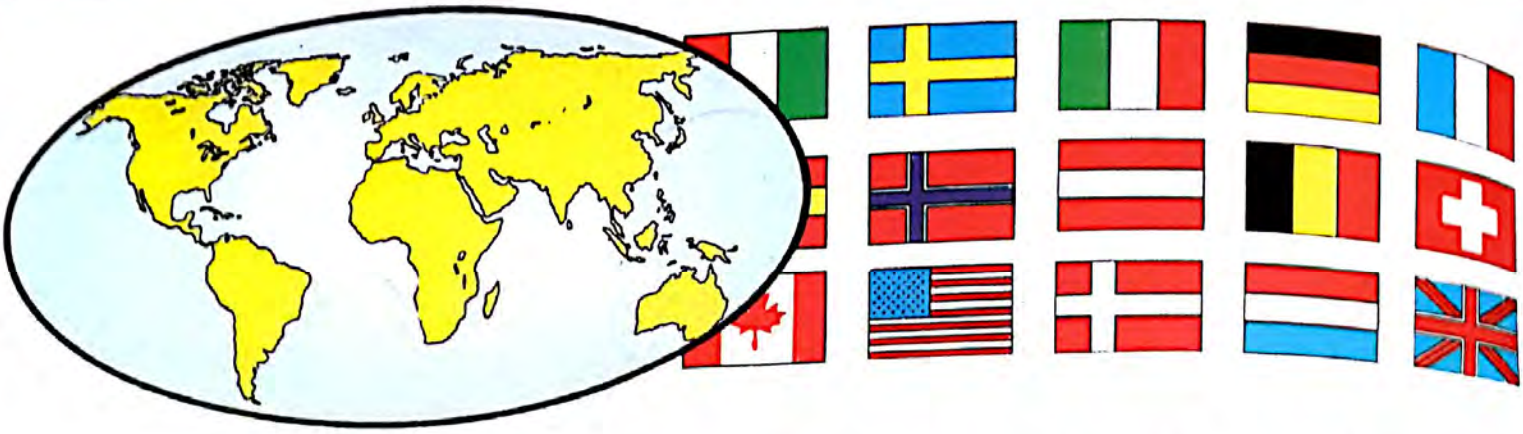

Lima
models
Model
Railways
2nd EDITION
1990
ARKWRIGHT MODELS
£3.99
PANCRAS
1989/90 BRITISH EDITION, OO SCALE



Item marked New are expected during 1989/90 and are not necessarily available at time of going to press.
L - Locomotive with lights and fitted with radio and television suppressors.

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Lima take much pride in recording their tremendous technical successes in model railways during the last year, which has led the most exacting modellers and collectors all over the world to appreciate the high quality of Lima products.
The dependability of both electrical and mechanical components as well as the



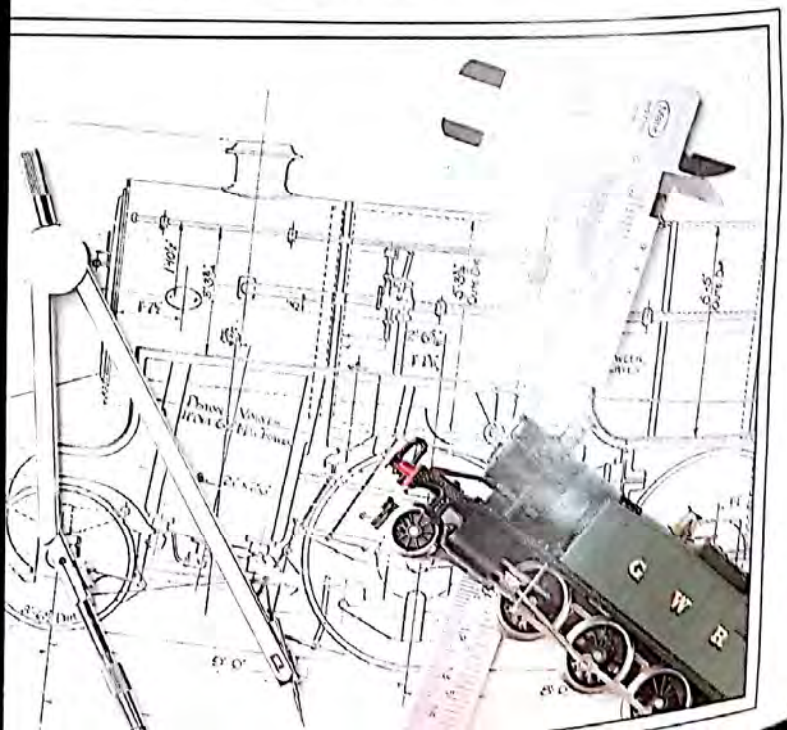
outstanding finish of every single item in the Lima range, has to be attributed to the specialised work of highly skilled technicians and to the introduction of advance production techniques and strict quality control procedures, unknown a few years ago.

Lima, the right quality at the right price

Lima also has had great commercial successes thanks to the Lima trade mark becoming so popular in Europe and in many countries elsewhere



in the world; also because model railways have become more and more popular. Today, Lima trains are very well known in Australia, America and in every corner of Europe where their reputation is increasing as fast as the range of models is expanding with an ever larger number of items each year.
Lima's vast experience together with painstaking research work, has resulted in modern manufacturing processes, that keep the quality/price ratio of Lima model trains at the best possible level. This catalogue actually



LIMA: BOUNDLESS POSSIBILITES FOR RAILWAYS MODELLING.

offers you the widest choice of locomotives and wagons, each of which has been built to the highest true-to-life reproduction standards.

Lima, perfect scale models

The miniaturisation processes employ highly sophisticated techniques as every life-size locomotive and wagon has to be accurately reduced from original blue prints and pho-



tographs to precisely obtain the same appearance and overall dimensions in the model.

The same accurate procedures used in the first development stage have also been continued with the manufacturing of plastic and metal moulds, which is probably the most delicate process in model railway production. Only advanced technology and high quality materials enable



Lima to obtain an industrial product of an unmatched standard from the various moulds.



The maximum precision and dependability of the moulds is of vital importance to the Lima factories.

Lima Advanced Technology

The sophisticated technology used in the manufacturing of the moulds is, likewise, extended to the production and testing of the electrical and mechanical components, motors, transmissions, axles, pantographs. Every model originates as a combination of perfectly integrated parts each of which ensures that the locomotives work smoothly and effortlessly with very high traction and that wagons operate friction-free and with the utmost stability.

Every locomotive is fitted with the famous 'G' motor, working on 0-12 volts DC. It is a small and very powerful unit, thanks to the special combination of a condensor with a linear resistor properly connected to the three sec-



tions of the commutator.

The result is that locomotives are true-to-life reproductions, in terms of traction at various speeds regardless of the track layout and or the train to be hauled, freight or passenger.

Lima integrated Model Railway System

Lima model railways are simple and universal allowing anyone to start model railroading and to enjoy it through all the endless stages of interest that the



hobby provides.

Lima Track Sets are excellent for the beginner, together with track extension Sets, «Golden Series» or Micromodel» Sets, to create an initial basic layout into a large model railway diorama.



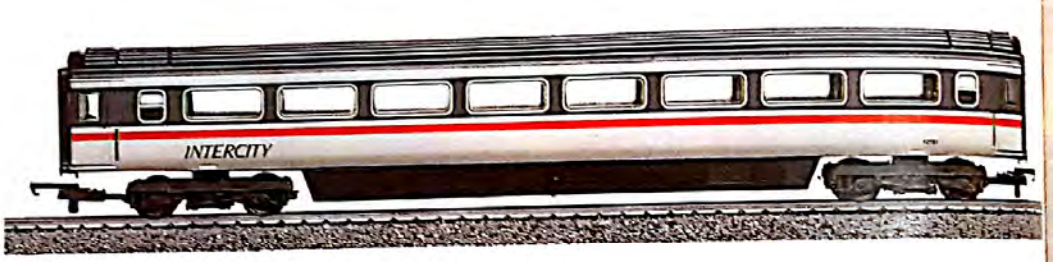
FAMOUS INTERNATIONAL HIGH-SPEED TRAINS

NEW STYLE INTER-CITY LIVERY

British Rail has recently carried out a re-organisation of its business and, whilst remaining a nationalised industry, a number of separate business sectors have been created under the overall control of the B.R. Board.



305390



305391



205080

The sectors which have been created cover Inter-City services, Provincial services, Network South-East, Railfreight, etc. Each sector has adopted its own separate identity- references are made to sector liveries in the remainder of this catalogue. For high quality long distance passanger services, which are operated by Inter-city a new branding has been introduced which features a swallow and a revised lettering style. More and more rolling stock is appearing in Inter-City livery, but with this revised branding, particularly High Speed Trains. Lima have recognised this change and will be offering a set in this revised style during 1989.

REVISED INTER-CITY LIVERY

149815 Diesel Electric Inter-City MST in revised Inter-City livery. The set is made up of following units.
205080 Power car fitted with powerful Lima electric motor.
305391 Standard class trailer coach.
205082 Dummy power car without motor.
This train set can be enlarged by one or more of the following additional units, which are available separately.
305391 Standard class trailer coach.
305393 Buffet/Restaurant coach.
305392 First class trailer coach.
305390 Standard class trailer coach with accomodation for the guard.



305392



305393

305391

305392

205082



FAMOUS INTERNATIONAL HIGH-SPEED TRAINS

The true to life reproduction of Lima 00 trains is really fantastic and allows modellers and collectors alike from all over the world to posses accurate reproductions in miniature of trains which have played an important role in the evolution of railways. To meet the needs of some railway modelling enthusiasts, Lima continues in its 1989 range a series of train sets giving high quality reproduction of such trains in 00 scale.



205181



305368



BRITISH

British Railways (BR) introduced the High Speed Train (HST), otherwise known as the Inter-City 125 in 1976 on services between London, Bristol and South Wales. These high speed trains were designated Class 253 and were designed to operate at speeds of up to 125 mph. The formation of the trains is fixed, with a power car at each end, giving as total output of 4500 hp.

The Class 253 high speed trains were later supplemented by Class 254 units wich were introduced on services on the east coast main line (between London Kings Cross, Leeds, Newcastle and Edinburgh). Very similar in appearance to Class 253 units, the Class 254 units operate with eight trailers between the power cars, whereas the earlier units possess only 7 intermediate trailers.

149811 INTER-CITY LIVERY

A diesel-electric Inter-City HST in Inter-City livery. The set is made up of the following units:
205197L Power Car - Fitted with powerful Lima electric motor.
205181 First Class Trailer Coach.
205183 Buffet/Restaurant Trailer Coach.
205199 Dummy Power Car - Without motor.

This train set can be enlarged by one or more of the following additional units which are available separately:
205181 First Class Trailer Coach.
205182 Standard Class Trailer Coach.
305368 Standard Class Small Coach with Guards Compartment.



205182



FAMOUS INTERNATIONAL HIGH-SPEED TRAINS

Following the introduction of HSTs to Western Region and East Coast main line services, the use of HSTs has been extended and covers routes as diverse as Penzance, Haverfordwest, Harrogate, Hull, Glasgow, Inverness, Aberdeen, the Midland main line between St. Pancras and Sheffield and other major cross-country routes. Depicted here is an Inter-City 125 HST in the original livery carried by these units, which was predominantly BR blue and grey.

BRITISH
149751
INTER-CITY 125
This pack contains the following:

205160L HST Power Car with powerful Lima motor
205161 First Class Trailer Coach
205163 Restaurant/Buffet Trailer Coach
205164 HST Dummy Power Car - Without motor.

The set can also be enlarged by one or more additional units, available separately:

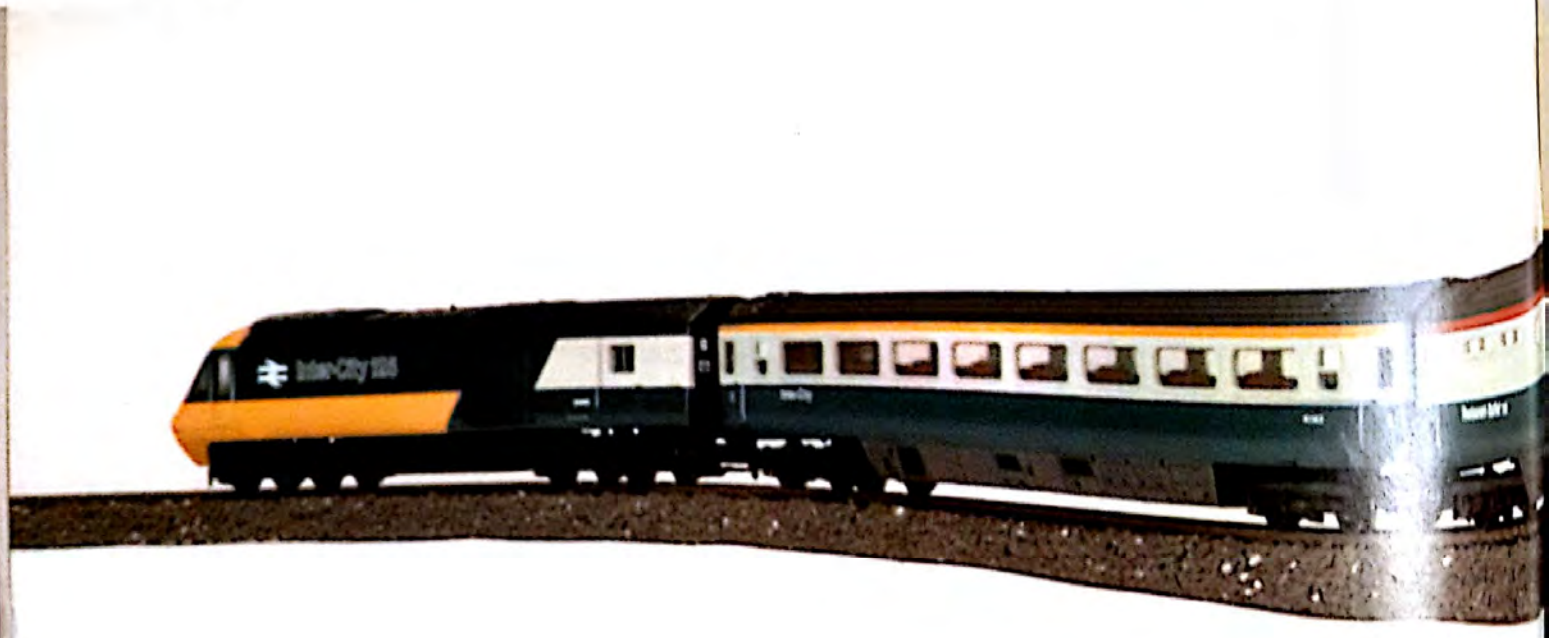
205161 First Class Trailer Coach
205162 Second Class Trailer Coach
305366 Second Class Trailer Coach with Guards Compartment.



205161



305366







205162



DIESEL MULTIPLE UNIT

During the modernisation of Britain's railways in the late 1950s, British Railways were seeking a cost-effective solution to running many local commuter and branch line services. The solution which was adopted was the development of a large fleet of cross-country and suburban diesel multiple units, which were essentially railway carriages with underfloor-mounted diesel engines. Equipped with a driver's cab at each end of each two, three or four car unit, diesel multiple units, or DMUs as they are more commonly known, have gone a long way



205146 Composite centre coach with toilet compartment.



149810
DMU Class 117

Set consisting of three units:

205147 Class 117 DMU motor brake second - with powerful Lima electric motor.
205148 Composite coach with toilet compartment.
205149 Class 117 DMU motor brake second - non-powered.

This set is in the blue and grey livery which was adopted for all DMUs from 1981 onwards.

The various units comprising this set are also available separately from your Lima stockist.



to supporting services which otherwise would have ceased to exist because they were too expensive to operate. Most types of DMU look basically similar, but there are a number of notable differences. In particular, DMUs have been built on short (57ft) and long (64ft 6ins) underframes and they have also appeared in traffic with low density and high density seating arrangements. The high density sets are easily recognised because of the number of doors giving access to the passenger-carrying compartments. Low density units are normally reserved for longer cross-country routes. The Lima model is of the Pressed Steel Company's Class 117 DMU which is carried on a 64ft 6ins underframe, the unit being made up of two motor brake seconds and a composite centre car. Units like these are to be seen operating in most parts of the country, but one particularly important route is the suburban route west out of Paddington. The Pressed Steel Class 117 units were introduced from 1959 and each three car set has two power cars each of which are powered by two BUT (Leyland) 6 cylinder diesel engines developing 150hp. The transmission is mechanical and each power car weighs 36 tonnes.



149809
DMU Class 117

Set consisting of the following three units:

205137 Class 117 DMU motor brake second - with powerful Lima electric motor.
205146 Composite centre coach with toilet compartment.
205139 Class 117 DMU motor brake second - non-powered.

This set is in the mid-green livery carried by DMUs from their introduction in the late 1950s. The units also feature small yellow warning panels which were added to increase the visibility of these trains for railwaymen working on or near the track.

The various units making up this set are also available separately from your Lima stockist.



205148 Composite coach with toilet compartment.



LOCOMOTIVES

General Information

Throughout this catalogue information is given, often in abbreviated form, about the mechanical specification of various items of railway stock. The following comments are therefore offered by way of general information to users of this catalogue.

Wheel Arrangements

Steam locomotives used the Whyte system of notation in regard to wheel arrangements. Under this system, the number of leading wheels are given, followed by the number of driving wheels and then the trailing wheels. Often particular wheel arrangements were given names, hence a 4-6-2 was known as a «Pacific». The suffix «T» on a steam locomotive indicates a tank locomotive. The Whyte notation system was perpetuated for shunters and therefore classes such as the current Class 08 or 09 have been given the wheel arrangement 0-6-0. For mainline diesel and electric locomotives (other than shunters) a system has been devised whereby the number of driven axles in a bogie is denoted by a letter (A = 1, B = 2, C = 3 etc). The number of undriven axles is noted by a number. The letter «o» after a letter indicates that each axle is individually powered. The majority of diesel and electric locomotives therefore fall into the Co-Co or Bo-Bo category, but there are exceptions like the Class 31 where the centre axle on a 3-axle bogie is unpowered therefore giving these locomotives the wheel arrangement AIA - AIA.

Power Classification

When first introduced, diesel and electric locomotives were numbered within the numbering scheme for steam locomotives, but around 1957 diesel and electric locomotives were allocated new 4 digit numbers with either «D» or «E» prefixes. Generally speaking, the locomotive number reflected the type of that locomotive. Diesel locomotive types were as follows:

Type	Engine HP
1	800 - 1000
2	1001 - 1499
3	1500 - 1999
4	2000 - 2999
5	3000 +

In 1972 the present computerised numbering system for BR locomotives was introduced whereby the locomotive number consists of a two digit class number followed by the number of the locomotive itself. Often the third number in the series is used to indicate a particular subtype, for example, locomotives with the number 477XX are Brush/Sulzer Type 4 locomotives which have been fitted with push/pull equipment.

GRW 45XX 2-6-2 TANK

The Great Western Railway developed a number of standard tank locomotive designs for cross-country and branch line passenger work, one such design being the 45XX Class which was designed by G. J. Churchward. These locomotives were known as the small Prairie Tanks, the name reflecting their wheel arrangement. A total of 175 were built at Swindon Works between 1906 and 1929. Each tank locomotive weighed 57 tons, produced a boiler pressure of 200lbs and had a tractive effort of 21,250lbs. As their nickname would apply, they were lighter and smaller than other Prairie Tanks which were introduced by the GWR, but were more powerful than the smaller 0-6-0 designs.

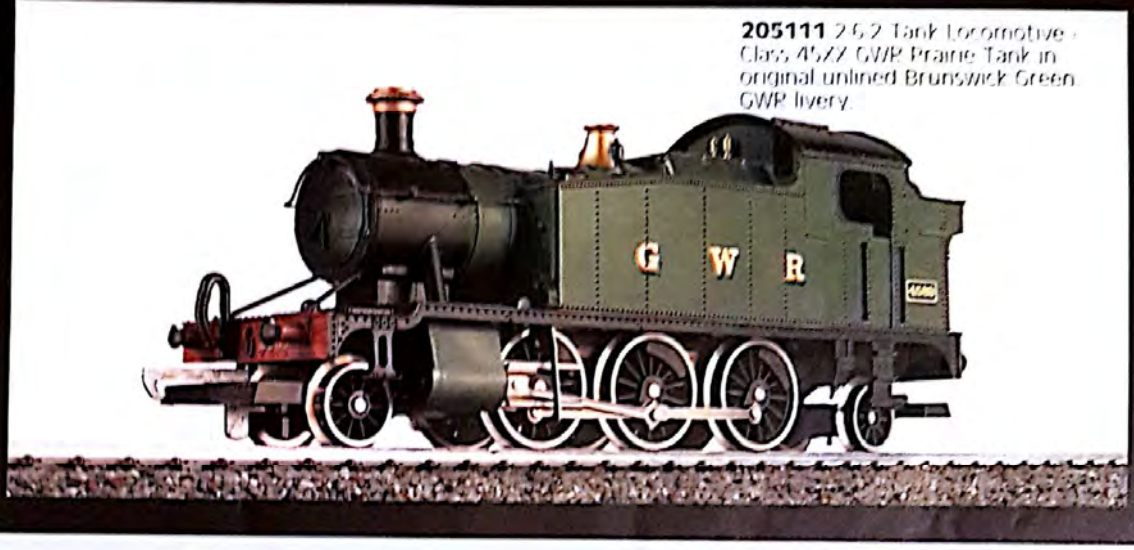


GWR 4-6-0 «KING» CLASS

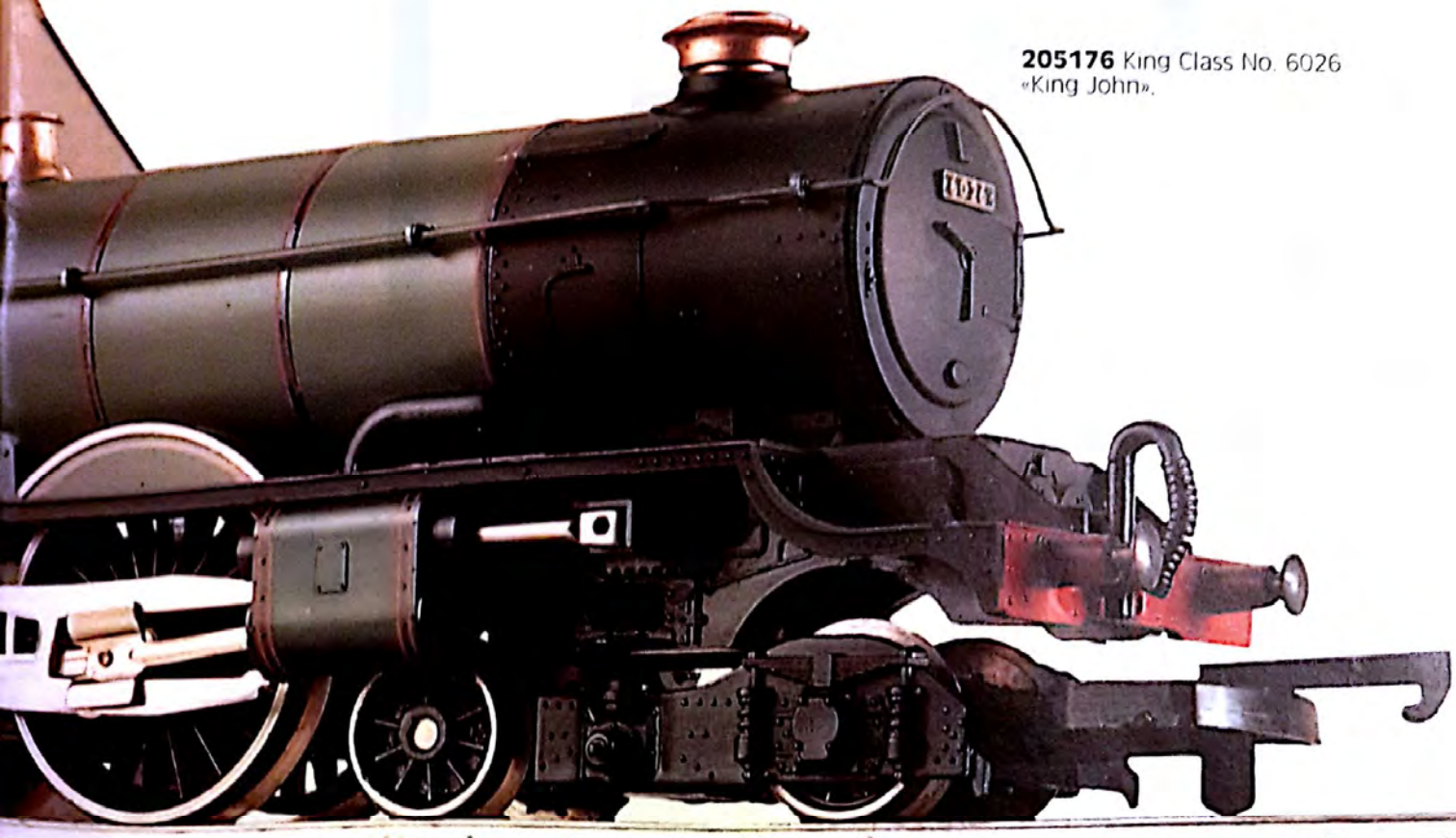
The GWR kept faith with the 4-6-0 wheel arrangement for its express passenger locomotives and possibly one of the most famous of all classes of locomotives were the GWR «King» class, all 30 of which were named after British Monarchs. These very impressive express passenger locomotives were built at the Swindon Works of the GWR in 1927 to a design by C. B. Collet. The first of the class, No. 6000 «King George V» represented Great Britain at a railways centenary held in America in 1927, where it was fitted with the warning bell which it carried for the rest of its working life. Lima's model representative of this class is No. 6026 «King John» in BR express passenger lined green livery.



205110 Tank Locomotive - Class 45XX Prairie Tank in BR mixed traffic lined black livery.



205111 2-6-2 Tank Locomotive - Class 45XX GWR Prairie Tank in original unlined Brunswick Green GWR livery.



205176 King Class No. 6026 «King John».

205117 0-6-0 Pannier Tank - 94XX Class in original GWR unlined green livery.



205118 0-6-0 Pannier Tank - 94XX Class in unlined BR black livery.



205102 Tank Locomotive - Class J50 in BR unlined black livery.



GWR 94XX 0-6-0 TANK

The Great Western Railway and subsequently British Railways introduced several hundred 0-6-0 pannier tank locomotives to a standard design for heavy shunting, light freight and light passenger traffic. The 94XX Class was the last in the line of pannier tanks produced for the GWR at Swindon Works and was designed by F. W. Hawksworth. Locomotive No. 9400 was built in 1947, was finally withdrawn from service in 1959 and is now preserved in the Great Western Railway Museum at Swindon.

LNER J50 CLASS 0-6-0 TANK LOCOMOTIVE

Designed by Sir Nigel Gresley in 1914, the LNER J50 Class was developed for use on the steep gradients in the West Riding of Yorkshire. The locomotives were designed primarily for shunting and freight use and the increased size of cylinder incorporated in this Class made them popular with locomotive crews and railway operators alike. A very long lived design, these locomotives which were constructed at the Doncaster Works of the LNER saw a number of modifications and several lasted right up to the last days of steam - i.e. a working life of 50 years or more.



GWR RAILCAR

In the early 1930s the Great Western Railway recognised the benefits of using diesel engines for the propulsion of lightweight branch line type trains and from that time introduced a number of railcars which were later to evolve into the DMU of British Railways modernisation plan. A number of the constituent railway companies experimented with diesel power, but the GWR were the first to successfully apply this means of propulsion to passenger trains. Known as «Flying Bananas» by virtue of their unusual shape, the GWR built a number of single units for passenger use, developed the single unit design to provide for the carriage of parcels and then developed two-car units with corridor connections between each vehicle – rather like latter day DMUs. The GWR even used standard coaches as intermediate trailers on these sets.



205132 GWR Railcar No. 22 in original GWR chocolate and cream passenger livery.



205150 Diesel Railcar No. W30W in BR green multiple unit livery with speed «whiskers» on the nose to provide visual warning.

CLASS 09 SHUNTER

Designed and built between 1959 and 1961 by British Railways the Class 09 Shunter is a development of a design which dates back to 1945 when the English Electric Company constructed 0-6-0 shunting locomotives for the LMS. Equipped with an English Electric 6KT diesel engine rated at 350 hp, the



205107: Class 09 Diesel Electric 0-6-0 Shunter in standard BR blue livery with yellow and black warning stripes at each end.





205108: Class 09 Diesel Electric 0-6-0 Shunting locomotive in early BR green livery.



205112: Class 09 Diesel Electric 0-6-0 Shunter in Railfreight grey and red livery with black and yellow warning panels at both ends.



205225: Class 09 Diesel Electric 0-6-0 Shunter in Network South-East blue livery.

present day power rating of these locomotives has been increased to 400 hp by utilising a higher rpm. A re-geared version of the earlier Class 08 0-6-0 shunting locomotive, the Class 09 was introduced for use on the southern region of British Railways, although at least two of this Class of 26 locomotives are now used on other regions of British Rail where the higher maximum speed of the Class 09 over the very similar but much slower Class 08, is a distinct operating advantage.

Class 09 locomotives have appeared in several different colour schemes, a number of which are included in the Lima range.

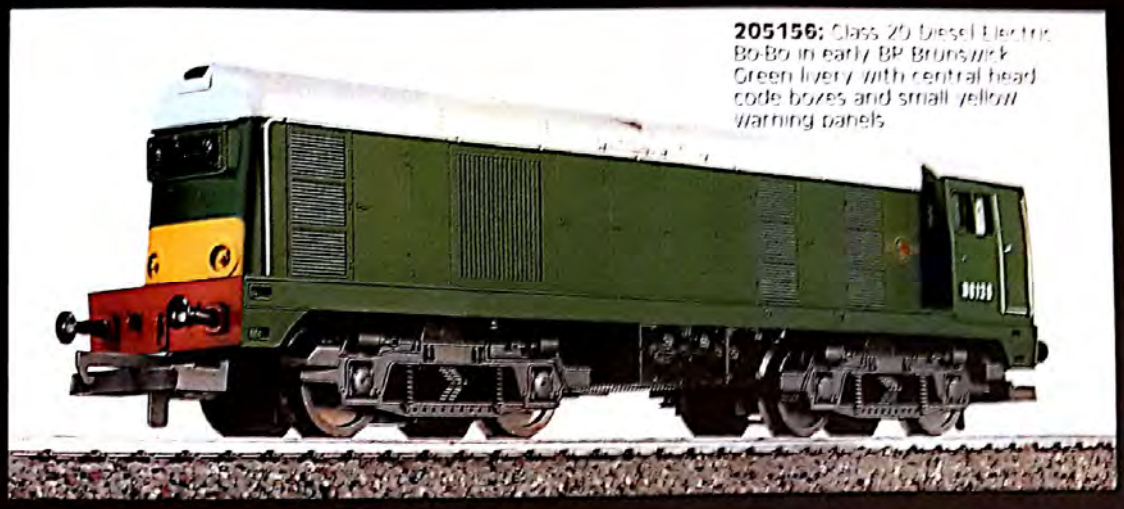
205090: Class 09 Diesel Electronic 0-6-0 Shunter No. 09012 «Dick Hardy» in Inter-City livery. This locomotive was painted in this colourful livery and named Dick Hardy at the Stewarts Lane Open Day held in April, 19[illegible]. The name chosen is a tribute to a former Depot Engineer at Stewarts Lane.

