

Leyland
BUS

Leyland Bus - people movers of the World

Leyland buses have been a feature of the World's public transport since the turn of the century. Today's Leyland Bus, part of the

Leyland Vehicles Group, is directly descended from the famous bus names of the past—Leyland Motors, AEC, Bristol, Guy, Daimler, Albion, Maudslay, Crossley, Aclor. Today Leyland Bus is totally responsible for the development, production, marketing, sales and aftercare of a varied range of passenger vehicles.

The range includes every conceivable type of vehicle from 18 seaters up to high capacity artics and double deckers for operating over rugged trans-continental unmade roads to sophisticated urban environments.

Many of the Company's products are produced in the specialised UK plants but additionally, there are many Leyland owned or managed plants throughout the World producing similar products or ranges developed for the individual territory.

The range includes chassis for fitting with

customised bodywork, fully integral designs and unit component sets for fitting into locally produced integral or semi-integral designs.

Leyland Bus also produces double and single deck bodywork to customer specification and like all Leyland Bus products they can be designed for local assembly.

Leyland Bus has always been in the forefront of technical innovation with products like the fully integral Royal Tiger Doyen, Titan and National, components like fuel efficient high power engines, sophisticated automatic transmission and control systems, air suspensions etc. Latest examples of innovation from Leyland are the single and twin car BRE-Leyland Railbuses.

Leyland Bus is always ready to apply its technology expertise to produce vehicles specially suited to individual market requirements. (This brochure details the major product ranges but naturally cannot cover all the individual models produced.)

Leyland Bus also operates a consultancy services on all aspects of bus operation.



Double Deck Integral—Titan

The Titan is the World's most sophisticated integral double decker. Fully integral, lightweight, ultra strong body; fuel efficient rear mounted, environmental, six cylinder diesel engine; Hydracyclic automatic transmission with inbuilt retarder; full air suspension; ergonomically planned interior layout, staircases, steps, floors, doorways, heating and ventilation system, and driver's compartment. Titan can carry up to 100 passengers. The vehicle is produced under careful quality control at a special factory. Available in right hand drive form only.



Double Deck Chassis—Olympian

Chassis derivative of the Titan is the Olympian, utilising a lightweight, high strength perimeter frame and wide based full air suspension for maximum ride comfort and stability. The same power pack combination as the Titan—fuel efficient six cylinder diesel engine matched to Hydracyclic automatic transmission with inbuilt retarder, and drop centre rear axle. Ergonomically planned driver's compartment and left or right hand drive control. To match to Olympian, Leyland Bus also produce low and full height alloy bodywork in single, twin or even triple door form. Olympians are operating in the UK, Hong Kong, Athens, Saudi Arabia and Baghdad.

Three Axle Olympian

For high capacity loading the Olympian can be specified in 12m three axle form. The chassis whilst basically the same as the two axle Olympian features an uprated engine and a self steering axle set ahead of the rear axle.

The Leyland bodywork allows up to 180 passengers to be carried. Buses of this type are operating in Hong Kong.

Olympian Coach

For express services the Olympian can be specified in coach form with reclining seats, luggage accommodation, toilet, kitchen/bar units, video etc.

The engine output can be rated at up to 260 bhp to enable full utilisation of motorway speed potential.



Double Deck Chassis—Atlantean

In service throughout the World—the Atlantean is a rear engined, leaf sprung chassis offering a nominal seating capacity of up to 100. Naturally aspirated, six cylinder, fuel efficient diesel engines; automatic or semi-automatic transmission and easy bodybuilding are features of the Atlantean. The Atlantean is available with either left or right hand control. Again, Leyland Bus also produce a wide range of bodywork to suit the Atlantean.



Single Deck Integral—Royal Tiger Doyen

Latest product from Leyland Bus is the Royal Tiger Doyen, a fully integral luxury coach. The vehicle features rear mounted 245 bhp engine, automatic, semi-automatic, and manual transmission and full air suspension. Vehicle is of welded tubular steel construction extensively corrosion proofed, single piece welded steel side panels, double glazing, advanced heating and ventilation and interior fitments to a high standard including reclining seats, luggage lockers, toilet, kitchen/bar, video/stereo systems.

