Trucker
Careers | Technology | Passion
SPECIAL
11/2022

Last update?

MAN has developed another new version of its D26 six-cylinder. It is designed to significantly reduce consumption and has new improved aerodynamic features.

SUPERTEST

MAN TGX 18.480

The MAN cockpit deliberately stays away from touch screens

According to MAN, operation of the sunblind on the TGX should be neutral in terms of consumption

This will certainly have come as a surprise to many MAN fans. Many of them would probably have bet on seeing the new VW Group engine under the TGS and TGX cabs at IAA Transportation in Hanover. After all, the in-line six developed by Group company Scania has been powering the Swedish manufacturer's truck models for over a year now.

But at MAN, the corporate headquarters in Munich told us when asked that the changeover announced will not happen until 2024. Until then, the trusty D26 six-cylinder will keep its job in the Lion's engine room.

EXTENSIVE REDESIGN

But that certainly doesn't mean that the MAN developers have been idle. In fact they have completed a major update to the D26. Among other things, new smooth-running pistons are designed to reduce frictional losses inside the engine to a minimum. Meanwhile, the developers have optimised the cylinder head in terms of gas transfer and used new piston bowl geometry to make combustion more efficient. These two changes are intended to reduce the thermal load on the entire system.

To go alongside them, the D26 has been given a new single stage turbo charger adapted to the new combustion process. MAN is also promising greater efficiency from the new engine oil and coolant pumps. Although the water pump is no longer operated based on demand, its lower flow rate still provides efficiency benefits.

The redesigned TGX models are also different from their predecessors visually. This is due to three features that all aim to make the large MAN more streamlined. The previous wide open gap at the transi-tion joint between the A-pillars and the windscreen is now smoothed out by additional rubber aerodynamic attachments. The same material is also used to fill the gap between the doors and the bumper and also provides a flexible extension at the end of the side streamers and onto the roof spoiler.

TEST VEHICLE

Model: MAN TGX 18.480 GM
Displacement: 12,419 cm³
Horsepower (kW): 480 (353) at 1800 rpm
Torque (Nm): 2450 at 930-1350 rpm
Unladen weight: 7200 kg (400 l diesel, 60 l AdBlue)

We carried out the test drive with the "Efficiency+" eco program

> The MAN is designed to be 4 percent more economical

MAN says that all its efforts pay off with a reduc-tion in fuel consumption of up to four per-cent (three percent engine / one percent aerodynamics).

UNFORTUNATELY NO QUIETER

To prove that the improvements really do pay off in reality, MAN has put forward a TGX 18.480 GM to be the first of the new models to undergo a TRUCKER Supertest.

What you notice immediately when you turn the ignition key is that the update hasn't changed anything about the fundamental character of the D26. The combustion sound of the in-line six sounds like it always did and, unfortunately, can still be clearly heard in the test vehicle's GM cab. What we believe are essential measures to finally make the MAN quieter inside appear to have once again been neglected.

Particularly at low speeds below 1000 rpm, the D26 produces loud humming sounds, accompanied by vibrations – the 12.4 litre engine really doesn't sound too healthy at the lower end of the green revs range. What is very surprising when looking at the paper figures is that the maximum torque is applied very early, at just 930 rpm. As a result, especially when combined with the long 2.31 rear axle ratio, the control electronics are focused on low engine speeds, and generally trigger downshifts due to gradients at just 950 rpm. The engine should benefit from the 50 NM higher torque compared to the previous engine generation, but this isn't really noticeable behind the wheel.

And the maximum 2450 NM doesn't kick as well as it could at every point in the test. At least not if you are driving, as we were, in "Efficiency +" mode including dynamic torque reduction – another weapon deployed by MAN in the battle to minimise diesel costs. This generally limits the torque to 2100 NM and only enables the full torque if using the 2450 NM allows a downshift due to gradient to be avoided.

