



Daimler AG · Technical Information and Workshop Equipment (GSP/OR) · D-70546 Stuttgart

Introduction of the New Unimog Generation

Model Series 405

Introduction into Service Manual



Mercedes-Benz

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Innovations

High-performance engine brake

The engine brake developed by Mercedes-Benz significantly reduces the wear on the wheel brake systems and makes a significant contribution to the cost-efficiency of the vehicle. The engine brake is designed as a dual-pulsed decompression brake and provides a high level of brake power.

- Each cylinder in the engine has its own engine brake unit.

Fan hydraulics with variable displacement pump

The fan hydraulics are included in the basic scope of all vehicles.

- Greater efficiency of fan hydraulics due to variable displacement pump and demand-based, separate control of both fans.

Tilting hydraulics based on fan hydraulics

The tilting hydraulics allow the vehicle tilt cylinder to be adjusted and can be extended to allow the adjustment of external consumers (e.g. rail guide or auxiliary rear axle steering) (but not permanent consumers).

- Simple tilting hydraulics for the vehicle tilt cylinder (code HE1)
- Tilting hydraulics with additional connection option for external adjustment operations (code HE2) e.g. trailer with tilt system.

Working/municipal hydraulics (circuit I and circuit II)

The working hydraulics allow an implement to be adjusted or a permanent consumer to be supplied. On the 1-circuit hydraulic system one circuit is available for this, while on the 2-circuit hydraulic system, two independent circuits are available, each with its own fixed displacement pump. This allows adjustment operations to be carried out and a permanent consumer to be supplied simultaneously. On the 2-circuit hydraulic system, the volumetric flow rates can be swapped over via the volume switchover function or added together via flow summation.

Changes compared to the hydraulic system of Euro V vehicles:

- Fully proportional working hydraulics at connections of cells 1–4 (connections 1–8)
- Integrated pressure filter
- Control of consumers during adjustment operations via the vehicle joystick (social distribution) with diagonal movement of vehicle joystick. Due to the omission of link motion, two adjustment operations can be carried out simultaneously. Example: Raise front loader and tilt shovel simultaneously
- Hydraulic connection possibility on valve block (e.g. for roll stabilization)
- Electrical interface for actuation of hydraulic valve block (circuit I) e.g. for external actuation of front and/or rear power lift
- Joystick with rocker switch for forward/reverse shifting of manual vehicle transmission

Radiator system

The radiator system is located in the frame, behind the cab. This concept allows space for a windshield which extends far down towards the engine hood and provides an optimal view of the working area. The large radiator is designed for high outside temperatures and slow vehicle speeds to ensure a high level of operational reliability.

The radiator system can be folded out without the use of tools, which makes it very accessible for cleaning.

In order to increase the efficiency of the radiator, a radiator grille is installed to hold back coarse dirt particles. The radiator system is located on the left in the direction of travel and is thus located in an area which has a low susceptibility to soiling.

The hydrostatic fan drive provides optimal cooling output throughout the entire rpm range in any driving situation. It does so by adjusting the rpm of the fan drive according to demand and uses as little energy as possible.



Radiator system

G20.20-3242-00

Main transmission

Telligent® engine management

Operation takes place via the right multifunction control lever for safe and ergonomic shifting. An optimal gear preselection can be triggered through corresponding operation of the multifunction control lever.

The clutch must be operated to change gear and the shift operation then takes place automatically, which protects and conserves the engine, clutch and transmission. This means that the right hand of the driver is free during a gear change (e.g. to operate an implement).

Since there is no mechanical/hydraulic connection between the gear selector lever and transmission, there is no possibility of vibrations being transmitted into the cab. The low operating forces (shifting work is carried out by pneumatic cylinders) promote relaxed and concentrated driving.

The neutral switch with catch position in the multifunction control lever allows direct shifting to neutral from any gear as well as automatic gear selection from neutral at any speed and allows the switch and control elements to be arranged ergonomically.

Electronic Quick Reverse (EQR)

The direct shifting function between the forward and reverse gears in all working gears and the first three on-road gears provides a safe and quick shifting process. Shifting to reverse gears is possible from all forward gears.

The selection of reverse/forward gears via the multifunction control lever provides a high level of shifting safety (hand does not have to be left on the shift lever knob), relieves the stress on the driver, improves handling, improves the driver response to various driving situations and enables better snow clearing performance on car parks/intersections. The use of reverse mode with preselection is designed to prevent the possibility of mix-ups.



Telligent® engine management multifunction control lever

G54.25-3465-00



Multifunction control lever (EQR)

G54.25-3466-00

Plug connections



Right front hydraulic plug connections

G55.00-3160-00

Front connections of work hydraulics

The front connections of circuit I of the work hydraulics are located within the bumpers (cell 1 and 2 on the left side of the vehicle and cell 3 and 4 on the right side of the vehicle). The pressure connection of circuit II is positioned level with the power take-off stub shaft directly above the right-hand pocket of the front mounting plate viewed in the direction of travel. The separate return line (both for circuit I and circuit II) is located approx. 400 mm to the right (in the direction of travel) from the pressure connection of circuit II.



Left front hydraulic plug connections

G55.00-3161-00

Front connections of power hydraulics

In addition to the connections of the work hydraulics (circuit I and II), the vehicles can be equipped at the front with the connections of power hydraulics circuit III (code H93) and also with the connections of circuit IV (code H94). The connection of the pressure line of code H93 is located at the vehicle front to the left of code H94 (viewed in the direction of travel).



