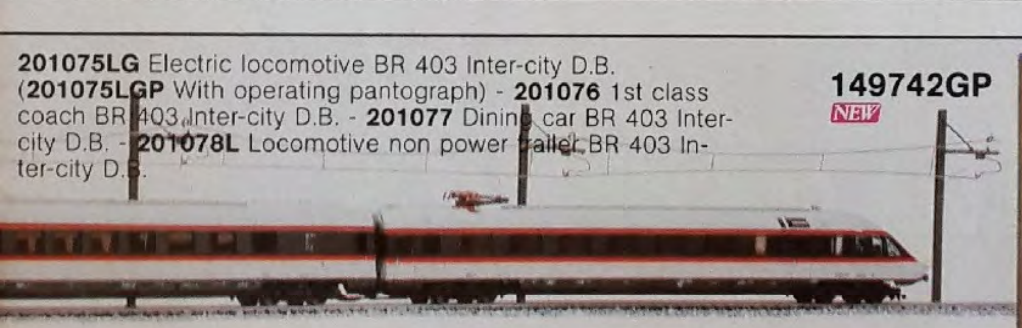
205162

205162 BR MK 111 Trailer Guard Second includes Guard Compartement.

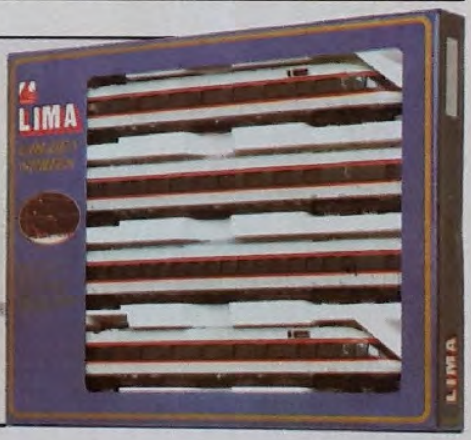
205160MG

201075LG Electric locomotive BR 403 Inter-city D.B. (**201075LGP** With operating pantograph) - **201076** 1st class coach BR 403 Inter-city D.B. - **201077** Dining car BR 403 Inter-city D.B. - **201078L** Locomotive non power trailer BR 403 Inter-city D.B.

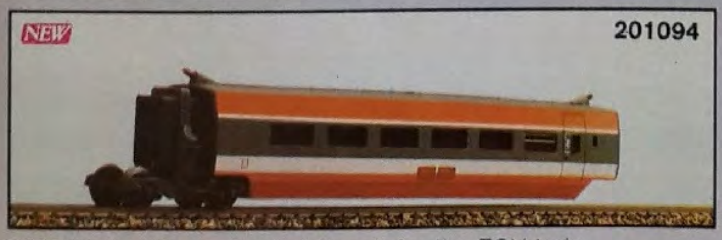
149742GP
NEW



201077 **201078L**



NEW **201094**



201094 2nd Class Central Coach for the TGV train.

NEW **201097**

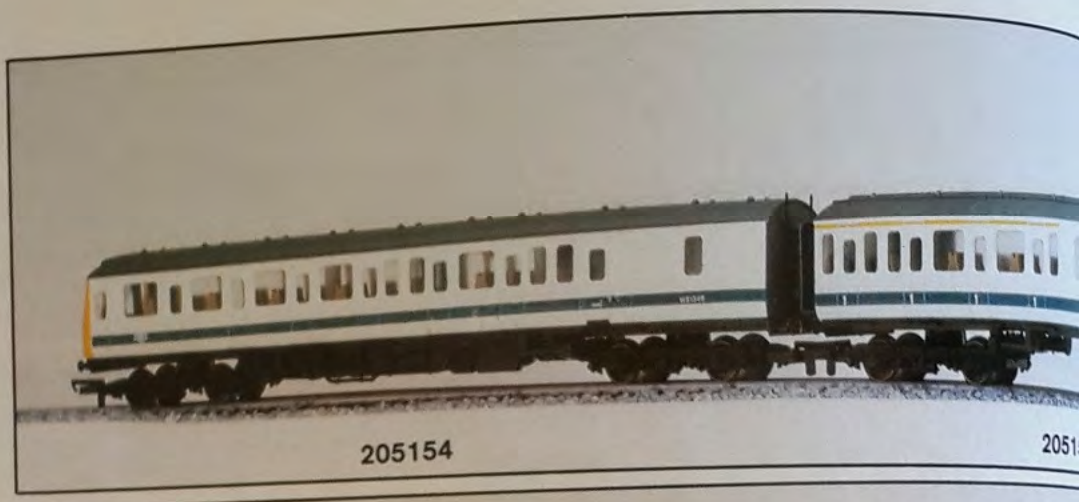
201097 Cent coach with bar for the TGV train.

201095LGP

DIESEL MULTIPLE UNIT CLASS 117/2

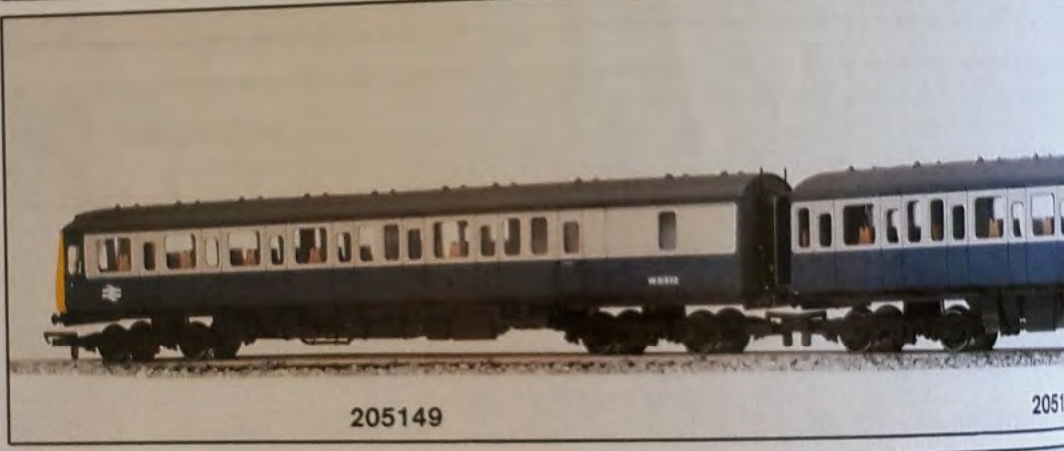
country and suburban diesel multiple services. These have proved to be a popular and cost effective method of passenger movement, especially over local commuter and shopper routes. Most types look basically similar and are built on two standard length underframes. Many combinations can be seen, including 2, 3 and 4 car sets. Our models are of the Pressed Steel Company's Motor Brake 2nd and the Lavatory Composite Car, which have seen service in most parts of the country. The Power Car was introduced in 1959, and powered by 2 BUT (Leyland) 6 cylinder 150 BHP engines. These mechanical transmission units weigh 36 tons and have an overall length of 64ft.

205152MG Class 117/2 DMU Motor brake 2nd Commuter Train "Refurbished" Livery.
205153 Composite Coach Type 117/TC Commuter Train "Refurbished" Livery.
205154 Class 117/2 DMU Motor Brake 2nd Non Powered Trailer Commuter Train "Refurbished" Livery.



205154

205147MG Class 117/2 D.M.U. Motor Brake 2nd 1981 Livery.
205148 Composite Coach type 117/TC 1981 Livery.
205149 Class 117/2 D.M.U. Motor Brake 2nd Non Powered Trailer 1981 Livery.

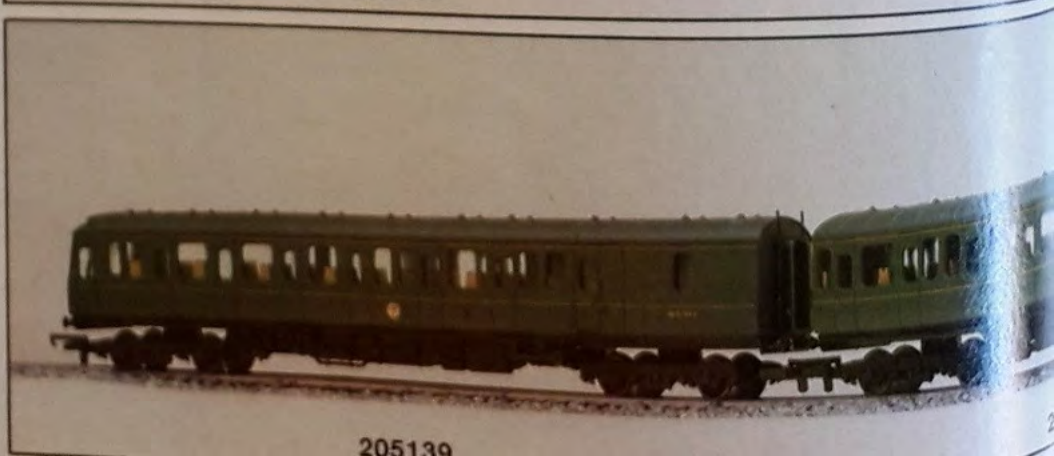


205149

205136MG Class 117/2 DMU Motor Brake 2nd 1974 Livery.
205145 Composite Coach type 117/TC 1974 Livery.
205138 Class 117/2 DMU Motor Brake 2nd Non Powered Trailer.

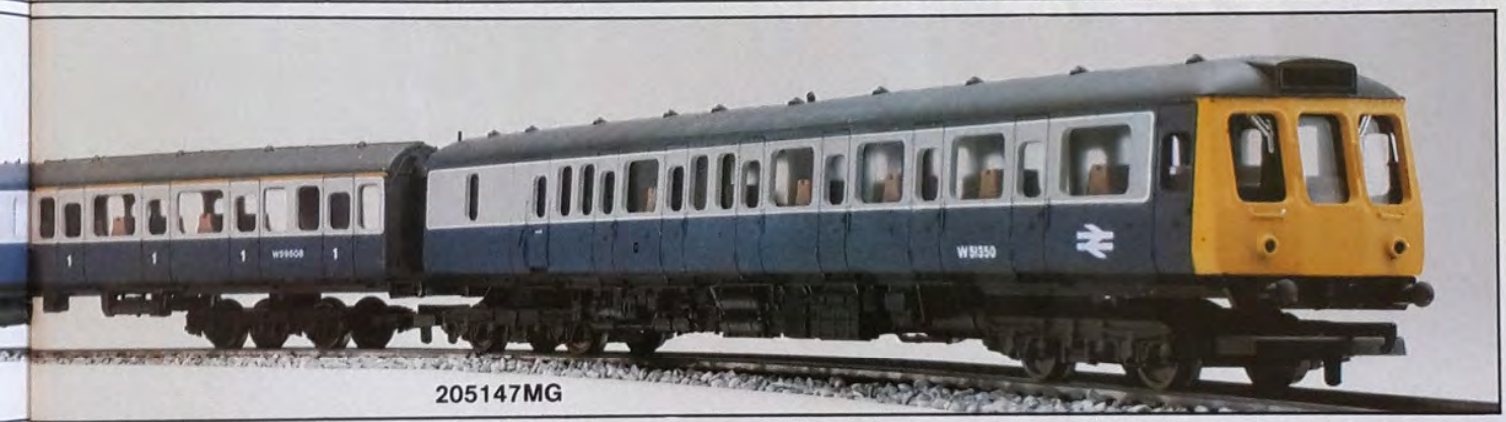
205138

205137MG Class 117/2 DMU Motor Brake 2nd 1959 Livery.
205146 Composite Coach type 117/TC 1959 Livery.
205139 Class 117/2 DMU Motor Brake 2nd Non Powered Trailer.



205139

205152MG



205147MG

205136MG

205137MG

CLASS 20

A single cab Bo-Bo design built 1957-67. Powered by an English Electric 85 VT Mk. 2 diesel of 1,000 B.H.P. (746 KW) giving a tractive effort of 42,000 lbs and a maximum speed of 75 M.P.H.

205158MG Class 20 Diesel-Electric Bo-Bo No 20171 Railfreight Livery.
NEW

205156MG Class 20 Diesel-Electric Bo-Bo No D8170 Early BR Livery.

NEW

205156MG

205157MG Class 20 Diesel-Electric Bo-Bo No 20 BR Livery.

NEW

CLASS 33 Bo-Bo

Based on the earlier Class 26 these diesel-electric Class 33 Bo-Bo's were manufactured by the Birmingham Carriage Company. They are largely based on the Southern region because their unique control system enables them to interwork in multiple with Southern electric-diesel locomotives and electric multiple-unit trains. They weigh 73 tons, have a fuel capacity of 800 galls and a top speed of 80 mph.

205115MG BR Class 33 Bo-Bo Diesel No 33025 "Sultan" Railfreight Livery.

CLASS 55 'DELTIC'

The Class 55 "Deltics", considered to be the 'King' of the diesels, were built by English Electric and entered service in 1961. They are the most powerful on B.R., with two 1650 hp 18-cylinder engines' and were the first Diesels built for regular working at 100 mph. They proudly carry the names and insignias of famous British Regiments.

205105MG Class 55 "Deltic" Co-Co Diesel n. D9008 "The Green Howards".

205106MG Class 55 "Deltic" Co-Co Diesel n. 55022 "Royal Scots Greys".

205114MG BR Class 33 Bo-Bo Diesel 1981 Livery No 33027 "Earl Mountbatten of Burma".

CLASS 09 'SHUNTERS'

Manufactured by the English Electric Company at Derby works in 1945 these diesel electric units producing a tractive effort of 35,000 lbs, formed the basis for many more Shunters built by various regions of B.R.

205108MG 0-6-0 Class 09 350 BHP Diesel Shunter. Early B Livery.

205151MG 0-6-0 Class 09 350 B-H.P. Diesel Shunter "Townsend Thoresen" Livery.

205109MG 0-6-0 Class 09 350 BHP Diesel Shunter. LMS Livery.

CLASS 50 'DIESEL'

The Class 50 Diesel electric Co-Co's were built by the English Electric Company Limited from designs developed in conjunction with B.R. Introduced in 1967 they incorporated several new features which allowed remotely controlled working on push-pull trains. Power is from the E.E. 16 CYL engine which produces a top speed of over 100 mph. Locomotives of this Class have been allocated to the Western and Southern Regions, where they carry the names of famous Royal Navy Battleships.

205141MG Class 50 Co-Co Diesel no. 50020 "Revenge".

205142MG Class Co-Co Diesel 1981 Railfreight Livery no. 50043 "Eagle".

205107MG 0-6-0 Class 09 350 BHP Diesel Shunter. BR Livery.

CLASS 87 'ELECTRIC'

British Rail's latest design of overhead electric locomotive, the Class 87 Bo-Bo's, were introduced in 1973 and were based on the previous Class 86/1. Their motive power is from four frame - mounted GEC 1250 h.p. traction motors producing a maximum speed of 100 mph. These pollution-free locomotives are the most sophisticated in full operation today.

205125MG BR Class 87 Electric Locomotive No. 87005, "C... of London".

205155MG BR Class 87 Electric Locomotive No. 87022, "Cock o' the North" in latest "Railfreight" Livery.

205155MG

CLASS 52 'WESTERN'

Developed from the "Warships" the diesel-hydraulic "Westerns" were built at Swindon and Crewe and introduced in 1961. In early years their Voith hydraulic transmissions and boggies gave trouble and to improve availability they were restricted to West of England service. Their two engines produced 1350 b.h.p. and their coach-profile body, recessed windscreen and clean styling make them the most handsome diesels built.

205122MG BR Class 52 'Western' Diesel-Hydraulic Locomotive. No. D1071 "Western Renown".

205121MG Class 52 'Western' Diesel-Hydraulic Locomotive, Western Maroon Livery No. D1016 'Western Gladiator'.

GWR RAILCAR

G.W.R. was the only Company to produce a really successful diesel powered rail car, first in service in 1933. No. 22 was built at Swindon in 1941. It had second class seating for 48 with limited luggage space, saw continuous service throughout the War and withdrawn for preservation in 1962.
No. 34, was also built at Swindon in 1941 and carried up to 10 tons. It first ran in original GWR Chocolate and Cream livery until nationalisation when it was relined to BR's standard Maroon livery.

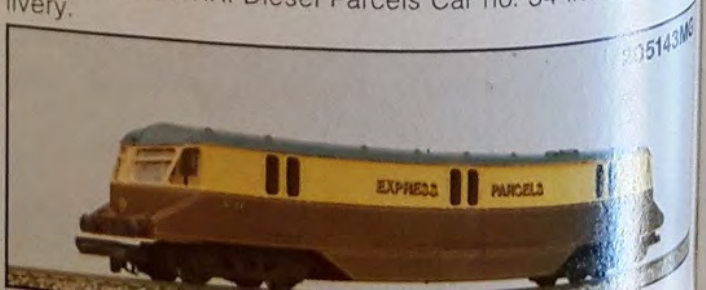
205132MG G.W.R. Rail Car No. 22 original Livery.

205150MG Diesel Railcar No W30W BR Green Livery.

205133MG G.W.R. Rail Car No. 22 1948 Crimson/Cream Livery.

205144MG Diesel Parcels Car no. 34 in 1948 livery.

205143MG G.W.R. Diesel Parcels Car no. 34 in original livery.



205135MG

CLASS 42/43 'WARSHIP'

205135MG BR Class 42/43 'Warship' Diesel-Hydraulic Bo-Bo No. D843. "Sharpshooter".

The "Warships" were built between 1959 and 1962; Class 42 at Swindon and Class 43 at North British. Their engines produced 2,200 b.h.p. with a tractive effort of 52,000 lbs. They were BR's first real success in diesels, with a top speed of 90 mph. Unusually, the bogies are without axle-boxes, bolsters or central pivots and they incorporate laminated coil springs to transmit body weight to bogie frames.

205127MG

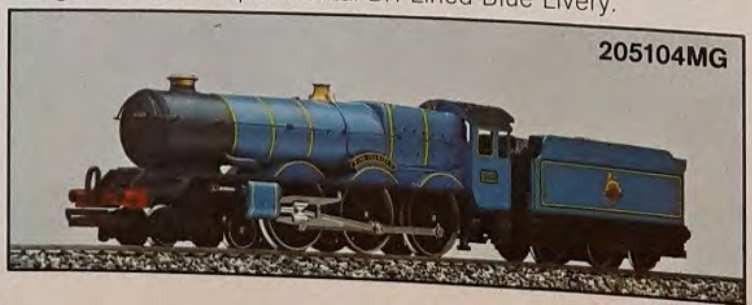
205127MG Class 42/43 'Warship' Diesel-Hydraulic Bo-Bo, Rail Blue Livery, No D814 "Dragon".

GWR 4-6-0 "KING" CLASS

Possibly the most famous of all G.W.R. locomotives, these magnificent express passenger engines were built by C.B. Collet at Swindon and introduced in 1927. The original No. 6000 King George V represented Gt. Britain at the Baltimore and Ohio Railroad centenary celebrations in 1927, where its unusual warning bell was fitted.
Withdrawn for preservation in 1962 this loco can still be seen on periodical excursions.

205103MG 4-6-0 'King' Class Express Locomotive. No. 6000 "King George V" in Lined GWR Green Livery.

205104MG 4-6-0 'King' Class Express Locomotive No. 6009 "King Charles II". Experimental BR Lined Blue Livery.



LMS HUGHES 2-6-0 "CRAB"

These impressive mixed traffic locomotives were the first new design of main line engine on the L.M.S.R. after grouping. Introduced in 1926 and designed by George Hughes C.M.E., they were hard working, and highly successful. Over 240 were built at Horwich and their unusual valve gear led to the nickname "Horwich Crab".

205119MG

205119MG 2-6-0 'Crab' Class Express Locomotive. LMS Lined Maroon Livery.

205120MG 2-6-0 'Crab' Class Express Locomotive. BR Lined Black Livery.

205120MG

GWR 45xx 2-6-2T

One of G.W.R.'s Standard Tank locomotives for cross country and branch line passenger work. The 45xx Class was designed by G.J. Churchward and 175 were built at Swindon Works between 1906-1929. These small Prairie tanks weighed 57 tons, produced a pressure of 200 lbs and had tractive effort of 21250 lbs superheated. They were a lighter and smaller development of the earlier 31xx.

205110MG 2-6-2 T Class 45xx Prairie Tank Loco. BR Lined Black Livery.

205111MG 2-6-2 T Class 45xx GWR Prairie Tank Locomotive in Original LIvery.

GWR 94xx 0-6-0T

94xx Class, intended for heavy shunting work and passenger traffic, was last in the line of Pannier Tanks produced for the G.W.R. at Swindon. Designed by F.W. Hawksworth and built in 1947 engine No. 9400 had allwelded tanks, an incredible coal capacity of 3½ tons, was super-heated and was fitted with Automatic Train Control. It was withdrawn from service in 1959 and is now preserved at the Great Western Railway, Museum at Swindon.

205117MG 0-6-0 T 94xx Class Tank Locomotive. Original GWR Livery.

205118MG 0-6-0 T 94xx Class Tank Locomotive. BR Unlined Black Livery.

LNER J50 CLASS 0-6-0T

Designed by Sir Nigel Gresley in 1914, the J.50 Class was adapted for use on the steep inclines of West Riding. An increase in cylinder size and the tank engine design provided the extra adhesion. Lima's model is of engine No. 8920 built at Doncaster works in 1924, re-numbered by B.R. in 1948, and finally withdrawn from service in July 1961.

205101MG 0-6-0 T Class J.50 Tank Locomotive. LNER Lined Apple Green Livery.

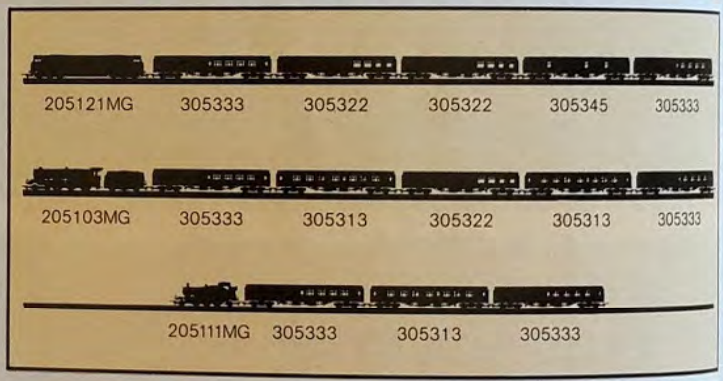
205102MG 0-6-0 T Class J.50 Tank Locomotive. BR Unlined Black Livery.

