



**Mercedes-Benz
O 405 GN
Low-Floor
Articulated Bus**



The Mercedes-Benz O 405 GN – the most modern variant of the urban bus

A modern regular-service bus should not just operate efficiently but should also offer its passengers a high level of comfort. Mercedes-Benz has extended its

range of regular-service buses to this effect, and now offers the low-floor articulated bus O 405 GN. Low-floor technology makes getting in and out

easier, a particular benefit for children, the elderly, the physically disabled and visually handicapped, as well as for passengers with prams. The O 405 GN

can accommodate up to 163 passengers and is therefore the right bus for very busy urban routes.



The O 405 GN combines the advantages of an articulated bus with those of the low-floor concept.

The design principle, with a very low vehicle floor, no entrance steps at the front and centre, wide entrance steps at the rear and a level floor in the front section, ensures that passengers can get on and off the bus rapidly, shortens stopping times and thus overall trip times.

The O 405 GN is available in three-door and four-door versions. The entry height at the first door is 317 mm, and at the other doors 340 mm. The third and fourth doors have an additional step of 220 mm and 265 mm height respectively.



The kneeling-unit lowers the entry side by 70 mm, so that passengers can get on the bus even more conveniently.



A so-called kneeling unit is optionally available which lowers the entry side by an additional 70 mm, allowing passengers to get on the bus even more conveniently.



A ramp for prams at the second door is optionally available to make getting on and off the bus easier and speed up passenger flow. ▼



The front entrance can be equipped with a lifting platform for wheelchair users. ▼



The low entrance height of just 317 mm at the front door and the double-wing inward-swinging doors make access easier.

The O 405 GN can be rendered ideal for wheelchair users and passengers with prams if it is equipped with a lifting platform at the front door or a ramp at the centre door. The vehicle floor is level in the front section and rises gently up to 560 mm in the rear. The non-slip floor covering throughout the bus provides the passengers with a firm footing. The large, undivided windscreen provides good visibility, particularly at bus-stops, which is further enhanced by the fully-glazed inward-swinging doors. All the advantages of the Mercedes-Benz

modular service bus system, for instance the high degree of parts commonality, are also to be found on the O 405 GN. Overall, the O 405 GN provides more comfort for the passengers, no problems of adaptation for the driver, greater economy for the operator and higher environmental compatibility for the benefit of all of us.

A generously proportioned interior for comfort and safety

The positive impression the passengers will already have gained from the convenient entrances is further enhanced by the friendly appearance of the interior. A harmonious colour scheme, large windows and plenty of room are the major design features. The O 405 GN is available for either 47 seated and 115 standing passengers, or 51 seated and 112 standing passengers. The anatomically contoured plastic bucket seats are mounted on twin tubular frames bolted to the floor and sidewall. They are available either covered or fully upholstered. The seats in the rear section can also be reached without negotiating any inconvenient steps. Vertical grab bars and two grab rails below the ceiling provide passengers with a firm hold. The front section standing height of almost 2.4 metres made possible by the low vehicle floor means that nobody needs to duck his head.

From the stop display to the grab handles and the heating and ventilation system, there are many features designed to provide comfort and convenience for the passengers. The floor, sidewalls and ceiling are noise and heat-insulated.

This ensures outstanding overall noise and heat insulation, particularly near the engine in the rear section.

Regular-service buses by nature frequently have to stop and open and close their doors. In the O 405 GN, the resulting heating and ventilation problems are solved by means of a three-stage front section heater and six two-stage floor heaters with thermostatic control and easy-maintenance heat exchangers. When the hot water circuit is switched off, the heaters double up as ventilation units. In addition there are two electric roof ventilators and a roof hatch.



The O 405 GN accommodates up to 163 passengers.



Small items with a big effect: stop request buttons and displays indicate the next stop. Heating and ventilation ensure a pleasant atmosphere.



The pram area is directly opposite the second door and can therefore be reached without difficulty.



The seats are arranged on lateral platforms in the front section and also behind the third door in the rear section. However, there is no raised platform in the pram area directly opposite the centre door. A well laid out driver's area not only makes life easier for the driver but also contributes significantly to the passengers' safety.

The connection between the front and rear sections is provided by a slewing ring. An anti-jackknife control system increases safety.



The controls for the destination signs are located above the driver's seat.



