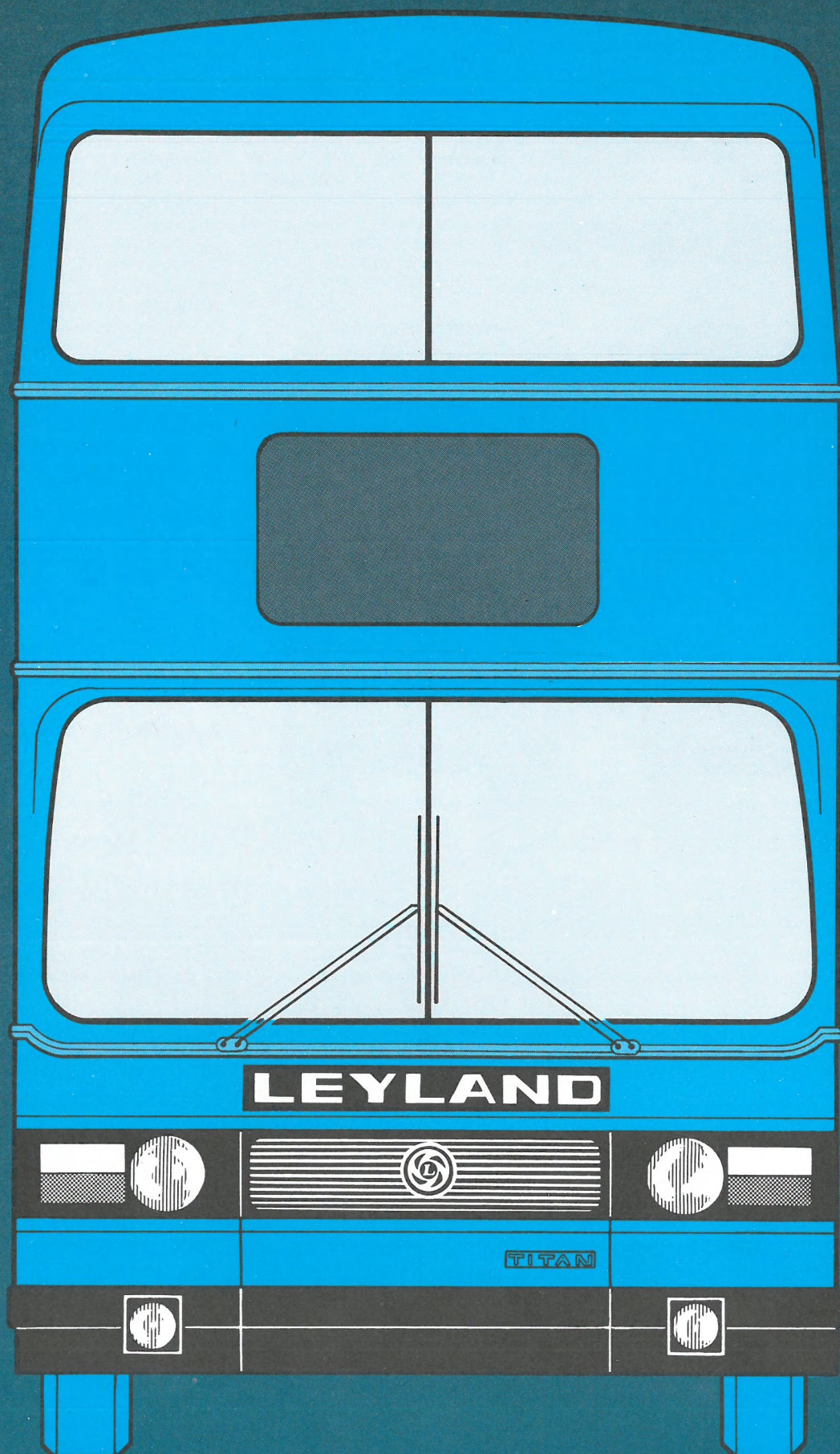




Leyland Titan

Technical Data





Leyland Titan bus specification

Make: Leyland

Model type: Titan

Manufacturer: Passenger Vehicle Division, Windmill Lane, Southall, Middlesex.

Construction: Integral aluminium framed design, with the addition of steel parts as required, providing for blind rivetted exterior side panels and mouldings, with stressed interior truss panels. Main framework is a series of ring frames comprising side pillars, roof sticks and underframe crossmembers, the rings being Avdel-rivetted to longitudinal and truss panels.

Floor and underframe: Frame members are gusseted for extra strength; the floor plate is bottom of a sandwich assembly

enclosing 9mm (0.351in) thickness of insulation and topped by 9mm (0.351in) thick plywood sheet surfaced with non-slip flooring.

External cladding: Aluminium alloy panels and glass reinforced plastic mouldings.

Internal cladding: Plastic laminate.

Seats: Tubular steel frame, 13° seat rake. Cushions filled with moulded polyether foam covered with embossed PVC.

Driving compartment: Ergonomic control layout based on priority of use. Adjustable driving seat, hide covered.

Instruments and controls: The instrument panel contains speedometer or optional tachograph, warning lights and test buttons, door control buttons and Radalarm test

buttons. A driver's control panel is positioned to the side of the driver containing gear switch, handbrake, air operated wash/wipe controls and vehicle electrical control switches. Gearchanging is fully automatically controlled by a 4 position gear switch.

Position 'S'—Engine start.

Position 'A'—Automatic drive.

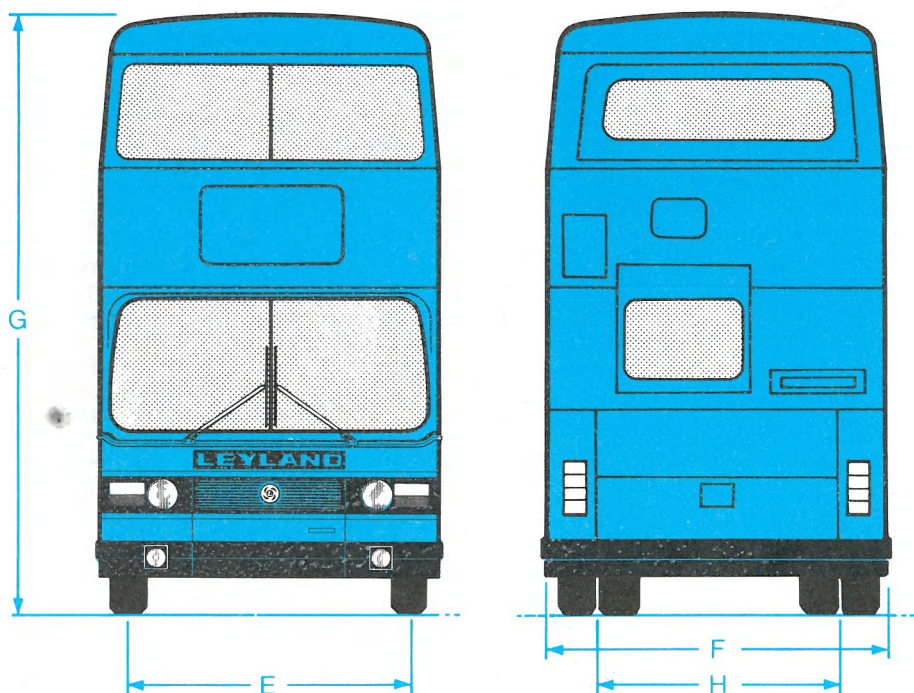
Position 'R'—Reverse.

