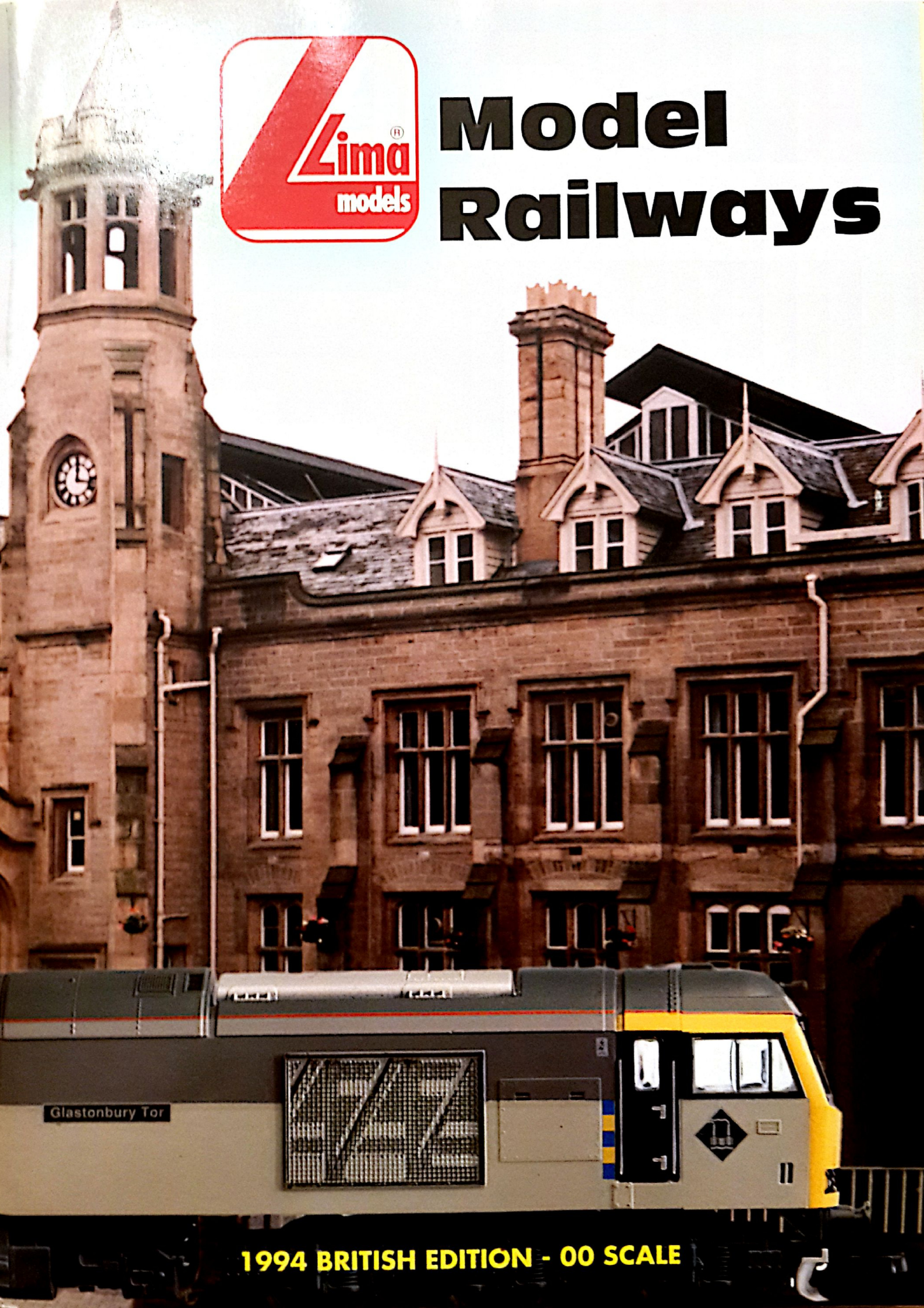
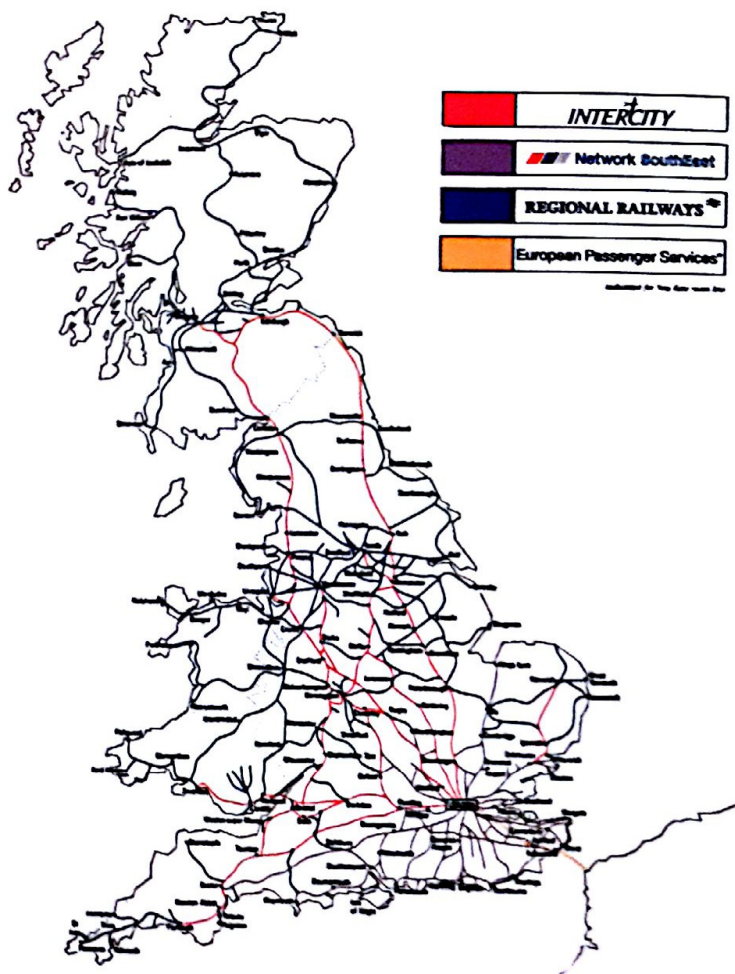
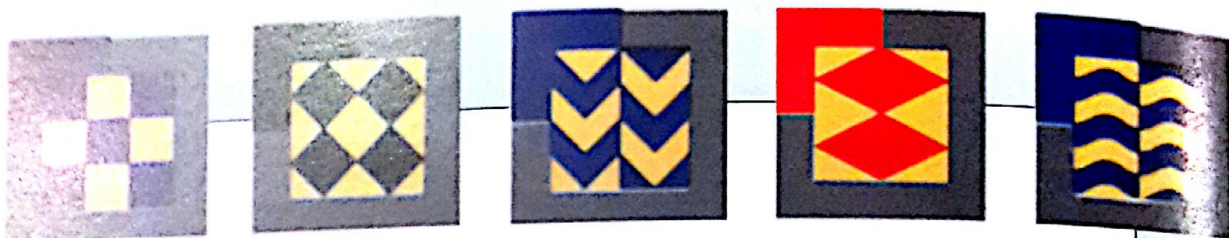




Model Railways



1994 BRITISH EDITION - 00 SCALE



REPRODUCED BY KIND PERMISSION OF BRITISH RAIL

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Item marked New are expected during 1994 and are not necessarily available at time of going to press.

LIMA: BOUNDLESS POSSIBILITIES FOR RAILWAY MODELLING

Lima take much pride in recording their tremendous technical successes in model railways over recent years 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

and price of Lima model trains at the most competitive level possible. This catalogue offers a very wide choice of locomotives and wagons, each of which has been manufactured to the most accurate production standards, resulting in true-to-life representations of the prototype.

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 blueprints and photo-



of every single item in the Lima range, have to be attributed to the specialised work of highly skilled technicians and to the introduction of advanced 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 trademark becoming easily recognised in Europe and in many countries elsewhere.

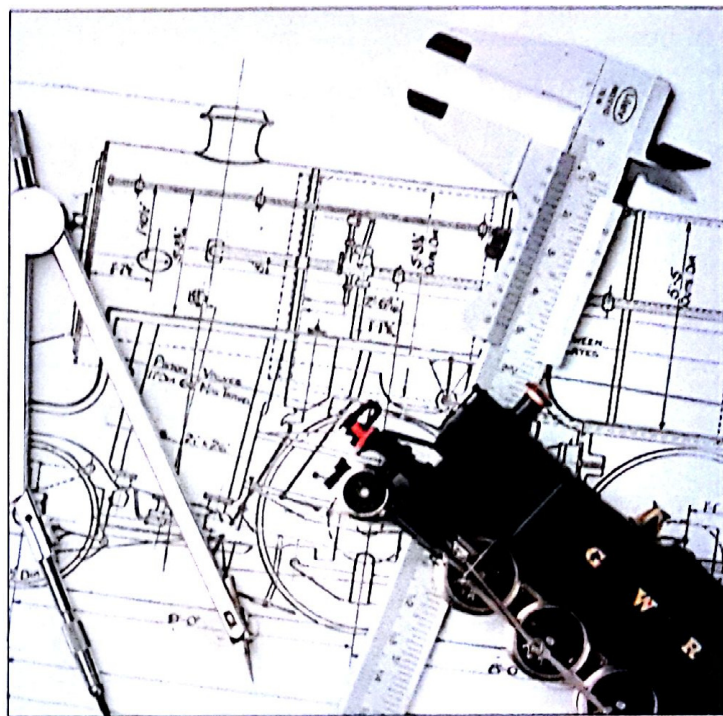


re in the world. At the same time, model railways have become more and more popular. Today, Lima trains are very well known in Australia, America, and in every corner of Europe where their reputation is increasing as fast as the range of models is expanding. New items are introduced each year. Lima's vast experience, together with painstaking research work, has resulted in modern manufacturing processes, which keeps the quality

graphs to obtain precisely the same appearance and overall scale dimensions in the model. The same accurate procedures, used in the first development stage, have been continued into the manufacturing of plastic and metal moulds, which represent the most deli-



cate process in model railway production. Only advanced technology and high quality materials enable Lima to deliver



products of unmatched standards from the various moulds. Maximum precision and the dependability of the moulds is of vital importance to the manufacturing process.

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 etc. Every model originates as a combination of perfectly integrated parts, which ensures that locomotives work smoothly and effortlessly with very high traction and that wagons are friction-free and have 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 combina-

tion of a condenser with a linear resistor properly connected to the 3 sections 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 being hauled, whether 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 train sets are excellent for the beginner and, together with

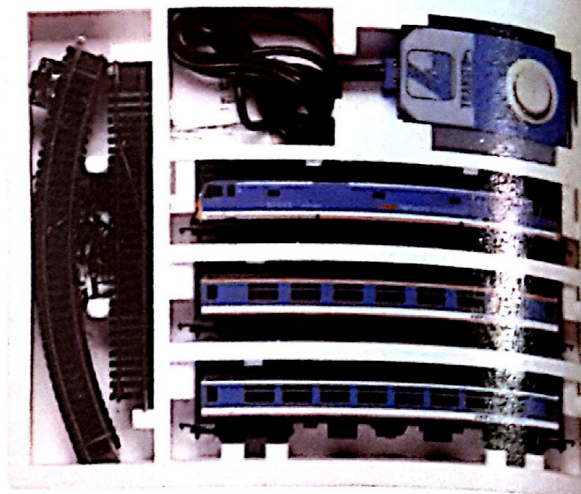


track extension sets, can be used to develop a basic layout into a large model railway diorama.



OO TRAIN SET

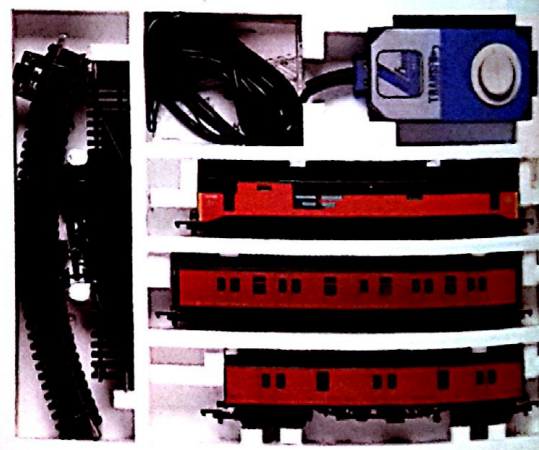
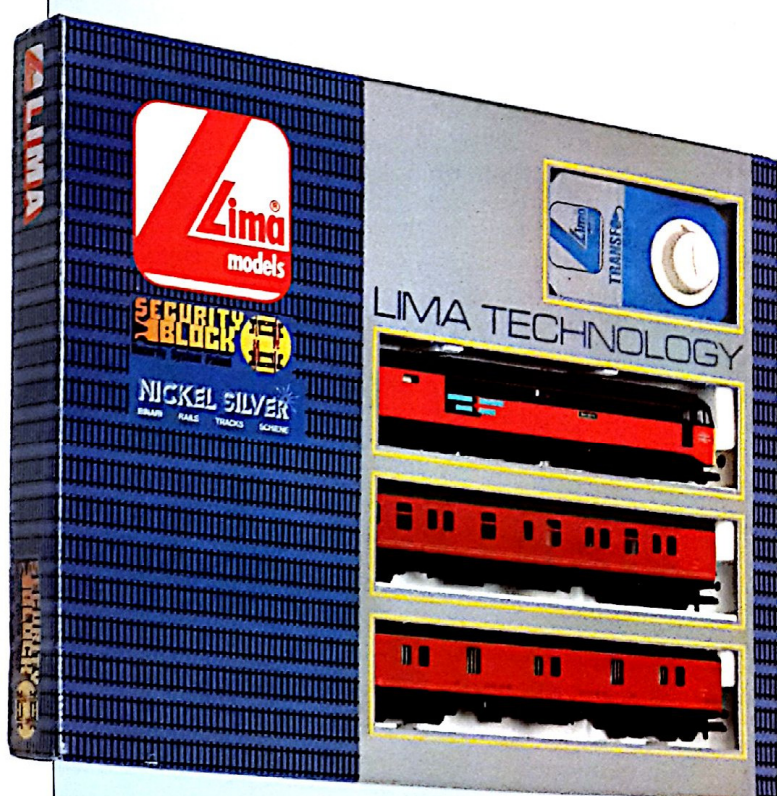
NETWORK SOUTH-EAST



104317TW

Class 50 locomotive, and two coaches in Network South-East red, white and blue livery with circle of track and transformer/controller.

RAIL EXPRESS SYSTEM

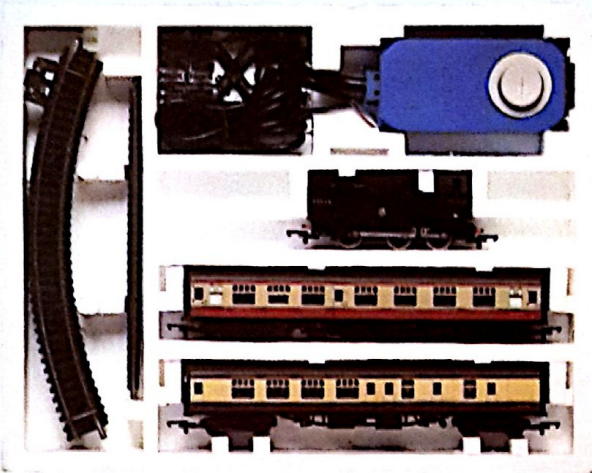


104318TW

Class 47 Locomotive one general utility van and one gangwayed full length brake van all in the RES red and grey livery which has now been adopted, with a circle of track and a transformer / controller.

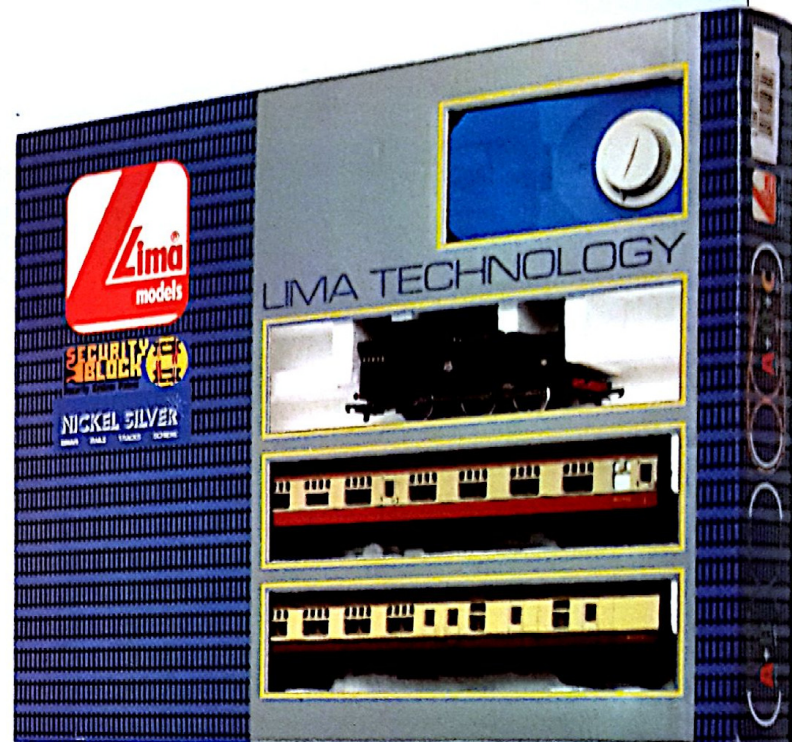
OO TRAIN SET

LOCAL BRANCH PASSENGER SET



104315TW

Class J50 0-6-0 steam tank locomotive and two passenger coaches in early BR crimson and cream livery, together with a circle of track and a transformer/controller.

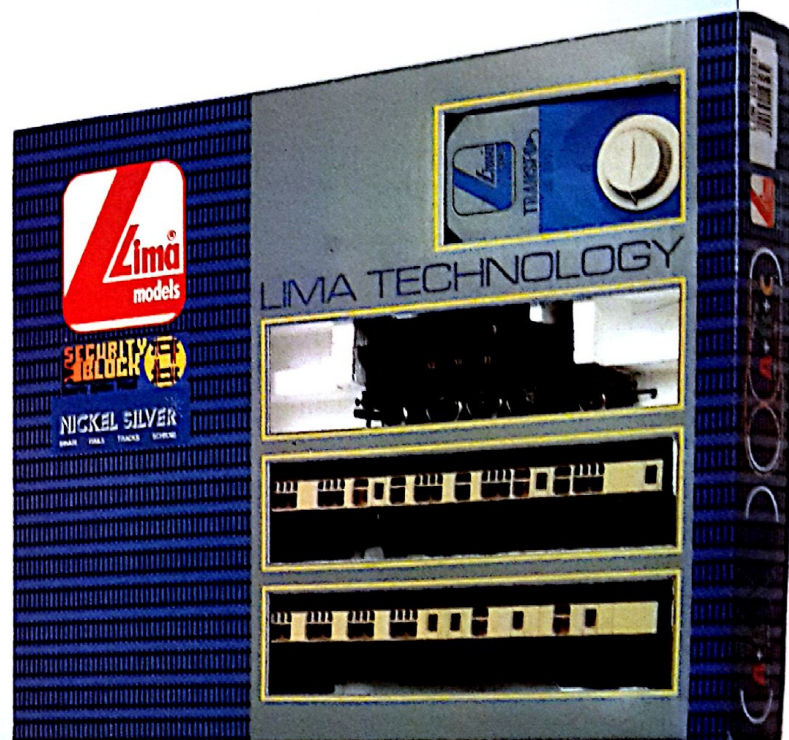


GWR BRANCH LINE PASSENGER SET



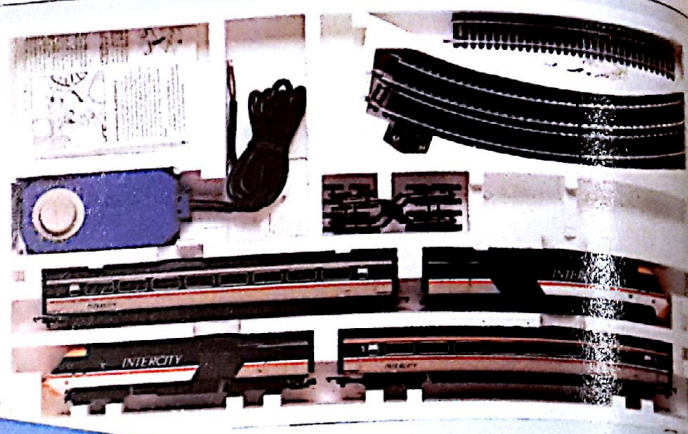
104316TW

GWR Prairie Class 2-6-2 steam tank locomotive and two passenger coaches in GWR chocolate and cream livery, together with a circle of track and a transformer / controller.



OO TRAIN SET

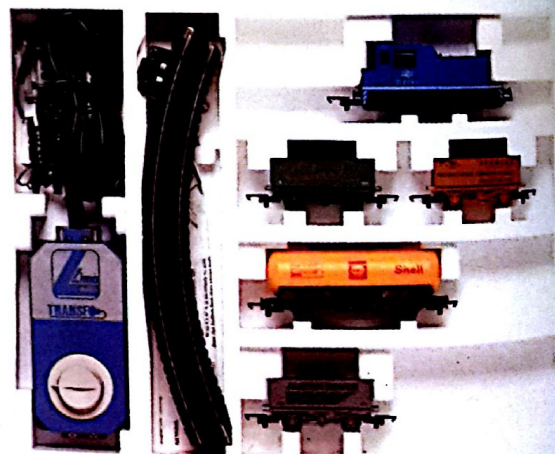
HIGH SPEED TRAIN SET



106520TW

Featuring a High Speed Train in the latest InterCity livery, complete with swallows branding, this model recreates the everyday scene on InterCity routes throughout Great Britain. This train set contains an HST power car and dummy power car together with two HST trailer coaches and can be enlarged by the addition of one or more Mark 3 coaches which are available separately (see page 49). The set is complete with an oval of track and a transformer/controller.

SHUNTER SET

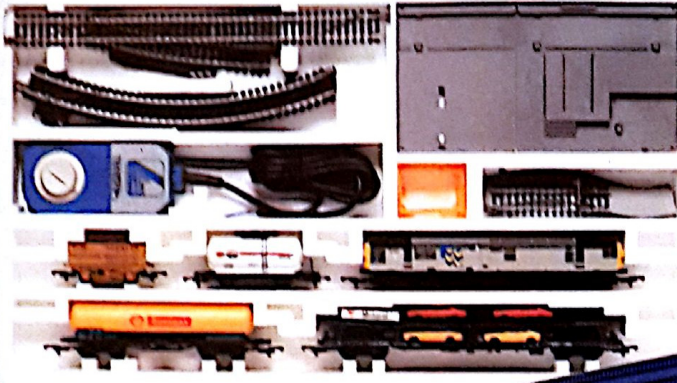


107307TW

Featuring a diesel locomotive, three open freight wagons and a tank wagon, this starter train set is supplied complete with circle of track and a transformer/controller.

OO TRAIN SET

INTERCITY MOTORAIL SET



106307TW

Motorail set

Containing Class 37051 two tone grey (Metal Sector).

1 x 7 plank wagon Spencer.

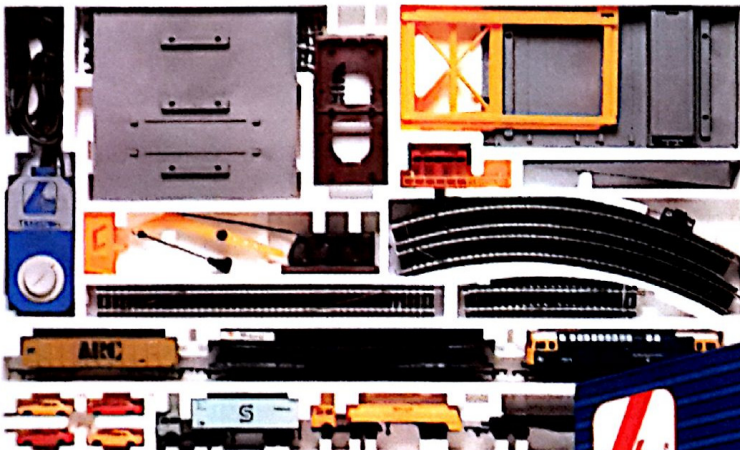
1 x 4 wheel tank Amoco.

1 x bogie tank Shell.

1 x transformer.

1 x car transporter

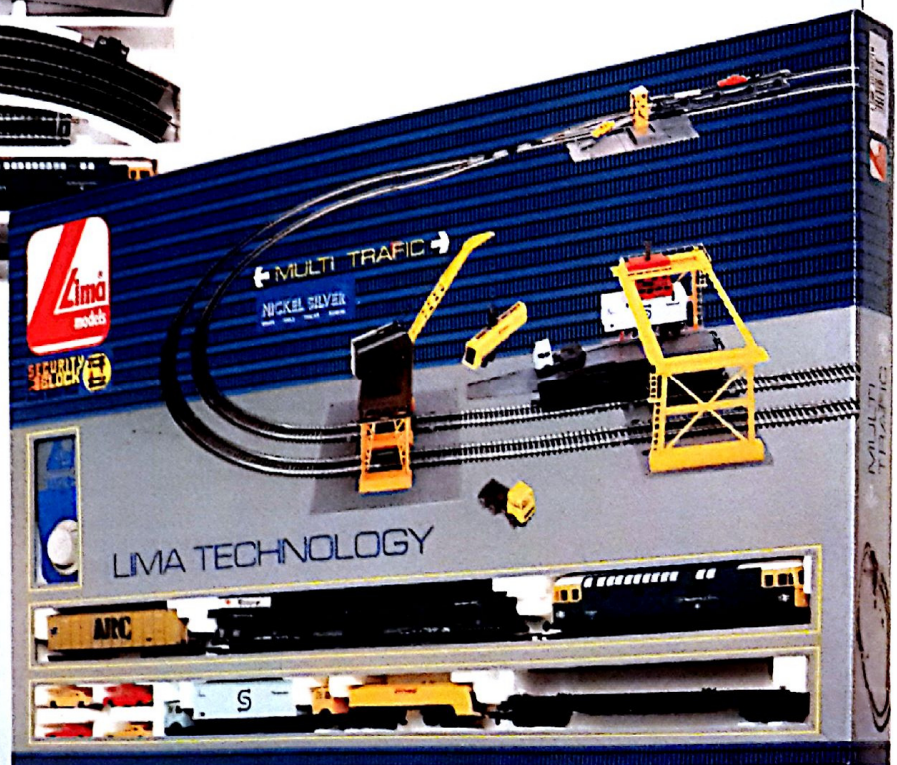
large oval track with siding.



MULTI TRAFFIC SET

103407TW

Class 33 diesel electric locomotive in BR blue livery, one car transporter with cars, one flat wagon with lorries and tippler wagon. Supplied complete with two ovals of track, inter connecting points and a transformer/controller.



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 A1A1A1.

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 num-

bers 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 British locomotives was introduced where by 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.



LMS 2-6-0 CRAB

There are a number of theories offered for the Hughes designed LMS 2-6-0s being nicknamed "crabs" but perhaps the most likely is that the high running plate of the locomotives,

together with their comparatively small driving wheels made the valve gear very prominent and led to the impression that the locos had a crablike gait. This was emphasised by the

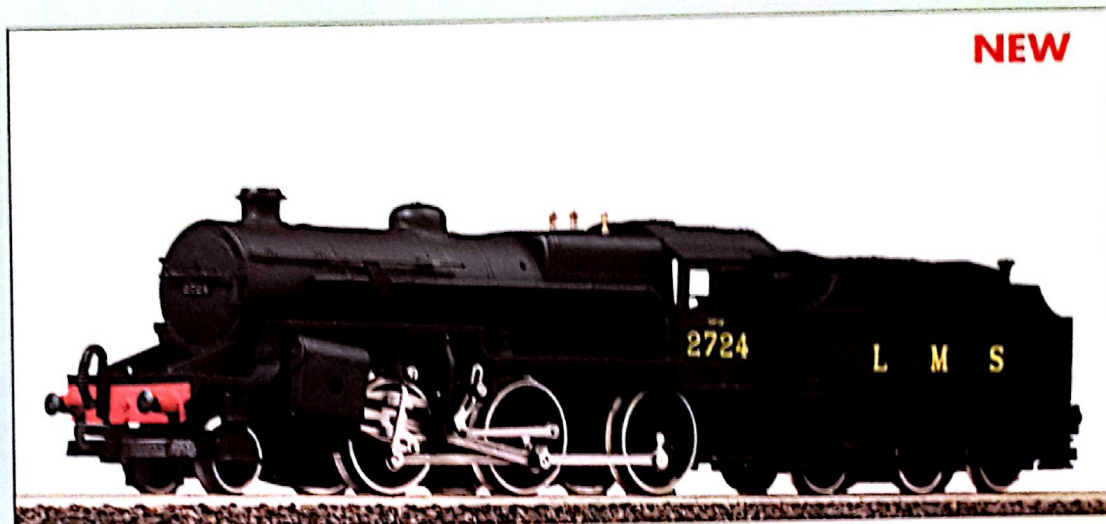
inclined cylinders of the design. Designed 6P5E, these 2-6-0s were a classic mixed traffic design and were very useful to the owning company. Seen throughout the LMS system, the

locomotives were introduced from 1926 and numbered nearly 250 examples.

