Metro-Cammell Diesel-Electric Pullman Trains

By R. P. Bradley

METRO~
CAMMELL

METROPOLITAN - CAMMELL
CARRIAGE & WAGON CO. LTD.

SALTLEY, BIRMINGHAM
ENGLAND

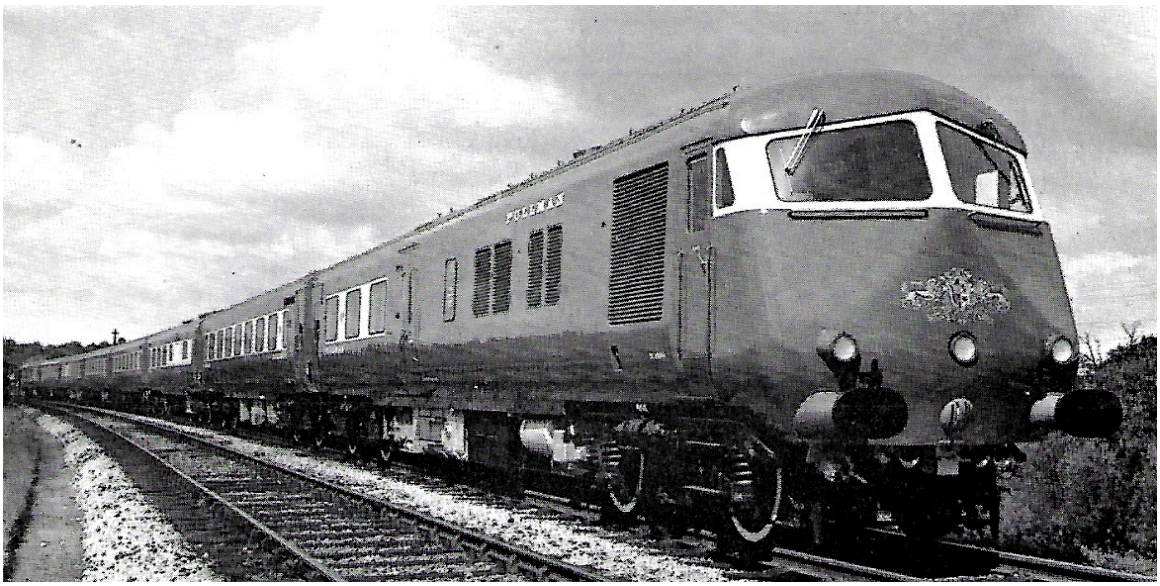
On 24 June 1960 a demonstration run of BR's diesel-electric Pullman train took place between Marylebone and High Wycombe. The six and eight-car trains were designed and built by the Metropolitan-Cammell Carriage & Wagon Co. for the Pullman Car Company, to be operated on the LMR and WR respectively. The Railway Gazette used an interesting phrase as it reported the new arrivals;

> *"The term de-luxe applied by the British Transport Commission to the new diesel-electric Pullman multiple- unit trains which begin operations shortly in the London Midland and Western Regions of British Railways suggests an over-abundance of rare but desirable qualities which are not necessary for life."*

The British Transport Commission's Press Release for 23rd June 1960 described them as:

> *"These 90 mph de-luxe diesel expresses - there are five of them altogether-are of an entirely new type designed to bring a fresh conception of main-line railway passenger travel to Britain, with superior standards of comfort, and a personal service of' meals and refreshments for all passengers."*

A brief look at the internal appointments of these trains certainly lends weight to those ideas.



One of the 8-car Western Region units on the Bristol Pullman.

BRITISH TRANSPORT COMMISSION

90/60

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Press Office,
222, Marylebone Road,
LONDON N.W.1.

June 23, 1960.

FOR PRESS INFORMATION

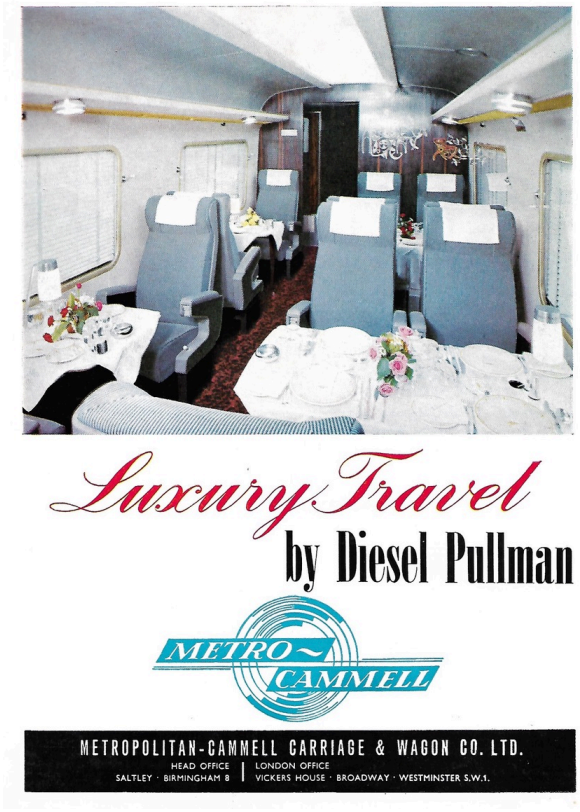
BRITAIN'S FIRST DIESEL PULLMAN TRAINS

DE-LUXE TRAVEL AT 90 M.P.H.

PERSONAL SERVICE AT ALL SEATS

AIR-CONDITIONED AND INSULATED SALOONS

The reasoning behind the introduction of these units was basically to attract the businessman to rail travel; or perhaps to return to rail travel, for BR had by 1960 to be on a competitive footing with air transport. The new Metro-Cammell pullmans were prestigious trains, and turned out in a striking blue and white livery. This was a dramatic contrast to the existing maroon livery of standard steam hauled stock, and traditional Pullman style of cream and umber. Many previously untried (on British Railways) design features were first seen on these units; some came to be adopted on a wider scale, while others were unique to the Blue Pullmans. The arrangement of passenger vehicles marshalled between two power cars was the obvious forerunner of present day diesel-electric formations – from the HST/InterCity 125 to Voyagers. At the time, though, the design had no



predecessor, except perhaps in certain ways for continental Trans-European (TEE) services.

Operationally they were intended to provide a fast luxurious service between London and Manchester on the LMR and London and Wolverhampton/Bristol on the WR.

The six-car LMR units consisted of two Type 1 power cars, between which were marshalled two Type 4 kitchen cars and two Type 6 parlour cars, providing 152 first class seats only. The overall length of the six-car units was 409ft lin. over buffers.

The eight-car WR trains were for both first and second class passengers, 108 and 120 seats respectively; in this case two Type 2 power cars, two Type 3 and two Type 6 parlour cars and two Type 5 kitchen cars.