NEW

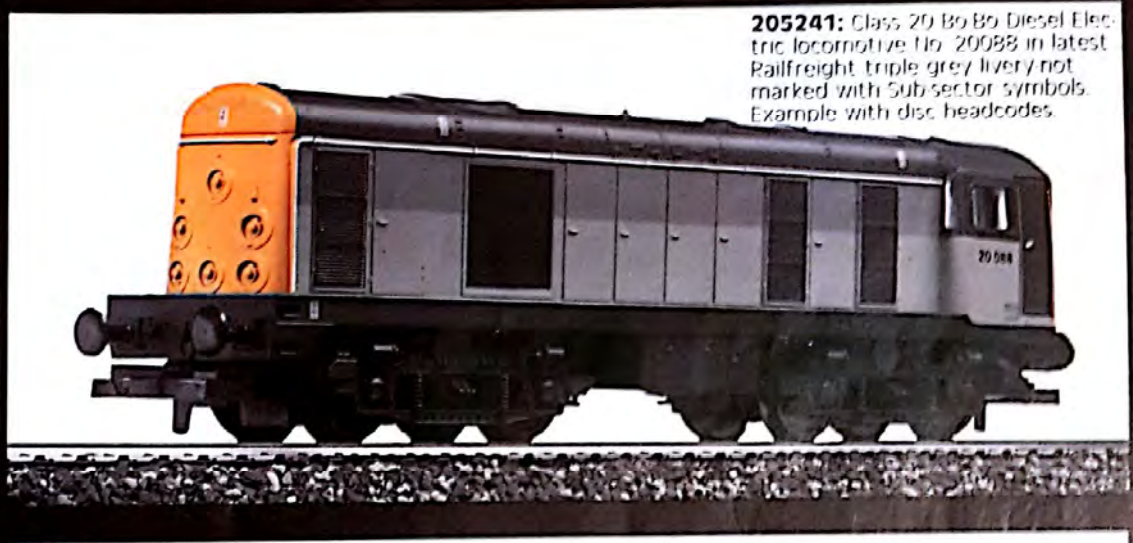


CLASS 20

In 1957 British Railways accepted delivery of the first diesel-electric design to be introduced under the pilot scheme for the modernisation of Britain's railways from English Electric Limited. Deliveries of English Electric Type 1s, later to be designated Class 20s, continued in two batches until 1967. A single cab design, these locomotives are often seen coupled «nose to nose» in pairs. Each locomotive is powered by an English Electric 8SVT Mk. II diesel engine of 1000 hp at 850 rpm and has a maximum speed of 75 mph, but has no train heating capacity. Ideal, either singly or in pairs, powering model freight trains and summertime passenger workings. Locomotives in the first batch featured headcode discs; those in the second batch were equipped with central four panel route indicator panels. Examples of both types are included in the Lima range.



205156: Class 20 Diesel Electric Bo-Bo in early BR Brunswick Green livery with central headcode boxes and small yellow warning panels



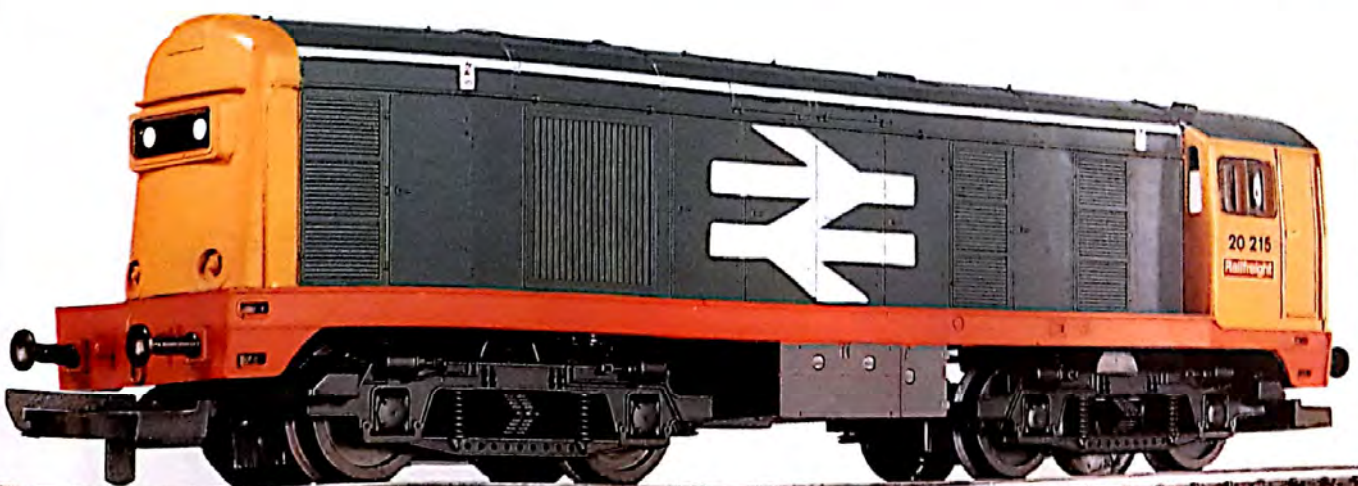
205241: Class 20 Bo-Bo Diesel Electric locomotive No. 20088 in latest Railfreight triple grey livery not marked with Sub-sector symbols. Example with disc headcodes

NEW



205158: Class 20 Diesel Electric Bo-Bo No 20171 Railfreight Livery

205159: Class 20 Diesel Electric Bo-Bo in grey and red Railfreight livery with yellow cab and central headcode boxes





205240: Class 20 Diesel Electric Bo-Bo No. 20064 «Silver Sheaf» in «special» green, red and grey livery applied by Tinsley Depot, Sheffield in 1987.

NEW



205244: Class 26 Diesel Electric Bo-Bo in BR blue livery with full yellow ends.

CLASS 26

These mixed traffic locomotives were first introduced by British Railways in 1958 as part of the pilot scheme for the modernisation of railways in Britain and were designed and built by the Birmingham Railway Coach and Wagon Works Limited (BRCW). Twenty locomotives were included in the pilot scheme batch and were followed by a production series of a further 26 locomotives. The Class 26s are equipped with Sulzer 6LDA28 diesel engines developing 1160 hp at [illegible] rpm. Equipped with Crompton Parkinson electrical gear, these compact Bo-Bo locomotives were equipped with train heating apparatus,

thereby extending their usefulness to the railway traction manager. The 20 pilot scheme locomotives were first used in the London area on Eastern Region suburban services, but quite early on in their lives were moved to Scotland to join the 26 locomotives in the production series. Equipped with headcode discs for train reporting purposes, Class 26s have appeared in both green and blue livery, whilst those which remain in service now have been refurbished and can increasingly be seen bearing Railfreight grey and red colours. Class 26s were regular performers on passenger services where high speeds were not required (maximum speed 75 mph), but refurbishment has led to the removal of train heating boilers, restricting the use of the Class to freight duties. Lately example have emerged in the new triple grey Railfreight colours.

205245: Class 26 Diesel Electric Bo-Bo in Railfreight grey and red livery with yellow ends.

NEW



CLASS 27

In an attempt to increase power in Type 2 locos, BR ordered from BRCW 69 locomotives incorporating a Sulzer 6LDA28-B engine developing 1250 hp at 750 rpm. This new Class of locomotives subsequently became known as Class 27s, which unlike the Class 26s featured GEC electrical equipment. Very similar in appearance to the Class 26s, the Class 27s featured a roof-mounted headcode box rather than the headcode discs featured on the earlier design. The higher rated engine allowed a maximum speed of 90 mph. Introduced in 1961 to the London Midland, Eastern and Scottish Regions of BR, the entire Class gravitated to Scotland as part of a rationalisation of BR motive power undertaken in the early 1970s.
When first introduced, the locomotives carried a green livery almost exactly the same as that carried by Class 26s. The changeover to blue livery occurred gradually from the late 1960s onwards. All Class 27s have now been withdrawn although several have been preserved at English as well as Scottish preservation sites.



205247 Class 27 Diesel Electric Bo Bo No. 27102 in BR blue livery with full yellow ends.

NEW



NEW

205248 Class 27 Diesel Electric Bo Bo No. D5394 in early BR green with small yellow warning panels. This locomotive has been preserved and can be found operating trains on the Speyside Railway between Aviemore and Boat of Garten.



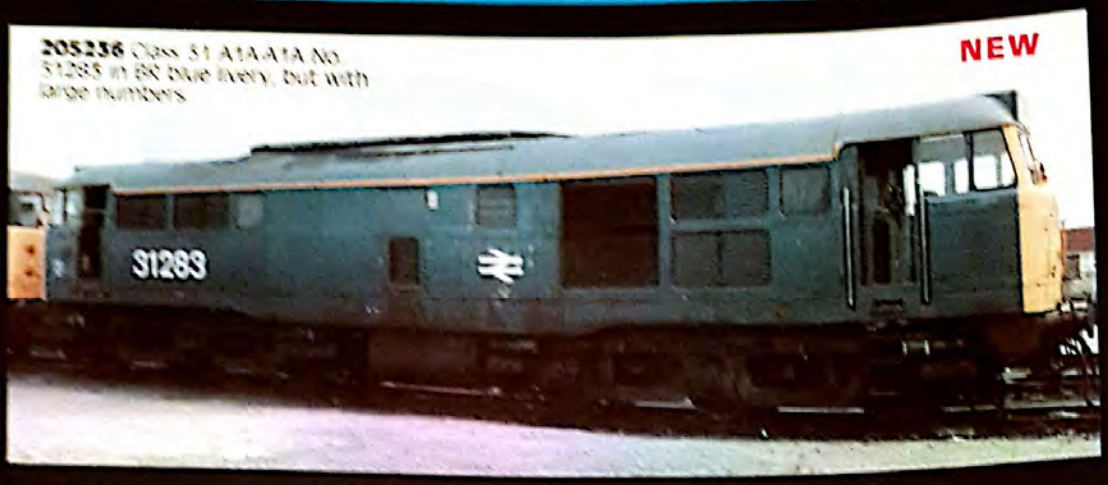
205252 Class 27 Bo Bo Diesel Electric locomotive No. 27037 in BR blue livery with full yellow ends.

CLASS 31

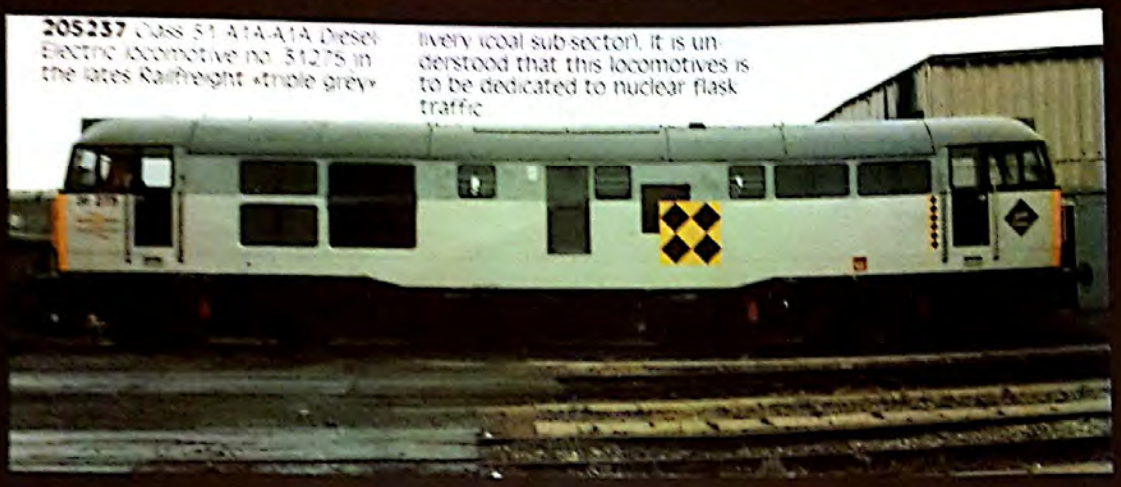
In the late 1950s British Railways placed an order with Brush for the supply of 20 mixed traffic locomotives. These locomotives were included in the pilot scheme for modern traction and were subsequently designated Class 31/0 and nicknamed «Toffee Apples» because of the distinctive shape and design of the driver's power control handle. The «Toffee Apples» were built with an electro-magnetic multiple-unit control system, which was not compatible with the



205092 - Class 31 A1A-A1A Diesel Electric locomotive No. D5679 in original BR brunswick green livery with bodyside footsteps.



205236 Class 31 A1A-A1A No 31285 in BR blue livery, but with large numbers.



205237 Class 31 A1A-A1A Diesel Electric locomotive no. 31275 in the latest Railfreight «triple grey» livery (coal sub-sector). It is understood that this locomotives is to be dedicated to nuclear flask traffic.



205238 Class 31 A1A-A1A Diesel locomotive in standard BR blue livery with bodyside footsteps and head code discs.

electro pneumatic multiple unit control system which was subsequently adopted by British Railways and which was incorporated into the production series of Class 31s. The vast majority of these Brush manufactured locomotives therefore fall into the sub-category 31/1 although a number have in recent years been fitted with electric train heating apparatus which has placed them in sub-category 31/4. When first introduced, these locomotives were powered by Mirrlees JVS12T diesel engines which in the production series were uprated from the pilot scheme design to deliver 1365hp at 900 rpm. These engines proved to be less than satisfactory and all were eventually replaced with English Electric 12SVT diesel engines delivering 1470hp at 850 rpm. Some locomotives were fitted with disc head-codes for train reporting purposes, although the vast majority are equipped with roof-mounted four-panel indicator boxes. Maximum speed varies depending on the subtype. The bogies of these locomotives are unusual in that the centre axle is not powered thereby leading to the wheel arrangement classification A1A-A1A.

From carrying an attractive green livery when first introduced, these locomotives were gradually repainted into BR blue livery. An increasing number have emerged in Railfreight grey livery, some locomotives being embellished with a Railfreight red solebar. One locomotive has been transferred into departmental service and has appeared in traffic in a colourful variation of the Inter-City striped livery.



CLASS 33

The big brother of the BRCW Type 2s (Classes 26 and 27), the Class 33s were first introduced on the Southern Region of British Railways from 1960 onwards. Very similar in appearance to Class 26s and 27s, the Southern Region were forward-thinking and had recognised that electric train heating was the best means of ensuring passenger comfort rather than persevering with the anomoly of steam generators for steam heating purposes in modern diesel locomotives. The extra space created by the decision to dispense with train heating boilers and fit ETH gear as an alternative meant that BRCW were able to accommodate an even larger diesel engine within a locomotive that was no larger than a Class 26 or Class 27. Class 33s were equipped with Sulzer 8LDA28 diesel engines capable of delivering 1550 hp at 750 rpm and as such fell into the Type 3 category. Capable of a maximum in-service speed of 85 mph, these locomotives are used extensively by the Southern Region for freight and passenger workings. Recent years have seen these locomotives working in other areas of the country. A total of 98 Class 33s were constructed, the final 12 being built to the narrower overall width of the Hastings line. In 1966-67 took the decision to fit push and pull equipoment to 19 of these Type 3 locomotives, thereby creating



205116 Class 33/1 Diesel Electric Bo-Bo in BR blue livery with full yellow ends. This model features the cab front multiple unit control gear which is a feature of this sub-class.



NEW

205228 Class 33 Diesel Electric Bo-Bo no. 33050 «Isle of Grain» in latest triple grey Railfreight livery (construction Sub-Sector). This locomotive has been allocated for use in traffic generated by the construction of the Channel Tunnel.



205174 Class 33 Diesel Electric Bo-Bo No. 33056 «The Burma Star» in modified BR blue livery with full yellow ends.

205070 Class 33 Diesel Electric Bo-Bo no. 33205 in the very latest triple grey Railfreight livery (speed link Sub-Sector).
This is one of the locomotives used at Dover Docks to load train ferries.



NEW



205126 Class 33 Bo-Bo Diesel Electric locomotive No. 33008 «Eastleigh» in interim style of special green livery applied to this engine for Eastleigh Works open day in 1987.



205294 Class 37 Co-Co Diesel Electric locomotive no. 37049 in original BR blue livery split headcode version.



205286 Class 37 Co-Co Diesel Electric locomotive in BR blue livery split headcode version. This locomotive feature the orange overhead warning stripes which appear on all locomotives nowaday and provides staff with visional warning of overhead live wires.



205287 Class 37 Co-Co Diesel Electric locomotive (Split headcode box version) No. 37350 in special Brunswick green livery. Originally the first of the class, this locomotive also bears its old number - D6700.

the sub class 33/1. These locomotives featured, among other things, waist level control jumpers, thereby making them compatible with new electric multiple units, trailer units as well as other Southern Region motive power. First painted in green livery, all of the class have for a number of years now been in blue livery, although certain members are now emerging from works in the latest Rail freight triple grey colour scheme.

CLASS 37

Shortly after British Railways had placed substantial orders for new diesel traction, railway managers recognised that it would be desirable for locomotives to be introduced which would fall into the Type 3 category – i.e. mixed traffic types of higher power than the Type 2s, which would allow heavier trains to be hauled at greater speeds. The English Electric Company Limited offered a suitable design to British Railways and substantial numbers of these locomotives, which were subsequently designated Class 37, were built from 1961 onwards. Class 37s have proved to be one of the most popular diesel electric locomotives with British Rail's staff, particularly in view of their reputation for reliable operation. When first designed, these Type 3 locomotives featured nose-end communicating doors, which led to the headcode boxes which were included for train reporting purposes being split and placed on either side of this feature. Once BR recognised that nose-end communicating doors were a largely re-



undant feature, the Class 37 as re-designed to provide a entral four-panel indicator ox. When the display of rain reporting codes ceased, many Class 37s had their eadcode box or boxes ealed off with sheet metal to which marker lights were ncorporated.

Subsequently, a number of Class 37s have been refurbished to provide for electric train heating (sub-class 37/4) or for Railfreight services (sub-classes 37/5, 37/7, 37/9). Refurbishment has led to changes which have affected the external appearance of these locomotives in small ways. Some refurbished locomotives have even been fitted with replacement diesel engines for experimental purposes.

The standard Class 37 has a maximum speed of 90 mph and their English Electric 12 cylinder 12CSVT engine produces 1750 hp at 750 rpm. Seen in all areas of the country, these locomotives first carried early green livery, which was replaced with blue livery from the late 1960s onwards. Certain locomotives, in particular Scottish-based examples and the 37/4 have carried revised standard (large logo) livery, although increasingly examples of this Class can be seen in Railfreight livery, either the original Railfreight grey version or the very latest triple grey sub-sector colour scheme. Example of most Class 37 sub-types appear in the Lima range.



205288 Class 37 Co-Co Diesel Electric locomotive no. 37114 «Dunrobin Castle» revised standard (large logo) livery split headcode box version.



205289 Class 37 Co-Co Diesel Electric locomotive in BR blue livery - Centre headcode box version.



205222 Class 37 Co-Co Diesel Electric locomotive No. 6722 in early BR brunswich green livery.

205293 Class 37 Co-Co Diesel Electric locomotive (refurbished split box version - sub-class 37/5) No. 37511 «Stockton Haulage» in latest triple grey Railfreight livery (metals sub-sector).



205231 Class 37 Co-Co Diesel Electric locomotive No. 37502 «British Steel Teesside» in Railfreight red stripe livery.

NEW



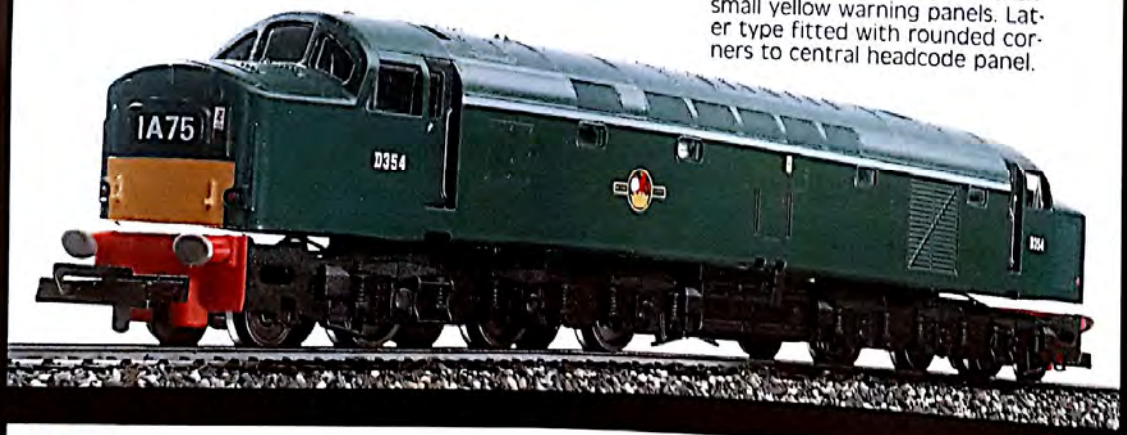
205217 Class 40 1 Co-Co 1 Diesel Electric locomotive No. 40063 in BR blue livery (disc headcode version converted to centre headcode type - square corners to the central headcode box).

NEW



205060 Class 40 1 Co-Co 1 Diesel Electric locomotive no. D261 in early BR green livery.

NEW



205062 Class 40 1 Co-Co 1 Diesel Electric locomotive no. D354 in Brunswick green livery and with small yellow warning panels. Later type fitted with rounded corners to central headcode panel.

NEW



205188 Class 40 1 Co-Co 1 Diesel Electric Locomotive in Green Livery. This Locomotive nº 40106 «Atlantic Conveyor» Carried Green Livery Throughout its life and is now preserved.

CLASS 40

First introduced in 1958, the Class 40s, which were manufactured by the English Electric Company Limited, were British Railways first attempt at express passenger locomotives, although the type was subsequently superceded by more powerful classes of locomotives. Class 40s were powered by a 2000 hp English Electric 16 cylinder diesel engine which proved to be very robust and reliable in service – indeed these locomotives served British Rail very well until the final example, D200 (40122) was withdrawn in April, 1988. First introduced onto the Great Eastern and Great Northern lines of the British Rail Eastern Region, this Class of locomotives was also used on the West Coast main line prior to electrification. Once more powerful types became available, these locomotives were transferred to less important passenger routes and were also used on heavy and often very long freight trains. Ten Class 40s were included in British Rail's pilot scheme for the modernisation of

traction types, but the introduction of these 10 locomotives was quickly followed by a production batch of a further 190. The weight of these locomotives was substantial (133 tonnes) and this led to the inclusion of an extra carrying axle in each of the locomotives two bogies, giving each locomotive the 1 Co-Co 1 wheel arrangement. The Class 40s featured three different types of nose-end treatment. The first type was fitted with disc headcodes (40001 - 40124), the second type (40125 - 40144) with split headcode boxes and the third type (40145 - 40199) with centre headcode panels. All of these varients feature in the Lima range which includes examples in both early BR green livery and in the later BR standard blue livery. The range even includes examples of the Scottish disc headcode locomotives which were subsesquently converted to centre headcode types, although the design of the centre headcode box was a little different.



NEW

205063 Class 40 1 Co-Co 1 Diesel Electric locomotive No. 40052 in BR blue livery - disc headcode version.



NEW

205064 Class 40 1 Co-Co 1 Diesel Electric locomotive no. D205 in the green livery carried by the class when first introduced. No yellow warning panel on this locomotive.



NEW

205065 Class 40 1 Co-Co 1 Diesel Electric locomotive No. D334 in BR green livery - split headcode box version.



NEW

205278 Class 40 1 Co-Co 1 Diesel Electric locomotive No. 40126 in BR blue livery - split headcode box version.



NEW



205204 Class 45 1 Co-Co 1 Diesel Electric locomotive in BR blue livery - split headcode box version.

NEW

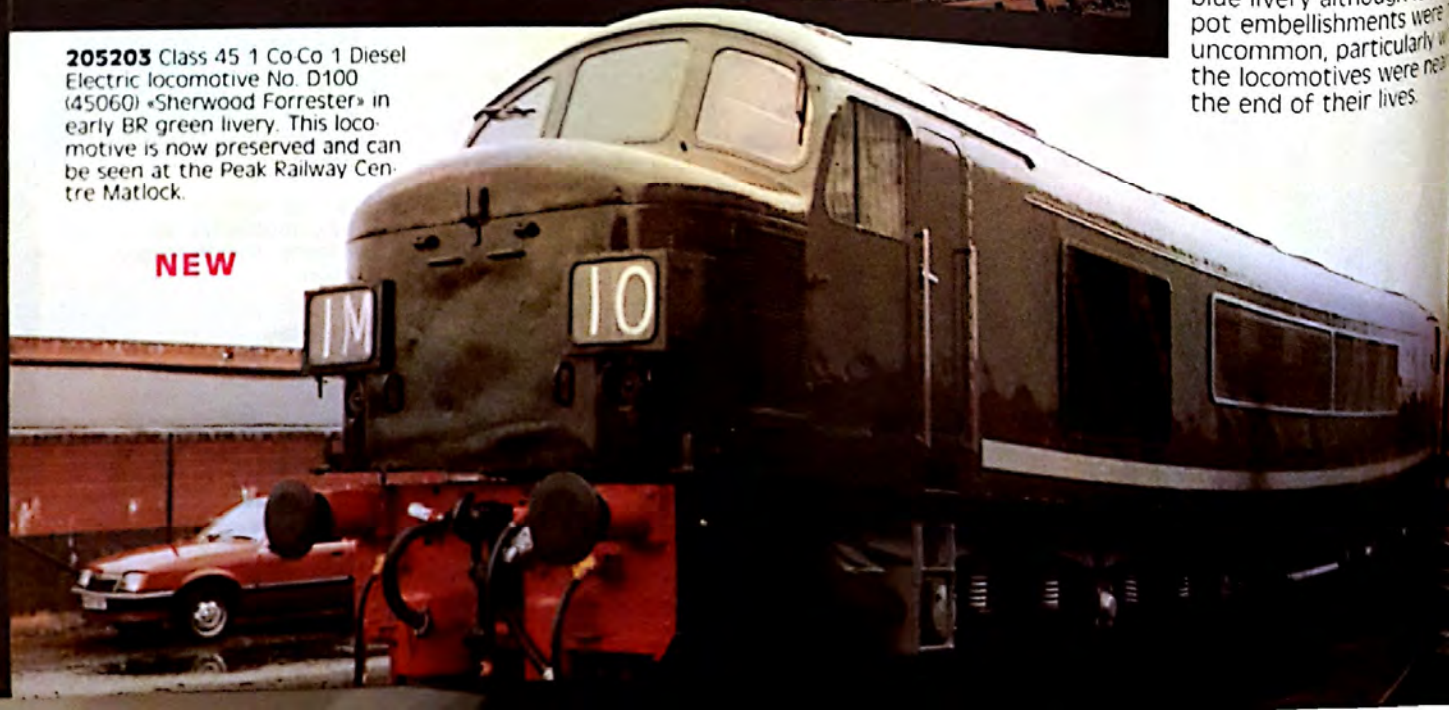


205205 Class 45 1 Co-Co 1 Diesel Electric locomotive in BR blue livery - with central split headcode box.

NEW



205206 Class 46 1 Co-Co 1 Diesel Electric locomotive in BR blue livery - replacement plated nose end with marker lights.



205203 Class 45 1 Co-Co 1 Diesel Electric locomotive No. D100 (45060) «Sherwood Forrester» in early BR green livery. This locomotive is now preserved and can be seen at the Peak Railway Centre Matlock.

NEW

CLASSES 45 AND 46

British Railway's contribution to requirements for express passenger locomotives under the modernisation plan was the design and construction of the Classes 45 and 46. Class 45s were introduced from 1960 onwards and were built in BR workshops at both Derby and Crewe. They were powered by Sulzer 12 cylinder diesel engines delivering 2500 hp at 750 rpm. Like the Class 40s, because of their substantial weight (in excess of 130 tonnes) these locomotives were given a 1 Co-Co wheel arrangement. Class 45s were equipped with Crompton Parkinson electrical equipment and 50 of the Class were equipped with electric train heating apparatus and therefore re-classified Class 45/1. The design of the Class 46 was very similar but these locomotives, although also equipped with a Sulzer diesel engine developing 2500 hp and to the same basic body design, were equipped with Brush electrical equipment.

The first Class 45s carried split headcode boxes and nose end communicating doors. The communicating doors went first and shortly afterwards the headcode boxes were moved to the centre of the nose end. A one piece headcode box was used on the Class 46s. Deterioration in the condition of nose ends and accident damage led to replacements with marker lights being fitted and especially ofter headcodes were no longer displayed. When first introduced, these locomotives carried green livery embellished with off-white bodyside stripes. All locomotives subsequently received blue livery although local depot embellishments were uncommon, particularly when the locomotives were near the end of their lives.

NEW



205207 Class 45 1 Co-Co 1 Diesel Electric locomotive in BR blue livery - marker lights.

CLASS 47

Following the modernisation of Britain's railways, and in an effort to achieve overall standardisation, British Railways pursued the design and development of a second generation type 4 diesel-electric locomotive which would provide greater power than earlier Type 4 locomotives, but at a reduced weight. The result of this exercise was the development of the Class 47 (Brush Type 4) which were built in substantial numbers (eventually totalling 512 examples) at Brush's Loughborough factory and in the BR workshops at Crewe. Equipped with a Sulzer 12 cylinder diesel engine rated at 2750 hp at 800 rpm, these locomotives were heavy duty mixed traffic types which can still today be seen in substantial numbers in all areas of the country. Carried on 3 axle Commonwealth bogies,



205037 Class 47 Co-Co Diesel Electric locomotive No. 47716 «Duke of Edinburgh's Award» in Scot Rail livery.



205214 Class 47 Co-Co Diesel Electric locomotive No. 47478 in Inter-City livery.



205043 Class 47 Co-Co Diesel Electric locomotive No. 47190 «Pectinidae» in triple grey Railfreight livery (petroleum and chemicals sub-sector). This locomotive is dedicated to working oil trains for Shell.



205048 Class 47 Co-Co Diesel Electric locomotive No. 47484 «Isambard Kingdom Brunel» in GW 150 lined green livery.



205046 Class 47 Co-Co Diesel Electric locomotive No. 47508 «SS Great Britain» in latest BR main line livery.



205268 - Class 47 Co-Co Diesel Electric locomotive No. 47609 «Fire Fly» in Inter-City livery



205269 - Class 47 Co-Co Diesel Electric locomotive No. 47401 «North Eastern» in the standard BR blue livery carried when the engine was first named. No headlight fitted

these locomotives weigh between 111 and 123 tonnes depending on the equipment carried. A flat-fronted co-co design, a central 4-panel route indicator was built into the cab fronts. When first delivered, the locomotives bore an attractive two-tone green livery, the two shades being used to effectively break up the slab-sided appearance of these locomotives. As with other locomotive classes, from the late 1960s onwards these locomotives were repainted in the then standard BR blue livery. At the abandonment of on board train reporting codes, the headcode boxes first were used to display 4 Os, followed quickly by 2 white dots on a black background. Headcode boxes were subsequently plated over and incorporated translucent marker light lenses or 2 individual marker lights. Accident damage to some locomotives has left cab fronts with the former headcode box removed altogether and replaced by a simple marker light arrangement. True to the prototype Lima have included in their range locomotives with headcode boxes, locomotives with plated headcode boxes and locomotives with accident damage, not necessarily at both ends!

More liveries have been carried by Class 47s than any other Class of main line diesel electric locomotives and the range of colour schemes is reflected in the Lima range. Maximum in-service speed for this Class is 95 mph, although on the one hand, the push/pull locomotives allocated to Scotland (Sub-Class 47/7) are cleared for 100 mph operation, whilst on the other those locomotives which have been dedicated to Railfreight operation have recently had their speed restricted.



205047 Class 47 Co-Co Diesel Electric locomotive No. 47596 «Aldeburgh Festival» in BR blue livery.



205048 Class 47 Co-Co Diesel Electric locomotive No. 47298 in standard BR blue livery. This model turns the clock back by providing headcode dots on a black background rather than the later marker light arrangement. No headlight fitted.



205216 Class 47 Co-Co Diesel Electric locomotive No. 47455 in revised Standard BR livery (large logo style).



205038 Class 47 Co-Co Diesel Electric locomotive No. 47579 «James Nightall G.C.» in revised N.S.E. livery.





205049 Class 47 Co-Co Diesel Electric locomotive in early two-tone green livery with headcode display, but with full yellow cab ends

205039 Class 47 Co-Co Diesel Electric locomotive No. 47301 in Railfreight grey (with red stripe) livery.



205212 Class 47 Co-Co Diesel Electric locomotive No. 47363 «Billingham Enterprise» in Railfreight grey livery.



205044 Class 47 Co-Co Diesel Electric locomotive No. 47317 «Willesden Yard» in Railfreight triple grey (Speedlink Sub-sector).

