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MAN Lion's Coach: Not just economically appealing

The roll-over standard ECE R66.02 provided the incentive to update the MAN Lion's Coach. The result is a bus that sets standards in economy and reliability. The new MAN Lion's Coach will be officially launched at Busworld 2017 in Kortrijk.

- **MAN Lion's Coach with a more rigid skeleton, new driveline and new MAN design language**
- **A higher level of economy thanks to the optimised moving-off and gear-shift strategy together with several assistance systems and improvements in maintenance, as well as a 20% improvement in aerodynamics**
- **Main headlights and rear lights now for the first time available as all LED**

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It's obvious at first glance that this is a real MAN. Modern yet timeless, the new MAN Lion's Coach marks the launch of a new, distinctive MAN design language at the front, rear and sides. The designers focused on clearly separating the functional areas of the driver's cockpit and passenger compartment, the luggage compartment and the drive unit. In addition to appearance, this segmenting also provides benefits in terms of ease of maintenance and therefore economy as damaged parts can be exchanged quickly and without incurring large costs. New materials and manufacturing processes make the bus lighter and more robust, and also further increase ease of use, for example, when opening and closing the luggage compartment lid or bonnet.

The new MAN Lion's Coach will be publicly launched at this year's Busworld in Kortrijk. From market introduction, the touring coach will be available in three lengths: 12,101 mm, 13,361 mm and 13,901 mm on two or three

MAN Truck & Bus is one of Europe's leading commercial vehicle manufacturers and transport solution providers, with an annual revenue of some 9 billion euros (2016). The company's product portfolio includes vans, trucks, buses/coaches and diesel and gas engines along with services related to passenger and cargo transport. MAN Truck & Bus is a company of Volkswagen Truck & Bus GmbH and employs more than 35,000 people worldwide.



axles. At the end of 2017, a fourth length will be added in the form of a 13 m dual-axle vehicle (13,091 mm). Its six additional seats compared to the 12 m version make this vehicle a particularly attractive option from an economical point of view. Its maximum overall permitted weight of up to 19.5 tonnes also contributes to its flexibility in terms of possible uses. The optional wheelchair lift plays an important role in achieving ideal axle load distribution as, in this version, it sits over the front axle, thus relieving the rear axle while also not restricting the luggage compartment. The standard version measures 3870 mm in height. Excluding the toilet, the new MAN Lion's Coach models, which have been awarded 3 stars on the German coach seating system, have space for a maximum of 53, 57, 59 or 63 passengers. The luggage compartments have a volume of between 11.7 and 14.3 m³ depending on the model.

The new headlights are an immediate eye-catcher. And, for the first time - like the standard LED rear lights - they can be installed as all LED. LED dipped and main beam lights are around 50% brighter than halogens. Also, LED light is more diffuse, and, at the same time, has a much greater range as well as a significantly longer service life. A particularly distinctive feature of the new headlight is the strip-form brand-specific daytime running light, which also functions as an indicator.

Optimum balance between efficiency and comfort

A glance under the bonnet indicates that the new MAN Lion's Coach is as economical as ever. With its optimised Euro 6 driveline, it also enjoys benefits including an extended axle ratio of 2.73 and an increased power output (increased by 20 hp and 200 Nm). The new secondary retarder provides optimum braking effect in conjunction with the high axle ratios. It achieves higher maximum torque of 4000 Nm instead of 3200 Nm as well as a power level of 500 kW, representing an increase of 80 kW. This provides greater reserves even during heavy braking, thus increasing safety.

As part of the MAN BrakeMatic electronic brake system, the new MAN Lion's Coach and the other MAN and NEOPLAN touring and intercity buses will also feature the more powerful EVBec engine brake. Electronic regulation of the exhaust gas back pressure enables increased braking



effect over the entire operating speed range, thus achieving a high degree of brake output even at low speeds.

