



VISIT OF

LONDON TRANSPORT

BUSES TO THE UNITED STATES OF AMERICA - 1952

ALL the road and subway passenger transportation services in London are operated by a single public authority. This authority, known as London Transport, covers an area of about 2,000 square miles, extending 25 to 35 miles from the centre of London. It serves nearly 10 million people, a fifth of the whole population of Britain. Road services are provided by diesel buses (most of them double-deck and similar to those which are touring the United States), by double-deck trolleybuses and by single-deck express diesel coaches.

Rail services are maintained on six subway lines, two of them just below the level of the streets and the remainder in deep level 'tubes'. These lines extend far out into the suburbs nearly two-thirds of the total route mileage being above ground. The system also includes, however, the longest continuous railway tunnel in the world, 17½ miles in length.

Road and rail services are closely co-ordinated to provide the best possible transport system for Londoners and visitors to London.

ROAD SERVICES

The London Transport road fleet consists of 7,250 double-deck diesel buses, 1,000 single-deck diesel buses and coaches, and 1,750 double-deck trolleybuses. A few streetcars will continue to run until October 1952. As an illustration of the density of the services that are provided, 20 routes converge on Trafalgar Square and 290 buses pass along Oxford Street in each direction in one hour. There are in all 600 bus and trolleybus routes and 22 express coach routes operated from 112 garages and depots. The longest coach route is 66 miles in length and the longest route operated by double-deck buses is 32½ miles.

RAIL SERVICES

On the electric railways 4,000 cars from 19 depots run over 245 miles of route, 88 miles of which are underground, and serve 280 stations. Four lines pass under the River Thames. In the peak hour as many as 40 trains run in each direction over a single pair of tracks and 214 trains pass through the focal point of Charing Cross. The longest continuous journey you can make in one London Transport train is 42 miles.

GENERAL

London Transport run five repair factories for their equipment, three generating stations for electric power, and 180 canteens for their staff. 100,000 men and women are employed and 12½ million passengers are carried daily on the system.

TECHNICAL INFORMATION

ABOUT THE LONDON TRANSPORT RT BUSES

THE MAKERS

The RT buses now touring the United States are typical of the standard London 56-seater double-decker buses. The chassis are produced to London Transport's specifications by

A.E.C. Limited,
Southall, Middlesex.

and

LEYLAND Motors, Limited,
Leyland, Lancashire.

The bodies are built to the detailed design of London Transport and are in quantity production by

PARK ROYAL VEHICLES, Limited,
Park Royal, London, N.W.10.

and

WEYMANN'S Limited,
Addlestone, Surrey.

INTERCHANGEABILITY

This type of bus is unique in that all bodies and chassis are interchangeable, without any alteration, irrespective of their manufacturer. Although certain chassis units are the specialised products of the individual manufacturers, the transmission, braking, and electrical units are of the same type on all buses, and the dimensions are identical. Complete standardisation of body parts has also been achieved, again irrespective of manufacturer, and this facilitates not only production but also minor repairs at garages and heavy repairs and overhaul at London Transport's overhaul factory where quantity production methods are employed.

THE ENGINE

The 125 b.h.p. diesel engine is the result of continuous development of this economical type since initial experiments in London buses in 1929; it has been designed for sweet running, extreme economy, lusty pulling at low speeds, and long trouble-free life. Silence and smoothness, and freedom from smoke and smell, have received special attention. It achieves no less than 9½ miles per gallon (Imperial) in city operation at scheduled speeds in excess of 11 m.p.h. Flexibly mounted, the 6-cylinder overhead valve engine is of direct injection type having a separate fuel pump supplying oil to low pressure injectors spraying at 70/100 atmospheres directly into "toroidal" cavities in the pistons. Although the cylinder capacity is a little under 600 cubic inches, the maximum torque is 430 lb/ft. at 1,000 r.p.m. With a seven bearing crankshaft and gear timing, this engine normally exceeds 100,000 miles of city operation before needing major attention.

TRANSMISSION

Semi-automatic transmission is used because, in the traffic conditions prevailing in London, the drivers prefer to retain precise control over the speed range of their engines. The RT bus could be readily converted to fully automatic control, but at present it is controlled by finger-tip pre-selection and the four-speed planetary gearbox is air worked in conjunction with a hydraulic clutch, or fluid flywheel. The transmission unit is automatically adjusted and gives over 200,000 miles in service without major attention. London buses first started to use the fluid flywheel and "self-changing" gearbox way back in 1930 and the torque converter in 1935; but after three years' experience of the gearless system, this was abandoned in favour of the present equipment, now almost completely standard, with its greater fuel and maintenance economy, long life, and better traffic and hill-climbing characteristics.