Position 'H'—Gear hold.

Exterior lights: Headlights, sidelights, stop, tail, reverse and flasher lights, front and rear foglights, number plate lights, turn repeater light, hazard warning, destination board light.

Saloon lights: 2ft 20 watt fluorescent tubes in cove panels with position change-over for 'all lights on' or '50% lights on'.

Windows: All glazed in 4mm (0.156in) thick toughened glass except windscreen which is 7mm (0.273in) thick laminated glass.

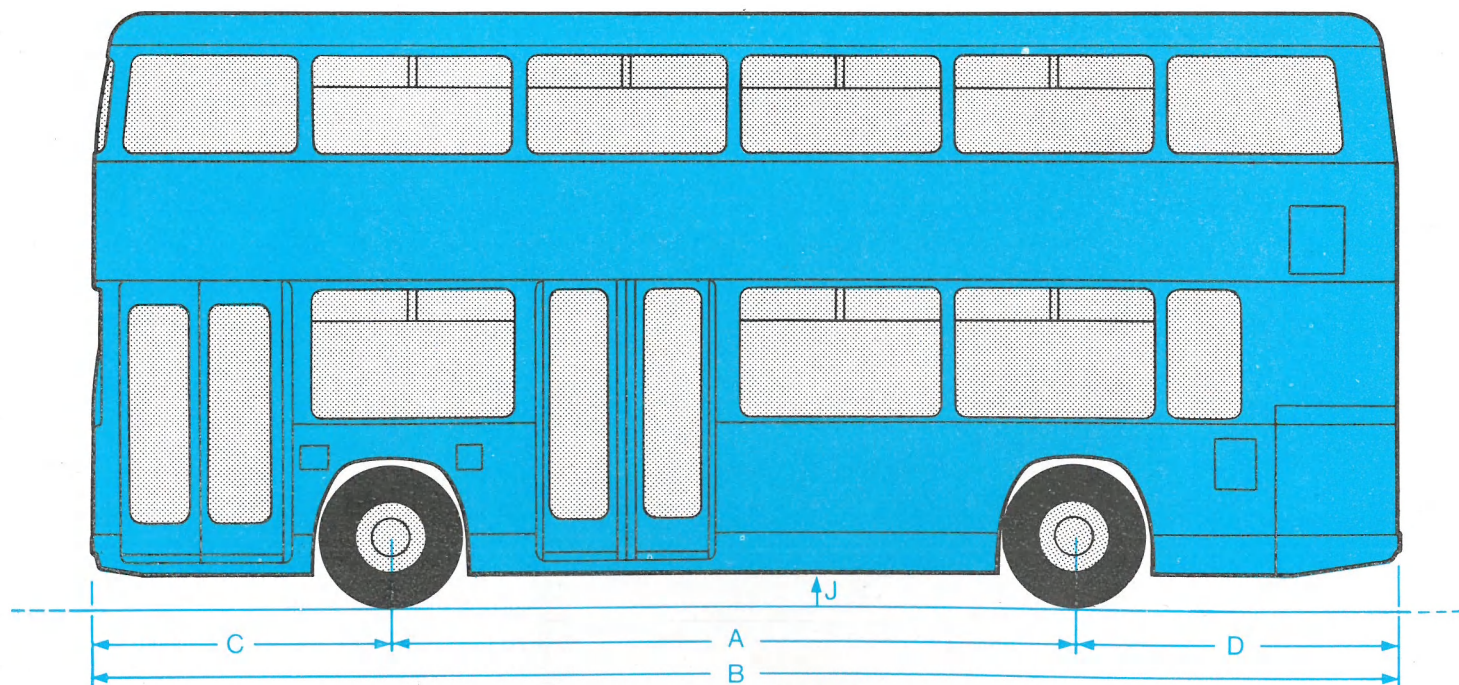


Nominal Dimensions

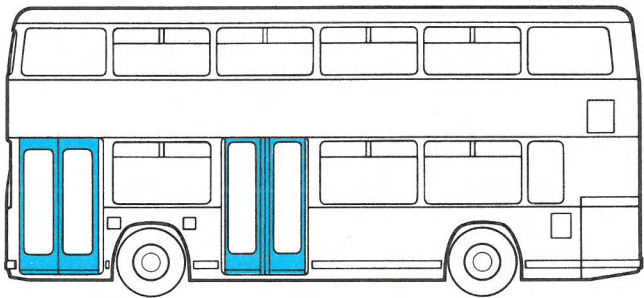
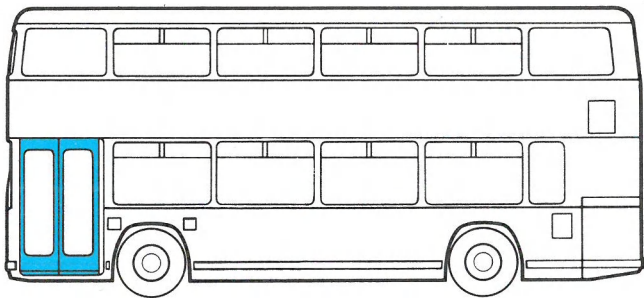
A	5030mm	198.03in
B	9568mm	376.69in
C	2188mm	86.14in
D	2350mm	92.51in
E	2092mm	82.36in
F	2500mm	98.42in
G	4378mm	172.36in
H	1857mm	73.11in
J	254mm	10.00in

Approximate Weights (2 door)

Chassis Kerb Weight (unladen)		
front axle	rear axle	total
3149kg	6299kg	9448kg
3.1 ton	6.2 ton	9.3 ton



Entrance and exit arrangements



Doors are single jackknife at the front and side glide at the rear with single skin partitions and full depth glazing. Doors are operated electro-pneumatically incorporating nosing rubbers 76mm (3in) wide and have diagonal grab rails to facilitate entry.

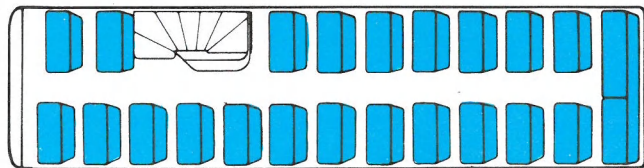
Passenger capacity

(Complying with UK regulations)

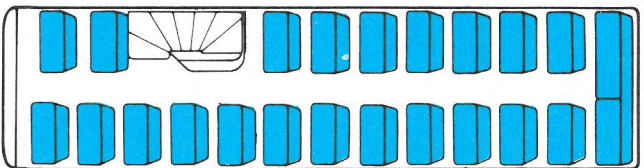
	Sitting	Standing	Total
1 door	73	20	93
2 door	72	20	92