The Royal Tiger underframe is also available for bodying by Leyland approved bodybuilders.



Single Deck Chassis—Tiger

Latest chassis from Leyland Bus the Tiger, is a high performance, 16 ton GVW, 11-12m air or steel suspended, mid underfloor engined chassis. The vehicle is ideally suited to long distance touring coach operations. It combines fuel efficient engine rated at up to 245 bhp, automatic, semi-automatic or manual transmission; retarder provision; four bellows per axle, wide spaced full air suspension or long semi-elliptic leaf springs giving high stability and ride comfort. Tiger can take normal, intermediate and high line single deck bodywork. The chassis is flat topped for easy bodybuilding and available with right or left hand control. Bus bodywork for Tiger can be supplied by Leyland Bus.

Tiger can also be supplied in three axle form where axle weight limitations preclude the use of two axle vehicles.



Single Deck—Tiger

The Tiger chassis is also ideal for city bus work. The chassis is available in 11 or 12m form with air suspension or steel suspension, automatic, semi-automatic or manual transmission. Fuel efficient diesel engine rated from 170-245 bhp. Left or right hand drive.



Single Deck Integral—National

The Leyland National is probably the most advanced single deck bus in the World. Of full integral design combining strength with light weight. The vehicle components are produced under strict quality control systems at a specialised plant in the UK. The vehicle features rear mounted fuel efficient horizontal diesel engine, semi-automatic or fully automatic Hydracyclic transmission incorporating retarder, full air suspension and modulated braking. The body layout, doorways, steps, driver's compartment were produced after extensive ergonomic studies. The ring frame system of production enables vehicles of varied length to be produced simply. Extensive corrosion protection systems, advanced heating and ventilation and easy servicing are features of the National. Left or right hand control versions are available.



The National is also suitable for specialised utilisation due to its carefully designed body. Airside buses with doors on both sides, mobile banks, executive commuter vehicles, mobile homes, personnel security vehicles, ambulances have all been produced using the basic National bodyshell. Latest utilisation of the body system is the BRE-Leyland Railbus and articulated buses.

The rivetted construction system means that adaptations to the basic design are easily accommodated and repairs are quickly and effectively carried out.

In addition a chassis derivative is available utilising the mechanical components of the National. This vehicle is called a B21.