CLASS 50

In order to maintain competitive timings on the west coast main line pending electrification through to Glasgow, British Rail ordered 50 Type 4 locomotives from the English Electric Company Ltd. the locomotives being based, mechanically at least, on the successful English Electric prototype No. DP2. These locomotives, which were later to be designated Class 50s were at first leased from the English Electric Company.
Although subsequently

carried on 3 axle bogies which were the same as those incorporated into the Class 37 design, these locomotives were equipped with English Electric 16 cylinder diesel engines providing 2700 hp at 850 rpm. Once displaced from the west coast main line by electrification, these locomotives moved to the Western Region where they continued to find employment on passenger trains, although their pre-eminent role has diminished following the introduction of high speed trains to many services. Class 50s are now more likely to be found working in the far west country or on services to the west of England from Waterloo. The Class 50s have a maximum speed of 100 mph and since moving to the Western Region have all been refurbished in a programme undertaken at Doncaster Works and have all been named. At first all 50 locomotives carried the names of British warships, although that pattern was broken as part of the GW150 celebrations when one locomotive was outshopped in a version of GW150 green livery and was renamed Sir Edward Elgar. When first introduced these locomotives carried BR blue livery, but the late 1970s saw the adoption of revised standard (large logo) livery for this Class. More recently, members of the Class have been painted in Network South-East red, white and blue and one member of the Class has been the subject of experiment by BR and has emerged in the latest «triple grey» Railfreight livery.



205140 Class 50 Co-Co Diesel Electric locomotive No. 50007 «Sir Edward Elgar» in GW150 lined green livery.



205280 Class 50 Co-Co Diesel Electric locomotive No. 50028 «Tiger» in revised Network South-East livery. The most recent NSE re-paints have featured a darker shade of blue and the blue has been carried forward onto the area surrounding the front windscreens. This model represents a locomotive in this condition.



205227 Class 50 Co-Co Diesel locomotive No. 50038 «Formidable» in revised standard (large logo) livery.



205279 Class 50 Co-Co Diesel Electric locomotive No. 50021 «Rodney» in revised standard (large logo) livery.



205105 Class 55 Diesel Electric «Deltic» Co-Co No. D9008 «The Green Howards» in two-tone green livery.



205106 Class 55 Diesel Electric «Deltic» Co-Co No. 55022 «Royal Scots Grey» in BR blue livery with full yellow ends.



205273 Class 73/0 Bo-Bo Electro-diesel Locomotive No. 73004 «The Bluebell Railway» in Network South-East blue as applied for the naming of this loco to, mark the close links between BR and the preserved railway of the same name.



205275 Class 73/0 Bo-Bo Electro-diesel Locomotive No. 73001 in standard BR blue livery.

CLASS 55

The Class 55s when they were first introduced were known as English Electric Type 5s, but to the major of people and not just rail way enthusiasts, they will always be known as the «Deltics», the name being derived from the form of 2 two-stroke engines fitted to each of these 3300 hp comotives, which had simila ties to the Greek delta. Intro duced from 1961 onwards the 22 locomotives making up the Deltics were the pre mier motive power on the east coast main line for sev eral years, until supplanted by high-speed trains from 1978 onwards. Finally with drawn in January, 1982, these Co-Co locomotives are fondly remembered by man True 100 mph machines, each member of this Class ran more than three million miles in revenue-earning ser vice. Five of the Class have been preserved at various lo cations allowing enthusiasts to rekindle their memories o these locomotives in service between London and Edin burgh. When first introduced these locomotives featured an attractive two-tone green livery. This was followed by an all-over blue livery with yellow ends. Both of these liv ery variations are featured on Lima models of this famous Class.

CLASS 73

Since they were first intro duced to Britain's railways in 1962, the Class 73s have been known as «Eds» by virtue of the fact that they are electro-diesels, incorpo rating an ability to operate from a third rail electrical supply or on small diesel en gines when the third rail sup ply is interupted or not ava able. Perhaps a more appro priate description for these locomotives would be «Versatile» since not only do they have the ability to oper ate either from a diesel engine or from the third rail electricity supply, but they are also capable of working multiple with other members of the Class, other Southern Region locomotives, and oth er Southern Region multiple unit stock. A small batch of

motives was introduced in 1962 and this batch subsequently were designated Class 73/0. An upgraded design was introduced between 1965 and 1967 and the 42 locomotives included within this batch were designated Class 73/1.

After their introduction, Class 73s were to be seen in all parts of the Southern Region bearing standard BR blue livery although some of the earlier examples were put into traffic bearing green livery or a dull version of «electric blue». Subsequently, revised standard livery was adopted for the Class, but before all examples could be painted, Inter-City livery was applied since the locomotives found regular work operating the Gatwick Express train between London Victoria and Gatwick Airport. Very recently, BR has taken the decision to dedicate a dozen Class 73s for Gatwick services and these have been designated Class 73/2. More recently still, members of this Class have been emerging from works visits in Revised Inter-City or mainline style.



205274 Class 73/0 Bo-Bo Electro-diesel Locomotive No. 73002 in revised standard (large logo) livery



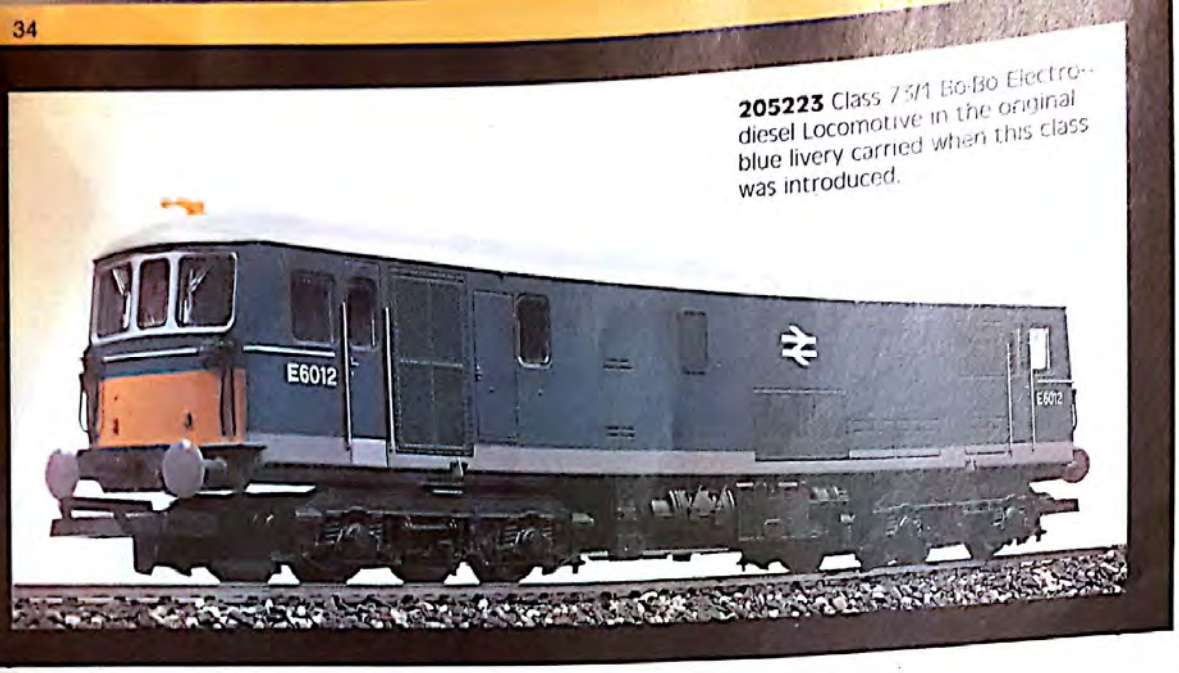
205276 Class 73/0 Bo-Bo Electro-diesel Locomotive No. E6001 in the BR light green livery first applied to this Class.



205270 Class 73/1 Bo-Bo Electro-diesel Locomotive No. 73105 in revised standard BR blue livery.



205271 Class 73/1 Bo-Bo Electro-diesel Locomotive No. 73138 «Post Haste» in revised Inter-City livery. This locomotive was named as part of the ceremony to mark the start of a TPO service between Dover and Manchester



205223 Class 73/1 Bo-Bo Electro-diesel Locomotive in the original blue livery carried when this class was introduced.

The maximum speed of the 73/0s is 80 mph, whereas the uprated 73/1s are capable of 90mph. These speeds are achievable when the locomotives are working from the electricity supply, but clearly when the diesel engine is being used to generate traction current, these speeds are unlikely to be attained in view of the limited capacity (600 hp) of the diesel engine. These remarkable and versatile machines are unique now on BR following the withdrawal of the similarly equipped Class 74s. There are differences in the body design of the 2 sub-classes of Class 73s and these differences are faithfully reproduced in the Lima models of these two sub-classes.

205277 Class 73/2 Bo-Bo Electro-diesel Locomotive in revised Inter-City livery.





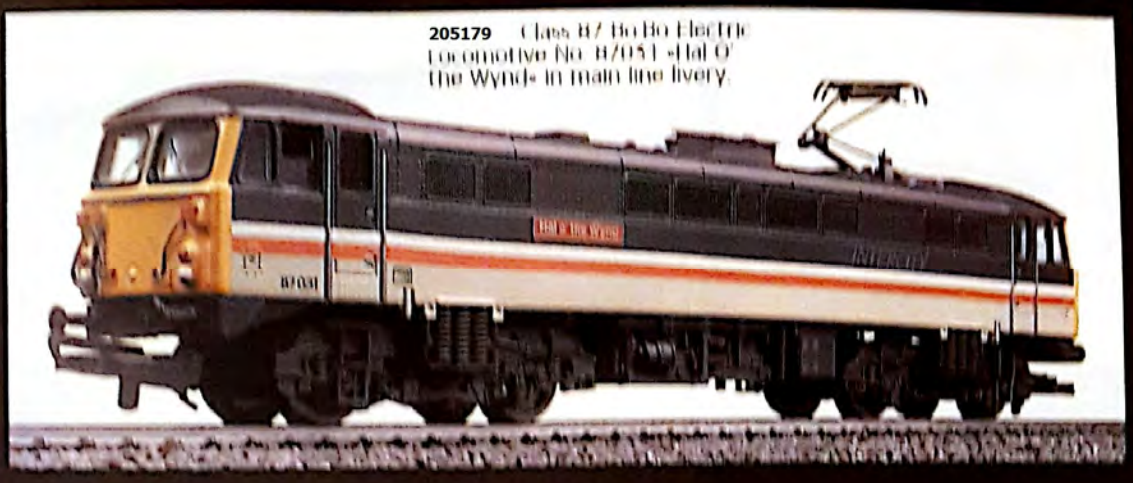
205020 - Class 60 Co-Co Diesel Electric locomotive No. 60001 «Steadfast» in Railfreight triple grey livery (Construction Sub-sector)».

CLASS 60

The latest addition to BR's Railfreight locomotive fleet are 100 Class 60's which are currently being assembled by Brush at their Loughborough factory. To be allocated to all Sub-sectors, these locomotives incorporate a Mirrlees MB 275 diesel engine developing 3100 hp and Brush electrical equipment. The bodyshells for these locomotives are being constructed by Procor at Horwich.

CLASS 87

Until the very recent introduction of new types of electric traction, the Class 87 was the most powerful locomotive type on British Rail, delivering a total power output of 5000 hp from 4 frame-mounted GEC 1250 hp traction motors. The Class was introduced in 1973 and there are 35 units in this Class, which was based on the previous Class 86/1. In recent years, high speed pantographs have been fitted to Class 87s to enable them to operate up to 110 mph. One remaining Class 87 was built, but was designated Class 87/1 since it incorporated certain experimental traction control equipment (Thyristors). When first introduced, these locomotives carried standard BR blue livery, but the vast majority have now been painted in Inter-City livery. Examples are now emerging from re-paints in the new Inter-City «Swallow» style livery.



205179 Class 87 Bo-Bo Electric Locomotive No. 87051 «Hal O' the Wynd» in main line livery.



205125 Class 87 Bo-Bo Electric Locomotive No. 87005 «City of London» in Inter-City livery.

CLASS 90

The first Class 90 5000 hp A.C. electric locomotive assembled by BREL with GEC electrical equipment was released by Crewe Works in late 1987 to commence trials on the west coast main line. Issued in revised Inter-City «Swallow» livery, the mechanical parts of these locomotives are based on the experiments conducted by BR in 87101, but attention has been given to the bodywork of the locomotive which presents a much more modern and sleek appearance than a Class 87.



205291 Class 90 Bo-Bo A.C. Electric Locomotive in Inter-City livery.



CLASS 91 Clearly an exciting development on British Railways, these locomotives are expected to be BR's flagship for a number of years to come.

205205 Class 91 «Electra» Bo-Bo A.C. Electric Locomotive in Inter-City livery.



205137 Class 117 DMU Motor Brake Second with powerful Lima electric motor.



205146 Class 117 Composite trailer with toilet.

205139 Class 117 Composite Motor Brake Second - Non-powered.



205136 Class 117 DMU Motor Brake Second with powerful Lima electric motor.

DMU CLASS 117 GREEN

These three vehicles are painted in the mid-green livery with yellow lining, applied to DMUs from their introduction in the late 1950s.



205147 Class 117 DMU Motor Brake Second with powerful Lima electric motor.

DMU CLASS 117 BLUE

These three units are painted in the standard BR blue colour scheme which was adopted from the late 1960s onwards.



205148 Composite trailer with toilet

DMU CLASS 117 BLUE/GREY

These three units are painted in the blue and grey livery which was adopted as the standard for DMUs from 1981 onwards.



205149 Class 117 DMU Motor Brake Second - Non-powered.



205145 Class 117 Composite trailer with toilet.

205138 Class 117 DMU Motor Brake Second - Non-powered.

DMU 117 BLUE/WHITE

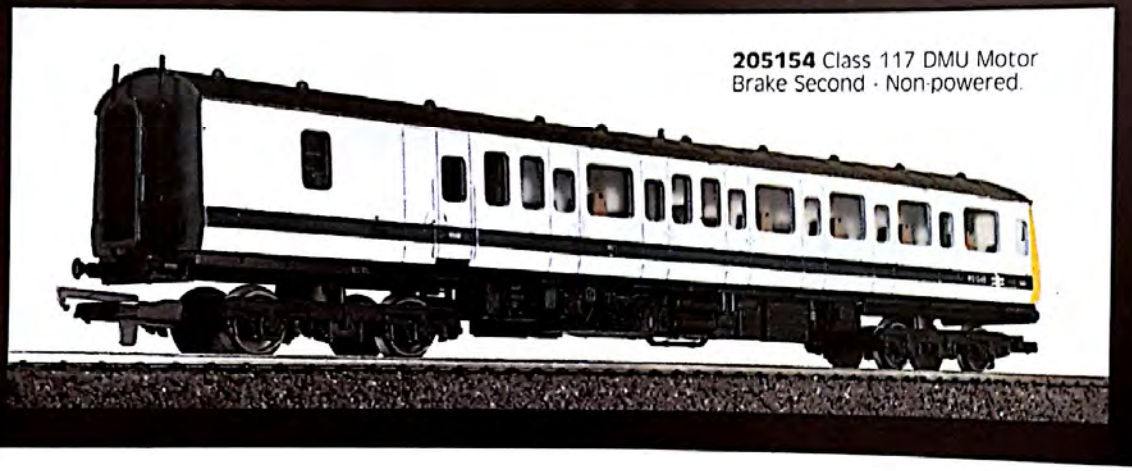
These three units have been painted to reproduce the refurbished livery which was applied to DMUs which had been given a life extension overhaul during the 1970s. This attractive colour scheme was regarded as being impractical and was therefore replaced with the blue and grey 1981 colour scheme for refurbished units



205152 Class 117 DMU Motor Brake Second with powered bogie electric motor



205153 Composite trailer with toilet.



205154 Class 117 DMU Motor Brake Second - Non-powered.

205054 Two car Class 156 Super Sprinter in Strathclyde Transport orange and blown livery.



CLASS 156 - METRO CAMMELL SUPER SPRINTER

One of the most difficult problems which British Rail has had to deal with in recent years is the fact that the headlong plunge into the modernisation of traction equipment during the late 1950s and early '60s meant that most of that equipment fell due to be renewed at the same time! This is certainly the case for the diesel multiple unit fleet and considerable numbers of new DMU's have been ordered in recent years in order to provide replacements for the ageing DMU fleet. In general terms, BR have ordered Railbus 2-axle vehicles for short-haul suburban use together with more traditional DMU type vehicles for longer-haul and cross country routes. These second generation DMU's have been dubbed «Sprinters» by BR and substantial numbers have been built by BREL, Metro-Cammell and by Leyland. The units manufactured by BREL have been based on the short (20 metre) underframe, whereas those manufactured by Metro-Cammell and Leyland have utilised a 23 metre underframe. Since they have been earmarked for longer cross-country services and have therefore been more luxuriously appointed, the Class 156s, together with the Class 155s, have been referred to as «Super Sprinters». Formed in two-car sets, each vehicle of the set is equipped with a Cummins diesel engine mounted beneath the floor. Voith hydraulic transmissions are used and this power train was thoroughly tested by BR on prototype Sprinter units before being used in the production fleet.
Painted in the two tone blue with grey and white livery of the Provincial Services Sector, Class 156 units are becoming increasingly common in many areas of the country and Lima have recognised the significance of these new trains by adding a model of a Class 156 to their planned releases for 1989.



205051 Two Car Provincial Services Sector Super Sprinter (Class 156) in attractive Provincial Services Sector livery

NEW

CLASS 253/254 High Speed Train Power Cars

Blue and grey livery

These two units have been painted in the blue, grey and yellow colour scheme which was adopted when these locomotives were first introduced in 1976.

205164 High Speed Train Dummy Power Car.



205160L High Speed Train Power Car «City of Newcastle upon-Tyne» with working headlights





205196L HST Power Car «City of Bradford» in Inter City livery.



205197L HST 125 Power Car «County of Humberside» in Inter City livery.



205080L - HST Power Car in revised Inter City livery.

Inter-City livery

Following experiments with «executive livery», which was derived from the colours of the ill-starred APT, BR adopted a new colour scheme for Inter-City stock.

During the late 1980s, the Inter-City Sector of BR decided to adopt a revised branding for Inter-City rolling stock which introduced a slightly different colour scheme for HST power cars together with revised lettering and the new «Swallow» motif. Maintaining their policy of keeping their models right up-to-date, during the currency of this catalogue, Lima will be producing HST power cars and dummy trailers in this new style.



205199 HST 125 dummy power car in Inter-City livery



205081 HST Power Car No. 43178 in revised Inter-City livery.



205082 HST Dummy Power Car in revised Inter-City livery.



PASSENGER COACHES

Over the years numerous examples of passenger coaches have been operated on Britain's railways, but since nationalisation the passenger fleet can be separated into three distinct categories, namely MK1s, MK2s and MK3s. The MK1 represented BR's first attempt at the introduction of standardised coaching stock, all such coaches being accommodated on 64' 6" underframes and being of the same profile. Several different types of MK1s were constructed from 1951 onwards and many remain in service today, often running on upgraded bogies to allow for higher speeds. The Mk2 design first appeared in the mid-1960s and introduced a number of improvements which had been incorporated into experimental coaches which had been type-tested and which had been designated XP64 stock. Subsequently the MK2 design was improved, culminating in the airbraked, air-conditioned and electrically heated MK2D, MK2E and MK2F. The MK3 loco hauled coach was introduced from 1975 and is very similar to the MK3 trailers incorporated in high speed train sets. Whereas the MK2's were based on a coach length the same as MK1s, the MK3s introduced a 23 metre coach to Britain's railways.

After the nationalisation of British Railways in 1948, the various operating regions took steps to maintain their regional identities. This was reflected in the colours applied to early MK1 stock, examples of which have been included in the Lima range and are illustrated in the following pages

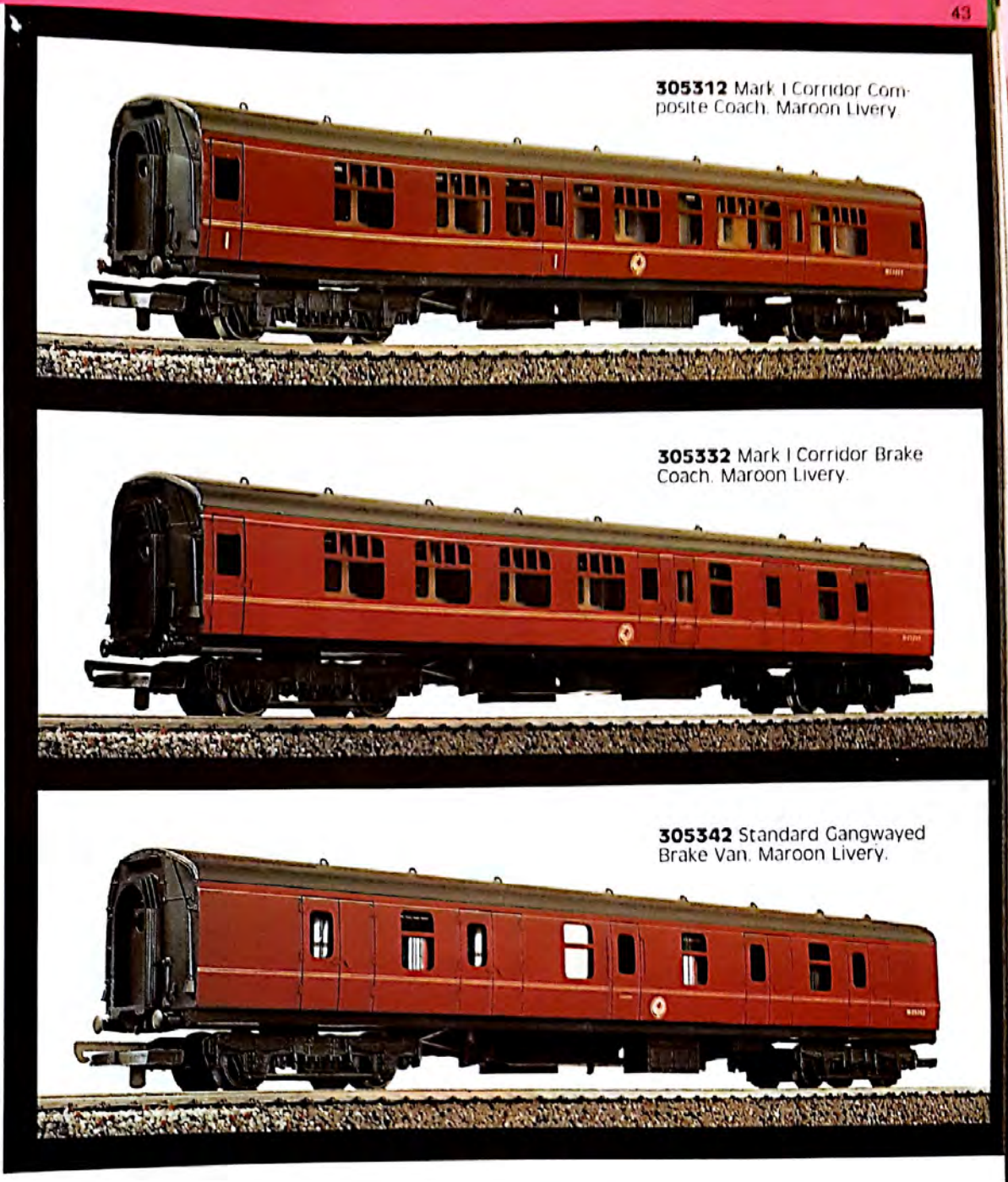


305323 Mark I Restaurant Car
Maroon Livery



LONDON MIDLAND REGION

The London Midland and Scottish Railway was the largest of the new companies formed by the grouping of companies in 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. In seeking a standard livery for passenger vehicles, BR finally settled an a maroon colour scheme which was similar to that which had been adopted by the L.M.S.



305312 Mark I Corridor Composite Coach. Maroon Livery.

305332 Mark I Corridor Brake Coach. Maroon Livery.

305342 Standard Gangwayed Brake Van. Maroon Livery.

305364 Mark I Corridor 2nd class Maroon Livery.



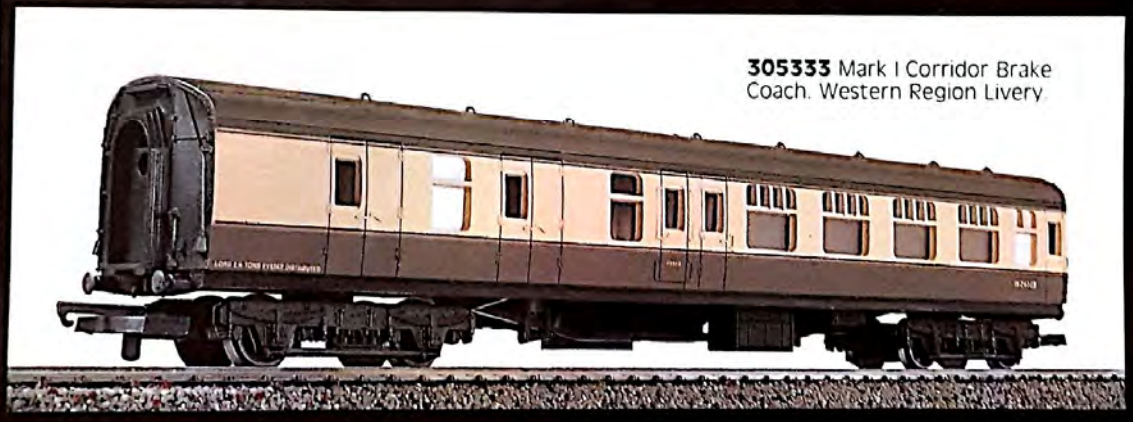
305313 Mark I Corridor Composite Coach. Western Region Livery.



305322 Mark I Restaurant Car. Western Region Livery.



305333 Mark I Corridor Brake Coach. Western Region Livery.



WESTERN REGION



The Great Western Railway 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.





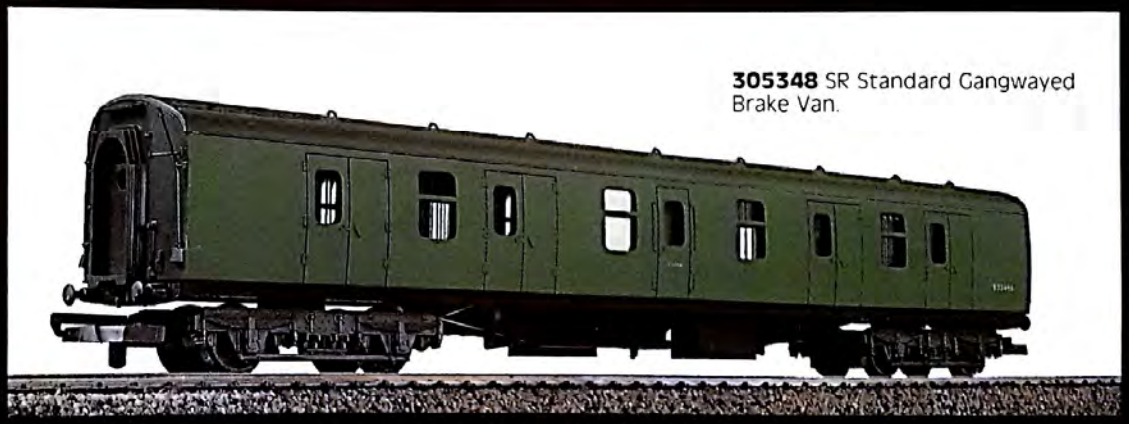
The Southern Railways was formed by the amalgamation of the London Brighton and South Coast. London and South Western, and South Eastern and Chatham Railways. Southern's green livery was a common sight in the South and by the time nationalisation came the company boasted a fine fleet of modern carriages.



305365 SR Mark I Corridor 2nd. Coach.



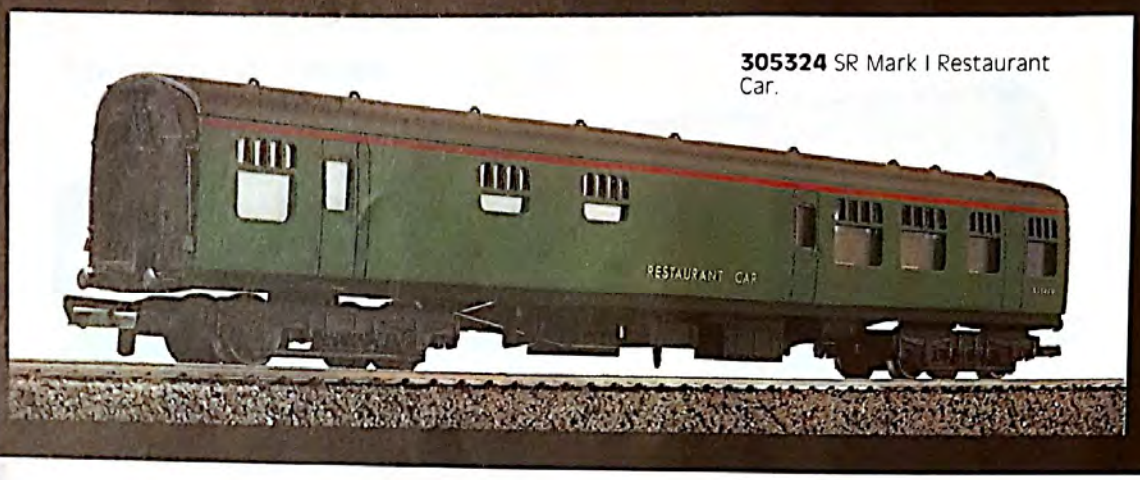
305334 SR Mark I Corridor Brake Coach.



305348 SR Standard Gangwayed Brake Van.

305362 MK I Corridor 2nd. Western Region Livery.





305324 SR Mark I Restaurant Car.

EARLY B.R.

In an initial attempt to obtain a corporate identity, British Railways produced a crimson and cream livery for BR MK1 coaches, which livery was subsequently superceded by a lined maroon colour scheme. Like the regional variations, coaches in these colour schemes appear in the Lima range.

305314 SR Mark I Corridor Composite Coach.





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





305325 Mark I Restaurant Car Crimson and Cream Livery.



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



305344 Standard gangwayed Brake Van. Crimson and Cream Livery.



305363 BR Mark I Corrídor 2nd. Crimson and Cream Livery.



INTER-CITY LIVERY

In the locomotive section of this catalogue mention has been made of the decision by British Rail to separate its business into operating sectors. One result of this exercise has been the adoption of an Inter-City livery for vehicles operated by that sector. A new and distinctive striped colour scheme comprising two shades of grey with red and white has been adopted and has been applied progressively to Mk1, Mk2 and Mk3 vehicles. Often vehicles so painted have been refurbished prior to the application of the new colour scheme. Not to be outdone by British Rail, Lima have examples of Inter-City liveried coaching stock within their comprehensive range.
The Inter-City livery is popularly know as «Raspberry Ripple»





305315 BR Mark I Corridor Composite Coach.



305321 BR Mark I Restaurant/ Buffet Car

BR CORPORATE IDENTITY

Following the experiments conducted with the XP64 stock and the introduction of MK2 vehicles, BR set out to achieve a corporate identity which resulted in the blue and grey colour scheme for passenger rolling is still common today. At the same time, BR began to make wider use of the logo «Inter-City» which had been coined much earlier, but had not seen widespread use. Mk1 carriages were re-painted in the blue and grey colour schemes and examples of vehicles in that livery have, of course, been included in the Lima range.



305335 BR Mark I Corridor Brake Coach



305341 BR Standard Gangwayed Brake Van «Express Parcels».



305343 BR Standard Gangwayed Brake Van



305361 BR Mark I Corridor 2nd Coach



305301 BR Mark 2B First Class Corridor Coach.



305302 BR Mark 2B Inter-City Corridor Brake Coach.



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

MK 2

Mk2 vehicles are distinguishable from MK1s by having a rounded body bottom, with no visible underframes, and curved ends. Mk2 vehicles run on B4 bogies, which allow trains to be operated up to 100 mph and ventilation remained by way of sliding ventilators built in to the main bodyside windows. Included in the Lima range are examples of Mk2 B-type vehicles, the prototype Mk2 Bs having design improvements over the original Mk2s.