00 PASSENGER COACHES

In period, style and livery you can pair Lima locomotives exactly with the passenger coaches they once hauled, or can be seen heading today. We pay just as much attention to detail here as we do in locomotive production, making sure every colour match and all markings are perfectly reproduced. Even in pre-nationalisation days, before the advent of British Railways, there were opportunities to see a varied mixture of coach liveries in one train. Lima's wide choice opens up possibilities for many interesting combinations.

WESTERN REGION

The Great Western Railways was the only pre-grouping name to survive unchanged, and it absorbed some of the smaller railways of Wales into its territory, which already served the west of England and Birmingham routes. The elegant chocolate and cream livery was replaced by chocolate brown in 1909, but the loss of publicity value was soon realised and colours reverted to the original by 1921. This livery remained one of the hallmarks of Great Western pride well into British Railways times.



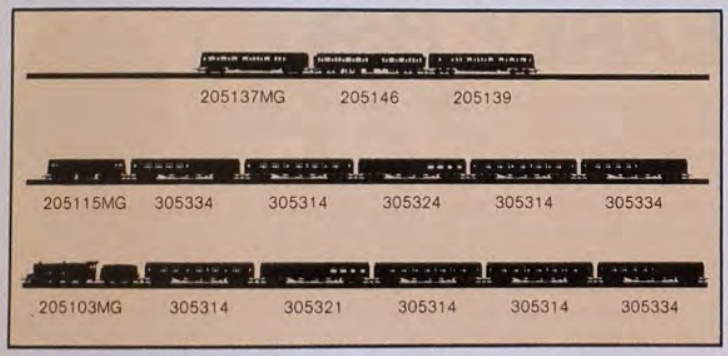
305345 Standard Gangwayed Brake Van. Western Region Livery.

305362 MK I Corridor 3rd Western region Livery.

305313 Mark I Corridor Composite Coach. Western Region Livery.

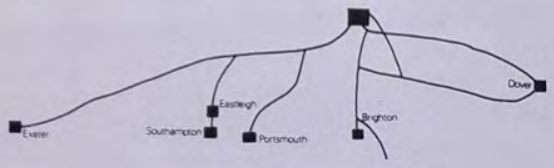
305322 Mark I Restaurant Car. Western Region Livery.

305333 Mark I Corridor Brake Coach. Western Region Livery.



SOUTHERN REGION

The Southern Railways was formed by the amalgamation of the London Brighton and South Coast. London and South Western, and South Eastern and Chatham Railways. Southern's green livery was a common sight in the South and by the time nationalisation came the company boasted a fine fleet of modern carriages designed by Surrey Warner.



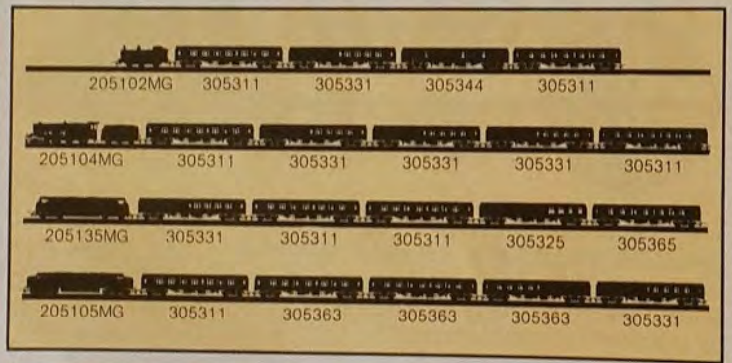
305334 SR Mark I Corridor Brake Coach.

305348 SR Standard Gangwayed Brake Van.

305314 SR Mark I Corridor Composite Coach.

305324 SR Mark I Restaurant Car.

305365 SR Mark I Corridor 3rd Coach.

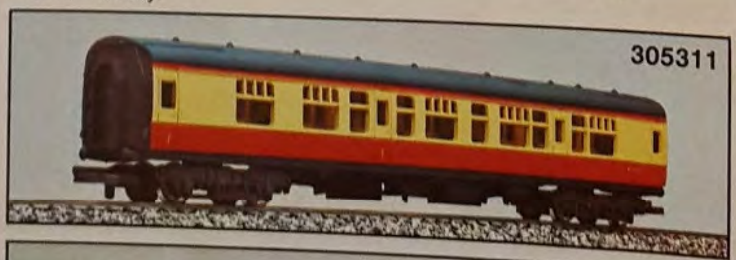


EARLY B.R.

On 1st January 1948, British Railways was born; and was divided into six regions, each retaining the livery of its previous owner company.
The Southern and Western regions were the old Southern and Greater Western Railways; the London Midland region corresponded to the LMS in England; the Eastern and North Eastern Regions ran on the former LNER lines in England, and the Scottish region took over the LMS and LNER lines in Scotland. British Railways produced their own crimson and cream livery when BR Mark I coaches were introduced in 1951. Later the prototype XP64 version became the basis for the new Mark II designs and the current livery.

305344 Standard gangwayed Brake Van. Crimson and Cream Livery.

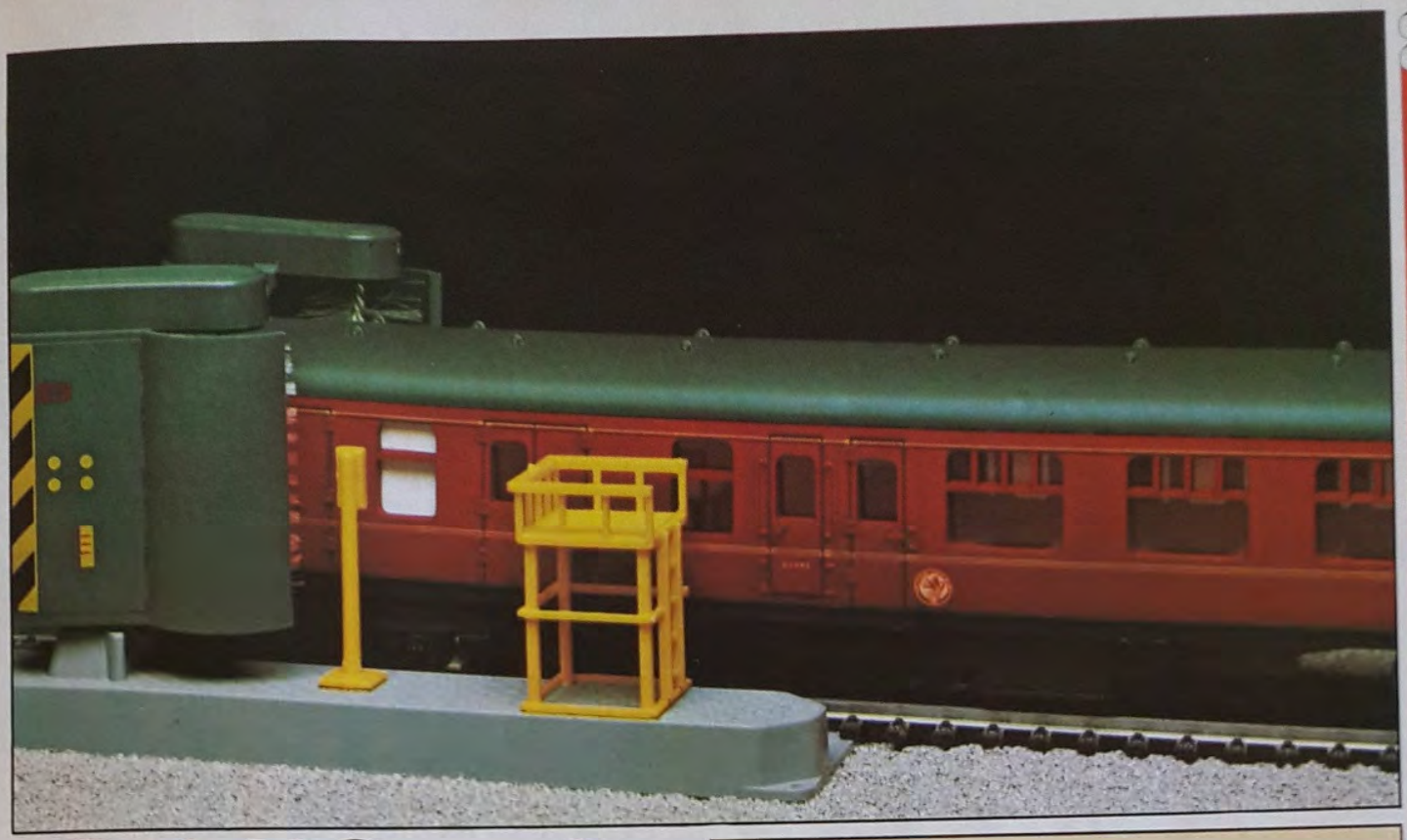
305311 Mark I Corridor Composite Coach. Crimson and Cream Livery.



305325 Mark I Restaurant Car Crimson and Cream Livery.

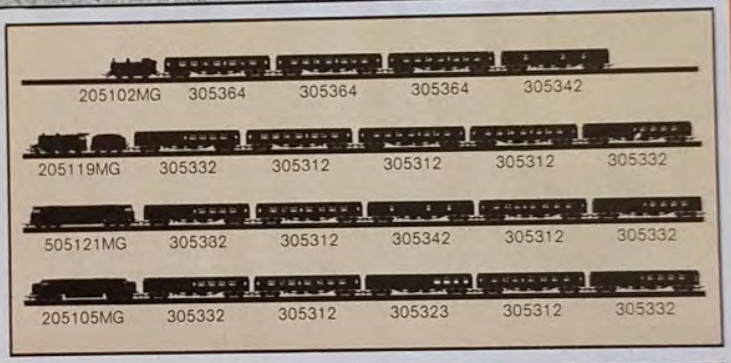
305363 BR Mark I Corridor 3rd. Crimson and Cream Livery.

305331 Mark I Corridor Brake Coach. Crimson and Cream Livery.



L.M.S.

The London Midland and Scottish Railway was the largest of the new companies of 1923, and served the Midlands, North West, and much of Scotland – over 7,800 miles of track.
The LMS led the way in mass production of rolling stock, and earned an enviable reputation for carriage design through the work of designers David Clayton, David bain and C.A. Park.



305312 Mark I Corridor Composite Coach. LMS Maroon Livery.

305332 Mark I Corridor Brake Coach. LMS Maroon Livery.

305323 Mark I Dining Car. LMS Maroon Livery.

305342 Standard Gangwayed Brake Van. LMS Maroon Livery.

305364 Mark I Corridor 3rd. LMS Maroon Livery.

INTER-CITY

The name Inter-City was first used in 1951 when a train was named "The Inter-City" for the Festival of Britain. In 1963 the name was used again in an advertising campaign and the concept of presenting the Inter-City service to take shape. In 1965 the first campaign was launched to present Inter-City on a national basis and the service now generates more than 8,400 million passenger miles per year.
The latest Inter-City coach design (the Mk III) in its famous blue/grey livery was introduced in 1975 – with improved bogies for 125 mph running, power operated internal doors, more seats without extra weight (for better economy), tinted double glazed windows, and improved sound insulation. British Rail is the only European railway to provide air-conditioned coaches as standard (on its Inter-City service) without extra charge to the passenger.

305308 BR II Mini Buffet Coach.

305301 BR Mark 2B Inter-City First Class Corridor Coach.

305302 BR Mark 2B Inter-City Open Coach.

305303 BR Mark 2B Inter-City Corridor Brake Coach.

305343 BR Standard Gangwayed Brake Van.

305321 BR Mark I Restaurant/Buffet Car.

305335 BR Mark I Corridor Brake Coach.

305315 BR Mark I Corridor Composite Coach.

305361 BR Mark I Corridor 2nd Coach.

FREIGHT WAGONS 00

Despite modern developments in freight stock, there are still many older wagons to be seen on today's railways.

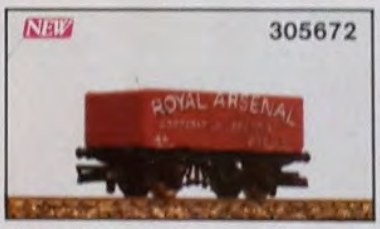
Lima covers the whole range. Open wagons with fixed and opening sides, closed vans for general goods, car and container transporters, tankers and even the most up-to-date bulk carriers.

Every year the choice grows and grows.

With Lima wagons you can compose freight trains of infinite variety – just as you see in real life.

305670 'Pilkington Brothers' 7 Plank Wagon.

305671 'Pontefract Collieries' 7 Plank Wagon.



305672 Royal Arsenal Co-op 7 Plank Wagon.

305673 Black and Decker 7 Plank Wagon.

305674 N.C.B. 7 Plank Wagon.

305675 Grey 7 Plank Wagon.

305680 Tool 20 ton Box Van.

305681 Ford Motor Co Box Van.

305682 Pearl Fruit Box Van.

305683 Ever Ready Box Van.

305620 BR 20 ton brake van.

305621 LNER 20 ton brake van.

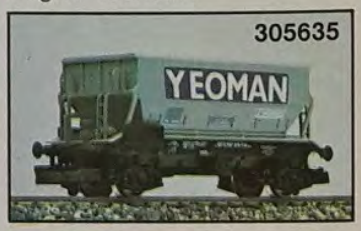
305625 GWR 2 Axle horse box.

305626 2 Axle Horse Box LMS Livery.

305628 2 Axle Horse Box SR Livery.

305639 50 ton Stone hopper wagon "Tarmac".

305635 50 Ton stone hopper wagon 'Yeoman'.



305636 50 Ton stone hopper wagon 'A.R.C. Roadstone'.

305637 50 Ton stone hopper wagon B.R.

305638 50 Ton 'Tilcon' stone hopper wagon.

NEW

305663 BR Bogie Iron Ore Tippler Wagon Grey.

305371 BR Standard Bogie G.U.V. Maroon Livery.

305664 BR Bogie Iron Ore Tippler Wagon Orange Grey.

305665 Sealion Bogie Ballast Wagon Olive.

305667 Seacow Bogie Ballast Wagon Grey/Yellow.

305666 Sea... Ballast Wag...

305356 CCT parcels wagon 'Rail Blue Livery'.

305357 CCT parcels wagon 'Early BR Livery'.

305359 LMS GUV Bogie parcels van. BR Crimson/Cream.

305360 LMS GUV bogie parcels van. BR Blue.

305358 LMS GUV bogie parcels van, maroon.

305355 CCT parcels wagon 'Tartan Arrow'.

305641 GWR 3 axle Milk tank wagon 'St. Ivel'.

305642 GWR 3 axle Milk tank wagon 'I.M.S.'.

305643 GWR 3 axle Milk tank wagon 'Express Dairy'.

305644 GWR 3 axle Milk tank wagon "C.W.S. LTD".

305630 Bogie bolster wagon Bobel "B" steel load.

305629 GWR Bogie Bolster Wagon with steel load.

305640 3 axle oil tank wagon "Corn Products".

305370 BR Standard Bogie G.U.V. "Air Compressor" Livery.

305310 BR Mk 1 Engineers Dept Coach.

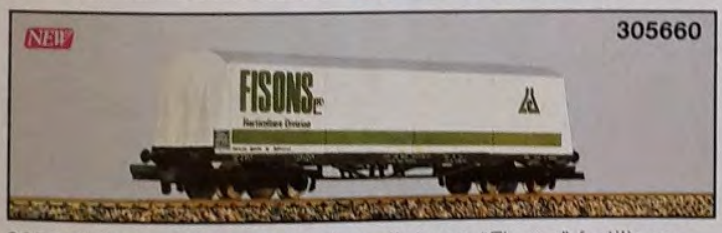
305668 50 Ton Stone Hopper Wagon B.P.

305659 Procor 82 Tonne Bogie Pallet Van Neill & Brown.

305653 Procor 45 ton Bass Charrington Hopper Wagon.

lion Bogie
on Bauxite.

NEW



305660 Procor 82 tonne bogie pallet van "Fisons" fertilisers livery.

NEW

305661 Procor 82 tonne bogie pallet van "UKF" fertilisers livery.

305662 Procor 82 tonne bogie pallet van standard BR livery.

NEW

305645 Procor 102 tonne GLW class A bogie tank wagon "Esso" livery.

NEW

NEW

305646 Procor 102 tonne GLW class A bogie tank wagon "Fina livery".

NEW

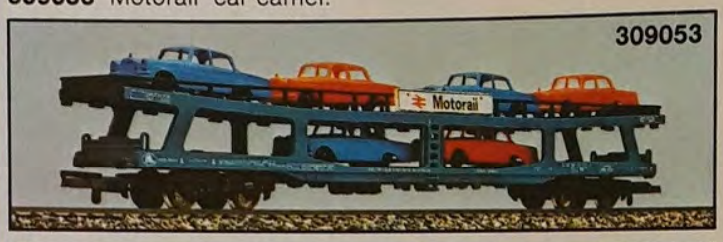
305647 Procor 102 tonne GLW class A bogie tank wagon "Philips Petroleum" livery.

305652 Procor 45 ton Whisky Grain Hopper Wagon "Black & White".

305651 Procor 45 ton Whisky Grain Hopper Wagon "Haig".

305650 Procor 45 ton Whisky Grain Hopper Wagon "VAT 69".

309053 'Motorail' car carrier.



309057 'British Leyland' car carrier.

309067 'British Steel Corporation' foundry wagon.

309068 Multiple wagon with 'GEC' transformer load.

305656 BR Standard 57ft Bogie GUV "Express Parcels".

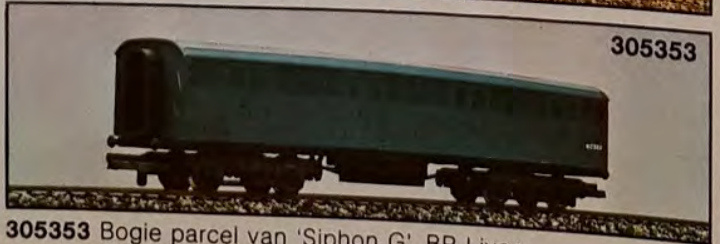
305657 BR Standard 57ft Bogie GUV 1958 lined maroon livery.

305658 BR Standard 57ft Bogie GUV "Theakstons Beer" livery.

302892 'NCB' coal-hopper wagon with operating doors.

305350 Bogie parcel van 'Siphon G' early BR livery.

305351 GWR Bogie parcel van 'Siphon G'.



305353 Bogie parcel van 'Siphon G'. BR Livery.

309059 35 ton breakdown crane and flat car. LNER Livery.

ACCESSORIES

With a few Lima accessories you can transform your layout into an action-packed railway.
Each is an exact miniature, operating perfectly in the same way as the original.
Everyone likes to think of themselves as an engineer landscaper, or architect when building a model railway.
Lima's great range of accessories help you become all of these, easily and with a modest outlay.

602892
Fully operational coal depot. double action transfer of coal from NCB hopper wagon to storage silo and back to road. Wagon and two lorries included.

AUTOMATIC CAR UNLOADING TERMINAL

600941
Automatic car unloading base. Complete with motorail car transporter and four cars. Ramp adjusts to both levels of transporter as your passengers drive on and off.

600822
Ford Capri (two car pack).

600823
Fiat 131 (two car pack).

600807
Dunlop container lorry.

600803
Builders merchant lorry.

600804
Shell petrol tanker.

600805
Seatrain container lorry.

600801
Atlantic container lorry.

600963
Container terminal and unloading siding. Fast transfer of freight from rail to road with this special bogie transporter, terminus and container lorry.

600830-600832
Scale containers. For trackside stacking or for transportation. Four assorted in each pack.

600990
Container unloading crane. Easy transfer from road to rail on any part of your layout. Also for stacking containers at the depot.

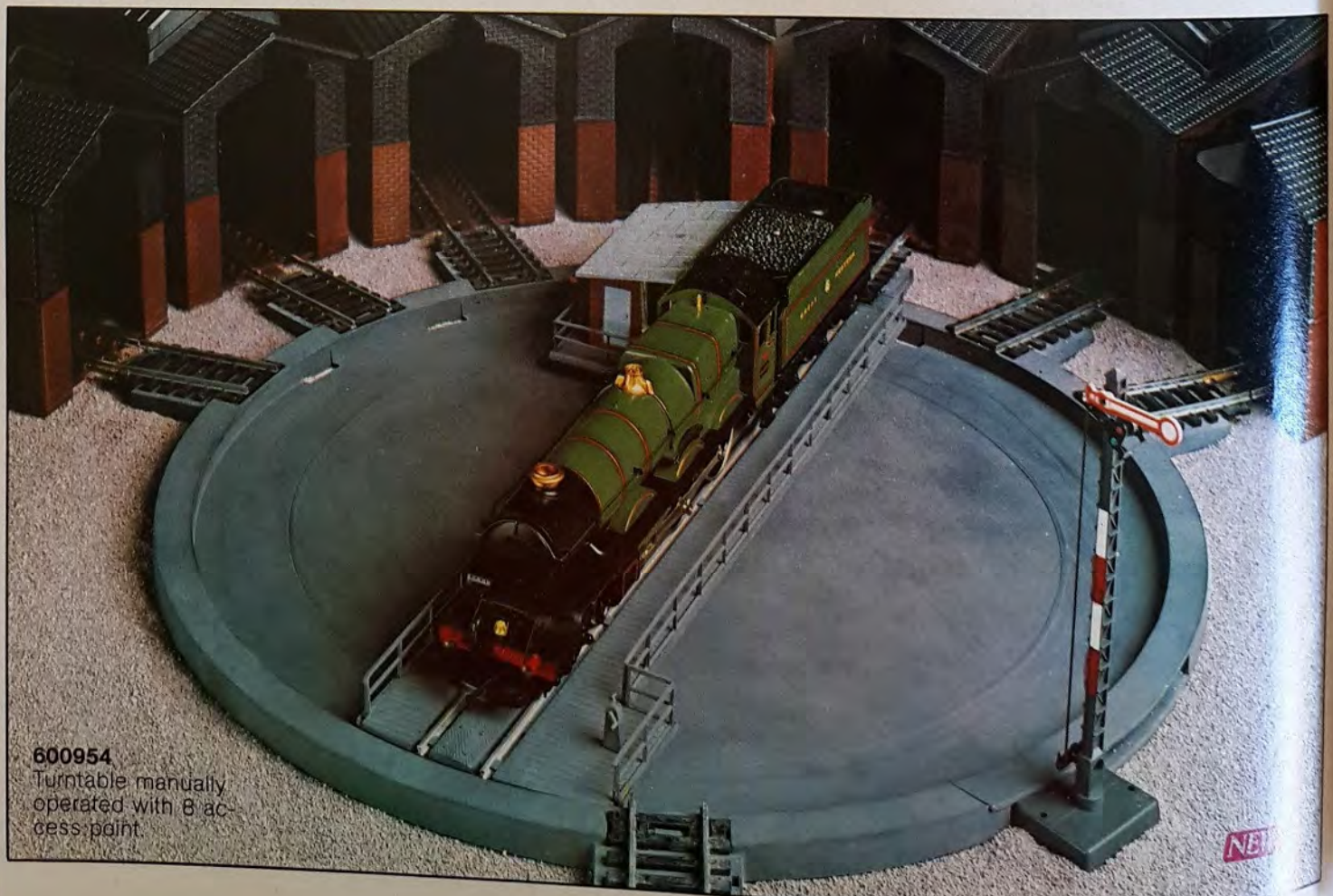
602880
Wagon carrying pipes, with automatic unloading action, complete with unloading base.