Seating arrangements

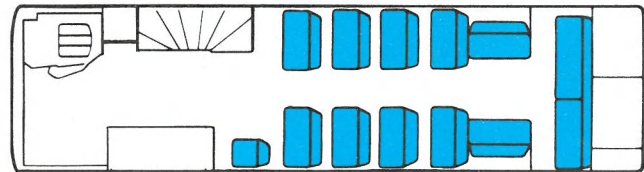
1 Door Seating Plans—Upper Saloon



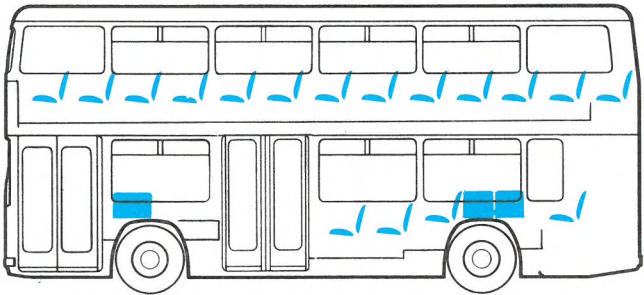
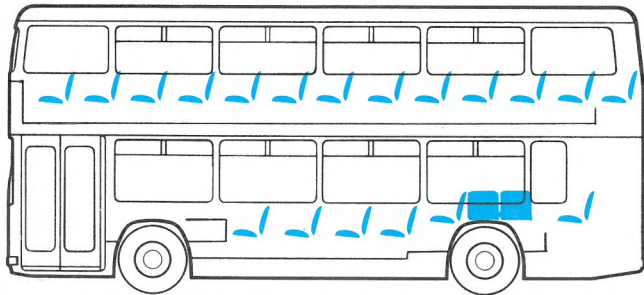
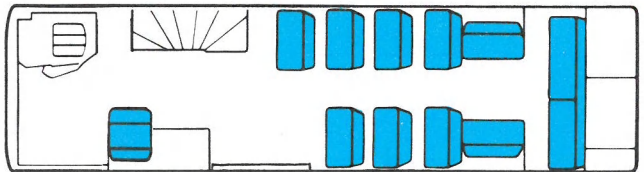
2 Door Seating Plans—Upper Saloon



Seating Plans—Lower Saloon



Seating Plans—Lower Saloon



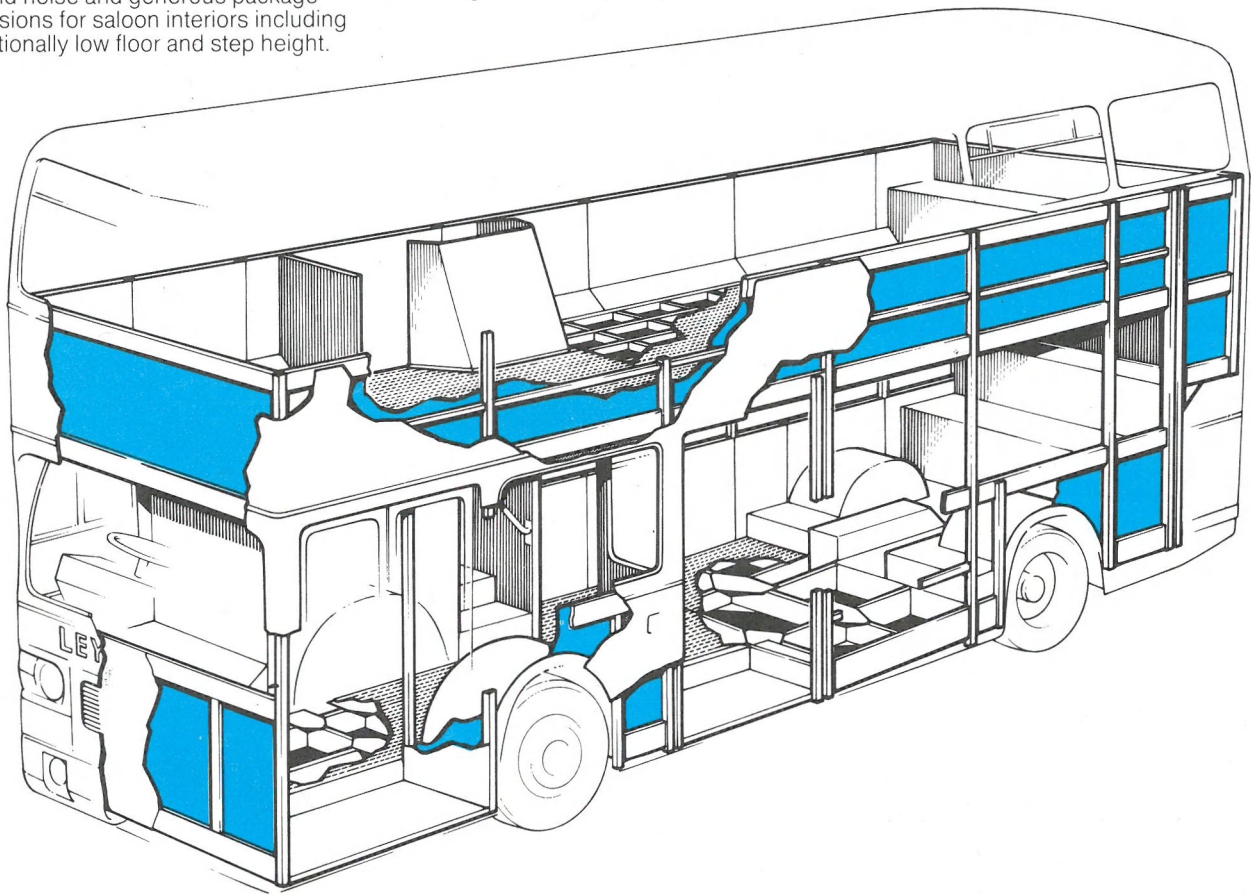
Sophisticated body structure

High rigidity lightweight structure permits the use of soft independent front suspension and provides substantial occupant protection in impact. Stressed by computer, the high efficiency structure has minimum redundancy and low weight.

It provides excellent vibration isolation for ride and noise and generous package dimensions for saloon interiors including exceptionally low floor and step height.

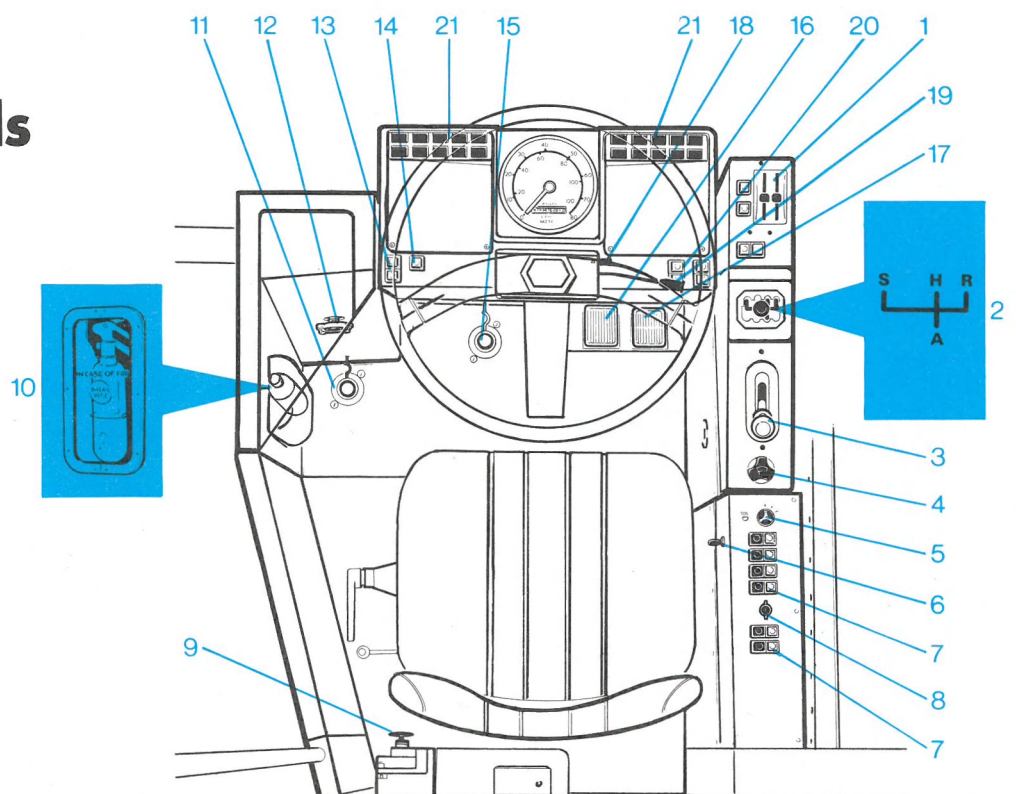
The transverse rear engine and gearbox is directly suspended from the body shell without need for a subframe. Rear wheelarch is made in a way that reduces fragmentation impact in the event of a tyre blow-out. Corrosion treatment allows for a 15 year service life and includes degreasing and etching of all metal parts prior to stove-