205057

2-6-0 LMS

Steam Locomotive in plain unlined LMS Black Livery

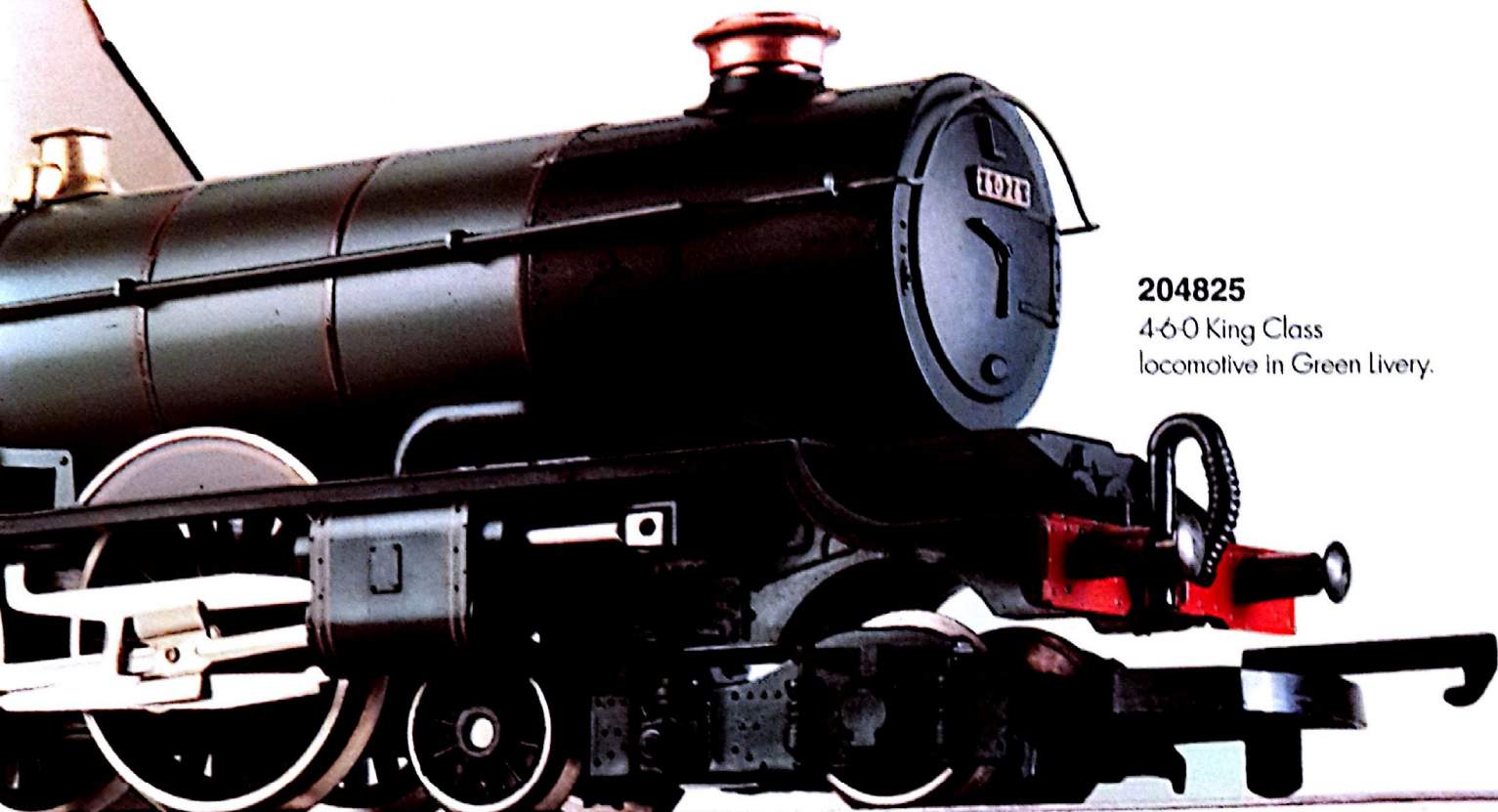


GWR 4-6-0 KING CLASS

The Kings were the most powerful 4-6-0s on the GWR and represented the culmination of 4-6-0 design by that company. Designed by Collett and introduced in 1927, a

total of 30 locomotives were constructed at the Swindon Workshops of the GWR. Used on mainline expresses, the weight of these locomotives restricted them to certain routes, parti-

cularly London-Plymouth, London-Bristol and London-Wolverhampton. The discs on the cab side indicated the route restriction imposed.



204825

4-6-0 King Class

locomotive in Green Livery.

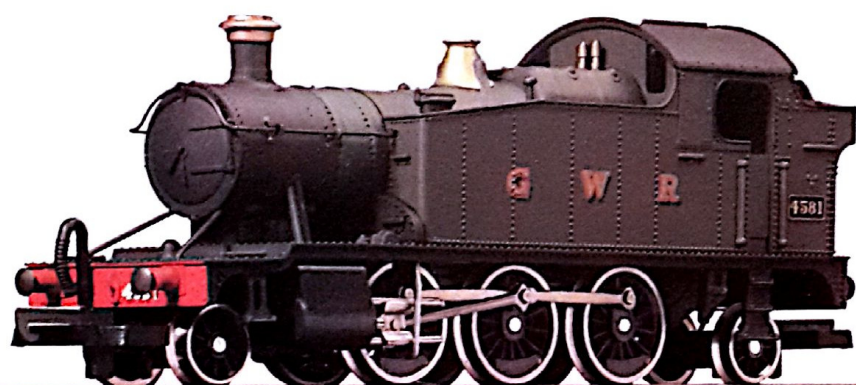
GWR 45XX 2-6-2 TANK

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 200 lbs and had a tractive effort of 21,250 lbs.

As their nickname would imply, they were lighter and smaller than other Prairie Tanks which were introduced by the GWR, but were more powerful than smaller 0-6-0 designs.

NEW

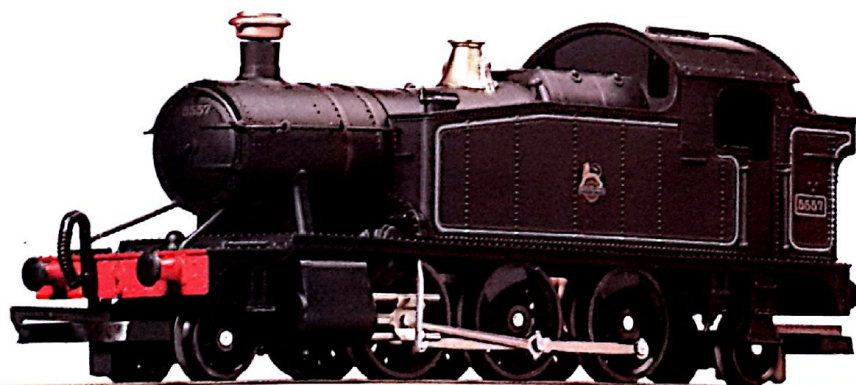


205015

2-6-2 GWR

Prairie Tank Locomotive in
Brunswick Green Livery.

NEW



205014

2-6-2 GWR

Prairie Tank Locomotive in
lined BR Black Livery.

GWR 94XX

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 were the last in the line of Pannier Tank produ-

ced for the GWR at Swindon Works and was designed by F. W. Hawksworth. Most of the 9400 Class were in fact constructed by BR, but of course using the skilled workforce at Swindon for the task.

Designed by Sir Nigel Gresley in 1914, the LNER J50 Class was developed for use on the steep inclines 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 loco-

motive crews. 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.

205117

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



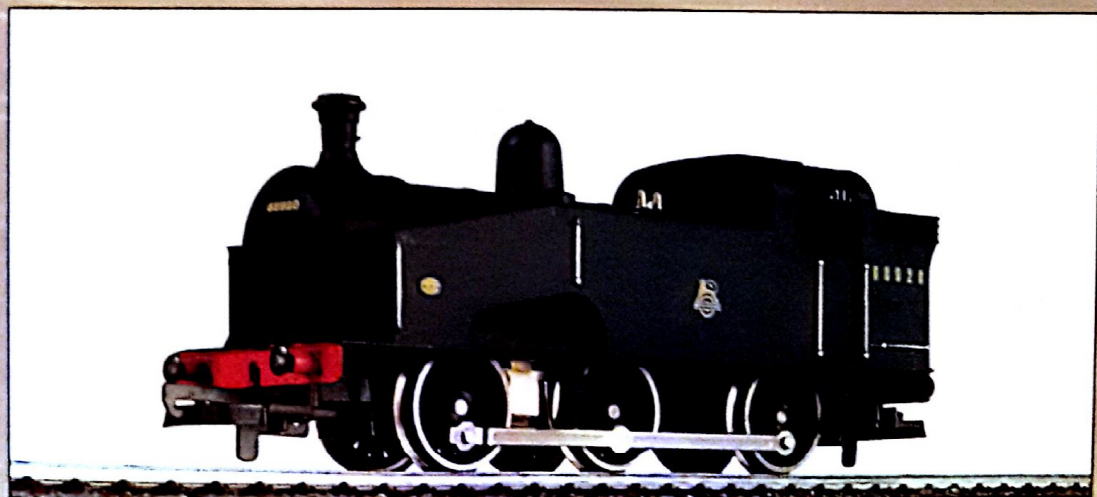
205118

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



205102

Tank Locomotive - Class J50 in
BR unlined black livery.



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 present day power rating of these locomotives has been increased to 400 hp by utilising a higher rpm. A re-gear version of the earlier 08 0-6-0 shunting locomotive, the Class 09 was introduced for use by the southern region of British Railways, although some of this Class 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.

Recognising the advantages of the design, BR has recently undertaken the upgrading of

several Class 08 Shunters to bring them into line with the specification of the Class 09.

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



205225

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

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 Railway 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

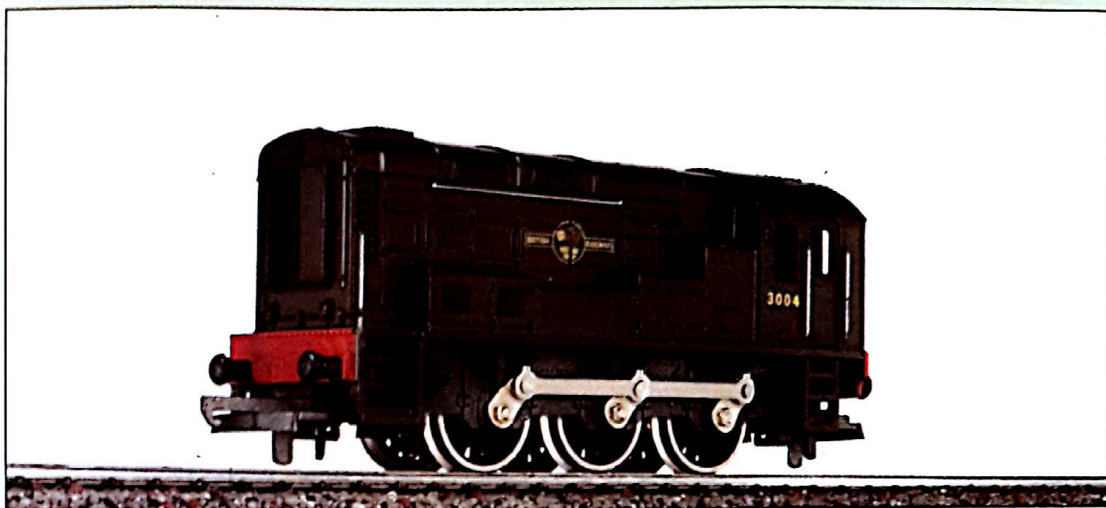
between each vehicle - rather like latter day DMUs. The GWR even used standard coaches as intermediate trailers with these units.



205108

0-6-0

Class 09 350 BHP Diesel
Shunter. Early BR Livery.



205058

Class 09 Diesel-Electric 0-6-0
Shunter in grey livery. An
example of a recently upgra-
ded Class 08 Shunter.



BR RAILCAR

205132

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



205150

GWR Diesel Railcar
No. W30W in BR Green mul-
tiple unit livery.

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 20, continued in 2 batches until 1967. A single cab

design, these locomotives are often seen coupled nose in pairs so that the cabs are on the outside of the combination. 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 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 line range. Most Class 20s have now been withdrawn, but many

have passed on to private owners. Most significantly, Class 20s have been used in the construction of the Channel Tunnel.

NEW



205066

Class 20

Diesel Electric Bo-Bo in RFS livery. This locomotive is now in private ownership and bears the number 2014.

NEW



205068

Class 20

Diesel Electric Bo-Bo British Rail telecommunications LTD two-tone grey and green livery.



205156

Class 20

Diesel Electric Bo-Bo No. D8138 Early BR livery.

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 (BRCVW). 20 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 750 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 operators. 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. A mixed traffic design originally, refurbishment saw removal of train heating apparatus which rendered the Class freight only. Class 26s have appeared in several liveries, including BR Green, BR

Blue, Railfreight Grey, Trainload Coal and most recently the Grey and Yellow colours of the Civil Engineer, whilst D5300 and D5301, the first two locomotives introduced have recently been returned to their original colours of BR Green!

205244

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



205245

Class 26 Diesel Electric Bo-Bo in Railfreight grey and red livery with yellow cabs.



205008

Class 26 Diesel Electric Bo-Bo in the Civil Engineer grey and yellow livery.





205243

Class 26 Diesel Electric Bo-Bo locomotive in Railfreight light Grey Livery. Features the Scottie Dog of Eastfield Depot Glasgow.



205246

Class 26 Diesel Electric Bo-Bo locomotive in BR Blue Livery with full yellow ends.

CLASS 27

In an attempt to increase power in Type 2 locomotives, 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 27, which unlike the Class 26s featured GEC electrical equipment. Very similar in appearance to Class 26s, the

27s featured roof-mounted headcode boxes 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 1960s.

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.



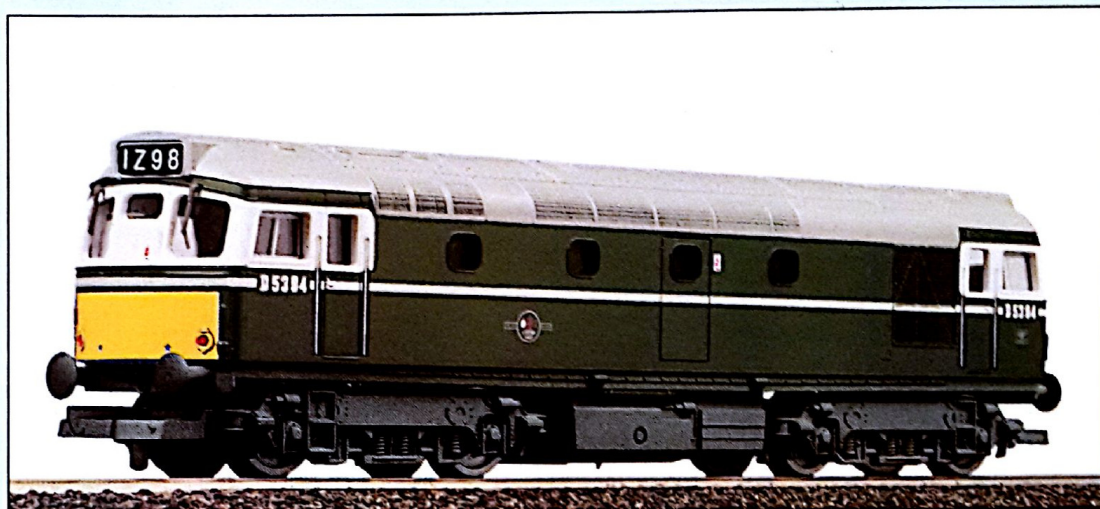
205247

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



205248

Class 27 Diesel Electric
Bo-Bo No. D5394 in early BR
green with small yellow warn-
ing 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. Featuring the
Scottie Dog of Eastfield Depot.



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 electro-pneumatic multiple-unit control system which was subsequently adopted by British

Railway 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. Subsequently, a number of 31/4s have had their train heating apparatus disconnected and have been transferred for departmental use, being re-categorised as 31/5s. When first introduced, these locomotives were powered by Mirreles JVS 12T diesel

engines, which in the production series were uprated from the pilot scheme design to deliver 1365 hp at 900 rpm. These engines proved to be less than satisfactory and all were eventually replaced with English Electric 12SVT diesel engines delivering 1470 hp at 850 rpm. Some locomotives were fitted with disc headcodes 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 re-painted into BR blue livery before a number of refurbished examples emerged from overhaul bearing Railfreight grey livery. Developments in recent years have seen individual members of the Class bearing Trainload Freight colours, Mainline livery and the Civil Engineer's "Dutch" grey and yellow colour scheme.



205031

Class 31 A1A-A1A
Diesel Electric locomotive in
Railfreight (red stripe) livery.



205032

Class 31 A1A-A1A
Diesel Electric locomotive in
unofficial Provincial Services
livery.

205096

Class 31 A1A-A1A
Diesel Electric locomotive in
Civil Engineer's grey and yellow
livery.



205229

Class 31 A1A-A1A
Diesel Electric locomotive in
Railway Technical Centre
livery.



205233

Class 31 A1A-A1A
Diesel Electric locomotive in
Mainline livery.



205237

Class 31 A1A-A1A
Diesel Electric locomotive in
Trainload Coal 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 anomaly 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 a larger engine than used in the 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. 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, BR took the decision to fit push and pull equipment to 19 of these Type 3 locomotives, thereby creating the sub-class 33/1, these locomotives

being compatible with other Southern Region electric stock. First painted in green livery, followed by BR corporate blue, several members of the Class have in recent years received Trainload colours and the Civil Engineer's colours of either plain grey or grey and yellow. A recent development has seen 2 members of the Class painted in Network South-East red, white and blue livery.



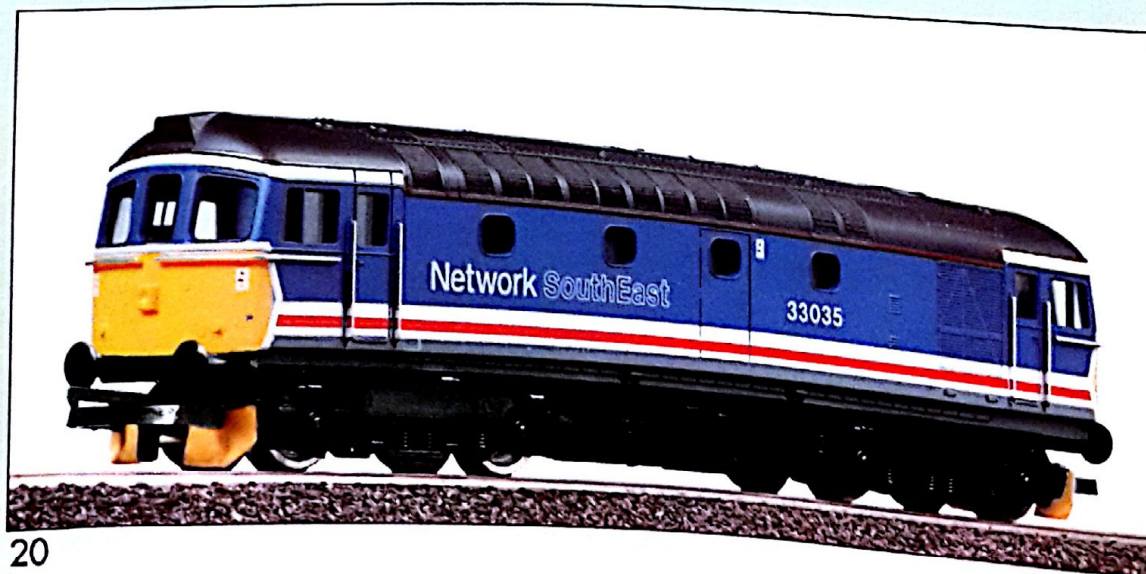
205030

Class 33 Diesel Electric Bo-Bo in Civil Engineer's grey and yellow livery.



205073

Class 33/1 Diesel Electric Bo-Bo in Civil Engineer's plain grey livery.



205074

Class 33 Diesel Electric Bo-Bo in Network South-East livery.

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 redundant feature, the Class 37 was re-designed to provide a central four-panel indicator box. When the display of train reporting codes ceased, many Class 37s had their headcode box or boxes sealed with sheet metal into which marker lights were incorporated. 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. Revised standard (large logo) livery was used on a number of Class 37s, but has now been largely overtaken by the application of more up to date colour schemes as Mainline livery, Trainload Freight colours, Civil Engineer's grey or grey and yellow colours and even Regional Railways livery, which is based on shades of blue. Example of the various Class 37 sub-types and colours schemes appear in the Lima range.

204812

Class 37 Co-Co
Diesel Electric locomotive in revised standard (large logo) livery.



205076

Class 37 Co-Co
Diesel Electric locomotive in Civil Engineer's grey and yellow livery.





205077

Class 37 Co-Co
Diesel Electric locomotive in
Trainload Metals livery.



205078

Class 37 Co-Co
Diesel Electric locomotive in
Railfreight (Red Stripe) livery.



205079

Class 37 Co-Co
Diesel Electric locomotive in
Inter-City Swallow livery.

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 superseded 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 Railway well until the final example, D200 (40122) was withdrawn in

April, 1988. First introduced on to 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 intro-

duction 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 variants 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 subsequently converted to centre headcode types, although the design of the centre headcode box was a little different.

205063

Class 40 1Co-Co1
Diesel Electric locomotive in
BR blue livery "disc headcode
version".



205064

Class 40
1Co-Co1 Diesel Electric loco-
motive in BR green livery "disc
headcode version".





205065

Class 40 1Co-Co1
Diesel Electric locomotive in
BR green livery "split headcode
box version".



205217

Class 40 1Co-Co1
Diesel Electric locomotive in
BR blue livery "converted to
centre headcode type".

CLASS 42

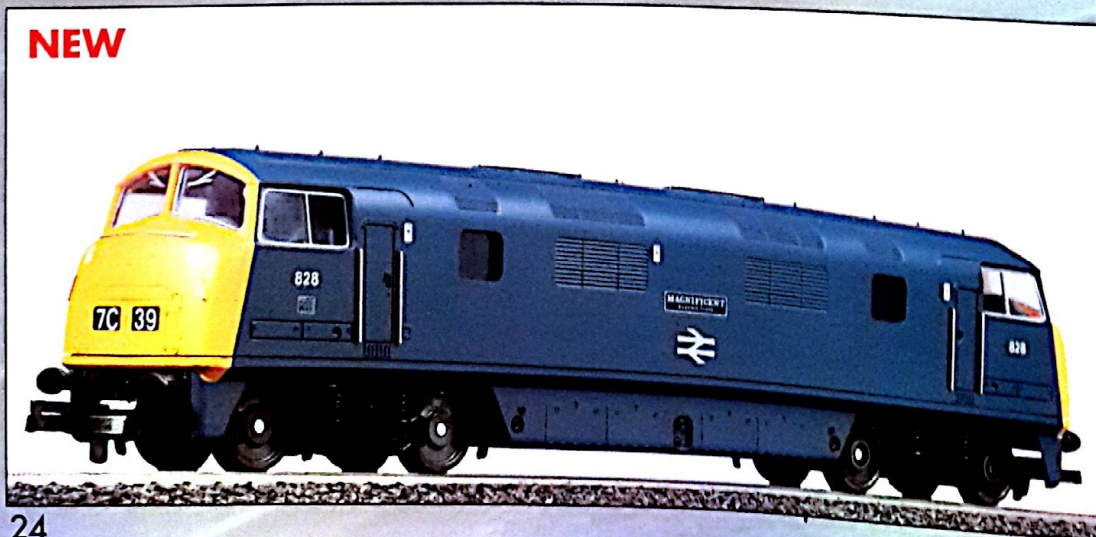
Known as Warships because of the names bestowed on the vast majority of them, the locomotives making up BR Class 42 were manufactured at the Swindon Works of British Rail from 1958 onwards. They were unusual because the Western Region of BR opted to utilise hydraulic transmission for their locomotives rather than the more common diesel-electric arrangement. Very

similar to what was to become Class 43 in external appearance, but not in mechanical detail, the Class 43s also being named after Warships, the Class 42s employed 2 Maybach MD650 German manufactured diesel engines delivering 1056 hp at 1400 rpm. The Class 42s employed 4-speed Merkydro K10411 hydraulic transmissions. These engines were based on a

German design and featured unusual bogies in which the wheels were exposed because the then normal axle box-guide type of construction was not used, there being no bolster and no centre pivot. Apart from some problems with the bogie design, these locomotives gave excellent service and delivered a lot of power from what was a compact design. Withdrawals of the locomotives

in Classes 42 and 43 began in 1968 under the BR rationalisation policy which decreed that all locomotives should conform to the diesel-electric pattern and all 71 engines in these Classes had gone from Western Region service by the end of 1972. First introduced in BR green livery, several of these locomotives featured an interim livery of BR maroon to match BR maroon coaching stock from the same era before British Rail corporate blue took over in the late 1960s.

NEW



205083

Class 42 B-B diesel hydraulic
locomotive in BR blue livery.

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 Common-wealth bogies, 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 head code 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. Acccident 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 acci-

dent 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 locomotives contained in Sub-Class 47/7 are cleared for 100 mph operation, whilst on the other, those locomotives which have been allocated for Railfreight or Civil Engineer's use have had their maximum speed restricted.

205084

Class 47 Co-Co
Diesel Electric locomotive in
RES livery.



205034

Class 47 Co-Co
Diesel Electric locomotive in
Trainload Metals livery.



204818

Class 47 Co-Co
Diesel Electric locomotive in
Network South-East livery.



NEW



205219

Class 47 Co-Co
Diesel Electric locomotive in
BR two-tone green livery.



205085

Class 47 Co-Co
Diesel Electric locomotive in
Inter-City livery.



205257

Class 47 Co-Co
Diesel Electric locomotive in
Civil Engineer's plain grey
livery.



205269

Class 47 Co-Co
Diesel Electric locomotive in
BR corporate blue livery.

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 purchased by BR. 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 mainline by electrification, these locomotives moved to the Western Region where they found employment primarily on passenger trains on the W. R. main line before moving on once again to fulfill duties on services to the West of England from Waterloo. All but 3 of the Class have now been withdrawn from service, the 3 which remain being

reserved for special duties. The Class 50s did have a maximum in-service speed of 100 mph and were all subjected to refurbishment shortly after moving to the Western Region, the overhaul programme being undertaken at Doncaster Works. All of the Class 50s were named and followed the Western Region tradition of naming locomotives after Warships. The pattern was, however, broken as part of the GW150 celebrations when one locomotive was out-shopped in a version of GW150 green livery and was

re-named "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 the Class. More recently, members of the Class have been painted in Network South-East red, white and blue and for a while 50149 carried Railfreight triple grey livery. The world has gone full circle for 50050 since it is currently in the livery in which it was first introduced and carries its original BR running number of D400.

204811

Class 50 Co-Co
Diesel Electric locomotive in revised standard (large logo) livery.



205177

Class 50 Co-Co
Diesel Electric locomotive in Network South-East livery.



205281

Class 50 Co-Co
Diesel Electric locomotive
No. 50149 in Railfreight triple grey livery.





205140

Class 50 Co-Co

Diesel Electric locomotive No. 50007 in GW 150 lined green livery.



205280

Class 50 Co-Co

Diesel Electric locomotive in Network South-East livery

CLASS 52

The Class 52s were the elite of the Western Region diesel-hydraulic fleet and were named to reflect their Western Region origins. Indeed, the Class, which was constructed in the Swindon and Crewe Workshops of BR from 1961, swiftly became known as the Westerns. Continuing the Western Region theme of utilising diesel engines, but with hydraulic transmission, each locomotive in this 74 strong

Class was equipped with 2 Maybach MD655 12 cylinder diesel engines delivering 1350 hp each at 1500 rpm. The hydraulic transmission was a Voith design.

Troubled by similar bogie design problems to those which beset the Class 42s, the Class 52s were nevertheless fine locomotives which gave sterling service throughout the Western Region until

displaced by diesel electric Type 4s under the rationalisation of BR traction types which saw the end of the use of hydraulic transmission. Displaced first of all to secondary passenger duties, the final years of the Western Class saw them increasingly used on freight trains. The Class was finally withdrawn from BR service in 1977.

Livery experiments saw D1000

introduced into service in desert sand livery and D1015 painted in a shade of golden ochre. After D1000, the first few locomotives to be issued both by Swindon and Crewe Works carried standard BR green livery until maroon was adopted as the standard livery for "Westerns" and D800 (Class 42) series locomotives. Painting into BR corporate blue commenced in the late 1960s.

NEW



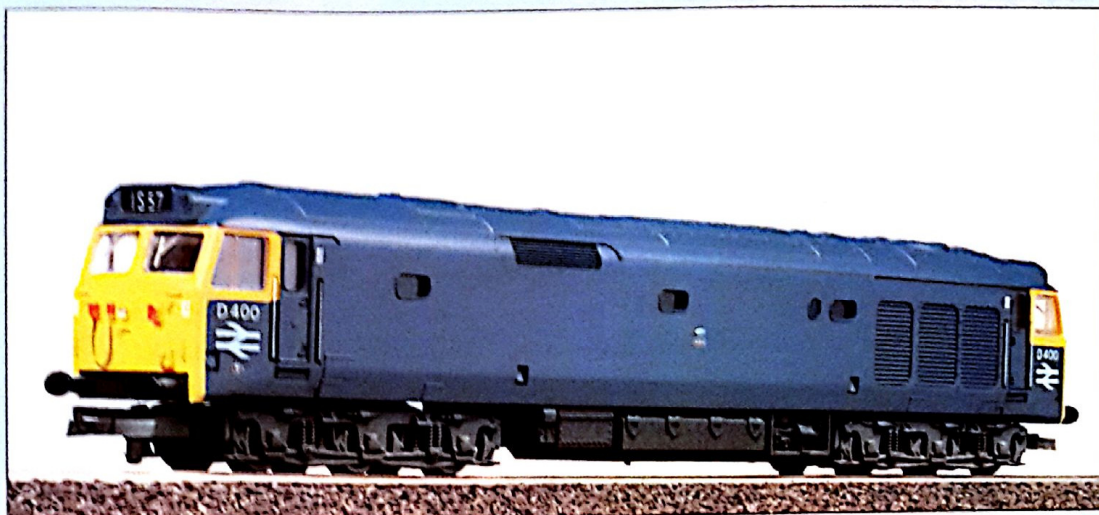
204800

Class 52 C-C

Diesel Hydraulic locomotive in BR green livery.

205009

Class 50 Co-Co
Diesel Electric locomotive
No. D400 in BR corporate
blue livery.



CLASS 55

The Class 55s when they were first introduced were known as English Electric Type 5s, but to the majority of people and not just railway enthusiasts, they will always be known as the "Deltics", the name being derived from the form of the 2 two-stroke engines fitted to each of these 3300 hp locomotives, which had similarities to the Greek delta. Introduced from

1961 onwards the 22 locomotives marking up the Deltics were the premier motive power on the east coast main line for several years, until supplanted by high-speed trains from 1978 onwards. Finally withdrawn in January, 1982, these Co-Co locomotives are fondly remembered by many. True 100 mph machines, each member of this Class ran more

than three million miles in revenue-earning service. Five of the class have been preserved at various locations allowing enthusiasts to rekindle their memories of these locomotives in service between London and Edinburgh. When first introduced these locomotives featured an attractive two-tone green livery. This was followed by an all-over blue livery with yellow

ends. One locomotive, 55002 was returned to two-tone green livery during the latter part of its service on BR and is now preserved at the National Railway Museum. Latterly, a number of Deltics featured white window surrounds on the standard BR blue livery, a trademark of Finsbury Park Depot in North London.