600960
Freightliner terminal. Your fully-equipped terminal makes light work of the flow of container traffic from road to rail. With rail transporter and two container lorries.

AUTOMATIC COACH WASH

600951
Automatic coach wash. Automatically operated as coach movement activates brushes.

TURNTABLE

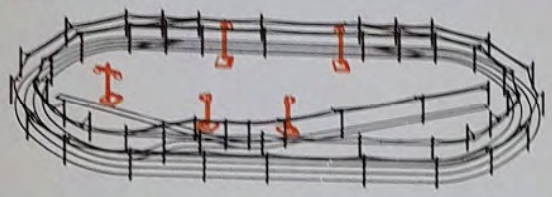


600954
Turntable manually operated with 8 access point.

SIGNALS

Signalling is a basic necessity for very layout, in terms of realism and scale operation, allowing you to run your trains correctly and safely.

404025

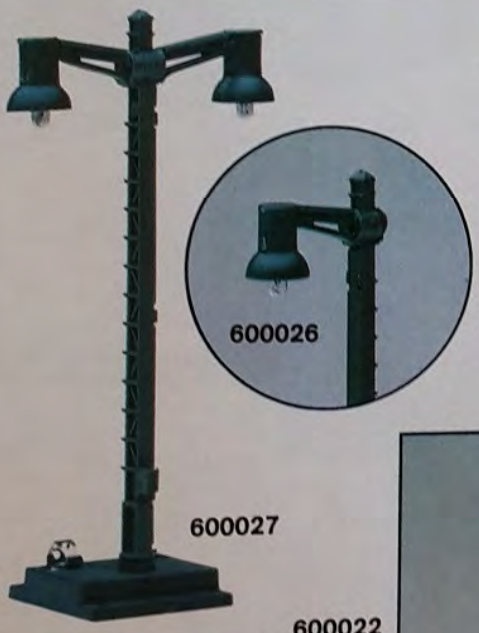


Additional Track Layout Box complete of Signals, Lamps and Accessories for additional Track Layout Boxes 1+2+3.

1×600027 Lamp with two arms. - 2×600026 Lamp with single arm. - 2×600029 2-light signal with control switch. - 1×600823 Fiat 131. - 1×600822 Ford Capri. - 1×600804 Shell petrol tanker. - 1×600803 Builders merchant lorry.

600035 NEW

600036 NEW



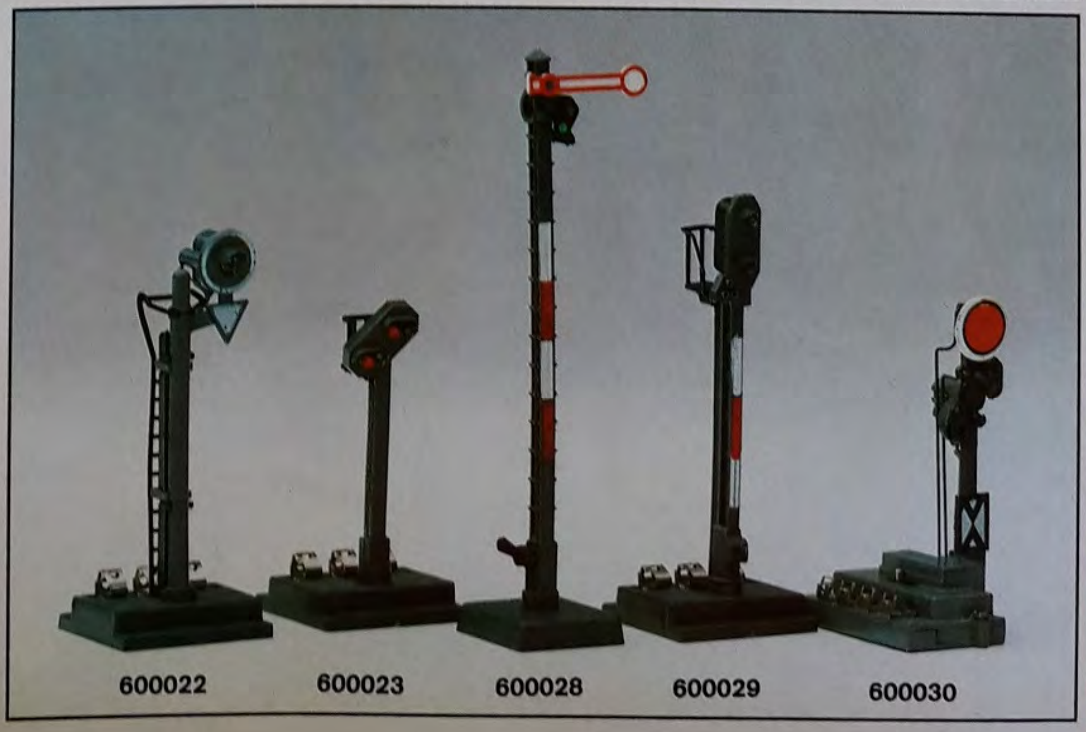
600026

600027

600026
Lamp with single arm.
600027
Lamp with two arms.
600035
LMS/BR Upper Quadrant Signal, Home + Home/Distant.
600036
LMS/BR Upper Quadrant Junction + Signal.

600025

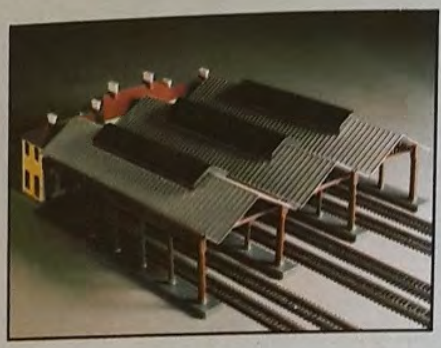
600022
Red and green light signal with control switch 3067.
600023
4-light signal with control.
600028
Single arm 2-position signal.
600029
2-light signal with control switch 3067.
600030
Warning signal with control switch 3067.
600025
Double signal on gantry with level crossing. The train stops when the red signal is showing the barriers lower automatically when the train is passing.



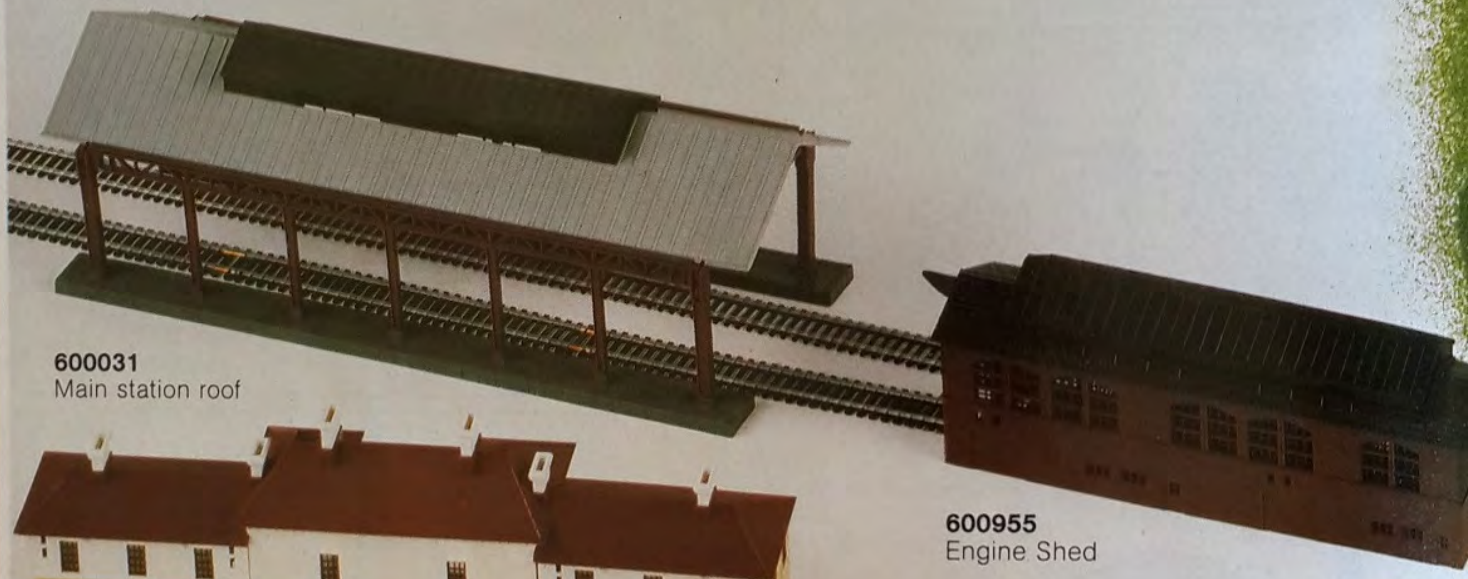
600022 600023 600028 600029 600030

MAIN STATION

Example of use of the Main Line Station with 1 section 600033 and 1 section 600031.



Example of use of the Terminal Station with 1 section 600033 and 3 sections 600031.



600031
Main station roof

600955
Engine Shed

600033
Main station

600021
Automatic level crossing

600055
Banked Bridge in a curved stretch

600057
Banked Bridge in a straight stretch

BRIDGES

One of the biggest problems facing railway modellers is the lack of space. One answer is build up another layout some 8-10 cm above the first – but it is important to remember that a locomotive can only climb certain gradients. If the incline is too steep the driving wheels will spin and the locomotive may stop, unable to reach the top.

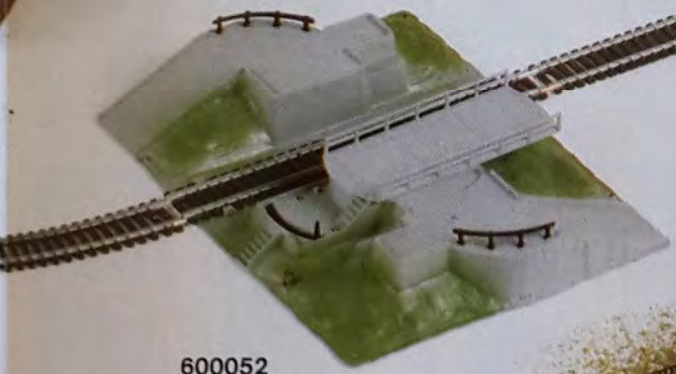
As a general rule, if the gradients is of 3% the ramp must not exceed 3 cm of track per meter. Thus in this case, for the ramp to give a height of 9 cm the gradient must be spread along 3 meters of track.
Where short trains are used a steeper incline is possible – up to 4.5% – giving a gradient spread along 2 meters of track where a height of 9 cm is desired.

600911
Bridge for a Fig. 8 Banked Circuit

VILLAGE

NEW **600938**
Village.

602080
Tunnel



600052
Mechanical Swing Bridge with autom. Train Stop

STATION

600930 Station.

NEW **600058**
Banked Bridge.

STEEL TRACK

403056 100 pieces double length curved 45°2nd radius 403017.
403057 100 pieces double length straight 333 mm 403027.
403060 100 pieces straight track 222 mm 403020.
403061 100 pieces straight track 111 mm 403021.
403062 100 pieces curved track (ø mm 36 - °) 403030.
403063 100 pieces curved track (ø 720 mm - 18°) 403031.
403064 100 pieces curved track (ø 862 mm - 30 °) 403011.
403067 100 pieces 2nd radius, curved track (ø 862 mm - 22.5°½) 403012.
403068 100 pieces standard straight track 166.5 mm 403023.
403011 12 pieces curved track (ø 862 mm - 30°).
403012 12 pieces 2nd radius, curved track (ø mm - 22.5°½).
403017 12 pieces double length curved 45° 2ns radius.
403020 12 pieces straight track 222 mm.
403021 12 pieces straight track 111 mm.
403022 12 pieces straight track 55.5 mm.
403023 12 pieces standard straight track 166.5 m m .
403023C 12 pieces standard straight track with power clip 166.5 mm.
403023CG 12 pieces standard straight track with power clip 166.5 mm.
403024 12 pieces straight with power clip 55.5 mm.
403024R 12 pieces straight isolating track 55.5 mm.
403027 12 pieces double length straight 333 mm.
403030 12 pieces curved track (ø 720 mm).
403030C 12 pieces curved track with power clip 36°.
403030CG 12 pieces curved track with power clip 36°.
403031 12 pieces curved track (ø 720 mm - 18°).
403032 12 pieces curved track (ø 720 mm - 9°).
403035 12 pieces compensating left track.
403036 12 pieces compensating right track.
403042 12 pieces flexible track 90 cm.
403055 12 buffer stop.
403025 6 pieces straight with buffer stop.
403043 3×4 pieces flexible track 90 cm.
403045 2 pieces diamond crossing (36°) 403041.
403046 2 pieces right diamond crossing (18°) 403038.
403047 2 pieces left diamond crossing (18°) 403039.
403052 2 pieces right-hand point (manual) 403050.

403073
6 pieces double lenght straight (333 mm) 403027.

403083
6 pieces double curve 45° 2nd radius 403017.

403088
6 pieces curved track ø 720 mm - 45° 403029.

403086
6 pieces curved track (diameter 862 mm 403011 30°.

403075
1 curved track with power clip 403030C.
1 straight track with power clip 403024 - l. 55,5 mm. 403029.

403076
1 straight track 403020.
1 straight track with buffer stop 403025.
1 403024R.

403078
1 straight track (222 mm) 403020.
1 hand - operated uncoupler 403028.

403089
1 piece curved track 403029
1 piece curved track 403029C.

403070
6 pieces straight track (222 mm) 403020.

403080
6 pieces curved track (diameter 720 mm) 403030, 36°.

403033
Rerailer.

403050
Right hand point, hand operated.

403050E
Right hand point, electrically operated.

403051
Left hand point, hand operated.

403051E
Left hand point, electrically operated.

403048
1×403050,
1×403051,
1×403036,
1×403035.

403048E
1×403050E,
1×403051E,
1×403036,
1×403035.

403077
4 pieces straight track l. 55,5 mm. 403022.
2 pieces curved track ø 720 mm. 403032 insulated fishplates 600015.

403026
Variable length track.

403081
6 pieces curved track 403031 ø 720 mm 18°

403071
6 pieces straight track (111 mm) 403021.

3×600875
Motor springs and brushes.

3×600877
Insulating fish-plates.

3×600874
Clips.

3×600876
24 metal fishplates.

3×600870
4 axles.

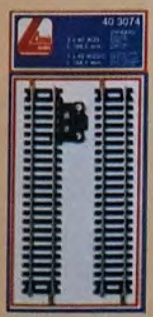
STEEL TRACK

403052E 2 pieces right-hand point (electric) 403050E.
403053 2 pieces left-hand point (manual) 403051.
403053E 2 pieces left-hand point (electric) 403051E.
403054 1 right-hand point+1 left-hand point (manual) 403050+403051.
403054E 1 right-hand point+1 left-hand point (electric) 403050E+403051E.

403038 Crossing 18° right hand.
403039 Crossing 18° left hand.

403041 Crossing 36°.

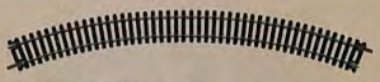
403072 6×403023 straight standard l. 166,5 mm.



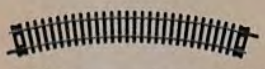
403074 1×403023C 3×403023

403087 6×403012 curved ø 862 mm 22°1/2.

403079 2×403035 2×403036



403017 double length curve 45° 2nd radius.

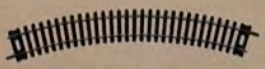


403011 curved track (ø 862 mm). 30°.

403012 2nd radius, curved track (ø 862 mm). 22,5° 1/2.

403029 curved track ø 720 mm 45°.

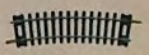
403029C curved track with power clip. ø 720 mm 45°.



403030 curved track (ø 720 mm). 36°.

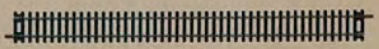
403030C curved track with power clip. 36°.

403033 rerailer.



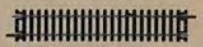
403031 curved track (ø 720 mm). 18°.

403032 curved track (ø 720 mm). 9°.



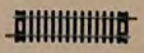
403027 double length straight 333 mm.

403020 straight track 222 mm.



403023 standard straight track 166,5 mm.

403023C standard straight track with power clip 166,5 mm.



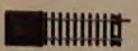
403021 straight track 111 mm.

403022 straight track 55,5 mm.

600002 Railer.

403024 straight with power clip 55,5 mm.

403024R straight isolating track 55,5 mm.

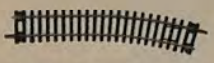


403025 straight with buffer stop 111 mm.

403042 flexible track 90 cm.

403026 extendable track 111 to 166,5 mm.

403028 Wagon uncoupler 222 mm.



403035 compensating left track.

403036 compensating right track.

403038 right diamond crossing (18°).

403039 left diamond crossing (18°).

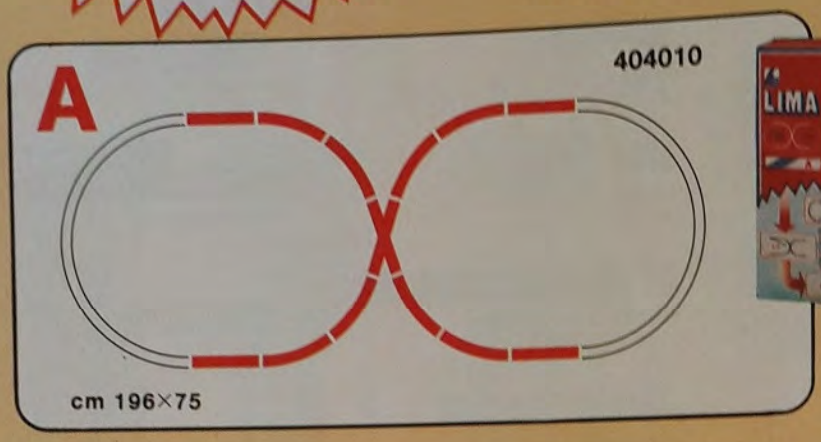
403041 diamond crossing (36°).

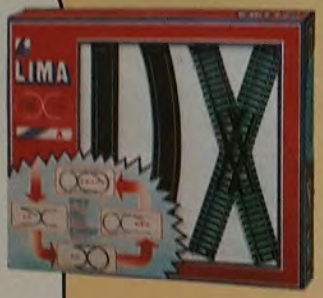
403050 right-hand point (manual).
403050E right-hand point (electric).

403051 left-hand point (manual).
403051E left-hand point (electric).

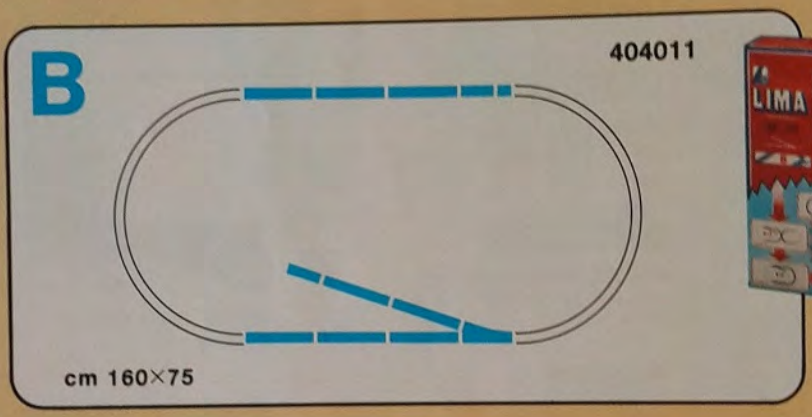
POINTS HAND OPERATED

How to enlarge the circuit. Starting with a LIMA train set, you may realize with the addition of the track layout boxes, more complex circuits. In each set of the additional track layout boxes, the components allow the realization of a railway circuit very similar to the real things, and to transform it into a complete layout we suggest the addition of some accessories (such as trees, buildings etc.).