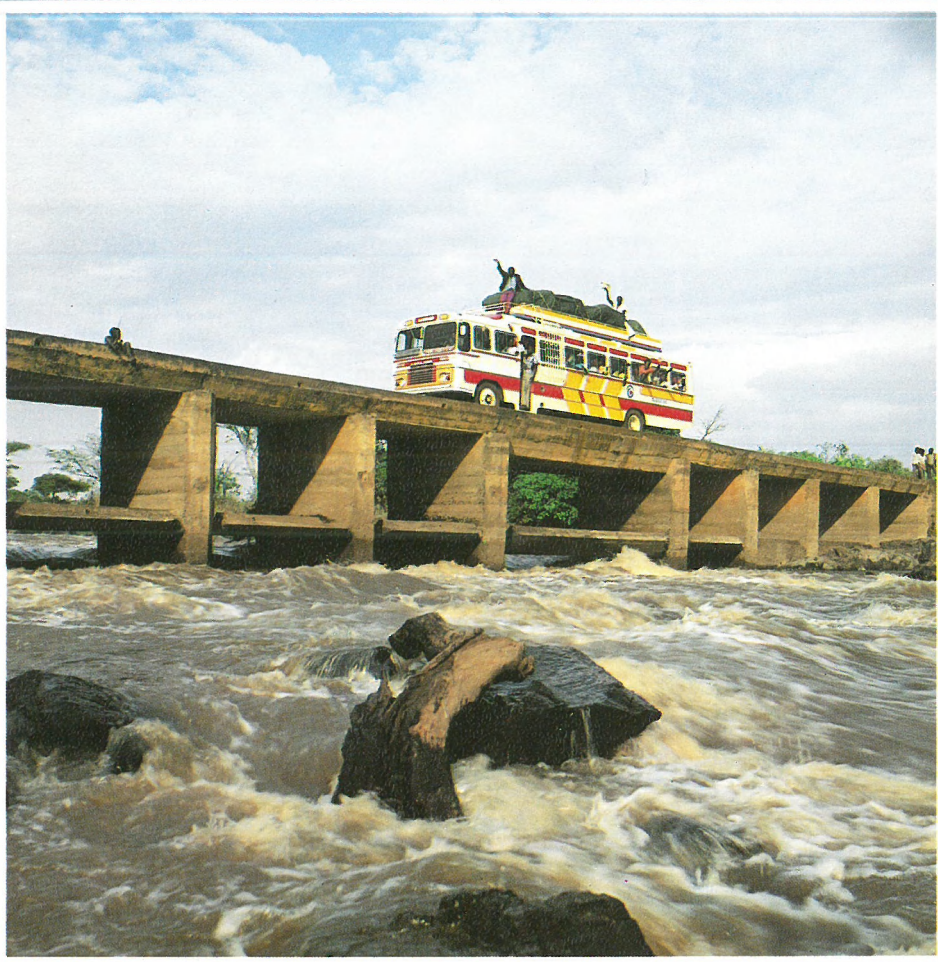
Single Deck Bus—Articulated

Leyland produces two designs of articulated bus. Both utilise the Leyland-DAB chassis—a high quality aluminium and steel design featuring commonised front and rear steering axles, a heavy duty drive axle, underfloor mounted turbocharged fuel efficient diesel engines, automatic transmission, full air suspension and linked turntable rear axle steering giving precise tracking of the trailer unit. In Britain the Danish built chassis is combined with a body structure derived from the Leyland National whilst those built in Denmark utilise an aluminium monocoque body. Both vehicles are 18m long and can carry up to 150 passengers. Vehicles can be produced either as city buses with doors on one side or with doors on both sides for airport operation.



Single Deck Chassis—Victory

The Victory is in service all over the World. It is a rugged heavy duty chassis with forward mounted vertical engine and can be fitted with a wide variety of single deck bodywork. Victory is equally at home in city centres and on unsealed roads. Six cylinder diesel engine offering 200 bhp, semi-automatic or manual transmission, full air brakes, power/steering and leaf springs are features of the Victory. Bodywork to suit Victory can be supplied by Leyland Bus.



Single Deck Chassis—Boxer/Clydesdale/Viking

Leyland is renowned for producing rugged single decker chassis for rural, inter-city, and urban operation throughout the World. The Boxer, Clydesdale and Viking have been the backbone of passenger services in Africa, and the Far East for years. The rugged chassis combines strength and reliability. Six cylinder diesel engines, manual transmission, full air braking, leaf spring suspension and hub reduction rear axles are features of these vehicles. The Boxer is suitable for 7.8-9.7m bodies, the Clydesdale 9.7-12m bodies and the Viking for 8.9-9.6m bodies. Right or left hand control is available. Leyland Bus can produce bodywork to suit these chassis.

Single Deck Chassis—Cub

A lightweight cost conscious bus chassis from Leyland. The Cub can accept bodies from 6.0m-7.5m. Six cylinder forward mounted Leyland diesels powers the Cub, manual or automatic transmission, efficient reliable braking system and features to suit operation both in rural situations or urban environments, left or right hand control. The Cub is widely used for school bus work, airport crew buses, car park services, etc.



Single Deck—Overseas Design—Denmark

Leyland produce a number of designs entirely overseas. Indicative of these designs is the range produced by Leyland-DAB in Denmark. Both concerns utilise Leyland components into monocoque bodyshells of their own design with extensive use of aluminium. DAB concentrate on under-floor and rear engine designs specifically for urban and inter-urban operation with body specification to a particularly high level.

The range consists of single deck city buses, inter-urban buses, high capacity artic and tourist coaches.