priming; bi-metallic joints are treated with di-electric paint. Underbody is finished in aluminium paint and truss panel exterior surface and wheelarches are heavily coated with bituminous sealant.

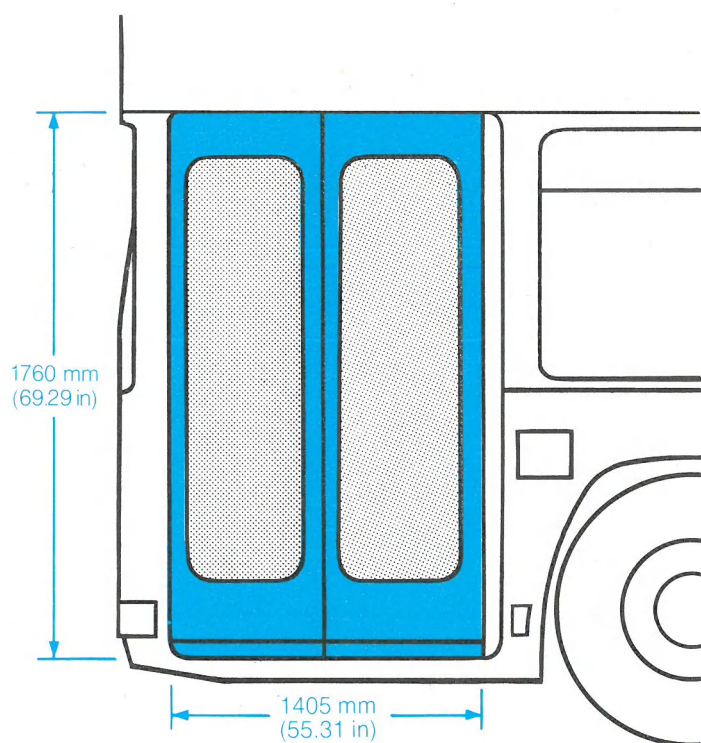


Driver's controls

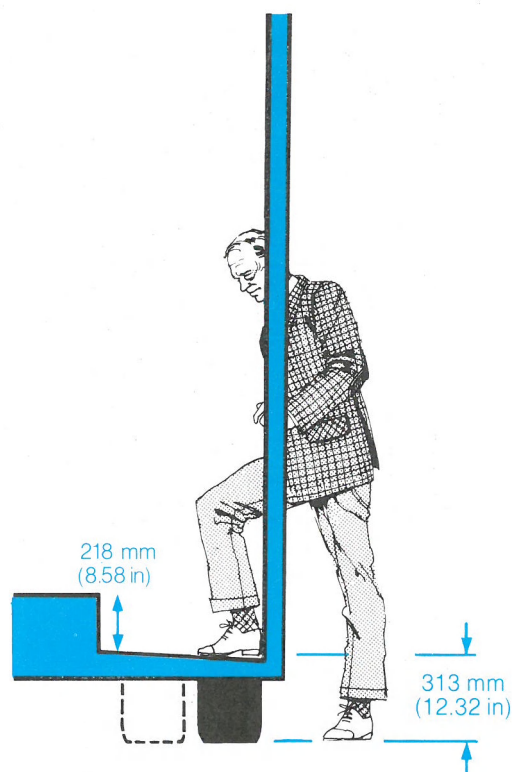
- 1 Heat & demist control
- 2 Gear selector
- 3 Hand control valve
- 4 Windscreen wipers/washer
- 5 Headlight switch
- 6 Assault alarm (if fitted)
- 7 Light switches
- 8 Master/start switch
- 9 Battery isolation control
- 10 Fire extinguisher
- 11 Door control (if fitted)
- 12 Water control valve
- 13 Coolant indicator test switch
- 14 Integrity test switch
- 15 First gear pre-selector
- 16 Footbrake pedal
- 17 Accelerator pedal
- 18 Hazard warning control
- 19 Direction indicator stalk
- 20 Door controls
- 21 Warning lights



Door and entrance details



Doors open minimum clearance dimension 1201 mm (47.25 in)



Heating and ventilation

Front mounted Smiths unit for demist/heating.

Below stairs mounted twin Smiths units providing 26 air changes per hour, for saloon heating. Fan motors have 10,000 hr. life.

Specific dissipation;—

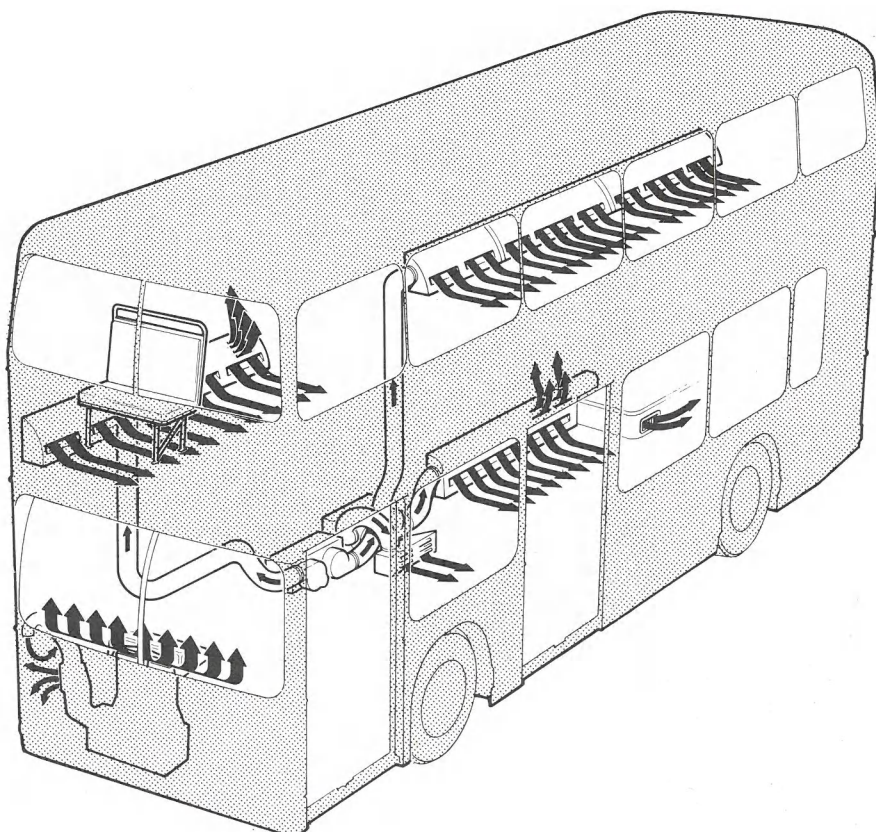
Demist unit: 127 watts/ $^{\circ}$ C E.T.D.
(401 C.H.U./100 $^{\circ}$ C E.T.D.)