In terms of fast running, the Pullmans made little impact initially on the winter 1960/61 timetable, particularly on the WR, adding only two runs of a mile a minute and more to the existing WR tally of 23. On the LMR however, four were added, the run of the 12:45 service from St Pancras to Leicester covering the 99.1 miles in 85 minutes at an average speed of 70 mph. At the time, this was booked as the fastest train on BR.

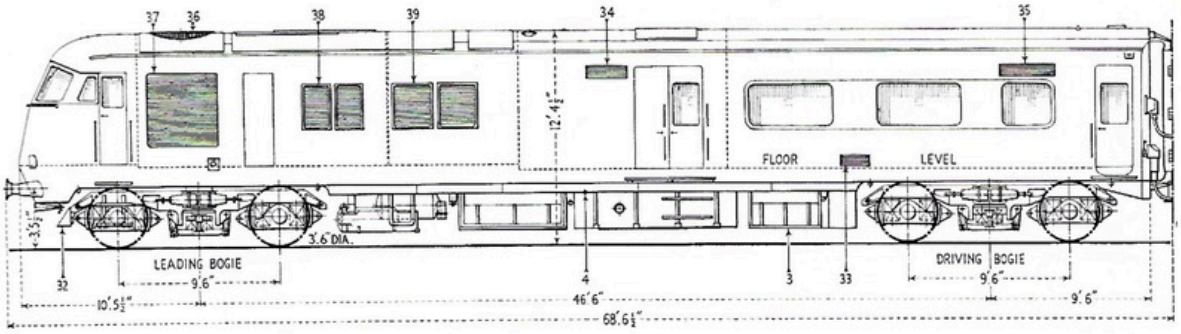
With 2000 hp available and a train weight of only 299 (six-car) and 364 (eight-car) tons tare, good running was assured though not guaranteed, and although the units were reliable there were some difficulties in their operation.

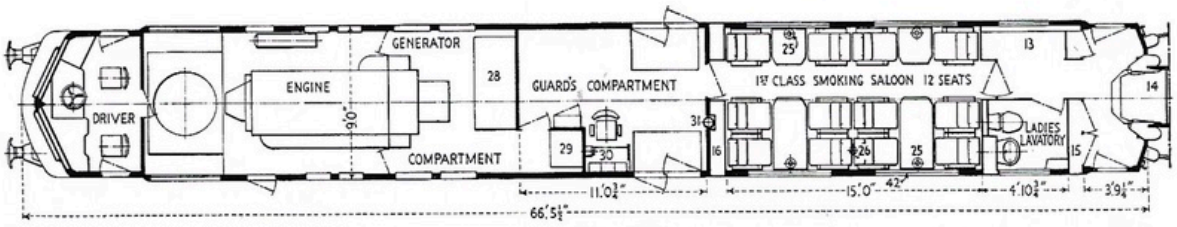
As a Pullman service supplementary fares were charged, and their low level of use, and limited prospects for growing passenger numbers, this made them uneconomic ultimately leading to their downfall. As if to emphasise this, during the coal strike of the winter of 1972/3, one of the WR power cars and a trailer car was stationed at Swindon for use as an emergency generating plant.

Leading Dimensions:

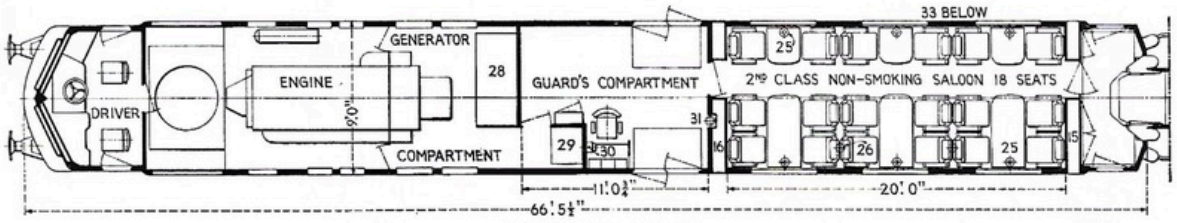
1. Power cars	
Engines:	Make and type; NBL/MAN - L12VI8121BS Rating (12hr): 1000 bhp at 1500 rpm
	Cylinders 180mm bore x 210mm stroke *(7 x 8 1/2 ins. approx.)*
Generators:	Main; GEC
	Rating; 1700A, 383V; 650Kw at 1500 rpm; 1250A, 523V; 650Kw at 1500rpm
	Auxiliary; GEC Rating 91A, 110V; 10Kw at 650/ 1500 rpm
Traction Motors:	Make and type; GEC (4-pole, self ventilating); rating 425A, 383V; 199hp at 1360 rpm
Final Drive:	Type and ratio; Single reduction, 19:67
Tank Capacities:	Main engines; 500 galls (2 x 250 gall tanks)
	Auxiliary engines; 100 galls Lubricating oil (main engine); 40 galls
Overall length (power car):	66ft 5 1/2ins.
Bogie Centres:	46ft 6in.
Bogie Wheelbase:	Driving; 9ft 6in. Non-driving; 8ft 6in. 3ft 6in.
Wheel Diameter:	3ft 6in.

2. General		
	Auxiliary Engines and Alternators:-	
	Engines:	Make and type; Rolls Royce C8N, FLH Cylinders; 130.175mm x 152.4mm rating; 190hp at 1500 rpm
	Alternators:	Make and type; Stone Tonum ARK64L1XR22S Rating 133Kva, 400V (3-phase, 50c/s)
	Length of Train over buffers:	6-car 409ft lin. 8-car 545ft lin.