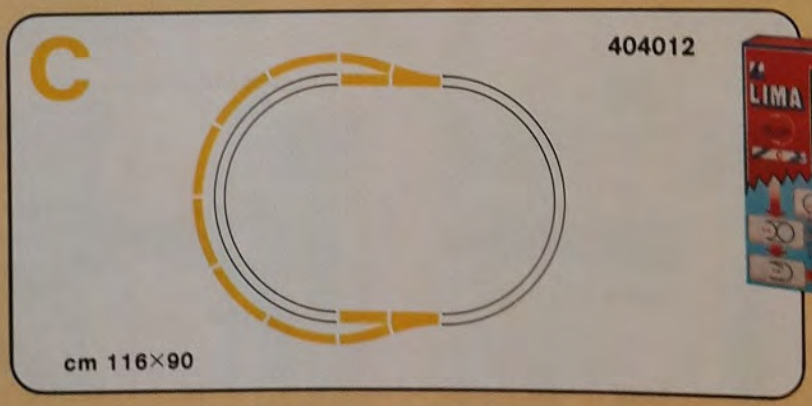




ADDITIONAL TRACK LAYOUT BOX A
404010 consists of:
4×403020
8×403030
1×403041

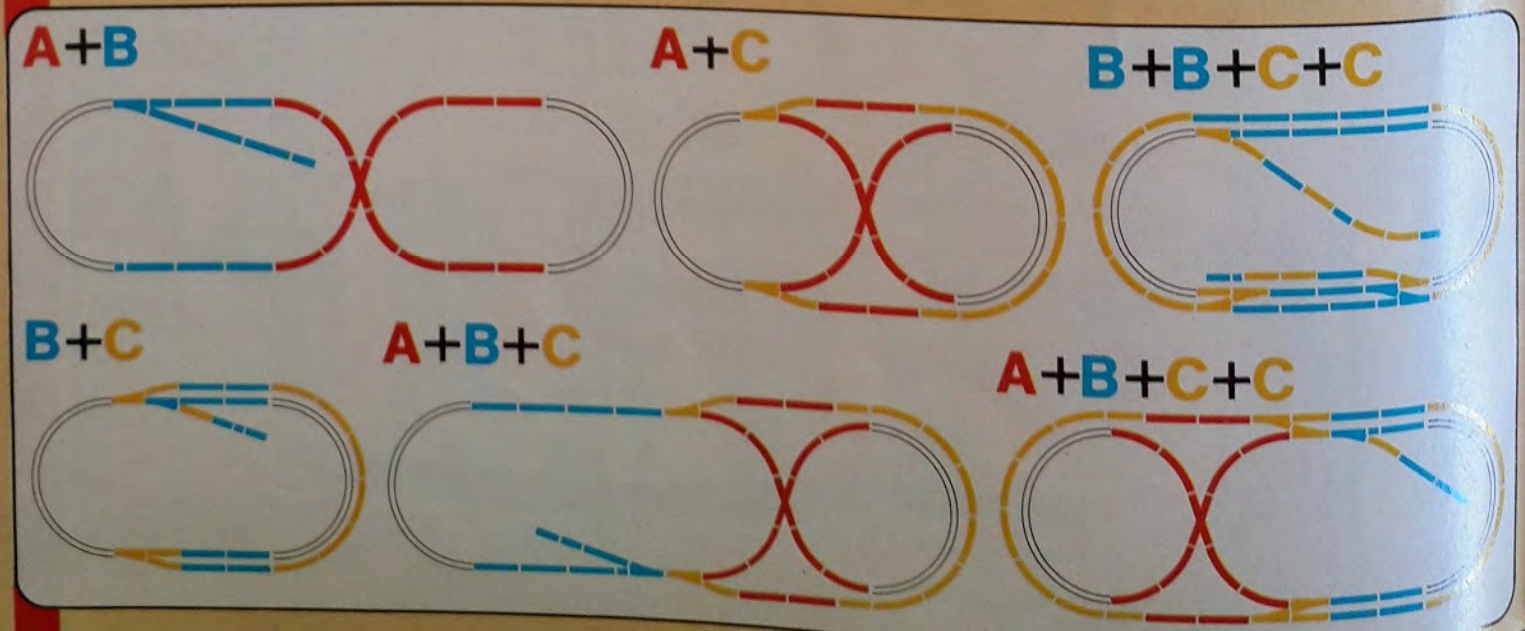


ADDITIONAL TRACK LAYOUT BOX B
404011 consists of:
8×403020
1×403021
1×403022
1×403050
1×403025



ADDITIONAL TRACK LAYOUT BOX C
404012 consists of:
2×403023
1×403050
1×403051
1×403035
1×403036
6×403011

The contents of the track accessory packs may be added to the suggested track plan supplied with each train set enabling you to build a complete realistic world of miniature railways.



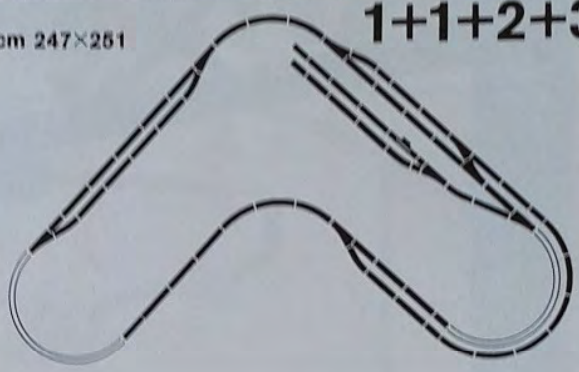
ADDITIONAL TRACK LAYOUTS

Basic track layout of a Lima train set.

POINTS ELECTRICALLY OPERATED

1+1+2+3

cm 247×251



With all the items included in a Lima track accessory pack you can make alternative layouts to the one suggested.

1 404021E

cm 198×75

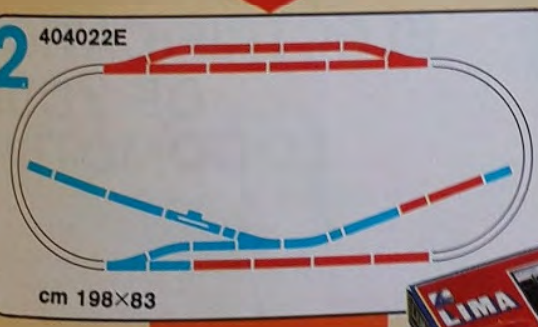
Track accessory pack No. 1 contains two electric points.

ADDITIONAL TRACK LAYOUT BOX 1
404021E consists of:
11×403020
2×403021
1×403050E
1×403051E
1×403035
1×403036

ADDITIONAL TRACK LAYOUT BOX 2
404022E consists of:
3×403020
2×403023
1×403050E
1×403051E
1×403035
1×403036
2×403024R
2×403025
1×403028

ADDITIONAL TRACK LAYOUT BOX 3
404023E consists of:
5×403020
1×403021
2×403023
12×403011
1×403050E
1×403051E

2 404022E



cm 198×83

Track accessory pack No. 2 contains two electric points.

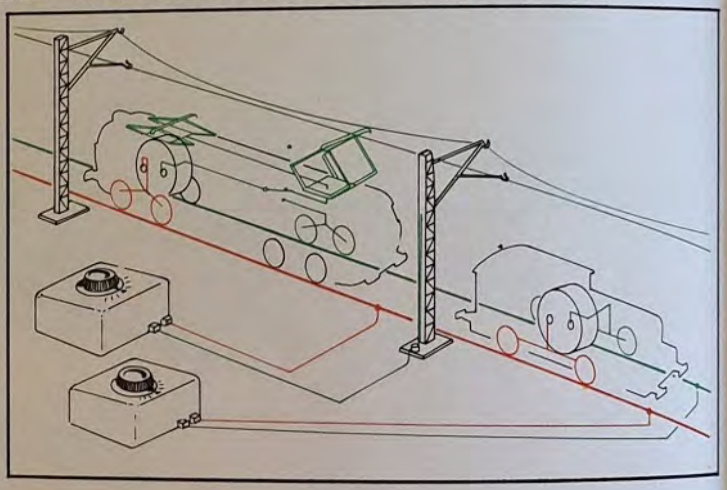
3 404023E

cm 198×90

Track accessory pack No. 3 contains two electric points.

CATENARY ELECTRIFICATION AND INSTALLATION

Having chosen the format of your layout and after establishing the positions of the main components you may add an exciting new dimension for further realism of your railway system.
As with real electric locomotives, electric current is collected from overhead wires fed from catenary supported on a series of insulated posts positioned along side the track, the power passes from the overhead wires to the motor of the locomotive via the pantograph.



ELECTRIFICATION OF YOUR LOCOMOTIVE

If you wish to convert your LIMA electric locomotives to operate with overhead catenary in an easy way, you may purchase the special LIMA conversion kit which includes an adaptor, electric cable, pantograph and a detailed instruction sheet.
There are two types of pantograph which are adaptable for different locomotives: the traditional type (article 602975) and the oscillating single pantograph (article 602976).

602975

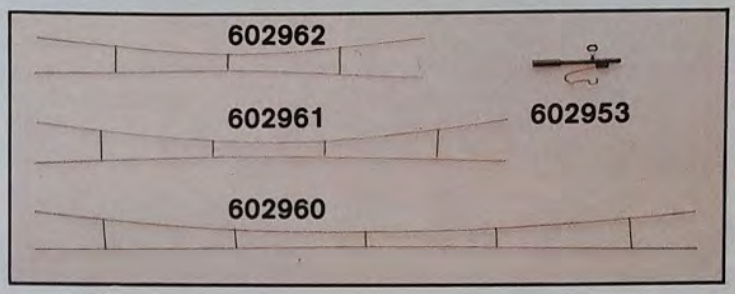
602976

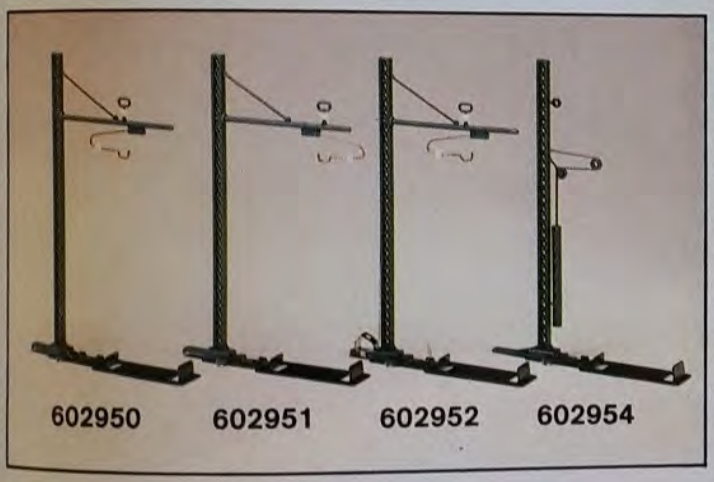
602976

602975

CATENARY

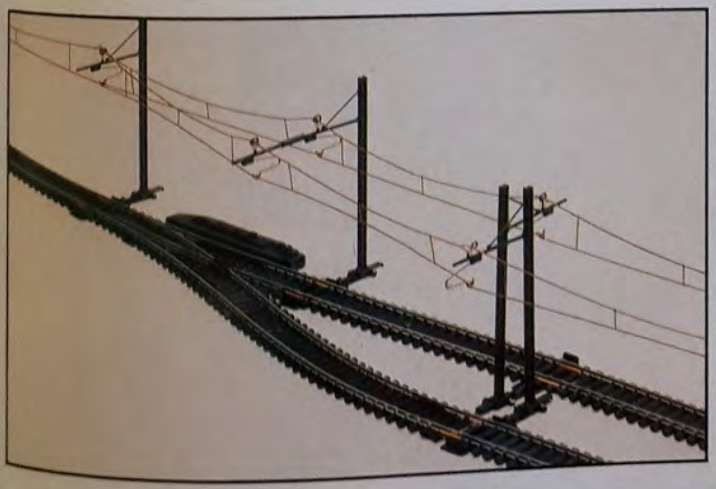
The other contact is from one of the two rails and completes the circuit to the motor through the locomotive wheels.
Whilst simulating modern railway practice there is an additional advantage of being able to have two locomotives running on the same line independently operated, one collecting its current from a rail whilst the other loco will collect its current from the overhead wires..
All of the powered wheels of the two locomotives must be on a common feed from the two transformers (see figure 1). The direction and the speed of the two locomotives may be controlled independently.
The LIMA catenary system is fully compatible with the LIMA track system.

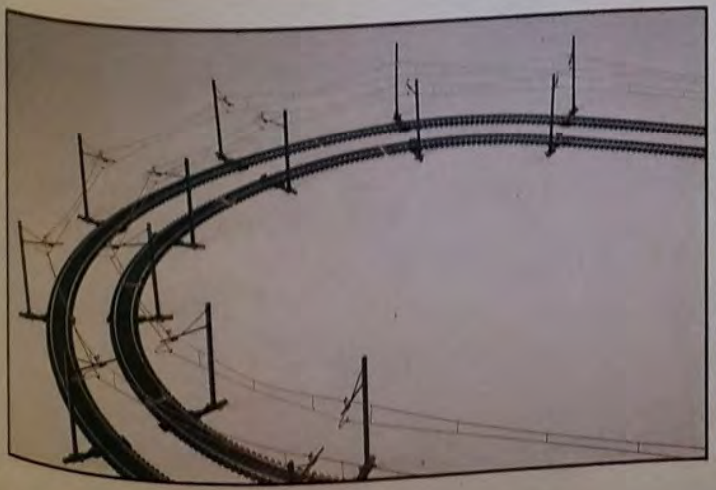




Also available is a variable length support bracket (602953)e for positioning alongside points.
Examples of fitting overhead catenary wires on straights and points are illustrated.
Note how the various posts are always located on to the same side of track, alternating long and short support brackets, so that, as with modern railway practice the overhead wires follow a zigzag pattern, which allows a better contact between the overhead wire and the pantograph, and evens wear.

LIMA produce 4 different types of catenary support post:
602959 - with short support brackets
602951 - with long support brackets
602952 - with electrical terminals
602954 - main catenary support.





Catenary for the additional track layout box 1+2+3

404024
consists of:
1×602952 Post with electrical terminal. - 1×602954 Main post. - 3×602953 Support bracket. - 27×602950 Pole with short support bracket. - 23×602951 Pole with long support bracket. - 32×602962 Overhead wires L. 188 mm. - 17×602961 Overhead wires L. 233 mm. - 8×602960 Overhead wires L. 333 mm.

N LOCOMOTIVES

NEW

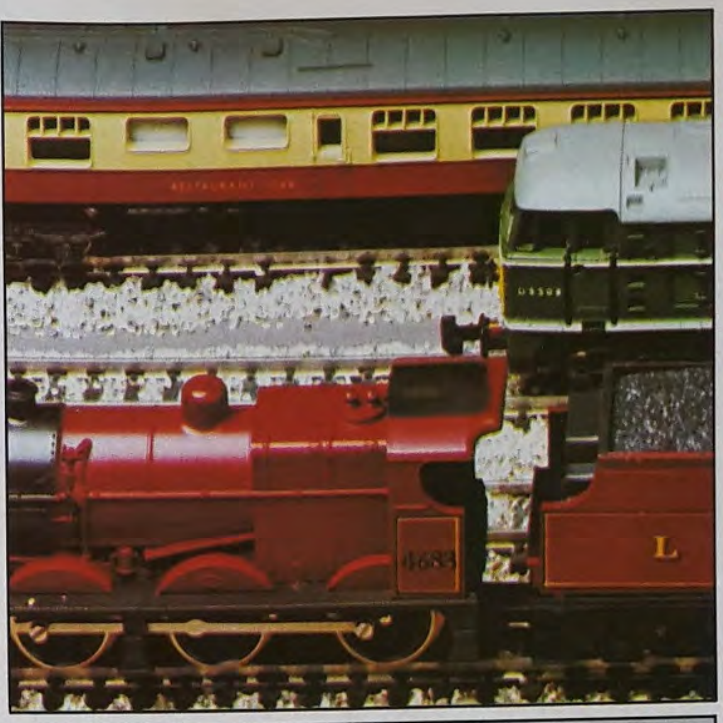
Buying Lima means you are buying high technology and every Lima N gauge locomotive features our new high performance micro-motor. The articulated gearing with its twin contact between the worm and drive gears guarantees strength, durability and reliability. And another great improvement is a more realistic acceleration through to a true scale maximum speed. Suppressors are also fitted to eliminate all radio and television interference. The complete range of Lima N gauge models offers every possibility for building an exciting miniature railway system of your own. Lima N Gauge is appreciated by modellers the world over for its detailed accuracy and completely safe and trouble-free performance.

220259G
0-6-0 Class 4F Tender Locomotive. LMS Maroon Livery.
220210G 0-4-0 Diesel Shunter. Early BR Livery.

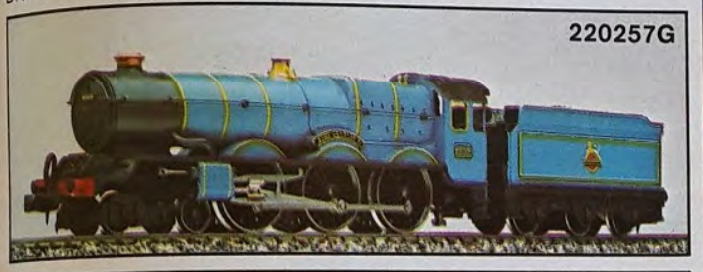
220245G BR Class 31
A1A-A1A Diesel
Railfreight Livery.
NEW

220249G BR Class
Electric Locomotive
Railfreight Livery.
NEW

220256G 4-6-0 'King' Class Express Locomotive. No. 6000 "King George V" in Lined GWR Green Livery.



220257G 4-6-0 'King' Class Express Locomotive Experimental BR Lined Blue Livery No. 6009 'King Charles II'.



220258G 0-6-0 Class 4F Tender Locomotive. Unlined Black Livery.

220211G 0-4-0 Diesel Shunter. BR Livery.

220209G Class 31 AIA-AIA Diesel Locomotive. BR Blue Livery.

220214G Class 31 AIA-AIA Diesel Locomotive. early BR Livery.

220217G BR Class 55 'Deltic' Co-Co Diesel Locomotive. No. 9006 "The Fife and Forfar Yeomanry".

220253G BR Class 55 'Deltic' Co-Co Diesel Locomotive No. 9003 "Meld". Early Livery.

220205G BR Class 81 Electric Locomotive (Standard rail pick-up).

THE FAMOUS INTERNATIO

320306

220217G

123901G

NEW

T.G.V.

220120G Electric locomotive for the T.G.V. train. - **220121** 1st class coach for the T.G.V. train. - **220122** 2nd class dining coach for the T.G.V. train. - **220123** Dummy locomotive for the T.G.V. train.

220123

220122

220110G

220111

123903

NEW

INTER-CITY ET 403/404

220100G Electric locomotive BR 403 Inter-city D.B. - **220101** 1st class coach BR 403 Inter-city D.B. - **220102** Dining car BR 403 Inter-city D.B. - **220103** Dummy locomotive BR 403 Inter-city D.B.

220103

220102

NAL HIGH SPEED TRAINS

INTERCITY

220217G BR Class 55 'Deltic' Co-Co Diesel Locomotive. No. 9006 "The Fife and Forfar Yeomanry". - **320306** BR Composite Coach. - **320307** BR 2nd Class Brake Coach. - **320313** BR Buffet Car.

123904G

320307 320313

220121 220120G

LUFTHANSA AIRPORT EXPRESS

220110G German electric locomotive for the "Lufthansa" train. - **220111** German 1st class coach for the "Lufthansa" train. - **220112** German dining car for the "Lufthansa" train. - **220113** German dummy locomotive for the "Lufthansa" train.

123902G
NEW

220112 220113

220101 220100G

N PASSENGER COACHES

320306 BR Composite Coach.

320307 BR 2nd Class Brake Coach.

320368 BR Standard Gangwayed Brake Van.

320313 BR Buffet Car.

320361 BR Composite Coach. GWR Livery.

320362 BR 2nd Class Brake Coach. WGWR Livery.

320366 BR Standard Gangwayed Brake Van. GWR Livery.

320363 BR Restaurant Car. GWR Livery.

320314 BR Composite Coach. LMS Maroon Livery.

320316 BR Buffet Car. LMS Maroon Livery.

320315 BR Second Class Brake Coach. LMS Maroon Livery.

320367 BR Standard Gangwayed Brake Van. LMS Maroon Livery.

320357 BR Composite Coach. early Crimson & Cream Livery.

320359 BR Buffet Car. Early Crimson & Cream Livery.

320358 BR 2nd Class Brake Coach. early Crimson & Cream Livery.

320369 BR Standard Gangwayed Brake Van. Early Crimson & Cream Livery.

320352 BR Composite Coach. SR Livery.

320353 BR 2nd Class Brake Coach. SR Livery.

320354 BR Buffet Car. SR Livery.

FREIGHT WAGONS

320862 GWR bogie parcel van 'Siphon G'.

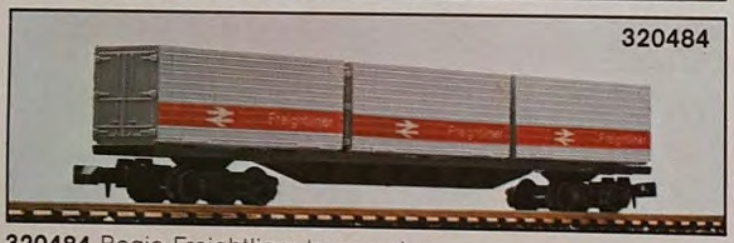
320863 GWR bogie parcel van 'Siphon G'. Palethorpe

320864 Bogie parcel van 'Siphon G'. BR Livery.

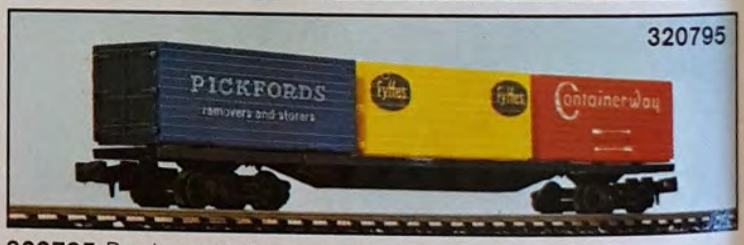
320867 Bogie parcel van Siphon G 'Enparts'.

320720 'London brick' bogie wagon.