The final essay in the Mk2 design was the Mk2 F vehicles which featured air conditioning and are therefore easily recognised by the absence of sliding ventilators in the bodyside windows. Examples of Mk2 F vehicles are available in the Lima range.



305304 BR Mark 2F First Class Coach.



305305 BR Mark 2F 2nd Class Coach.



305308 BR Mark 2B Mini Buffet Coach.





205161 BR Mark 3 First Class Open Coach.



205162 BR Mark 3 Trailer Guard Second includes Guard Compartment.



205163 BR Mark 3 Buffet / Restaurant Coach



305366 BR Mark 3 2nd Class Open Coach



305367 BR Mark 3 Sleeper Coach

MK 3

A highly developed design introduced in 1975 and used with buffers on loco hauled trains and without buffers in HST sets. These coaches are fully air-conditioned and by virtue of their increased length accommodate a greater number of passengers than earlier designs. In particular, the shape of the ends of these vehicles is interesting since it has been designed to ensure that the vehicles stay within BR's loading gauge.

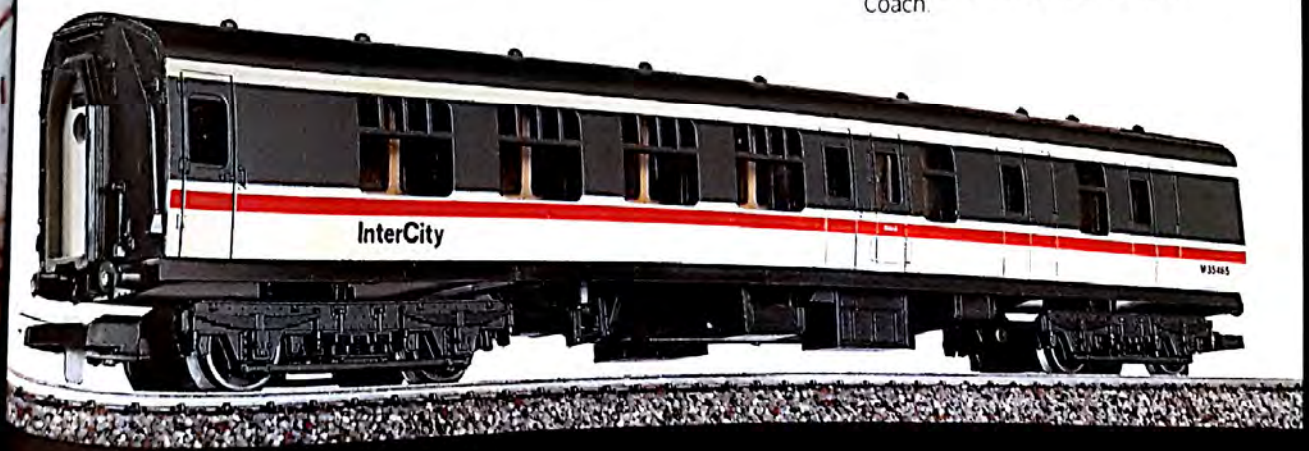


MARK 1 InterCity LIVERY

The first Mark I coaches were refurbished in 1984 and a rake of coaches was sent on a promotion tour around Britain throughout 1985. Now there are several Mark I coaches in the new InterCity livery, often reserved for luxury charter tours.



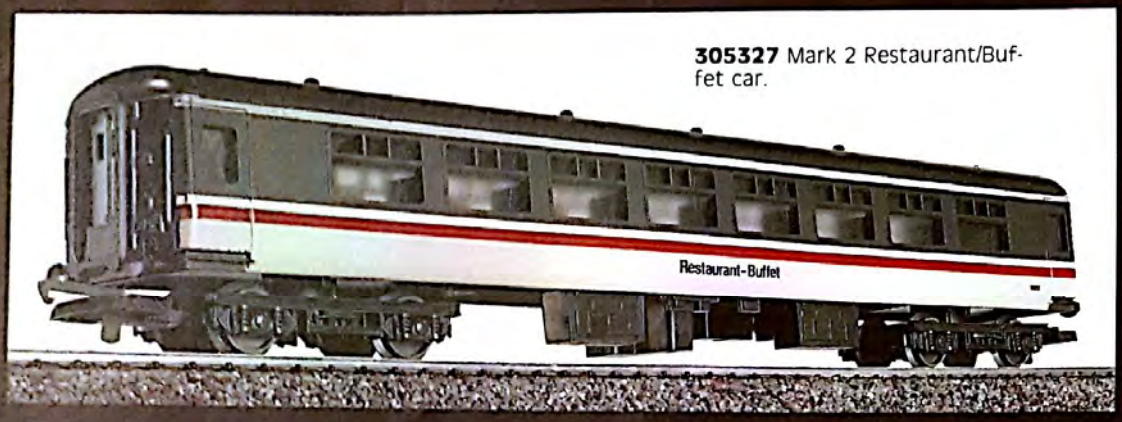
305326 Mark I Corridor 2nd Class Coach.



305372 Mark I Corridor Brake Coach.



305373 Mark I Standard Gangwayed Brake Van.



305327 Mark 2 Restaurant/Buffet car.



305336 Mark 2F 1st Class Open Coach.



305337 Mark 2F 2nd Class Open Coach.

Mark 2 InterCity LIVERY

More and more Mark 2 and Mark 3 coaches are appearing in the «Raspberry Ripple» InterCity livery and complete rakes can be seen regularly speeding on British Rail's principal inter-city routes.



305368 BR Mark 3 standard class InterCity Livery coach

Mark 3 InterCity LIVERY

These coaches, initially used in the rakes of HST 125, are now common on many other regions of British Rail, mixed with Mark II coaches and some Mark I coaches. 75' long, they are designed for speeds of 125 mph and are in general use on almost all regions of BR.



205181 BR Mark 3 first class InterCity Livery coach.

205182 BR Mark 3 standard class interCity Livery coach with guard's compartment.

205183 BR Mark 3 buffet/ restaurant InterCity Livery coach.



305369 BR Mark 3 sleeper Inter-City Livery coach.



305391 BR Mark 3 Standard class revised Inter-City livery coach



305392 BR Mark 3 First class revised Inter-City livery coach



305393 Mark 3 buffet/restaurant revised Inter-City livery coach

NEW INTER-CITY LIVERY

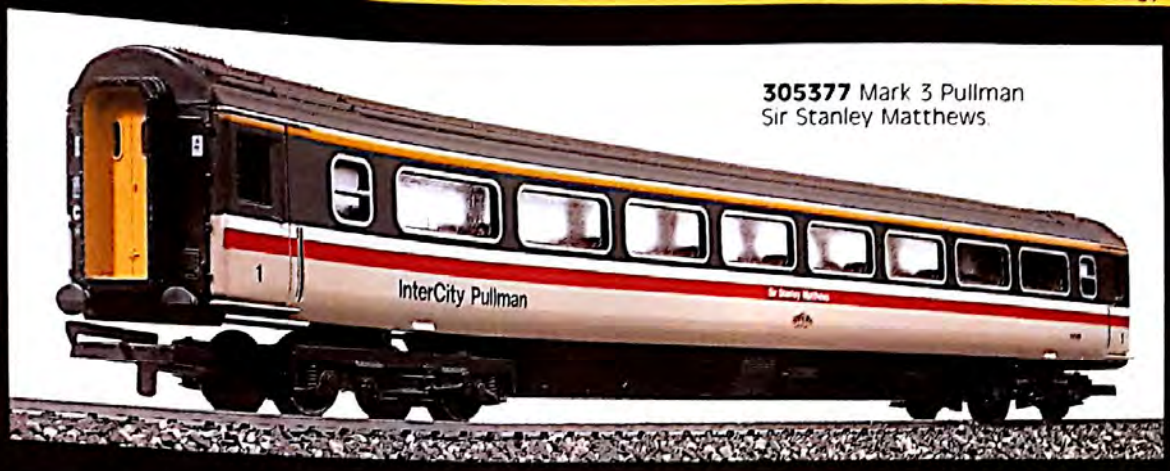
Within the last year, the Inter-City sector of British Rail has adopted a new brand for its rolling stock. The basic colour scheme has not altered, but the lettering of the Inter-City logo has been revised. Lima will ensure that modellers are offered an opportunity to run models showing this subtle difference by introducing suitable models during 1989.



305390 BR Mark 3 Standard class with guard's compartment revised Inter-City livery coach

NTER-CITY PULLMAN

ritish Rail has recently ecognised the benefits of of-ering a high class service to ertain rail users by re-intro-ucing the name «Pullman» n certain trains. The most ecent British Rail Pullman oaches are modified Mk3s ith more luxurious interior ittings than standard first ass Mk3s. All of these new ullman coaches bear the ullman crest and many have een named after well-known ersonalities, as reflected in he Lima range.



305377 Mark 3 Pullman Sir Stanley Matthews.



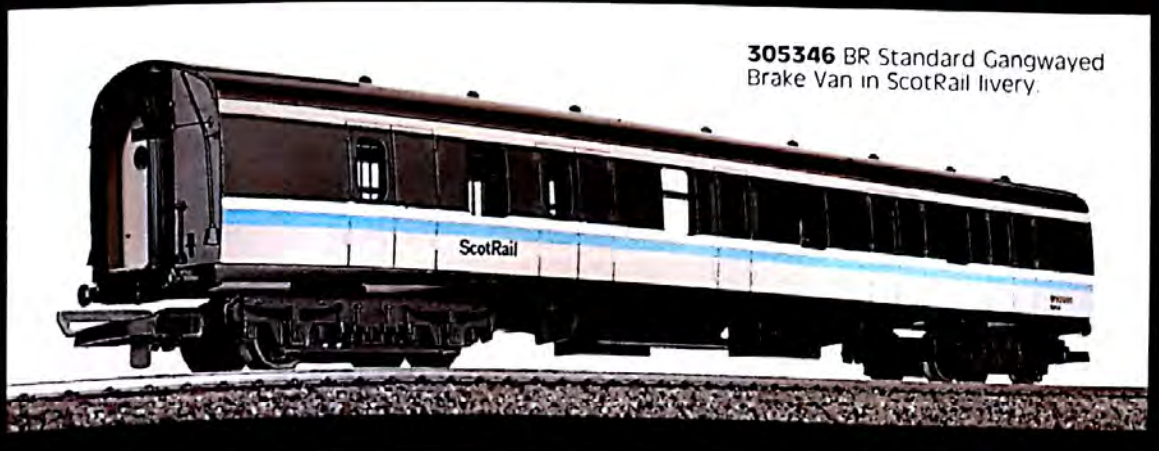
305375 Mark 3 Pullman.



305378 Mark 3 Pullman «Sir John Barbirolli»

SCOTRAIL

In an effort to provide itself with a separate regional identity, ScotRail was adopted as the brand name for services in the Scottish Region. To further distinguish ScotRail services, a revised livery was introduced, which was based upon the Inter-City or executive livery, but with the red stripes replaced by a pale blue ones, the blue being a shade similar to the pale blue used on the old Scottish Region of British Railways. Although vehicles in this livery are intended for Scottish internal services, they often «escape» to other parts of the country.



305346 BR Standard Gangwayed Brake Van in ScotRail livery.



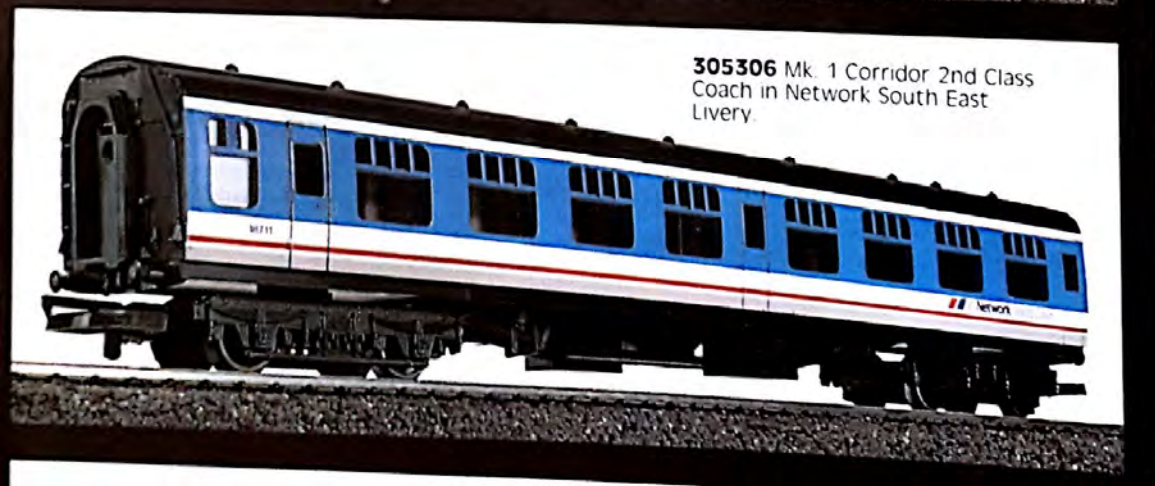
305385 Mark 3 Composite open in Scotrail livery.

305379 Mark 3 2nd Class Open Coach in ScotRail livery.





305307 Mk. 1 Corridor Brake Coach in Network South East Livery.



305306 Mk. 1 Corridor 2nd Class Coach in Network South East Livery.



305386 Mk. 2B Tourist Second Open Coach in Network South East Livery.

NETWORK SOUTH-EAST

One of the operating sectors of British Rail is the south-eastern sector covering an area from Weymouth and Exeter in the south-west to Dover and Ramsgate in the south-east and up to Harwich, Kings Lynn, Northampton and Birmingham. This sector has adopted the title «Network South-East» and in June, 1986, Network South-East unveiled their new sector colour scheme which



305380 Mark 2E 1st Class Open Coach in ScotRail livery.



comprises a bright red, white and blue striped livery. This bright livery has been applied to passenger coaches, EMUs and DMUs and the same combination of colours have been used to upgrade the appearance of stations in the Network South-East area. So that modellers in the south-east should not feel neglected, Lima has included within its range models of a number of passenger carrying vehicles bearing this distinctive livery.





305387 Mk. 2B First Class Coach in Network South East Livery.



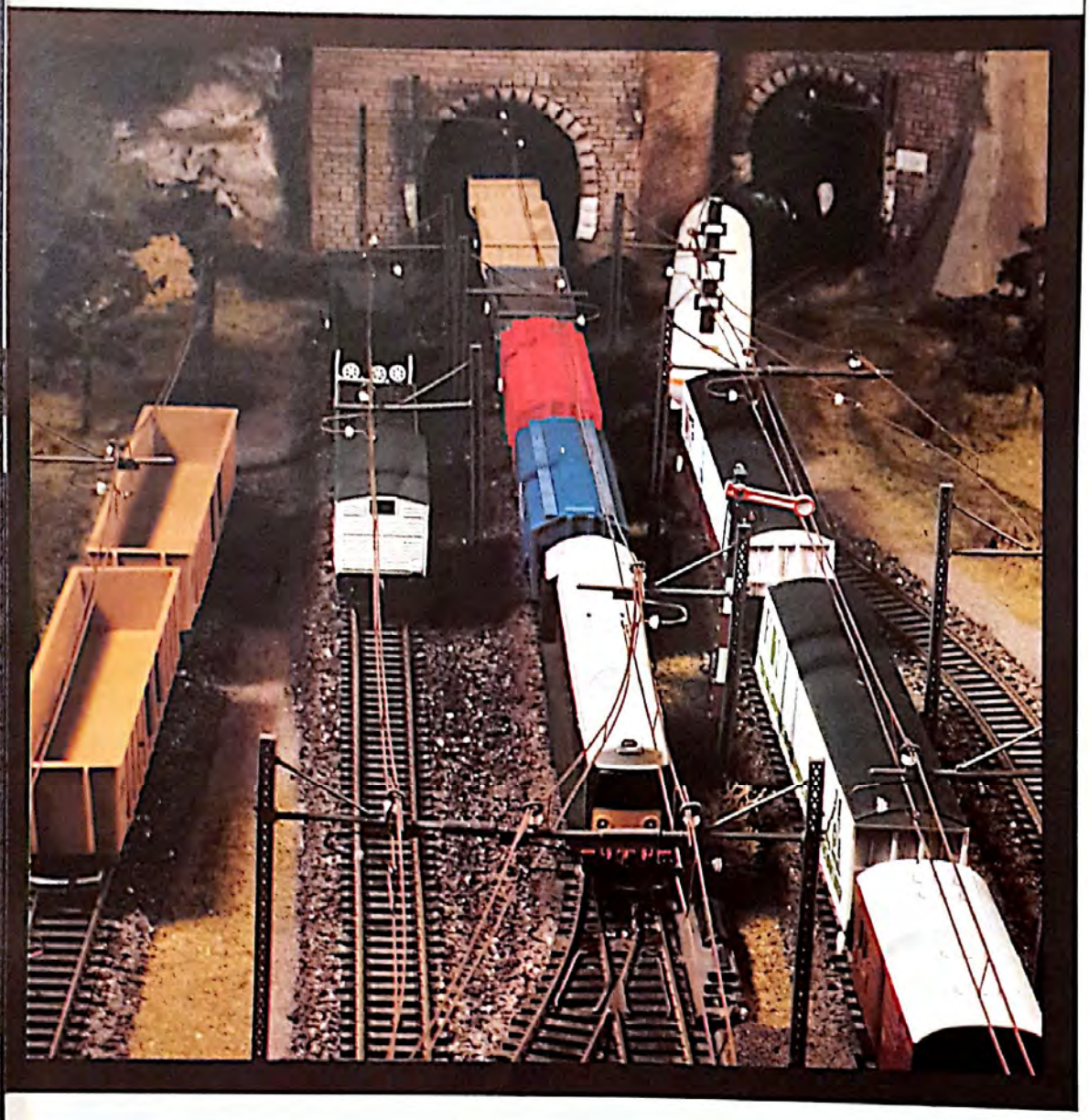
305388 Mark 2B Corridor First Brake coach in NSE livery.

NEW



305389 BR standard gangwayed Brake van NSE livery.

FREIGHT WAGONS



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.

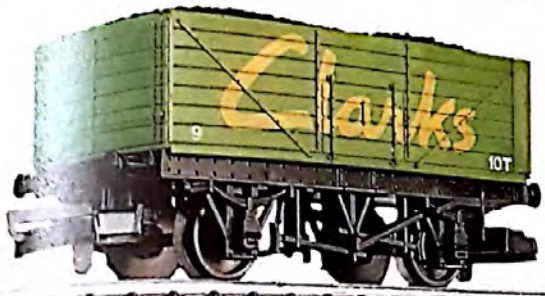
PLANK WAGONS

Lima provide a large selection of plank wagons in bright and attractive liveries to enhance railway layouts and also to provide play value for train sets for younger children. Always popular, they carry well-known household names.

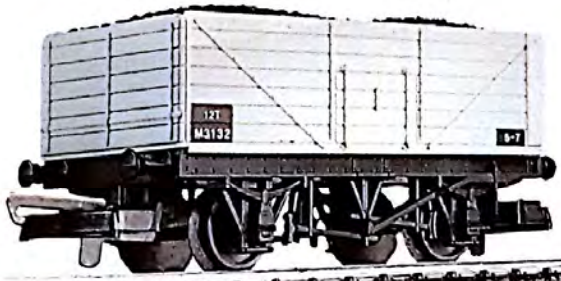


305674 N.C.B. 7 Plank Wagon.

305669 7 Plank Wagon «Clarks».



305675 B.R. Grey 7 Plank Wagon.



305676 7 Plank Wagon «Raleigh».



305678 7 Plank Wagon «Courtaulds».



305679 7 Plank Wagon «Ebbw Vale».



305690 7 Plank Wagon «Austin Rover»



305677 7 Plank Wagon «Harrods».



305625





305684



305685



305686



305687



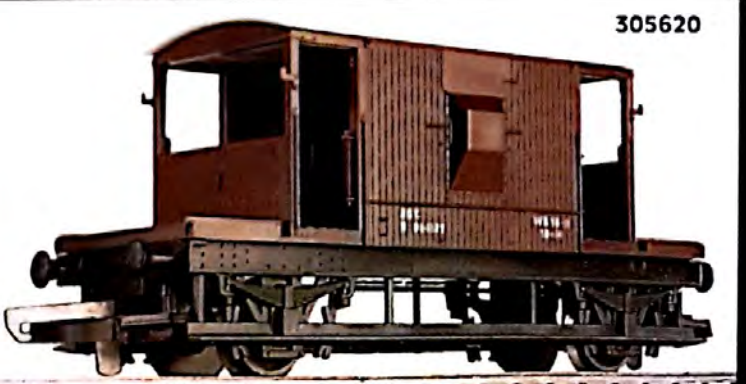
305688



305689



305620



305621



BOX VAN

A bright selection of box vans in various popular liveries which are very suitable for older locomotives, particularly the Lima steam locomotives. Included are two horseboxes in former LMS and SR liveries.

305625 2 Axle Horse Box Livery.

305684 Box Van «Shredded Wheat».

305685 Box Van «Birds Eye».

305686 Box Van «Walls».

305687 Box Van «Beefeater».

305688 Box Van «Stork».

305689 Box Van «Whites Lemonade».

BRAKE VAN 20 TON

In former days, every freight train had a brake van at the back in which the guard travelled. This Lima model is an essential compliment to every freight train combination.

305620 BR 20 ton brake van.

305621 LNER 20 ton brake van.

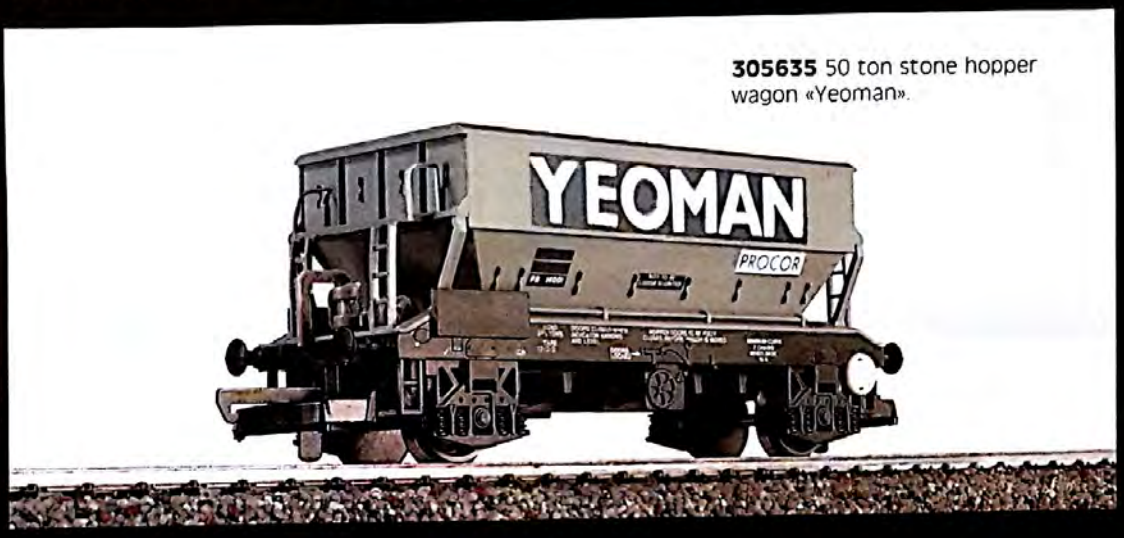
HOPPER WAGONS

Used to carry stone, grain and agricultural products, these are frequently seen in most parts of the country. Lima have reproduced these attractive wagon with popular names.

305637 50 Ton Stone Hopper wagon ARC.



305635 50 ton stone hopper wagon «Yeoman».



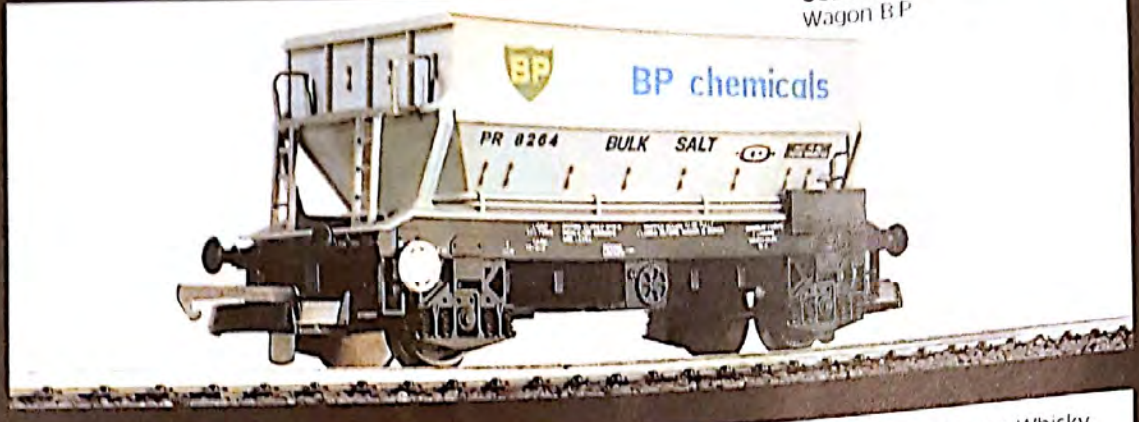
305636 50 ton stone hopper wagon «Amey Roadstone».



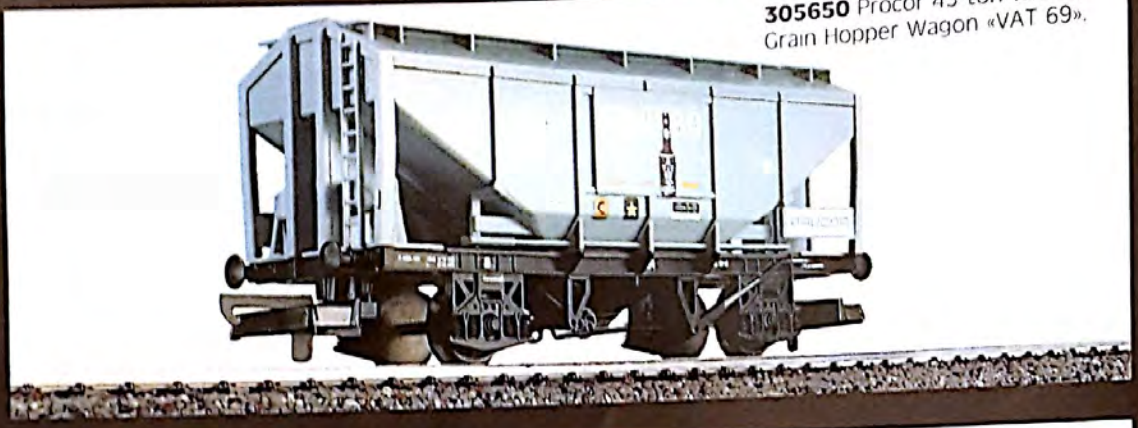
305639 50 ton stone hopper wagon «Tarmac».



305668 50 ton Stone Hopper Wagon BP



305650 Procor 45 ton Whisky Grain Hopper Wagon «VAT 69».



305653 45 ton Hopper Wagon Bass Charrington



305651 Procor 45 ton Whisky Grain Hopper Wagon «Haig».



TIPPLER WAGONS

Tippler wagons are mostly used to supply raw material to steel and cement works. They can be frequntly seen in all parts of the country with various company names and in many colours. They are very suitable as a combination with many of Lima's mixed traffic diesel and electric locomotives.



305638 50 ton stone hopper wagon in Revised Yeoman Livery



305654 Hopper Wagon 45 ton «Grain Flow».

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



BALLAST WAGONS

Beautiful reproduction of the well known BR Sealion and Seacow bogie ballast wagons, which make up many rakes and are seen in almost all parts of the country at regular intervals on engineers trains.

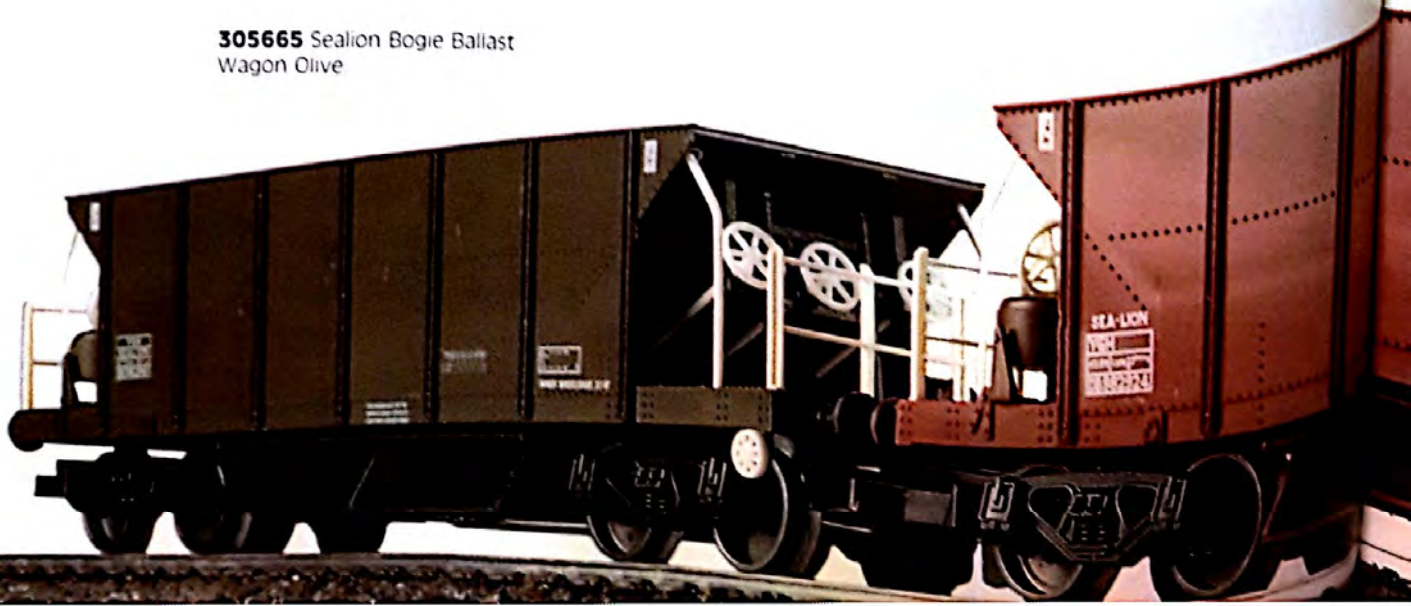
305670 ARC Iron ore Bogie Tippler Wagon.