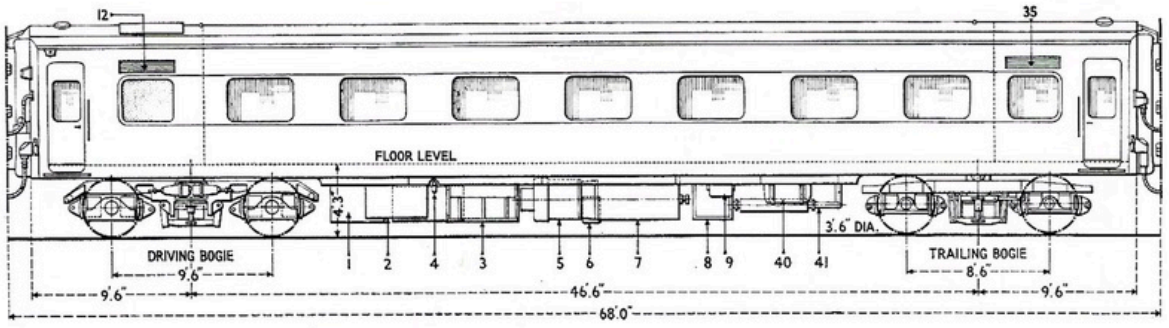


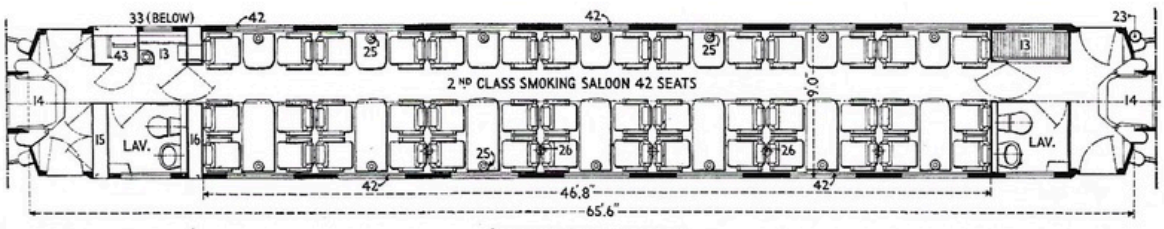
MOTOR CAR – TYPE 1



MOTOR CAR – TYPE 2

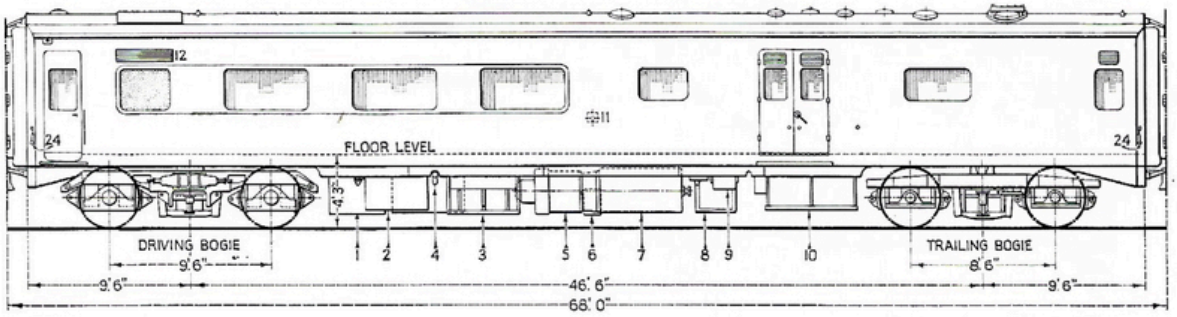
Elevation and alternative plan layouts of power cars Types "1" and "2" for diesel-electric Pullman trains of London Midland and Western Regions respectively

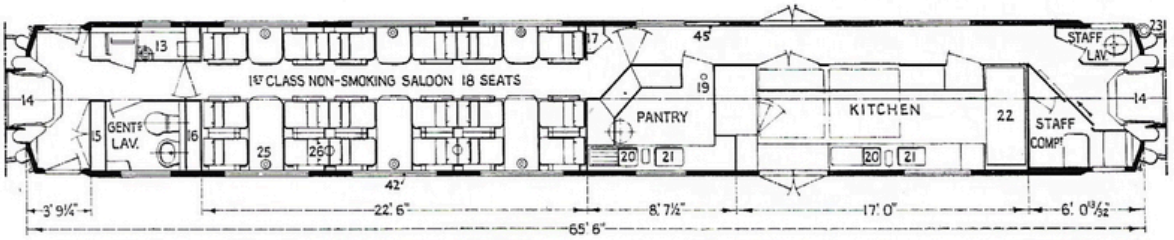




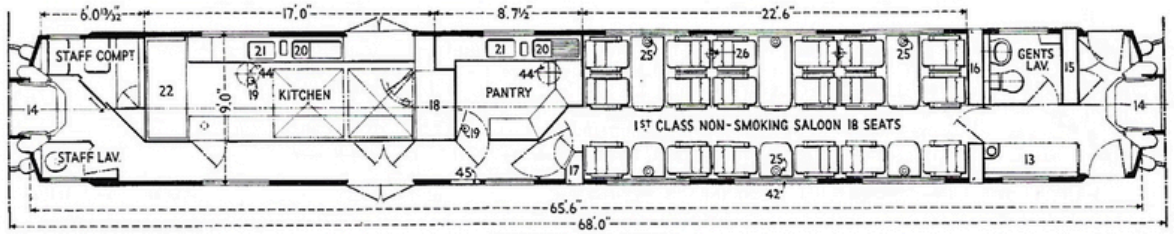
PARLOUR CAR – TYPE 3

Elevation and plan layout of parlour car Type "3" with underslung diesel-alternator for lighting and air-conditioning, Western Region eight-car set

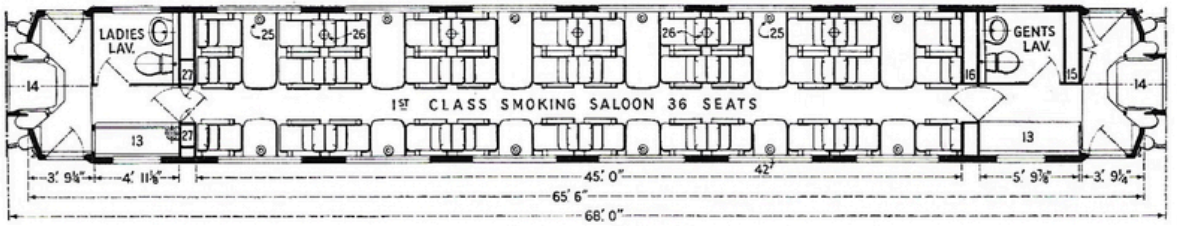




KITCHEN CAR–TYPE 4



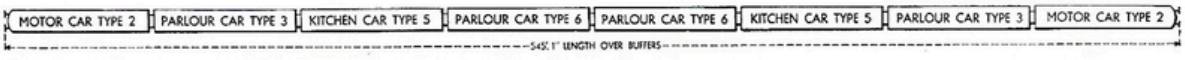
KITCHEN CAR–TYPE 5



PARLOUR CAR – TYPE 6

1 Condenser
2 Contactor switch box
3 24-V. battery
4 Fuel tank filler both sides
5 Alternator
6 Air filter
7 Auxiliary engine
8 Radiator
9 E.P. brake unit
10 Gas cylinders
11 Radiator header tank filler
12 Air conditioning exhaust and air intake filter on opposite sides
13 Luggage
14 Rubber tread
15 Control panel
16 Filter chamber
17 Fuse and linen cupboard
18 Refrigerator
19 Floor drain
20 Steriliser
21 Sink
22 Gas range with fume chamber over
23 Silencer
24 Tank filler
25 Table lamps
26 Loudspeakers in ceiling
27 Locker
28 H.T. cubicle
29 L.T. cubicle
30 Microphone
31 Fire extinguisher
32 Bracket for A.T.C. receiver
33 Motor air intake
34 Air conditioning intake and filters
35 Air conditioning exhaust
36 Radiator exhaust fan
37 Radiator air intake
38 Engine air intake
39 Generator air intake
40 Reservoir
41 Exhaust pipe
42 Double glazed windows, venetian blind between
43 Instruments
44 Vent-Axia fan
45 Service indicator box