MULTIPLE FUEL SAVING SYSTEMS

Particularly with the pressure of scheduled cargo, this Eco system could well grate on drivers' nerves, and many will counter that by switching to a different driving program. This can be done at any time using the rotary controller on the right control stalk – unless the fleet manager has had the alternative driving programs specially blocked by MAN ...

If this is the case, let us reassure you that unlike before, the TGX now achieves a passable speed even with torque reduction enabled. MAN has made another fine adjustment here.

Like the system discussed, the dynamic coasting function, which MAN claims can bring potential savings on a flat road, ▶

From now on, new aerodynamic attachments on the A-pillars improve the flow around the cab.

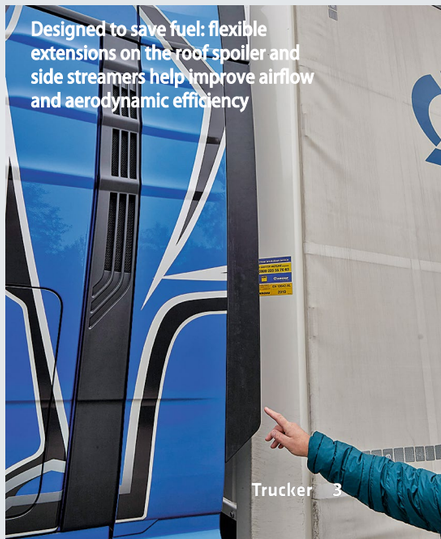
Coolbox next to driver, large storage compartment to the right

New gap closures fill the space between doors and bumper

ENGINE PROS AND CONS

\+ Powerful in-line six with low consumption and early application of maximum torque

− Torque reduction to 2100 Nm in "Efficiency+" mode makes the engine less dynamic



Designed to save fuel: flexible extensions on the roof spoiler and side streamers help improve airflow and aerodynamic efficiency

takes some getting used to. It accelerates the TGX to 3 km/h above the set cruise control speed and then utilises the rolling energy of the load in freewheel mode to drop down to 83 km/h. It then accelerates again and the whole thing starts from the beginning. Similar systems are also used on Scania and Volvo Trucks for example, but behind the wheel of the Swedish vehicles you take much less notice of what the electronics are doing because of the significantly better noise insulation.

NEW RECORD CONSUMPTION

When it comes to efficiency, our definite advice is not to interfere with the truck's fuel saving systems as they do their jobs. You may – the electronic systems contribute to the MAN paying less frequent visits to the filling station. On the TRUCKER Supertest route, the 480 TGX set a new consumption record (see graph on Page 6), an impressive demonstration that MAN's six-cylinder is not ready for the scrap heap by a long way.

The manufacturer is already accepting orders for the models, although the first vehicles are not likely to be delivered before the middle of next year. ***JB***

Like all test vehicles below 500 HP, the MAN had to pull our partially loaded Krone trailer


Control panel on bunk with numerous functions

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Thomas van C. I drive a 2022 MAN TGX with 510 HP and I'm completely satisfied with it. Even though lots of people moan and make jokes about MAN, I still think its a top brand. I started in 2008 with a 480 HP MAN TGX. It was a great truck and I had no problems for over 630,000 kilometres. And I've already done 67,000 kilometres in my current TGX and I'm really pleased with it.

Mücke J. The Lion hasn't been good for a long time. The best MAN was the F 2000, none of the current ones come close, and the MAN-Büssing with underfloor engine was the biggest driver's cab back then. It was comparable to the Renault Magnum.

Sven G. MAN trucks look great, especially with the paint job on this test vehicle. I had a Citroën CX Break in the same colour - a great car!

Ivar ten T. Nice tractor and even has a sunblind. But I like the GX better than the GM. The massive advantage of MAN is no touch screens. The Smart Select button is an excellent solution. The Opti View system that replaces all the mirrors is great too. Now just a rear camera on the semi-trailer and we'll have a complete all round view. Excited about the consumption figures.