Saloon heater: 294 watts/ $^{\circ}$ C E.T.D.
(929 C.H.U./min/100 $^{\circ}$ C E.T.D.)

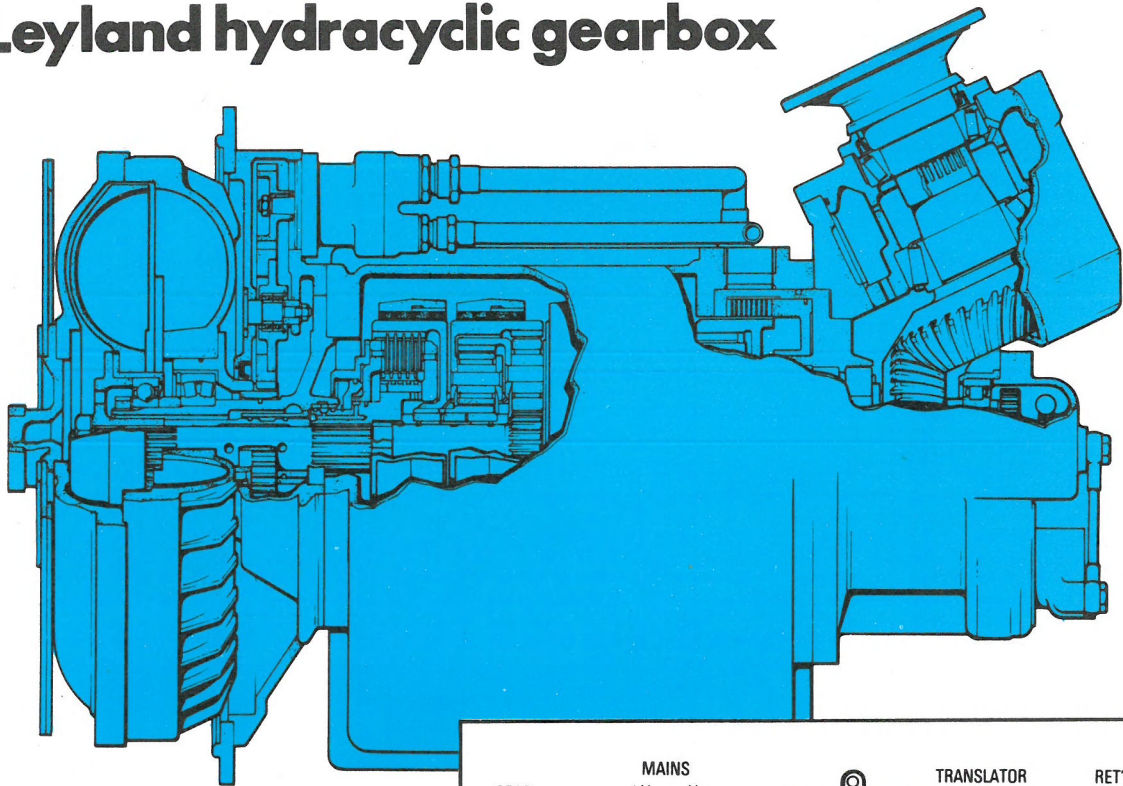
Air flow:—

Demist unit: 0.24 m³/sec.
(297 ft³/min).

Saloon heater: 0.58 m³/sec.
(720 ft³/min).



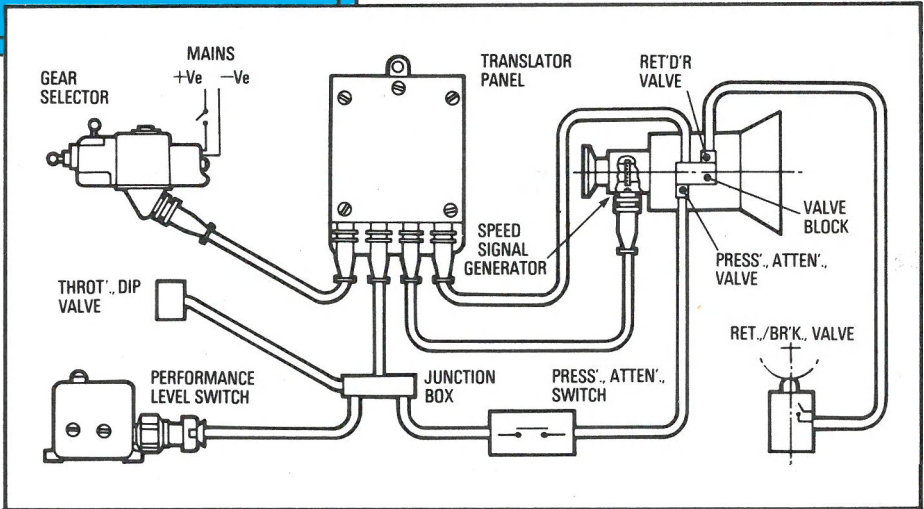
Leyland hydracyclic gearbox



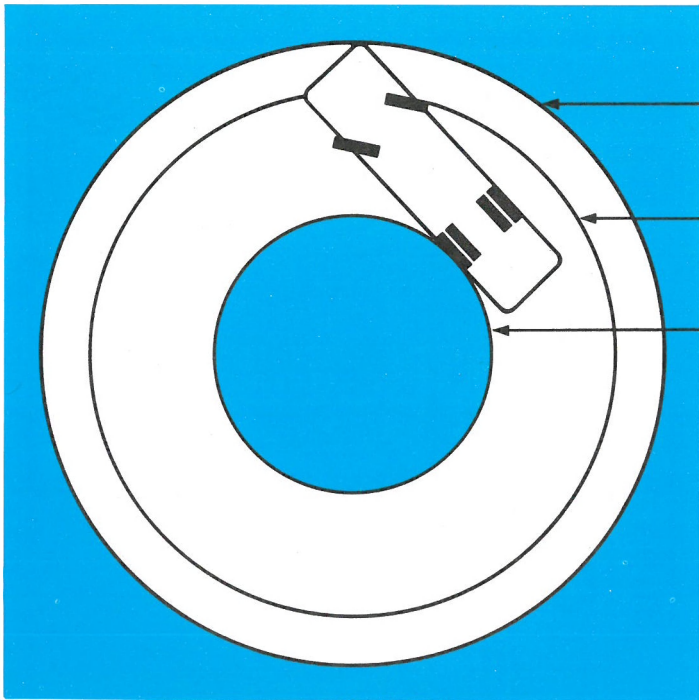
The transmission comprises a fully charged fluid coupling, a 5 speed and reverse stepped epicyclic (close ratio) gearbox with balanced fully floating band brakes and integral friction retarder and angle drive.