320865 Bogie parcel van Siphon G Early BR Livery.



320484 Bogie Freightliner transporter.



320795 Bogie container transporter.

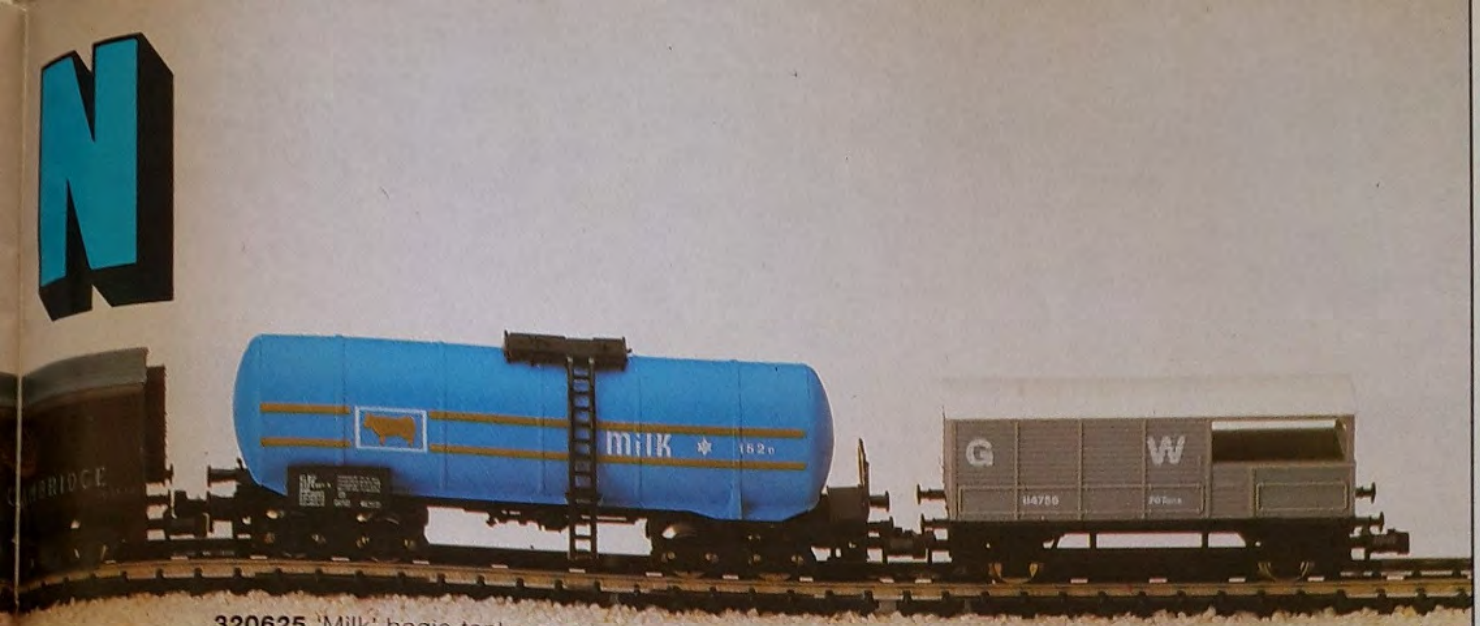
320622 'Amoco' bogie tank wagon.

320792 'British Leyland' car carrier.

320868 C.C.T. parcels wagon "Tartan Arrow".

320869 C.C.T. parcels wagon. 'Rail Blue Livery'.

320870 C.C.T. parcels wagon. 'Early BR Livery'.



Sausage.

320625 'Milk' bogie tank wagon.

320410 GWR Brake Van. Long wheelbase version.

320611 'Typhoo Tea' box van.

320614 'St Ivel Dairy Products' box van.

320615 GWR box van.

320618 20 ton box van 'Lucas Batteries'.

320619 20 ton box van. 'Birds Custard Powder'.

320739 'Castrol GTX' 20 ton box van.

320602 'Black Park' 7 plank wagon.

320604 'Barrow Barnsley' 7 plank wagon.

320607 'J.K. Harrison' 7 plank wagon.

320608 'P.W. Spencer' 7 plank wagon.

320609 'Pinxton Collieries' 7 plank wagon.

320610 'Buxton Gas Dept.' 7 plank wagon.

320616 GWR 2 Axle Horse Box.

320617 2 Axle Horse Box LMS Livery.

320405 BR 20 ton brake van.

N ACCESSORIES

620707
Freightliner terminal. Your fully-equipped terminal makes light work of the flow of container traffic from road to rail. With rail transporter and two containers lorries.

TRACKS

420542
consists of:
1×420571C
7×420571
10×420561
3×420553
2×420526
1×420525
1×420565

Pack reference 420542 is of the same dimensions as the 'N' Gauge train set. The contents are designed to compliment the basic set with points and track and may be extended further if required.

420580
6 pieces straight track (124 mm) 420561.

420581
6 pieces 1/2 straight track (62 mm) 420562.

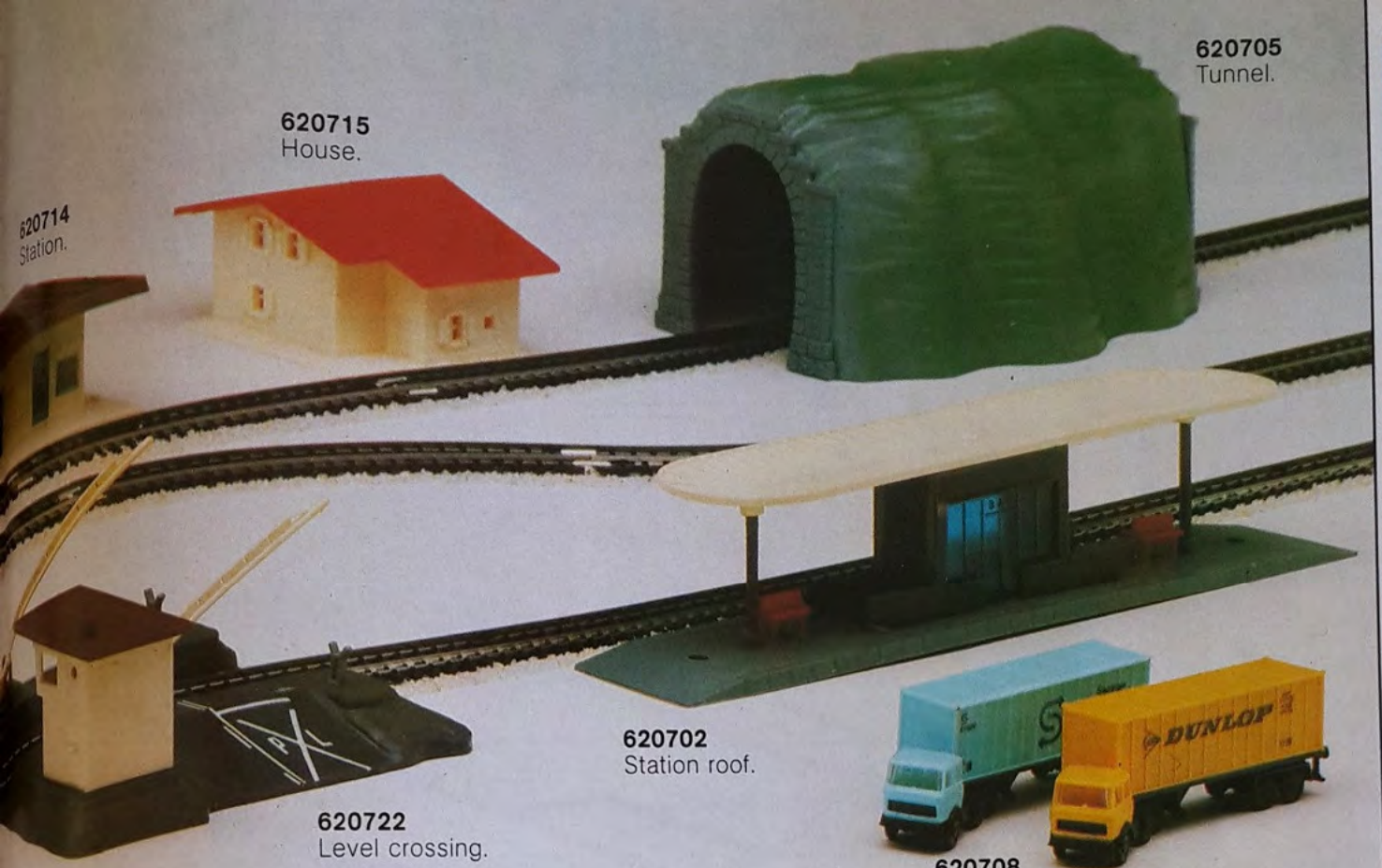
420590
6 pieces curved track (45°) 420571.

420592
6 pieces curved track (15°) (ø 406 mm) 420572.

420522
Diamond crossing (30°).

420521
RIGHT diamond crossing (15°).

420524
LEFT diamond crossing (15°).



620705
Tunnel.

620715
House.

620714
Station.

620702
Station roof.

620722
Level crossing.

620708
NEW Seatrain - Dunlop container lorries.

420591
6 pieces curved track (ø 472 mm) 420551.

420593
6 pieces curved track (ø 472 mm) 420552.

420585
1 piece curved track, (45°) 420571, 1 piece curved track with power connecting terminal 420571C.

420586
1 piece 1/2 straight track with power connecting terminal 420564R.
2 pieces 1/4 straight track 420563.
Insulated fish plates 420017.

420587
1 piece straight track (124 mm) 420561.
1 piece isolating track with power connecting terminal 420564R, 1 piece 1/2 straight track with buffer stop 420565.

420525
Right-hand point (manual) + compensating track 420553.

420525E
Right-hand point (electric) + compensating track 420553.

420526
Left-hand point (manual) + compensating track 420553

420526E
Left-hand point (electric) + compensating

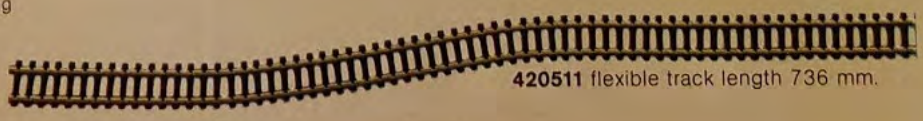
3×620718
24 metal fish plates.

3×620717
Insulating fish-plates.

3×620704
Motor springs and brushes.

3×620703
4 axles.

620721 Railer.

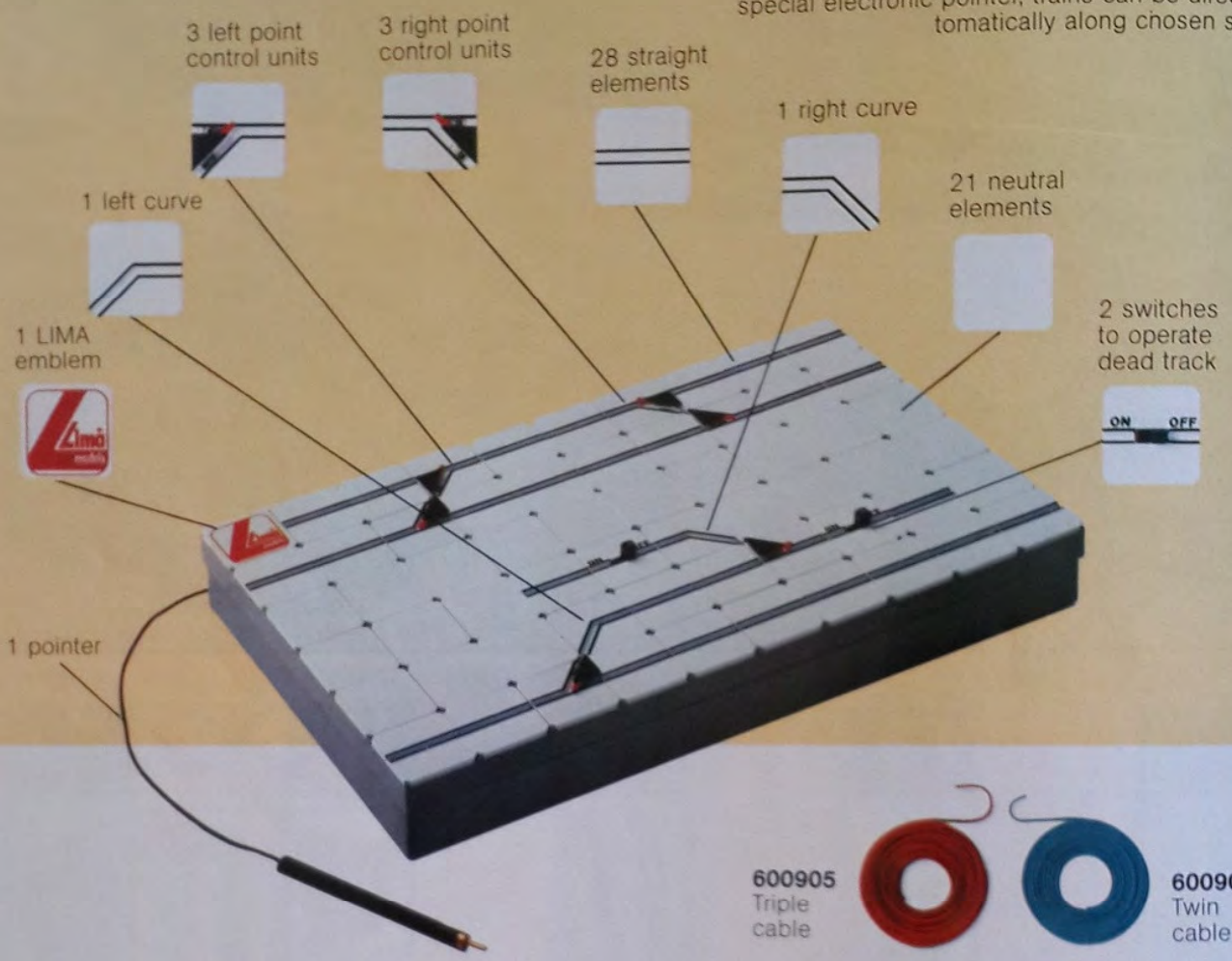


420511 flexible track length 736 mm.

CONTROL PANEL

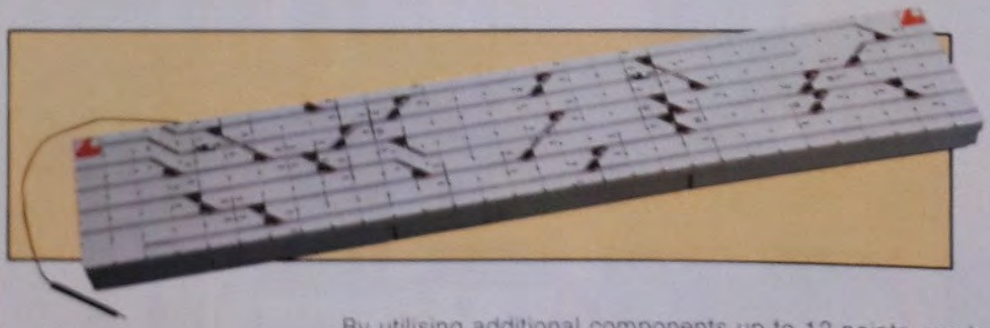
600910
Kit control panel for railway circuits with LED light.
composed of:

Lima have developed a new multiple-point control panel for fast automatic train routing, designed on the lines of the system used on real railways. The control panel has interchangeable sections for you to map the layout of your tracks, and by using a special electronic pointer, trains can be directed automatically along chosen sections.



600905
Triple cable

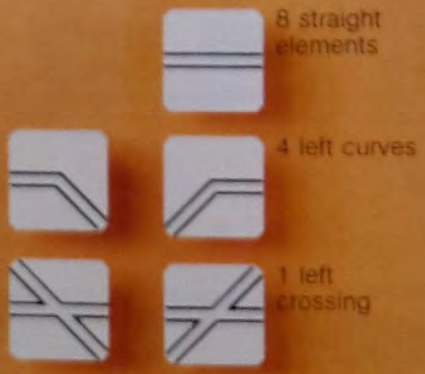
600904
Twin cable



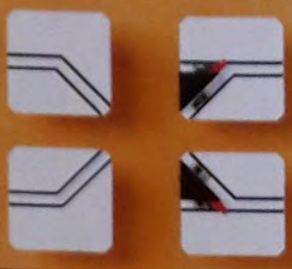
The control panel ref. 600910 allows you to map and operate your layout in an authentic manner.

By utilising additional components up to 12 points can be operated.

600908
composed of:



600906
composed of:



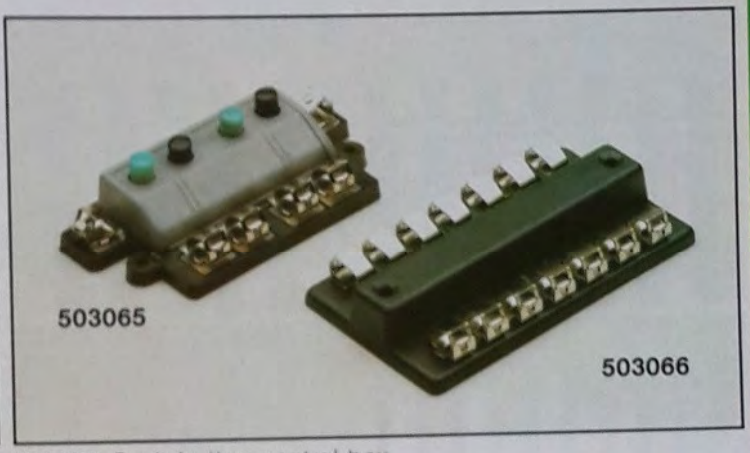
600907
composed of:

2 switches to operated dead track.

POWER CONTROLLERS

The transformer is the heart of your layout. Current from the mains is converted into the appropriate voltage (AC or DC) necessary to power the various locomotives and accessories to make up your railway system.
We produce a range of power controllers, with a wide range of uses. Each one is protected from any short-circuits or overload making them completely safe to use.

500012 Battery box for 1.5V batteries in series. Output 9V.
503067 Switch Shunter.

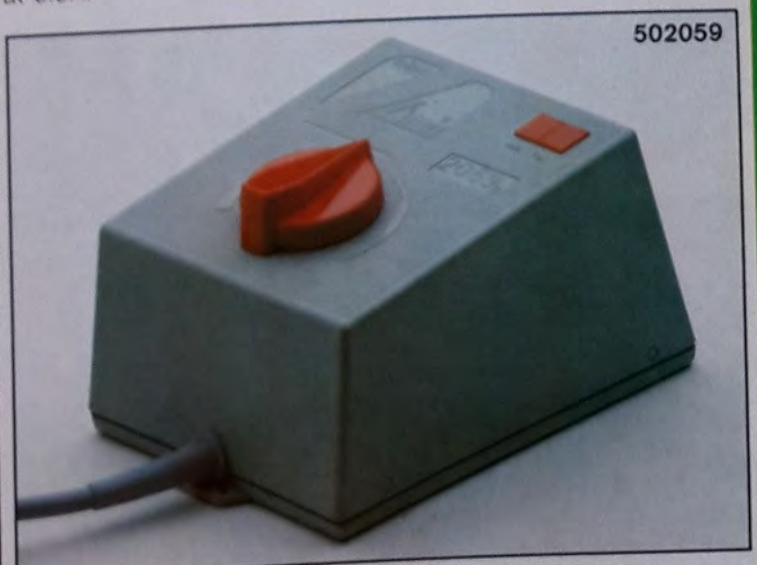


503065 Push-button control box.
503066 Junction box.

502052 Transformer. Power 3.6VA! Input 220V AC. Output 0-12V DC. Designed to operate one train or DC accessories.

502053 Transformer for two trains, points and electrical accessories. Input 220V. Output 0-12V at 0.7VA DC. AC output 14V at 0.5A.

502055 Transformer for electromagnetic devices. Input 220V 50-60 Hz AC. Output 10V AC. Power 7VA.



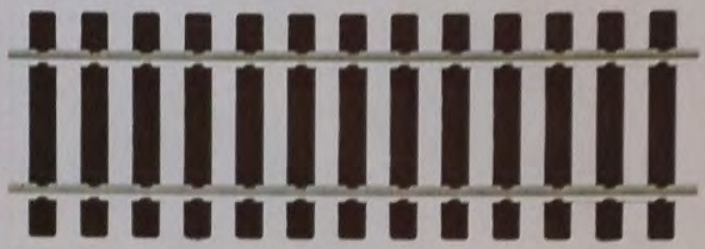
502059 Transformer for two trains, points and electrical accessories. Input 220V. DC output 0-15V at 1.2A AC output 14V at 1.2A. Protected against short circuits by thermal cutout.

HOW TO BUILD

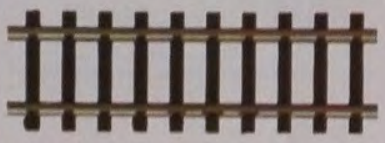
MAKING YOUR CHOICE OF SCALE

Within the different scales of model railways in the U.K. '00' is the widest and most popular gauge modelled. LIMA manufacture a complete range of railway items and accessories in this scale.
'N' Gauge is also produced in a large range and is particularly suitable where only a limited space is available.

Today, more than in the past, space is the deciding factor when choosing a scale.
If you decide to have a complete layout, with station, freight yard, engine sheds and a multitude of track, in a limited space, 'N' Gauge is the wisest choice in which to model.
The 'OO scale is preferred when you have more space at your disposal, and you will be able to create a layout utilizing the versatility of the LIMA system with maximum realism.



'00' scale Actual size (16,5 mm between rails).