204802

Class 55 Diesel Electric Deltic
Co-Co No. 55002 in two-
tone green livery.



204801

Class 55 Diesel
Electric Deltic Co-Co in BR
blue livery with white cab win-
dows.



CLASS 59

During 1988 and amid a glut of railway press publicity, Foster Yeoman, the Somerset based aggregates firm took delivery from Amstutz of a heavy freight locomotive modelled based by the Electric Multiple Unit of Central Alaska, subsequently designated British Rail Class 59. Very striking in their Foster Yeoman silver livery, these locomoti-

ves are unusual in that they are owned by Foster Yeoman and are used exclusively to haul their heavy aggregates train, the locomotive simply being operated by BR whilst they remain in private ownership. A fifth Class 59 has been added to the Foster Yeoman fleet and at the same time, recognising the benefits of private ownership, the aggrega-

tes firm of ARC have also purchased and are now operating their own stock of 4 Class 59/1s. It is understood that National Power have now also followed the lead provided by Foster Yeoman and ARC and have ordered a 59 which is to be employed by them on services to and from power stations hauling imported coal supplies. Equipped with General Motors

645E3C diesel engines which deliver a maximum output of 3300 hp, these locomotives are equipped with sophisticated control gear which provides them with startling haulage capacity, which has proved to be very beneficial on the long and heavy aggregates trains which normally provide their staple diet.



204803

Class 59103 Co-Co
Diesel Electric locomotive in
Villages of Mells ARC livery.



204804

Class 59002 Co-Co
Diesel Electric locomotive in
Yeoman Enterprise livery.



204805

Class 59201 Co-Co
Diesel Electric locomotive in
National Power livery.

CLASS 60

The latest heavy haul freight locomotive to be introduced by British Rail is the Class 60, which was first introduced in 1989 and now numbers 100 locomotives, the last being introduced to BR service during

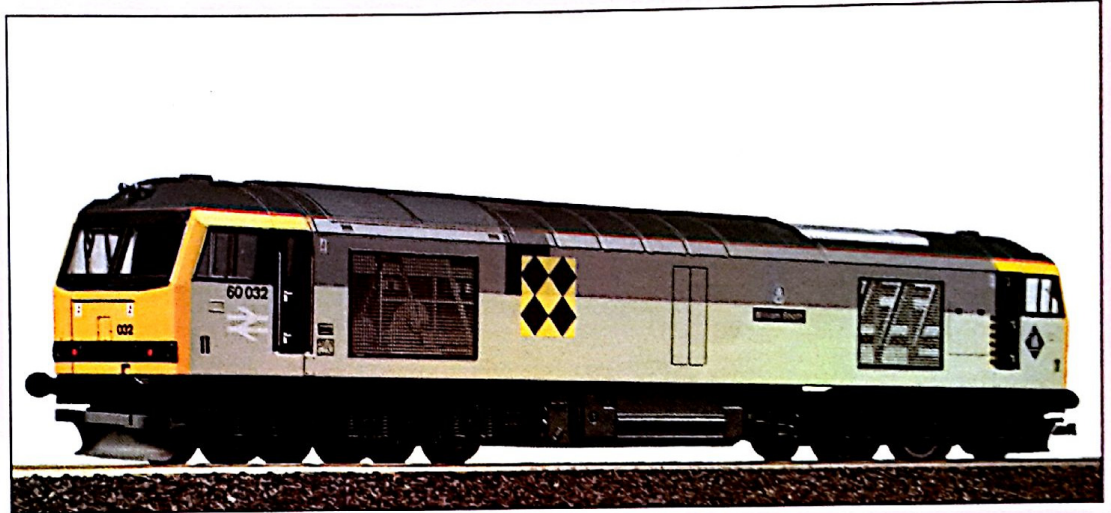
the early part of 1993. Designed and constructed by Brush at their Loughborough factory, each of these Co-Co Diesel Electrics is equipped with a Mirreles Blackstone 8MD875T diesel engine delivering a

maximum output of 3100 hp. Having a maximum speed of 60 mph, examples of this Class can be seen in most areas of Great Britain operating heavy block trains, for which they are ideally suited. Allocated to

Trainload Freight, all members of the Class carry Trainload Freight colours and all have been named by the various freight businesses which operate them.

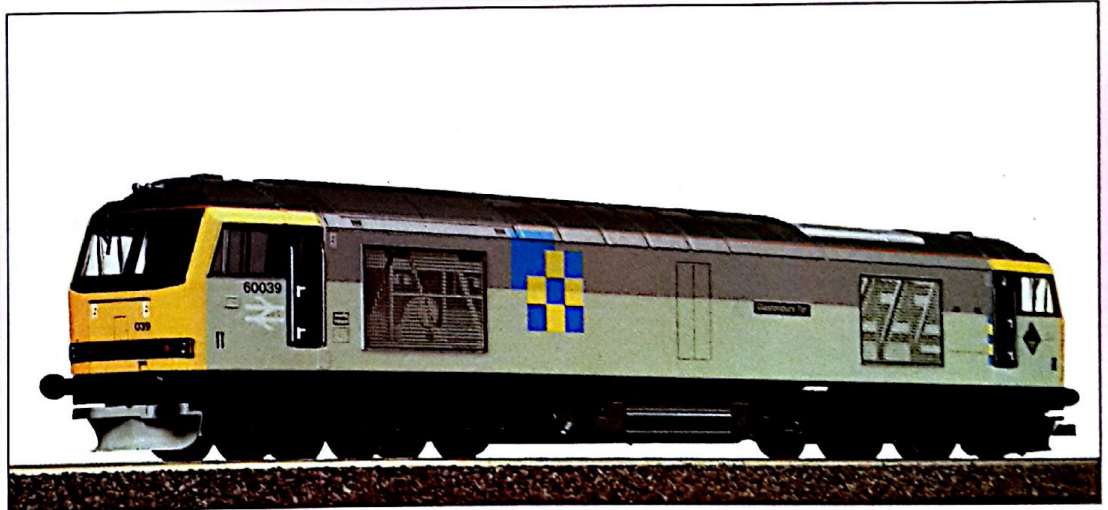
204806

Class 60 Co-Co
Diesel Electric locomotive in
Trainload Coal livery.



204807

Class 60 Co-Co
Diesel Electric locomotive in
Trainload Construction livery.



204808

Class 60 Co-Co
Diesel Electric locomotive in
Trainload Metals livery.



CLASS 73

Since they were introduced to Britain's railways in 1962, the Class 73s have been known as «Eds» by virtue of the fact that they are electro-diesels, incorporating an ability to operate from a third rail electrical supply or on board diesel engines when the third rail supply is interrupted or not available. Perhaps a more appropriate description for these locomotives would be «Versatile» since not

only do they have ability to operate either from a diesel engine or from the third rail electricity supply, but they are also capable of working in multiple with other Southern Region locomotives, and other Southern Region multiple unit stock. A small batch of 6 locomotives 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. Built by English Electric Limited, Class 73s were to be seen throughout 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. Revised standard (large logo) livery was adopted

for a short while, but before all the Class could be painted, a further change of heart saw Mainline livery and full Inter-City Swallow livery applied to these machines. More recently still, one-off liveries have appeared and increasingly members of the Class can be seen in either Network South-East livery or the plain grey or yellow and grey colours of the Civil Engineer.



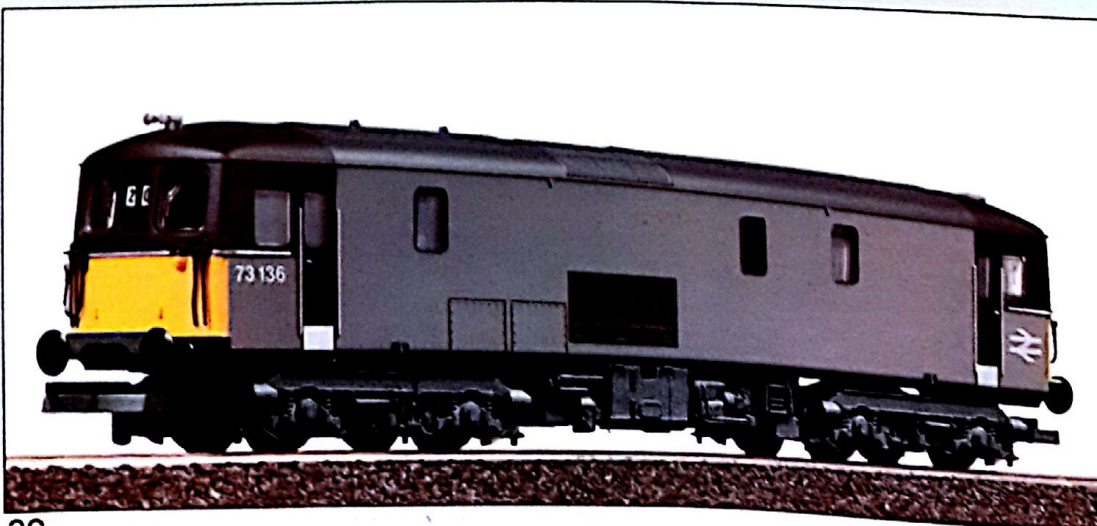
205271

Class 73/1 Bo-Bo
Electro-Diesel locomotive in
Mainline livery.



205274

Class 73/0 Bo-Bo
Electro-Diesel locomotive in
revised standard (large logo)
livery.



205169

Class 73/1 Bo-Bo
Electro-Diesel locomotive in
Civil Engineer's plain grey
livery.

205186

Class 73/1 Bo-Bo
Electro-Diesel locomotive
No 73101 in Pullman umber
and cream livery.



CLASS 87

Until the 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

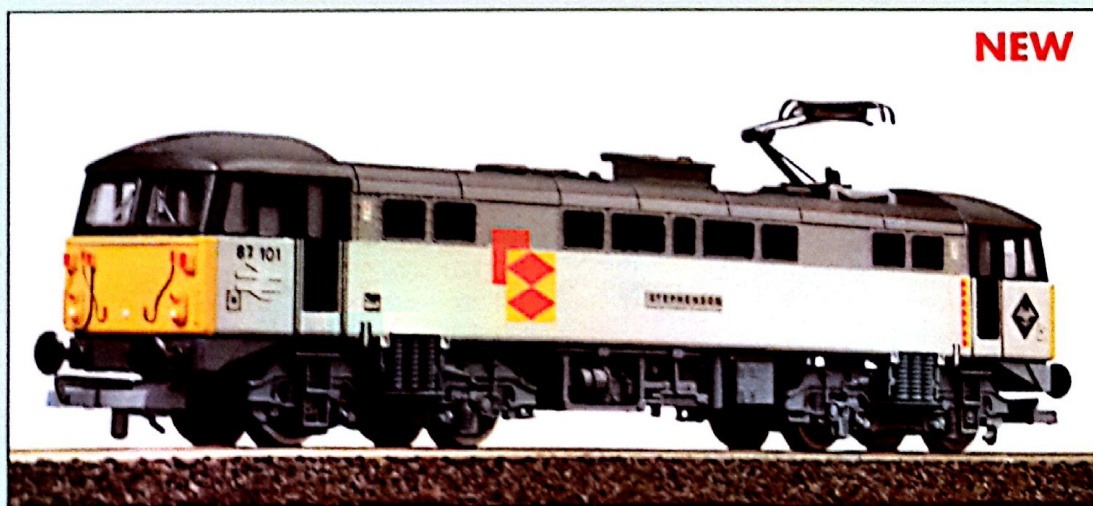
1973 and there are 35 units in this Class, which was based on the previous Class 86/1. In recent years, high speed pantographs have been fitted to enable operation up to 110 mph. One remaining Class 87 was built, but as it incorporated certain

experimental traction control equipment (Thyristors) it was designated Class 87/1. When first introduced, these locomotives carried standard BR blue livery, but the vast majority have now been painted in InterCity livery. Increasingly Class 87s are

emerging from overhaul repainted in InterCity Swallow style livery. The single representative in Class 87/1 having been allocated to freight services, it now carries the colours of Railfreight Distribution.

204809

Class 87/1 Bo-Bo Electric
locomotive in Railfreight Distribution
livery.



204810

Class 87 Bo-Bo
Electric locomotive in Inter-
City Swallow style livery.



CLASS 156

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 trans-

missions 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.



205053

single car Class 156 Dummy Trailer to enable 2 car sets to be made up to 3 cars.



205052

2 car Super Sprinter (Class 156) in attractive two-tone blue grey livery.

DMU CLASS 117

During the modernisation of British railways in the late 1950s, Great Railways were seeking a cost-effective solution to running 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 2, 3

or 4 car unit, diesel multiple units, or DMUs as they are more commonly known, have gone a long way 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 (57') and long (64' 6") 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 cross-country routes. The lima model is of the Pressed Steel Company's Class 117 DMU which is carried on a 64' 6" underframe, the unit being made up of two motor brake seconds and a composite centre car. Units like

these have been seen in most areas of the country, but are largely dying out because they are being replaced by more modern types. Class 117s remain in use primarily in and around the West Midlands and each 3 car set has two power cars each of which are powered by two BUT (Leyland) 6 cylinder diesel engines developing 150 hp. The transmission is mechanical and each power car weighs 36 tonnes.

Class 117 in Regional Railways livery. These 3 units are painted in the predominantly blue striped livery of the Regional Railways sector of British Rail.

205086

Class 117 DMU motor brake second - powered.



205087

Composite trailer with toilet.

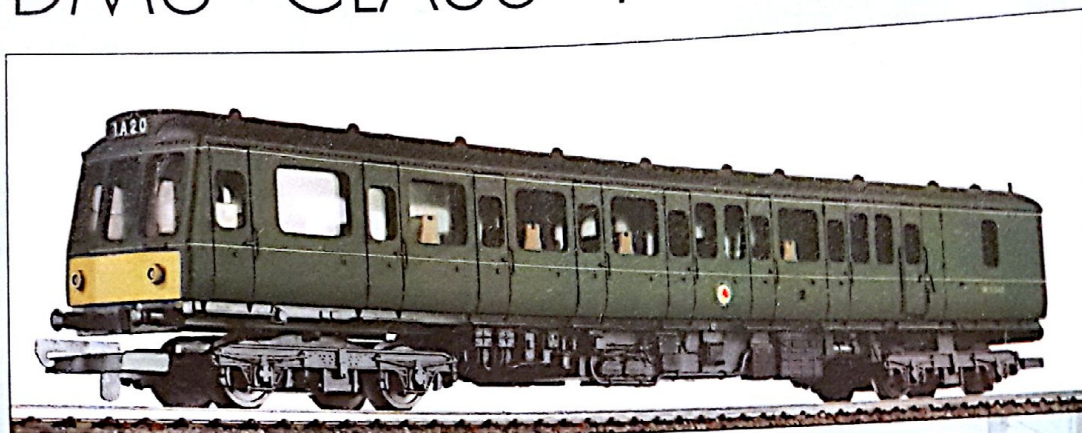


205088

Class 117 DMU motor brake second - non-powered.



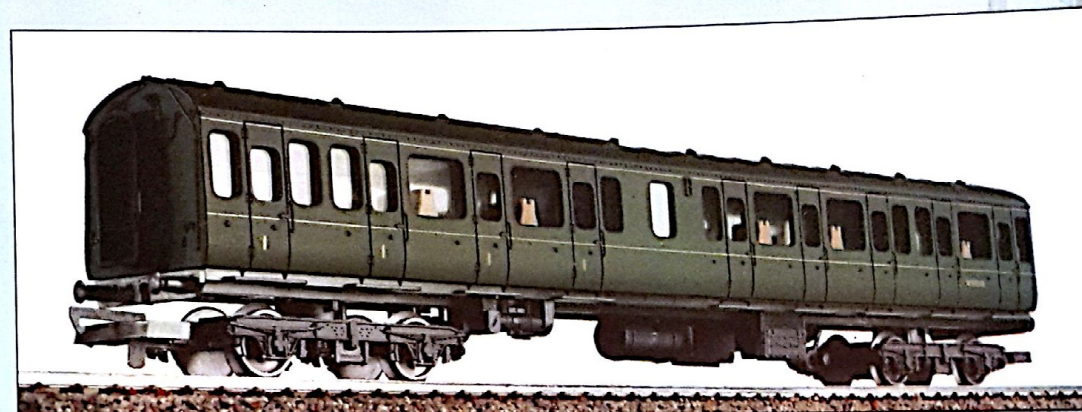
DMU CLASS 117 GREEN



These 3 vehicles are painted in the mid green livery, with yellow ends, applied to DMUs from their introduction in the late 1950s.

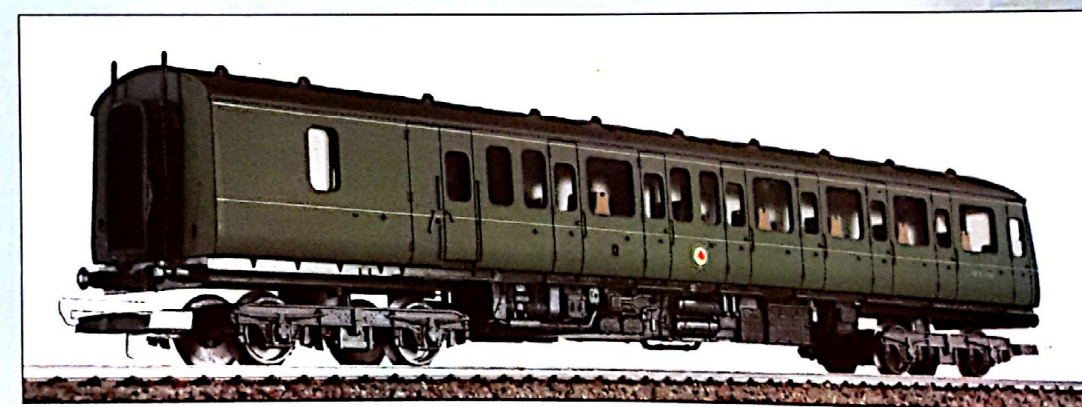
205137

Class 117
DMU Motor brake second
powered.



205146

Class 117
composite trailer with toilet.



205139

Class 117
composite motor brake
second - non powered.

205097

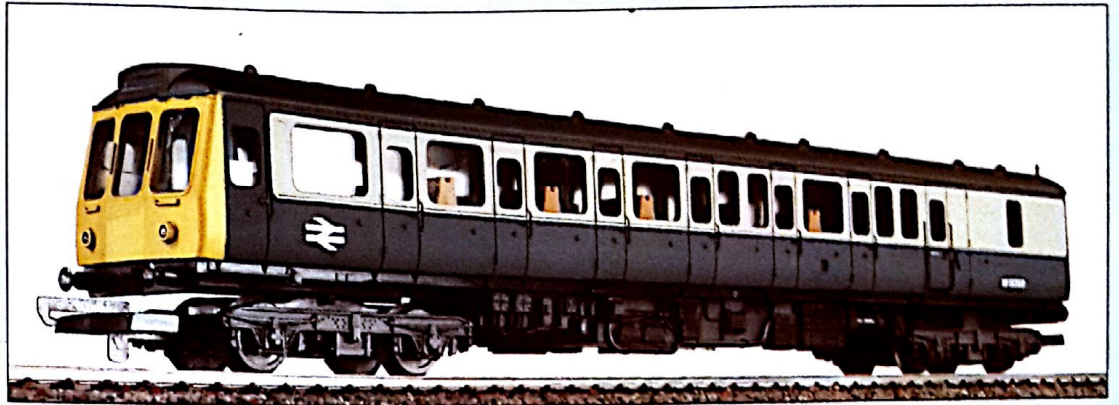


DMU CLASS 117 BLUE/GREY

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

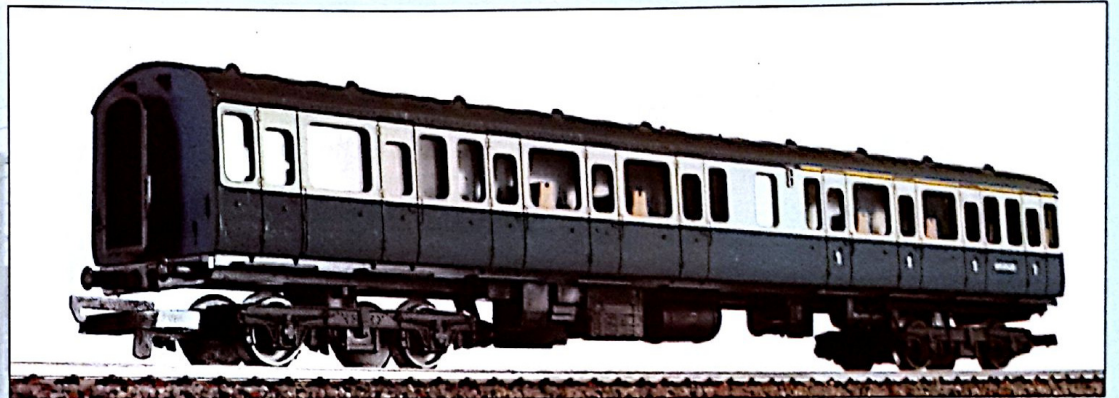
205147

Class 117 DMU motor
brake second - powered



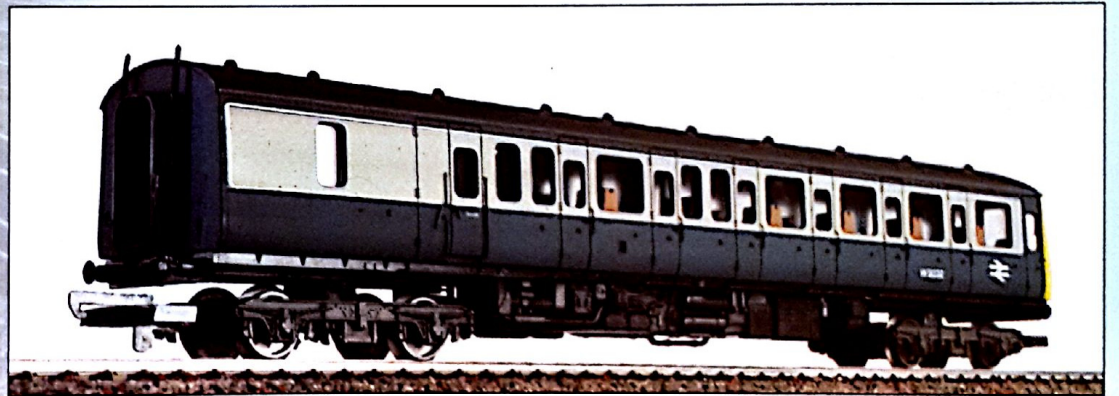
205148

Composite trailer with toilet.



205149

Class 117 DMU motor
brake second non powered.



DMU CLASS 117 N.S.E.

205097

Class 117 DMU motor
brake second - powered

205098

Composite trailer with toilet.

205099

Class 117 DMU motor
brake second non powered

205098

205099



INTERCITY 125

British Rail introduced the high-speed train (HST), otherwise known as the InterCity 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 a total output of 4500 hp.

The Class 253 high-speed trains were later supplemented by Class 254 units which were introduced on services on the East Coast mainline (between London Kings Cross, Leeds, Newcastle and

Edinburgh). The Class 254 units were very similar to the Class 253 units introduced on the Western Region.

Recognising the popularity of these trains and their commercial success, there are now very few areas of Great Britain which do not see InterCity 125 services particu-

larly now that a number of train sets have been displaced by the electrification of the East Coast mainline.

Originally introduced in blue and grey livery, InterCity striped livery was applied from the mid-1980s onwards although all power cars now carry the Swallow style of InterCity livery.



205081L

HST power car in InterCity Swallow style livery.



205082

HST dummy power car in InterCity Swallow style livery.



205197L

HST 125 power car in original InterCity livery.

205196L

HST power car in original
style InterCity livery.



205199

HST 125 dummy
power car in original style
InterCity livery.



205160L

HST 125 power car in blue
and grey livery.



205164

HST 125 dummy power car
in blue and grey livery.



COACHING STOCK

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 4 distinct categories, namely Mk1s, Mk2s, Mk3s and Mk4s. The Mk1 represented BR's first attempt at the introduction of standard 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. 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 Mk2s were based on a coach length the same as Mk1s, the Mk3s introduced a 23 metre coach to Britain's railways. The latest design to be introduced, the Mk4, which was put into service on the East Coast mainline following electrification of that route is similar in outline and

length to the Mk3s, but incorporates a number of improvements in particular in the provision of power-operated passenger doors. The Mk4 coach has also been profiled to enable a tilting mechanism to be incorporated at some point in the future if that is found to be necessary or desirable. After the nationalisation of British Railways in 1948, the various operating regions took steps to maintain their original 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.

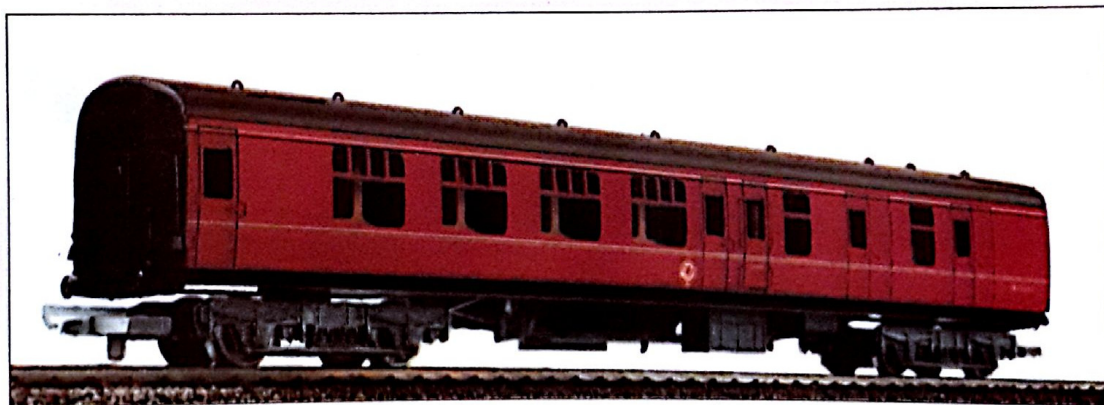


LONDON MIDLAND REGION

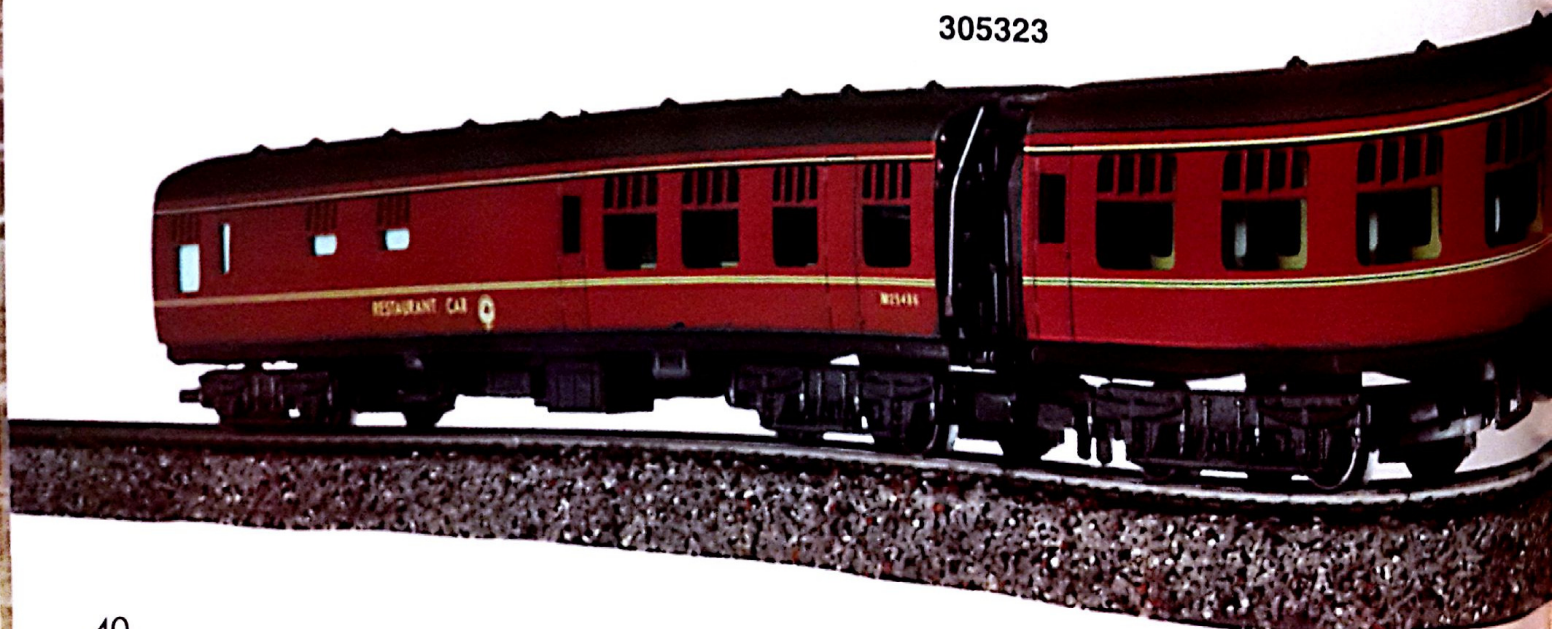
The London's Midland and Scottish Railway was the largest of the new companies formed by the grouping of companies in 1923, and served the Midlands, North West, and much of Scotland. Over 7,800 miles of track was incorporated in that company's network. The LMS led the way in mass production of rolling stock and earned an enviable reputation for carriage design. In seeking a standard livery for passenger vehicles, BR finally settled on a maroon colour scheme which was similar to that which had been adopted previously by the LMS.