305671 Yeoman Iron Ore Bogie Tippler Wagon.



305665 Sealion Bogie Ballast Wagon Olive





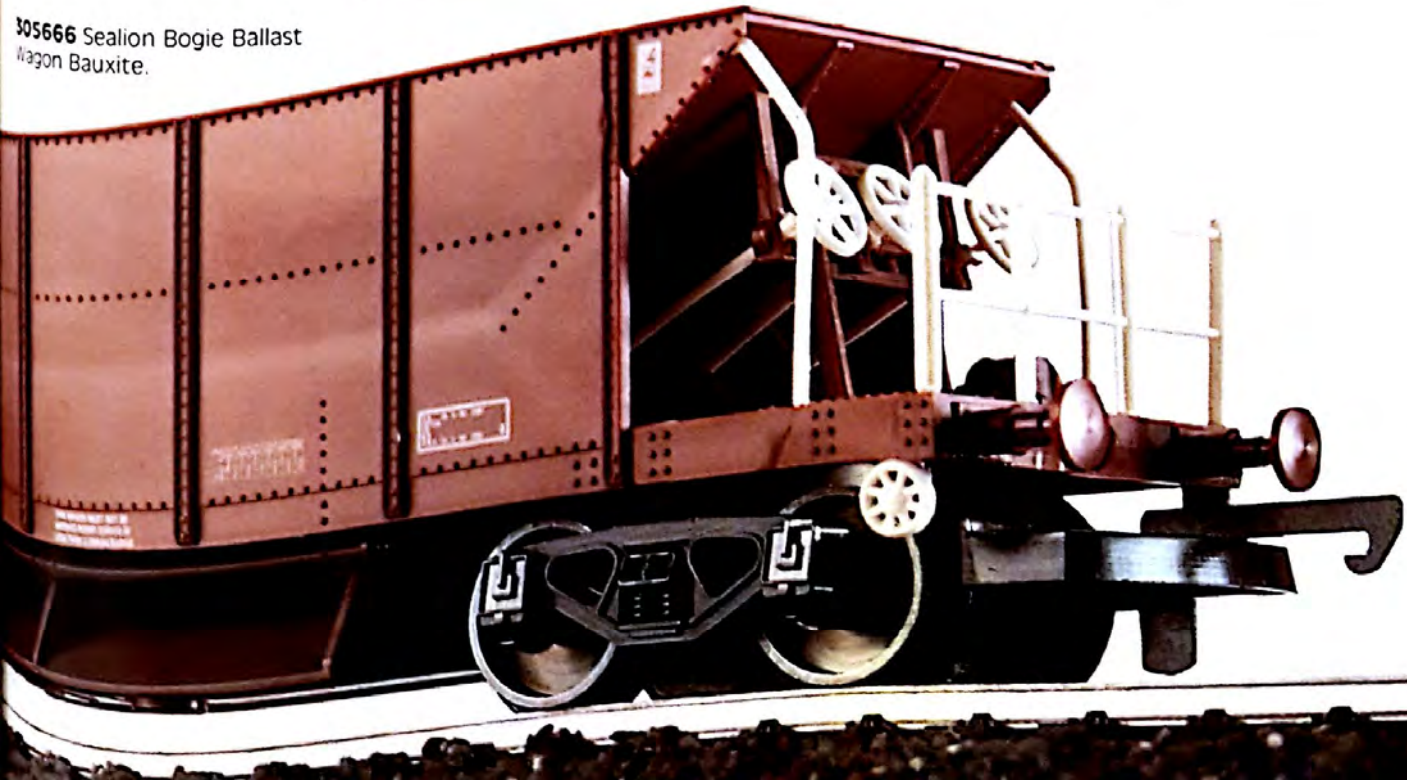
305663 BR Bogie Iron Ore Tippler Wagon Grey.



305664 BR Bogie Iron Ore Tippler Wagon Orange Grey.



305667 Seacow Bogie Ballast Wagon Grey/Yellow.



305666 Sealion Bogie Ballast Wagon Bauxite.

305601 PCA wagon «Blue Circle Cement».



305602 PCA wagon «Ketton Cement».



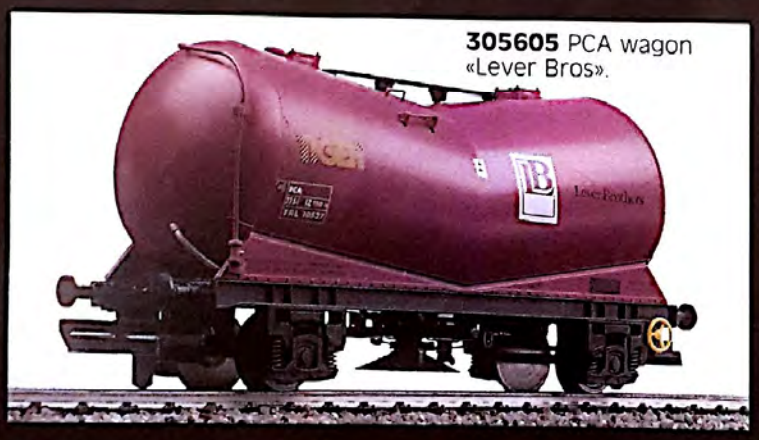
305603 PCA wagon «Castle Cement».



305604 PCA wagon «Albright & Wilson».



305605 PCA wagon «Lever Bros».



305606 PCA wagon in plain grey livery.



305649 Tank Wagon Procor 102 ton «Total».



PCA HOPPERS
The code PCA is given to the group of pressure flow, or «presflo» closed hopper wagons mounted on a two axle chassis. More than one body (or tank) design exists, but Lima have chosen the very distinctive type with a dropped centre to the tank. Used for the transport of powdered material, but in particular cement products, PCA wagons can be seen all over Britain, either in block trains of varying lengths or in Speedlink trains. Usually these wagons carry distinctive livery of the Company whose material is being transported.

TANK WAGONS
These are possibly the most impressive wagons in a freight train. They are designed to ensure the transportation of oil products, chemicals, compressed or liquified gases as well as alimentary liquids. In addition to the conventional four-wheel wagons larger capacity bogie wagons introduced and they can be used to compose an entire freight train, thanks or to the much improved horsepower of the modern locomotives.





305641 GWR 3 axle Milk tank wagon «St. Ivel».



305644 GWR 3 axle Milk tank wagon «C.W.S.».



305645 Procor 102 ton GLW class A bogie tank wagon «Esso».



305646 Procor 102 ton GLW class A bogie tank wagon «Fina».



305647 Procor 102 ton GLW class A bogie tank wagon «Philips Petroleum».



305355 CCT parcels wagon «Tartan Arrow».



305358 LMS GUV bogie parcels van, maroon.

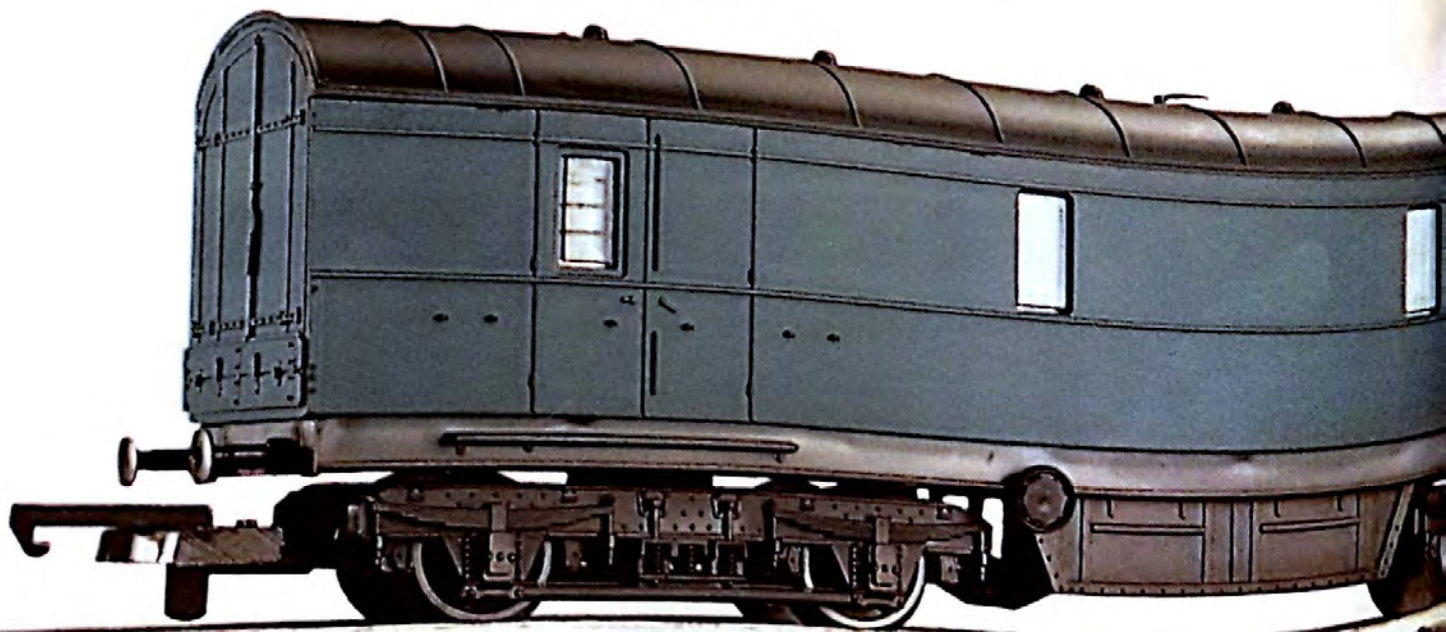


305371 BR Standard Bogie G.U.V. BR. Maroon Livery.

PARCELS WAGONS

Well-known for many years on British Rail's network and operating in various colours with various types of trains, these parcel wagons have been very popular over the years. Lima's range includes covered carriage trucks as well as two types of General utility van.

305360 Bogie GUV in BR. blue livery

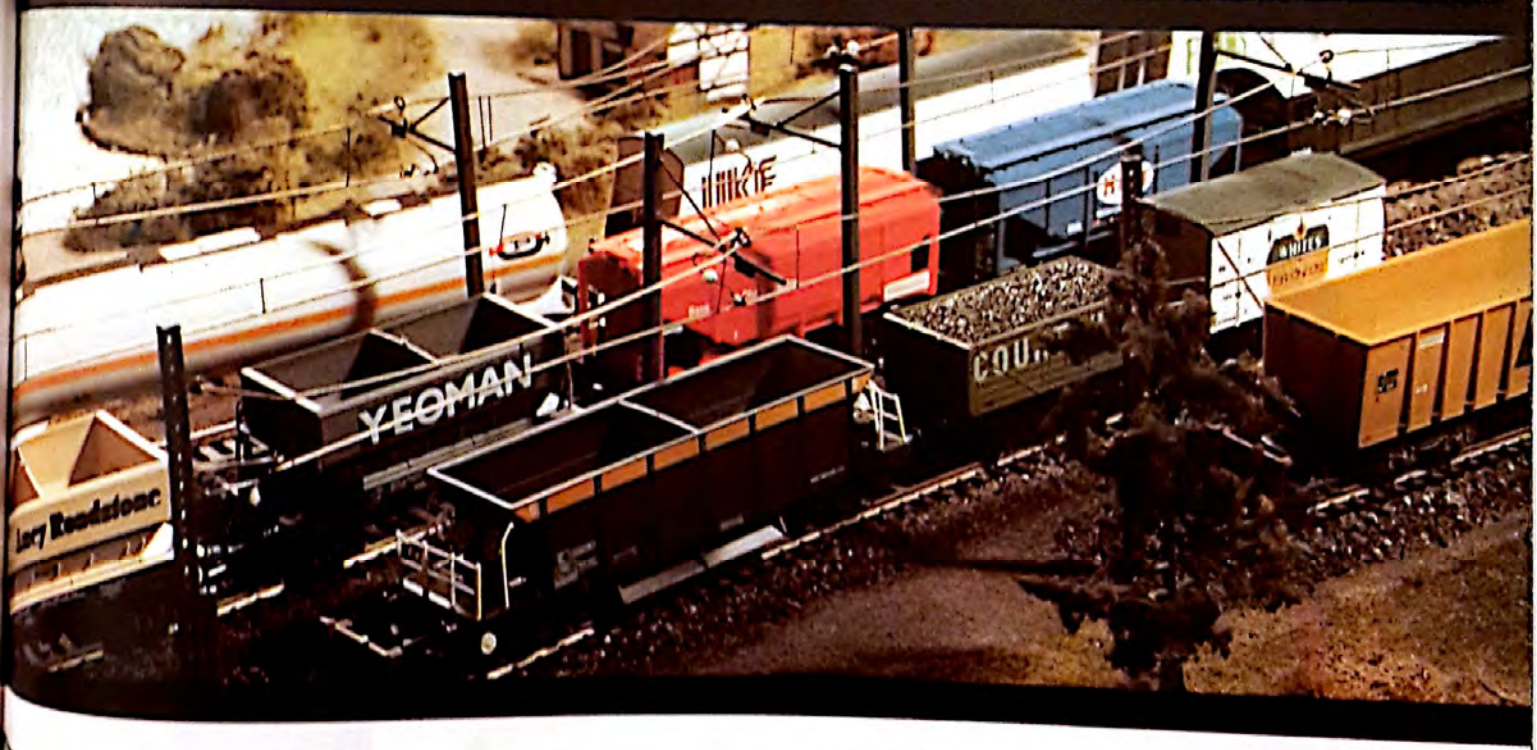




305656 BR Standard GUV Express Parcels van, blue.



305657 BR Standard GUV Express Parcels maroon.





305370 Bogie G.U.V. in departmental Livery.



305659 Procor 82 ton bogie pallet van «Neill / Brown».



305660 Procor 82 ton bogie pallet van «Fisons» fertilisers livery.



305661 Procor 82 ton bogie pallet van «UKF».



305662 Procor 82 ton bogie pallet van standard BR livery.



PROCOR WAGONS 82 TON

Procor's large 82 ton bogie pallet van has been used by various companies for the transportation of many types of product, particularly fertilizers.



CAR TRANSPORTERS

...to the interna... Class wagons ...and bogie ver... ...etimes feature ...g platform and ...load limit ...attached to ...ons



305696 Motorail car transport

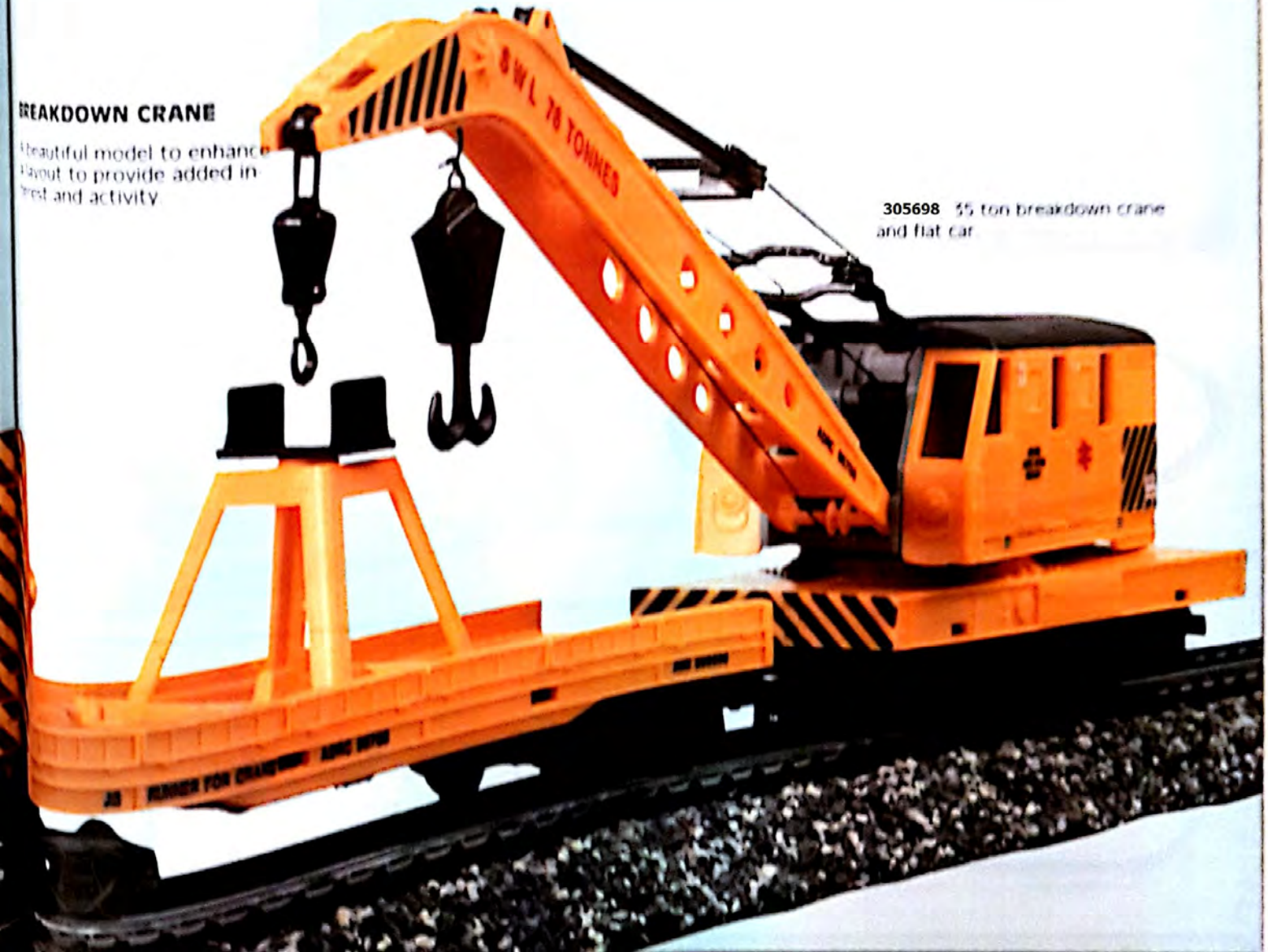
SPECIAL WAGONS



305310 BR Mark I Engineers Dept coach

BREAKDOWN CRANE

...beautiful model to enhance ...layout to provide added in...terest and activity

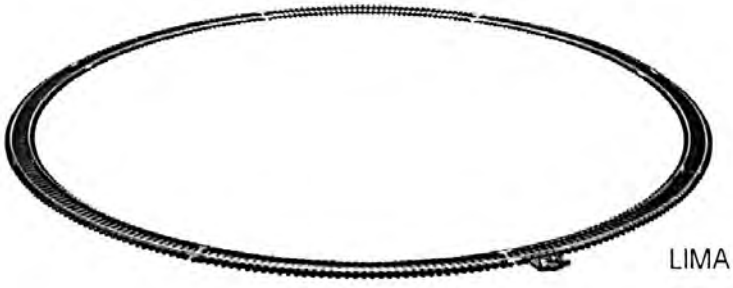


305698 75 ton breakdown crane and flat car

ADDITIONAL TRACK LAYOUTS

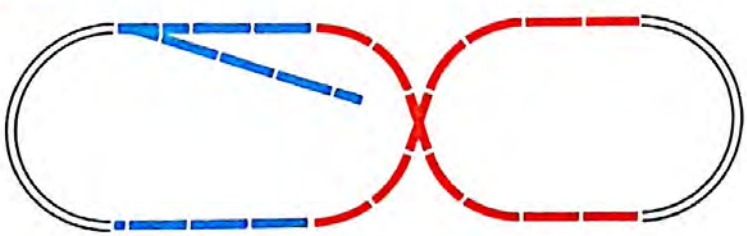


LIMA track extension sets are designed to add to the construction of the first basic circular layout and with further track extension sets, a more complex railway layout. This stage requires a very high level of creativity, according to the available space and to the various needs of the modeller. This is the reason why LIMA offer different sets composed of track sections and points in order to make the modeller's task easier and to exploit their imagination. The LIMA system of track extension sets consists of various progressive combinations of straight and curved track, points and crossing, through which a basic layout can be expanded into a complete layout allowing, as in real life, the simultaneous running of more than one train.

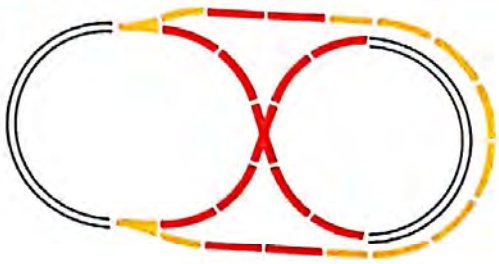


LIMA track basic

A+B

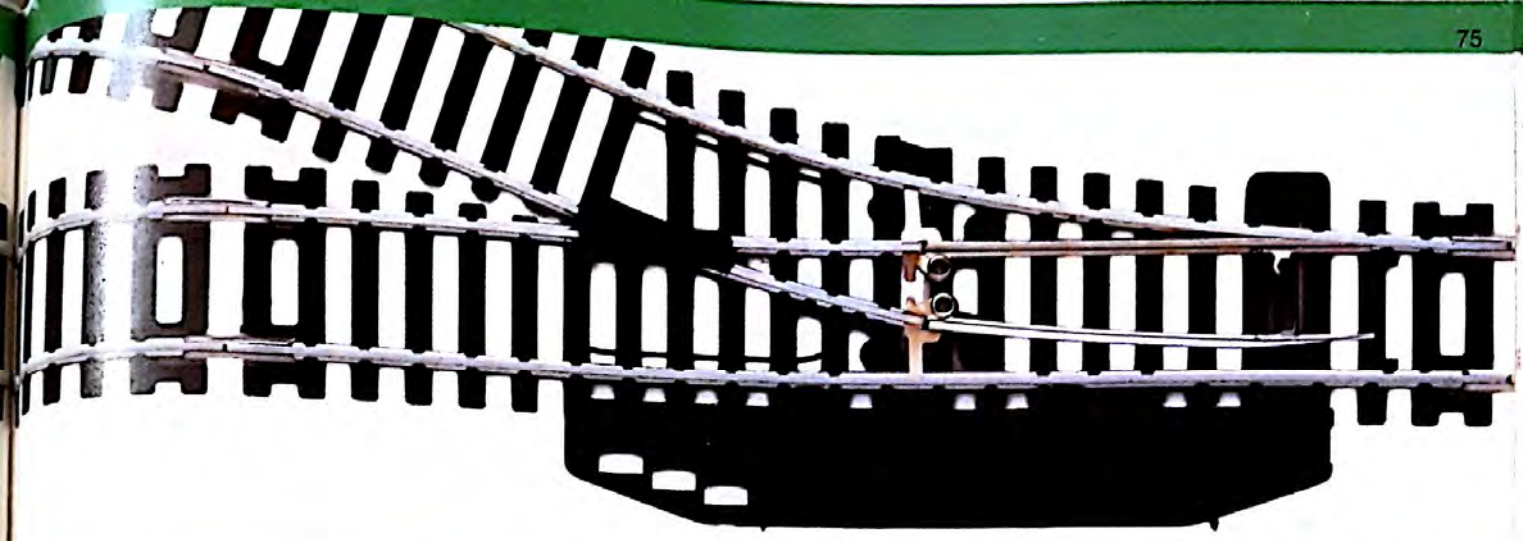


A+C



B+C





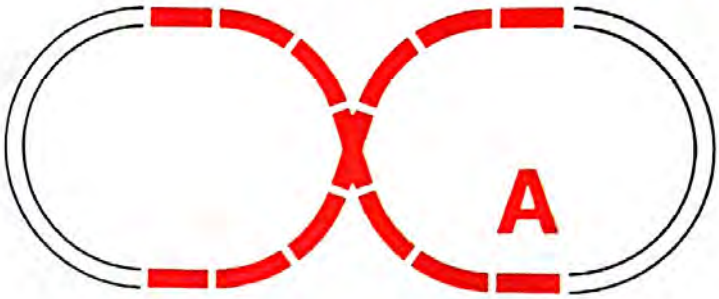
HAND OPERATING POINTS

e LIMA track extension
:s consisting of track
:ons and hand operat-
points, are designed to
w a stage-by-stage con-
uction of a railway lay-
up to the most com-
system. Each LIMA
extension set can be
ed with the others to
m an integrated system
a highly realistic model
ways.

404010 - Track extension set **A** consisting of:

4x403020
8x403030
1x403041

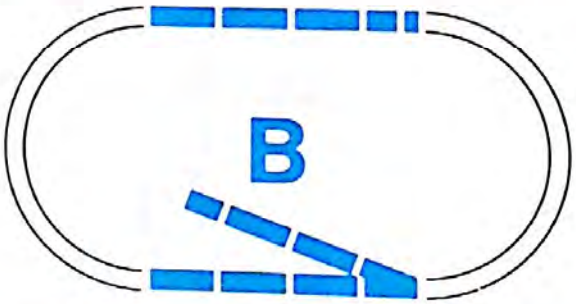
cm 196x75



404011 - Track extension set **B** consisting of:

8x403020
1x403021
1x403022
1x403050
1x403025

cm 160x75

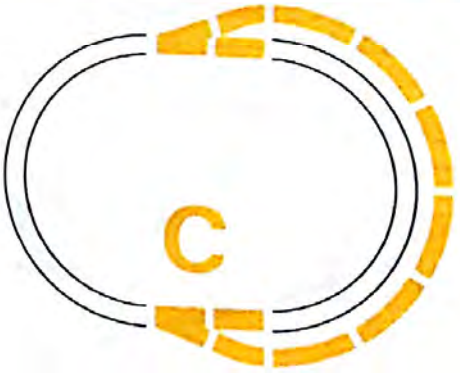




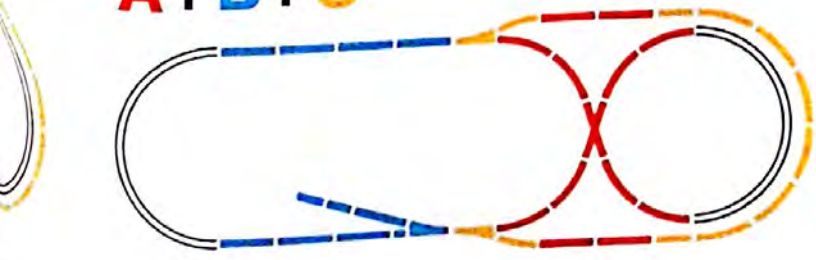
404012 - Track extension set **C** consisting of:

2x403023
1x403050
1x403051
1x403035
1x403036
6x403011

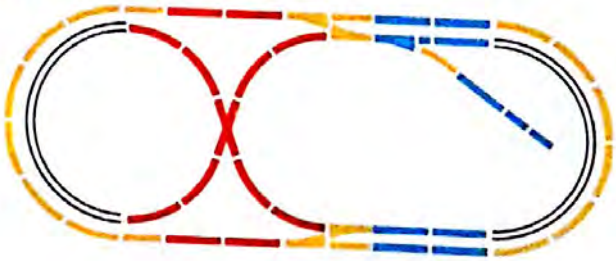
cm 116x90

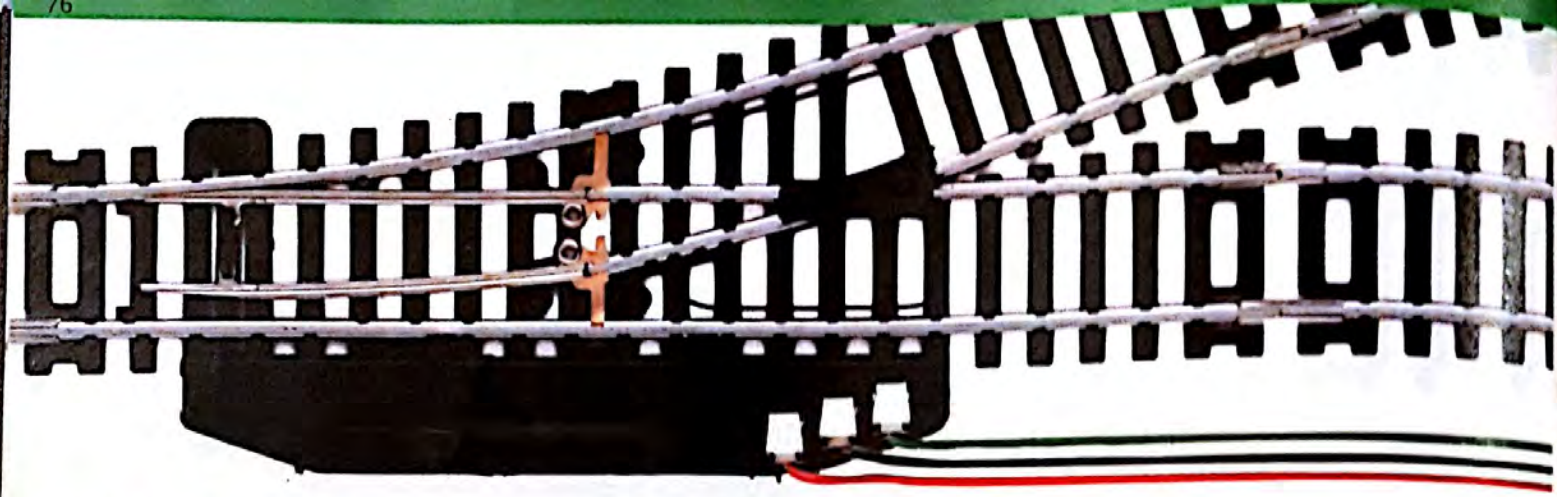


A+B+C

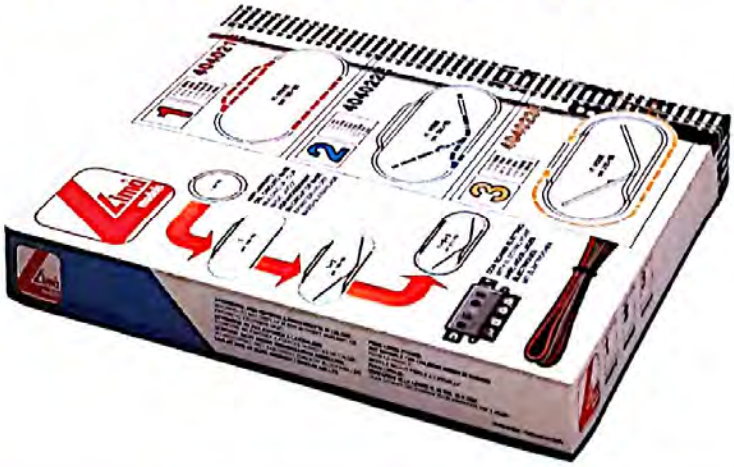


A+B+C+C

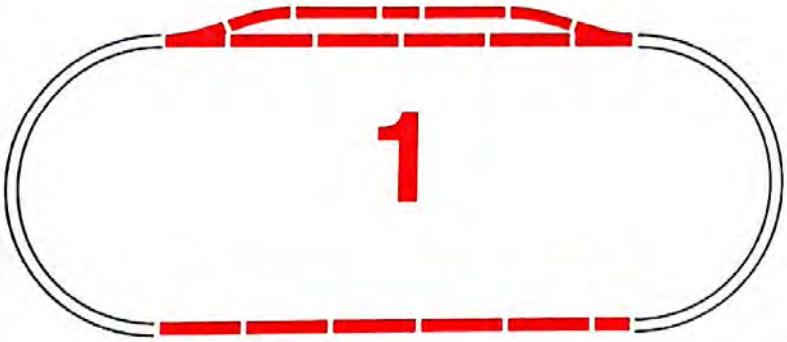




ELECTRICALLY OPERATING POINTS



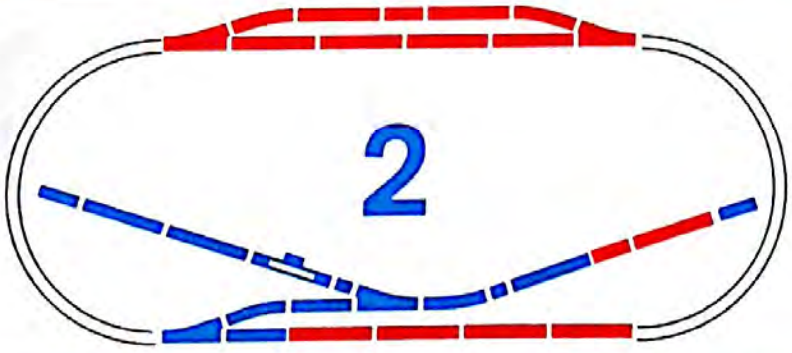
The LIMA system of track extension sets, consisting of track sections, crossing and electrically-operating points, enables the construction of railway layouts on which trains can operate with a greater realism. The electrically-operating points actually represent the basic components allowing the control of more trains on complex layout where double track sections and two or more intersections are configurated. Also in this case every LIMA set is designed to fully match with the others, in order to ensure, step by step, the construction of a complete modular miniature railway.