The clearly laid out instrument panel ensures that the driver is never confused, while the deep windscreen provides a good field of vision. In addition, the front section of the side window on the driver's side is heated. The driver's

area is separated from the passenger compartment by a perspex panel and has its own heating and ventilation system. The control units for the destination and route number signs are mounted above the driver's seat.



The driver's area is laid out ergonomically and helps to prevent fatigue. An important contribution to safety.

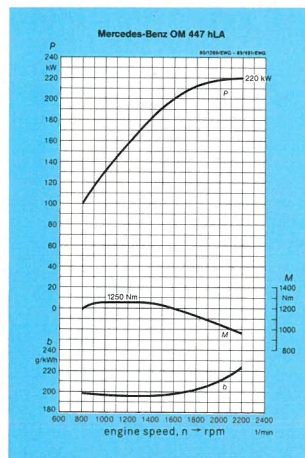
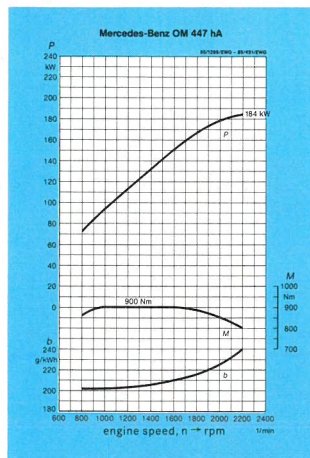
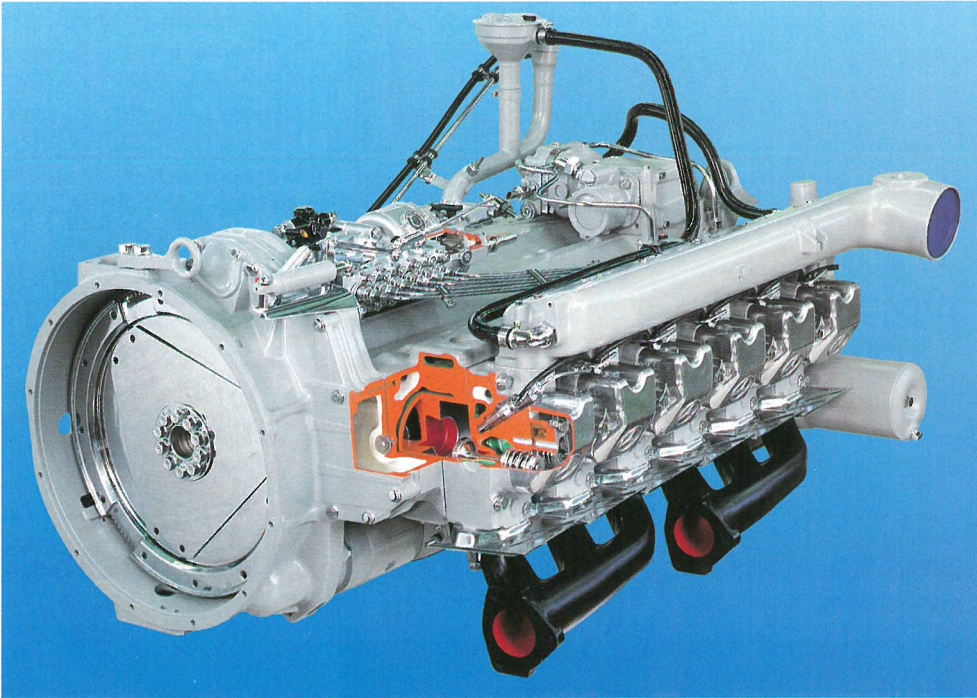
A modern power train combining economic efficiency with environmental compatibility

Mercedes-Benz diesel engines set standards for the future in many respects. Their high performance

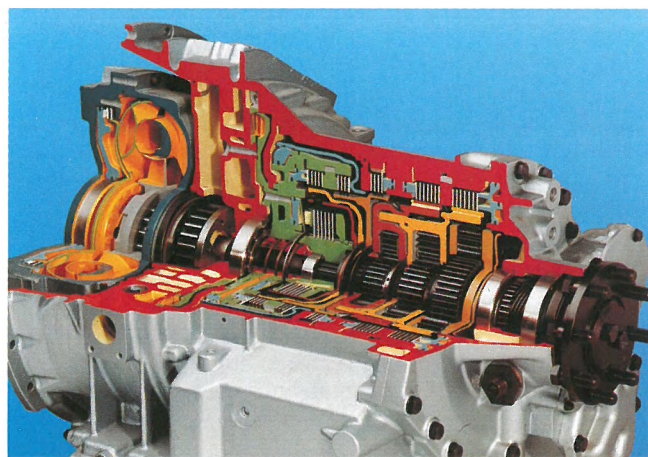
combines with powerful acceleration from standstill as well as through the gears, smooth running char-

acteristics and minimised emissions. The LEV engines OM 447 hA and OM 447 hLA used in the