305332

Mk1 corridor-brake second coach maroon livery



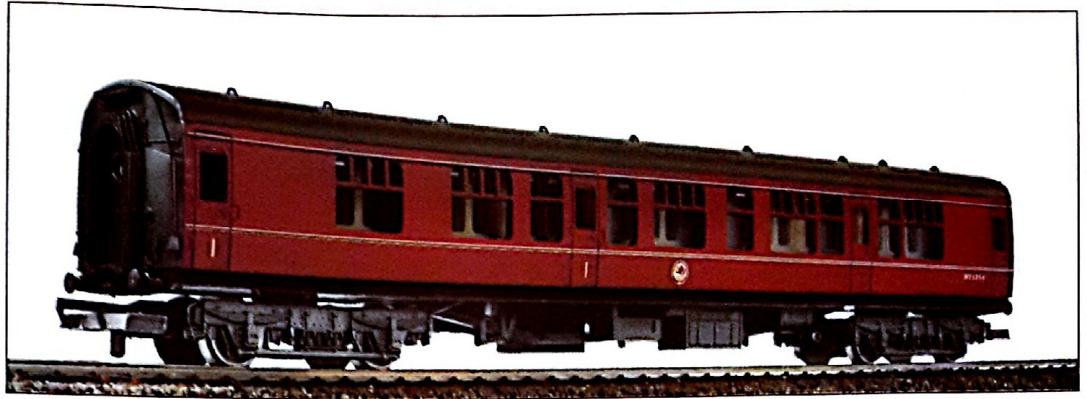
305323



LONDON MIDLAND REGION

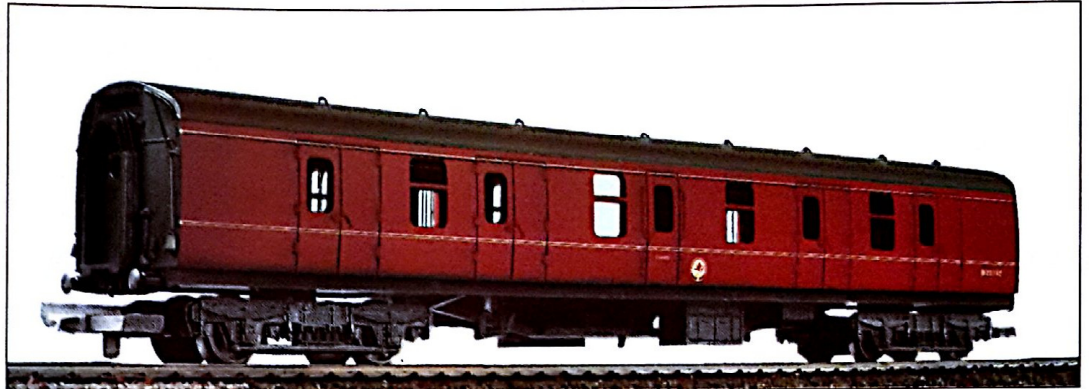
305312

Mk1 corridor composite
coach, maroon livery



305342

Standard gangwayed brake
van, maroon livery



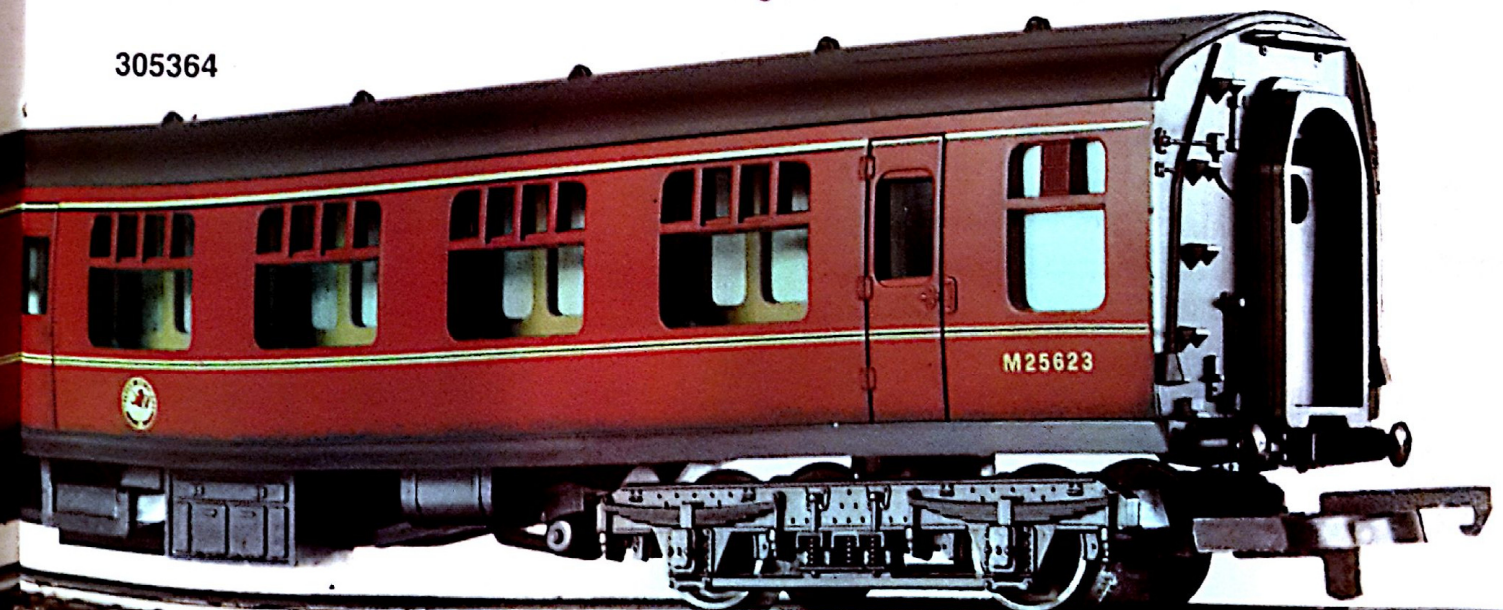
305323

Mk1 buffet/restaurant car
maroon livery

305364

Mk1 corridor second
maroon livery

305364



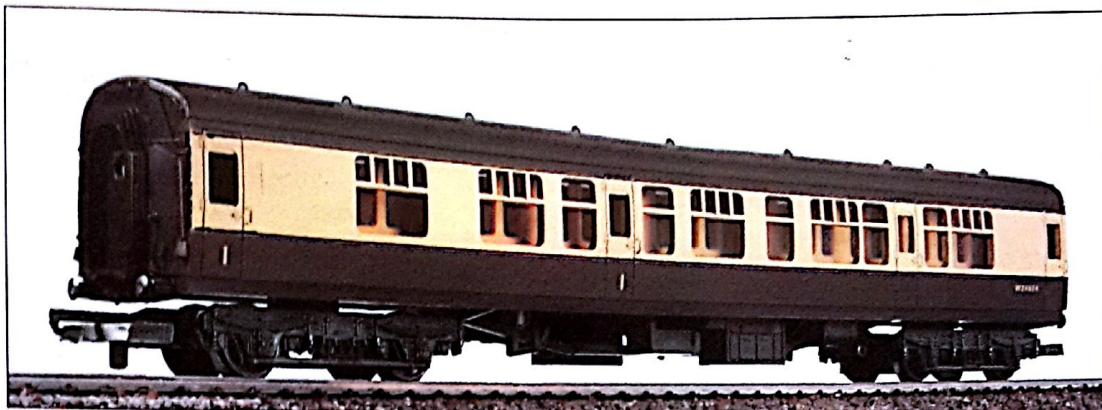
WESTERN REGION



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 ser-

ved 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.



305313

Mk1 corridor composite coach. Western Region livery



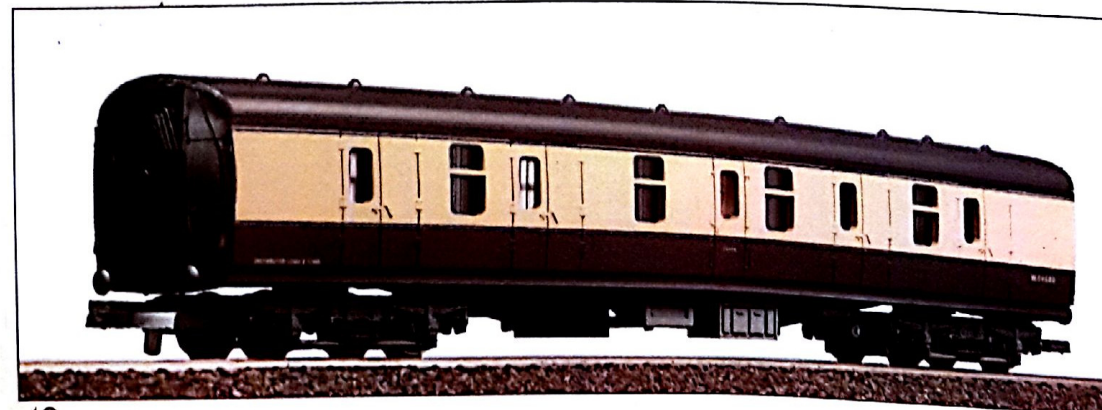
305322

Mk1 restaurant car Western Region livery



305333

Mk1 corridor brake coach. Western Region livery

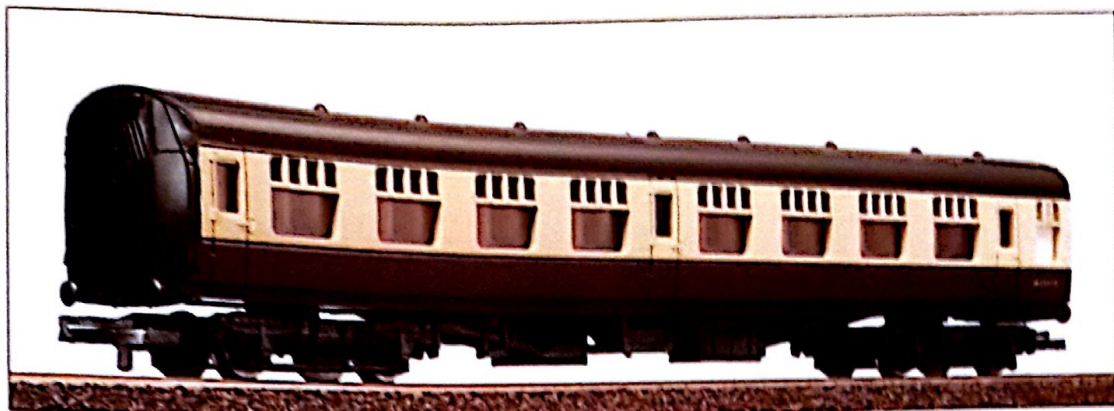


305345

Standard Gangwayed brake van. Western Region livery.

305362

M&T corridor 2nd Western
Region livery



SOUTHERN REGION



The Southern Railways was formed by the amalgamation of the London Brighton and South Coast, London and South Western, and South Eastern and Chatham Railways.

Southern's green livery was a common sight in the South and by the time nationalisation came the company boasted a fine fleet of modern carriages.

305365

SR M&T corridor 2nd coach



305334

SR M&T
corridor brake 2nd coach



305314

SR M&T
corridor composite coach.



EARLY BR LIVERY

Following livery experiments, the first livery adopted by British Railways for passenger carrying coaching stock was based upon a crimson and cream colour scheme, often known as blood and custard.

The following Mk1 coaches have been produced in that early BR coaching stock livery.



305311

Mk1 corridor composite coach Crimson and cream livery



305325

Mk1 restaurant car Crimson and cream livery



305331

Mk1 corridor brake coach Crimson and cream livery



305344

Standard Gangwayed brake van. Crimson and cream livery.

305363

BR Mk1 corridor 2nd Crimson and cream livery



BLUE AND GREY LIVERY

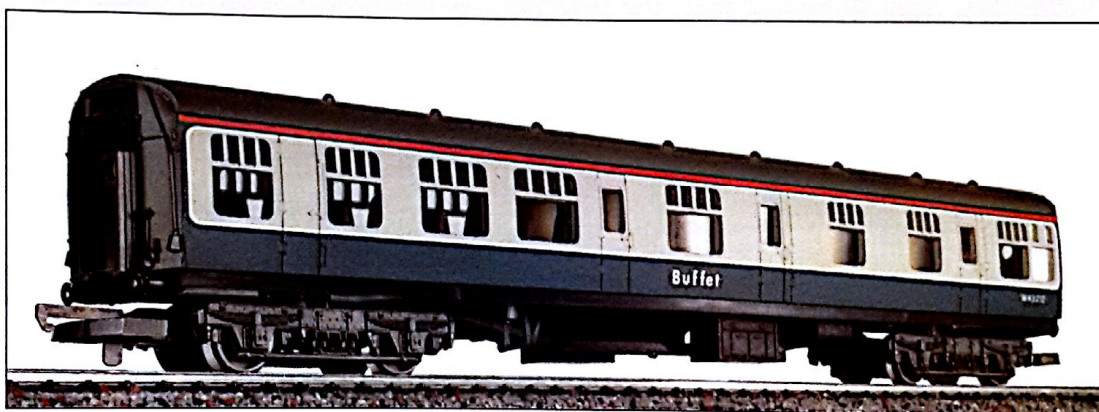
In the mid-1960s, British Rail resolved to introduce a new corporate livery for all locomotives and rolling stock, based on a blue and grey

colour scheme. All coaches were re-painted in this style and the colour scheme became the standard for all new coaches introduced after that

date. At the same time, all locomotives were painted blue. This era saw the introduction of the BR arrows symbol which is now so familiar.

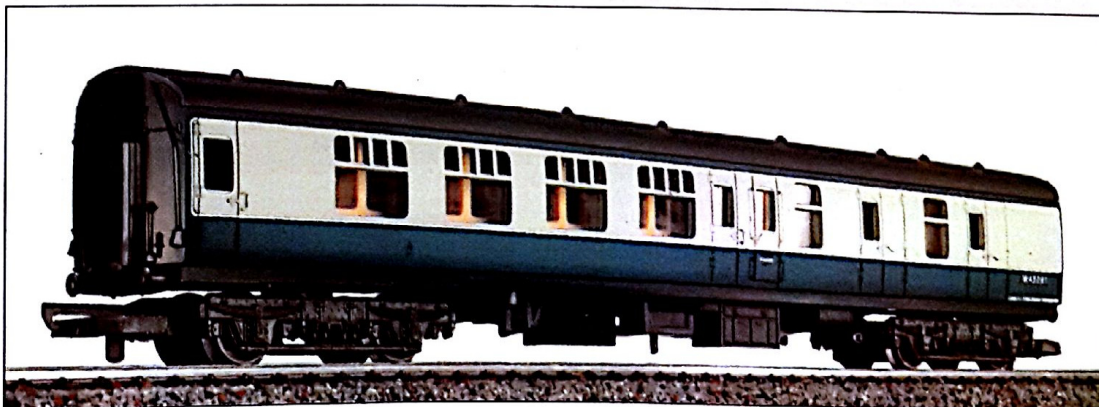
305321

BR Mk1 restaurant/buffet car



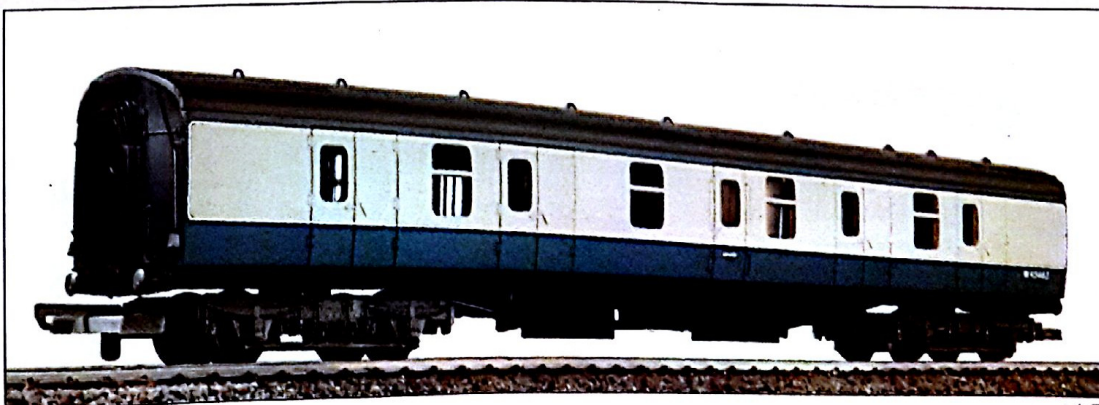
305335

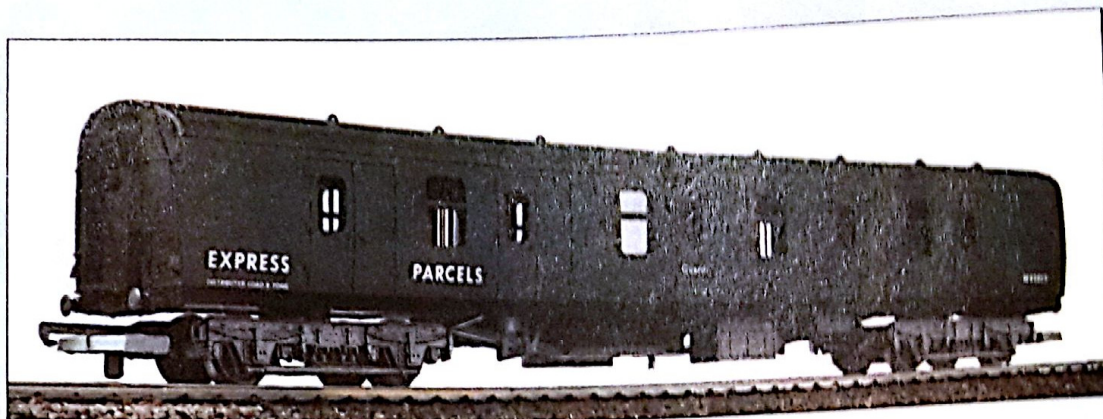
BR Mk1 corridor brake coach



305343

BR standard Gangwayed brake van.





305341

BR standard Gangwayed
brake van "Express Parcels".

BR MARK 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 ventila-

tors in the bodyside windows. Examples of Mk2 F vehicles are available in the Lima range.



305301

BR Mk2B
first class corridor coach.



305302

BR Mk2B InterCity
corridor brake coach.



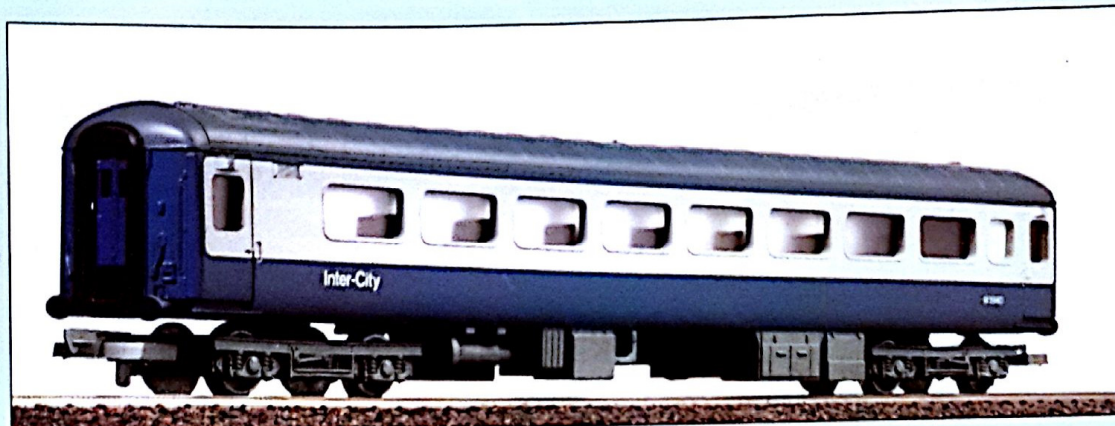
305303

BR Mk2B InterCity
corridor first brake coach.

305304
BR Mk2F first class coach.



305305
BR Mk2F 2nd class coach.



305308
BR 2B mini buffet coach.



INTER-CITY LIVERY

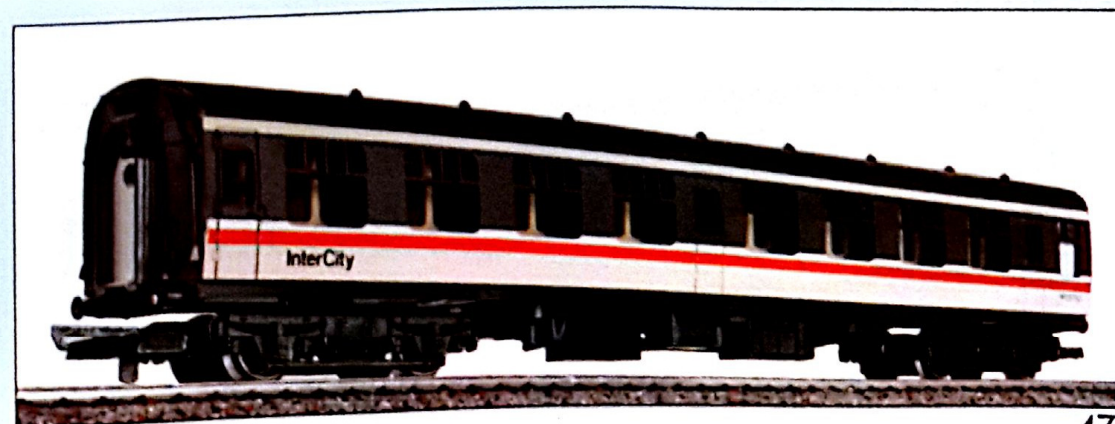
In the locomotive section of this catalogue mention has been made of the decision by British Rail to separate its business into operating sectors. One result of this exercise has

been the adoption of an InterCity 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 InterCity liveried coaching stock within their comprehensive range.

305326
Mk1 corridor second class in InterCity livery.





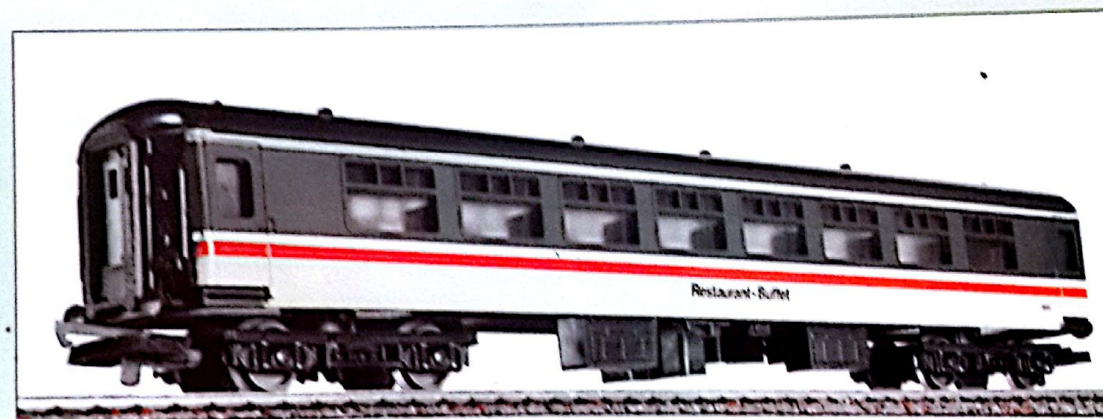
305372

Mk1 corridor brake second in InterCity livery



305373

Standard gangwayed brake van in InterCity livery



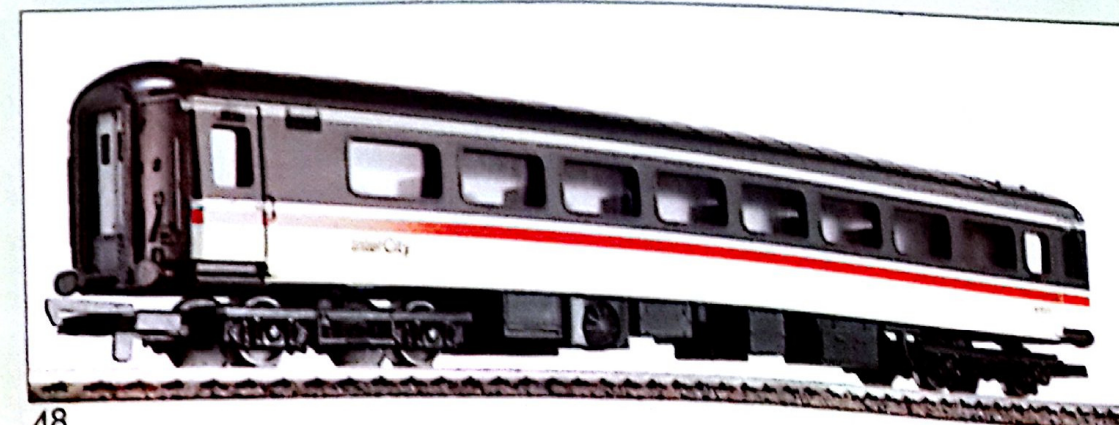
305327

Mk2 buffet/restaurant car in InterCity livery



305336

Mk2F first class open coach in InterCity livery



305337

Mk2F second class open coach in InterCity livery

NEW INTER-CITY LIVERY

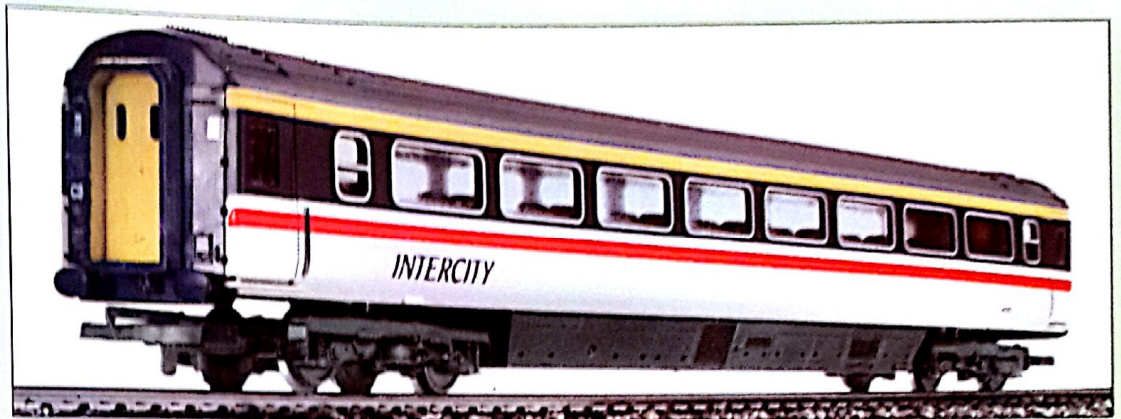
In recent years, the InterCity sector of British Rail has adopted a new brand for its rolling stock. The basic colour scheme has not altered, but the lettering of the InterCity logo has

been revised. This revision is often referred to as the swallow style of InterCity livery since pictograms of swallows accompany the new lettering style. To ensure that a full

range of models in all livery styles is available, the new style InterCity livery is included in the Lima range.

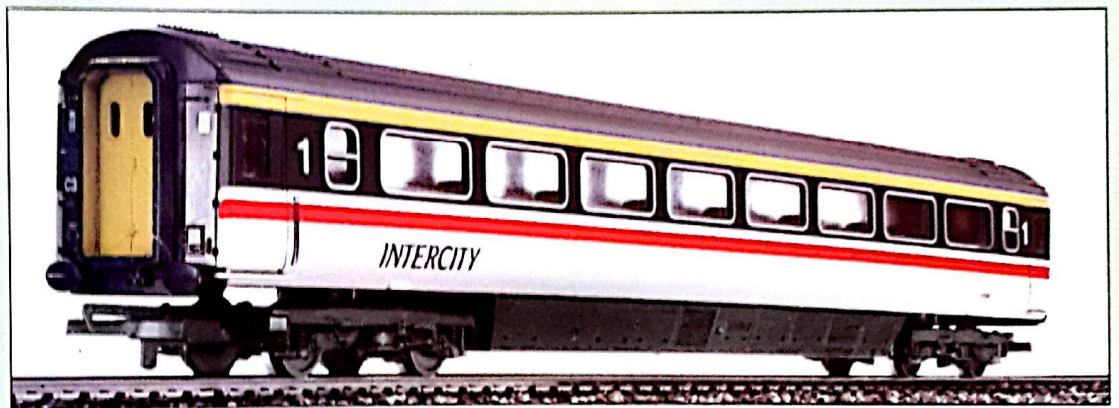
305391

Mk3 standard open coach in latest InterCity livery



305392

Mk3 first class open coach in latest style InterCity livery



305393

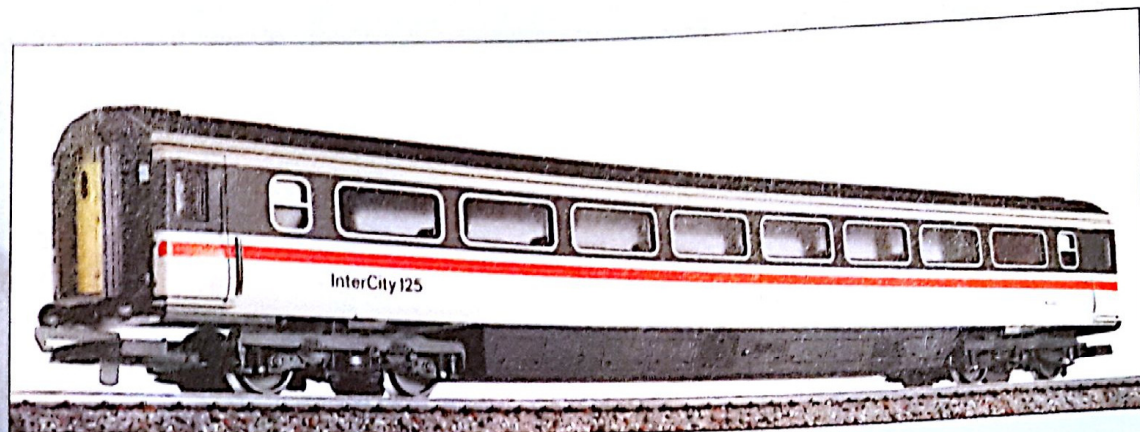
Mk3 buffet/restaurant in latest style InterCity livery



305369

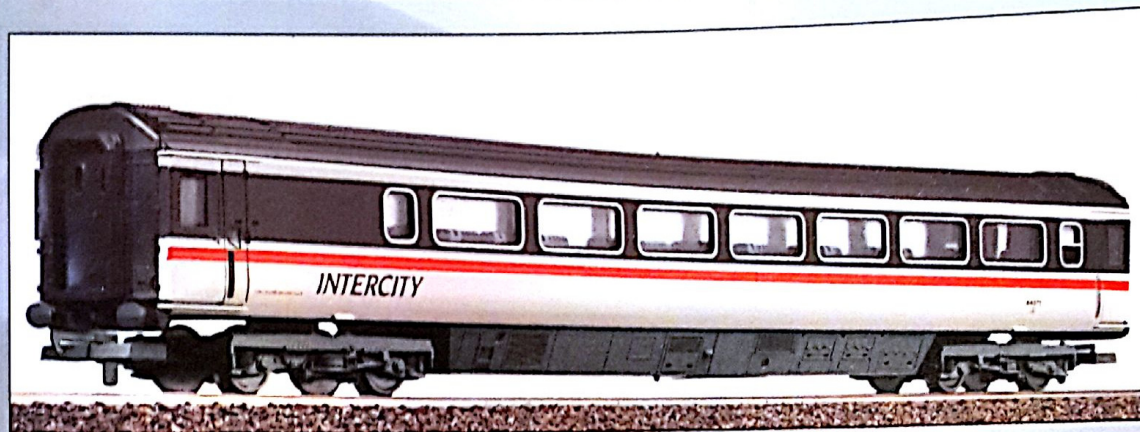
Mk3 sleeper coach in InterCity livery.