Single Deck—Overseas Design—Portugal

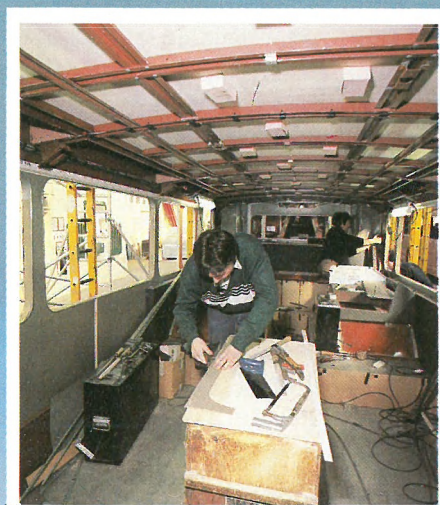
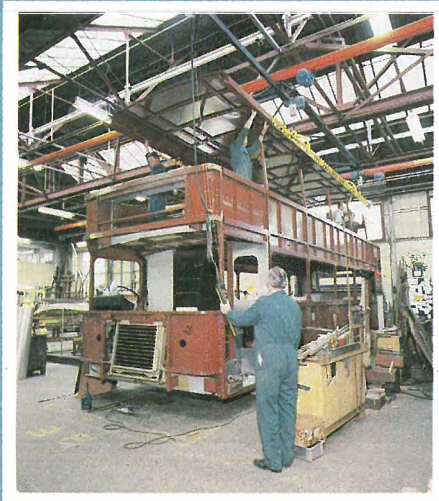
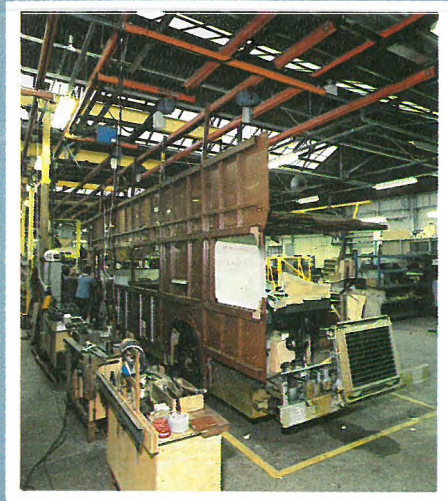
Leyland's associate company in Portugal UTIC have been building sophisticated integral buses and coaches utilising Leyland units for many years as well as conventional bodies on Leyland chassis. The current range consists of a city inter-urban bus/coach based on the Leyland DAB air suspended mid underfloor engined chassis, the B52 a new design of city bus with full air suspension, perimeter frame and rear underfloor engine, and the Europa, a high floor rear engined, air suspended luxury touring coach.

In addition UTIC also body the Boxer and Cub verical forward engined chassis.



BRE—Leyland Railbus

By combining the expertise of the Leyland National bodyshell and the British Rail Flexicoil rail system British Rail Engineering Limited and Leyland Bus have developed a unique range of rail vehicles, the BRE-Leyland Railbuses. These vehicles bring a whole new dimension to low cost rail operation. They are self propelled single and twin car units. Each car is capable of carrying over 100 passengers, and the vehicles are capable of operating at 75 miles/hr. The vehicles have been extensively tested in operational service both in the U.K. and the U.S.A. They are powered by a Leyland turbocharged fuel efficient diesel engine whilst SCG (another Leyland Company) provides the transmission and final drive. The body is essentially a National bus body with the same standards of comfort, vision, heating and ventilation.



Bodywork

Leyland has been producing passenger vehicle bodywork since the turn of the century and remain the largest producers of integral single deckers and double deckers in the U.K. Leyland Bus is also the world's largest producers of double deck bodies.

At three specialist plants in the U.K. a wide range of bodywork is produced to meet customer requirements either built up or in kit form for local assembly.

At Workington fully integral bodywork is produced to the National and Titan designs in a highly automated quality controlled plant. All bodywork is carefully designed, tested, manufactured and corrosion protected. Workington also produce the single and twin car Railbus bodies.