O 405 GN are already below the strict EURO-1 limits. This was achieved, after intensive research, by modification of the injection system and the combustion chamber. These direct-injection engines have very low fuel consumption and low-soot, low-smoke combustion. Good starting properties and a long service life are further advantages. The OM 447 hA is a turbocharged six-cylinder in-line engine developing 184 kW (250 hp) at 2200 rpm. Its maximum torque is 900 Nm at 1000 - 1600 rpm. The intercooled version OM 447 hLA develops 220 kW (299 hp) at 2200 rpm. Its maximum torque is 1250 Nm at 1000 - 1300 rpm.



Optimal power transmission in the O 405 GN is ensured by a ZF four-speed automatic transmission with an integral retarder. A ZF five-speed automatic transmission and a Voith four-speed automatic transmission are optionally available. The automatic transmission smoothly changes gear at the most favourable engine speed, and this goes a long way



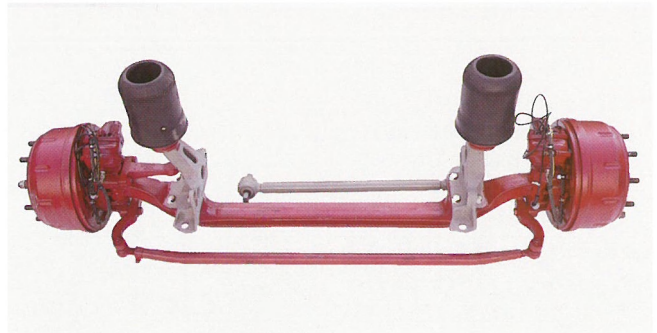
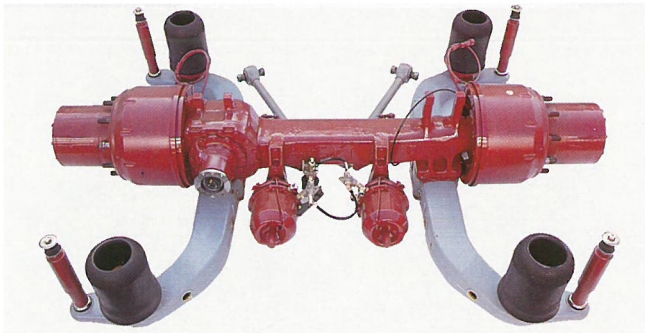
towards reducing the strain on the driver. As a non-wearing permanent brake, the retarder increases safety, reduces brake lining wear and permits high average speeds.

Advanced technology for increased safety

Steering and brakes are of crucial importance for the safety of a regular-service bus. Both systems must be matured and well-proven in large-scale production. The power-assisted steering of the O 405 GN trans-

mits all steering commands precisely, so that even tight bends can be negotiated with little effort. Under steady-state cornering, the turning circle is just 24 m. Thanks to anti-jackknife control, the rear

section swings only very slightly inwards and cannot break away during cornering.



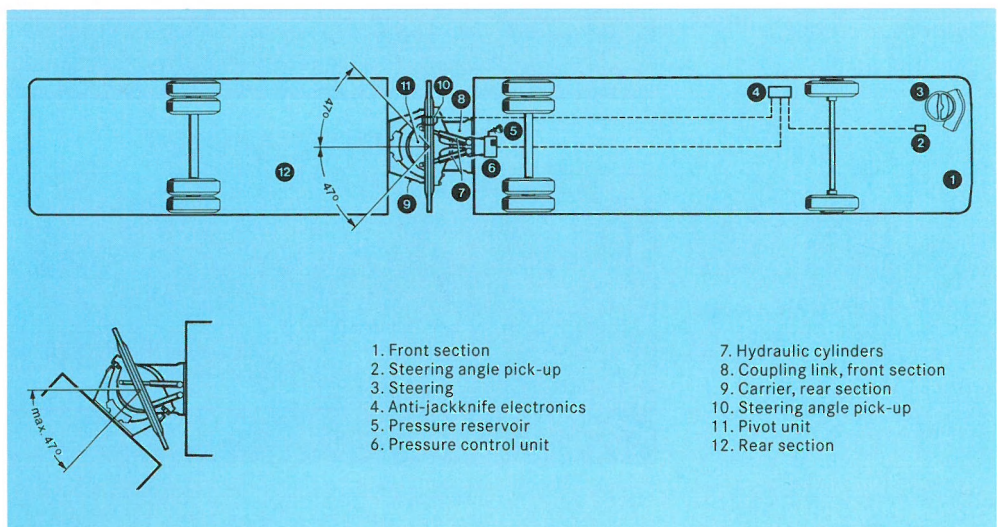
The O 405 GN has the following independently acting braking systems as standard: a dual-circuit service brake, a retarder, a parking brake and a bus stop brake linked to the door opening mechanism. The dual-circuit service brake allows brake power to be finely apportioned and distributed. Power is transmitted via a closed compressed-air circuit with a four-circuit protective valve. Self-adjusting brake shoes ensure even lining wear and therefore a longer service life.