305368

Mk3 standard class open coach in InterCity livery.



305390

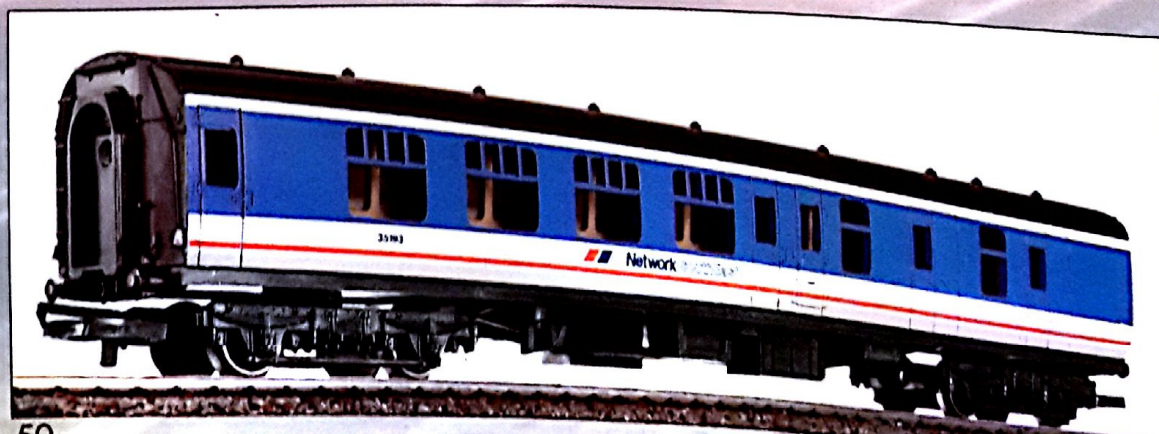
Mk3 standard class open coach with guard's compartment in latest InterCity livery.

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 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 appearan-

ce of stations in the Network South-East area. So that modelers 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.

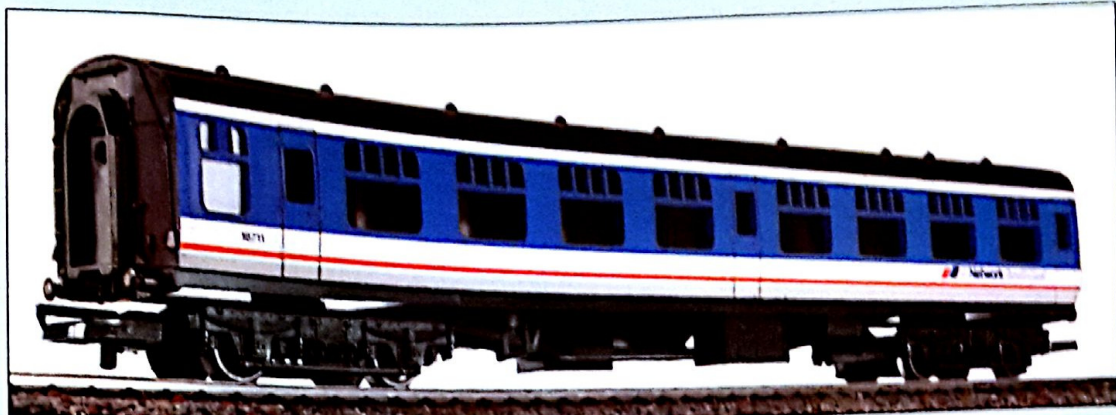


305307

Mk1 corridor brake coach in Network South-East livery.

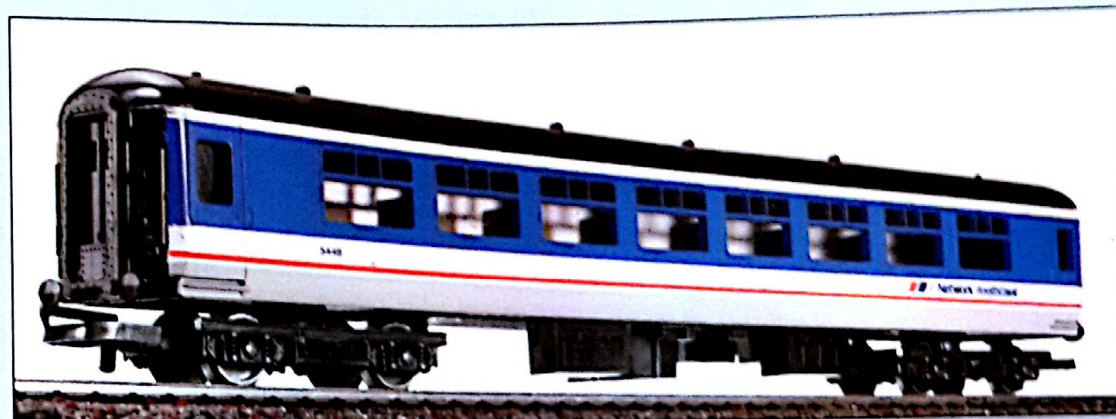
305306

Mk1
corridor 2nd class coach in
Network South-East livery.



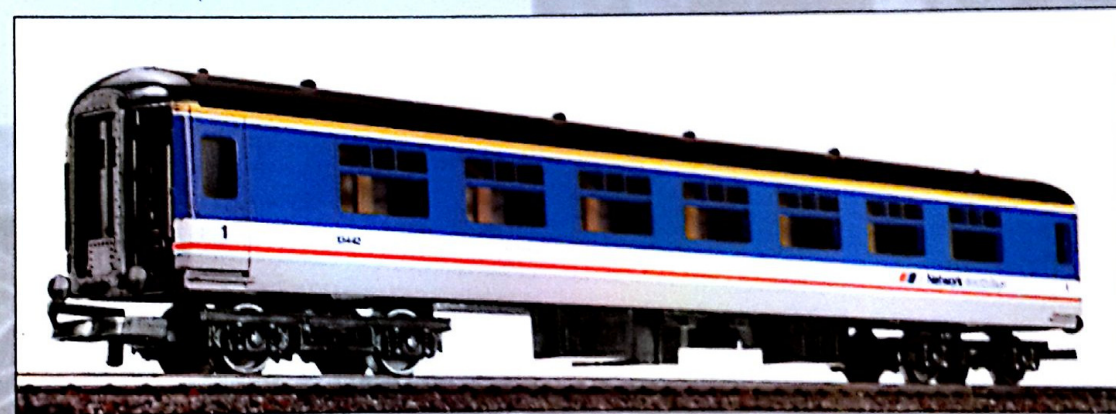
305386

Mk2B tourist second open
coach in Network South-East
livery.



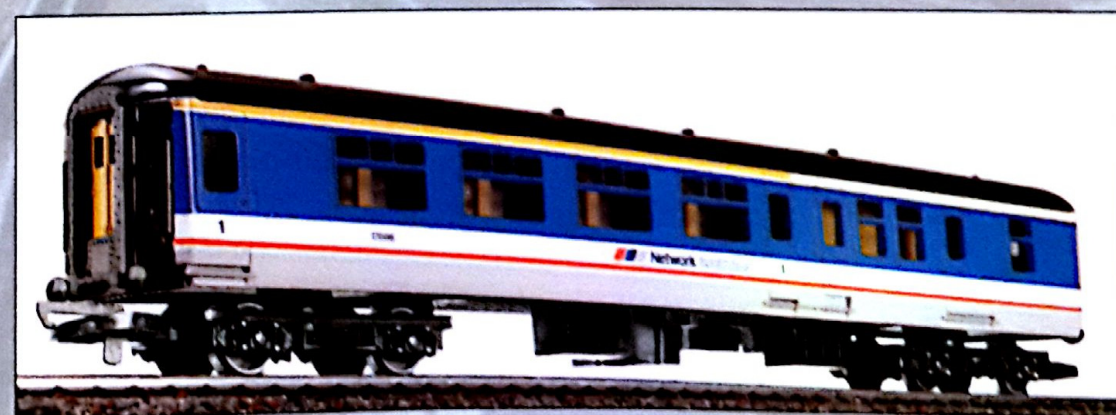
305387

Mk2B first class coach in
Network South-East livery.



305388

Mk2B corridor first brake
coach in Network South-East
livery.



305389

BR standard gangwayed
brake in Network South-East
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.

OPEN WAGONS

Lima provide a large selection of 7 plank open wagons in bright and attractive liveries to enhance railway layouts and to provide play value in train sets for younger children. Always popular, they carry well-known household names.

305669

7 plank wagon - Clarkes.

305675

7 plank wagon - BR grey.

305676

7 plank wagon - Raifeigh.

305678

7 plank wagon - Courtaulds.

305679

7 plank wagon - Ebbw Vale.

305690

7 plank wagon - Austin Rover.

305674

7 plank wagon - NCB.

305677

7 plank wagon - Harrods.

305674



305669



305675



305676



305678



305679



305690



305677



BOX VANS

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.

BRAKE VANS

In former days, every freight train had a brake van at the end of the train in which the guard travelled and assisted the locomotive crew in braking the train and ensuring its protection in the event of an emer-

gency. This Lima model represent a standard BR brake van and is essential for models of early freight trains i.e. before air-braking of freight trains made brake vans unnecessary.



305684



305685



305686



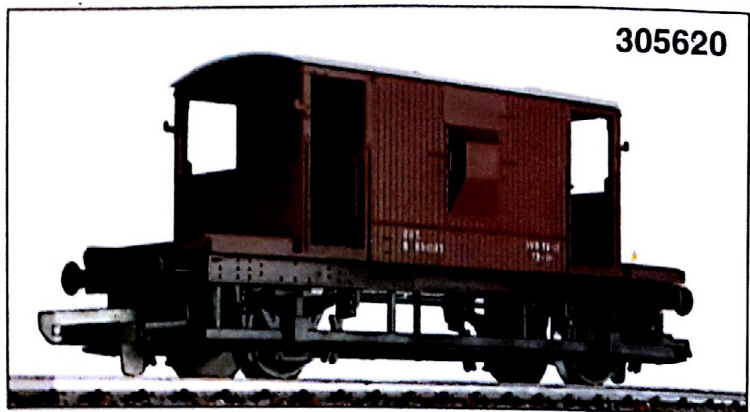
305687



305688



305689



305620

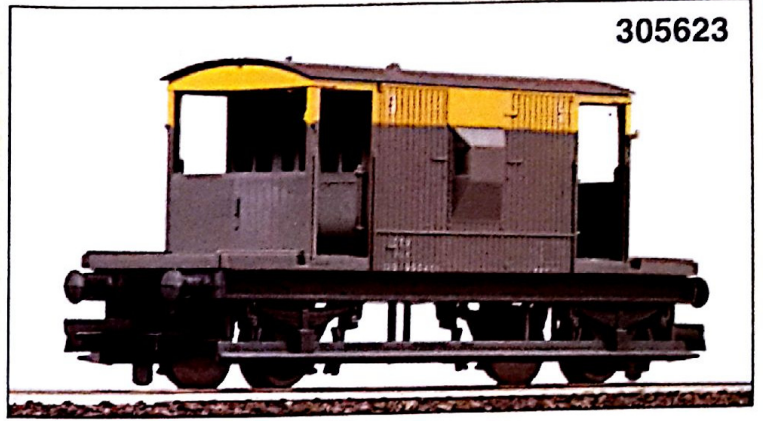


305621

305622



305623



HOPPER WAGONS

Hopper wagons appear as both open and covered wagons and are used to carry stone, grain and agricultural products. Frequently seen in most parts of the country, Lima have reproduced examples of

these useful wagons in a range of attractive liveries and with popular names.

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.

305620

BR 20 ton brake van.

305621

LNWR 20 ton brake van.

305622

BR 20 ton brake van-Parcels livery.

305623

BR 20 ton brake van-Civil Link livery.

305635

50 ton stone hopper wagon-Yeoman.

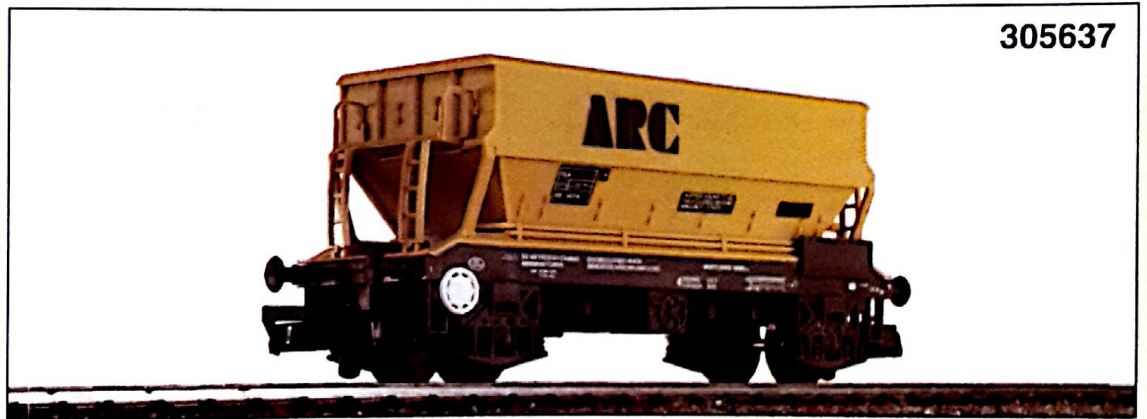
305636

50 ton stone hopper wagon-ARC Amey Roadstone.

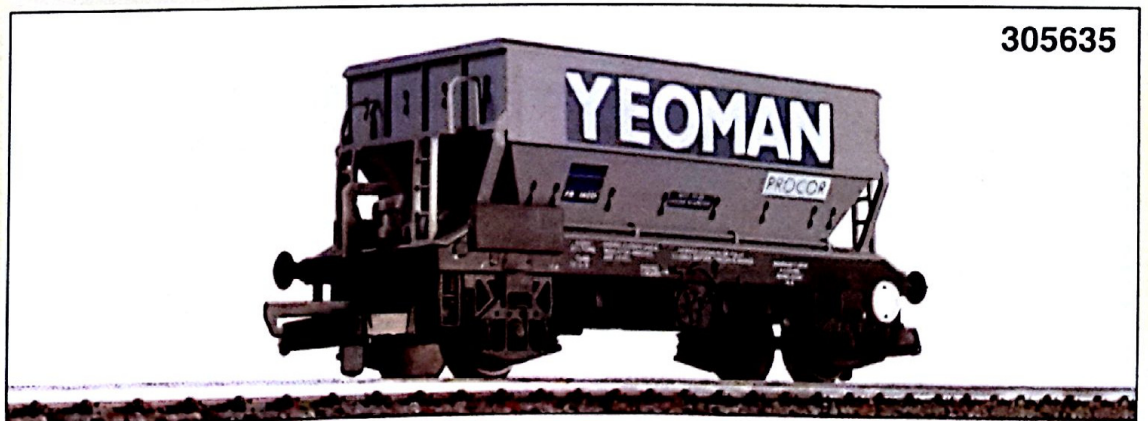
305637

50 ton stone hopper wagon-ARC

305637

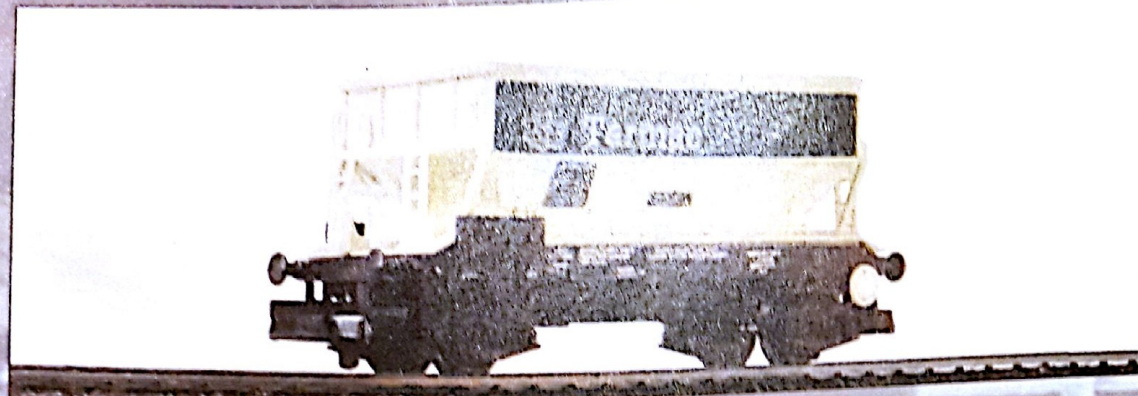


305635



305636





305639

50 ton stone hopper wagon-Tarmac.



305638

50 ton hopper wagon-revised Yeoman Livery.



305668

50 ton hopper wagon-BP Chemicals.



305650

45 ton closed hopper wagon-Vat 69.



305653

45 ton closed hopper wagon-Bass Charrington.

TIPPLER WAGONS

Tippler Wagons are mostly used to supply large quantities of raw materials in the construction and steel-making industries. Capable of carrying large tonnages, tippler wagons can be emptied by means of the whole wagon

being inverted in a rotary tippler unit.

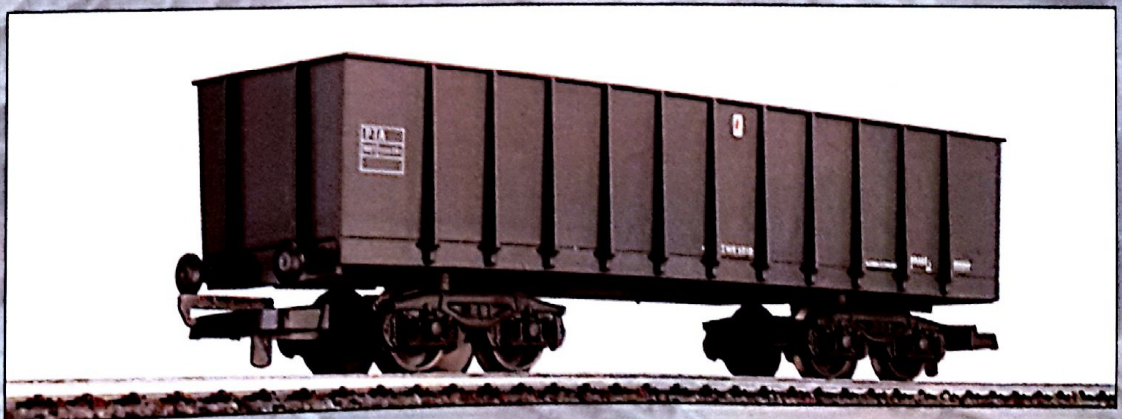
These wagons are seen in many parts of Great Britain and carry various company names and colour schemes.



305671
Yeoman iron
ore bogie tippler wagon.



305670
ARC iron
ore bogie tippler wagon.



305663
BR bogie iron ore
wagon-Grey.



305664
BR bogie iron ore
wagon-Orange and Grey.

PCA HOPPER WAGONS

The code PCA is given to the group of pressure-flow, or pressurised closed hopper wagons mounted on a 2 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 mixed

trains. Usually these wagons carry the distinctive livery of the company whose material is being transported.

305602

PCA wagon Ketton Cement.

305604

PCA wagon
Albright & Wilson.

305605

PCA wagon Lever Brothers.

305606

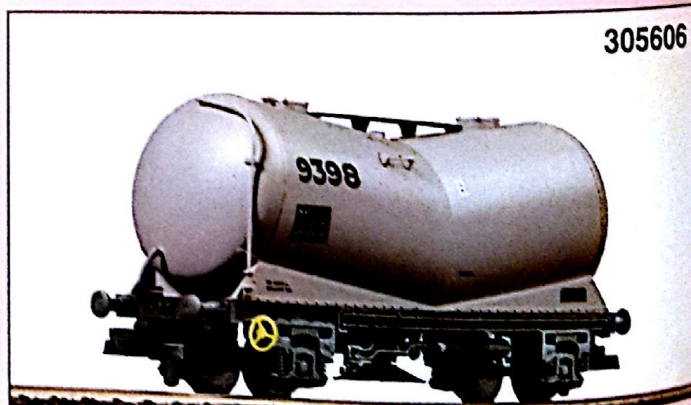
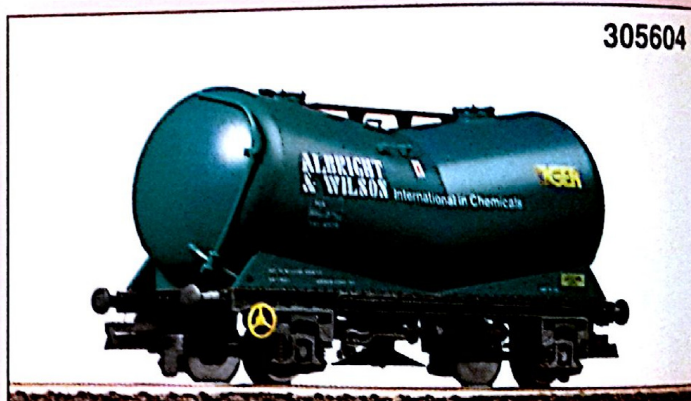
PCA wagon
BR plain grey livery.

305607

PCA wagon Tiger Rail

305608

PCA wagon Tiger Rail Blue.



PDA DOUBLE PRESSURE FLOW

HOPPER WAGONS

Very similar to the PCA, the PDA was designed for the transportation of larger loads of

powdered materials, with 2 PCA-type containers mounted on a bogie underframe.

305615
PDA wagon
Blue Circle Cement.

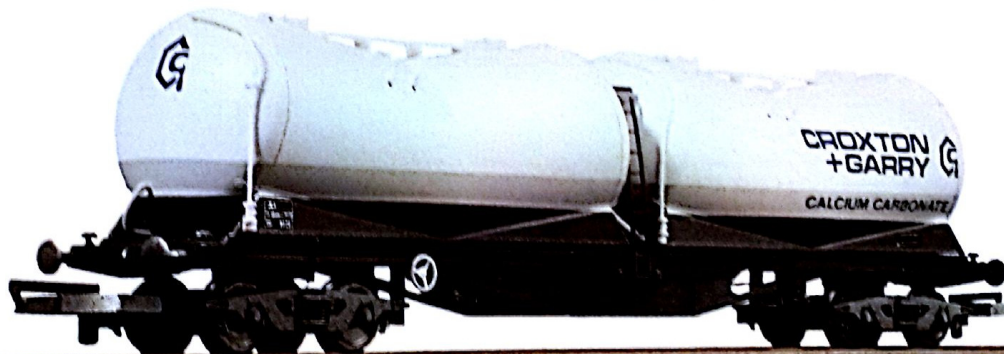
305616
PDA wagon
Croxtan & Garry.

305617
PDA wagon
Lloyds & Scottish.

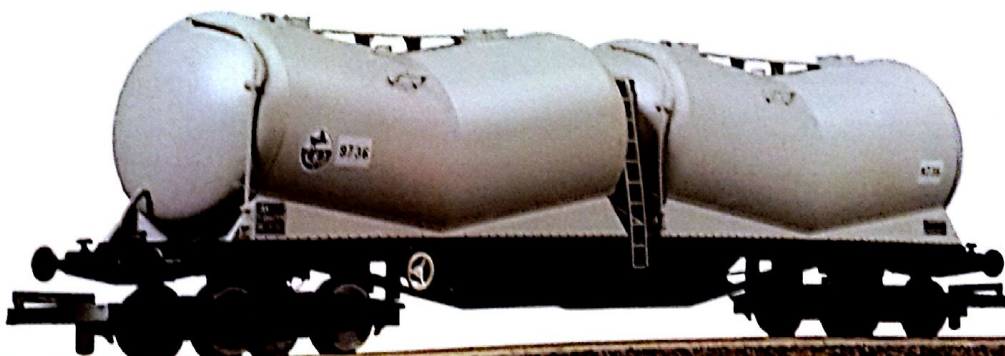
305618
PDA wagon
Derbyshire Stone.



305615



305616



305617



305618



305641

GWR 3 axle
milk tank wagon St. Ivel.



305644

GWR 3 axle
milk tank wagon CWS.

BALLAST WAGONS

Lima have produced a beautiful model of the well-known BR Sealion and Seacow bogie ballast wagons, which are

often seen either singly or in rakes in most areas of the country engineers trains.



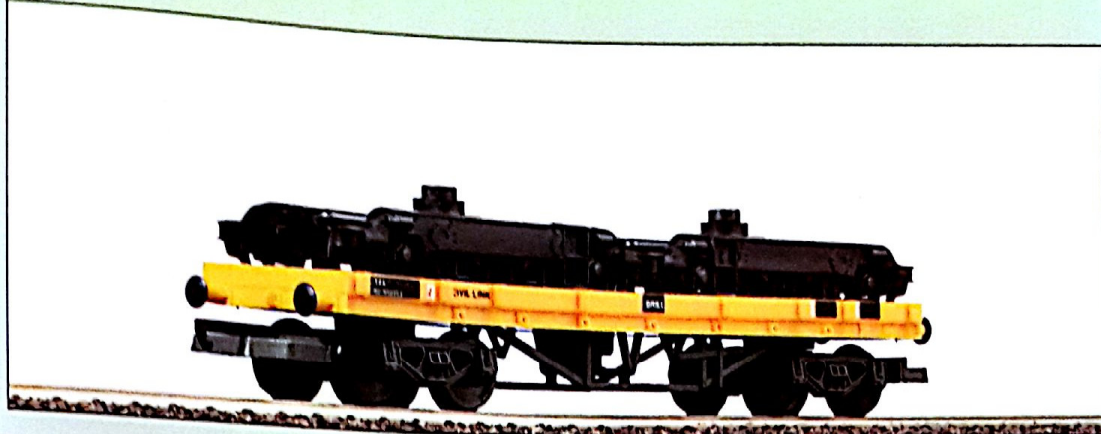
305667

Seacow bogie ballast wagon
grey/yellow livery.

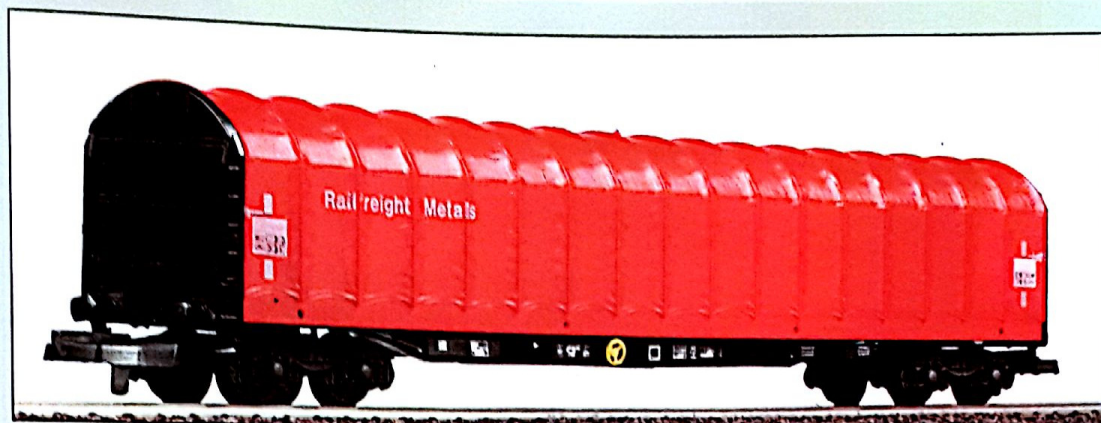
305665



305631
Civil link bogie
bolster wagon with locomotive
bogie load.



305680
Hooded bogie
steel carrying flat wagon.



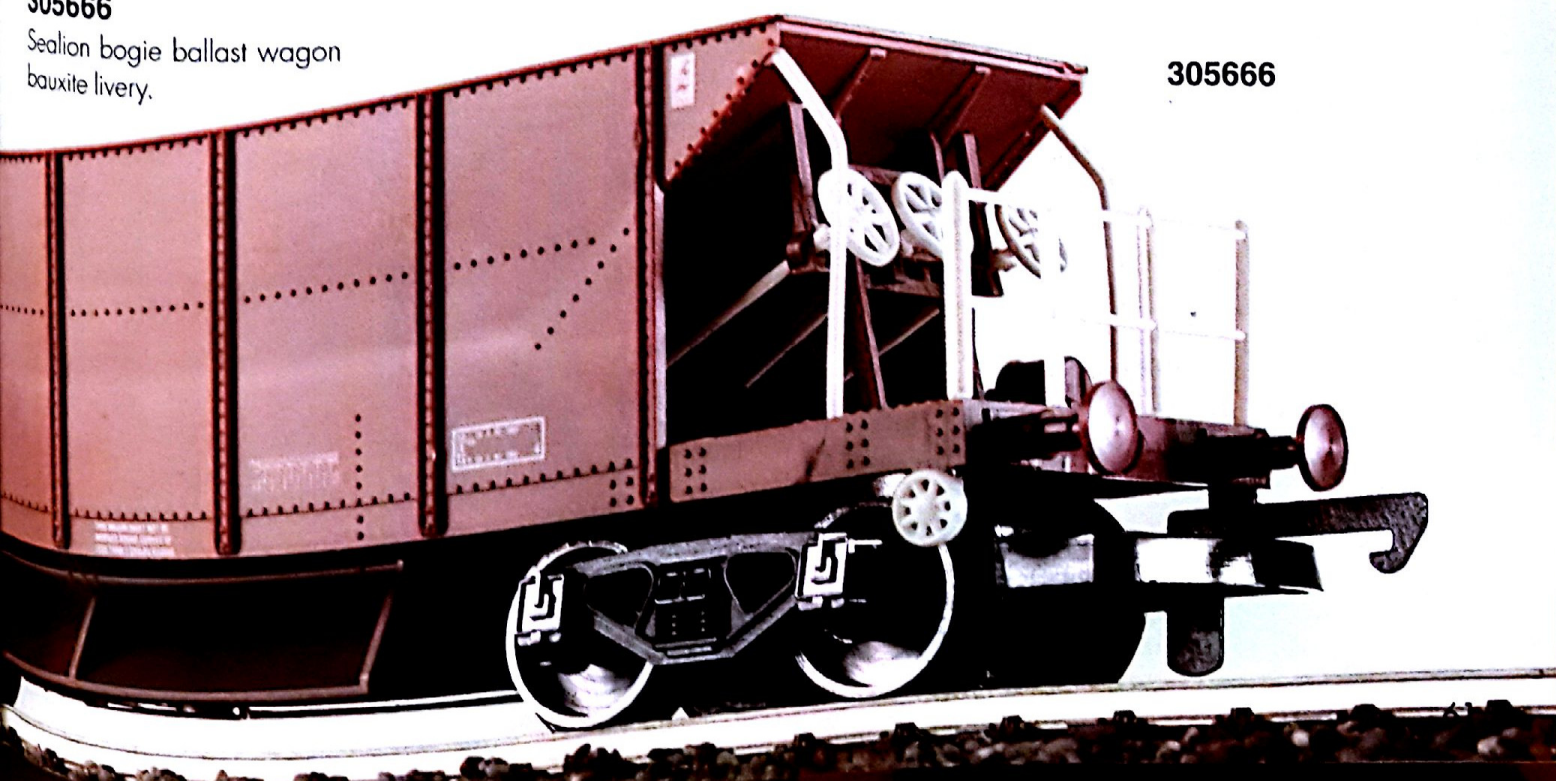
305681
Hooded Tiphook
steel carrying flat wagon.