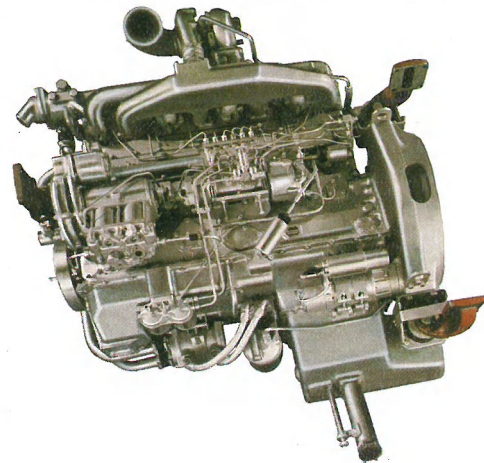
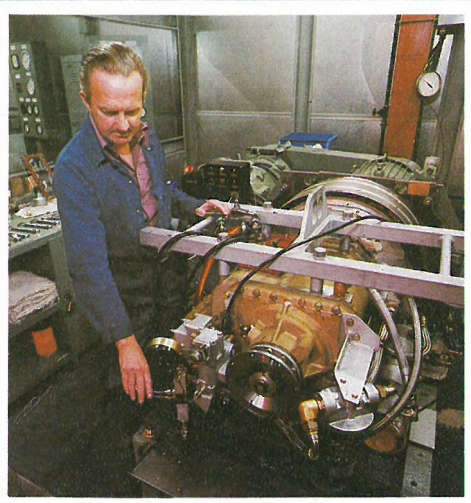
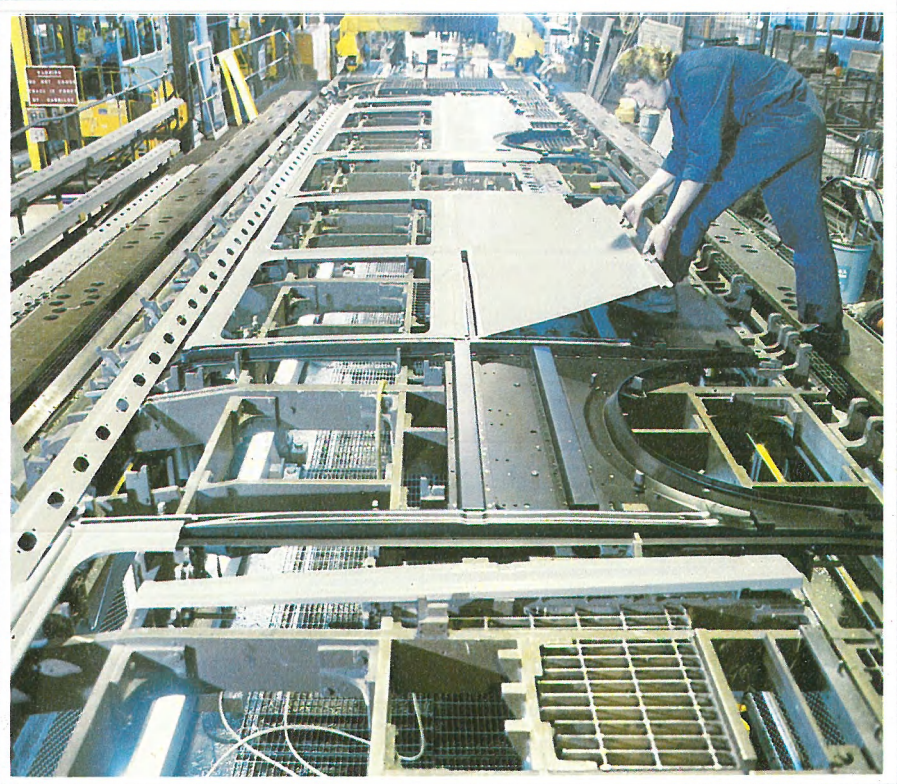
Eastern Coach Works at Lowestoft specialises in custom built bodywork to customers requirements.

The latest designs are of all alloy construction to the basic Titan design and can be produced in low height and full height form. All components are jig produced and then carefully assembled.

Extensive corrosion protection and Ziebart techniques ensure long life from Leyland bodywork.

A wide range of seating, internal trim, fixtures and fittings are available to suit individual customer requirements.

C. H. Roe at Leeds produces double deck bodywork to the same design as the Lowestoft plant. Recently the Leeds plant has been extensively modernised and re-equipped for the production of the new Royal Tiger Doyen fully integral luxury coach. The complete structure and fitting out of these high class vehicles is carried out within the Leeds facility.



Technical Innovation

Leyland has always been in the forefront of technical innovation and this continues today in the areas of integral and conventional body designs, fuel efficient power plants, automatic transmissions incorporating retarders, automatic or semi-automatic transmission control systems, braking, air suspensions and driver control areas.