The retarder integrated in the transmission also contributes to low lining wear.



The O 405 GN has ABS as standard. The anti-lock braking system controls braking forces in situations where one or more wheels threaten to lock. The optionally available acceleration skid control (ASR) has the opposite function in preventing the wheels from spinning on wet or icy road surfaces. Both systems significantly improve road-holding stability in critical situations.

The intelligent anti-jackknife control allows an articulated bus design which fully exploits the advantages of rear-axle drive and a rear-mounted engine with the resulting load on the rear axle. This also prevents the centre axle from swerving or breaking away. On straight roads the front and rear sections form a rigid unit, while on bends the angle formed by the rear section cannot be larger than the steering angle of the front wheels.



Another great advantage: easy maintenance

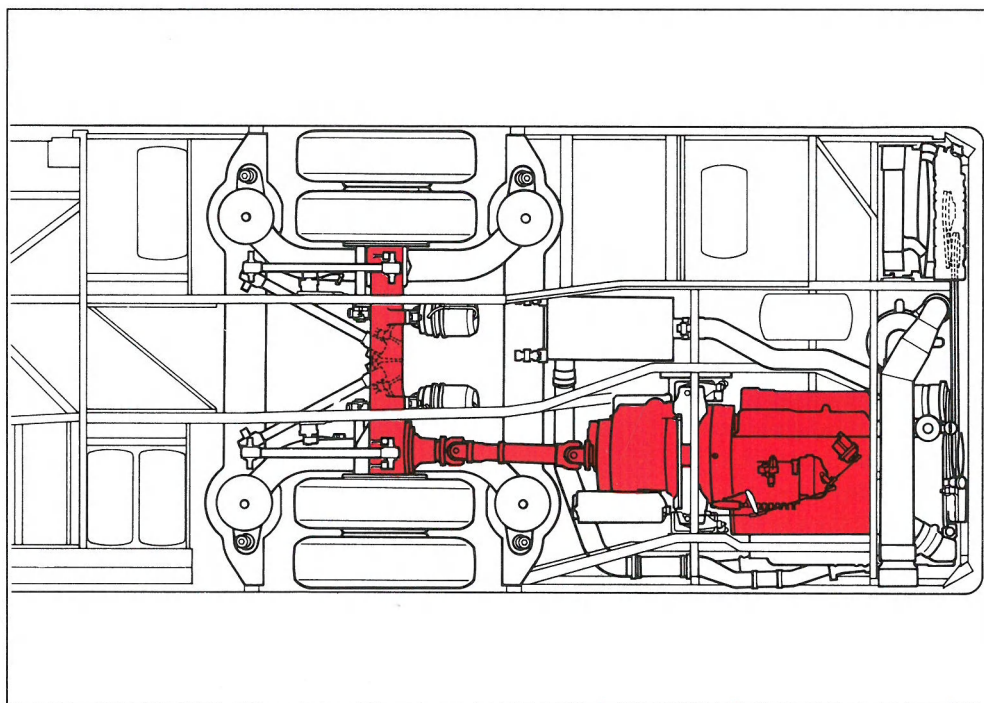
The economical operation of a bus not least depends on the extent of the work required to maintain the vehicle. Small and infrequent maintenance jobs are made easier by the convenient layout of all checking points. The large engine compartment flap gives access to all important engine areas. There are also a number of maintenance flaps for the easy servicing of assemblies. The central electrics compartment is located underneath the driver's side window. All fuses are clearly laid out, and at the rear

there are removable boards with further testing connections. The use of plug-in connectors eliminates soldering and makes board replacement easier. Clear markings on the connectors make confusion impossible. The large flap at the front gives easy