Alexander L. We've got three TGXs in our fleet, although they are the old model with 500 HP. Loads of drama and high oil consumption.

Michael W. Since the TGA 480 Five Star nothing else has a chance. I don't want to drive a MAN any more.

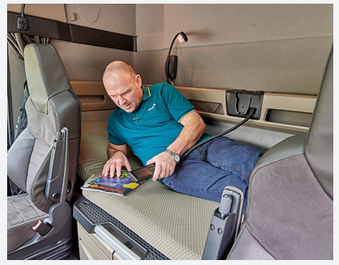
Bobo. B Not a bad truck. But why can't MAN finally get around to installing soundproof matting? Then it would finally be quieter.

The Lion roars loudly – too loudly

What you immediately notice in the MAN is the lack of sound insulation. The Lion is now lagging behind the new Actros models, as Mercedes-Benz has recently made some big improvements when it comes to insulation. By contrast, on my test vehicle the indicator was much too quiet, almost inaudible in fact, but the people at MAN say that this can be adjusted on the on-board computer. Apart from that, I like the TGX. The operating concept is logical and easy to pick up, and there are plenty of seat and steering wheel adjustment options. The optional "Opti View" camera system is also a success. Only on the motorway did I find that the distorting fish eye lens takes some getting used to.


TRUCKER tester Wolfgang Obermaier

CAB RATING


Comfortable bunk although with some narrow sections

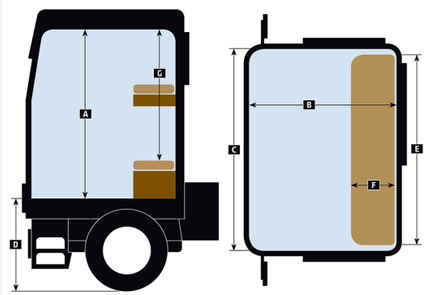

Left outside cubby with 230 litre capacity

The majority of drivers will probably prefer the large GX cab. But the medium GM cab is the best selling cab in the TGX range. This is what the test truck had, as it is also the most aerodynamic cab in the range. The space and storage facilities in the GM are fine even for longer trips. We think that the TGX operating concept also deserves praise. It deliberately has no touch screens, using a touch-sensitive rotary pushbutton to the right of the driver. You get to grips with how to operate it after just a few minutes. The test vehicle was also a pre-production vehicle from the new generation. So we expect MAN to eliminate the clearly audible wind noise from the direction of the left A-pillar at motorway speed before the start of production. The engineers should also take another look at the electric sunblind, which made a rattling noise when extending.

CAB DIMENSIONS

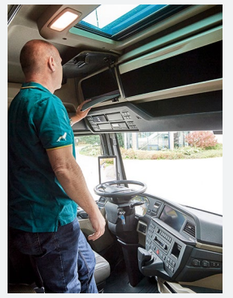
	(cm)
A Cab, interior height*	198
B Cab, length	228
C Cab, width	244
D Entry, height	153
Seat adjustment range, height	16
Seat adjustment range, depth	20

	(cm)
E Bottom bunk, length	200
F Bottom bunk, width	70–80
G Bunk, headroom	140
Steering wheel adjustment range, height	11
Steering wheel adjustment range, tilt	20-55°
*On engine tunnel	186



STORAGE COMPARTMENTS

Capacity in litres (l)	
Above windscreen, right	75
Above windscreen, centre	60
Above windscreen, left	75
Drawer (under bunk)	55
Fridge (under bunk)	40
Bottom bunk head end	4
Trough under bunk (right/left)	10/10
Drawer, centre console, top	11
Drawer, centre console, bottom	17
Door pockets (right/left)	9/9
Outside cubby, left	230
Outside cubby, right	290


Headroom in centre 1.86 m

SHELVES

Length x width (cm)	
Table on passenger side	26 x 34
Shelf on dash	73 x 26
Shelf in centre console	45 x 14