404021E - Track extension set **1** with electromagnetic points and control box. Consisting of:

11x403020
2x403021
1x403035
1x403036
1x403050E
1x403051E
1x603065

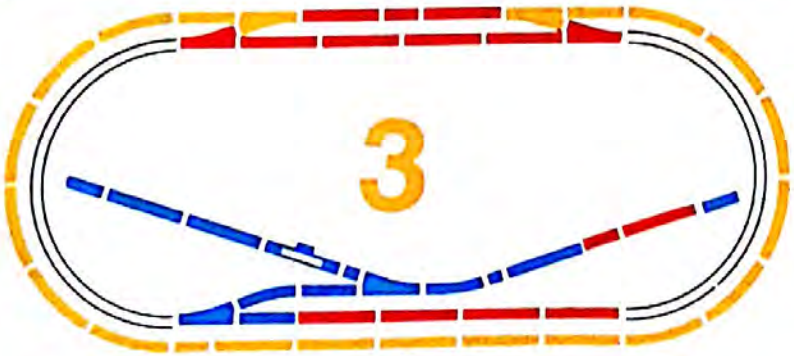
cm 196x83



404022E - Track extension set **2** with electromagnetic points and control box. Consisting of:

3x403020
2x403023
1x403035
1x403036
2x403024R
2x403025
1x403028
1x403050E
1x403051E
1x603065

cm 198x83



404023E - Track extension set **3** with electromagnetic points and control box. Consisting of:

5x403020
1x403021
2x403023
12x403011
1x403050E
1x403051E
1x603065

cm 215x90

BLISTER STANDARD TRACK

403070 - 6 x 403020 straight track 222 mm

403072 - 6 x 403023 straight track 333 mm

403073 - 6 x 403027 straight track 333 mm

403076 - 1 x 403020 straight track 222 mm 1 x 403025 buffer stop 111 mm 1 x 403024R straight insulating track 55,5 mm

403078 - 1 x 403020 straight track 222 mm 1 x 403028 uncoupler 222 mm

403083 - 6 x 403017 1/8 circle Ø 862 mm

403084 - 6 x 403034 1/12 circle Ø 720 mm

403085 - 4 x 403031 1/20 circle Ø 720 mm 1 x 403032 1/40 circle Ø 720 mm

403086 - 6 x 403011 1/12 circle Ø 862 mm

403087 - 6 x 403012 1/16 circle Ø 862 mm

403088 - 6 x 403029 1/8 circle Ø 720 mm

403089 - 4 x 403021 straight track 111,2 mm 2 x 403022 straight track 55,5 mm 1 x 403024 straight track with power clip 55,5 mm 1 x 600015 insulating fish-plates.

403092 - 1 x 403050 right-hand manual point, 1 x 403035 right compensating track.

403092E - 1 x 403050E right-hand electric point, 1 x 403035 right compensating track.

403093 1 x 403051 left-hand manual point, 1 x 403036 left compensating track.

403093E - 1 x 403051E left-hand electric point, 1 x 403036 left compensating track.

403098 - Right diamond crossing 18°.

403099 - Left diamond crossing 18°.

600002 - Railer.

NEW

600874 - Security Block.



403070



403072



403086



403084



403087



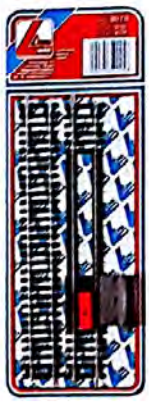
403085



403076



403089



403078



403098



403099



403092E



403092



403093



403093E



600874



600002

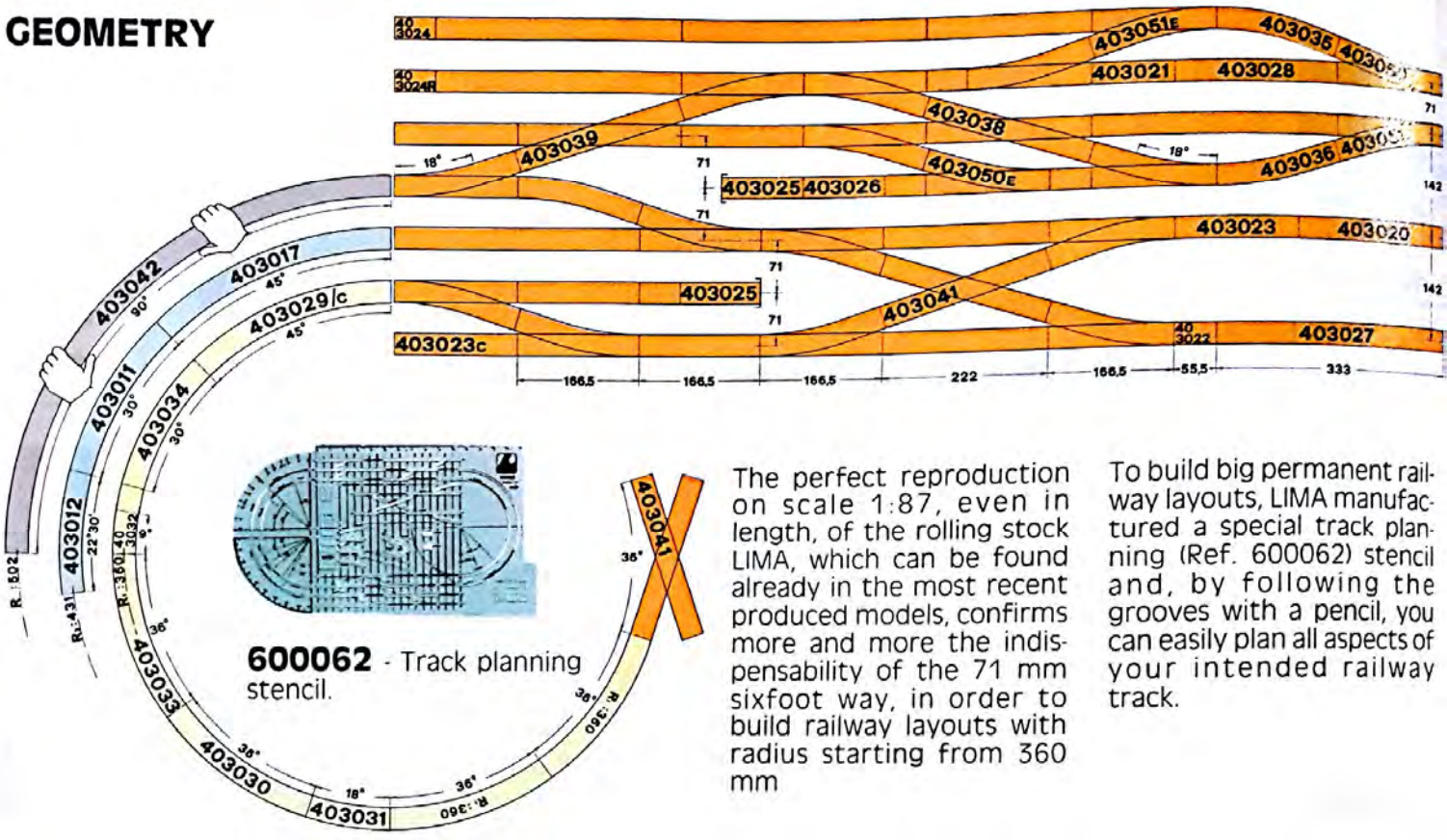






STANDARD TRACK PROGRAMME

GEOMETRY



600062 - Track planning stencil.

The perfect reproduction on scale 1:87, even in length, of the rolling stock LIMA, which can be found already in the most recent produced models, confirms more and more the indispensability of the 71 mm sixfoot way, in order to build railway layouts with radius starting from 360 mm

To build big permanent railway layouts, LIMA manufactured a special track planning (Ref. 600062) stencil and, by following the grooves with a pencil, you can easily plan all aspects of your intended railway track.

STRAIGHT TRACKS



403027 - Straight.
333 mm - Box 12 pcs.



403020 - Straight.
222 mm - Box 12 pcs.



403023 - Straight.
166,5 mm - Box 12 pcs.



403023C - Straight track with power clip.
166,5 mm - Box 12 pcs.



403021 - Straight.
111 mm - Box 12 pcs.



403025 - Buffer stop.
111 mm - Box 6 pcs.



403024 - Straight track with power clip.
55,5 mm - Box 12 pcs.



403024R - Straight isolating track.
55,5 mm - Box 12 pcs.



403022 - Straight.
55,5 mm - Box 12 pcs.

CURVED TRACKS



403029 - Curved.
Ø 720 mm 45° - Box 12 pcs.



403029C - Curved track with power clip.
Ø 720 mm 45° - Box 12 pcs.



403030 - Curved.
Ø 720 mm 36° - Box 12 pcs.



403034 - Curved.
Ø 720 mm 30° - Box 12 pcs.



403031 - Curved.
Ø 720 mm 18° - Box 12 pcs.



403032 - Curved.
Ø 720 mm 9° - Box 12 pcs.

CURVED TRACKS



403012 - Curved.
Ø 862 mm 22° - Box 12 pcs.



403011 - Curved.
Ø 862 mm 30° - Box 12 pcs.



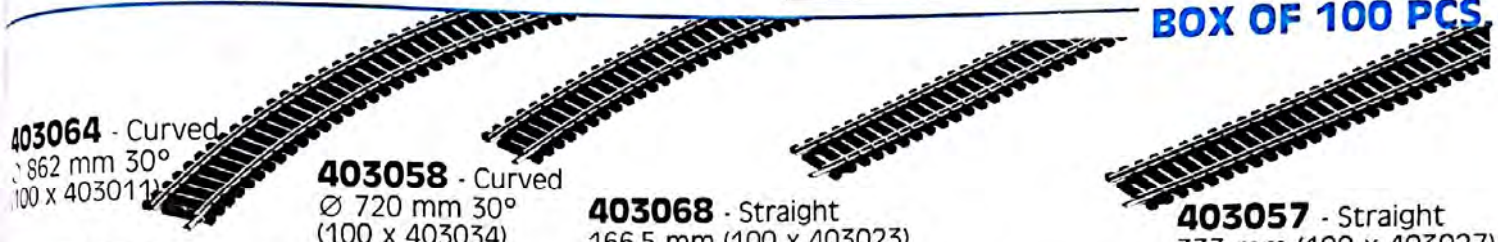
403017 - Curved.
Ø 862 mm 45° - Box 12 pcs.

ISOLATED POINTS

With the new LIMA isolated point, one may easily isolate section of the layout. The traction current is fed to the correct route by the moving point blade.



BOX OF 100 PCS



403064 - Curved
862 mm 30°
100 x 403011)

403058 - Curved
Ø 720 mm 30°
(100 x 403034)

403068 - Straight
166,5 mm (100 x 403023)

403057 - Straight
333 mm (100 x 403027)

403067 - Curved
Ø 720 mm 36°
(100 x 403030)

403060 - Straight
222 mm (100 x 403020)

POINTS

403050 - Right-hand manual point - Box 2 pcs.



403035 - Right compensating point - Box 12 pcs.



403051 - Left-hand manual point - Box 2 pcs.



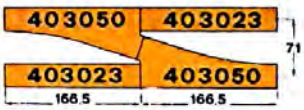
403036 - Left compensating point - Box 12 pcs.



403050E - Right-hand electric point - Box 2 pcs.

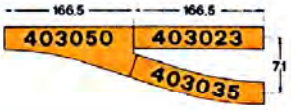


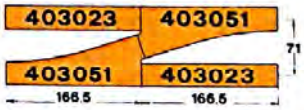




403051E - Left-hand electric point - Box 2 pcs.







CROSSING

403039 - Left diamond crossing 18° - Box 2 pcs.



403041 - Diamond crossing 36° - Box 2 pcs.



403038 - Right diamond crossing 18° - Box 2 pcs.



SPECIAL TRACKS

403033 - Rerailer
Ø 720 mm 36° - Box 12 pcs.



403028 - Uncoupler
222 mm - Box 6 pcs.



403026 - Extendable 111 to 166,5 mm - Box 6 pcs.

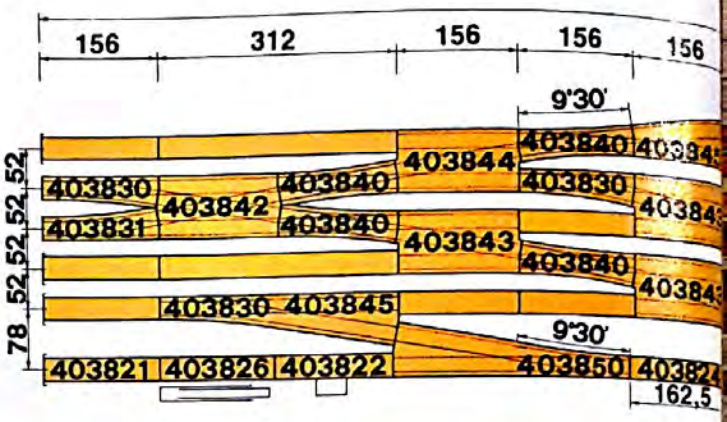


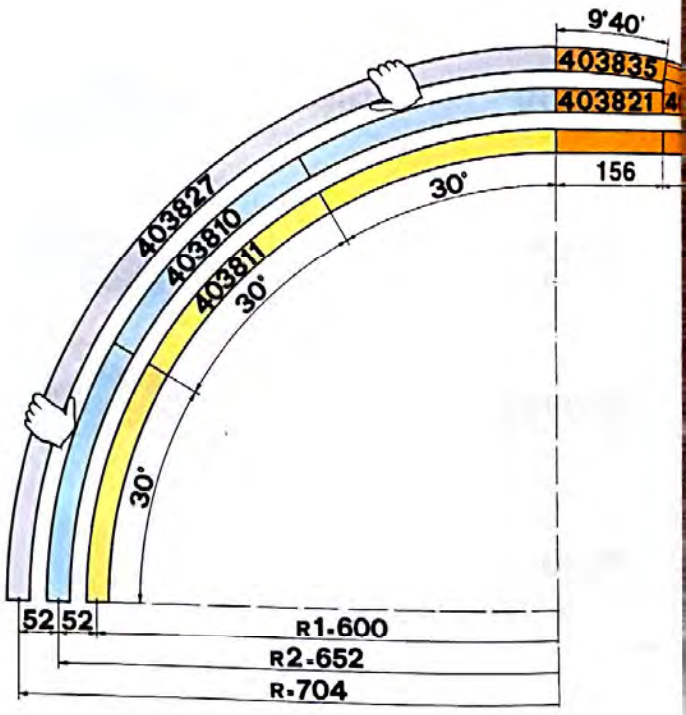
403042 - Flexible
900 mm - Box 48 pcs.



THE NEW LIMA MODULAR SYSTEM

The new LIMA track program, through its modular system, offers an incalculable number of possibilities and individual conbinations of track and points. With a complete system of modules for track, points and crossings it is possible to build stations to exact scale and in the minimum space. The module elements are complementary and give the possibility at any time to modify and extend the track circuit. The modular elements are in accordance to the NEM rules and allow the circulation of all locomotives and coaches on scale 1:87 in the two rail continuous current system. The new LIMA track system will be completed in two years and in the meantime will have further additions.





THE LIMA MODULAR ELEMENTS

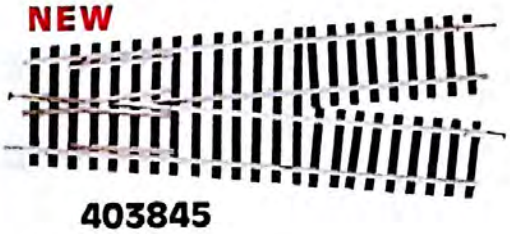
The point, with correct angle at 9 °30', 52 mm scale six-foot way and 312 mm length, has been «sectionalized» into two parts: point blade module 403830 right - 403831 left) and frog module of 156 mm each. The frog, 403845. which becomes, the first LIMA «module», is symmetrical and identical for the left or right point, crossing or double crossing 156 mm Same length, too. Therefore this becomes the new LIMA modular length.

NEW

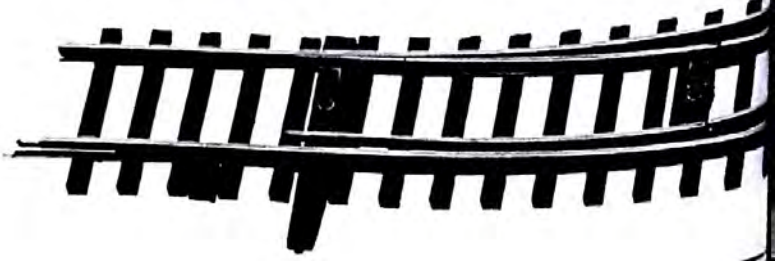


403830E

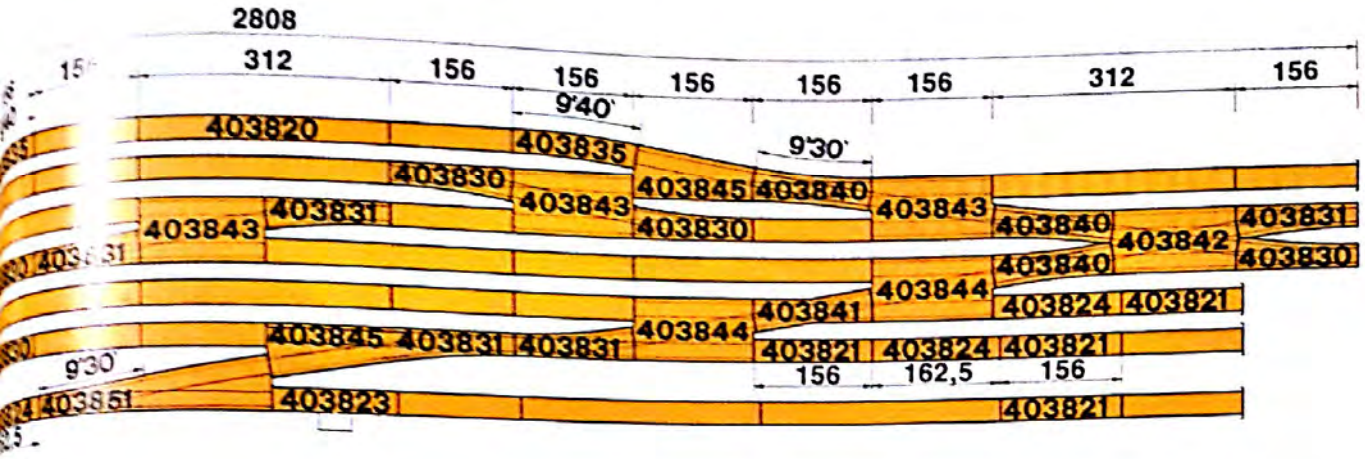
NEW

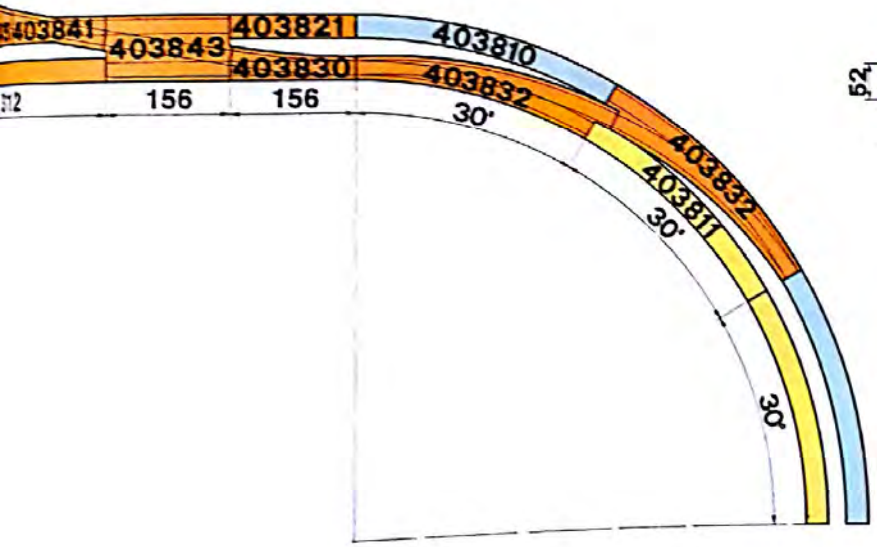


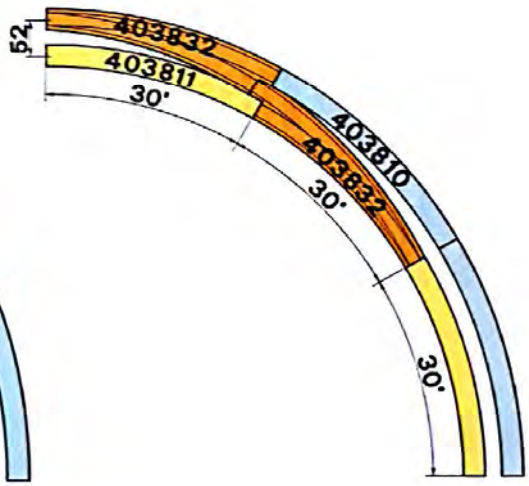
403845



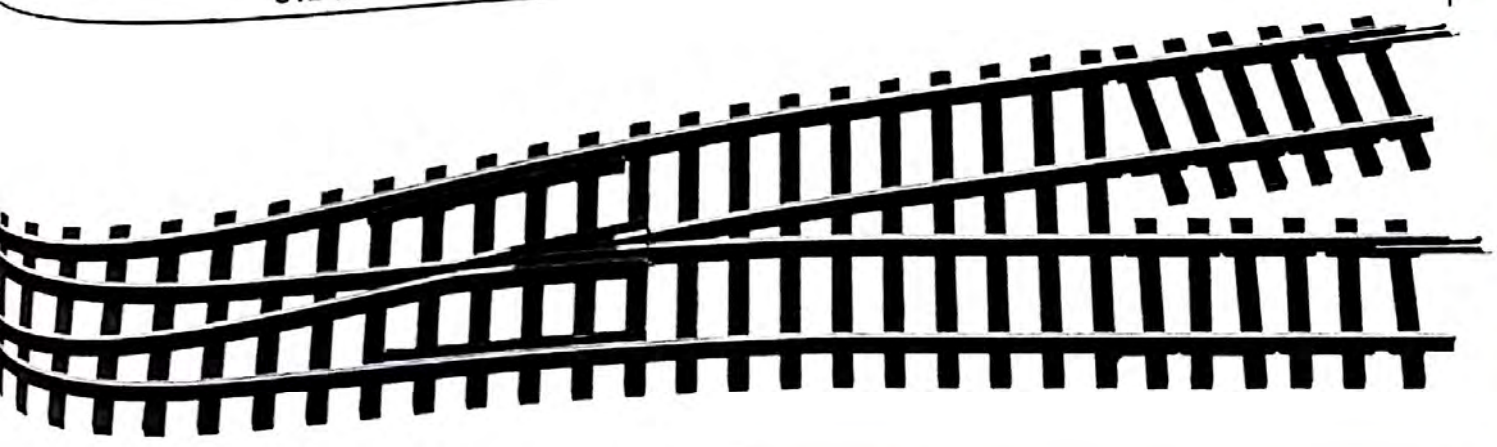
NEM 120





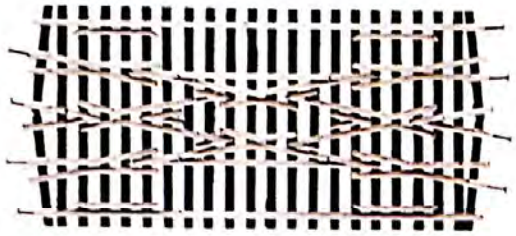


312 mm



THE LIMA MODULAR ELEMENTS

The introduction of 3 new modular elements, fundamental for railway layouts coupled with switch and crossing elements, gives the possibility to build a railway layout, always keeping the 156 mm modular length.



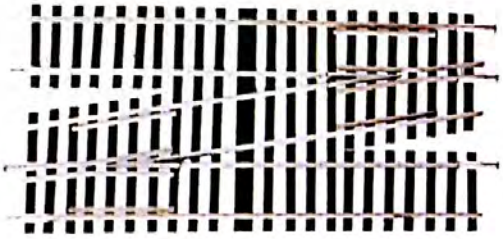
NEW

403842 - Crossed parallel double scissors.



NEW

403843 - Right hand crossover.



NEW

403844 - Left hand crossover.

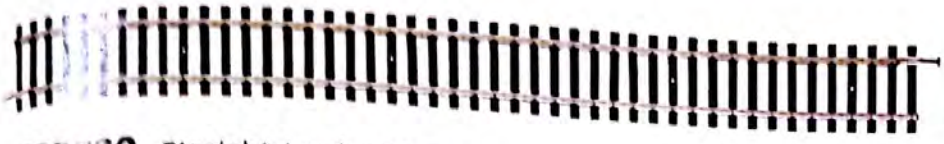
TECHNICAL SPECIFICATIONS

The modular elements have a length of 156 mm, scale six-foot way of 52 mm This deviation length allows to build, through the utilization of the system modular elements, layouts and switch combinations in an extremely reduced space.
The point blades, milled, adhere perfectly to the tracks and produce a permanent optimum contact.

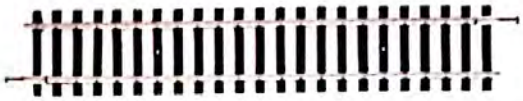
With these new modular elements, LIMA managed to reduce space necessary to build a scale railway layout.



NEW



403120 · Straight track 312 mm.

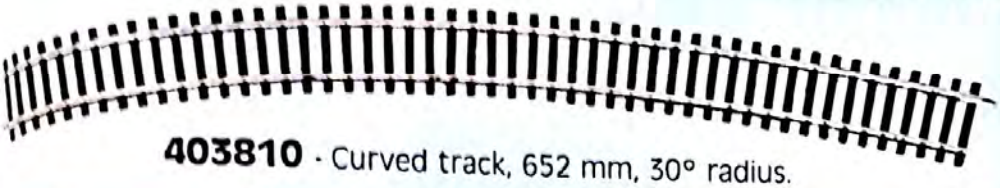


403821 · 156 mm straight track.

CURVED TRACK

NEW

R2 = 652 mm



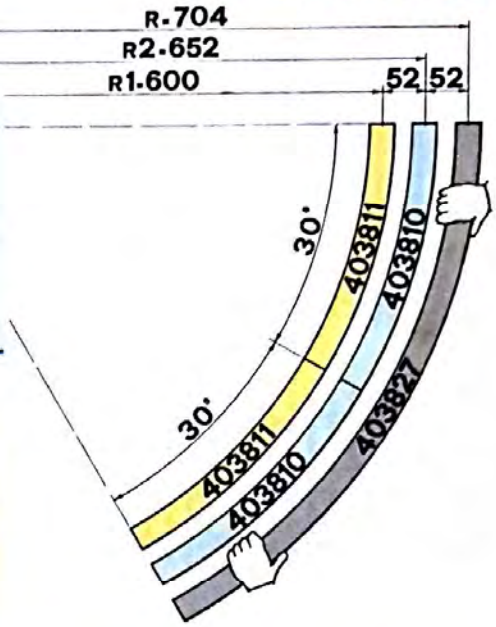
403810 · Curved track, 652 mm, 30° radius.

NEW

R1 = 600 mm



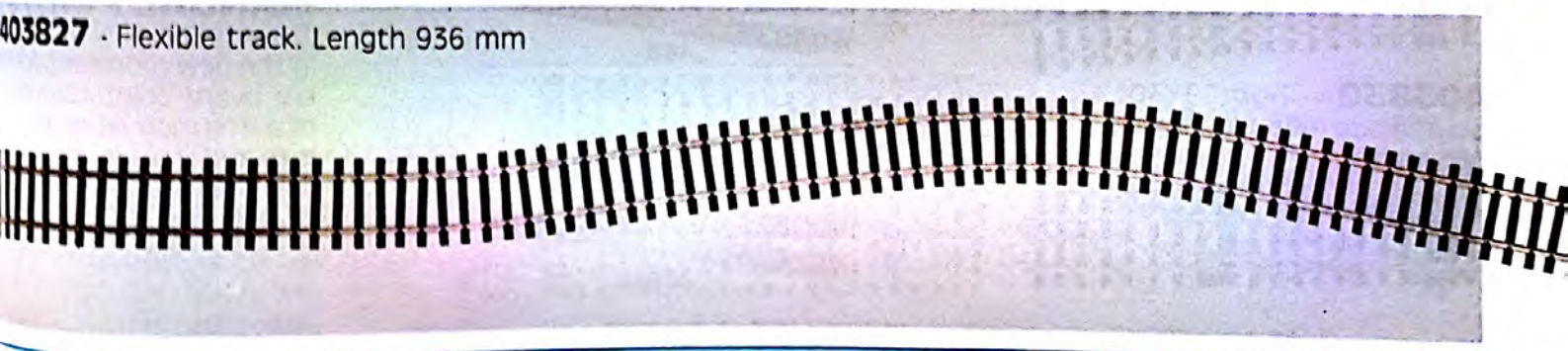
403811 · Curved track, 600 mm, 30° radius.



THE LIMA FLEX

NEW

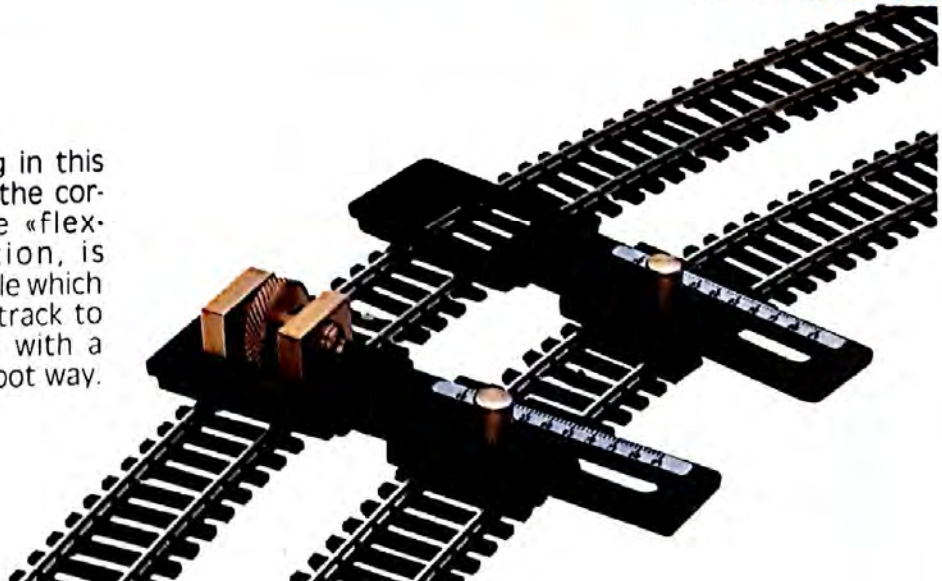
403827 · Flexible track. Length 936 mm



FLEX-BLOCK

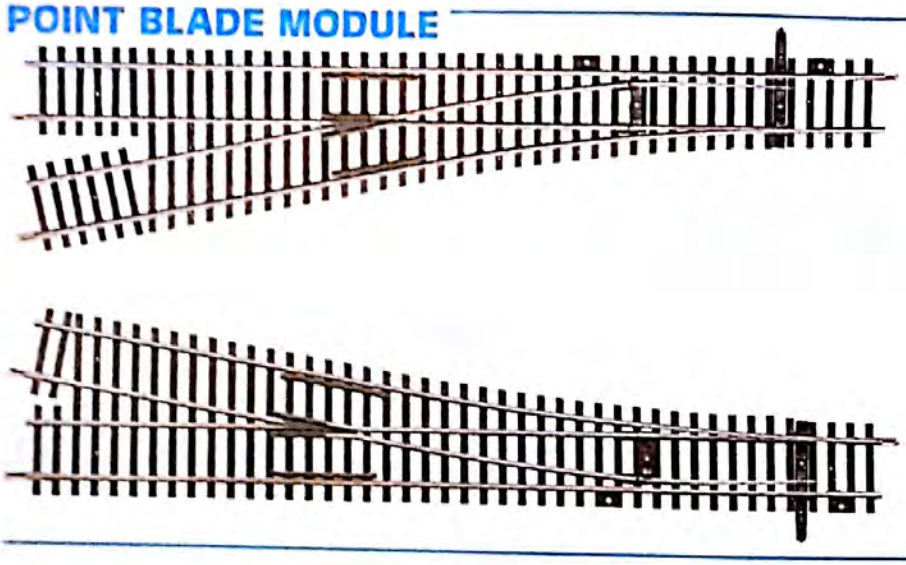
NEW

The «flex-block» is a particular accessory, expressly designed by LIMA (produced by no other manufacturer before), which allows, when using flexible track, the correct scaled position and shape. That happens without having to resort to all those devices which are necessary actually to avoid tracks being drawn out of their seat, creating in this way problems for the correct setting. The «flex-block», in addition, is equipped with a scale which allows the flexible track to be laid in position with a constant scale six-foot way.