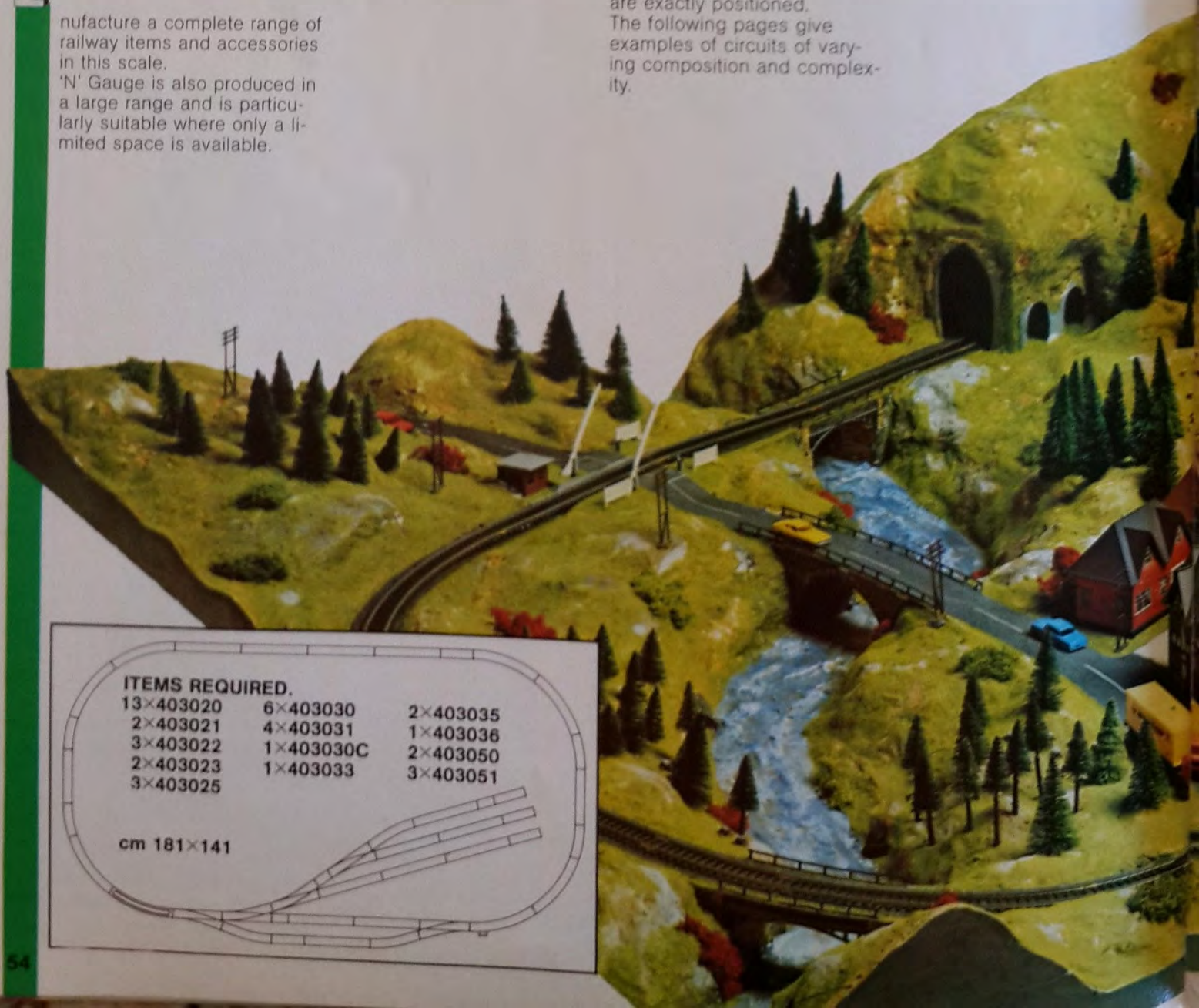
'N' gauge Actual size (9 mm between rails).

DETAILED PLANNING OF YOUR LAYOUT

Having chosen your scale, do not be in a hurry to complete your layout.
Even if the work is not complicated a good layout requires first of all careful planning and knowledge of the components to be used.
Before you fix the track, ensure that all the components are exactly positioned.
The following pages give examples of circuits of varying composition and complexity.

THE MATERIALS AND TOOLS YOU WILL NEED

To build your layout you will need some hand tools, a small saw, two or three files for wood and metal, hammer, drill, pliers, screwdrivers and brushes.
Other items you will need are: glue, paper and cardboard, chicken wire (or jute canvas), chalk, coloured flock powder, sand, track pins and paints.
The basis of the layout is normally a rectangular wooden panel about 2 cm thick and of a minimum size 140×180 cm. If you wish to construct a wider and more complex circuit, you may add more panels according to space available.



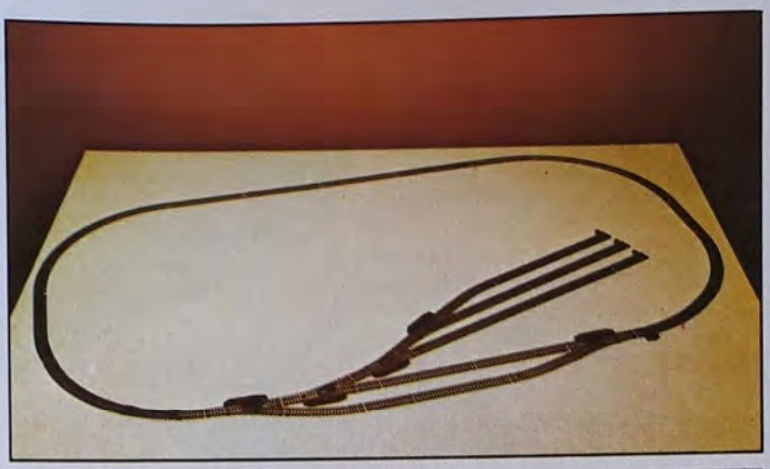
ITEMS REQUIRED.

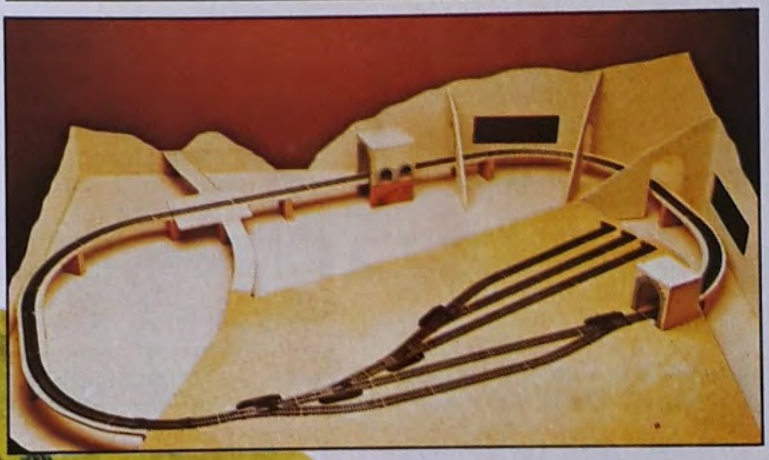
13×403020	6×403030	2×403035
2×403021	4×403031	1×403036
3×403022	1×403030C	2×403050
2×403023	1×403033	3×403051
3×403025		

cm 181×141

A LAYOUT

BUILDING YOUR LAYOUT
Building a layout for the first time, we advise that in a real railway the natural surroundings have to be taken into consideration, in a miniature layout, the track circuit is first positioned and the landscape is created around it.
We suggest therefore, you determine the ground level before fixing the track and that you ensure the dimensions between the landscape and the railway system are correctly proportioned.
It is important to ensure:
– the levels of hills, river or lake bed, valley etc. are realistic
– the gradient: slope does not exceed more than 3,5% for each meter run
– to harmonize the residential areas, industrial zones and country areas, and to correctly locate stations, houses and other buildings.





TRACK INSTALLATIO

VERSATILITY AND ALIGNMENT OF THE LIMA TRACK SYSTEM

The track, points and crossings manufactured by LIMA allow easy assembly of the various track sections when installing a basic or complex layout.

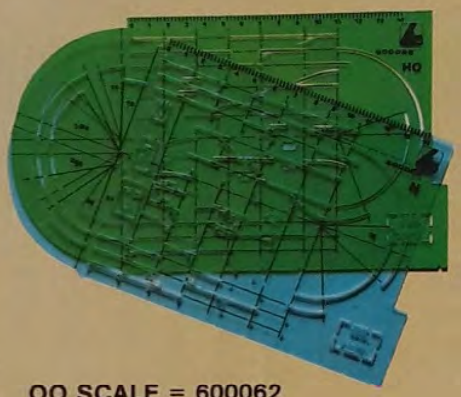
In addition to the good quality material employed in the manufacture of the many LIMA components, the radii of curves and the track geometry guarantee the most faithful reproduction of any railway circuit.

LIMA produce special track planning stencils (both for '00' and 'N' scales) and by following grooves with a pencil you may easily plan the railway track in all its elements: straight and curved tracks, points etc.

The LIMA system has, in the '00' scale, two types of curves, with radii of 360 mm and 431 mm respectively.

For example, to make a complete circle with 720 mm diameter, 10 curved sections with a 36° arch or 8 curved sections with a 45° arch are required.

For a complete circle with 862 mm diameter 16 curved sections with a 22° 30' arch or 12 curved sections with 36° arch or 8 curved sections with 45° arch are required.



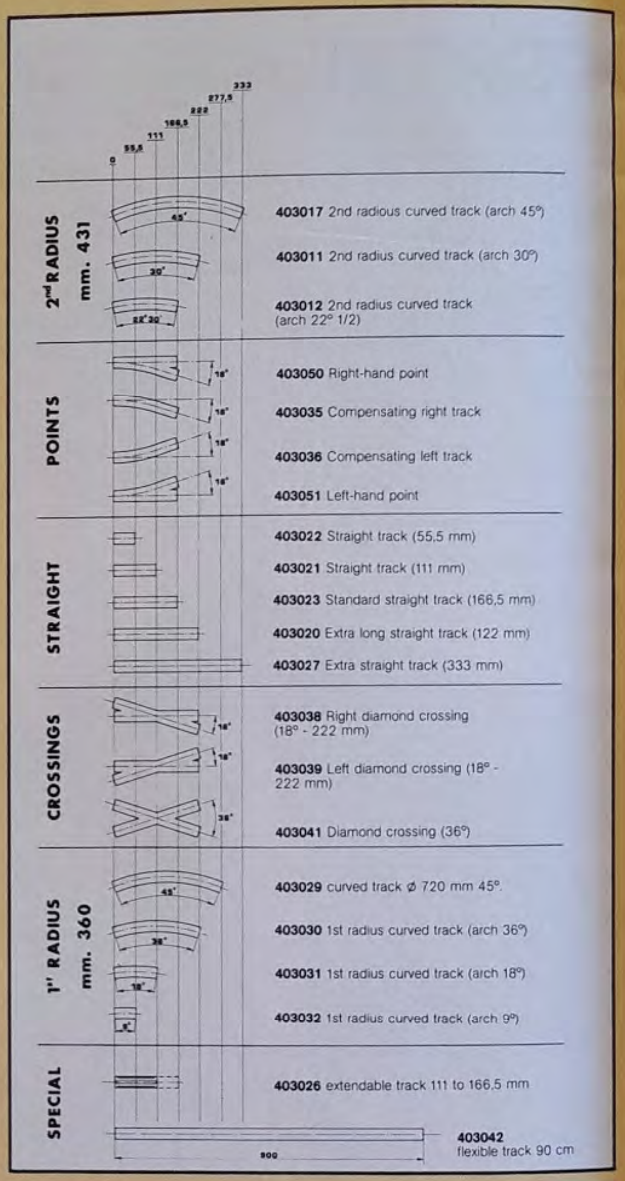
OO SCALE = 600062
N GAUGE = 600063

The wheelbase between two parallel tracks is 71 mm, this distance allows the regular running of trains both on straight and curved stretches.

The extending straight track and flexible track help when building gradient stretches and complex circuits when radii of curves differ from standard track.

The LIMA system for the 'N' scale is also with two radii of curve (406,6 mm and 472, 6 mm) the wheelbase between track is 33 mm.

In both cases compensating track (to be utilized for points) ensures easy alignment of the LIMA system.



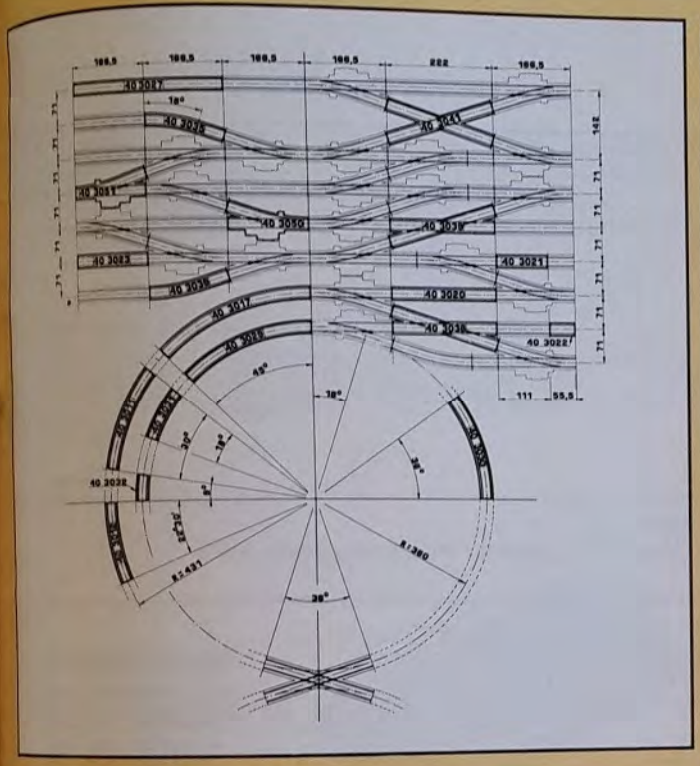
LANDSCAPING

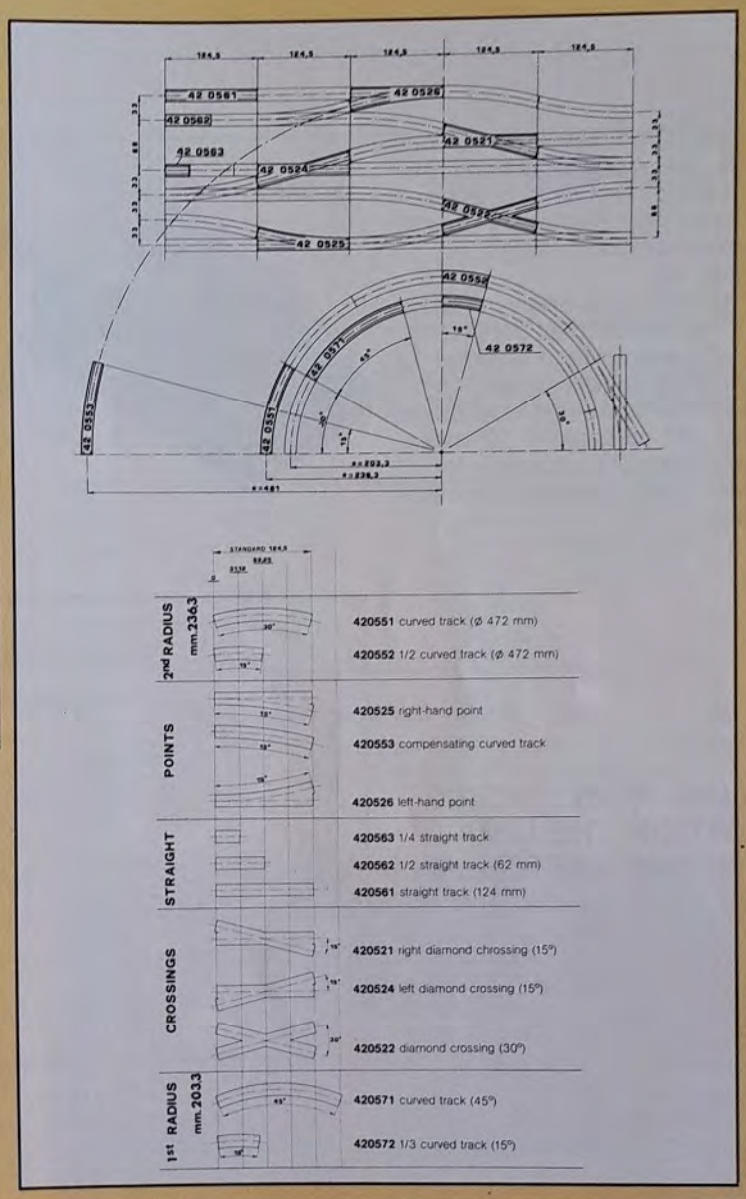
The scenery surrounding the model railway will become more and more realistic if you follow the contours of the countryside. In general we suggest: **track ballast,** spread a liquid glue at the side and between the sleepers and sprinkle sand or coloured flock powder over the tracks. Once the glue is dry remove the surplus with a brush;

Hills and mountains, use close mesh chicken wire, moulding it into the desired contours and the cover with alternate layers of paper and liquid glue. Mould undulations, and valleys, and ground with a broad knife.

Most important, at the rear of banked parts, leave an opening to enable access to be gained to covered stretches of track and ensure the structure does not obstruct the passage of trains on the circuit;

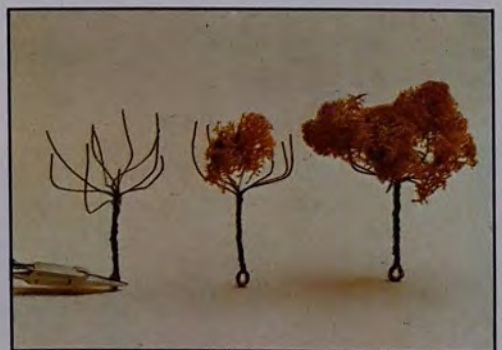
mind is the distance between tracks of 33 mm, maintained both in straight lines and through the curves.
For instance the compensating curve 420533 when used with points 420525 and 420526 maintains this basic 33 mm spacing.

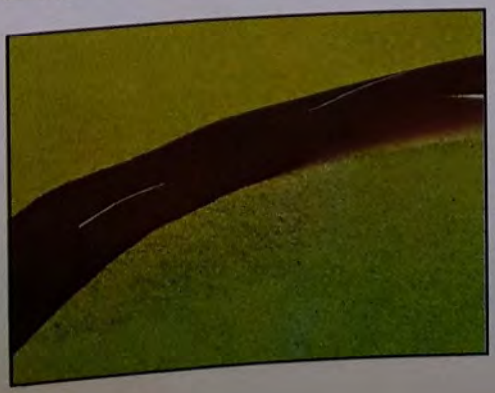


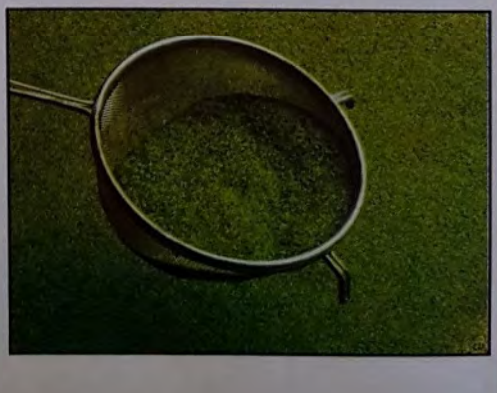


Advanced Track Layouts.
For advanced track layouts, including gradients, "extendable track" (item 403026) may be useful. This can be increased from half straight to three quarter straight length by means of a sliding section.
Groups of point and crossing can be used to convert a double track main line into six tracks at the entrance to a station.
In other cases, flexible track can be used to produce special curves and can be cut to size with an ordinary (finetooth) hack-saw.

N GAUGE
In Lima "N" Gauge the critical measurement to be born in







Trees, shrubs, hedges, make on a frame-work of twisted wire, with pieces of lichen stuck to the strands.
Roads, can be made of special stiff paper cut in strips or by gluing down very fine sandpaper;
Lawns and fields, stick a simulated grass mat or green-dyed sawdust over a glue base;
Fences, bend some metal or cotton wires around some wooden matches or tooth-picks;
Rivers, streams and lakes, try a piece of patterned glass (to simulate waves) paint underneath in different shades of blue.

ELECTRIFICATION

Having completed your layout the next stage is to install the electrical circuits to operate the chosen electrically operated accessories, points, signals, etc.
The heart of a railway system is the transformer, converting the mains voltage to either 12 volts DC (direct current) for locomotive operation through rail and catenary or 12 volts AC (alternating current) for electrically operated accessories.


502053

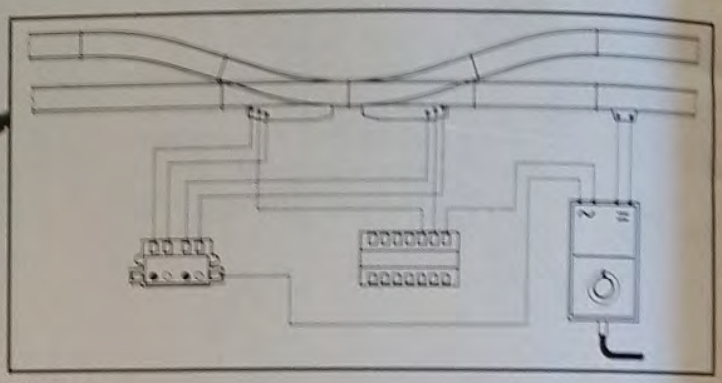
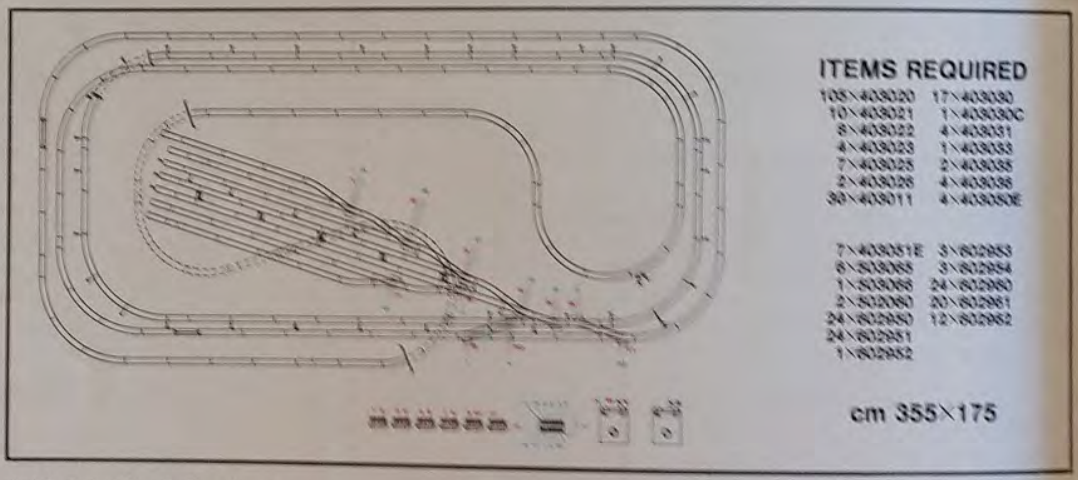
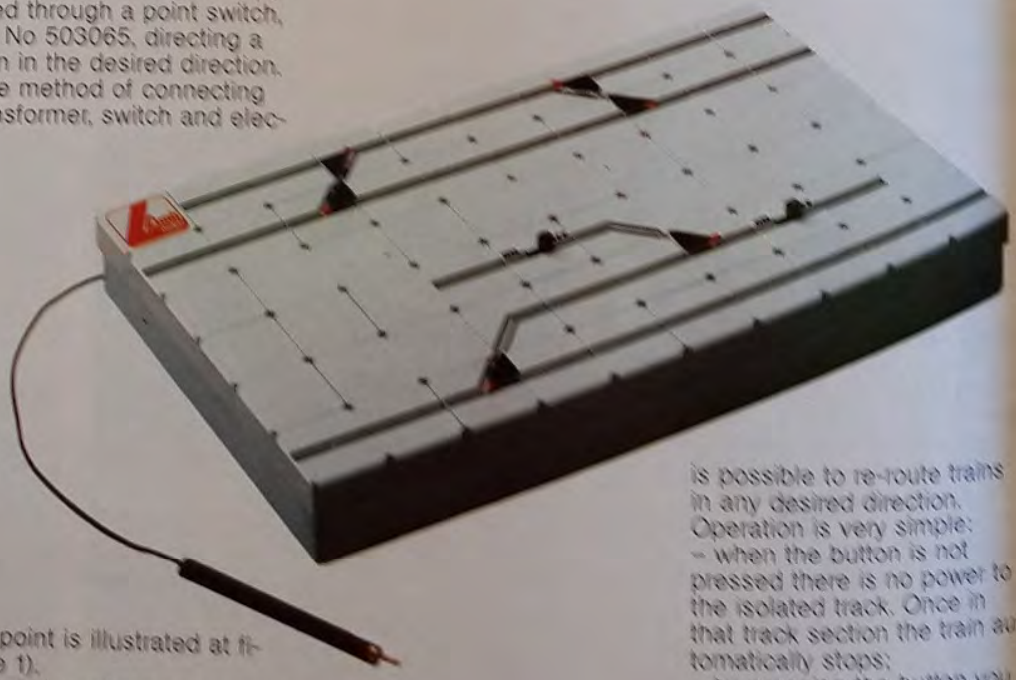


Figure 1.
Correct wiring of an electromagnetic point.