305665
Sealion bogie
ballast wagon olive livery.

305666
Sealion bogie ballast wagon
bauxite livery.

305666



TANK WAGONS

These are possibly the most impressive wagons in a freight train. They are designed to ensure the transport of oil products, chemicals, compressed or liquified gases as well as other volatile fluids. The bogie tank wagons featured here

represent a development of the classic 4 wheel design and of course offer greater capacity. More often than not tank wagons such as these are seen in complete block trains.



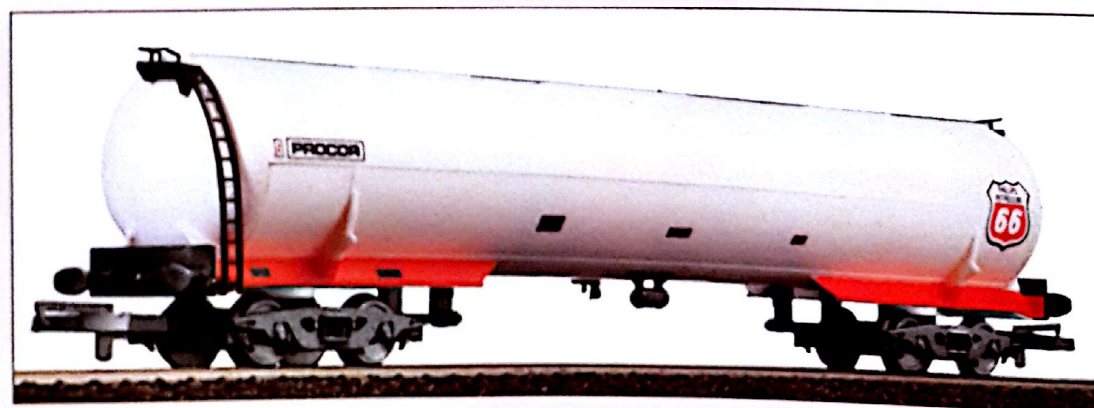
305645

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".



305649

Tank Wagon
Procor 102 ton "Total".

305358
 AS GUV
 parcels van maroon



305371
 AS
 bogie GUV BR maroon livery.



305360
 AS Bogie GUV
 in BR blue livery.



305656
 BR standard GUV
 express parcels van, blue.



305657
 BR standard GUV express
 parcels maroon



G.U.V. PARCELS



305613

BR standard
general utility van (GUV) in
Post Office red livery.



305610

BR standard GUV
in InterCity Motorail livery.



305640

BR standard GUV
in RES red and grey livery



305397

BRT staff coach.

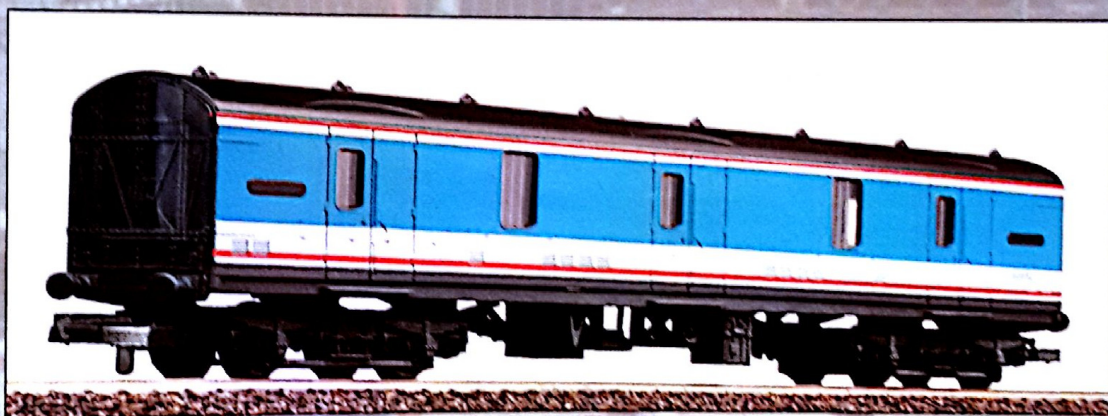
305658
BR standard GUV in Satlink
red and yellow livery.



305611
BR standard GUV in blue
and grey motorail livery.



305612
BR standard GUV
in Network South-East livery.



PROCOR PALLET VANS

This large 82 tonne bogie pallet van has been used by various companies for the transportation of many types of products, but particularly fertilisers.



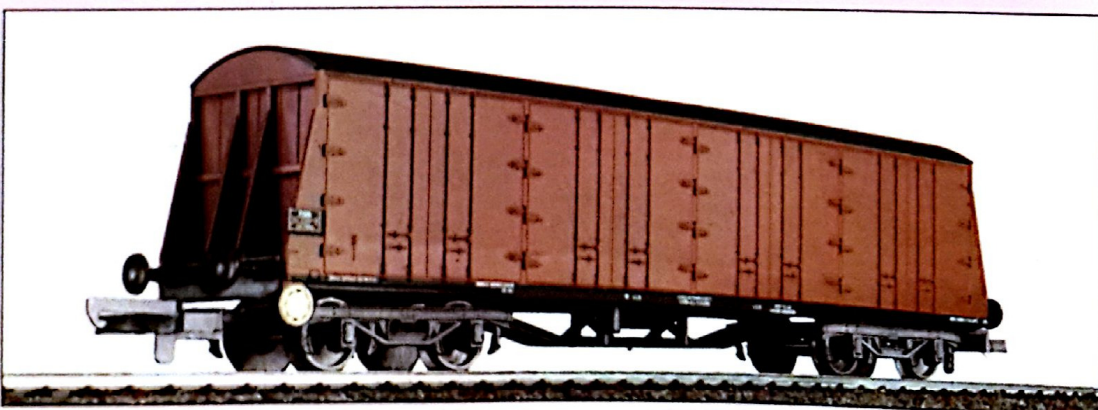
305659

Procor 82 ton bogie pallet van "Neill / Brown".



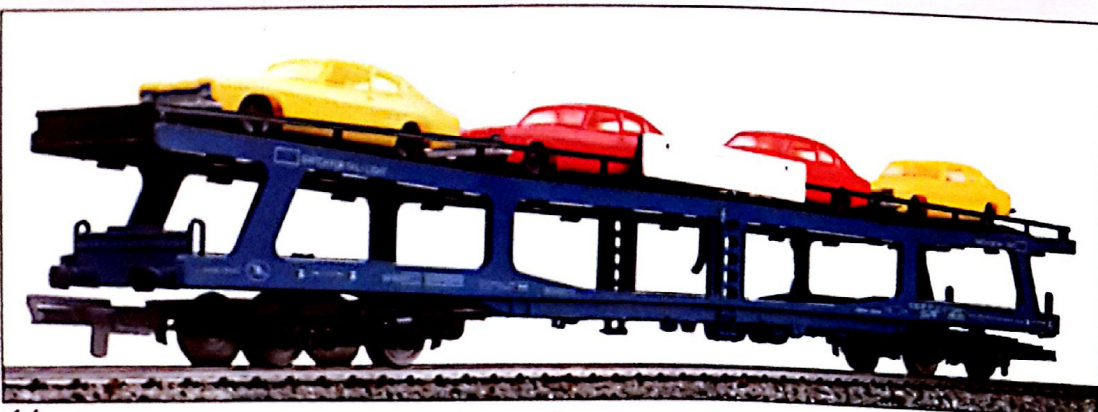
305661

Procor 82 ton bogie pallet van "HKF".



305662

Procor 82 ton bogie pallet van-standard BR livery.



305696

2 deck bogie car transporter with load of cars.

B.G. WAGONS

To provide capacity for parcels traffic on passenger trains and scope for the carriage of general goods, British Rail developed a design of brake van

based on the Mk1 coach. The brake van, however, occupied the whole of the floor space available and no passenger-carrying accommodation

whatsoever was provided within the bodyshell. These brake vans became known as gangwayed full brakes or B.G.s.

305347

Standard gangwayed brake van in Post Office red livery.



305349

Standard gangwayed brake van in RES red and grey livery.



305698

Breakdown crane with match truck.



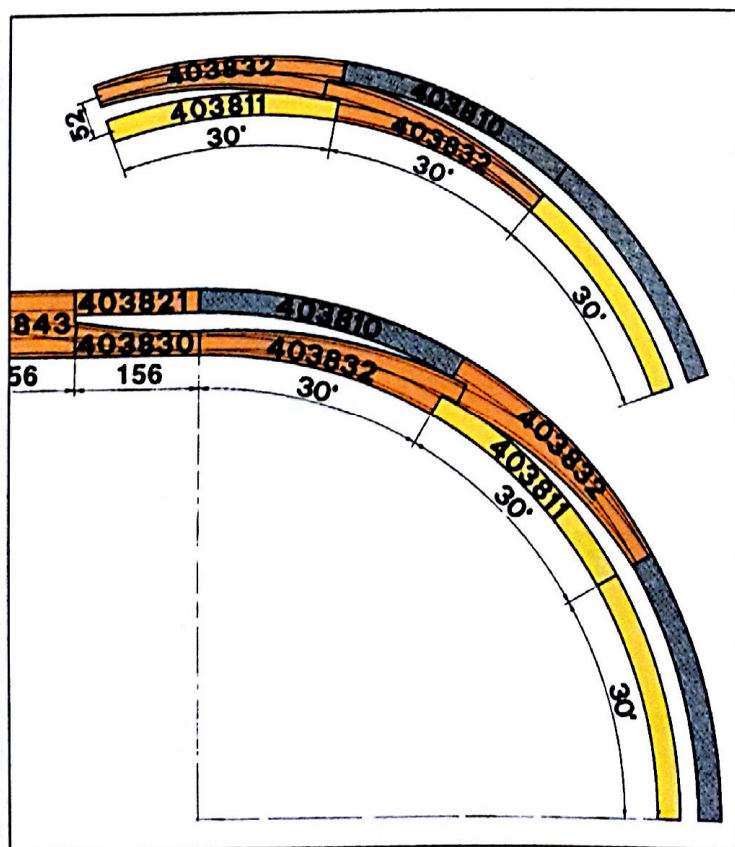
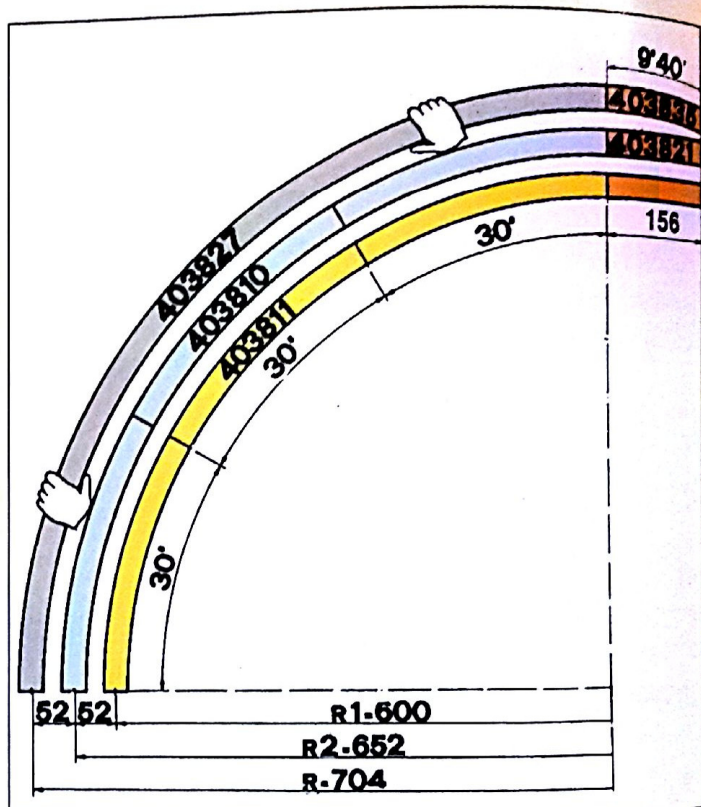
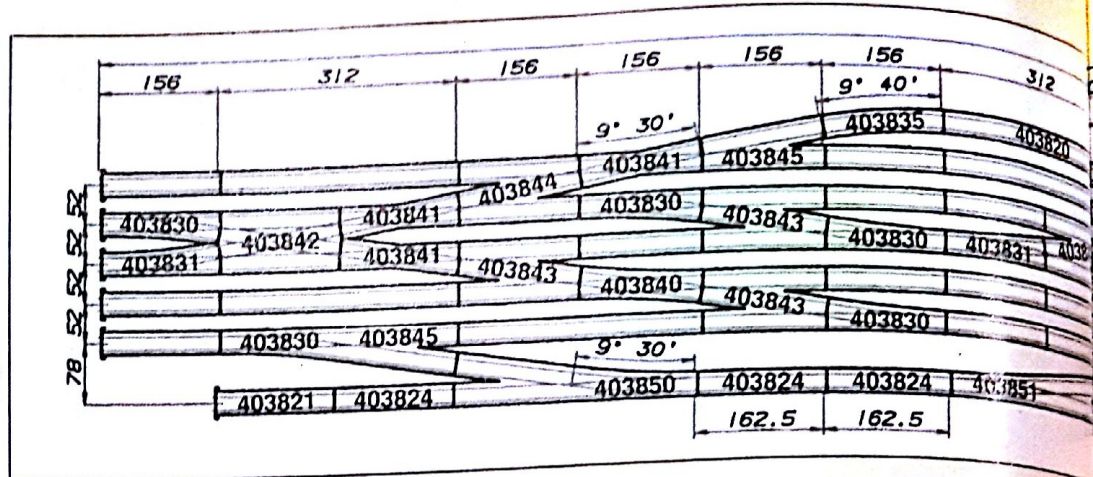
THE NEW LIMA
MODULAR SYSTEM
NEM 120

The new Lima track program, through its modular system, offers an incalculable number of possibilities and individual combinations 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

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

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.

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.



Lima curved tracks have been designed to maintain a steady "6 foot way" between two sets of running lines. To be precise, the centre line of one set of tracks have been designed to maintain a regular gap of 52mm between the centre lines of adjacent tracks. This is

accordance with NEM rules and allows even the longest scale length coaches to operate perfectly safely. Flexible track allows the curves of your layout to be designed exactly how you want them.



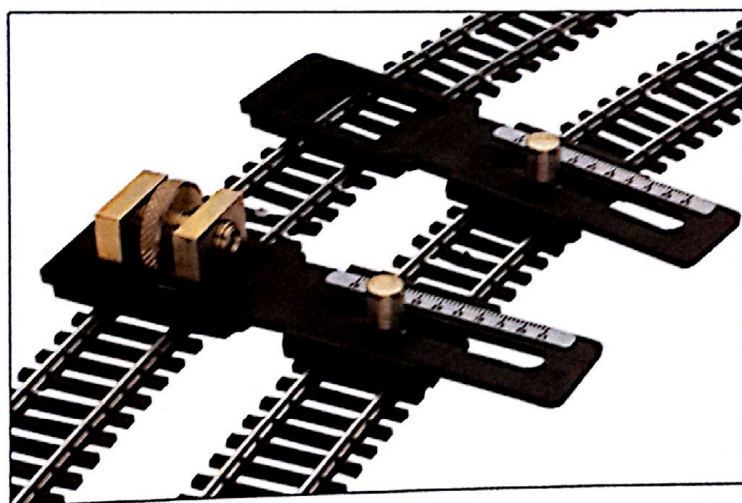
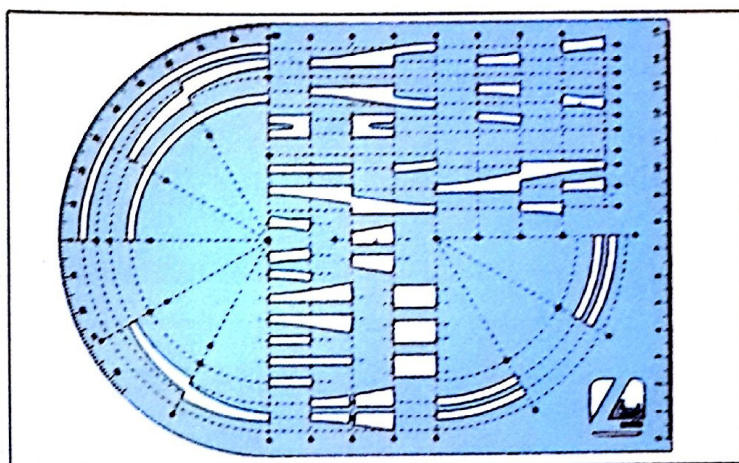
600063

Track planning stencils for NEM tracks.

600068

The flex-block is a particular accessory, expressly designed by UIMA (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 rod which allows the flexible track to be laid in position with a constant scale six-foot way.



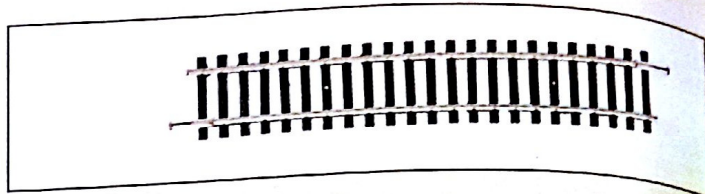
LINA

Have developed their modular Track System in accordance with NEM 112 rules. This provides for a scale "6 foot way" by ensuring that the distance between the centre line of parallel tracks is always 52 mm. The Lima modular Track System has been designed not only for realism but also to save space.



403821

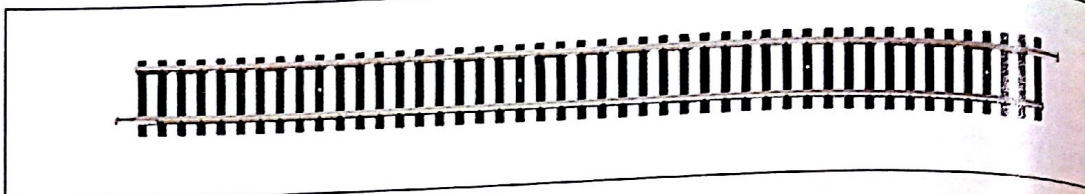
156 mm. straight track.



STRAIGHT TRACK

403820

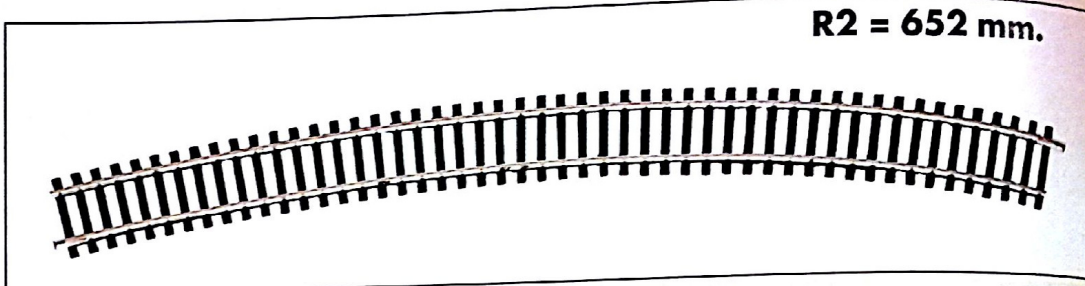
312 mm. straight track.



CURVED TRACK

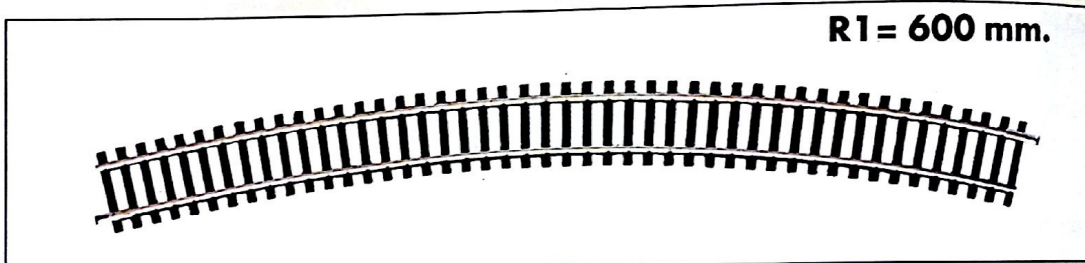
403810

Curved track,
652 mm, 30° radius.



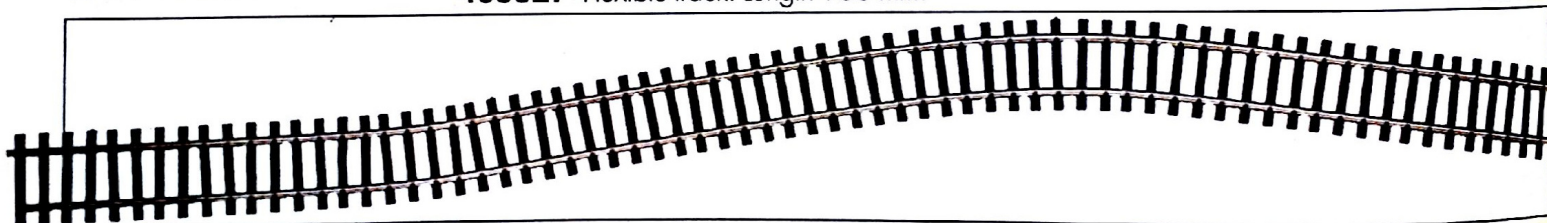
403811

Curved track,
600 mm, 30° radius.



LIMA-FLEX

403827 Flexible track. Length 936 mm.



These point units (both left and right hand) have been designed to provide 78 mm between the centre lines of adjacent tracks to allow sufficient space for the modeller to construct platforms, station walls etc.

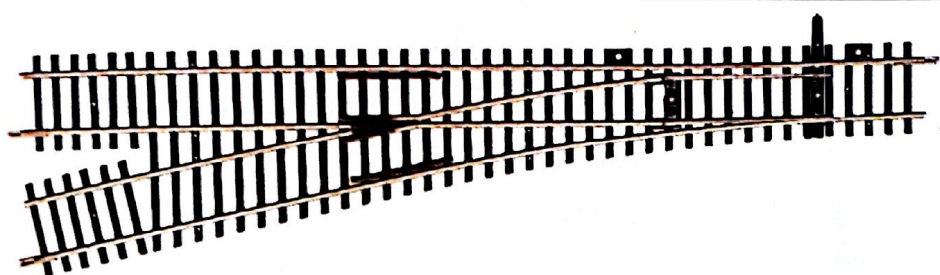
The Lima modular Track System works just like in the world of real railways and permits all European modellers to reproduce in perfect-miniature (1:87 scale) any type of railways installation. This track system has been developed in accor-

dance with the NEM rules model railway trackwork. This track unit allows complex crossing, such as those found in goods yards, to be set out in the minimum space.



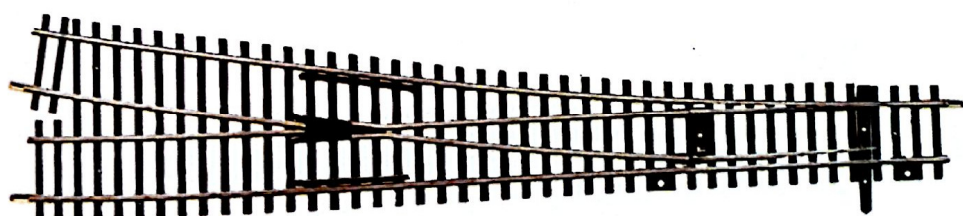
POINT BLADE MODULE

With left and right curved points a lot of space can be saved. Excellent realization of station entrances in curve or outside the bridges and tunnels maintaining a 52 mm distance.



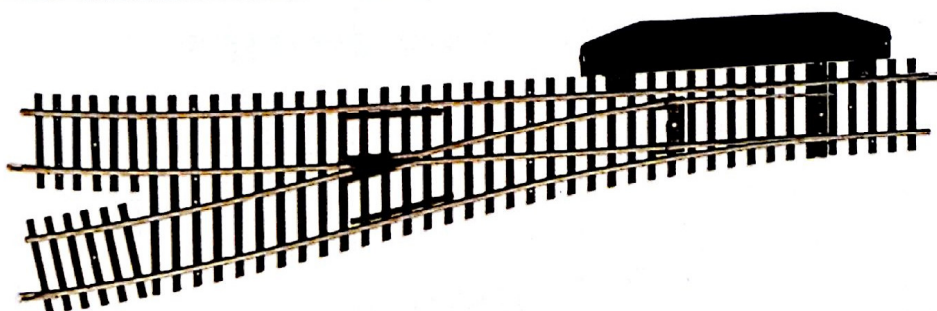
403851

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



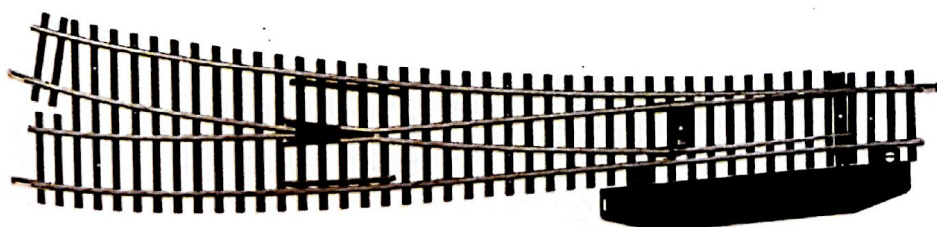
403850

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



403851E

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



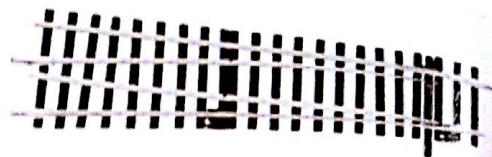
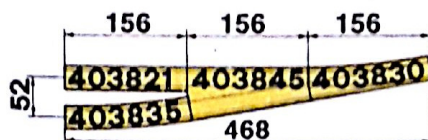
403850E

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

MANUAL POINTS

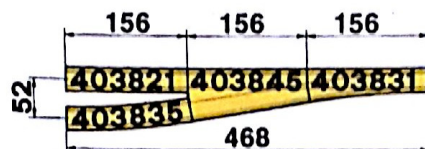
403830

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



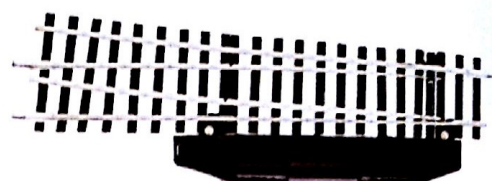
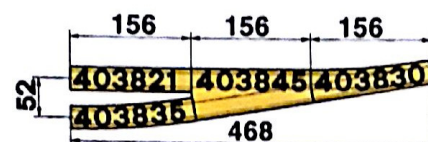
403831

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



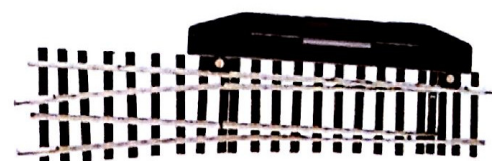
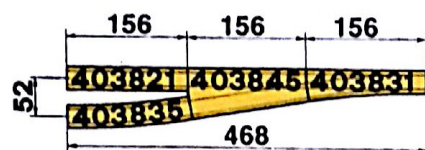
403830E

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



403831E

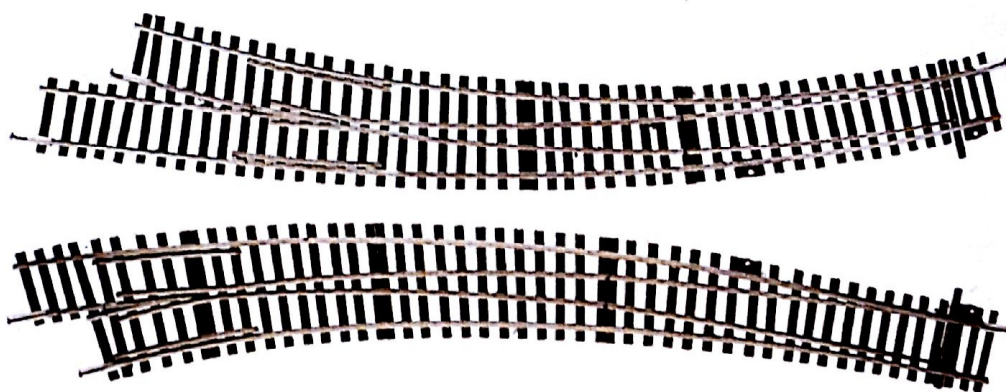
Left electromagnetic 9° 30' point blade module. Length 156 mm.