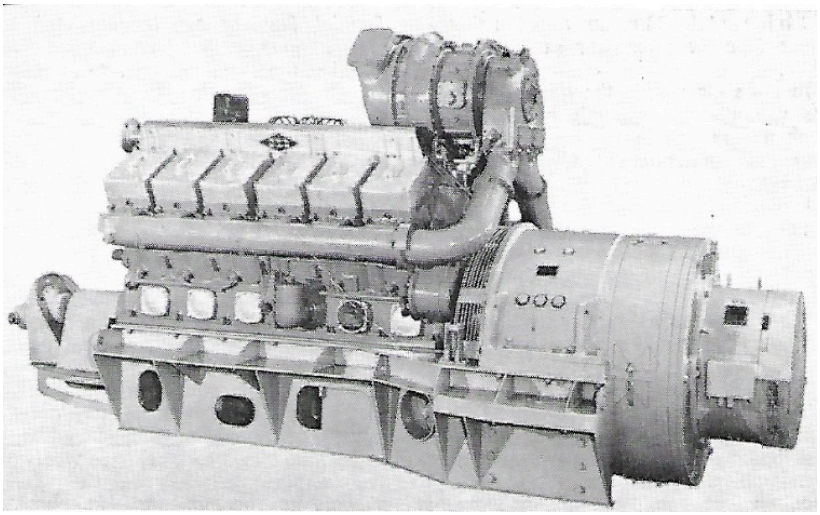
Diagrams of kitchen cars and parlour cars of London Midland and Western Region diesel-electric Pullman trains



Block diagrams showing formation of complete double-end six- and eight-car trains

Power Equipment

The two power/motor cars, at each end of the six or eight-car units, housed the NBL/MAN engines. Napier exhaust gas turbo-blowers, mounted at the generator end supercharged these quick-running vee form engines. The GEC main and overhung auxiliary generators were attached, on a common armature shaft, to the non-driving end face of the engine (facing away from the cab). The whole assembly was mounted on a fabricated steel bedplate, and attached to the underframe floor of the power cars by Metalastik anti-vibration mountings.



The GEC traction motors were - unlike many other diesel-electric transmission systems - fixed to the bogie frame proper, using a three-point mounting, and not suspended from the axle. The

final drive to the wheels was through single reduction 19:76 gearing. To allow for the relative movement between axle and bogie a Brown-Boveri spring drive unit used, in conjunction with other specialised devices.

For both the six and eight-car formations, eight traction motors were provided, with two fitted to each of the trailing bogies of the power cars and two to the leading bogie of the adjacent vehicles. Power was supplied to the traction motors on the latter by jumper cables linking the power and adjacent trailer car. The Metro-Schlieran type bogies were specially developed for these units and incorporated hydraulically-damped helical springing.

Vertically mounted Serck radiator panels fitted to the body sides of the power cars provided engine cooling, mounted immediately behind the driving cab bulkhead, and connected to a roof mounted cooling fan driven by a Serck-Bohr hydrostatic fan drive mechanism. The speed of rotation of the 45in. diameter fan was automatically controlled by the temperature of the engine coolant, via a thermo-statically controlled valve.

The main or traction generator was a self-ventilated single bearing machine with windings for both separately and self excited main fields. An automatic load regulator and the engine speed governor controlled the traction generator output. Output of the two generators in each train was synchronised.

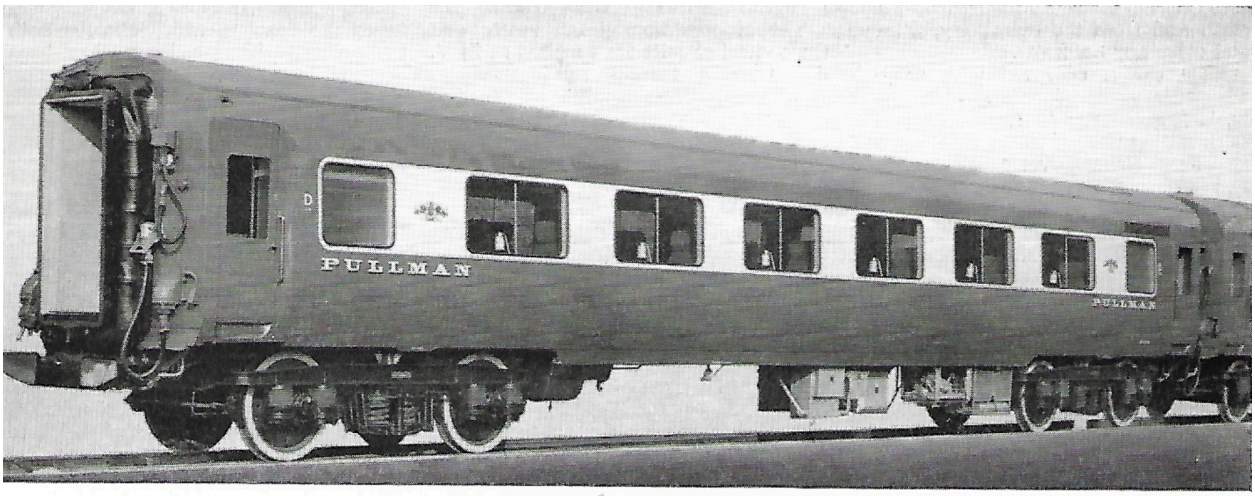
The auxiliary generator, attached to the armature shaft of the traction generator, supplied power for the excitation of the main generator field, battery charging, control circuits, etc. A fan at the driven end drawing through cooling air ventilated both machines. A bulkhead, with access doors on either side of the vehicle separated engine and generator compartments.

An auxiliary system provided for the requirements of air-conditioning, lighting, etc. Two Rolls-Royce eight-cylinder horizontal diesel engines each directly coupled to a Stones Tonum alternator supplied power for these and other items of equipment. These auxiliary generators were mounted under the floors of the kitchen cars in the six-car sets, and under the second-class parlour cars in the eight-car sets. Although two sets were provided, only one set was used in normal operations, with the other provided as standby and in cases of extreme conditions. When the trains were stationary, an external three-phase source could be provided as a replacement for the on-board auxiliary power supply, with static supply points at terminal stations along the route.