600068 · Flex-block

POINT BLADE MODULE

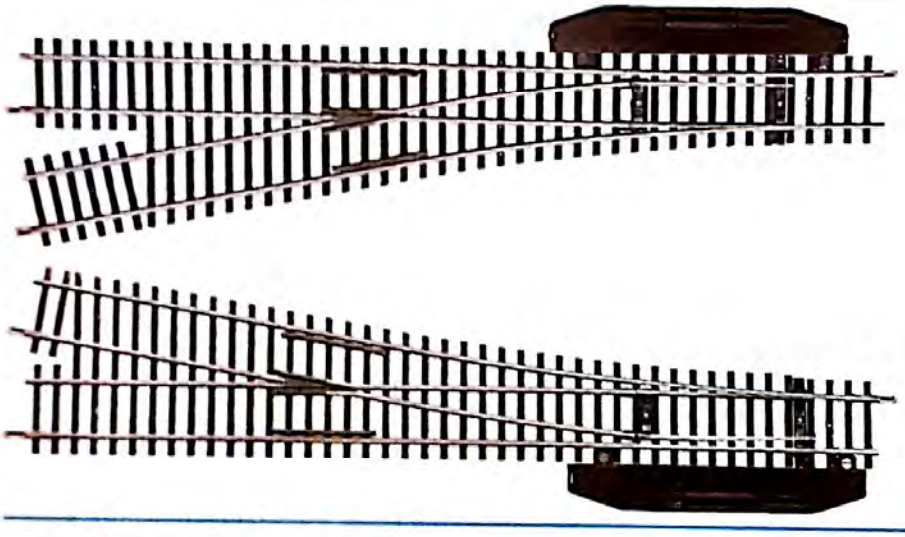


NEW

403851 - Left 9°30' point blade module. Length 312 mm

This new point blade module consisting of the point blade module element and of the frog «Basic Module of the LIMA System» is made in only one piece for a simple and easy composition of circuit.

403850 - Right 9°30' point blade module. Length 312 mm



NEW

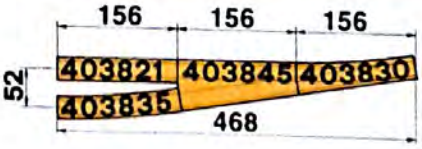
403851E - Electromagnetic left 9°30' point blade module. Length 312 mm

NEW

403850E - Electromagnetic right 9°30' point blade module. Length 312 mm

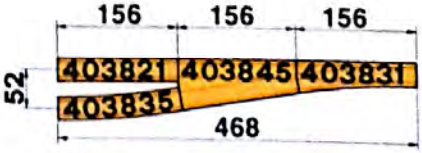


403830 - Right 9°30' point blade module. Length 156 mm





403831 - Left 9°30' point blade module. Length 156 mm



NEW

MANUAL POINTS

In the new modular geometry every point composed of a frog module length 156 mm and a blade module of 156 mm length with radius of 941 mm at 9°30'.

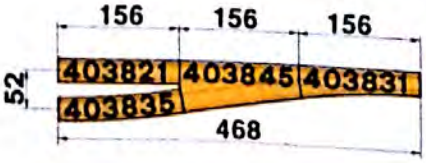


403830E - Right electromagnetic 9°30' point blade module. Length 156 mm





403831E - Left electromagnetic 9°30' point blade module. Lergth 156 mm



NEW

POINTS ELECTROMAGNETIC

As you will notice, all the points, either manual or electric, have been completly planned again and their production is the result of very advanced LIMA technology.

CROSSING NEM 120

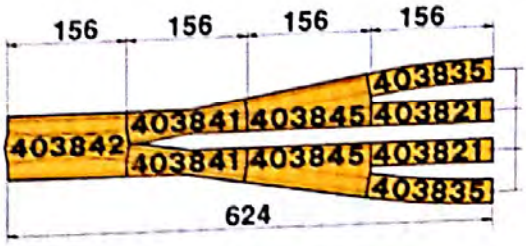
NEW

CROSSING

403841 - 9°30' crossing length 156 mm



This new crossing has been conceived in order to keep 52 mm scale six-foot way of the new LIMA modular geometry.



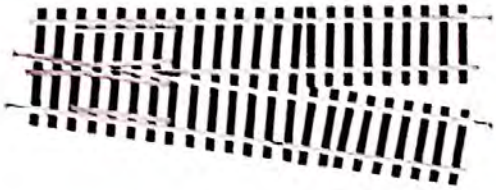
FROG MODULE

NEW

403845 - 9°30' frog section for all points and crossings length 156 mm







This is the basic element for all the LIMA track modular system. Coupled either to the right or left point blade module, it carries out the intersection between two running tracks.

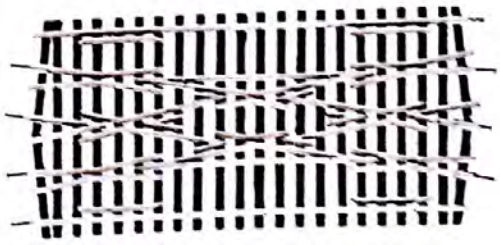




CROSSED PARALLEL DOUBLE SCISSORS

NEW

403842 - 9°30' crossed parallel double section. Length 156 mm



The crossed parallel double section, coupled to two right and two left points blade modules, carries out scissor operation, necessary for entrance and exit of stations.



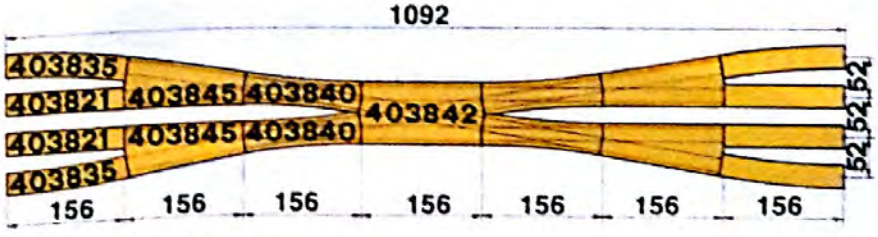
DOUBLE SLIP

NEW

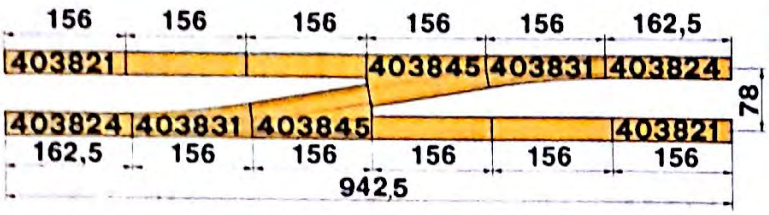
403840E - 9°30' electromagnetic double slip length 156 mm



LIMA's advanced sophisticated technology is built into the production of this double slip.



THE COMPENSATION



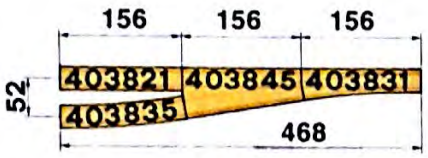


NEW

COMPENSATING TRACK

403824 - Straight compensating track. Length 162,5 mm.

This track section is necessary to compensate the straight track elements when, instead of using the track element at diverted parallel sections, two frogs are utilized. In this way you can get a 78 mm. scale nine foot-way necessary to place platforms and other stationary fixed equipment.





NEW

COMPENSATING TRACK FOR POINTS

403835 - Compensating track for points.

Even the point blade of the switch frog is composed by a curved track of radius 941, 9°43' and a straight track of 156 mm., the compensation is only one and consists of a 9°40' curved track radius 941. In this way it avoids the use of or right compensating tracks or switches and crossing and the most important advantages of that is more realism and less problems of layout building (much simplified).

EXTENDABLE TRACK



NEW

403826 - Extendable track.

This is a special track extendable from 111 to 165,5 mm. in length, necessary if you want to increase the six-foot way for platforms in station area.

BIPOLAR CONNECTING TERMINAL



NEW

403860 - Twin connecting terminal to the track which can be inserted at any point of the circuit.

BUFFER



NEW

403861 - Buffer to be assembled on the track.

ELECTROMAGNETIC POINT MOTOR



NEW

600881 - Point motor to electrically control left points.

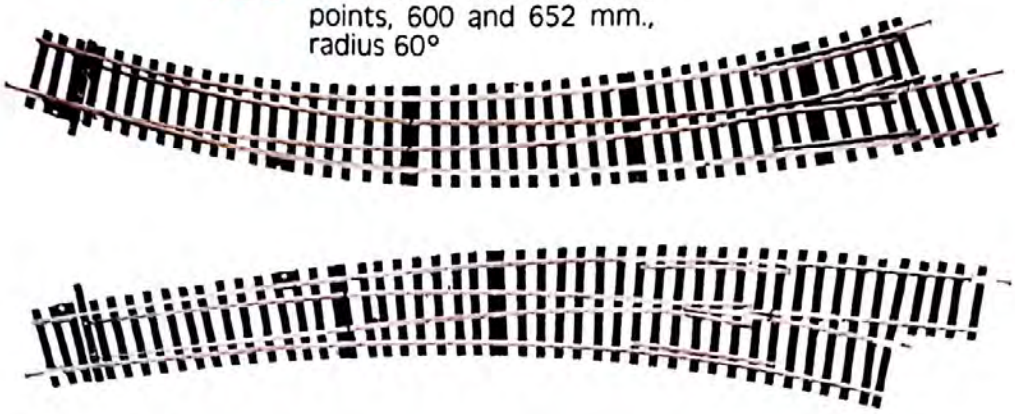


600880 - Point motor to electrically control right points.

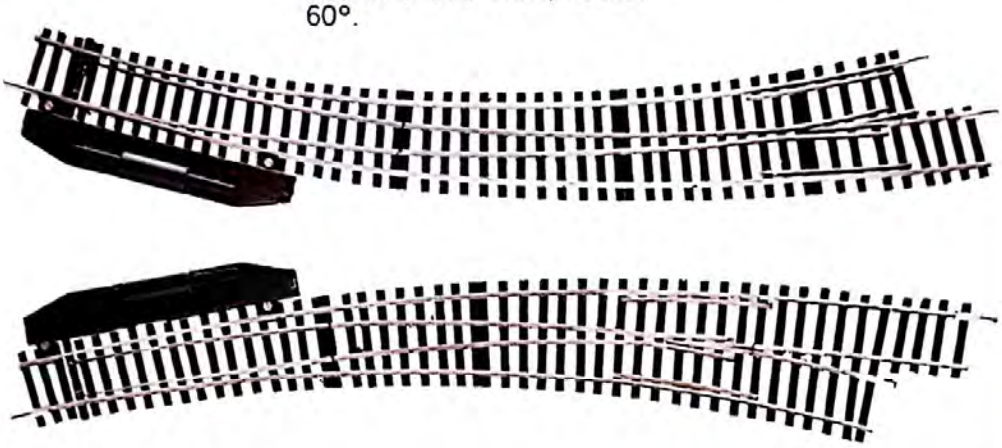
Another big advantage is that the point motor of the new LIMA point blade module will be made separately in order to be placed over or under the board by turning it upside down. In this way it will be possible to build perfect and realistic miniature railway layouts. Also the manual point blade modules can be electrified by adding the point motor, which can be supplied separately.

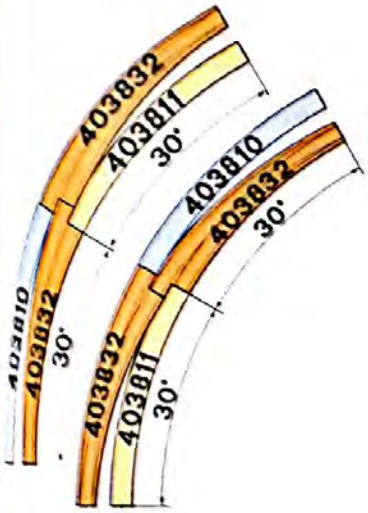
The LIMA curved points are carried on a 30° curved track (R = 600 mm. as track 403811) and a 30° track (R = 652 mm. as track 403810). In this way you can get, with only one pair of points, a 52 mm. scale six-foot way which corresponds to the new LIMA modular geometry, without having to resort to other track elements.

NEW **403832** - Pair of curved points, 600 and 652 mm., radius 60°



NEW **403832E** - Pair of electromagnetic curved points, 600 and 652 mm., radius 60°.

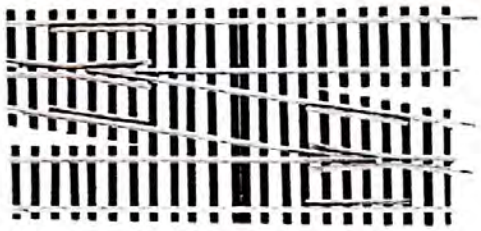


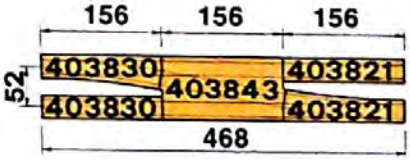


NEW

RIGHT HAND CROSSOVER

403843 - In this way you can get a 52 mm. scale six-foot way in accordance to the new LIMA modular system and NEM 112-1 rules.



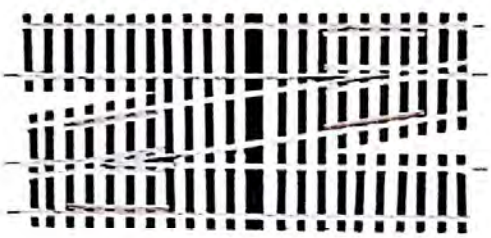


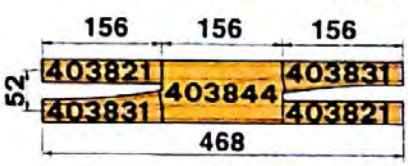
NEW

LEFT HAND CROSSOVER

403844 - With the same specifications of the previous turned parallel section are coupled to two left point blades. It allows the inverse passage in comparison with the previous one.

Both the above mentioned items carry out the passage of a train from one track to another, keeping the length of the switches to 468 mm, equal to 3 modules of the new LIMA modular system, because the connection angle is only 9°30', this allows the point to be used with trains at full speed with absolute safety.



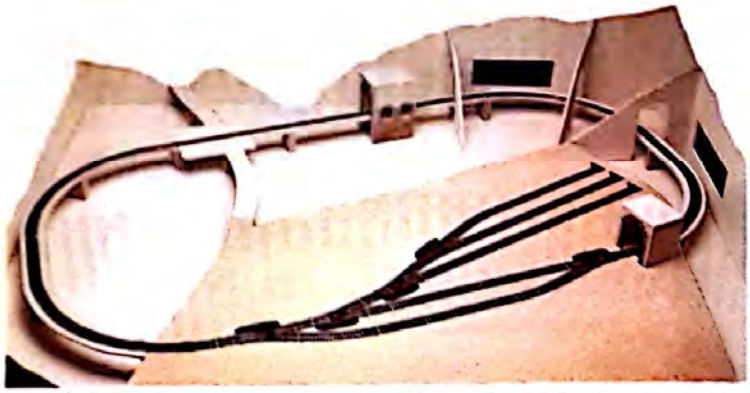


Detailed planning of your layout

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 will need some hand tools, small saw, two or three files for wood and metal, hammer, drill, pliers, screwdrivers and brushes.
The basis of the layout is normally a rectangular wooden panel about 2 cm thick and of a minimum size 140 x 180 cm. If you wish to construct a wider and more complex circuit, you may add more panels according to space available.

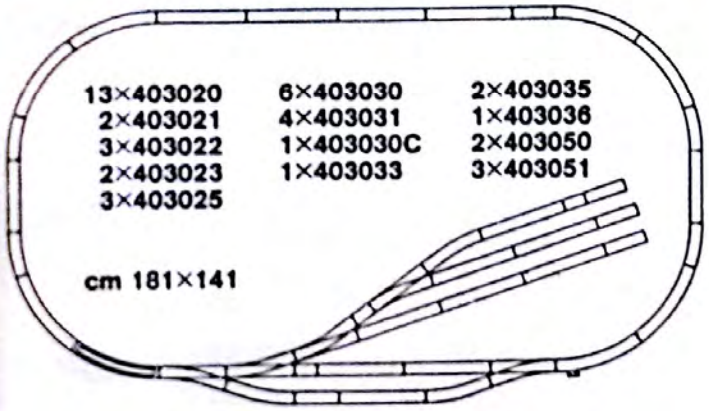


Building your layout

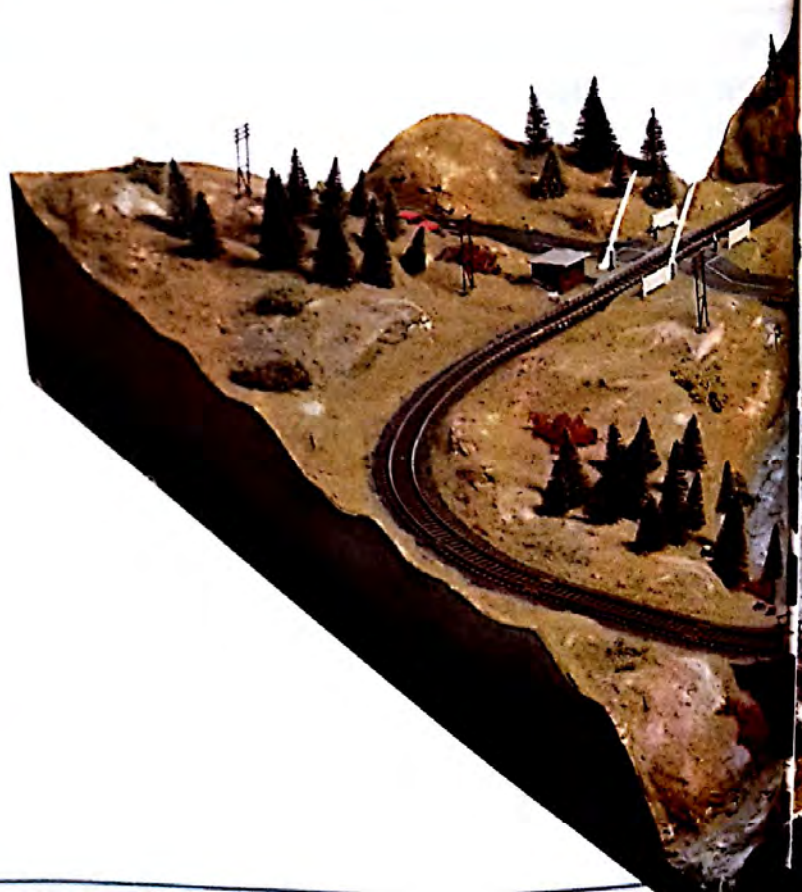
If building your layout for the first time, we advise that in a real railway the natural surroundings have to be taken into consideration, in a miniature layout, the track circuit is first positioned and the landscape is created around it.
We suggest therefore, you determine the ground level before fixing 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.

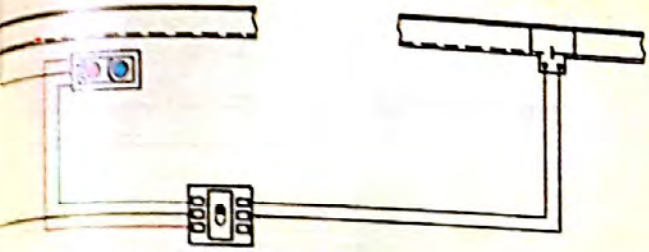
Electrification

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.

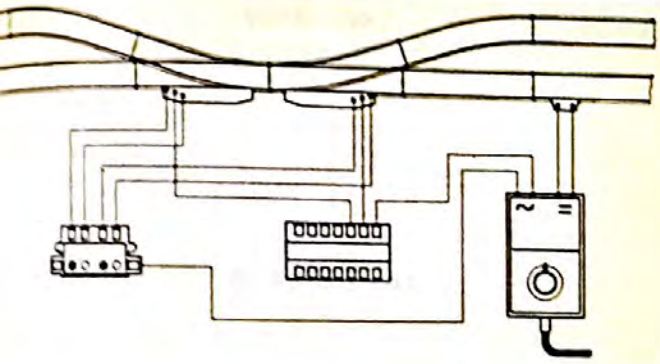




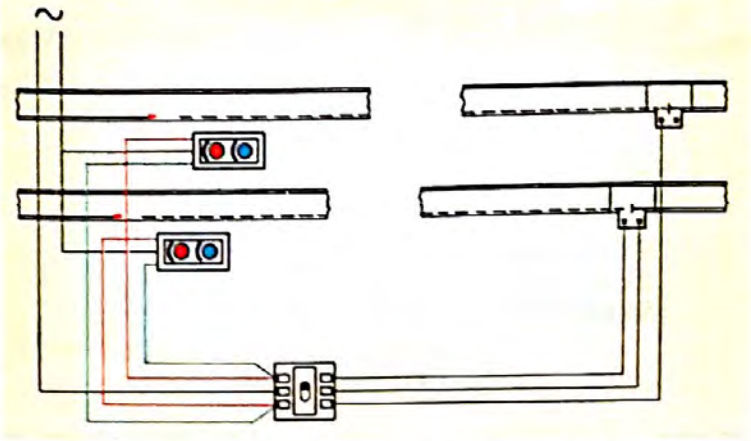




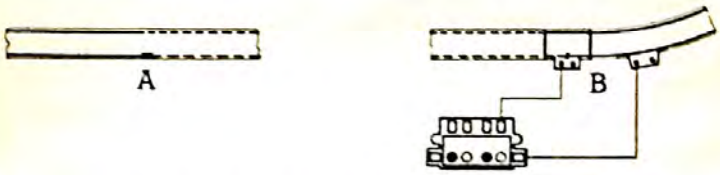
ect wiring of a signal to control a single section.



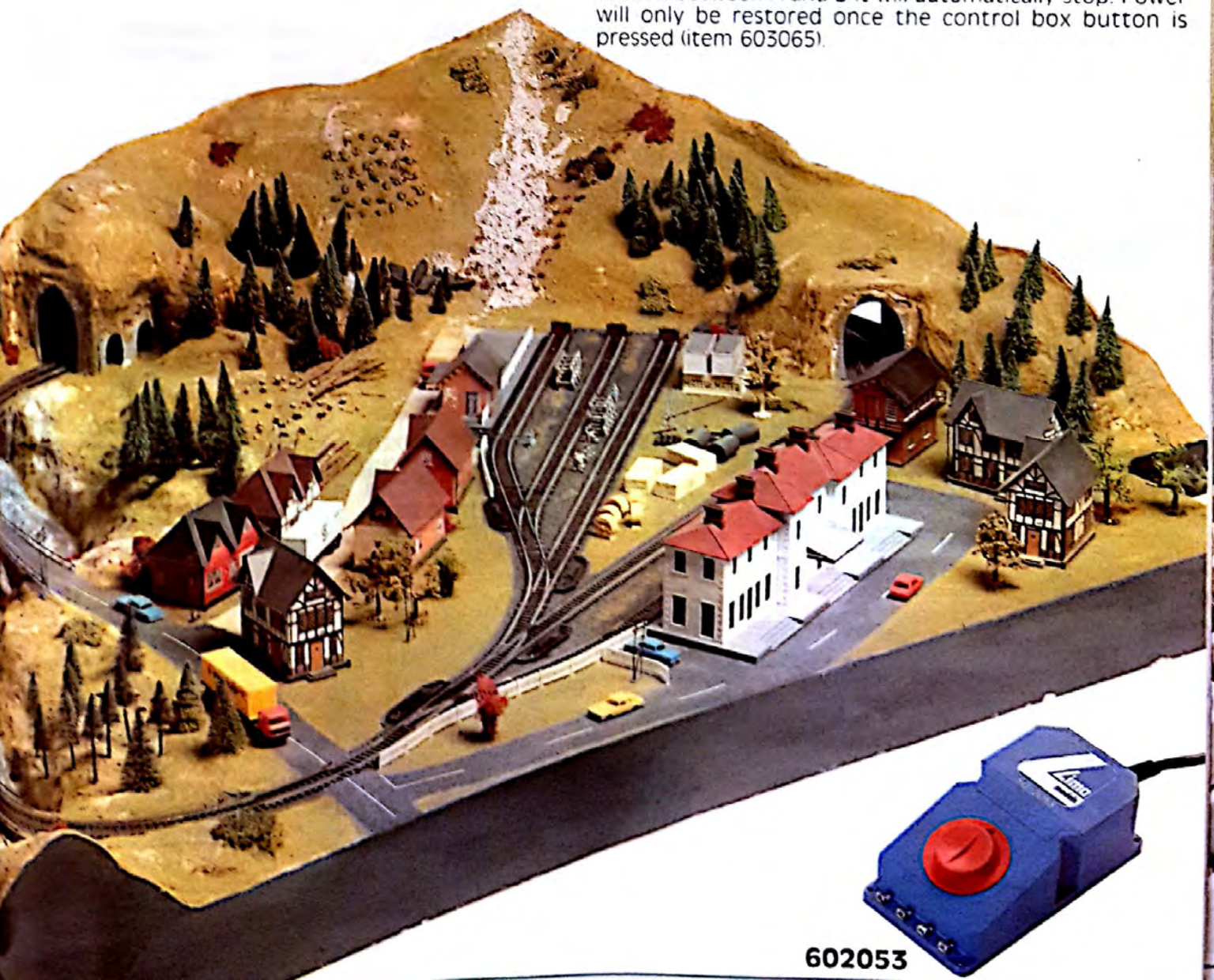
rect wiring of electromagnetic points.



Correct wiring of two signals to simultaneously operate two sections of track in either direction.

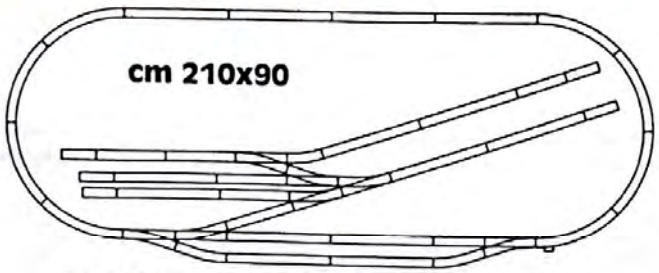


Section of isolated track. Once the train has arrived in the section between A and B it will automatically stop. Power will only be restored once the control box button is pressed (item 603065).

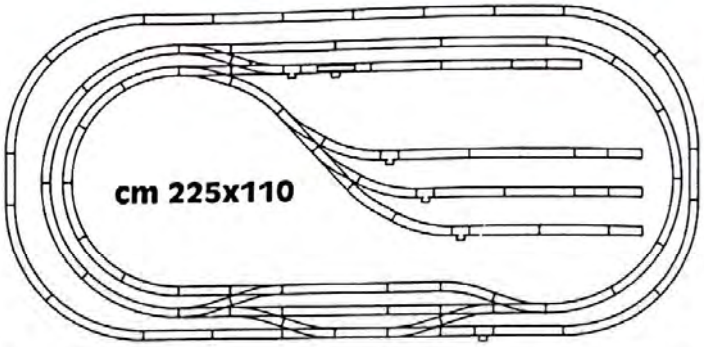


602053

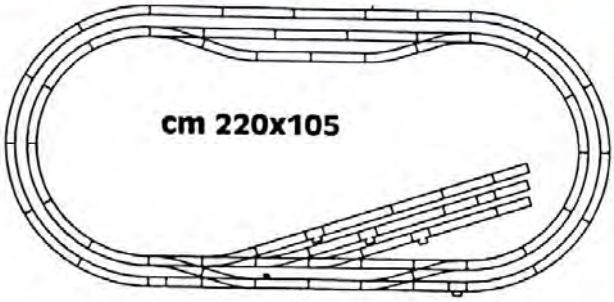
OO SCALE LAYOUTS



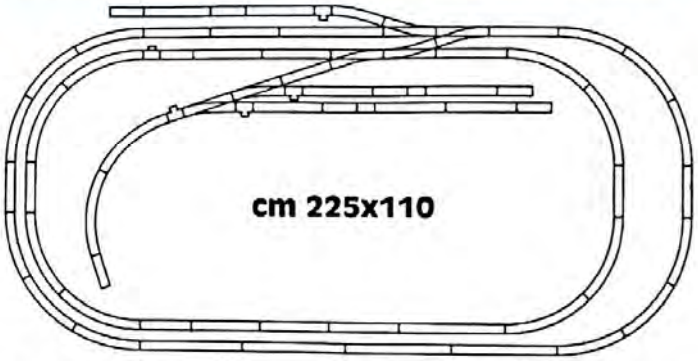
5x403020
2x403023
5x403025
14x403027
7x403029
1x403029C
5x403050
1x403031
1x403025
1x403036
2x403051



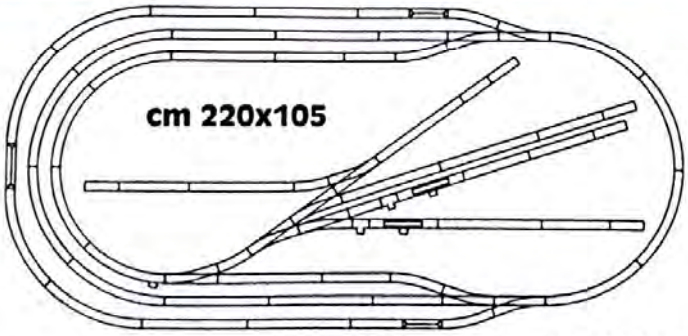
1x403073
2x403070
4x403076
1x403078
2x403084
1x403086
2x403083
1x403089
6x403092
6x403093
1x603065
1x403072



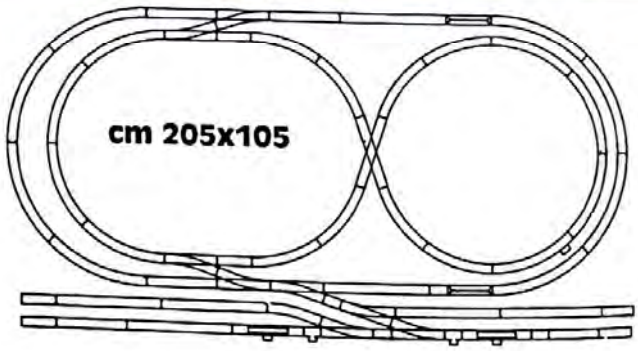
3x403076
3x403092
1x403089
1x403070
2x403072
6x403093
2x403086
2x403084
1x603065



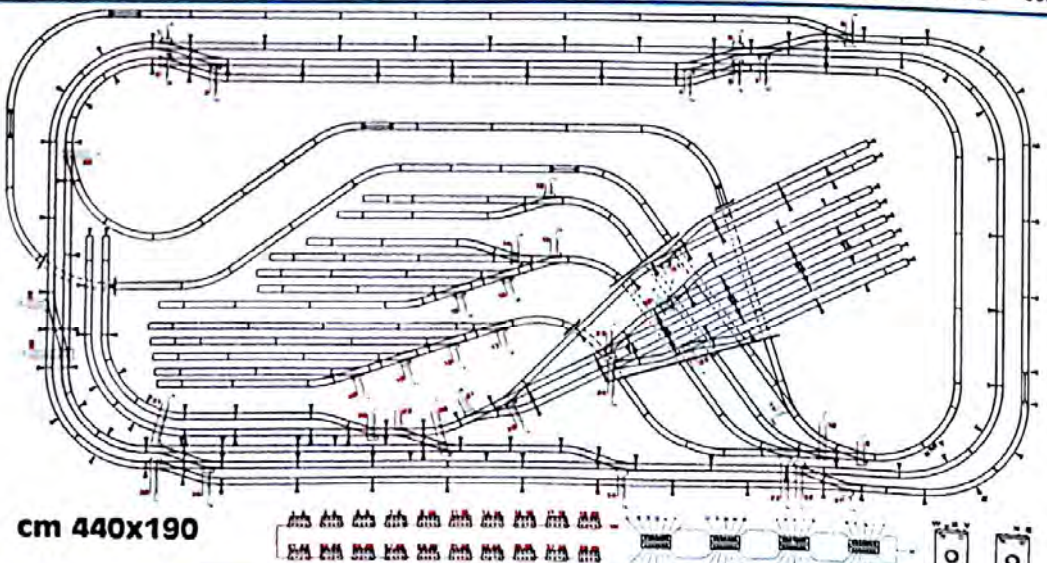
2x403086
2x403088
1x403072
1x403089
3x403093
1x603065
1x403073
3x403092
4x403076
2x403070



9x403020
2x403021
3x403023
2x403024R
5x403025
3x403026
15x403027
2x403028
12x403017
3x403029
1x403029C
2x403031
2x403035
2x403036
6x403050
3x403051
1x603065



7x403029
1x403029C
8x403030
1x403035
1x403041
5x403050
3x403051
1x603065
4x403020
2x403021
4x403022
1x403023
2x403024R
4x403025
2x403026
7x403027
8x403017
2x403028



cm 440x190

22x403020
6x403021
7x403022
15x403023
22x403025
6x403026
121x403027
18x403017
25x403030
1x403030C
9x403031
1x403033

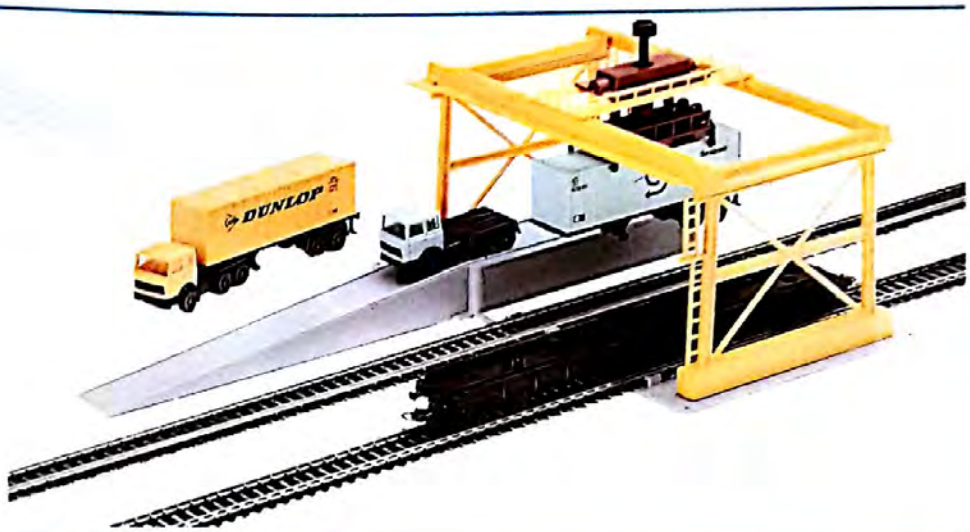
9x403035
9x403036
28x403050E
12x403051E
20x603065
4x603066
2x602060
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18x602951
10x602953

10x602954
1x602952
88x602962
40x602961
58x602960

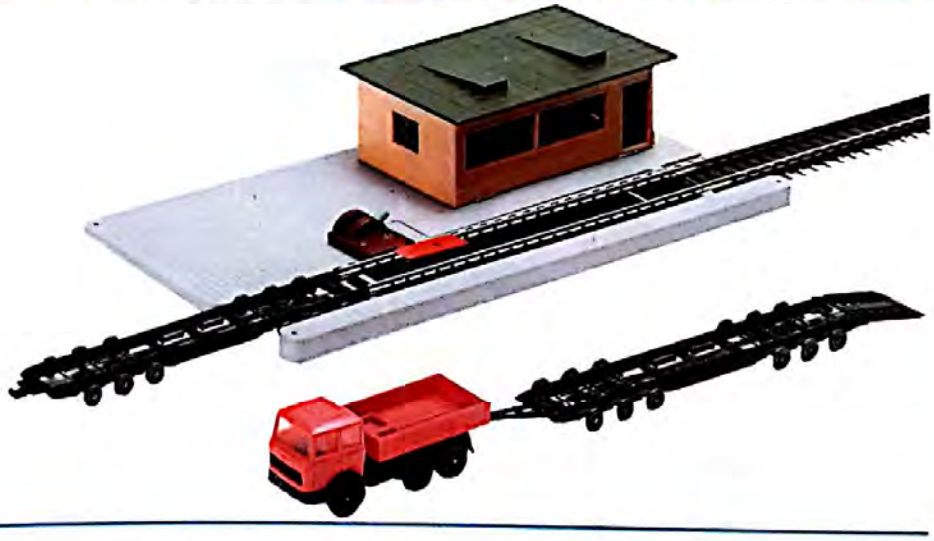
600940 - Car unloading set consisting of: car transport wagon with 4 cars and a terminal with moving incline for the unloading operations. In reality the «Car unloader» is utilized for the convoys transporting cars.