2 x power sockets by bottom bunk, 2 x in centre console, 2 x above windscreen, 3 x USB, 1 x AUX-in, 1 x bottle holder in each door, 4 x adjustable bottle/cup holders in centre console, 2 x main interior lights in centre of cabin, 2 x red light dimmable, bottom bunk reading light, 2 x goose neck lamps for top bunk

TECHNICAL SPECIFICATIONS

MAN can fit the well-designed "Opti View" mirror replacement system as an option on the TGX

ENGINE

Water cooled six-cylinder inline engine, one-stage turbo charger, four valves per cylinder, Euro 6e with SCR catalytic converter, EGF and particulate filter
Type.....MAN D26
Displacement.....12,419 cm^3
Bore x Stroke.....126 x 166 mm
Compression.....15.5:1
Injection.....Common Rail
Rated power.....480 HP (353 kW) at 1800 rpm
Max. torque.....2450 Nm at 930–1350 rpm

TRANSMISSION

Clutch: Pneumatically operated dry clutch, 430 mm
Gearbox: ZF-Traxon, synchronised three-speed basic transmission (Tip-Matic 12.26 TD), Range and splitter box, 12 forward gears, 2 reverse gears
Spread: 16.69 to 1.00
Reverse gears: 15.54 / 12.03
Rear axle: i = 2.31

CHASSIS

Front: Offset 7.5 t rigid axle with stabiliser, single blade parabolic suspension
Rear: 13.0 t hypoid axle (MAN HY-1344)
Four bellows air suspension with four-point link
Tyres (in test): Front 385/55 R 22.5;
Rear 315/70 R 22.5
Wheels (in test): 9.00 x 22.5 aluminium (option; standard: steel)

BRAKE SYSTEM

Front: Dual circuit compressed-air brake system with disc brakes, EBS
Rear: Disc brakes, EBS
Engine brake.....EvBec engine brake 305 kW (415 HP) at 2400 rpm
Retarder.....Option (fitted in test truck)

STEERING

Type.....MAN Comfort-Steering
Steering wheel diameter.....450 mm

MASS + WEIGHTS

Wheelbase.....3600 mm
L x W x H.....6007 x 2500 x 3854 mm
Unladen weight.....7200 kg (ready to drive, without driver)

FILL QUANTITY

Engine oil.....40.0 l (including filter)
Tank.....400 l diesel; 60 l AdBlue
Coolant.....70.0 l
Rear axle oil.....21.0 l
Gear oil.....14.5 l

COMPETITION

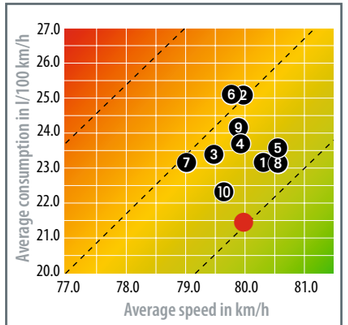
MAN TGX 18.480	
Driver rating	836
Economy	660
Consumption (with AdBlue)	21.3
Speed	79.9
Points	**1496**

DAF XG+ 480	
Driver rating	851
Economy	630
Consumption (with AdBlue)	22.3
Speed	79.7
Points	**1481**

IVECO S-WAY 490	
Driver rating	819
Economy	589
Consumption (with AdBlue)	24.1
Speed	79.8
Points	**1408**

SCANIA 460 R SUPER	
Driver rating	845
Economy	626
Consumption (with AdBlue)	23.2
Speed	80.6
Points	**1471**

CONSUMPTION COMPARED



1 Volvo FH 460 I-Save
2 Iveco S-Way 480
3 MAN TGX 18.430
4 MB Actros 1842
5 Scania R 410
6 Renault T 480
7 MAN TGX 18.470
8 Scania 460 R Super
9 Iveco-S-Way 490
10 DAF XG+ 480
MAN TGX 18.480

SERVICE AND MAINTENANCE

The manufacturer recommends a maximum service interval of 140,000 kilometres of 18 months for the TGX. The recommended "Service Care" function can prevent imminent damage by keeping an eye on all relevant vehicle data

The test vehicle has an electric tilting cab

using the Rio box and triggering an alarm in the event of an emergency. By contrast, the TGX on-board computer monitors the condition of all relevant operating fluids. If necessary, coolant and engine oil are topped up behind the unlocked front panel. MAN has placed the filler for the screenwash behind the co-driver's door in the entry area.