LIMA POINT WORK WITHIN THE LIMA TRACK SYSTEM

No layout is complete without points, the number one accessory. Add more realism to your circuit by utilising points to maximum advantage, faithfully reproducing real life situations.
Lima points are manufactured to the highest standard and are fully compatible with the entire LIMA track system (see page 58-59).
Two different types of point are available:
– hand operated
– and electrically remote controlled.
Both types are available with either left-hand or right-hand turnouts.
Electrically operated (or to be precise, electromagnetic) points have three terminals. Two are connected to a point operation switch, the centre terminal is common.
The point blade moves to the right or to the left, when operated through a point switch, ref. No 503065, directing a train in the desired direction. (The method of connecting transformer, switch and electric point is illustrated at figure 1).
To avoid overheating and subsequent damage to the coils, it is advisable not to press the button for too long. Just a light touch will be sufficient to change the direction of the point.




503065

The LIMA control panel (see page 54) is of great assistance when operating points which are out of view. Through this simple remotely electrical controlled device it is possible to re-route trains in any desired direction. Operation is very simple:
– when the button is not pressed there is no power to the isolated track. Once in that track section the train automatically stops;
– by pressing the button you restore power to the section and the train can be operated normally in either directions from the controller.
Some simple electrical diagrams are illustrated at figures 2 and 3.

ISOLATING TRACK SECTION

For complex circuits it is possible to run more than one train on the same section of rail or part of a rail.
This adds greater realism and authenticity when re-creating rail traffic situations. It is very important to avoid collisions and to ensure that one train stops clear of a point to allow another train to pass.
To stop a train while another train is running, the simple method is to fit a section of isolation track (article re. 403034R) either placed in a siding (or at the beginning of a dead track section).

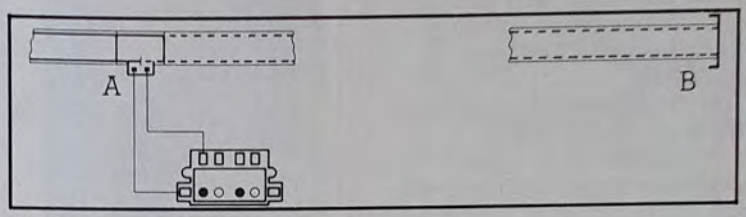


Figure 2.
A stretch of isolating track for sectioning the circuit. A train will only run between A and B if the control box button is pressed (item 503065).

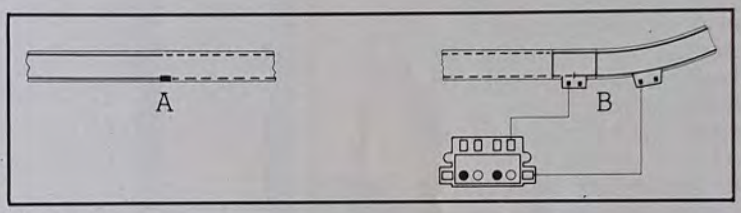
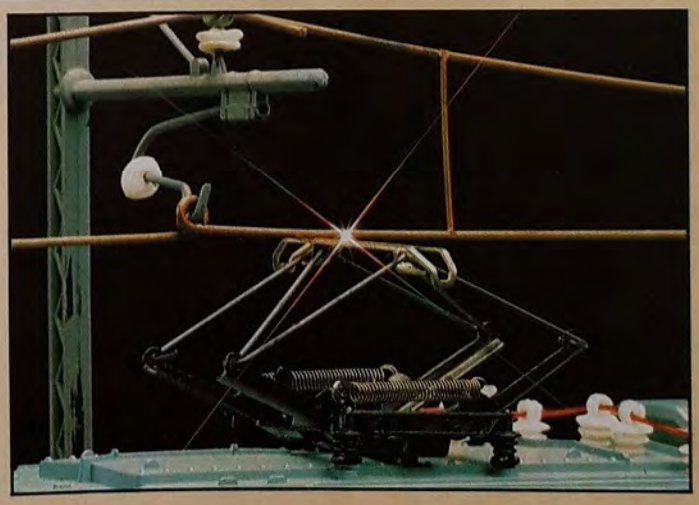


Figure 3.
Section of isolated track. Once the train has arrived in the section between A and B it will automatically stop. Power will only be restored once the control box button is pressed (item 503065).

503066

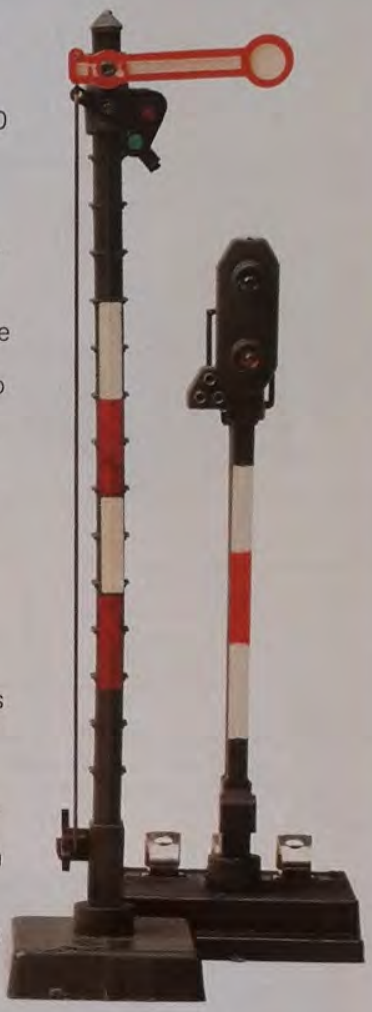
ELECTRIFICATION BY OVERHEAD WIRE

As already illustrated on page 40-41, further layout realism is obtained by installing an overhead "Catenary" wire which feeds electric current to the locomotives.
Supported by a series of posts, the overhead wires follow the track system including points, crossings, etc.). Ensure the electric current is unbroken to allow continuous train operation – unbroken transmission of power is ensured with the constant contact of the overhead wire and the locomotive pantograph which incorporates a special spring allowing the upper sliding block to adhere to the wire.



INSTALLATION OF SIGNALS

Correct signalling is vital to the safe running and regulation of any railway network. Sections to be controlled by signals need to be at least 40 to 50 cms long, and each should include an isolating track Ref. 403022A and 403024R.
The simple electrical connections are as follows:
– installation of a signal to control a single section (figure 4);
– installation of two signals to simultaneously operate two sections of track in either direction (figure 5).
You may reproduce sections of track as controlled by signal boxes in true railway tradition, giving the engine-driver all the necessary information to regulate the route of the train.
By placing additional signal boxes on the same layout it is possible to have two or more trains running at same time fed by one transformer, providing it is of sufficient power. This system allows as many signal boxes as one may wish to be placed along a circuit. The only attention required will be to the number of trains running, which must be at least one less than the total number of signal boxes.
One signal box must have a clear section before passing the next train on.



Track sections between signal boxes must be longer than the longest train in operation.

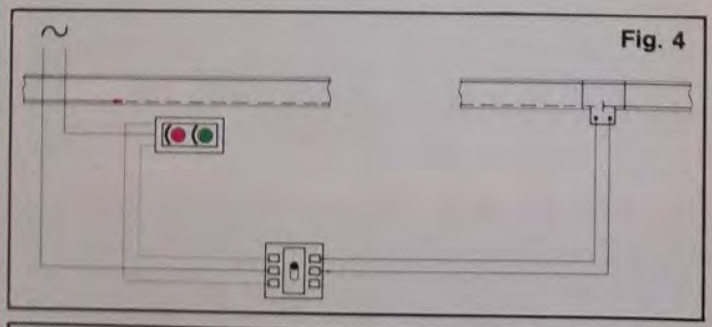


Fig. 4

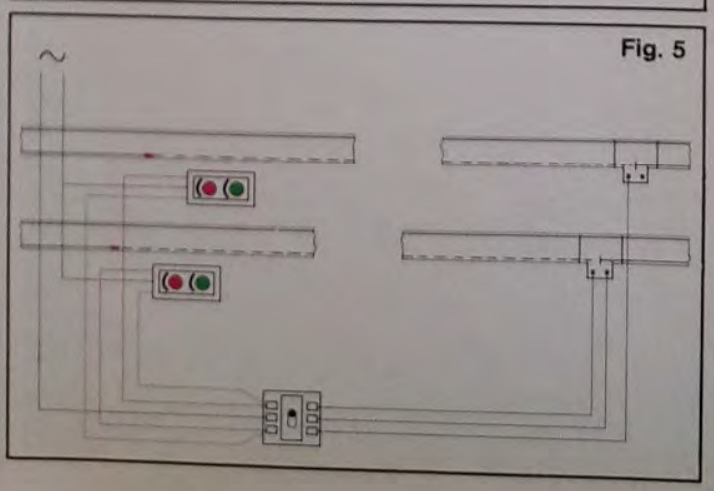
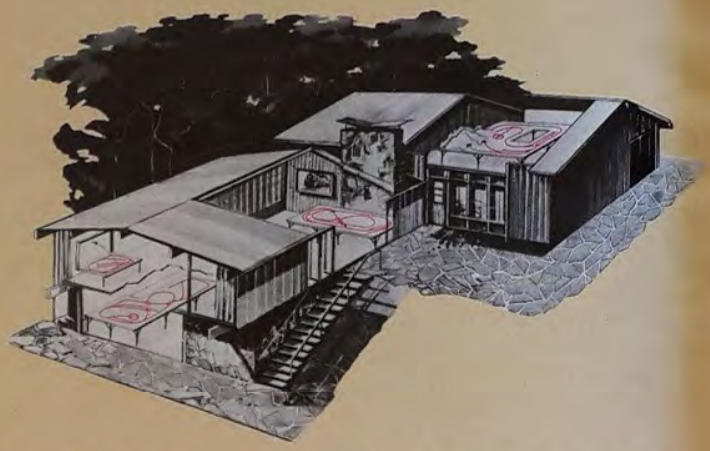


Fig. 5

WHERE T

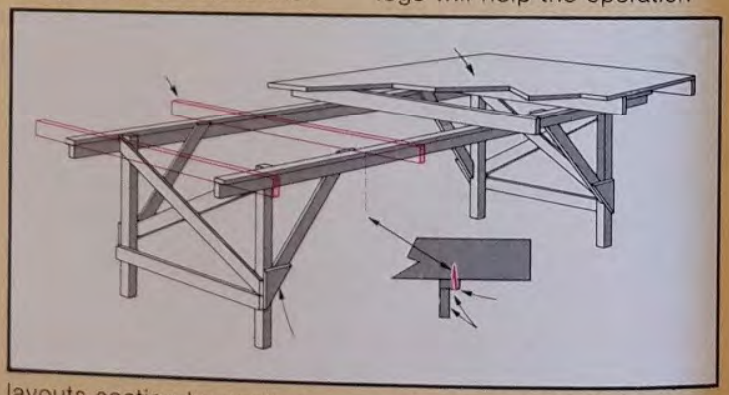


CHOICE IS IMPORTANT

The biggest problem for most modellers the world over is where to build the layout and where to place it in a limited space.
Of course, with 'N' Gauge you may have a complex circuit and many trains in a very limited space. The choice of 'N' Gauge is therefore recommended when there is only a very small space available.
Many modellers build their layouts section by section, slowly absorbing all available space.
In this case 'OO' Gauge is often built on wooden panels which are set aside when not in use and are easily fitted together for railways operation.
A layout may be installed in a cellar, attic, shed, or in the garage. In all cases ensure that layouts are protected against dampness. Months or years of long work could be ruined in a very short time if water is allowed to contact the system.
Also ensure that the layout is kept free of dust and foreign matter. Dust is a strong enemy of electrical installations and can also damage landscapes.

STARTING YOUR LAYOUT

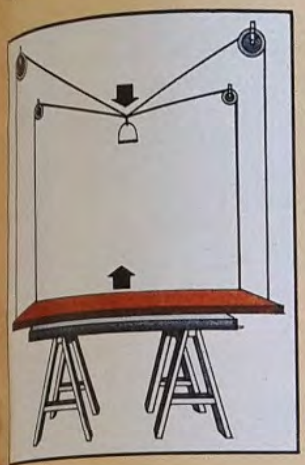
Commence work with a timber baseboard, size 120×240 cm, mounted on wooden legs (about 5×5×80 cm).
The wooden structure (which can be folding or mounted on legs) allows for the possibility of removing a panel from the layout enabling repairs to be made without dismantling the entire installation.
Raising the baseboard on legs will help the operation and maintenance of electrical wiring.
To feed the track or to control points, signals and lighting, wiring must be hidden with care underneath the baseboard and run under the timber to come out to the surface where power is required.
A small knot tied in the cable where the wire emerges from a hole prevents damage in case of accidental strain.

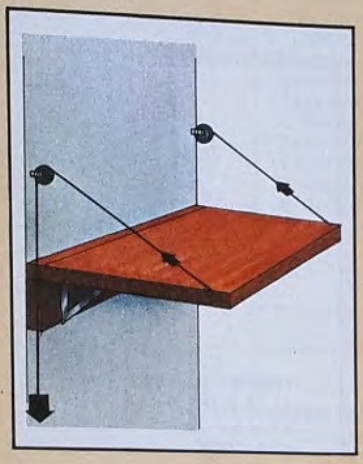


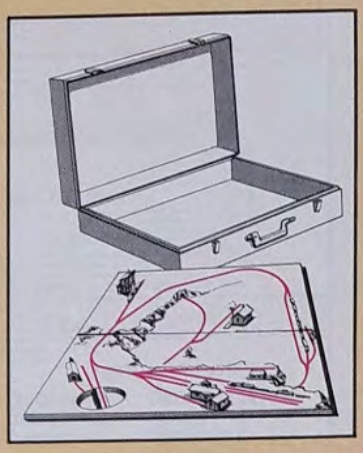
HOW AND WHERE TO PLACE

According to the size and space availability the base-

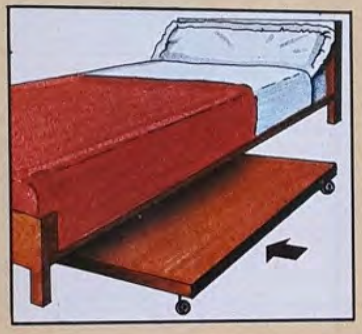
O BUILD A LAYOUT







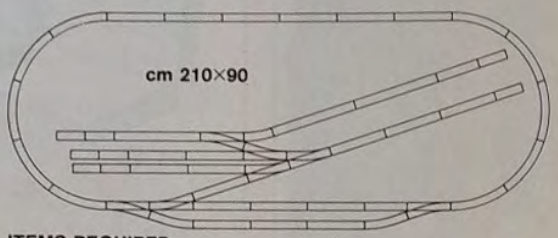
oard on which a layout is uilt may be assembled on a olding frame or on wooden egs so that it can be easily ismantled and put away ei- her as a whole or in panels. o permit easy movement of he layout the baseboard may e mounted on small wheels o allow it to be stored under a bed.
A more complex system may e suspended from a ceiling y means of pulleys which voids dismantling and allows pace in the chosen location. ulleys can also be used to un the baseboard of the ayout vertically along a wall.



Layouts of small dimensions can be built on panels hinged together and then folded or placed one upon another in suit-cases or containers.

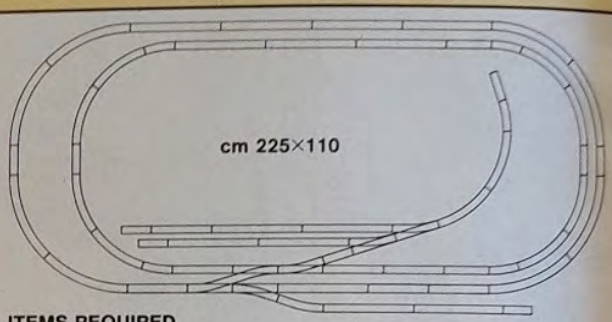
The imagination and the creativeness of a modeller has no limit and lack of space is a problem that one faces and solves in his own way.

OO SCALE TRACK PLANS



ITEMS REQUIRED.

20×403020	3×403027	1×403031	1×403036
3×403021	8×403030	1×403033	5×403050
2×403023	1×403030C	1×403035	2×403051
5×403025			



ITEMS REQUIRED.

7×403020	14×403027	1×403030C	1×403033
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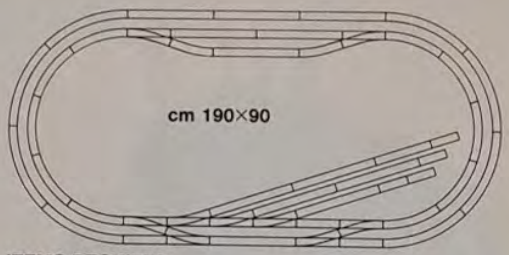
2×403023	8×403030	1×403035	3×404051
4×403025			



ITEMS REQUIRED.

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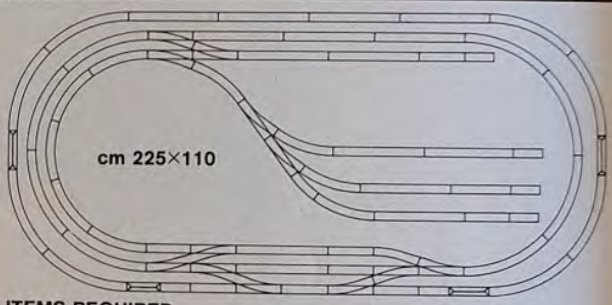
3×403023	8×403030	1×403035	6×403051
3×403025			



ITEMS REQUIRED.

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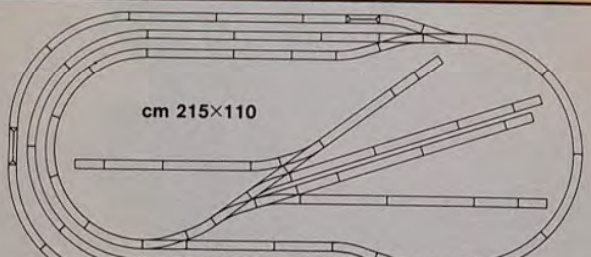
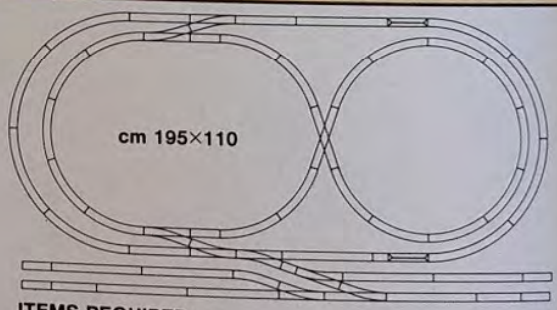
2×403021	4×403026	1×403030C	6×403050
4×403025	16×403017	1×403033	6×403051
8×403023			



ITEMS REQUIRED.

6×403020	18×403027	1×403030C	2×403036
1×403021	3×403026	2×403031	5×403050
5×403023	12×403017	1×403033	3×403051
5×403025	3×403030	2×403035	



ITEMS REQUIRED.