A common oil supply is used for the fluid coupling, gearbox and angle drive and is also used to apply the brake bands and operate the retarder. The oil is continually filtered and passed through an air cooler.

A fully automatic control system sensitive to vehicle speed has two levels of performance; it provides throttle dipping for synchronization during upshifts and neutral gaps on down shifts. Vehicle direction and engine speed inhibition is featured.



Steering



Swept Circle:
19.81 m (65 ft. 0 in.)

Turning Circle:
16.98 m (55 ft. 7 in.)

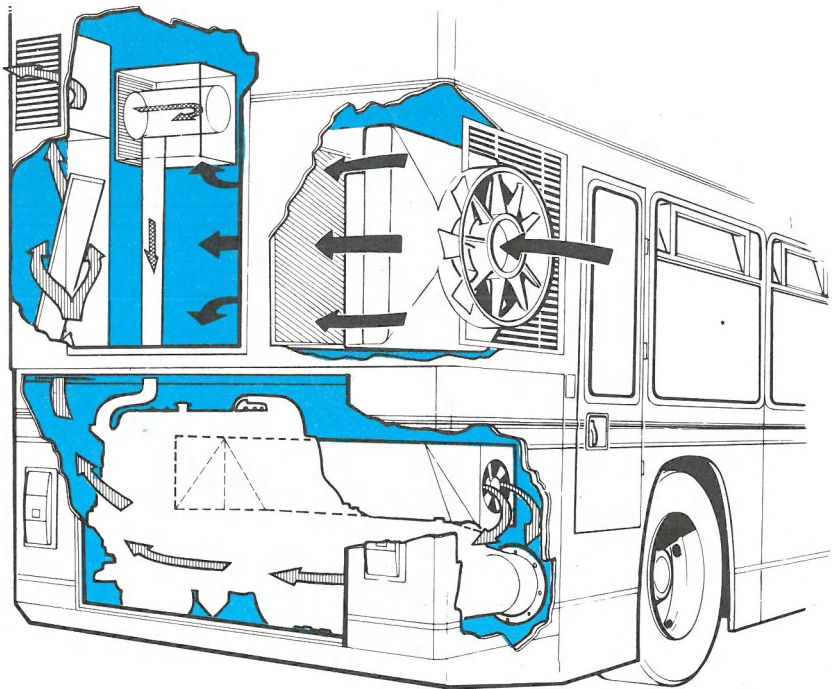
Nominal Swept Band:
8.79 m (28 ft. 10 in.)

Engine installation

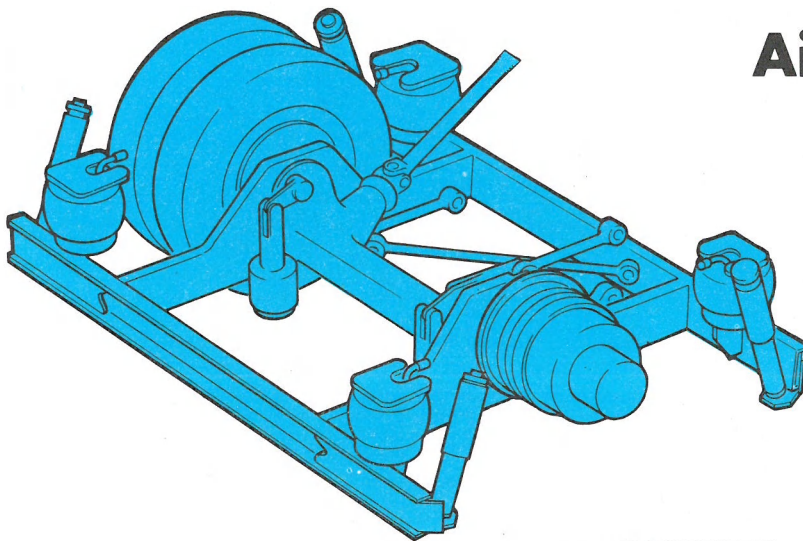
The engine is mounted in a separate enclosure to the cooling radiator which is high mounted alongside the bus rear window. Careful encapsulation of the engine in a ventilated compartment provides a better operational environment and reduces noise emission. Widely spaced rigid anchorage points for the flexible engine mounts means excellent vibration isolation. Mounting of the engine and gearbox assembly to a common ring frame around the fluid coupling permits separate withdrawal of either gearbox or engine.

KEY TO AIRFLOW

-  COOLING SYSTEM
-  ENGINE VENTILATION
-  ENGINE AIR INTAKE



Air-ride suspension



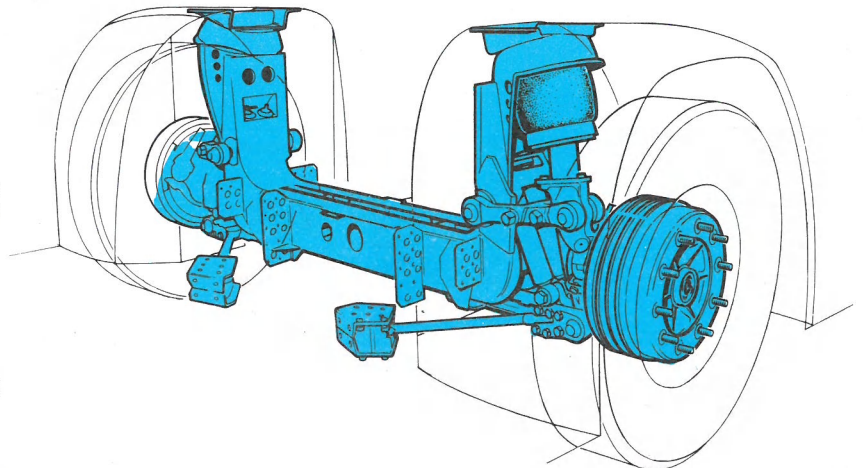
Air springs are fitted front and rear widely spaced for maximum roll stiffness. Front suspension is an independent layout with single bellows and twin dampers per wheel; at the rear, two bellows per wheel are mounted on an H-frame with outboard dampers, two per wheel.

Automatic levelling valves ensure a constant step height. Suspension linkages are rubber bushed to prevent ride harshness and provide outstanding reliability with minimum maintenance. Torsion bar springing carries the tare weight at the front, air springing supporting the passenger load and providing a constant low frequency ride.

Braking system

Power hydraulic braking provides a more durable and trouble-free system than air, avoiding problems of dirt ingress or freezing and achieving a better front to rear pressure balance. It is more responsive to driver control and is considerably less bulky, particularly in size of reservoirs.

Hydraulic accumulators, carrying a nitrogen pre-charge of 550 lb/in² have high reserve of emergency stops in the event of power failure. Automatic slack adjusters and spring parking brakes are incorporated.