General Constructional Details

The Pullmans were the first trains in this country to use a two-stage electro-pneumatic braking system, with the equipment provided by the Westinghouse Brake & Signal Co. Ltd. The reason for this was that in the higher speed ranges, the cast iron brake shoes had a lower coefficient of friction, and to compensate for this brake pressure was increased automatically. Under normal braking conditions such as in the lower speed ranges, this was arranged proportional to the position of the driver's brake handle. Changeover from one stage to the other took place automatically through the speedometer generator and a solenoid valve. In emergency, the standard brake handle could be switched to control the automatic valve also. The brake rigging itself was fully compensated clasp type, with brake cylinders attached to the bogie frame and included automatic slack adjustors.

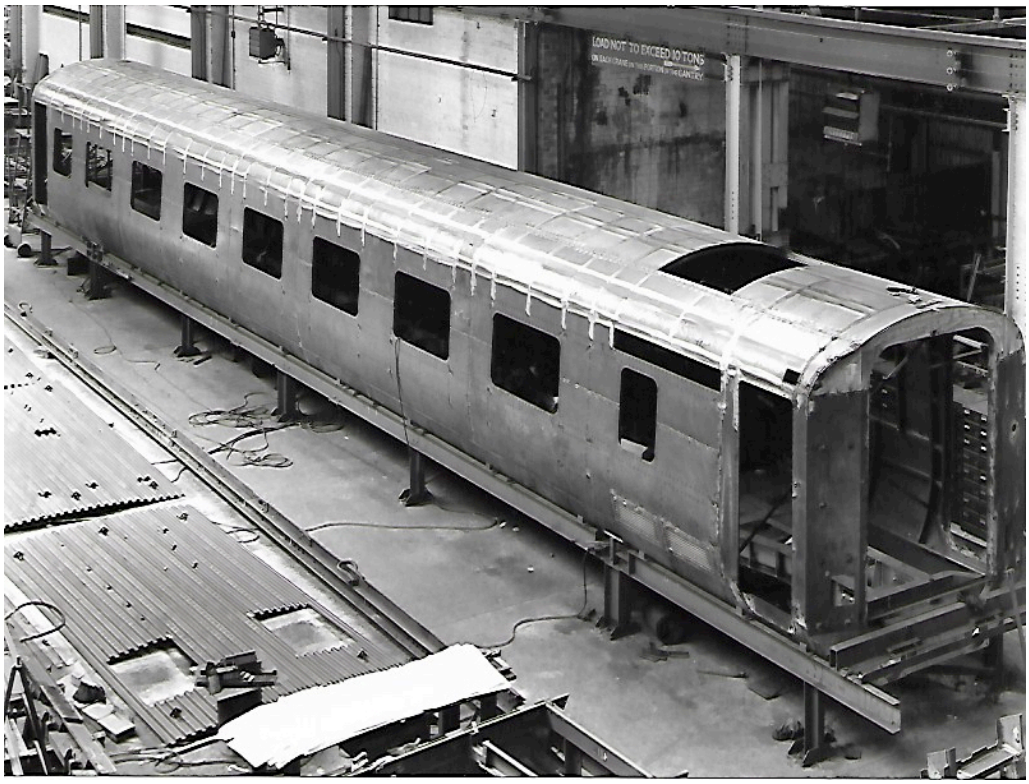
Centre couplings and drawgear were provided, the vehicles being more or less permanently connected in their respective sets, absorbing both buffing and hauling loads. There was a new feature in the design of the connecting gangways that were semi-floating assemblies mounted on pivots at the ends of adjacent vehicles, to provide a firm, level, and movement free floor. The gangways were draught proof and air tight, being sealed around the outside with rubber to maintain the efficiency of the air-conditioning system.



First class parlour car exterior showing Metro-SIG gangway

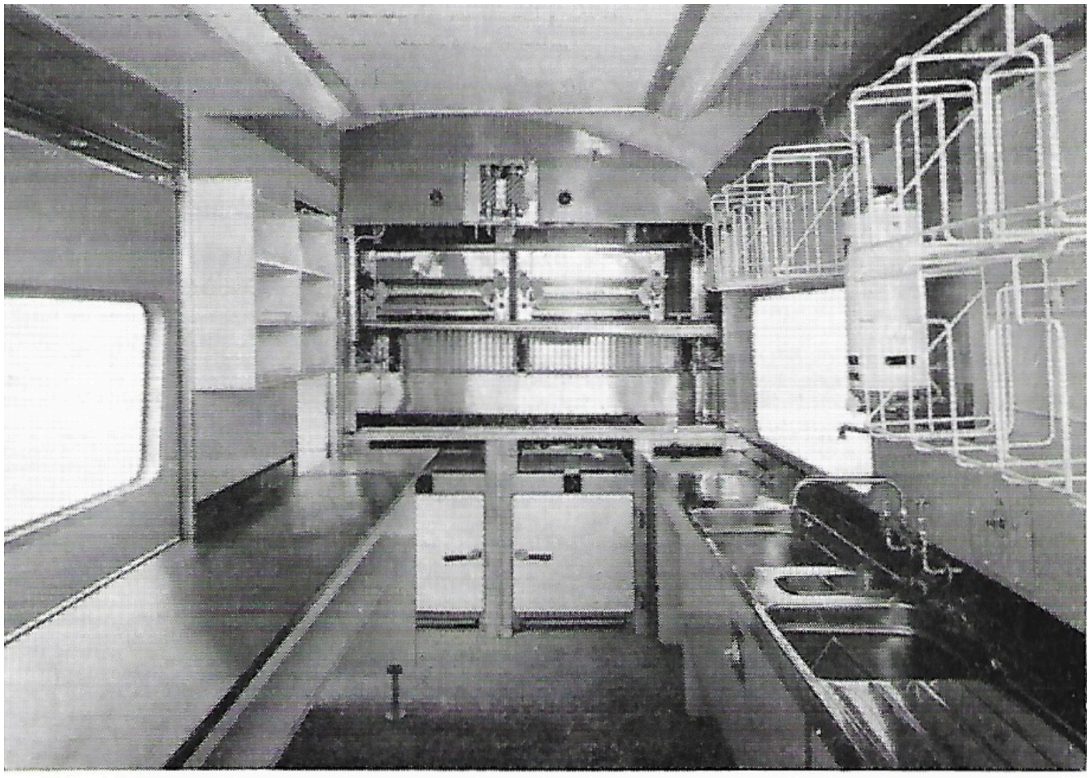
A disadvantage was the selection of steel as the principal constructional material; as these were intended as high-speed six and eight-car trains, using a lighter material could well have reduced

the total respective weights of 299 and 364 tons. In all likelihood, overall performance would then have been improved, particularly as conventional locomotive hauled Pullman services were at the time equally impressive.