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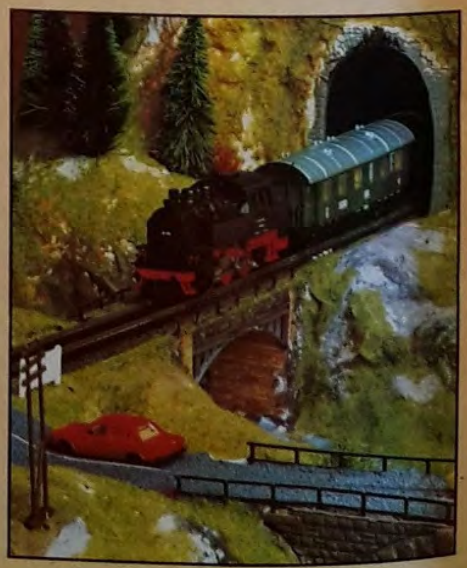
2×403021	2×403023	1×403030C	3×403051
2×403022	9×403027	1×403033	1×403041
4×403025	8×403017	1×403035	



ITEMS REQUIRED.
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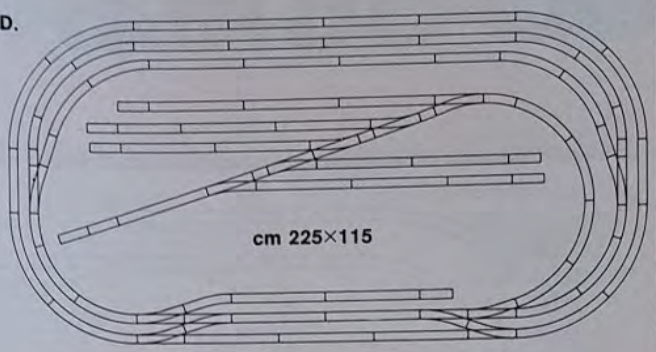
8×403017
14×403030
1×403030C
4×403031
1×403033
1×403036
7×403050
6×403051



ITEMS REQUIRED.
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8×403020
4×403021
1×403022
3×403023
2×403026
20×403030
1×403030C
1×403033
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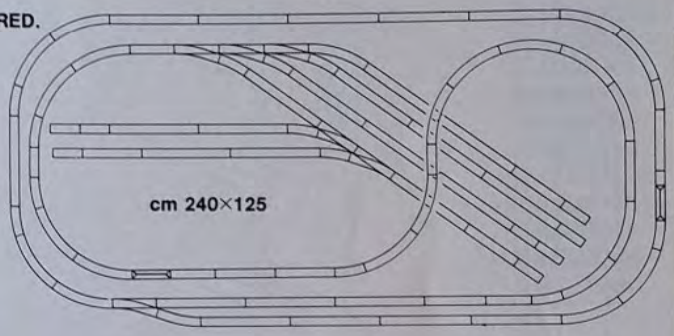
4×403050
2×403051



ITEMS REQUIRED.
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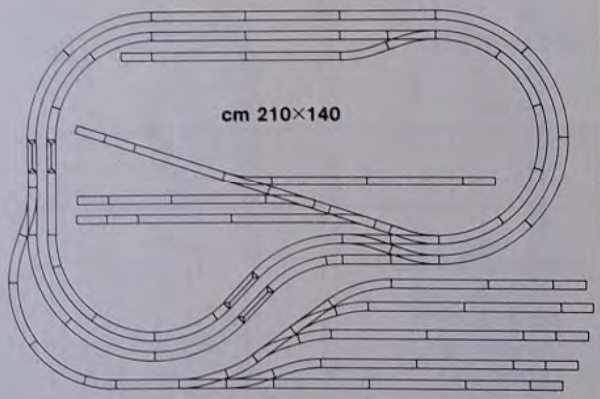
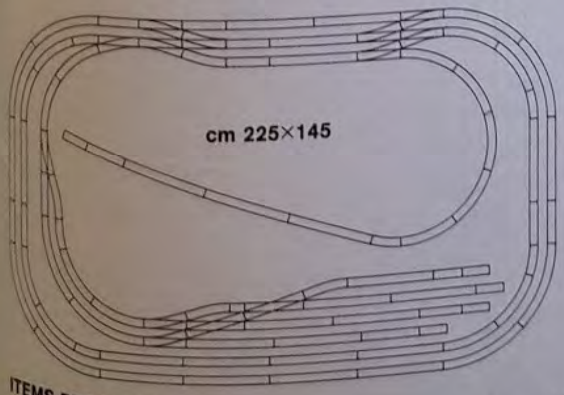
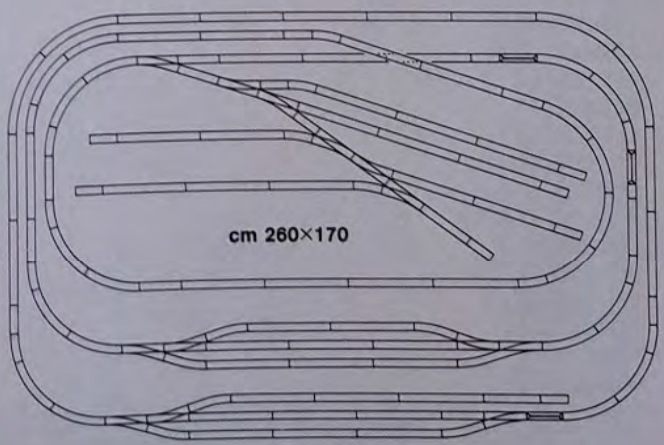
4×403021
3×403022
2×403023
4×403026
10×403025
22×403027
10×403017
12×493030
1×403030C
6×403031
1×403032
1×403033
1×403035
2×403036
6×403050
5×403051





ITEMS REQUIRED.

1×403020	26×403027	1×403030C	2×403036
1×403021	5×403025	6×403031	2×403038
1×403022	10×403017	1×403033	3×403050
11×403023	15×403030	2×403035	8×403051



ITEMS REQUIRED.

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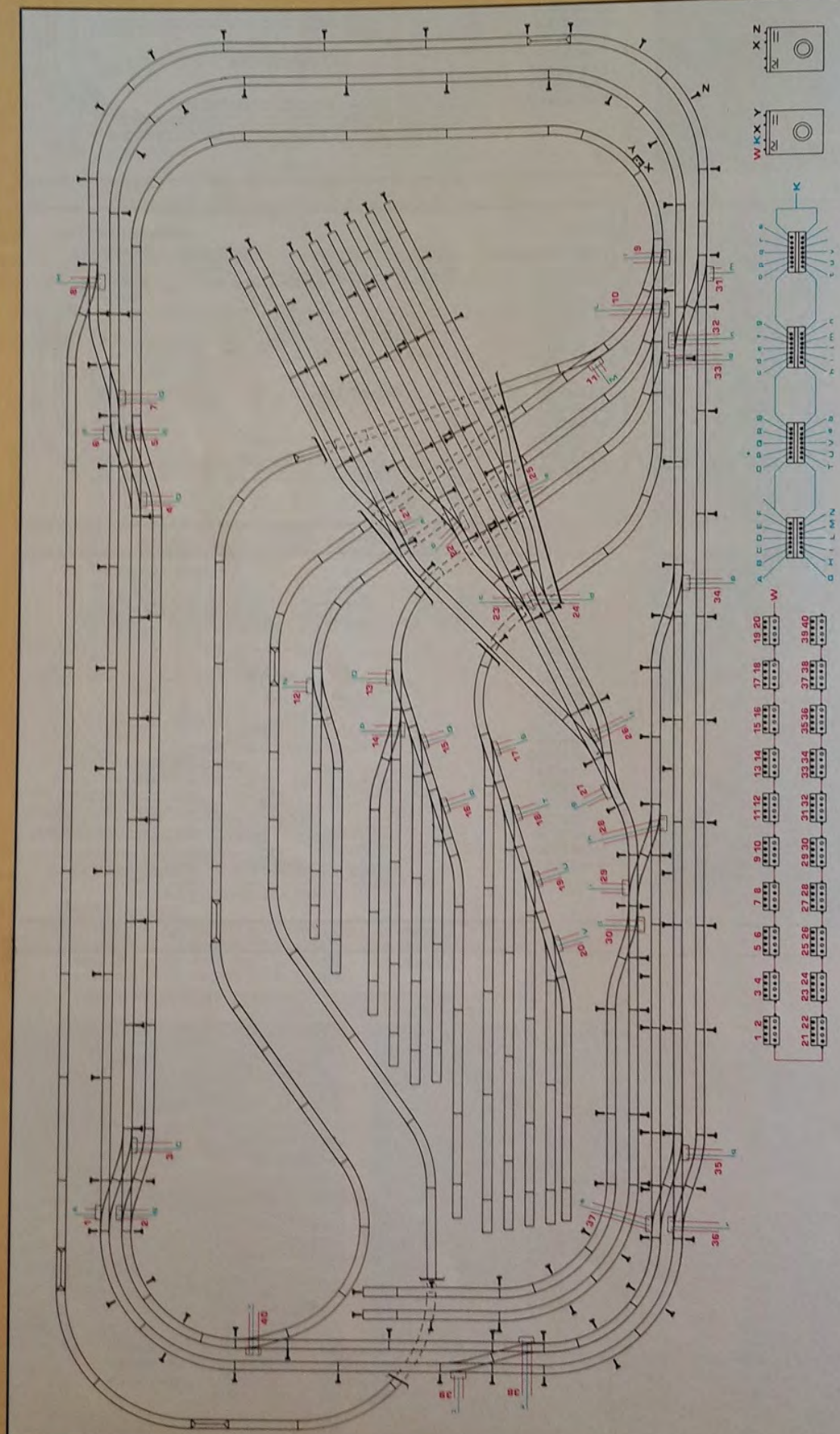
6×403021	51×403027	13×403031	5×403050
7×403023	4×403017	1×403033	8×403051
7×403025	18×403030	3×403035	

OO SCALE TRACK PLANS



ITEMS REQUIRED.

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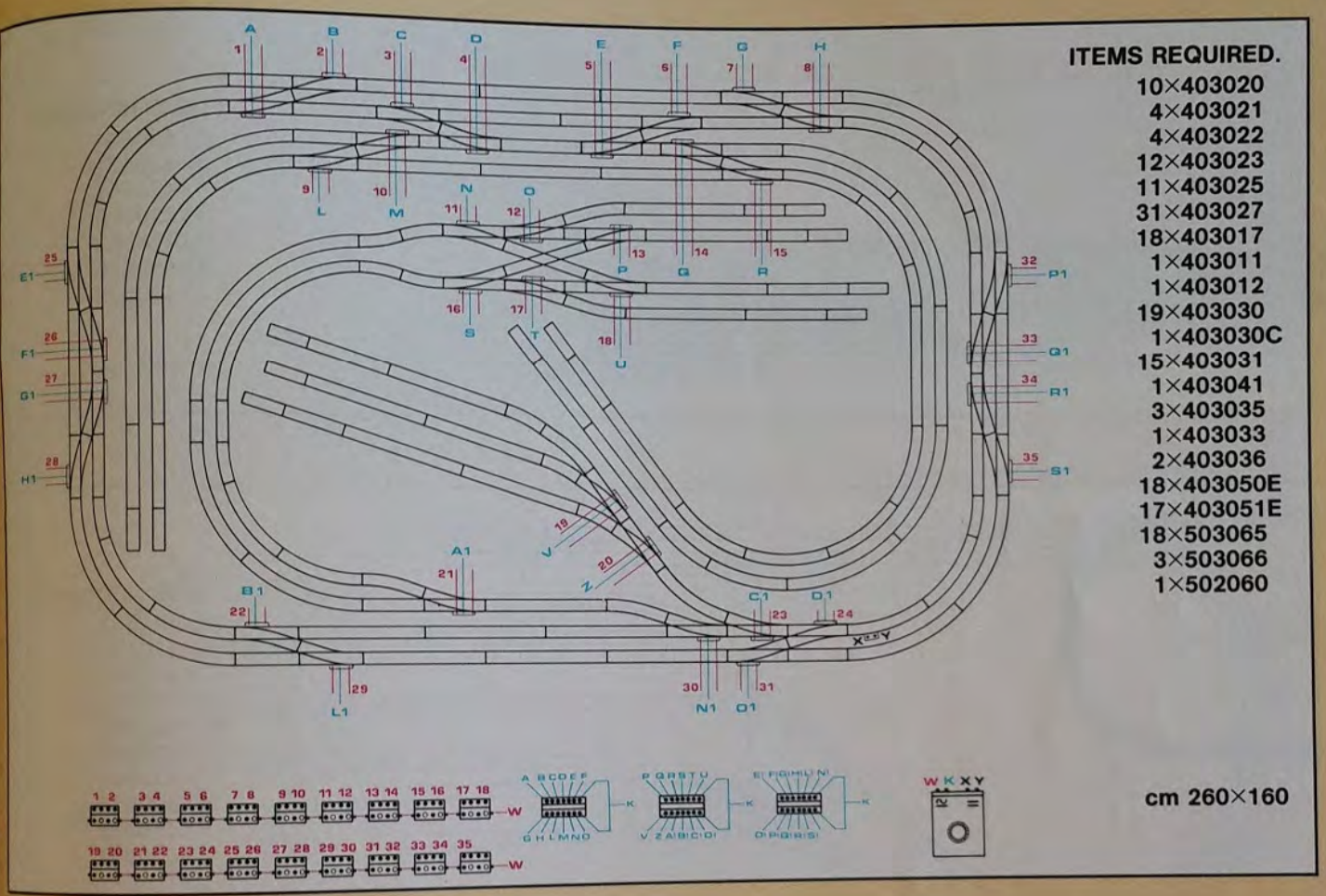
6×403021
7×403022
15×403023
22×403025
6×403026
121×403027
18×403017
25×403030
1×403030C
9×403031
1×403033
9×403035
9×403036
28×403050
12×403051E
20×503065
4×503066
2×502060
78×602950
18×602951
10×602953
10×602954
1×602952
88×602962
40×602961
58×602960

cm 440×190

00 SCALE TRACK PLANS



ITEMS REQUIRED.

10×403020
4×403021
4×403022
12×403023
11×403025
31×403027
18×403017
1×403011
1×403012
19×403030
1×403030C
15×403031
1×403041
3×403035
1×403033
2×403036
18×403050E
17×403051E
18×503065
3×503066
1×502060

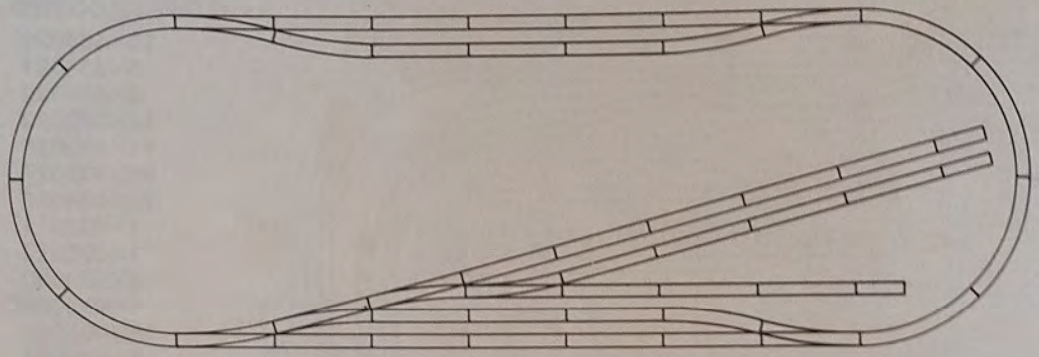
cm 260×160

ITEMS REQUIRED.

13×403020
5×403021
4×403022
5×403023
5×403025
4×403026
25×403027
6×403017
42×403030
1×403030C
12×403031
1×403033
1×403035
4×403050
4×403051
1×602952
16×602950
17×602951
24×602961
7×602960
3×602962
5×503065
1×503066
2×502060

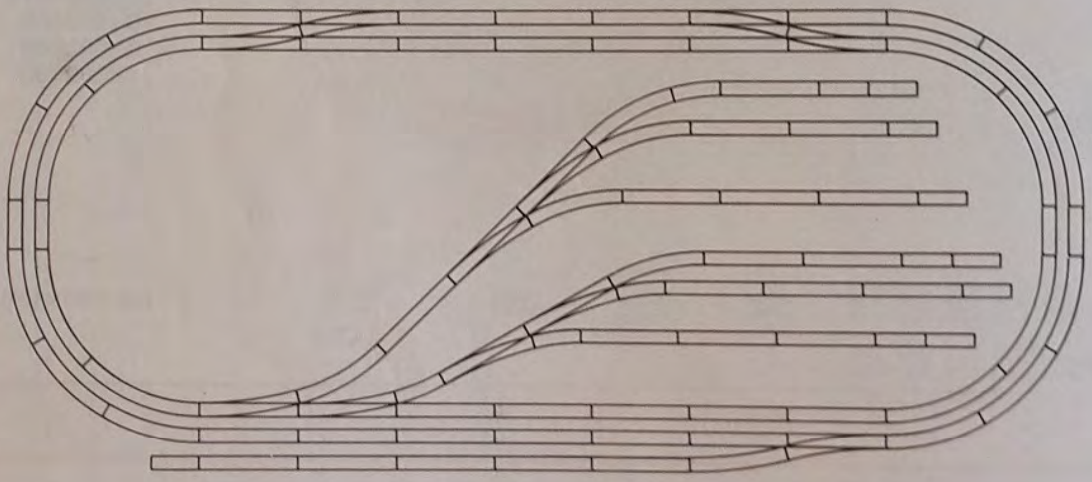
cm 200×275

N GAUGE TRACK PLANS



ITEMS REQUIRED.
7×420571
1×420571C
28×420561
3×420565
3×420553
4×420525
3×420526

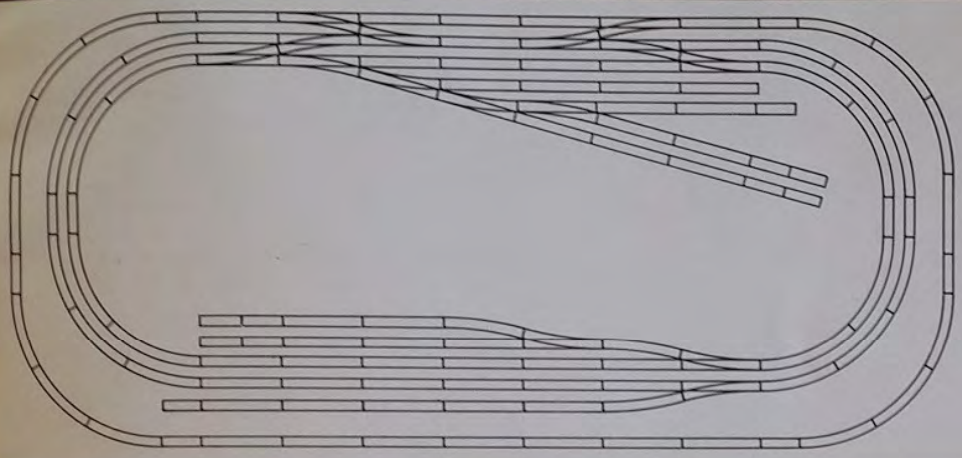
cm 135×45



ITEMS REQUIRED.
17×420551
4×420552
7×420571
1×420571C
41×420561
3×420562
7×420565
6×420525
5×420526
2×420553

cm 140×60

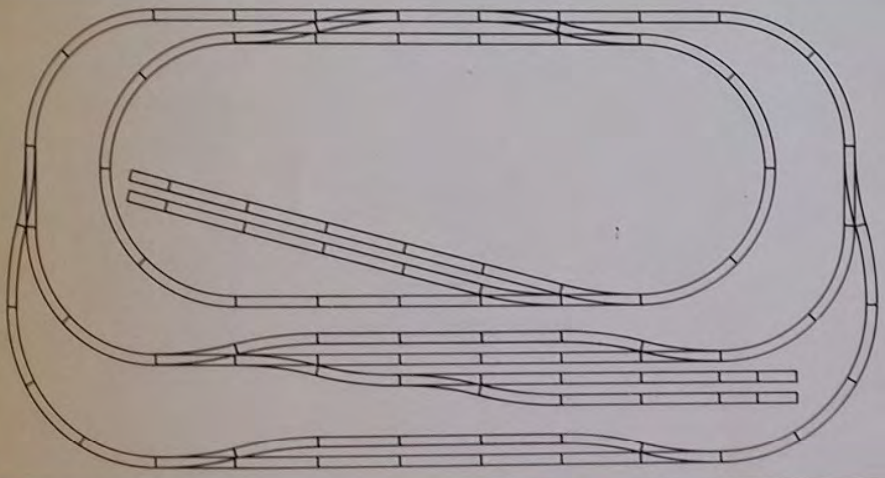
N GAUGE TRACK PLANS



ITEMS REQUIRED.

24×420551
7×420571
1×420571C
54×420561
14×420562
7×420565
3×420553
8×420525
5×420526

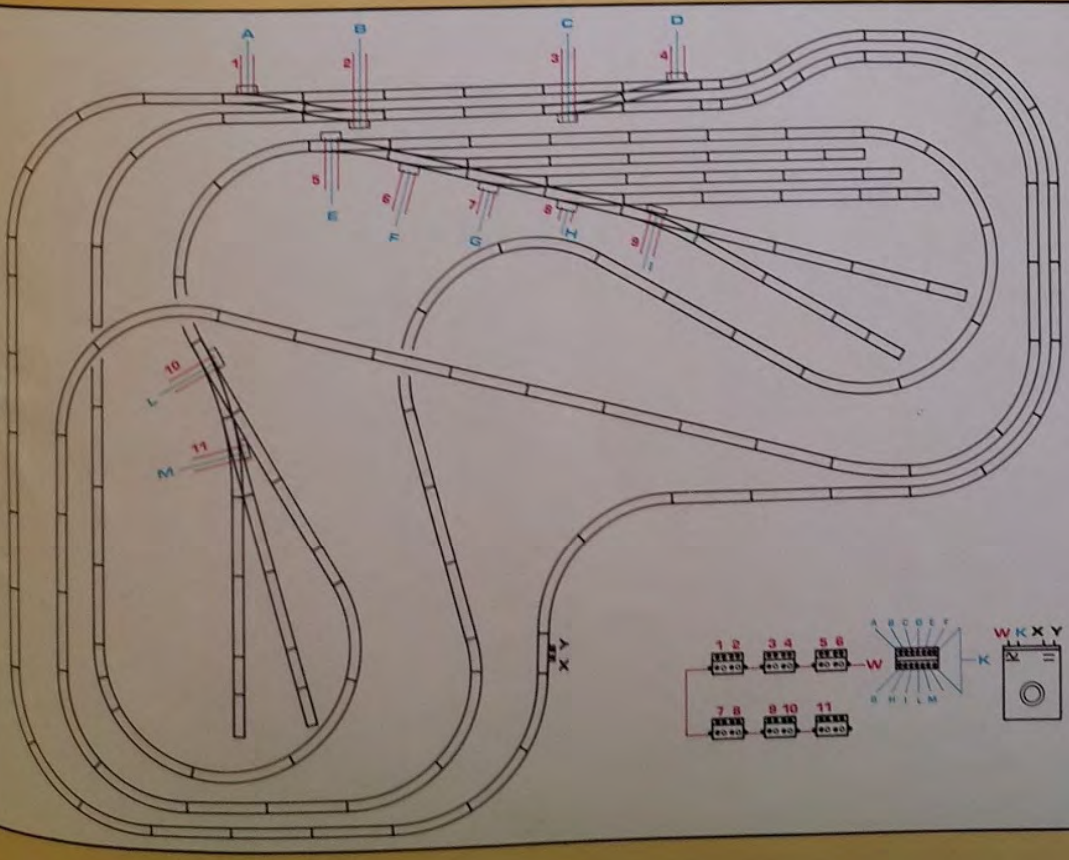
cm 150×70



ITEMS REQUIRED.

6×420551
15×420571
1×420571C
8×420553
40×420561
2×420562
4×420565
9×420525
5×420526

cm 140×80



ITEMS REQUIRED.

18×420551
28×420571
11×420572
76×420561
9×420562
4×420563
1×420564
7×420565
6×420525E
5×420526E
5×503065
1×503066
1×502053

cm 175×140

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