CURVED POINTS

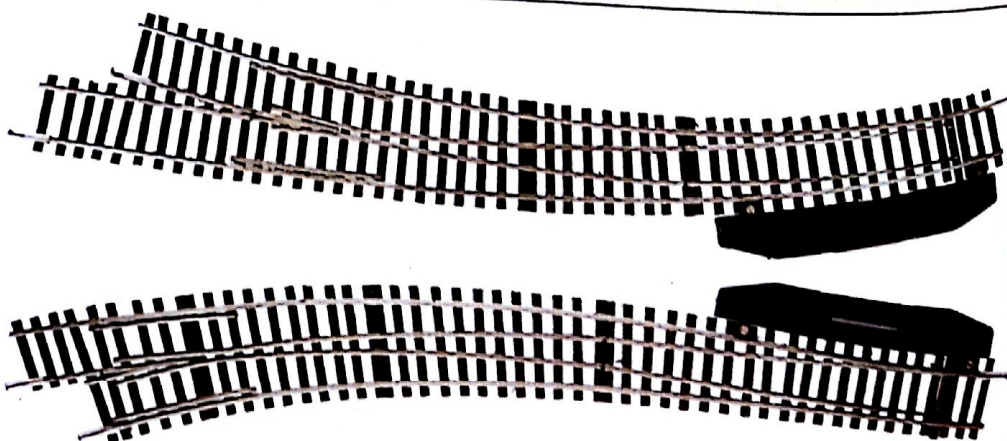
403832

Pair of curved points, 600 and 652 mm., radius 60°.



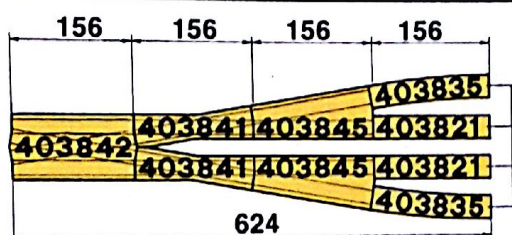
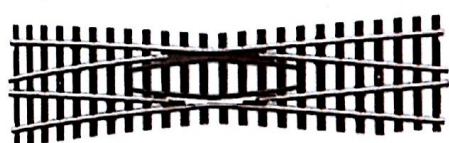
403832E

Pair of electromagnetic curved points, 600 and 652 mm., radius 60°.



CROSSING

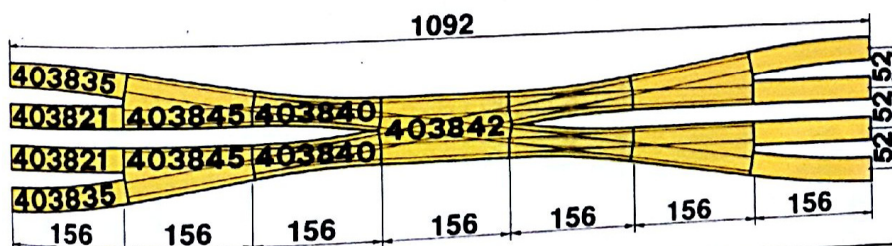
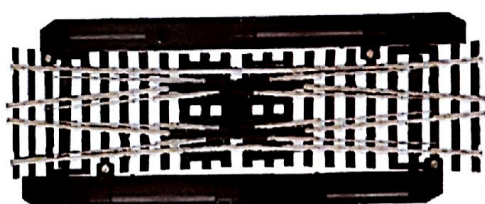
For simple crossing, this unit can be joined to left or right hand modules.



403841

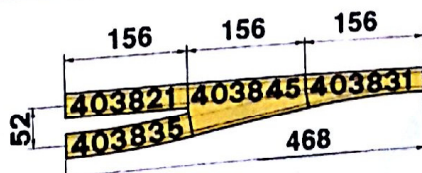
9° 30' crossing.
Length 156 mm.

DOUBLE SLIP



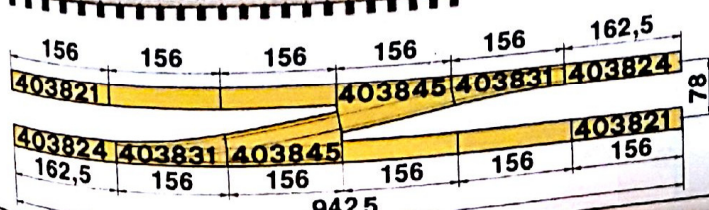
403840E

9° 30' electromagnetic
double slip. Length 156 mm.



403835

Compensating track for points
9° 40' R = 941.



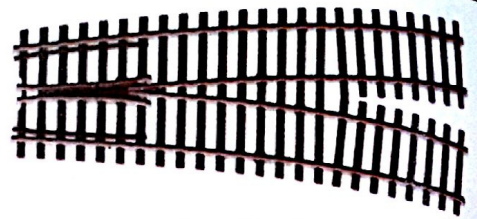
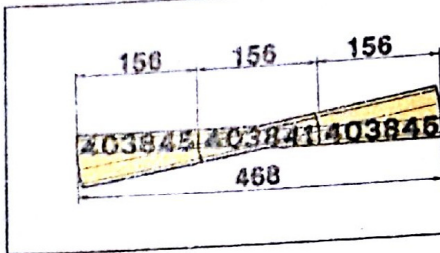
403824

Straight compensating track.
Length 162,5 mm.

FROG MODULE

403845

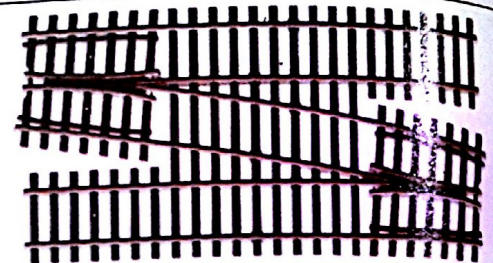
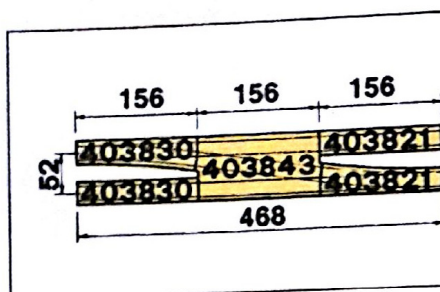
9° 30' frog section for all points and crossings. Length 156 mm. This is the basic element for all the LIMA track modular system.



CROSSED

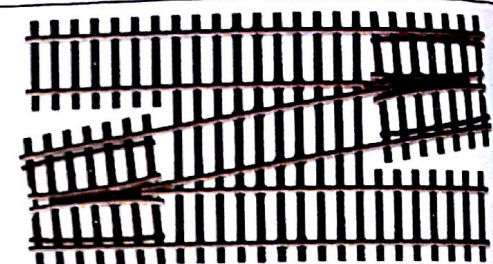
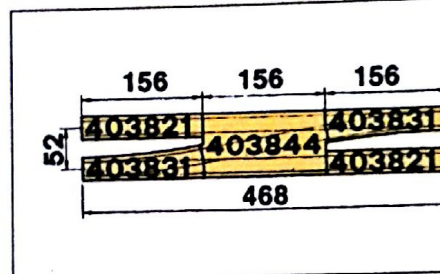
403843

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



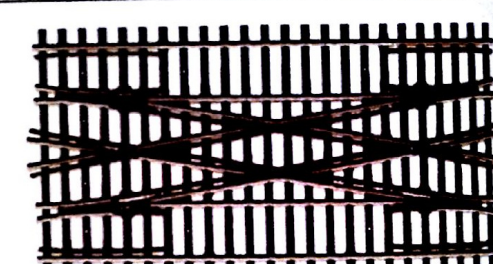
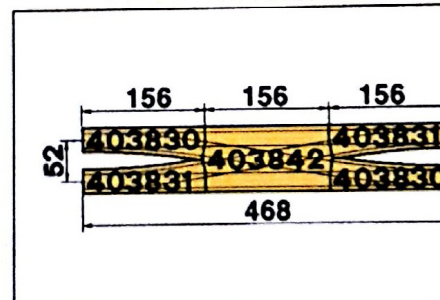
403844

With the same specifications of the previous turned parallel section but coupled to two left point blades. It allows the inverse passage in comparison with the previous one. The connection angle is only 9° 30'. This allows the point to be used with trains at full speed with absolute safety.



403842

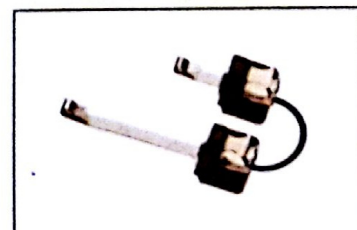
9° 30' crossed parallel double section. Length 156 mm. The crossed parallel double section, carries out scissor operation.



CONNECTING

403860

Bipolar connecting terminal to the tracks which can be inserted at any point of the circuit.



PRELLBOCK

403861

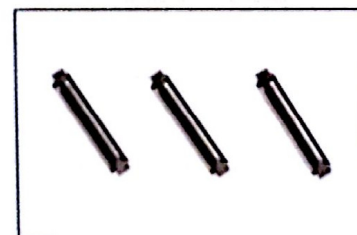
Buffer to be assembled on the track.



FISHPLATES

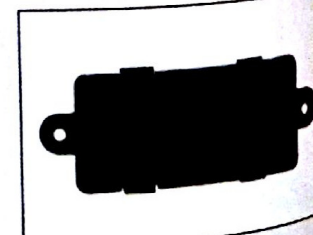
600883

Metal fishplates for NEM 120 trackwork.



600867

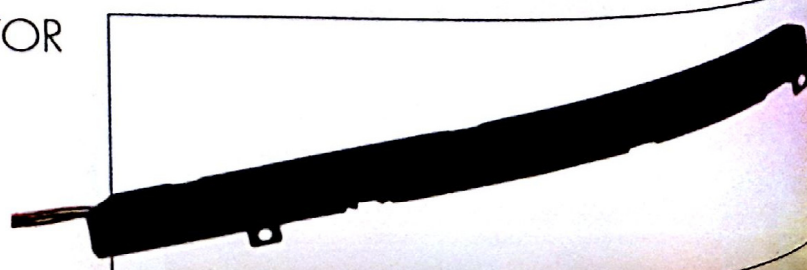
Point motor to electrically control for NEM points and crossing.



ELECTROMAGNETIC POINT MOTOR

600880 Point motor to electrically control right points.

600881 Point motor to electrically control left points.



TRANSFORMER

602060



602060

Transformer controller for 3 trains, points and electrical accessories. Input 220/240 volts; 50-60 Hz. Output is controlled electronically to provide 0.12 volts DC at 1 amp and 14 volts AC at 0.5 amps. Protected against overload and short circuit.

602052

Transformer controller for 1 train. Input 220/240 volts; 50-60 Hz AC. Output 0-12 volts DC. Designed to operate 1 train or DC accessories. Protected against overload and short circuit.

602053

Transformer controller for 2 trains, points and electrical accessories. Input 220/240 volts; 50-60 Hz AC. Output 0-12 volts DC and 14 volts AC. Protected against overload and short circuit.

603065

Point Switch.

603066

Push-Button Control Box.

602055

Transformer for electro-magnetic devices such as point motors etc. Input 220/240 volts; 50-60 Hz AC. Output 14 volts AC. Protected against overload and short circuit.

603067

Junction Box.

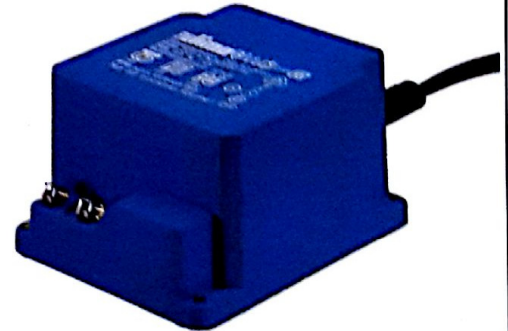
602052



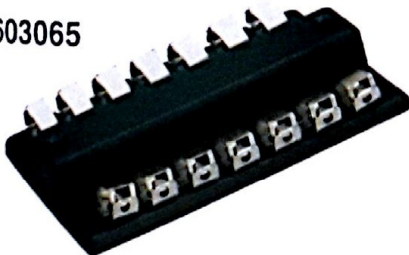
602053



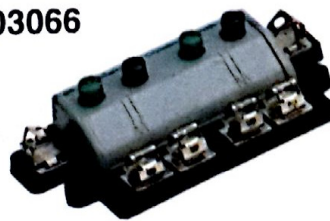
602055



603065



603066



603067



600875



600876



600877

3 x 600875

Motor Springs and Brushes.

3 x 600876

Metal Fish Plates.

3 x 600877

Insulating Fish Plates.

3 x 600870

4 Axles at Ø 11,5 mm.

3 x 600869

4 Axles at Ø 10,3 mm.



600870



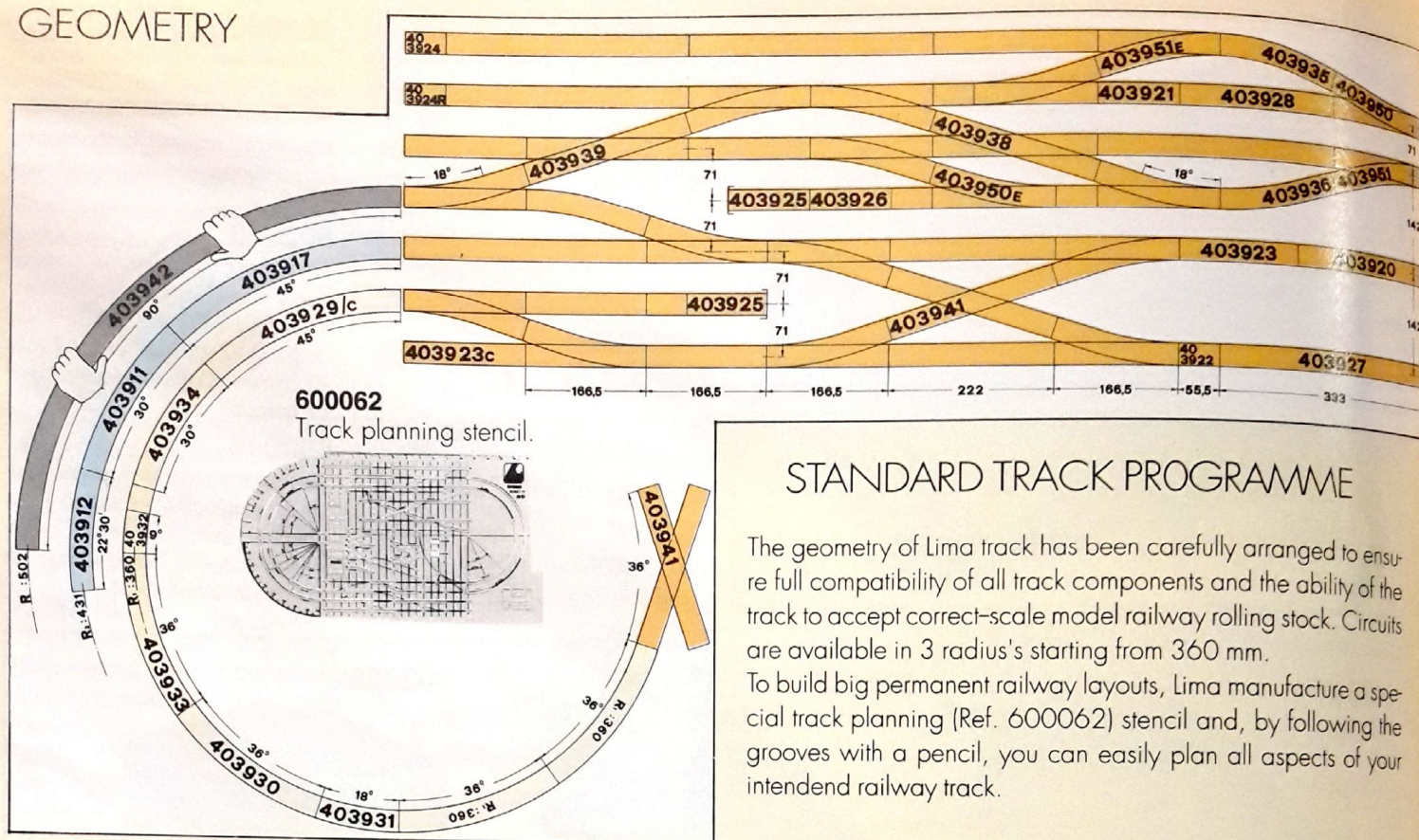
600869

600014

The Lima Service Box contains a comprehensive range of spare parts for most repairs and is available from Lima stockists.



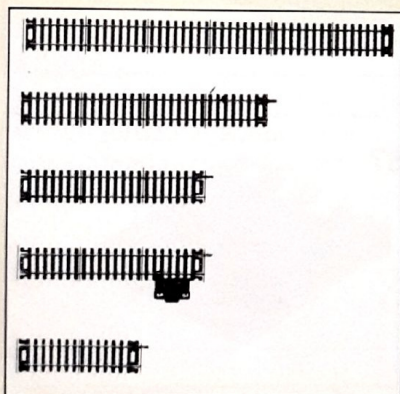
GEOMETRY



STANDARD TRACK PROGRAMME

The geometry of Lima track has been carefully arranged to ensure full compatibility of all track components and the ability of the track to accept correct-scale model railway rolling stock. Circuits are available in 3 radius's starting from 360 mm.

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



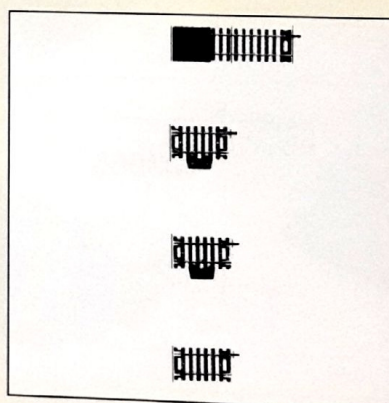
403927 Straight 333 mm.

403920 Straight 222 mm.

403923
Straight 166,5 mm.

403923C Straight track
with power clip. 166,5 mm.

403921 Straight 111 mm.

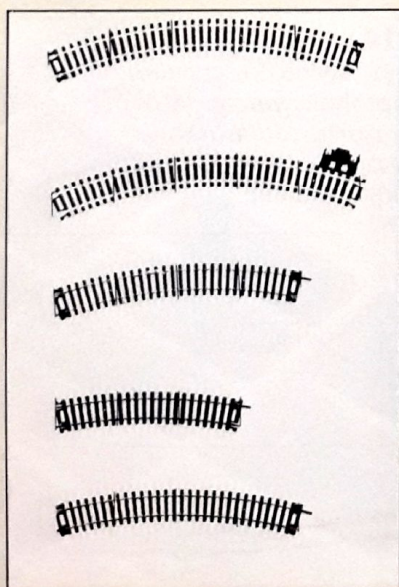


403925
Buffer stop. 111 mm.

403924 Straight track
with power clip. 55,5 mm.

403924R Straight
isolating track. 55,5 mm.

403922
Straight 55,5 mm.



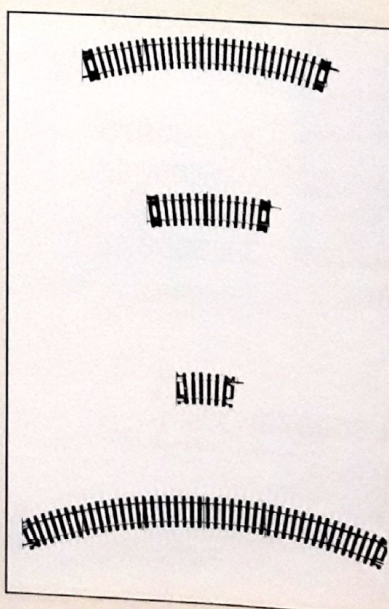
403929
Curved. Ø 720 mm. 45°.

403929C
Curved track with power
clip. Ø 720 mm. 45°.

403930
Curved. Ø 720 mm. 36°.

403912
Curved. Ø 862 mm. 22°.

403911
Curved. Ø 862 mm. 30°.



403934
Curved. Ø 720 mm. 30°.

403931
Curved. Ø 720 mm. 18°.

403932
Curved. Ø 720 mm. 9°.

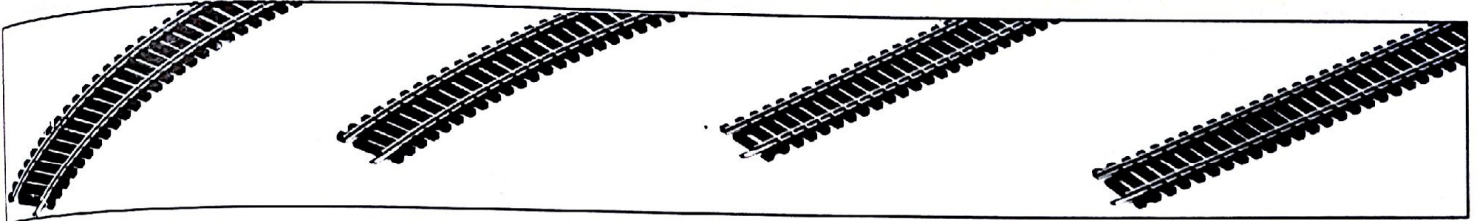
403917
Curved. Ø 862 mm. 45°.

ISOLATING POINTS

With Lima isolating points, you can easily isolate sections of the layout. The traction current is fed to the correct operated accessories.

(Wiring details etc. for electrically controlled accessories using existing cables).

BOX OF 100 PCS.



403964
Curved. Ø 862 mm. 30°.

403967
Curved. Ø 720 mm. 36°.

403958
Curved. Ø 720 mm. 30°.

403960
Straight 222 mm.

403968
Straight 166,5 mm.

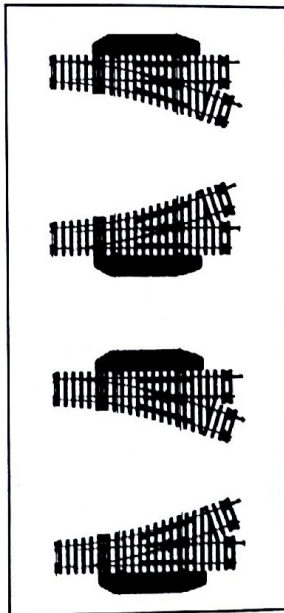
403957
Straight 333 mm.

403950
Right-hand point manual

403951
Left-hand point manual

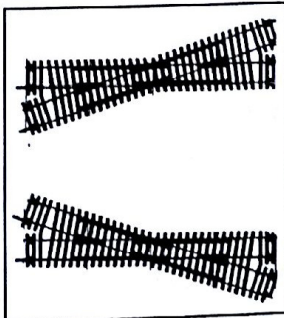
403950E
Right-hand point electric

403951E
Left-hand point electric



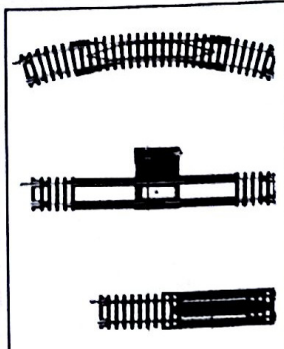
403939
Left diamond crossing 18°

403938
Right diamond crossing 18°



403933
Rerailer Ø 720 mm. 36°

403928
Uncoupler 222 mm.



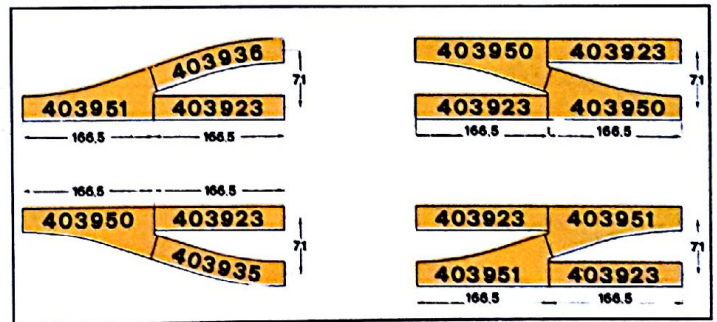
403926
Extensible 111 to 166,5 mm

403935
Right compensating.



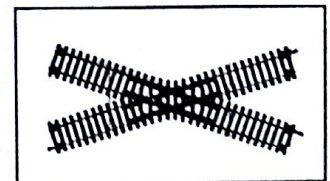
POINTS

403936
Left compensating



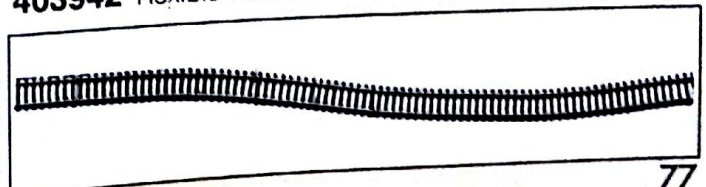
CROSSING

403941
Diamond crossing 36°



SPECIAL TRACKS

403942 Flexible 900 mm.



ADDITIONAL TRACK LAYOUTS

NOW PRODUCED WITH NICKEL SILVER RAILS FOR IMPROVED PERFORMANCE

Lima track extension sets are designed to add to the first basic circular layout and with further track extension sets, a more complex railway layout can be constructed. This requires a high level of creativity, according to the available space and to the various

needs of the modeller. It is for this reason that Lima offers different track extension sets composed of track sections and points to allow the modeller to exercise their imagination. The Lima system of track extension sets consists of various progressive combina-

tions of straight and curved track, points and crossings, 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. The Lima track extension sets, consisting of track sections

and hand-operated points, are designed to allow a stage-by-stage construction of a railway layout, up to the most complex system. Each Lima track extension set can be joined with others to form an integrated system and a highly realistic model railway.

404010

Track extension set **A** consisting of: 8x403020
1x403041

ELECTRICALLY OPERATED POINTS

The Lima system of track extension sets, consisting of track sections, crossings and electrically-operated points, enables the construction of railway layouts on which trains can be operated with greater realism. The electrically-operated points provide the basic components which allow for the control of more trains on complex layouts where double-track sections and 2 or more junctions are installed. Every Lima set is designed to fully match with all others, in order to ensure, step-by-step, the construction of a complete modular miniature railway.