The MAN TipMatic gearbox, installed as standard in models of 460 hp (337 kW) and higher, employs a new moving-off and gear-shift strategy, optimally matched to the D26 engines. In addition, several new features are included: the new SmartShifting gearbox function plays a key role when it comes to finding the optimum balance between efficiency and comfort when shifting gears. It combines a new, fast shifting procedure in all gears with upshift assistance and shifting adapted to the actual driving situation. For demanding performance on challenging terrain or with heavy loads, the new D26 provides optimised moving-off capabilities. The torque, which has been increased by 200 Nm, also contributes to excellent moving-off behaviour. Overall, the engine, which has had a power increase of 20 hp, provides superior driving performance across a wide engine speed range.

Idle Speed Driving enables comfortable driving at idling speed without touching the accelerator. With this new feature, the bus/coach "glides" effortlessly through slow-moving traffic with the clutch engaged. While manual upshifting is possible from the first through to the sixth gear, downshifting is performed automatically when the idling torque is insufficient for a higher gear or when the driver brakes.

In addition, a wide range of assistance systems is available, such as the topography-based MAN EfficientCruise cruise control with the EfficientRoll coasting function, Adaptive Cruise Control (ACC), Lane Guard System (LGS) and MAN Attention Guard. A new generation of shock absorbers and an optimised vehicle configuration deliver enhanced driving comfort, improved handling and higher safety reserves. The assistance systems not only provide additional comfort and safety while travelling, they also make a significant contribution to efficiency, as do the aerodynamics, which are 20% better than the previous model. For example, the EfficientRoll coasting function provides an increase in efficiency on even gentle slopes, by automatically moving the gear to the neutral "N" position and allowing the bus to move with as little friction loss in the driveline as possible. The previous EfficientCruise generation produced a fuel saving of up to 6 percent and the new features are linked to a further increase in fuel efficiency.



A smart exterior with plenty underneath: new features inside as well

The new MAN Lion's Coach has undergone several improvements to increase its attractiveness on the inside, as well. For example, an integrated LED strip light now illuminates the floor area in warm white, while the new colour and trim concept uses light and fresh tones. On the luggage racks, the newly designed closures with their self-contained look are a real eye-catcher. These racks have been extended a fair distance towards the windscreen, creating a spacious feeling for both passengers and the driver. A further convincing feature comes in the form of the integrated service sets, which offer a variety of functions. For example, these allow you to continuously adjust the air flow and direction, or switch on and off the LED light and the loudspeaker function. USB ports have also been installed in all passenger seats, offering unlimited use of mobile phones and tablets while travelling.

The driver's cab has been overhauled in terms of ergonomics and practicality and has been given a modern appearance. This overhaul also included repositioning the switches and redesigning the storage area to the left of the driver. The improved storage concept provides more space and, in its new form, is better suited to storing frequently used tools, such as A4 folders/files, large drink bottles or mobile phones. The optimised heated driver's window with virtually invisible heating wires also adds more comfort and safety for the driver. As an additional option, this window is also available in laminated safety glass, with the heating wires measuring just 0.02 mm in diameter. What's more, thanks to the UV filter in the film positioned between the panes, only 1% of UV rays are able to enter into the bus.

The ECE R66.02 standard, which applies to all class II and III buses that are newly approved as of 9 November 2017, lays down the need for a survival space in the event of a roll-over. For this, the structure must be able to absorb substantially more energy to maintain the survival space for passengers. In order to comply with the legal requirements, here at MAN, we integrate high-strength steel components into the vehicle skeleton and use patented tube-in-tube technology for the roll bar in the B-pillar area and



in the rear of the vehicle. Both of these measures ensure the necessary body strength and play a major part in ensuring that the energy resulting from a vehicle crash can be absorbed to the optimum extent. This means the new MAN Lion's Coach can absorb 50% more energy in the event of a crash.

In order to ensure that the additional weight needed for this does not impair the high load capacity, the developers have even overcompensated in other areas. One example of this is the different material that is used in the front and rear panels to save weight, while the redesigned bonnet alone saves 15 kg on the scales.

This wide variety of individual measures contributes to making the new MAN Lion's Coach so efficient and reliable - to say nothing of its timelessly dynamic design.