Standard equipment

Brakes, service:

Power hydraulic – split system.
'S' cam actuators with roller followers and SAB automatic slack adjusters.
Front – 394 mm x 152 mm x 19 mm (15.5 in x 6 in x 0.75 in)
Effective area – 2219 cm² (344 in²)
Rear – 394 mm x 203 mm x 19 mm (15.5 in x 8 in x 0.75 in)
Effective area – 2787 cm² (432 in²)
Total lining area – 5006 cm² (776 in²)
Swept drum area – 8796 cm² (1363 in²)

Brakes, parking:

Hydraulically actuated spring brakes front and rear.
Frictional area – 2787 cm² (432 in²)
Actuation – by graduated hand control valve in driving compartment.
Emergency release – air blow off connection at front of vehicle.

Brakes, equipment:

Low oil pressure/level warning light and buzzer.

Cooling system:

Separate radiator compartment situated above engine compartment.
Fan – thermostatically controlled hydraulic drive. Remote header tank situated under upper saloon rear seat. Radolarm coolant level system.

Electrical equipment:

24V earth return.
Batteries – lead acid type. Capacity 195 Ah at 20 hr. rating.
Alternator – BUTEC 100 A output.
Starter – CAV 624 cradle mounted.
Regulator – BUTEC type R102 with voltage control.

Engine:

Leyland TL11 six-cylinder, turbocharged diesel.
Displacement – 11.1 litre.
Bore – 127 mm (5.0 in).
Stroke – 146.05 mm (5.75 in). BS AU 141a 1971 net rating 127 kW (170 bhp) at 1850 rev/min.
Maximum torque – 725 Nm (535 lbf ft) at 1200 rev/min.

Engine equipment:

Air cleaner – paper element.
Oil filter – full flow replaceable paper element.
Engine stop – CAV electric solenoid.
Throttle – Clayton air cylinder.
Oil cooler – cooling water/oil heat exchanger.

Fuel system:

Direct injection.
Injection pump – Inline Friedmann & Maier P76.
Lift pump – plunger type.
Fuel filter – paper element.
Fuel tank – 236 litre (54 gal).

Gearbox:

5-speed close ratio epicyclic.
Ratios – 5th 1.00:1, 4th 1.502:1, 3rd 2.123:1, 2nd 3.226:1, 1st 5.204:1, reverse 3.730:1.
Operation – G6 fully automatic control, electro hydraulic valve block.
Integral fluid coupling – fully charged 485 mm (19 in) dia. Integral, hydraulically operated, friction retarder.

Transmission:

Spiral bevel angle drive.
Ratio – 1.125:1. 1700 series propeller shaft.

Steering:

Rack and pinion, power assisted, steering wheel dia. – 457 mm (18 in).

Suspension:

Front – Independent by a combination of torsion bars and self levelling air suspension. Capacity – 6100 kg (6 ton).
Rear – Self levelling air suspension using an H frame and four bellows.
Axle – double reduction – drop centre.
Capacity – 10160 kg (10 ton).
Ratio – 4.974:1.

Shock absorbers:

Twin telescopic front and rear.

Tyres:

Front and rear – 11 x 22.5 radial ply tubeless.

Wheels:

Disc type, 10 stud.
Size of rims – 7.5 x 22.5 6 in offset.

Optional equipment

Axle, rear:

Alternative ratios – 4.567:1, 4.206:1.

Body:

Cab door deleted; alternative squab and cushion seat covering, black and white registration plates, heated windscreen, Fresnel lens in lower saloon rear bulkhead window, top opening facility in upper saloon front window; hopper windows in lieu of sliding. Double jackknife doors.
Destination gear to customer specification.

Electrical:

Alternator – CAV 60A fully enclosed.
Batteries – Alkaline HL14.
Tachograph – Lucas Kienzle 2 man/Smiths one man, speedo without odometer.
Assault alarm.

Engine:

Gardner 6LXB six cylinder diesel.
Displacement – 10.45 litre (638 in³).
Bore – 120.6 mm (4.75 in)
Stroke – 152.4 mm (6.00 in)
BS AU 141a rating – 127 kW (177 bhp) at 1850 rev/min.
Gross torque – 718 Nm (530 lbf.ft.) at 1000 rev/min.

Gearbox:

Fully inhibited semi-automatic transmission consisting of: controller, gear selector, speed signal generator (gearbox/engine output) and throttle dip valve unit.

Wheels and tyres:

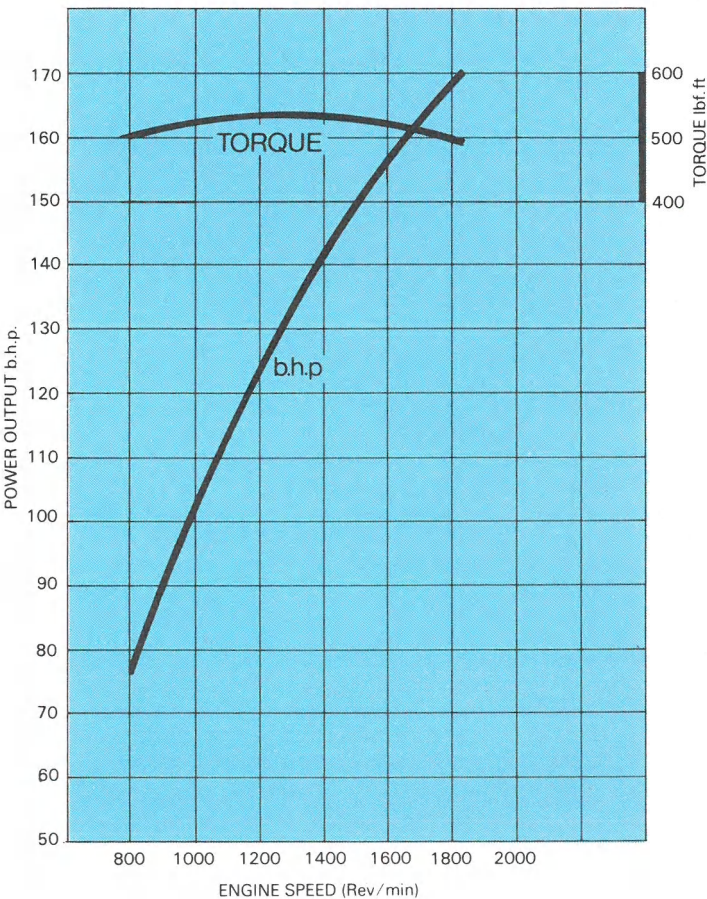
10.00 x 20 cross ply on B7.5 x 6.3 off-set rims.