Integral Bus Body Designs

The integral body designs used for the Titan and National are unmatched anywhere. They combine outstanding strength with light weight, yet are easily repaired and extensively corrosion protected. The body designs were extensively developed and subjected to vigorous testing before production commenced and produces vehicles with outstanding levels of comfort for passengers in terms of step heights, doorways, seating layouts, heating and ventilation, vision, illumination, grab rail positions etc. The body designs also allow for quick easy replacement of damaged areas, thus minimising downtime.

Automatic Transmission

The Leyland pneumocyclic air operated transmission is World renowned and widely used not only in Leyland vehicles but also via SCG in many other manufacturers ranges. The Pneumocyclic with its fully charged fluid coupling has been and continues to be a backbone of Leyland vehicle design. Its successor the Hydracyclic—which combines all the features of the Pneumocyclic gearbox is a box of higher torque rating and with an inbuilt retarder is now standard in National, Titan, Olympian, Tiger, Royal Tiger, Royal Tiger Doyen, B21 and B52. As its name suggests, the Hydracyclic is operated hydraulically.

Control Systems

Leyland has always been in the forefront of control system design. Today's systems provide the most sophisticated control systems utilising modern technology to keep components as small as possible and yet with maximum reliability and ease of servicing.

Braking

Leyland braking systems fall mainly into two categories—full air systems with spring actuated fail safe and parking brake systems and the power hydraulic system as used on the Titan double decker. Both systems combine powerful, true, fade free braking under all conditions with simplicity of design, reliability and easy servicing.

Air Suspension

Leyland has long experience of air suspension systems for passenger vehicles. Utilising low frequency rolling lobe bellows spaced widely provides Leyland vehicles with outstanding levels of roll stability and ride comfort.

In the National integral design and B21 chassis, two bellows are used at the front and two on the rear A frame configurations.

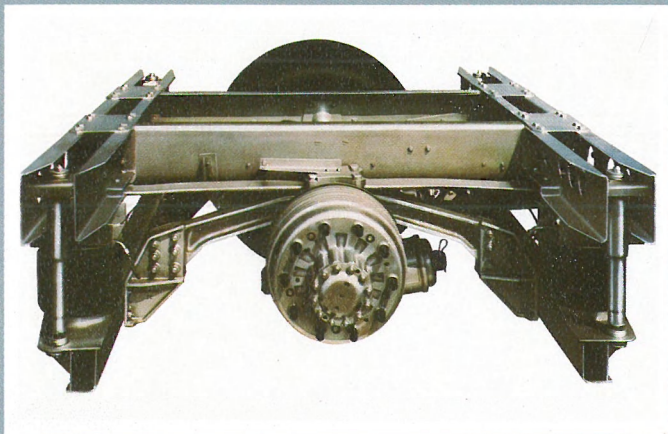
Titan uses two bellows at front and four wide spaced units on an H frame at the rear.

On other vehicles the arrangements differ slightly, the Olympian, Royal Tiger and UTIC designs use two bellows at the front and four bellows on an H frame at the rear. Tiger, DAB designs generally use two four bellows H frame configurations at the front and rear.

Driver Control Areas

Extensive ergonomic studies were used to develop the National driving compartment. These provide carefully planned controls and instrumentation. All controls are placed exactly to hand and are prioritised to usage.

Control areas to these basic designs are now standard features of National, Titan, Olympian, Tiger, Royal Tiger, Royal Tiger Doyen, B21 and B52.



Integral Coach Body Design

The new Royal Tiger Doyen continues Leyland's expertise in integral. The vehicle is built from welded square steel tube extensively corrosion treated, and uses single piece welded steel side panels. The structure is very rigid, lightweight and has outstanding roll over characteristics.

Fuel Efficient Power Plants

The six cylinder Leyland diesel engine has a long pedigree but careful development means that today's TL11 range is just as innovative as its predecessor. Careful study of the porting design, manifolding, turbocharger matching, fuel injection system etc. has produced a range of engines in both vertical and horizontal form which have outstanding characteristics of power and torque matched to fuel efficiency, emission control and reliability.

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