TEST ROUTE

Klimaneutral Transport
ClimatePartner.com/11232-1306-1001

Setting a good example:
TRUCKER compensates for the CO_2 emissions of its testing by means of certificates. The compensation is fed into a wind-energy project through the contractor ClimatePartner. We owe that to the environment – even when we are driving to help you save!

CONSUMPTION AND SPEED

Tonnage 32 t each	1st leg 74.3 km Medium	2nd leg 80.8 km Hilly	3rd leg 100.2 km Rolling leg	4th leg 50.5 km Country road	5th leg 37.0 km Easy	Total 342.8 km
Litres per 100 km	20.61	22.88	21.70	19.74	19.85	21.27
km/h	84.64	83.80	83.60	62.19	84.99	79.95
AdBlue	consumption: 1.59 l/100 km (7.50 % of diesel consumption); AdBlue calculated into consumption result at 44 % on a pro rata basis					

SCORES

	Gradient/length	Time	Gear at rpm	v_{min}	Consumption
1	Max. 5 %, 1.5 km	No measurement	11 at 1200 rpm	74 km/h	72.0 l/100 km
2	Max. 6 %, 1.5 km	1.15 min	11 at 1130 rpm	70 km/h	81.3 l/100 km
3	Kinding hill on A9	3.45 min	11 at 1080 rpm	67 km/h	67.1 l/100 km

Testing by reference

Every test is accompanied by our 38-tonne reference vehicle, an MB Actros 1845 pulling a Schmitz-Cargobull curtain-sider. We have gathered fuel consumption data under good conditions with this. If the data changes during the test, we know that the test truck was subject to different conditions. By calculating the ratio of change, we are able to analyse the data of the test truck on a standardised basis. The advantage: our data is comparable. We think it would not be legitimate to compare data gathered with no reference under varying conditions. We are the only trade journal to test using a reference truck. This is also the method practised by the industry. AdBlue consumption is calculated into the individual leg results on a pro-rata basis.

NOISE MEASUREMENTS COMPARED

Measurement in dB(A)	**Engine on** Idling	**85 km/h** Roof hatch closed	**65 km/h** Roof hatch closed
MAN TGX 18.480	**58**	**69**	**67**
Best in test *3	48*4	61	62*5
	Uphill	**Full throttle**	**Engine brake running**
MAN TGX 18.480	**68**	**70**	**71**
Best in test *3	62	62	60

*3: Scania S 730, *4: Volvo FH 460, *5: Volvo FH 500 I-Save

SCORES

Engine (max. 140).....119
Gearbox (max. 140).....122
Brakes (max. 120).....104
Steering (max. 40).....34
Pedals (max. 20).....16
Handling (max. 60).....51
Visibility (max. 50).....46
AC/ventilation (max. 50).....41
Seats (max. 40).....33
Instruments (max. 50)..45
Windscreen wipers (max. 30).....24
Cab (max. 240).....201

Total points: **836**
(maximum .....980)

+ Very low test consumption, clear and intuitive operating concept, agile but comfortable chassis, good steering

– Relatively high background noise, D26 engine produces vibrations and humming noise at low speeds

CONCLUSION

TRUCKER tester Jan Burgdorf

What is likely to be the last update to the D26 has been worthwhile. Combined with the aerodynamic improvements, the MAN achieves impressive consumption figures. A significant proportion of these gains are likely to be due to the torque reduction. But this will be a divisive issue. Bosses will love it, drivers not so much.

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