Rear hydraulic plug connections

G55.00-3170-00

Rear connections of power hydraulics

The connections of the power hydraulics are integrated in the platform intermediate frame. All of the connections are located at the vehicle rear, above the end crossmember.

Special hydraulic equipment at rear

- Hydraulic plug connection, rear, 4 connections, cell 1+2 (code H55). Four connections at the rear to cell 1 and cell 2 with hydraulic package, dual action for adjustment operations or continuous oil flow and flat-seal plug connections as per ISO 16028
- Pressure line, rear, 2nd hydraulic circuit (code H58). Pressure line for circuit II at rear and flat-seal quick-connect coupling, size 19
- Separate return line, rear (code H59). Separate rear return line for circuit I + II



Rear hydraulic plug connections

G55.00-3159-00

Tilting hydraulics

The tilting hydraulics are based on the fan hydraulics and are equipped with an additional valve block positioned level with the frame crossmember between the two rear spring brackets.

The following versions of the valve block are available:

- Fan hydraulics with tilting hydraulics (code HE1)
- Fan hydraulics with tilting hydraulics (code HE2) incl. hydraulic connection for auxiliary consumers (rail guide and auxiliary rear axle steering)

Tilt cylinder actuation:

- On vehicles without work hydraulics, the tilt cylinder is actuated on a simple on/off basis via a button in the cab.
- On vehicles with work hydraulics (code HN2/HN4/HN6/HN7/HN8), the tilt cylinder is actuated proportionally via the vehicle joystick.

i Note

The tilting hydraulics are also available without tilt cylinder (code H43) e.g. for actuation of external auxiliary consumers (not permanent consumers).

Multifunction steering wheel

Both the height and inclination of the multifunction steering wheel can be adjusted to suit the individual seat position. Many functions can be controlled conveniently via the button groups on the left and right of the steering wheel e.g.:

- Trip computer
- Radio
- Engine speed
- And many more



Multifunction steering wheel

G46.00-3115-00

Pin assignment of equipment socket

Pin	Designation	Function
1	Terminal 30	+24 V
2	Terminal 30	+24 V
3	Terminal 30	+24 V
4	Terminal 31	Ground
5	Terminal 31	Ground
6	Terminal 31	Ground
7	Terminal 15	+24 V with ignition switched on
8	Terminal 58	+24 V with standing lights switched on
9	Terminal W	Alternator rpm signal
10	RKL	Signal, rotating beacon on
11	RüLi	Signal, backup lamps on
12	C3	Vehicle speed signal
13	C4	Travel signal
14		Actuation of transmission for crane body
15		Switch power take-off N13/N16/N19 on/off
16		Signal, power take-off N13/N16/N19 switched on
17		Signal, parking brake activated
18		Start-off fixed speed
19		Increase engine speed
20		Reduce engine speed
21		Restore engine speed
22		Engine start
23		Engine stop
24		Transmission lock or reduced v _{max} + reverse gear lock
25		Function/warning lamp A1 on Instrument
26		Function/warning lamp A2 on Instrument
27		Function/warning lamp A3 on Instrument
28		Unused line routed to X375/PIN 8 (CAN_high)
29		Unused line routed to X375/PIN 9 (CAN_gnd)
30		Unused line routed to X375/PIN 10 (CAN_low)
31		Engine oil pressure warning indicator, min.
32		Warning indicator, engine coolant, max.

Maintenance

New maintenance intervals

With the introduction of the Euro VI emissions standard, the maintenance intervals have been extended:

- From 1200 operating hours (Bh) to 1400 Bh
- From 2400 Bh to 2800 Bh
- On vehicles with code G31 (Torque converter clutch (TWIN DISC) the maintenance scopes at 50 Bh and 600 Bh are not required
- The time of the first maintenance service is unchanged at 200 Bh
- The maintenance intervals of the power take-off transmission, power hydraulics and hydrostatic drive depend on the period of operation of the respective additional drive system.

Note

The driver receives an indication that operating hour-dependent maintenance is due via the display on the Instrument.

Engine OM 934/936

Drift

Use For knocking pilot bearing with retaining ring into flywheel.

MB number W 936 589 01 15 00

FG 03

Set C

Category Mercedes-Benz Truck - Basic Operation

Note -



G58.20-3153-00

Mounting tool

Use For pulling O-rings onto injectors.

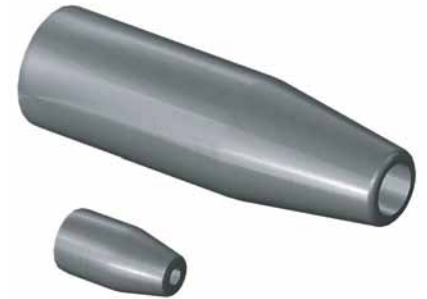
MB number W 936 589 01 33 00

FG 07

Set B

Category Mercedes-Benz Truck - Special Operation

Note -



G58.20-3154-00

Stop plug

Use For sealing the rail connections during testing operations.

MB number W 936 589 01 91 00

FG 01

Set B

Category Mercedes-Benz Truck - Special Operation

Note -



G58.20-3155-00

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