600960 - Container unloading consisting of: two container lorries with trailer, rail transporter, a base with trestles and road incline. In reality the transport of goods, on road/railway, is operated from the container terminal.



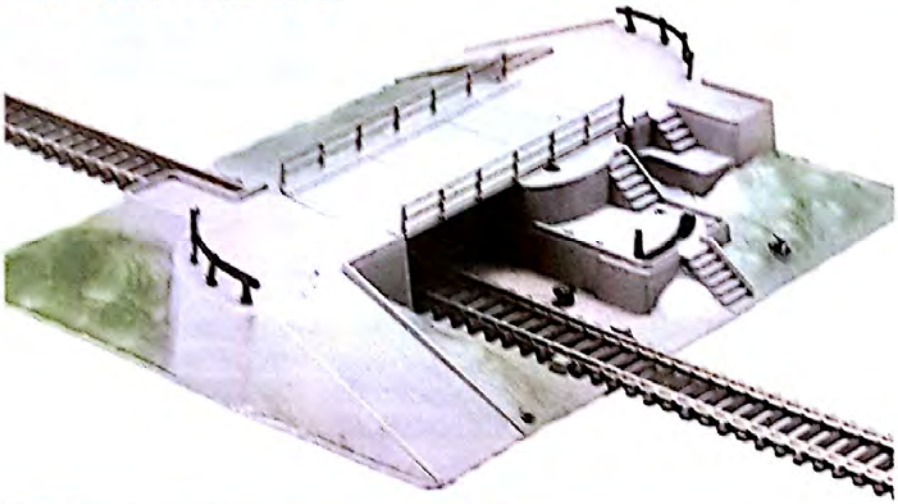
600970 - Rolling stock road transporter Set consisting of: a main station, a rolling stock and a road trailer. In reality the «Unloading Terminal» is utilized for services of rolling stock transport to the industries not connected with railways.



600990 - Container unloading crane Set consisting of: a flat wagon, a rolling stock with container and a crane. For loading and unloading of containers from railway wagons.



OPERATING ACCESSORIES



600052 · Mechanical swing bridge with automatic train stop. Make the crossing possible between railway and banked road

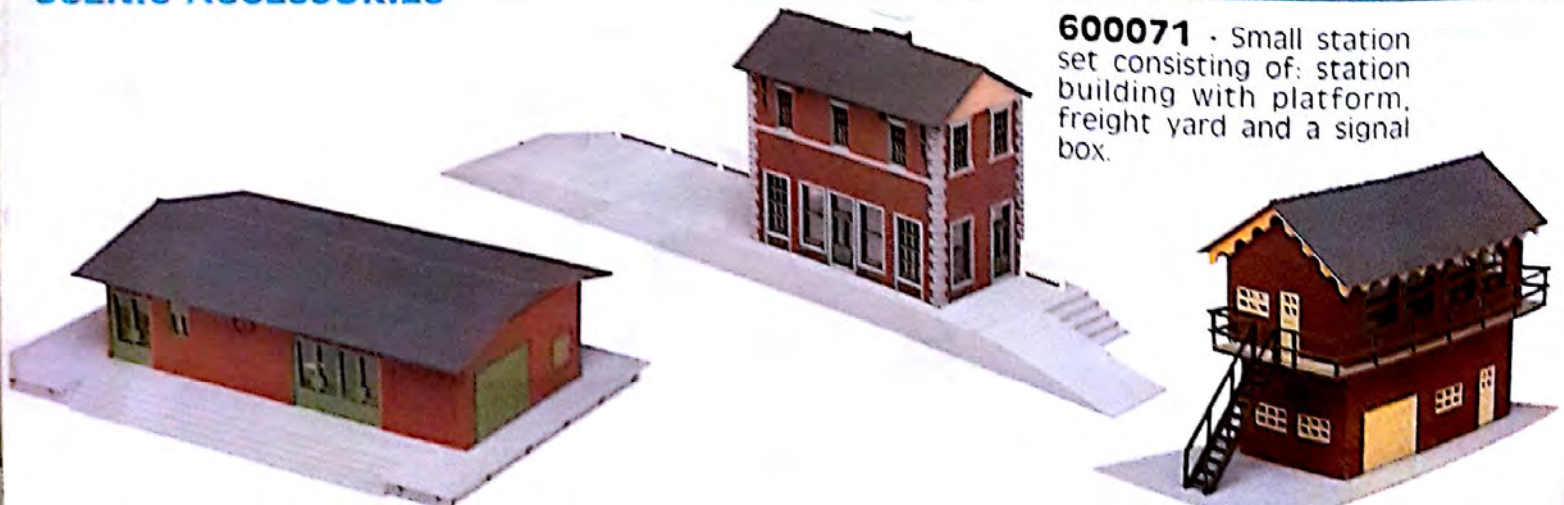


600021 · Automatic level crossing. Operated at pressure. Bars closing at passage of trains.



600951 · Automatic passenger coach wash with rotating brushes.

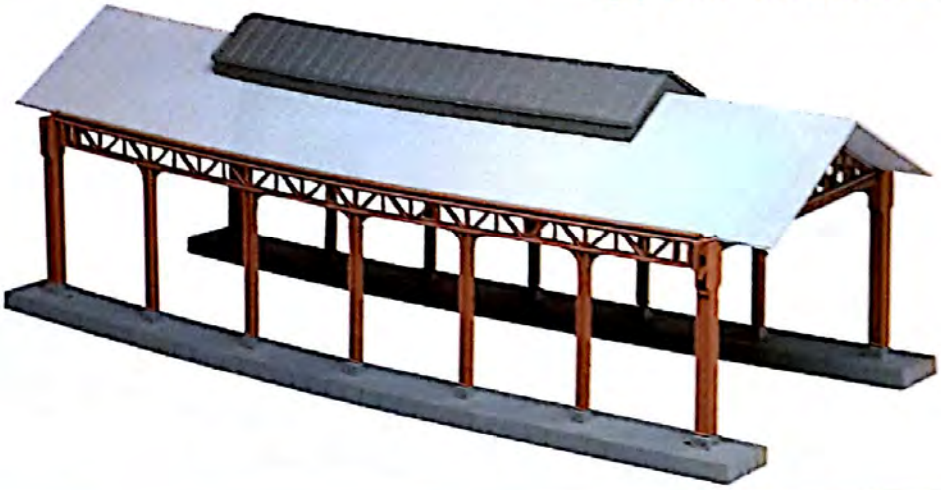
SCENIC ACCESSORIES



600071 · Small station set consisting of: station building with platform, freight yard and a signal box.

600031 - Station roof mounted on a lattice frame. Example: Terminal station consisting of station ref. 600033 and 3 station roof sections ref. 600031.





600033 - Main station with various services and waiting-rooms. Example: Intermediate station consisting of station ref. 600033 and a station roof ref. 600031.





600980 - Village set consisting of: vehicle transport terminal, two houses, a cottage, two cars and one lorry.



600070 - Engine shed set consisting of: engine shed and signal box.

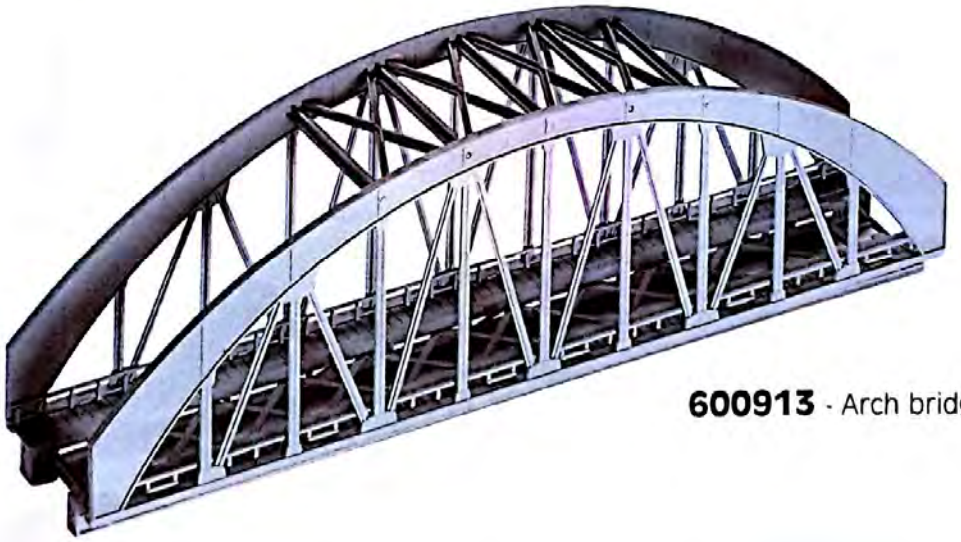


BRIDGES

600912 - Banked bridge for curved or straight section.



One of the biggest problems to be faced by the railway modellers is the lack of space. One answer is to 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 gradient 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.



600913 - Arch bridge.



600911 - Bridge for a fig. 8 banked circuit with piers.

TUNNEL

NEW

602083 - Tunnel for one track 330x255 mm., height 150 mm.



NEW

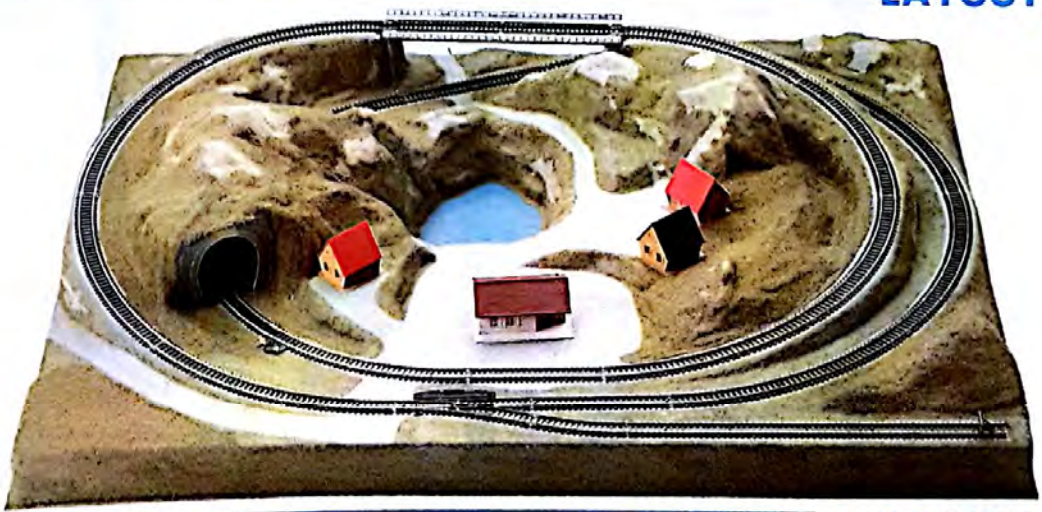
602082 - Tunnel for two tracks 410x375 mm., height 170 mm.



LAYOUT

NEW

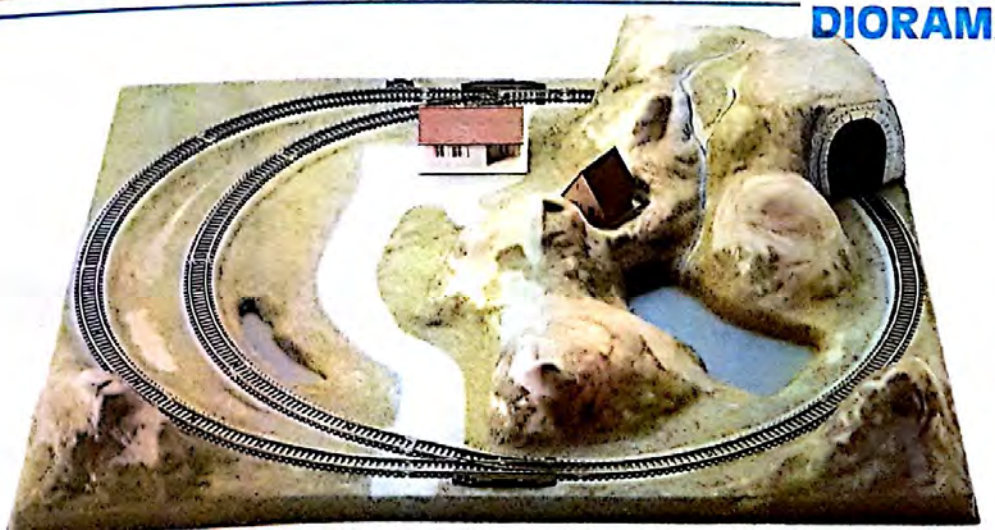
600402 - Layout thermoformed completely decorated 1220x1030, height 180 mm.



DIORAMA

NEW

600301 - Diorama layout thermoformed completely decorated 945x840, height 159 mm.



SIGNALS

The realistic appearance of a model railway is also conditioned by either the number or the location of signals along the line. The language of both red and green variable lights controls the run of trains, it slows them down, automatically stops them and resumes speed when two of them are running on the same route or are approaching an intersection. LIMA offers a wide choice of remotely operated signals, which control and protect the railway traffic.

600022 - Red and green aspect signal with control switch.



600030 - Warning signal with control switch.



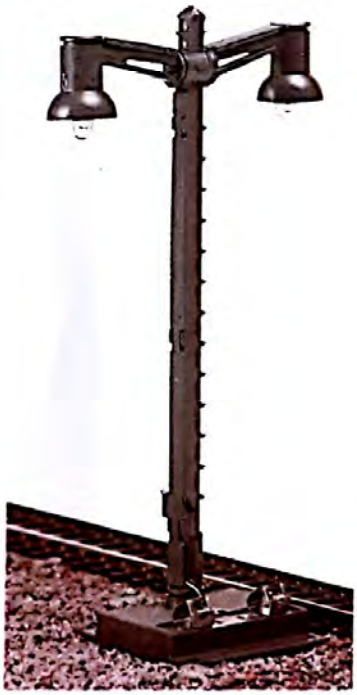
600023 - 4-aspect signal with control switch.



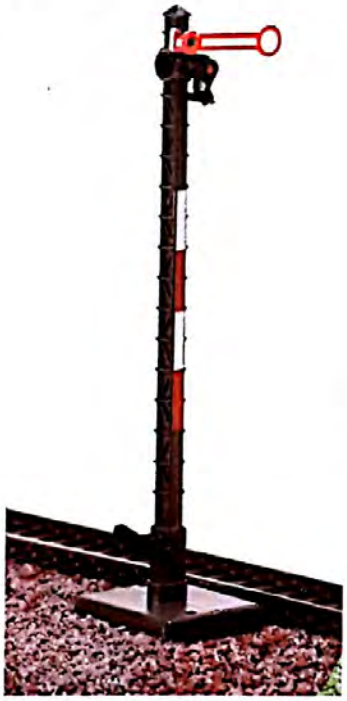
600029 - 2-aspect signal with control switch.



600027 - Yard-lamp with two arms.



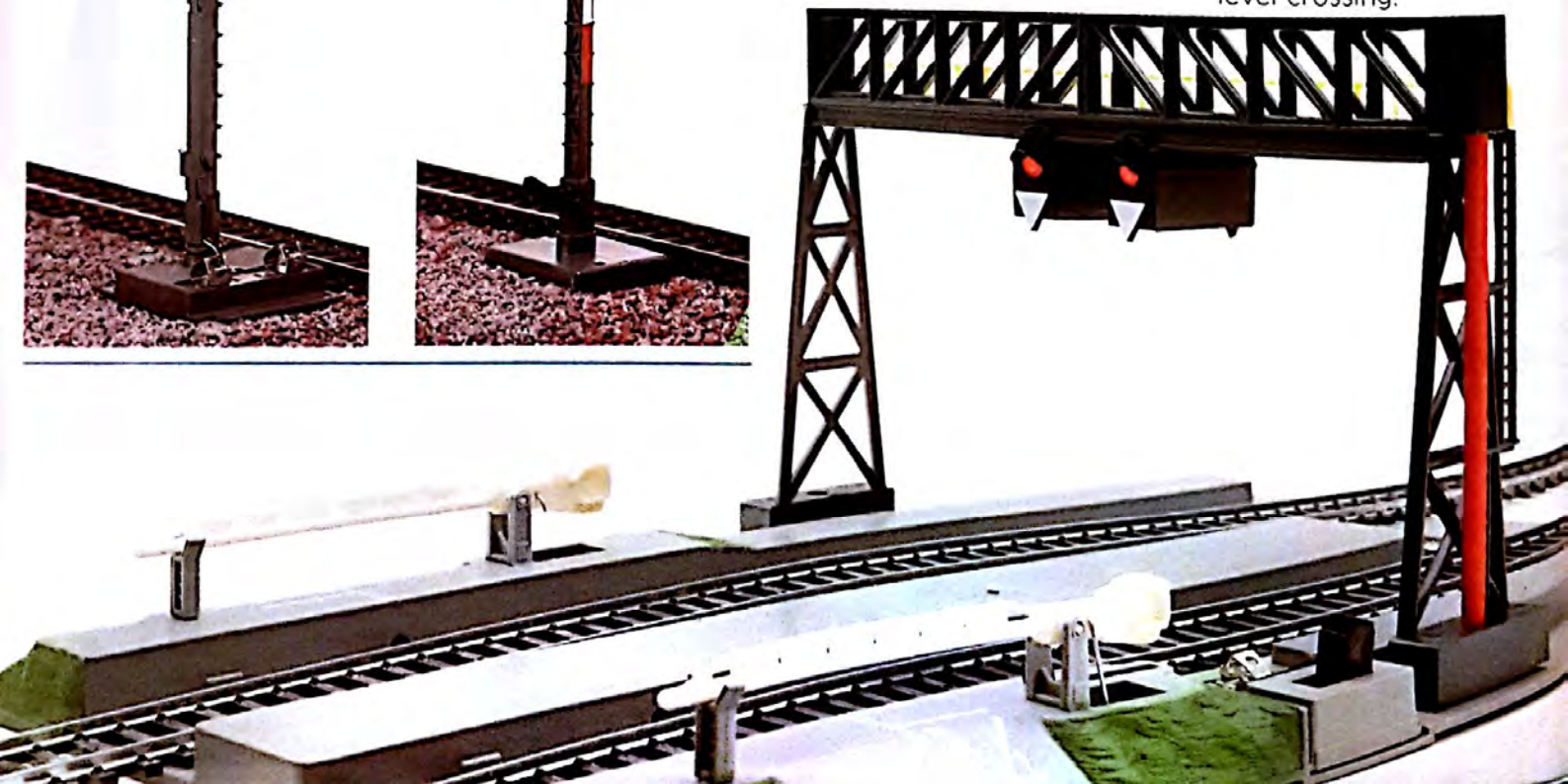
600028 - Single arm 2-position signal.



600026 - Yard-lamp with single arm.



600025 - Double signal on gantry with automatic level crossing.



TRANSPORTS OF VEHICLES PRIVATE AND COMMERCIAL VEHICLES

600823



600822



600803

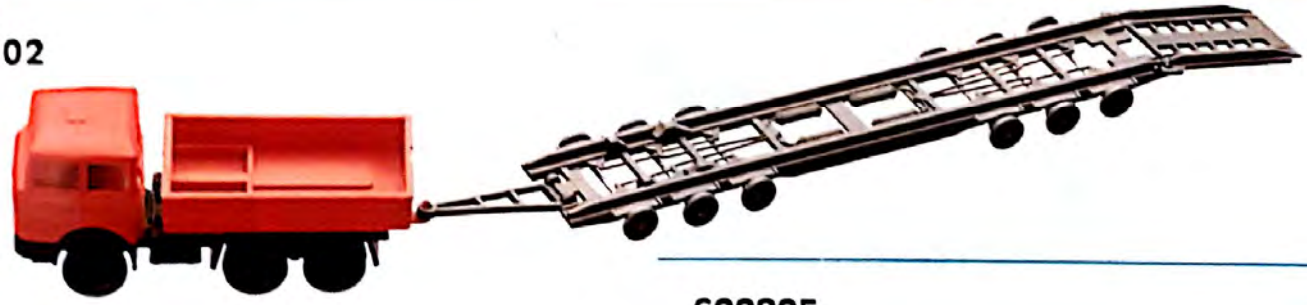


600804



NEW

600802



600805



600807





600823 - Set consisting of 2 Fiat 131 cars.

600822 - Set consisting of 2 Ford Capri cars.

600803 - Open lorry.

600804 - Shell petrol tanker

600805 - «Seatrain» container lorry.

600807 - «Dunlop» container lorry.

600802 - Set consisting of a lorry with a trailer to transport railway freight car.

600830 - Set consisting of 4 containers: D.B., Danzas, Hapag/Lloyd and Sea Land.

TRANSFORMER



NEW

602060 - Transformer Controller for three trains, points and electric accessories. Input 220 V; 50-60 Hz. The amperage is controlled electronically for an output in direct current from 0-12 V. DC at 1 Amp. Amperage available in alternated current 14 V. AC at 1 Amp. Protected against overload and short-circuit.



602052 - Transformer Controller for one train. Input 220 V. 50/60 Hz AC. Output 0-12 V. DC. Power 3.6 V.A. Designed to operate one train or DC accessories. Protected against overload and short-circuit.



602053 - Transformer Controller for two trains, points and electrical accessories. Input 220 V. 50/60 Hz Output 0-12 V at 7 VA DC. AC output 14 V at 0,5 A. Protected against overload and short-circuit.



602055 - Transformer for electromagnetic devices. Input 220 V 50/60 Hz AC. Output 14 V AC. AT-7 VA. Protected against overload and short-circuit.

ELECTRICAL DEVICES



602050F · Connection cable with safety clamps for transformer to track.



603067 · Junction Box.



603065 · Point Switch.



603066 · Push-button control box.

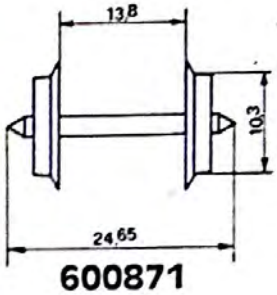
RAIL SHOES AND AXLES
ALTERNATING CURRENT

600871 · 4 axles for AC, ∅ 10,3 mm.

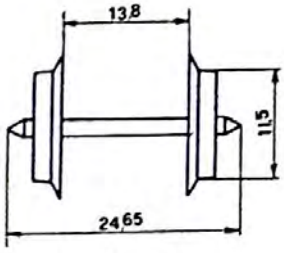
600872 · 4 axles for AC, ∅ 11,5 mm.

600878 · Contact rail shoe. Length 50 mm.

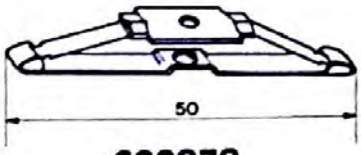
600879 · Contact rail shoe. Length 62 mm.



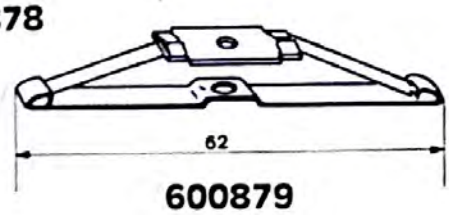
600871



600872



600878



600879

SPARE PARTS

3 x 600875 · Motor springs and brushes.

3 x 600876 · Metal fish-plates.

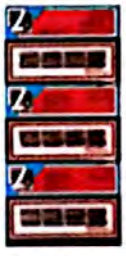
3 x 600877 · Insulating fishplates

3 x 600870 · 4 axles ∅ 11,5 mm.

3 x 600969 · 4 axles ∅ 10,3 mm.



600875



600876



600877



600870

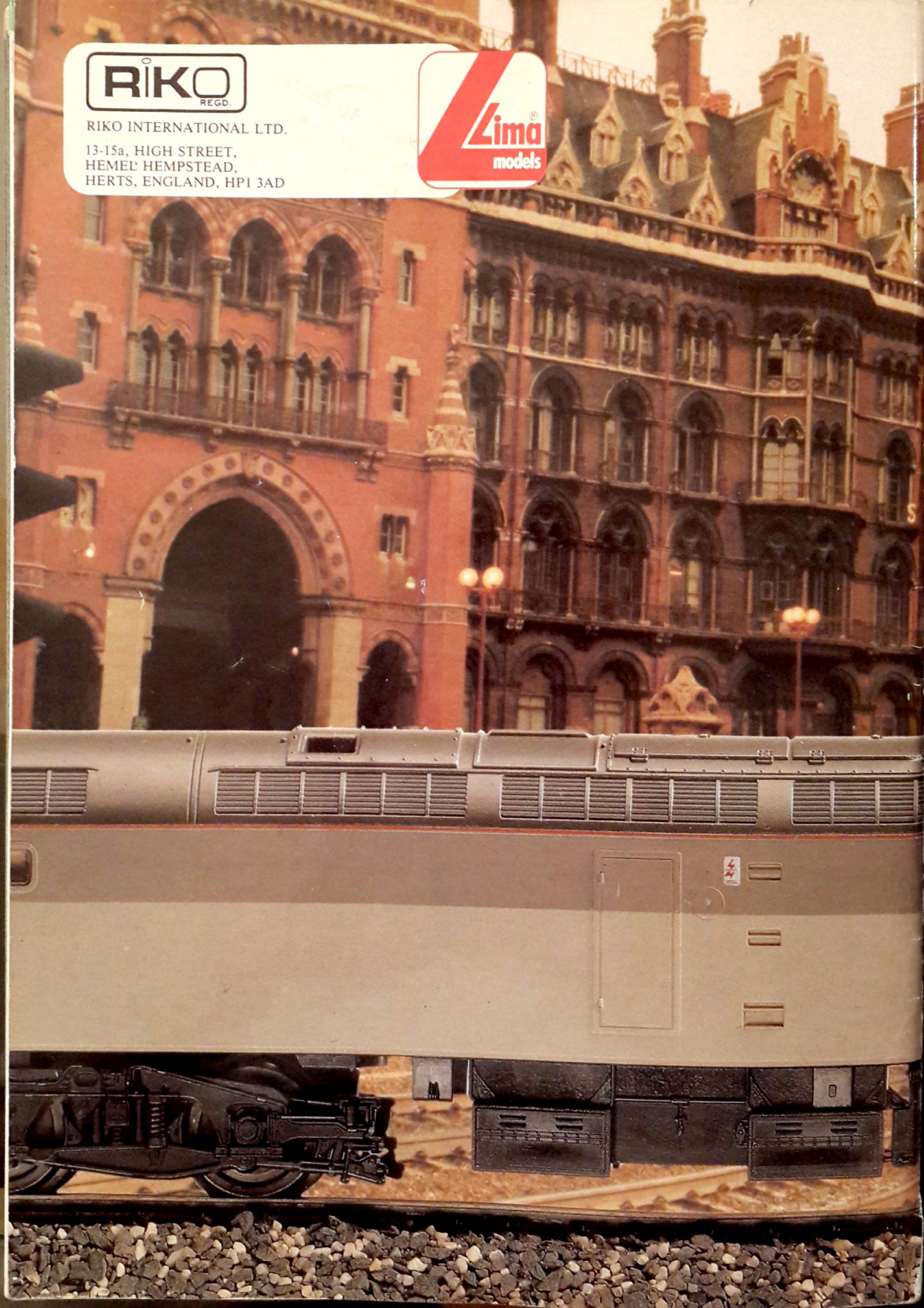


600869

SERVICE BOX

600014 · The service box contains comprehensive spare parts for repair and is available to LIMA stockist.





RIKO REGD.

RIKO INTERNATIONAL LTD.

13-15a, HIGH STREET,
HEMEL HEMPSTEAD,
HERTS, ENGLAND, HP1 3AD

Lima models