THE COMPRESSED AIR SYSTEM

The compressed air system was specially developed by London Transport and includes special safety first features. In addition to operating the automatically adjusting brakes it engages and holds the gears; the system, however, is so arranged that the bus cannot be moved unless sufficient air pressure is available for adequate braking. Two separate air systems are installed, each with its own storage cylinder but both drawing air from a common storage tank. The driver is warned of any defect in the air pressure system by



A typical London Transport RT bus outside the Horse Guards in Whitehall

a stop signal which drops into his line of vision, and by a warning light which is illuminated before danger level is reached. The two-cylinder compressor and the high output dynamo are so mounted that they are conveniently driven by endless belts from the front of the gearbox; this position is preferable to engine mounting because it imposes no restriction on size of the units, moves them away from heat and oil, and frees the engine timing gear of heavy loadings. The air system performs a further useful function in that it consecutively lubricates one of 24 points on the chassis every time the brakes are applied. This continuous oiling of many working parts saves garage labour, extends the life of parts, and keeps a constant degree of suppleness in the suspension.

THE BODY

The body design was much influenced by London Transport's wartime experience in building over 700 heavy bombing aircraft where interchangeability was of prime importance. The RT body drops immediately on to suitable mounting brackets on the chassis, and is located accurately to fine engineering limits by dowels. If a body is badly damaged, it is removed from the chassis and replaced by a spare body, and the bus is back on the road within a few hours.

Manufacture and repair of the body have been given special consideration, and it is built up entirely from small standardised components. All are completely interchangeable, and nearly all are of metal. Wherever possible, a common basic component has been evolved to serve at many points within the structure. Assembly of the structure is entirely by nuts and bolts aided by precision pressing which ensures accurate location of components which only have to be pulled together to produce joints of complete rigidity. The whole vehicle has been designed for easy cleaning and servicing. For example, the London Transport patented tubular framed chairs are so made that the seats and squabs drop into the frames and can be removed and replaced without tools. The roof consists of one piece only. It is double-skinned, containing a rubberised insulating material.

RELIABILITY

The London bus works hard, especially on the long heavy routes often running through five, eight, or ten miles of intense city traffic. And yet such is its inherent reliability and the effectiveness of the maintenance system behind the RT bus that it runs on average over 40,000 miles without a mechanical failure on the road. This is equivalent to a full year of trouble-free operation on some of the longest and hardest city routes in the world.

QUESTIONS & ANSWERS

1. Why double-deckers in Britain ?

London Transport, in common with other British bus undertakings, favours the double-decker because it provides a high seating capacity within compact dimensions, and is therefore economical in road-space. Short, highly manoeuvrable vehicles are essential in many of England's ancient cities and towns with their traffic-congested, narrow, winding streets and sharp corners.

2. Why a rear entrance without doors ?

The open rear entrance on a double-decker provides a one-step capacious platform rendering possible a rate of loading and unloading as rapid as 1.75 seconds per passenger. On single-deckers front entrances are used, and, except for city operation, are fitted with doors.

3. Why a front engine in the double-decker ?

Because with the entrance at the rear, there is a space by the driver which cannot conveniently be used for passengers. Single-deckers, however, have engines mounted under the floor amidships.

4. Why two men to a bus ?

First, because the fares in Britain vary according to distance travelled and a conductor is necessary to issue tickets, give change and check for over-riding. Second, to supervise loading and unloading in order to reduce time at stops and so ease traffic congestion.

5. What is the cost of travel in London ?

In 1951, when 4,500 million passengers travelled on the London Transport road and rail services, the fares paid by all the passengers totalled £59 millions (165 million dollars), the average fare paid being just over 3d. (less than 4 cents) per passenger journey.

Fares have been raised since 1951 but the average fare charged *per mile travelled* is still less than 1½d. (under 2 cents) and the *minimum* adult fare, at which about one-half of the passengers travel on the London Transport road and rail system, is 2d. (under 3 cents) per passenger journey.

LONDON TRANSPORT EXECUTIVE

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