Leyland Titan performance data

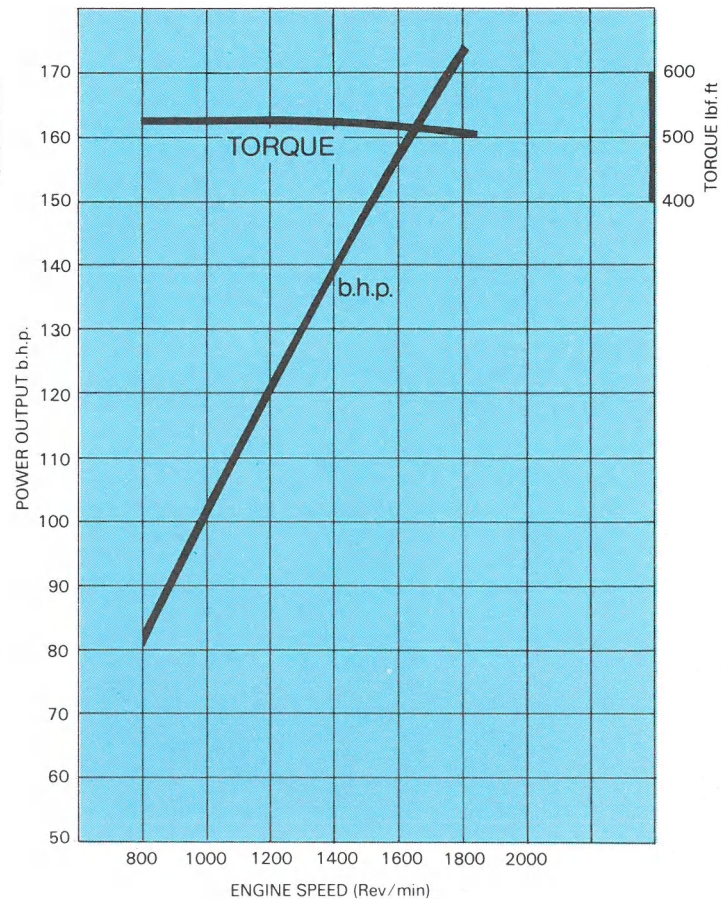
Performance guide (with TL11 & 6LXB engines)

Axle ratio	Overall ratio	Max. geared speed		Max. climb gradient		Max. restart gradient	
		mph	kph	1 in	%	1 in	%
4.974:1	5.595:1	40	64	4.85	20.6	5.6	17.9
4.567:1	5.137:1	43	69	5.3	18.9	6.2	16.1
4.206:1	4.735:1	47	76	5.8	17.2	6.8	14.7

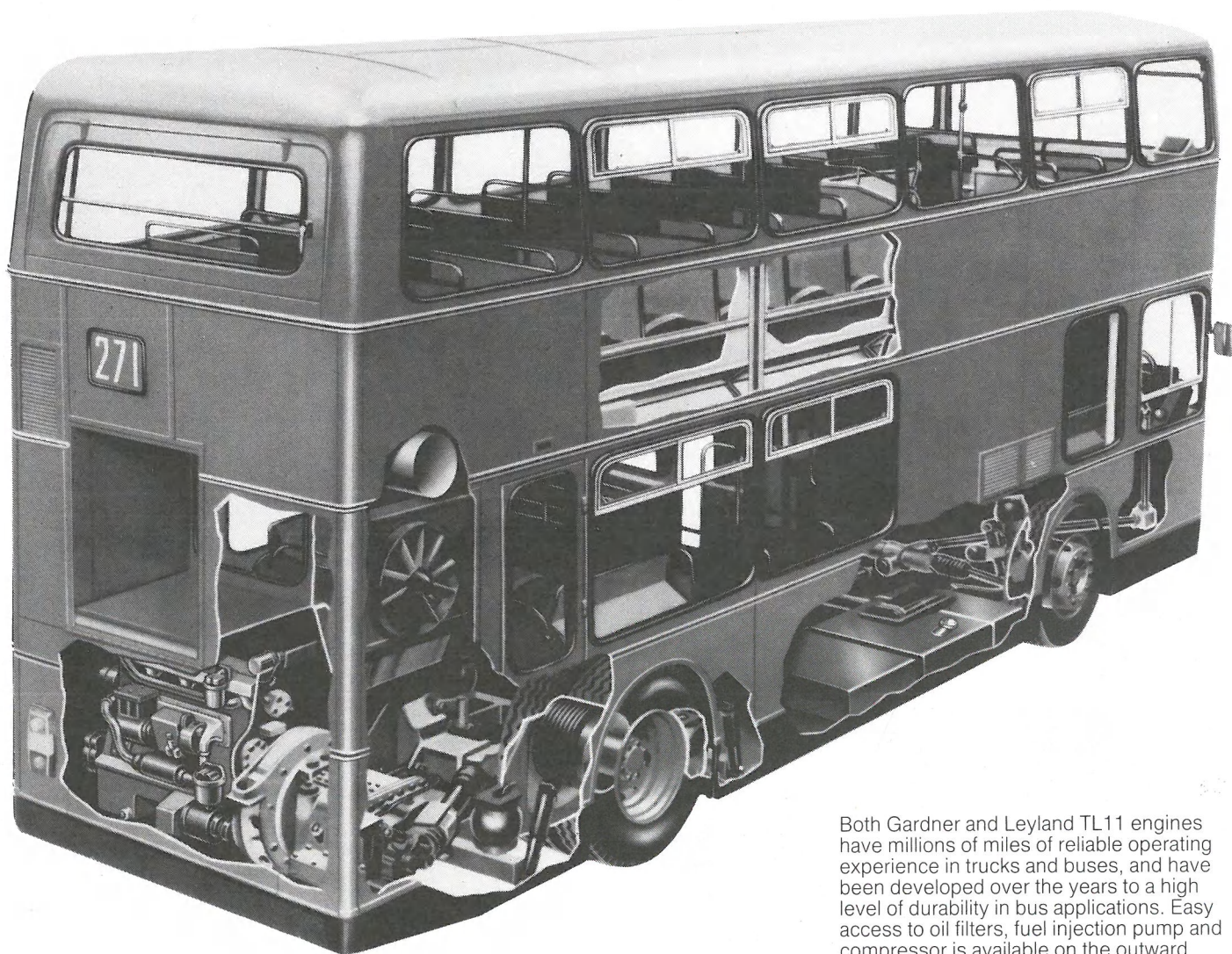
Leyland TL11 – 170 bhp at 1850 rev/min
535 lbf. ft at 1200 rev/min



Gardner 6LXB – 170 bhp at 1850 rev/min
530 lbf. ft at 1000 rev/min



Service and maintenance



Early attention to component and service point accessibility during the design stage has paid off in terms of low man-hour times for most maintenance tasks.

While the engine compartment is completely enclosed, removal of the three-section undertrays is possible within a few minutes. Framework carrying the undertrays is also easily removable for total access to the engine/gearbox assembly. Outer engine mountings are suspended from the integral structure which simplifies engine removal. Mounting of the engine/gearbox unit to a common ring frame around the fluid coupling permits simple separate withdrawal of either gearbox or engine.

Both Gardner and Leyland TL11 engines have millions of miles of reliable operating experience in trucks and buses, and have been developed over the years to a high level of durability in bus applications. Easy access to oil filters, fuel injection pump and compressor is available on the outward face of the engine at the rear of the bus.

Engine cooling is by the Leyland-developed 'no loss' system; when required, a choice of coolant refilling methods, from inside the upper saloon (by hand), or normally by ground level pressure hose point, gives maximum versatility of approach. A coolant level check and warning system removes the need to take off the filler cap. With the hydraulic system for cooling fan drive and braking, diagnostic test tapping points are provided in the following places: between fan/power-steering pump and hydraulic valve block, between manifold and fan motor, between manifold and power steering rack and within the brake line system.

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Leyland Vehicles

British Leyland UK Ltd.,

Passenger Vehicle Division, 8 Windmill Lane, Southall, Middlesex.

Tel: 01-574 2333. Telex: 8813698.