In both units there were three basic types of vehicle; power, kitchen and parlour cars. With the WR units differing from the LMR units in that the former catered for both first and second-class passengers, there were two designs for each type of vehicle. In the six-car LMR units there were two each of the Type 1 power, Type 4 kitchen and Type 6 parlour cars. The Type 1 power cars contained the cab, engine and generator compartments, guard's compartment and first class smoking saloon seating 12, arranged two and one on either side of the gangway. The lavatories were separated into ladies and gents, respectively at the rear of the power car and at the end of the adjacent Type 4 kitchen car. The same arrangement was offered at the other end of the train; hence the units were symmetrical about the centre, made by the connection between the two Type 6 parlour cars.

Next to the power cars were Type 4 kitchen cars seating 18, two and one on either side of the gangway, the remainder comprising pantry, kitchen and staff compartment. The two first class parlour cars in the centre were each 36 seat smoking saloons.



Space-saving layout of equipment in kitchen car

The WR eight-car sets were increased by two Type 3 parlour cars. In terms of the internal arrangements the only similarity between the two types of unit was the inclusion of the two Type 6 parlour cars, again in the centre of the formation. The 8-car units were also symmetrical, and all seating was arranged two and one on either side of the gangway. Second class accommodation was in the Type 2 power cars, and Type 3 parlour cars, which seated 42 with lavatories at either end. The diesel-alternator sets for air-conditioning and lighting were attached to the underframe of these vehicles, whereas in the six-car LMR units they were attached to the underside of the floor of the Type 4 kitchen cars. Both types of vehicle with this equipment were marshalled next to the power cars.

Design

The appearance of the units was given careful consideration, both internally and externally. Metropolitan-Cammell appointed Mr Jack Howe, FRIBA, FSIA, as design consultant, with the

approval of the Pullman Car Co. and the British Transport Commission. The end product provided a really impressive contrast to existing stock, with particular emphasis being placed on the reduction of noise levels, and they were the first British trains to be fully air-conditioned.

Externally, in particular the front-end design, they provided a neat, clean appearance when compared with existing multiple-unit stock, which usually was to be seen adorned with a variety of jumper cables and equipment. Possibly the only cause for concern would have been with the distinctly unattractive array of these same cables and couplings between the remaining cars. The provision of three electric lights on the nose of both LMR and WR power cars (two white, one red) meant that there was no necessity to carry an oil tail lamp.

Internally, as might be expected, the cars were luxuriously fitted in keeping with Pullman traditions, great care being taken with details. The floors of every vehicle were suspended and insulated and thickly carpeted in either Kingfisher Blue or Cardinal Red. The seats were described as armchair type and deeply padded in foam rubber. Although the seats in the second-class saloons were in fixed positions, the first-class seats were further refined, were adjustable from reclining to upright positions and mounted individually on runners so that they could be moved backwards or forwards.

It might be frowned on today, but considerable use was made of plastic in surfacing the walls and ceilings, which oddly, included abstract inlays of plastic to the rosewood and ebony veneers of the partitions at the ends of each coach. Metal fittings included the exposed parts of luggage racks, with window surrounds and table edgings in satin finished aluminium. The tables themselves included the traditional Pullman table lamps - an unnecessary and over-elaborate addition perhaps. In general, the coach lighting included centrally-mounted roof panels running the length of the coach to house the fluorescent lighting, with individual lights mounted in the luggage racks over each seat. This feature is very much commonplace today, but was certainly innovative in 1960.

The double-glazed windows had fully adjustable venetian blinds fixed between. Ventilation grilles at floor level in the saloons were in satin finished steel, as were the metal fittings in the toilets and kitchen cars. The kitchen facilities, besides the usual sinks and gas cooking ranges, and included a deep freeze in addition to the normal refrigerator.

The design and appearance of these Pullman vehicles was hailed by some as the most luxurious and comfortable in Europe.

Livery

Traditionally, Pullman coaches in this country had been turned out in a cream and umber colour scheme, so it was not unnatural that a further change was made in this department, since so much of the remainder of the design was radically different.

The basic colour scheme chosen was Nanking Blue, with a broad band of white running lengthwise along the vehicles and extending from just above to just below the windows. Roofs were light grey and the underframes aluminium. Bogie frames, springing and battery boxes were black, with the wheel tyres picked out in white. All handrails, grab rails and door handles were bright polished. Buffer stocks and housings were red with black heads.

The Pullman Car Co.'s crest was carried between the last pair of windows, on the white background, on either side of each car and at both ends. Beneath these crests was the word PULLMAN. On the power cars, in addition to the crest and lettering at the trailing end, the words PULLMAN on the WR eight-car sets and MIDLAND PULLMAN on the LMR six-car sets

appeared on each side over the engine room air intake grilles. The distinctively styled nose also carried the Pullman crest, and the surrounds to the cab windows, excluding the doors, and windscreen wiper arms were white.

Following the introduction of the yellow warning panels in 1962, the Pullman crest disappeared from the noses of the power cars, though the basic livery remained unaltered. From 1964, the major livery changes being carried out elsewhere on BR were reflected on both loco-hauled Pullman stock and the Blue Pullmans themselves. The standard rail-blue and grey livery was adopted on the units so that, where previously there appeared blue, grey was substituted and blue where white had been. Hence they were turned out in basically the same style, but with colours reversed, grey being the basic colour with a broad rail-blue stripe extending the length of each vehicle as before in the original scheme. Roofs were grey and underframe details as before, except that wheel tyres were no longer picked out in white, and the yellow nose end colour was carried around the cab side windows. In this latter guise they were withdrawn from service in May 1973.

Operation

In keeping with traditions of all things new, the Pullmans were not immune to teething troubles. The modifications made to the Metro-Schlieran bogie design for these trains proved to be a source of rough riding. Although subsequent alterations were made by lengthening the swing links, altering side control springing and a modification to the centre pivot, the initial reaction was to make the bogie main springing stiffer. These units seemed dogged with unsatisfactory riding characteristics all their lives, and indeed it was an officially accepted reason for their final withdrawal.

Following acceptance trials, two inaugural runs were made, one with each set, and given full publicity. The first was made on 24 June 1960 with an eight-car set from Marylebone to High Wycombe and back; the second, on 1 July 1960, with a six-car LMR unit from St Pancras to Leicester and back. The guest lists for both runs were quite impressive, showing considerable overseas interest, from as far afield as Venezuela and Iran, besides representatives of British Railways, Metropolitan-Cammell and the Pullman Car Co.

On Monday 4 July 1960, three days following the guest run of the six-car unit, commercial operations were begun.