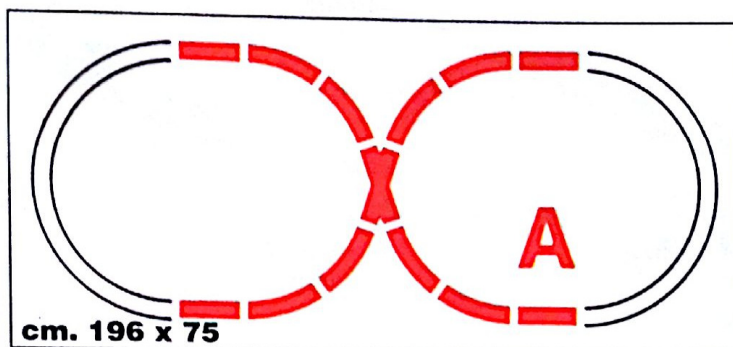
404011

Track extension set **B** consisting of: 8x403020
1x403021
1x403022
1x403050
1x403025

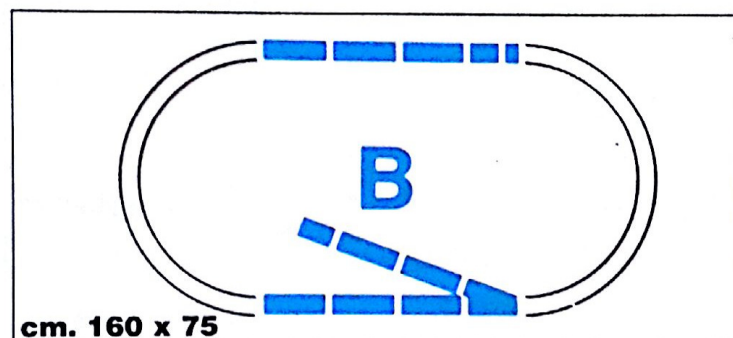


404012

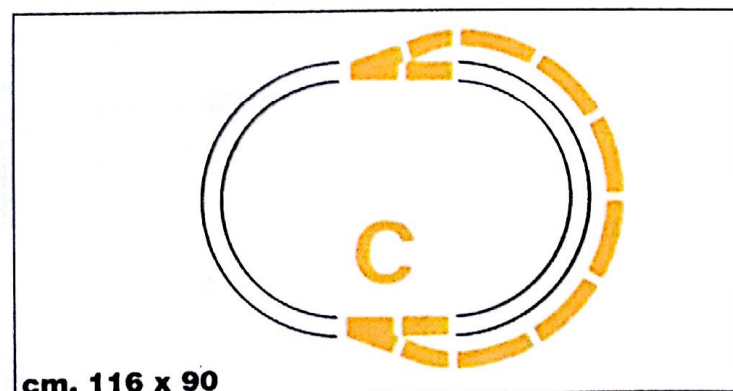
Track extension set **C** consisting of:
2x403023 1x403050 1x403051
1x403035 1x403036 6x403011



cm. 196 x 75

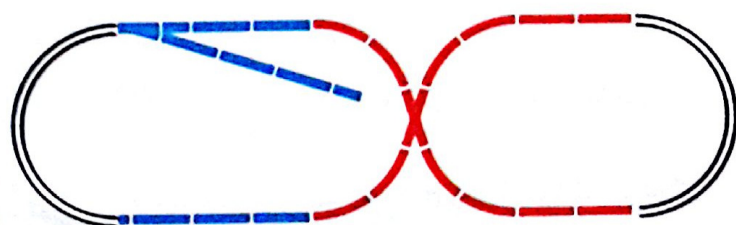


cm. 160 x 75

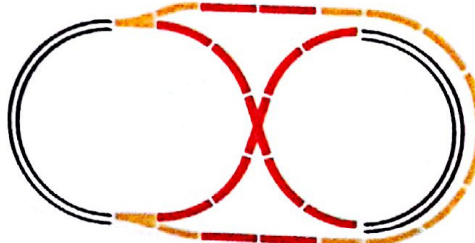


cm. 116 x 90

A+B



A+C

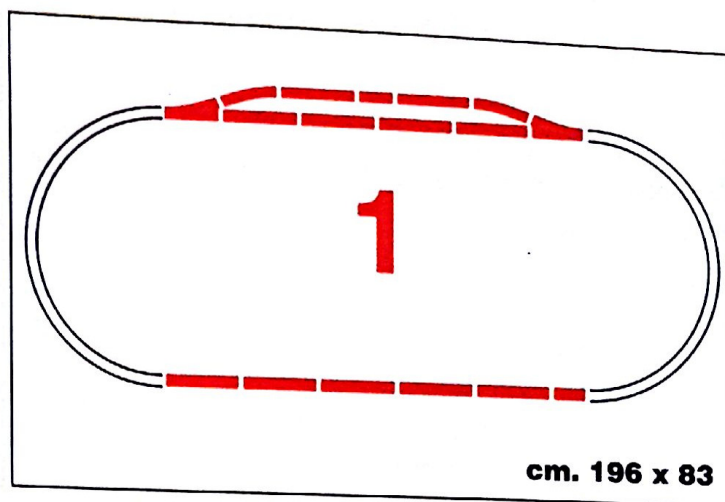


B+C



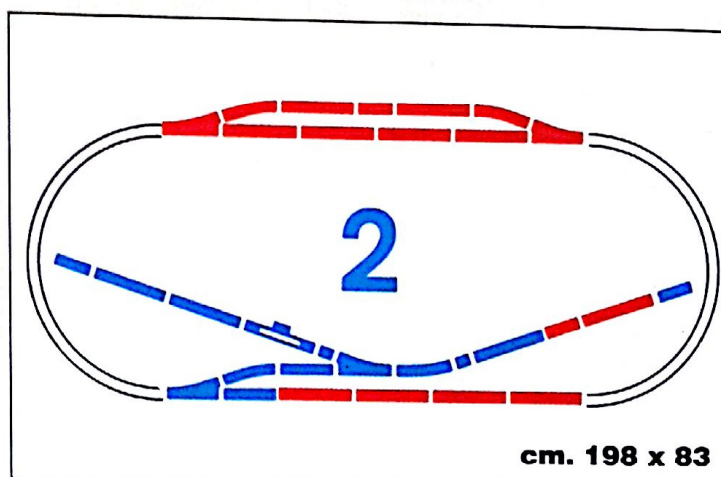
404021E Track extension set **1** with electromagnetical points and control box. Consisting of:

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



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

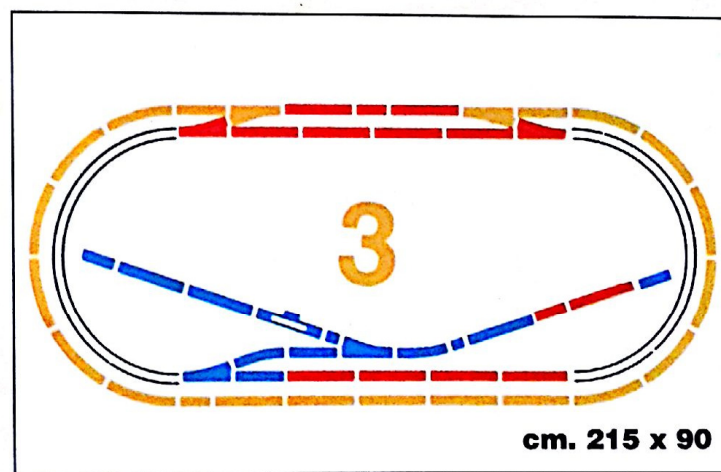
3x403020	2x403023	1x403035	1x403036
2x403024R	2x403025	1x403028	1x403050E
1x403051E	1x603065		



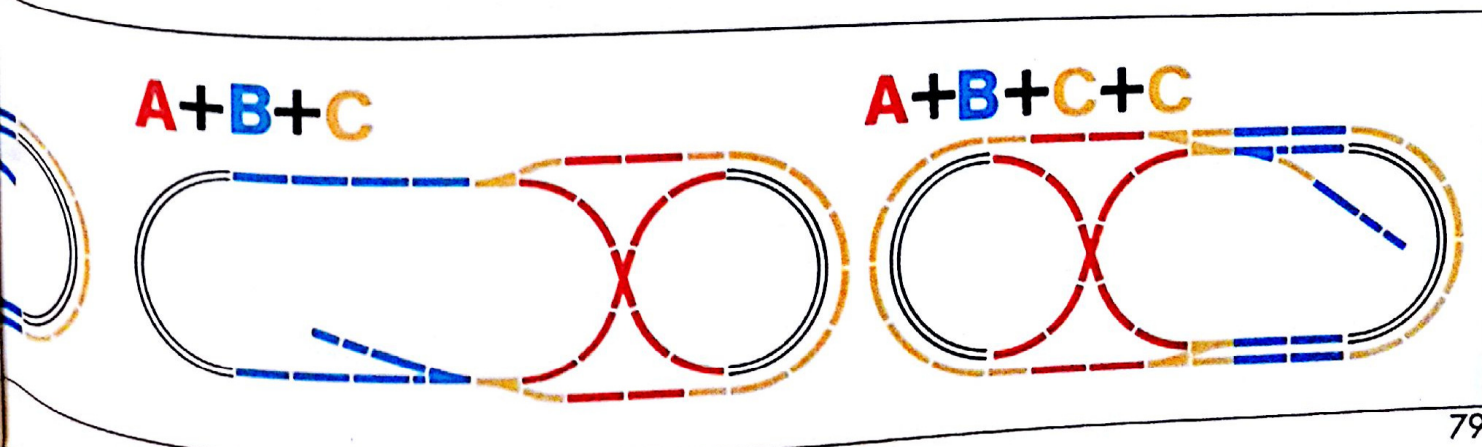
The LIMA system of track extension sets, consisting of track sections, crossing and electrically-operated points, enables the construction of railway layouts on which trains can operate with a greater realism.

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

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



The LIMA track extension sets, consisting of track sections and hand operated points, are designed to allow a stage-by-stage construction of a railway layout up to the most complex system.



HOW TO BUILD LAYOUT

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 basic 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 larger and more complex circuit, you may add more panels according to space available.

Building your layout

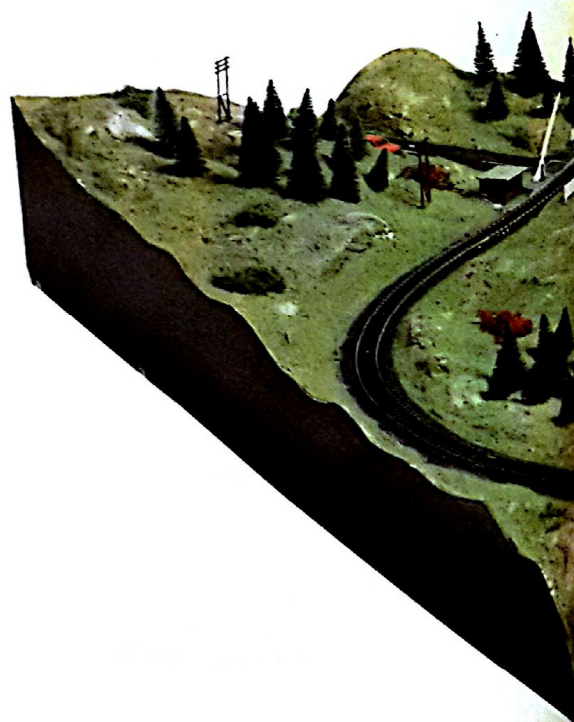
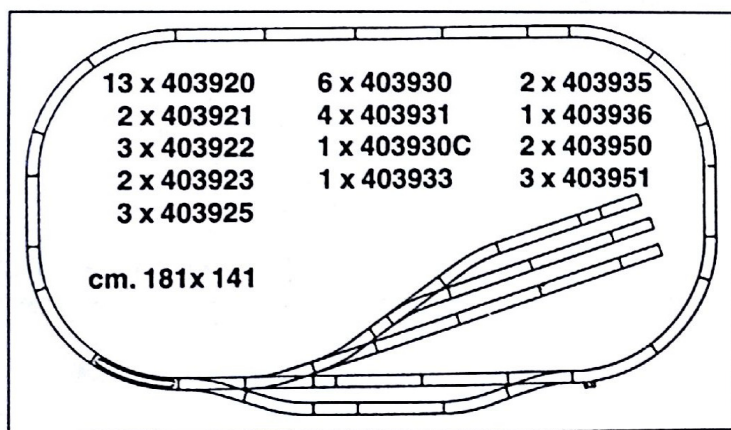
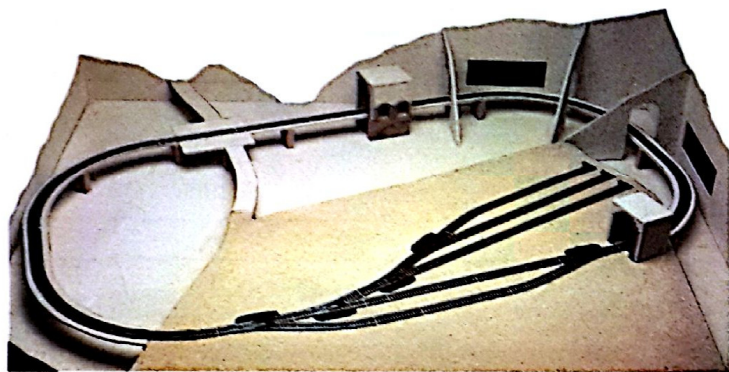
If building your layout for the first time, we advise that in a real railway the natural surroundings have to be taken into consideration, in a miniature layout, the track circuit is first positioned and the landscape is created around it. We suggest therefore, you determine the ground level before fixing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

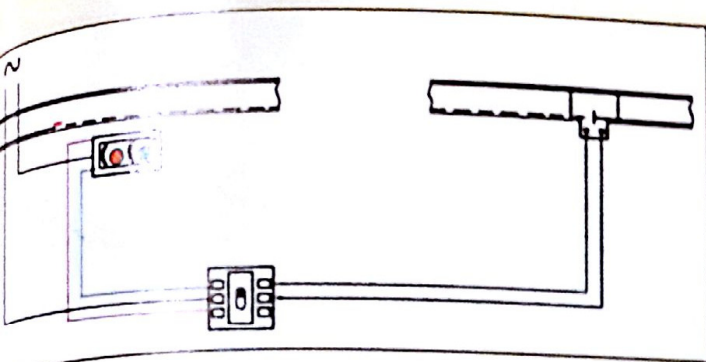
- the levels of hills, river or lake bed, valley etc. are realistic;
- the gradient: slope does not exceed more than 3,5 % for each meter run;

- to harmonize the residential areas, industrial zones and country locate stations, houses and other buildings.

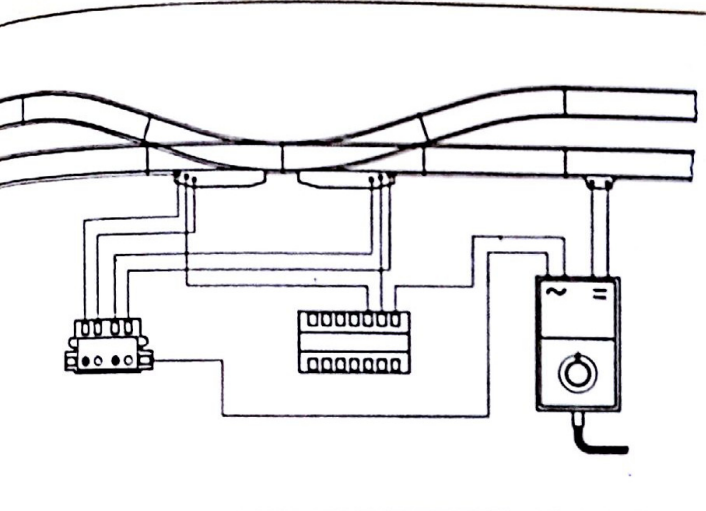
Electrification

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.

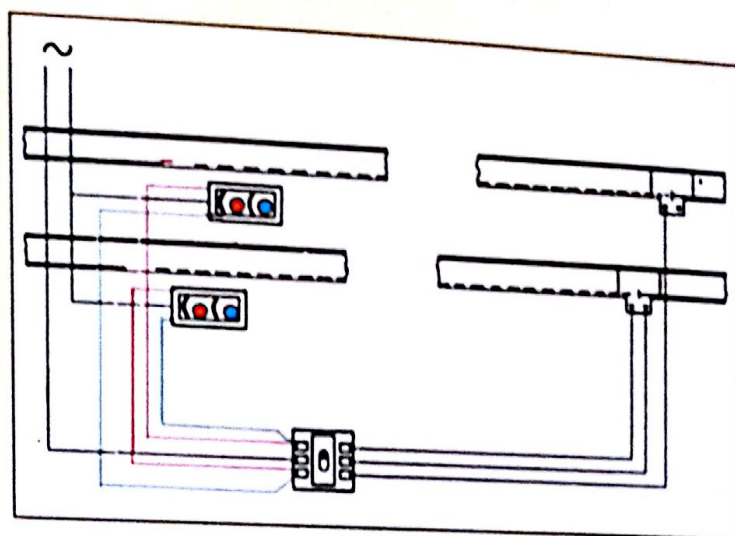




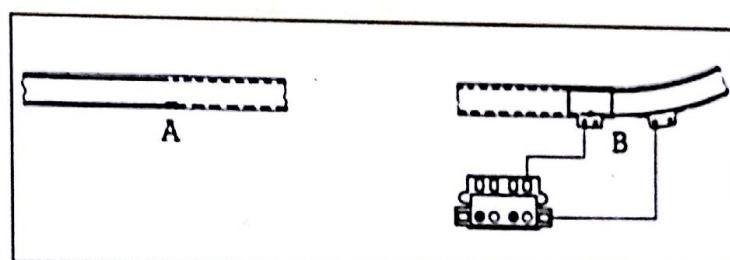
Correct wiring of a signal to control a single section.



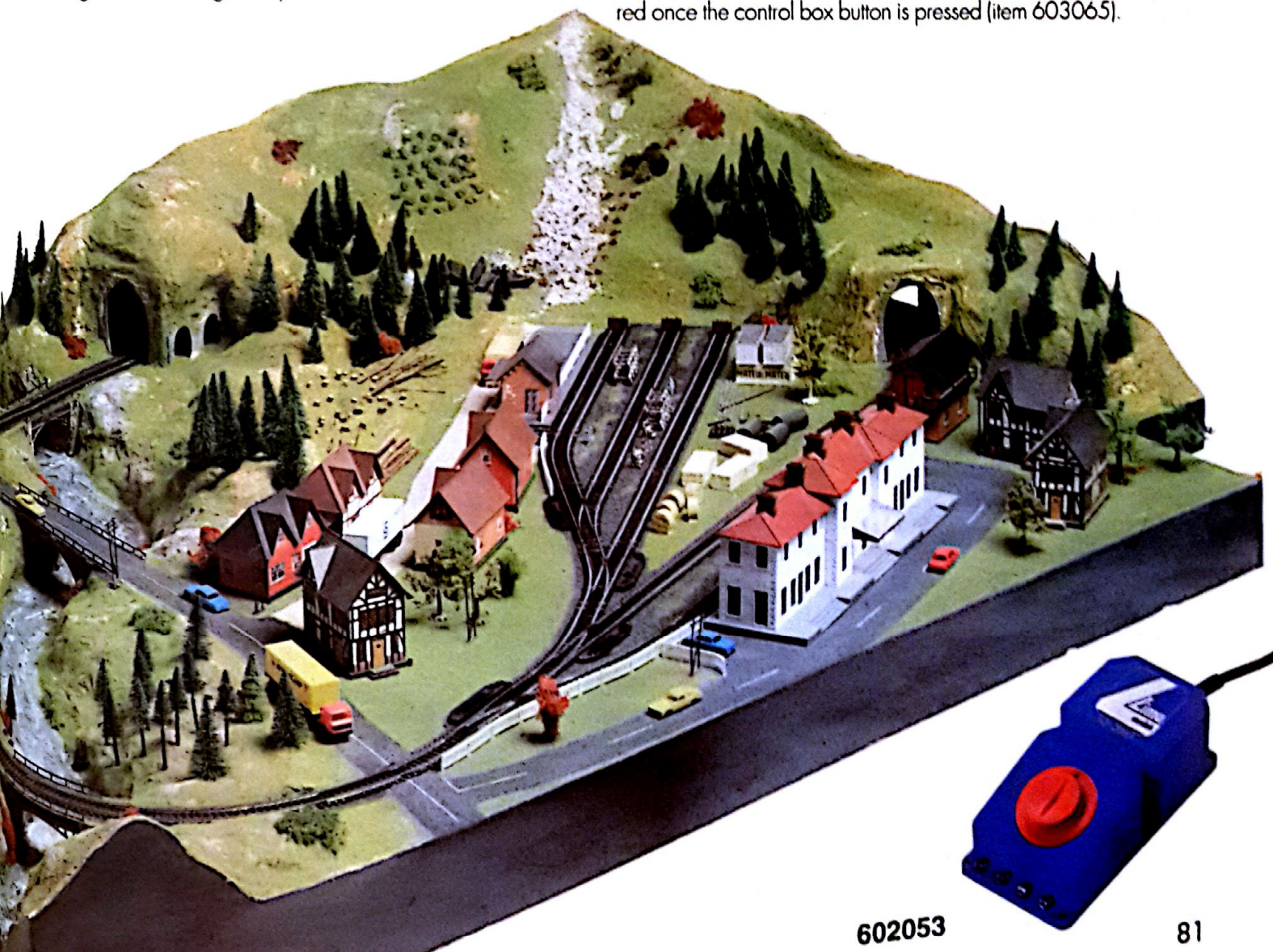
Correct wiring of electromagnetic points.



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).

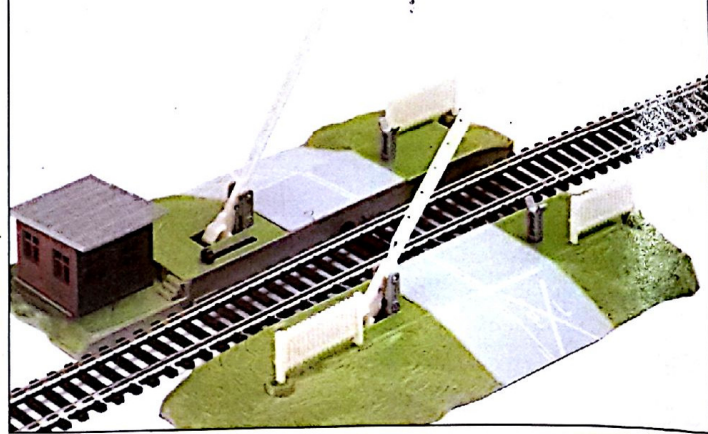


ACCESSORIES

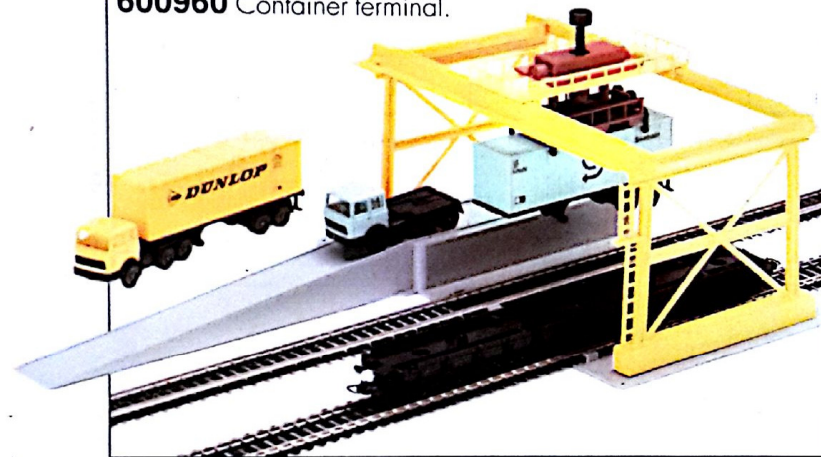
600940 Car unloading



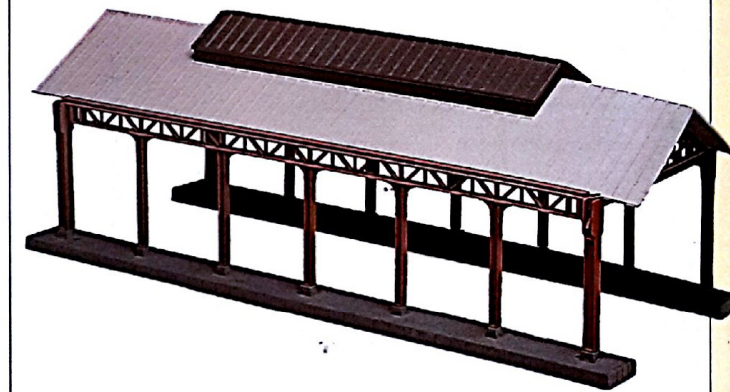
600021 Automatic level crossing.



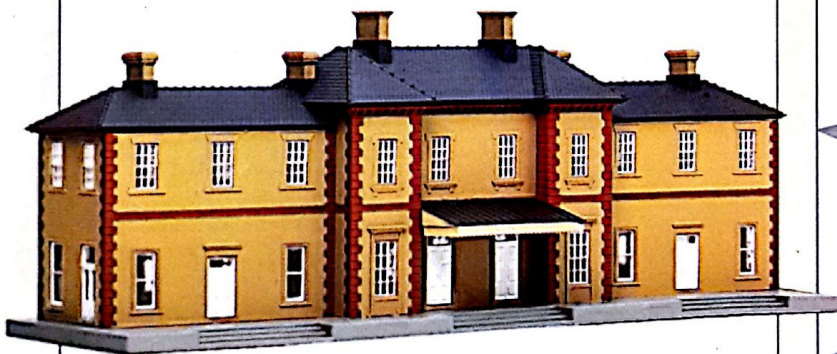
600960 Container terminal.



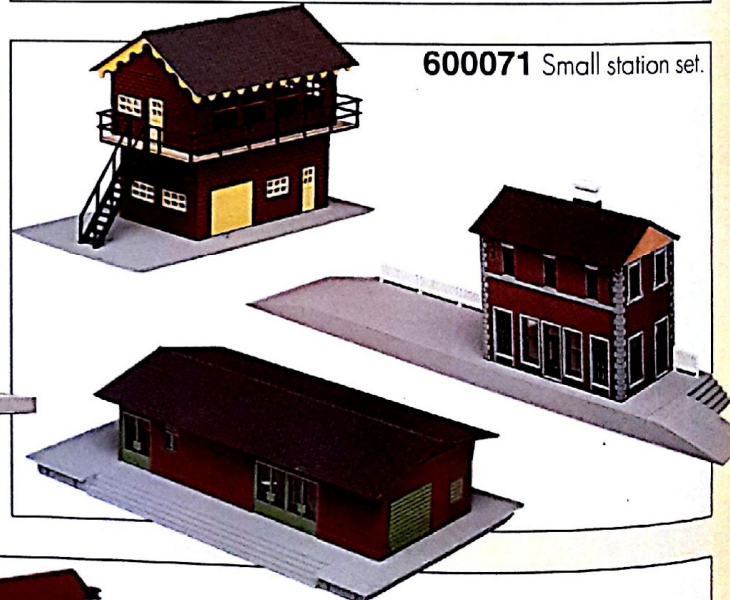
600031 Station roof mounted on a lattice frame.



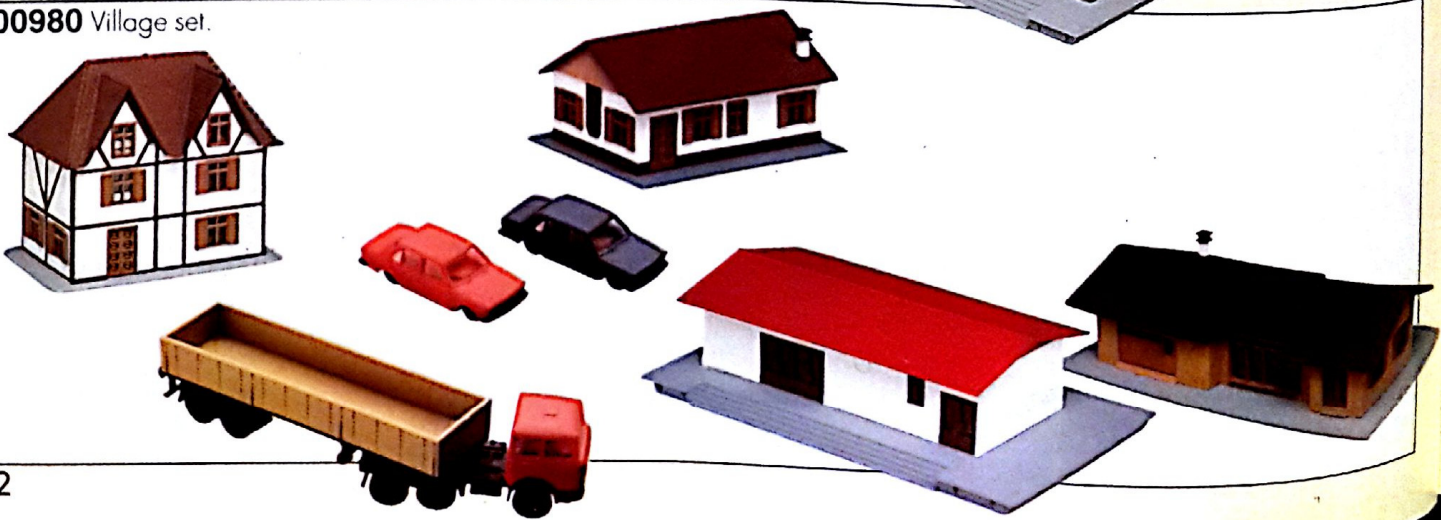
600033 Main station.



600071 Small station set.



600980 Village set.



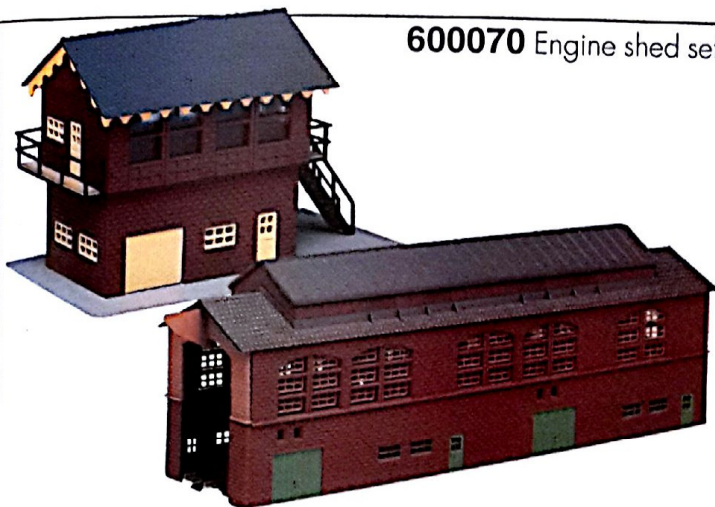
602082 Tunnel for two tracks.



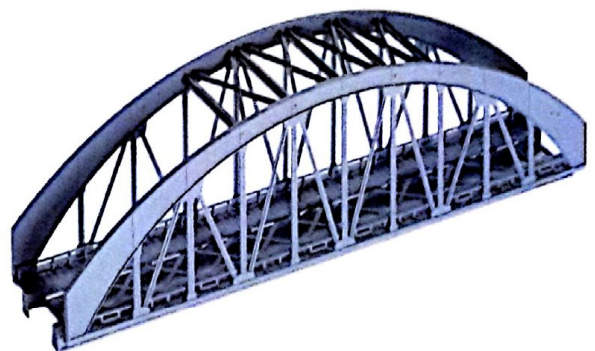
602083 Tunnel for one track.



600070 Engine shed set.



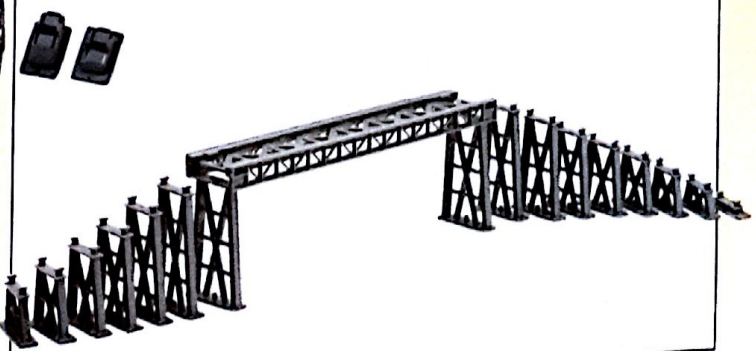
600913 Arch bridge.



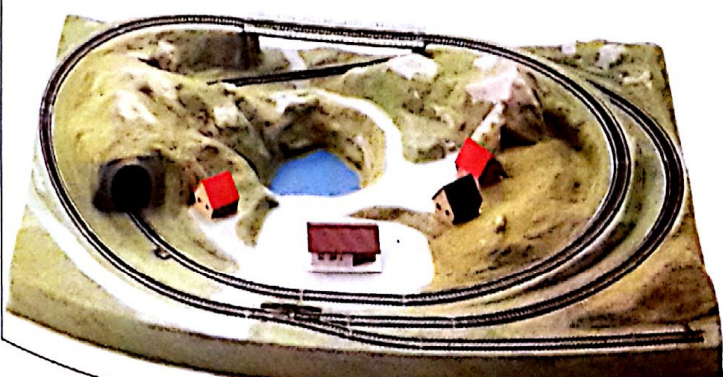
600912 Banked bridge for curved or straight section.



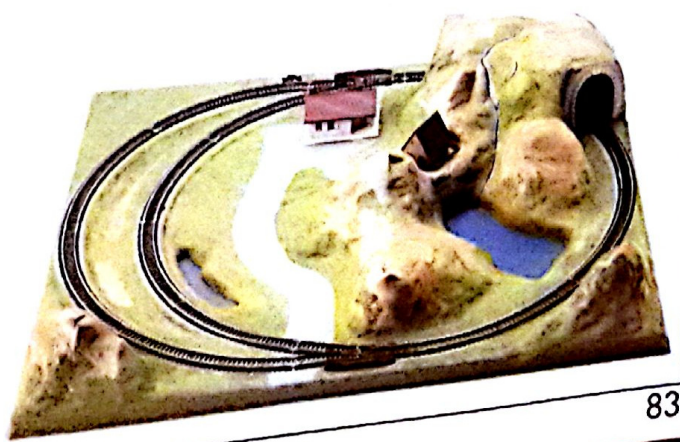
600911 Bridge for circuit with piers.



600402 layout decorated 1220 x 1030 mm.



600401 Diorama decorated 945 x 840 mm.



639401