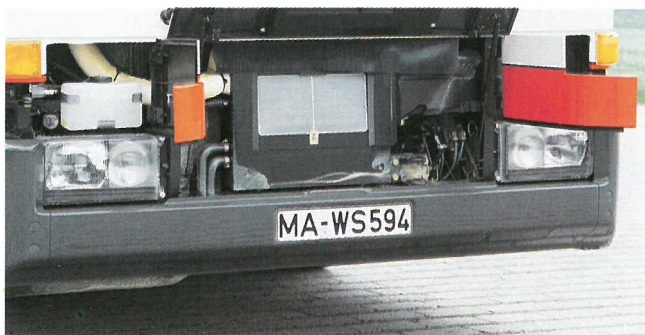
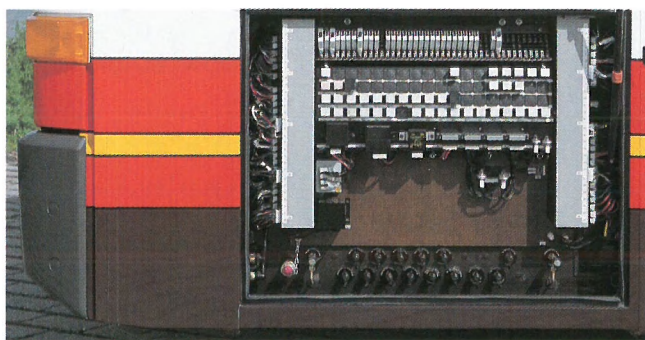
access to the steering, pedals, front heater, screenwipe/wash unit and the headlamps. Smaller jobs are thus performed in a jiffy. The smooth exterior, flush-closing doors make the O 405 GN very suitable for washbays.



The batteries are mounted on extendable frames to permit rapid checks on their condition.



The power train of the O 405 GN low-floor regular-service bus.



Maintenance flaps give access to all items which must be checked frequently or replaced without difficulty. Fuses and antifreeze can be checked just as quickly as the engine oil level.

Technical description

Engines

Six-cylinder in-line OM 447 hA engine, 184 kW (250 hp) at 2200 rpm, max. torque 900 Nm at 1000 - 1600 rpm. Optional: six-cylinder in-line OM 447 hLA engine with 220 kW (299 hp) at 2200 rpm, max. torque 1250 Nm at 1000 - 1300 rpm. Fitted under-floor at rear, offset to left under side platform.

Transmissions

ZF four-speed automatic transmission 4 HP 500 for 184 kW, 4 HP 590 for 220 kW, each with integrated retarder. Optional: ZF five-speed automatic transmission 5 HP 500 for 184 kW, 5 HP 590 for 220 kW, or Voith four-speed automatic transmission D 854.2 for 184 kW, D 864 for 220 kW, all with integrated retarder.

Suspension

Air suspension with supplementary spring integrated in the air bellows. Two air bellows and shock absorbers each on the centre and drive axles.

Axles

Front axle: MB rigid knuckle yoke axle located by 2 trailing arms and 1 wishbone. Centre axle: MB tubular axle, twin tyres. Rear axle: MB planetary gear hub reduction axle. Ratio: $i = 3.966 \times (37:27) = 5.434$ (max. 77 km/h). Centre and rear axles located by two upper trailing arms and two lower semi-trailing triangular arms.

Wheels

10-hole disc wheels, size 22.5 x 7.5, with spherical collar bolt alignment. Optional: wheels with central alignment.

Tyres

Ten tubeless 275/70 R 22.5 tyres. Optional: inflation device on twin tyres.

Brakes

Dual-circuit compressed-air brake system, self-adjusting brake shoes. Automatic load-dependent brake pressure control on the centre axle. ABS as standard. ABS/ASR optional. Parking brake: spring-loaded brake without mechanical linkage. Permanent brake: via integrated retarder (see Transmission), operation via service brake pedal and switch on instrument panel as standard. Optional: manual switch on the right side of the steering column. Bus stop brake: automatic bus stop brake controlled by door and switch on instrument panel.

Steering

MB LS 7F power steering. Mechanical power steering pump. Optional: steering wheel adjustable for height and angle.