The initial booked times are shown in the accompanying table, which includes details of the Birmingham and Bristol Pullman timings, which began their service two months later. The WR runs made little difference to the already substantial level of mile-a-minute and more running on that region, although its scheduled time of 100 min. for the 106.85 miles between Paddington

Midland Pullman — ***Initial Timetables - Mon - Fri Only - From 4th July 1960***

St Pancras	12:03	↑	16:00	↑	12:45	↓	18:10
Leicester			14:33		14:10		
Cheadle Heath	09:04						21:07
Manchester Central	08:50						21:21

Birmingham Pullman — ***Initial Timetables - Mon - Fri Only - From 12th September1960***

Paddington	09:35	↑	16:25	↑	12:10	↓	16:50
Leamington Spa	08:00		14:55		13:34		18:19
Solihull	07:40						18:44
Birmingham Snow Hill	07:30		14:30		14:05		18:55
Wolverhampton Low Level	07:00						19:20

Bristol Pullman — ***Initial Timetables - Mon - Fri Only - From 12th September to 14th October 1960***

Paddington	09:35	↑	14:25	↑	10:05	↓	16:55
Bath	A		12:45		11:40		A
Bristol	07:45		12:30		12:00		18:45

A: via Badminton

Bristol Pullman — ***Initial Timetables - Mon - Fri Only - From 17th October 1960***

Paddington	09:35	↑	14:25	↑	10:05	↓	16:55
Bath	07:57		12:45		11:40		18:32
Bristol	07:40		12:30		12:00		18:50

and Temple Meads was substantially better than the 135 min. of the non-stop Bristolian.

It was pointed out at the time that the Bristol Pullman was only five minutes less than the 1939 bookings of the Bristol expresses. A considerable improvement was made on the LMR however, giving the first 70 mph timing on the down Leicester run, with the up service only marginally slower.

On the London Midland Region some operational difficulties arose with the suggestion to extend the midday service to include Loughborough and Nottingham, whilst the foreshortened St Pancras - Leicester run failed to attract adequate patronage, and midday runs were

temporarily stopped. The cuts were made permanent when the summer 1961 timetable appeared, and the Manchester runs were altered to bring the departure from Manchester forward to 07:45. Departure of the evening Midland Pullman was unaltered, and the timing was the same, though the up run had been slowed by two minutes to 3hr 15min. This established the settled pattern for the Midland Pullmans.

In addition to these operating and patronage problems the railway trade unions were opposed to any extension of Pullman services; until the Pullman Car Co. was fully absorbed by the British Transport Commission.

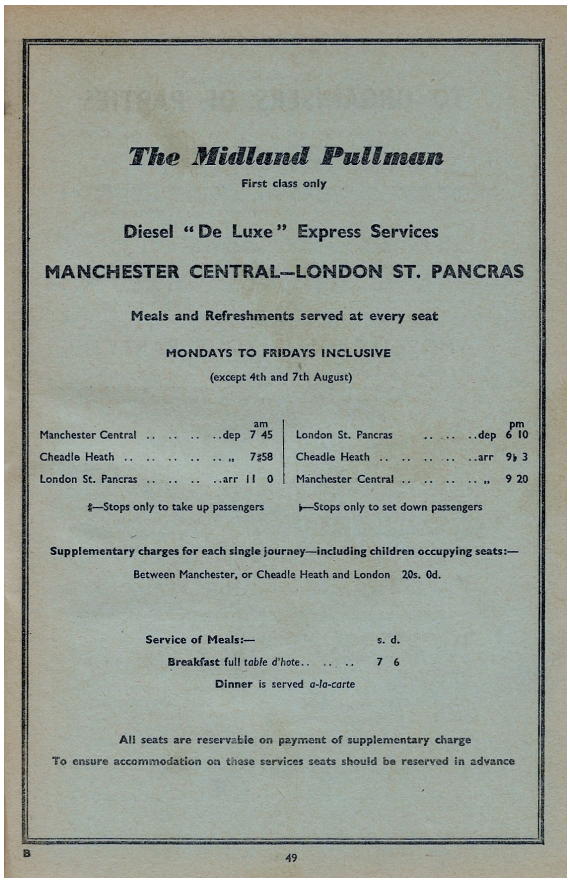
The Western Region was largely unaffected, with no alterations in the 1961 timetables to the Bristol Pullmans' timings established from 17 October 1960; but the service was expanded to introduce a South Wales Pullman leaving Paddington at 08:50, and arriving at Cardiff General at 11:40. This Pullman went on to Swansea High Street stopping at principal stations and arriving at 13:10. This superseded a steam hauled Pullman service.

It is interesting to note some of the costs involved in taking the new Blue Pullman services when first introduced. The supplementary charge for travelling between either Manchester or Cheadle Heath and St Pancras was £1. The timetable also made no mention of the average cost of the a-la-carte dinner, but the full table d'hote breakfast was quoted at 7/6 (37 ½ p), much less than a cup of tea today in say a Costa, where it's around £1-60! All seats were reservable on payment of the supplementary charge, though it was suggested that this should be done in advance, with no sense of irony.

For a time, both LMR and WR units settled to a regular pattern of service, but they could not be said to have been an outstanding success, either commercially or technically. In particular, their riding gave cause for concern. Despite their shortcomings, the Blue Pullman services were listed with the crack trains of the day, amongst the notable named trains.

Interestingly the first mention of the new trains (which were not conceived as Pullman at that time) was made in the Government's White Paper of October 1956, where it was stated that new trains would be introduced for high-speed travel on selected services between important cities. The implication that there were to be more than the eventual five sets was confirmed in the Re-appraisal of the Modernisation Plan published as a White Paper in July 1959, where it was noted that the services to be introduced the following year were only to be examples of

what was to follow. The infamous "Beeching Plan" also refers to them as heralding the luxury train of the future, a statement wholly illogical when compared with the statements and recommendations made in the remainder of that Plan.



The Midland Pullman

First class only

Diesel "De Luxe" Express Services

MANCHESTER CENTRAL—LONDON ST. PANCRAS

Meals and Refreshments served at every seat

MONDAYS TO FRIDAYS INCLUSIVE

(except 4th and 7th August)

	am		pm
Manchester Central .. ..dep	7 45	London St. Pancras .. .. ..dep	6 10
Cheadle Heath .. .. „	7‡58	Cheadle Heath .. ..arr	9⊧ 3
London St. Pancras .. ..arr	11 0	Manchester Central .. .. „	9 20

‡—Stops only to take up passengers ⊧—Stops only to set down passengers

Supplementary charges for each single journey—including children occupying seats:—

Between Manchester, or Cheadle Heath and London 20s. 0d.

Service of Meals:—	s.	d.
Breakfast full *table d'hote*	7	6

Dinner is served *a-la-carte*

All seats are reservable on payment of supplementary charge

To ensure accommodation on these services seats should be reserved in advance

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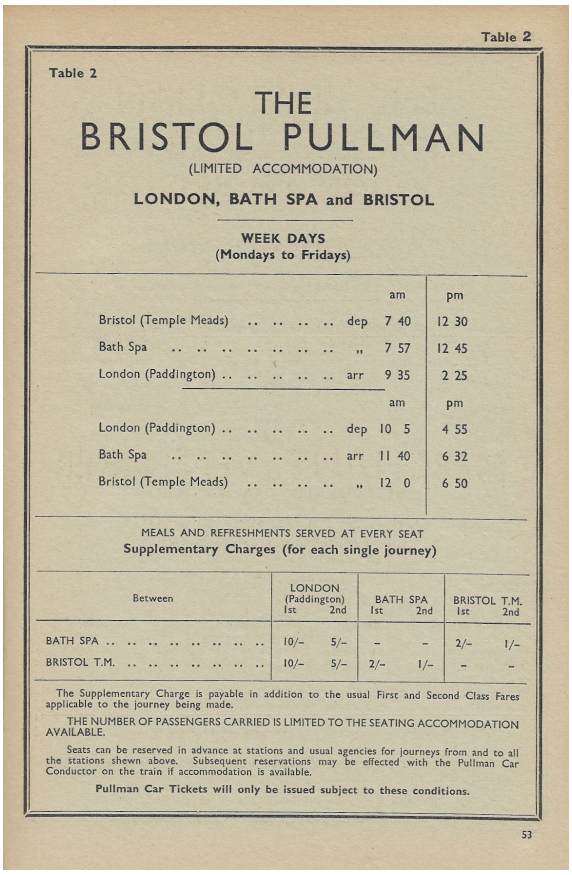

Table 2

Table 2

THE
BRISTOL PULLMAN

(LIMITED ACCOMMODATION)

LONDON, BATH SPA and BRISTOL

WEEK DAYS
(Mondays to Fridays)

	am	pm
Bristol (Temple Meads) .. .. dep	7 40	12 30
Bath Spa .. .. „	7 57	12 45
London (Paddington) .. .. arr	9 35	2 25
	am	pm
London (Paddington) .. .. dep	10 5	4 55
Bath Spa .. .. arr	11 40	6 32
Bristol (Temple Meads) .. .. „	12 0	6 50

MEALS AND REFRESHMENTS SERVED AT EVERY SEAT

Supplementary Charges (for each single journey)

Between	LONDON (Paddington) 1st	2nd	BATH SPA 1st	2nd	BRISTOL T.M. 1st	2nd
BATH SPA	10/–	5/–	–	–	2/–	1/–
BRISTOL T.M.	10/–	5/–	2/–	1/–	–	–

The Supplementary Charge is payable in addition to the usual First and Second Class Fares applicable to the journey being made.

THE NUMBER OF PASSENGERS CARRIED IS LIMITED TO THE SEATING ACCOMMODATION AVAILABLE.

Seats can be reserved in advance at stations and usual agencies for journeys from and to all the stations shewn above. Subsequent reservations may be effected with the Pullman Car Conductor on the train if accommodation is available.

Pullman Car Tickets will only be issued subject to these conditions.

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However, to suggest that the Pullmans were introduced at a difficult time for BR, would be an classic understatement. Mounting deficits and continual pressure from the anti-railway brigade, road lobby, and others were not conducive to what could be seen as extravagant expenditure. On the LMR electrification was proceeding apace. Following the success of the Styal line, the whole West Coast Main Line was due to be electrified within four to five years of the introduction of the Pullmans. On speed terms, competition with the electric services was easily ruled out, and by 1967 the Pullmans were less patronised than ever, and a solution to their operating problems was needed.

Transfer of the six-car LMR units to another region was seen as that solution, at least from the commercial standpoint. This was first proposed for the Southern Region, but it was rumoured at the time that the SR flatly refused to use them on its Bournemouth services. The Eastern Region was also approached, where it was hoped they could be used between Kings Cross and Hull. However the ER also wanted nothing to do with them, and it was finally agreed that they would be transferred to the WR, which to a certain extent, with hindsight does seem to have been a more obvious choice.

This view shows one of the 8-car Pullmans in their final BR livery, in April 1973 passing Marshfield, Monmouth , only a month before their withdrawal. *(Photo courtesy: George Woods)*

Following their transfer to WR, the six-car sets were fitted, with jumper cables and external sockets for multiple working. The nose profile was further altered by the removal of a small panel immediately below the headstock so that a screw coupling and hook could be permanently fitted.

So, from 6th March 1967, both the LMR six-car units were handed over to the WR to begin a new service to Oxford and additional Bristol workings via Bath. A new Oxford service was introduced - outward at 12:15, returning at 16:15, the 63½ miles being covered in one hour. More accommodation was provided on the Bristol Pullmans, using both six-car sets on the 08:15 from Bristol and the 17:45 return. The up service was divided at Paddington with one set working to Oxford and the other forming an additional mid-morning run to Bristol with an early afternoon return. Also introduced at the same time was a service at 09:00 from Paddington to Newport, Cardiff and Swansea (arrival 12:20). The return working at 16:20 arrived at Paddington at 19:45.

The WR now had three eight-car and two six-car Pullman units, and was in a position to provide a fairly extensive service for the businessman and long distance commuter, which was, after all the reason for their introduction in the first place. That they were not entirely successful cannot wholly be blamed either on BR or on the Blue Pullmans themselves.

This pattern of services remained largely unaltered for the remaining life of the units - a matter of only six years. The writing though was on the wall for the Blue Pullmans soon after they began their working life, and by 1964/65 it was abundantly clear that on completion of electrification the units would be redundant. Even allowing for the luxurious internal appointments, there could be no suggestion of their competing on any terms with the pattern of fast Inter-City services envisaged – and later provided - by BR for the future. Time was not on the side of the Blue Pullmans, in a similar way to the solitary Standard Class 8 Pacific steam locomotive "Duke of Gloucester". One of the last duties of one of the power cars was during the coal strike of the winter of 1972/1973, when it acted as a standby generating set at Swindon, a far cry indeed from the proclamations of the spring of 1960. Withdrawal of all the sets took place in May 1973, when they were not quite thirteen years old.

Eight-car Pullman Unit Numbers, WR

Motor brake seconds	W60094-W60099
Motor parlour seconds	W60644-W60649
Trailer kitchen firsts	W60734-W60739
Trailer parlour firsts	W60744-W60749

Three x eight-car available sets.

Six-car Pullman Unit Numbers, LMR

Motor brake firsts	M60090-M60093
Motor kitchen firsts	M60730-M60733
Trailer parlour firsts	M60740-M60743

Two x six-car available sets.

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DIESEL ELECTRIC PULLMAN TRAINS

FOR

BRITISH RAILWAYS

DESIGNED AND BUILT FOR
THE PULLMAN CAR COMPANY, LTD., BY

METROPOLITAN - CAMMELL CARRIAGE & WAGON CO. LTD.

SALTLEY, BIRMINGHAM

ENGLAND

1960