Chassis and body

Frame: platform under the front section (without steps at doors 1 and 2), lattice frame beyond centre door. Cataphoretic dip priming for corrosion protection.

Body: entire body skeleton made of high-strength tubular steel.

Panelling: sheet metal thickness 1 to 1.25 mm. Sidewall panels all coil-coated or plastic-coated. Front section, rear section and central roof paneling also coil-coated. Roof edge panels coil-coated with zinc-dust paint.

Windows: undivided laminated windscreen. Side and rear windows: single-pane safety glass bonded to the body. Driver's window partially heated. Optional: tinted glass.

Doors

Fully glazed, inward-swinging, interchangeable double-wing doors. Clear door width approx. 1250 mm. Squeeze-in protection system on all doors: by pressure reduction on opening, by pressure-differential and pressure-wave control on closing doors 2, 3 or 4.

Electro-pneumatic door operation. Entry height door 1 = 317 mm (no step), door 2 = 340 mm (no step), doors 3 + 4 = 340 mm (one inside step).

Optional: extending ramp at door 2, wheelchair lifting platform at door 1.

Interior appointments

Interior panelling: hardboard and plastic panelling for sidewalls and roof. Perforated interior ceiling and roof insulation. Seats: plastic individual bucket seats mounted on frames for two seats each. Alternate grab handles and bars on the seats towards the aisle. Seat coverings and protective chin padding. Optional: fully upholstered seats.

Destination and route number signs

Fully automatic for reverse lettering. Optional: manually operated or alphanumeric signs.

Heating/ventilation

One front heater (3 settings), 6 floor heaters (2 settings) with thermostatic control. One coolant prewarming and heating device. Ventilation via front heater after switching off the hot water circuit. Three pop-up roof vents, one roof hatch and three electric roof extractors. One sliding window next to the driver and two quarterlights each in the front and rear sections.

Electrics

Rated voltage 24 V. Electrics units located in the central electrics compartment, clearly laid out on removable boards. Accessible from the outside through large sidewall flaps. Non-soldered, mostly plug-type connections. Wiring numbered and colour-coded. Three-phase generator, 120 A. Two batteries, 12 V, 200 Ah.

Starter motor

6.5 kW rated output. Optional: starter switch in engine compartment.

Paint

Single colour paint scheme or two different colours for upper and lower areas both standard. Three-colour finish optional.

Excellent services to match excellent engineering

The value of a bus is primarily measured in terms of its economy, which is in turn not least dependent upon the services which a manufacturer can provide.

A closely-knit service network comprising more than 2700 customer service stations is available throughout Europe, including about 300 special bus workshops in the Federal Republic of Germany. Outstanding service is also guaranteed by the available workshop capacity, the exemplary technical standard of the workshop equipment and the highly qualified personnel. Of course, our workshops install only original Mercedes-Benz parts which are subject to strict quality controls. Usually our customer service stations have all frequently needed parts in stock. Should a part not be to hand immediately, it is delivered within 24 hours by our express parts service.

The Mercedes-Benz Transport Systems Consultancy provides sound advice on all questions concerning local public transport. We also give advice before and during purchase, and support in everyday operation if our advice and help are required.

in order to lessen the burden of purchasing a new bus even further, the Mercedes-Benz used bus centres (OGC) take used vehicles in part payment at fair prices.



As part of the comprehensive Mercedes-Benz service system, the Mercedes-Benz leasing and financing programme offers a complete, well-designed range of individually tailored schemes.

The Mercedes-Benz range of printed material on buses consists of a number of brochures and leaflets.

Should you need further information before making up your mind, please contact your Mercedes-Benz bus specialist.

The brochure in front of you forms part of the following range of publications:

	MODEL BROCHURE O 405
	MODEL BROCHURE O 405 N
	MODEL BROCHURE O 405 G
	MODEL BROCHURE O 405 GN
	MODEL BROCHURE O 402
	MODEL BROCHURE O 407
	MODEL BROCHURE O 408
	TRANSPORT SYSTEMS CONSULTANCY FOR LOCAL PUBLIC TRANSPORT
	OPERATING COSTS OF URBAN BUSES
	MAINTENANCE OF STANDARD REGULAR-SERVICE BUSES

The contents are not binding and the right is reserved to make modifications without notice. The information in this brochure is to be regarded as approximate. The illustrations may show optional equipment items which are not included in the standard specifications.



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Buses