

TRUCK, CARGO, MEDIUM, MC2 – UNIMOG

DATA SUMMARY

This instruction is authorised for use by command of the Chief of Army. It provides direction, mandatory controls and procedures for the operation, maintenance and support of equipment. Personnel are to carry out any action required by this instruction in accordance with EMEI General A 001.

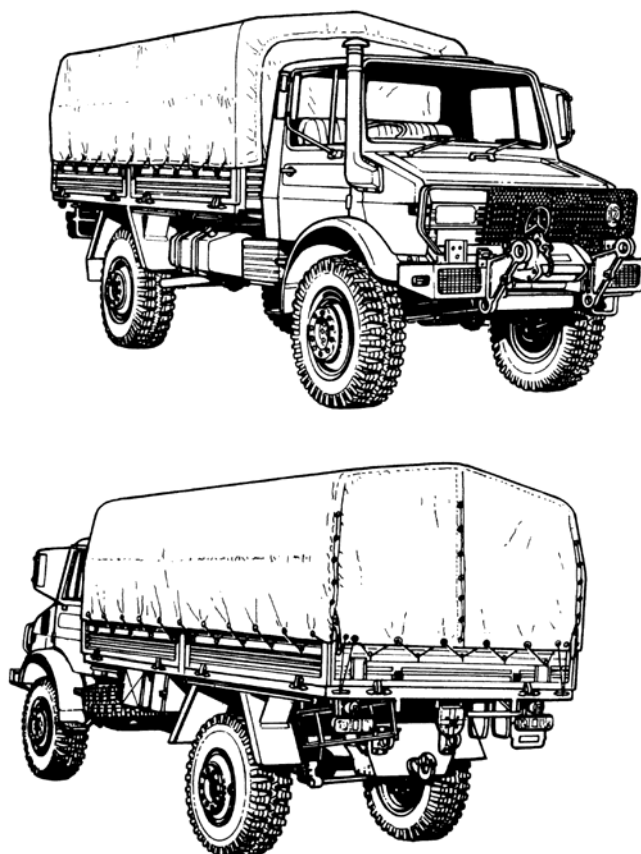


Figure 1 Truck, Cargo, Medium, MC2 - Unimog

General

2. This EMEI lists basic data for the Truck, Cargo, Medium, MC2 – Unimog with or without winch. The basic truck is shown in Figure 1.
3. **Role.** The role of the Unimog is to transport stores and personnel on sealed, second class roads and under limited cross-country conditions.
4. **Description.** The Unimogs are 4 x 4 vehicles which form the basis of Army second line transport and a significant part of Army third line transport. A winch is fitted to some units for vehicle recovery purposes. The vehicle carries a five tonne load.

Detail

5. **Dimensions:**

a. Height:

- | | | |
|-----|---------------|----------|
| (1) | Laden | 3 010 mm |
| (2) | Unladen | 3 130 mm |

- b.** Height Reduced (With Canopy, Canopy Frame and Hatch Cover Removed):
 - (1) Laden.....2 580 mm
 - (2) Unladen.....2 615 mm
- c.** Length:
 - (1) Without Winch.....6 545 mm
 - (2) With Winch.....6 940 mm
- d.** Width.....2 490 mm
- e.** Shipping Volume (Unladen):
 - (1) Without Winch:
 - (a) Overall.....50.3 m³
 - (b) Height Reduced.....42.9 m³
 - (2) With Winch:
 - (a) Overall.....54.1 m³
 - (b) Height Reduced.....45.2 m³
- f.** Wheelbase.....3 850 mm
- g.** Ground Clearance.....460 mm
- h.** Pintle Hook Height (Laden).....705 mm
- i.** Track Width.....1 840 mm
- j.** Internal Tray Dimensions:
 - (1) Length.....4 050 mm
 - (2) Width.....2 375 mm
 - (3) Height.....500 mm

6. Mass:

- a.** Unladen:
 - (1) Without Winch:
 - (a) Front Axle.....3 810 kg
 - (b) Rear Axle.....2 790 kg
 - (c) Total.....6 600 kg
 - (2) With Winch:
 - (a) Front Axle.....4 060 kg
 - (b) Rear Axle.....2 740 kg
 - (c) Total.....6 800 kg
- b.** Maximum Loading:
 - (1) Front Axle.....5 300 kg
 - (2) Rear Axle.....7 000 kg
 - (3) Total.....12 000 kg

7. Bridge Classification

- a.** Unladen.....7
- b.** Laden.....12
- c.** Laden (With Trailer).....21

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8. Performance:

- a. Fording Depth 1 200 mm
- b. Turning Circle (Between Walls):
 - (1) Left Lock..... 16.8 m
 - (2) Right Lock 19.6 m
- c. Angle of Approach:
 - (1) Without Winch..... 41°
 - (2) With Winch..... 39°
- d. Angle of Departure..... 33°
- e. Maximum Gradient 60%
- f. Recommended Maximum Gross Combination Mass:
 - (1) Highway..... 24 500 kg
 - (2) Cross-country..... 19 000 kg
- g. Fuel Consumption approx 25 L/100 km
- h. Range approx 600 km

9. Wheels and Tyres:

- a. Wheels..... 8.50x20, 10 stud
- b. Tyres..... 12.00x20 Radial 18 ply with tubes
- c. Tyre Pressures refer to EMEI Vehicle A 291-5

10. Fuels and Lubricants:

- a. Fuel:
 - (1) Type diesel
 - (2) Capacity 160 L
- b. Cooling System:
 - (1) Water..... 20 L
 - (2) Corrosion Inhibitor (2% by volume)..... TEC PG-XL
- c. Engine Crankcase:
 - (1) Type engine oil SAE 40 (OMD-115)
 - (2) Capacity (Maximum) 15 L
 - (3) Capacity (Minimum)..... 12 L
- d. Main Transmission:
 - (1) Type engine oil SAE 40 (OMD-115)
 - (2) Capacity 10.5 L
- e. PTO Transmission:
 - (1) Type engine oil SAE 40 (OMD-115)
 - (2) Capacity 5.75 L
- f. Front Axle:
 - (1) Type hypoid trans oil SAE 90 (OEP-220)
 - (2) Capacity 2.5 L
- g. Front Wheel Hub Drives:

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- (1) Type hypoid trans oil SAE 90 (OEP-220)
- (2) Capacity 0.6 L each
- h.** Rear Axle:
 - (1) Type hypoid trans oil SAE 90 (OEP-220)
 - (2) Capacity 2.5 L
- i.** Rear Axle Hub Drives:
 - (1) Type hypoid trans oil SAE 90 (OEP-220)
 - (2) Capacity 0.6 L each
- j.** Steering System:
 - (1) Type steering gear oil SAE 10W (OX-47 Grade 10)
 - (2) Capacity 2.25 L
- k.** Brake System:
 - (1) Type brake fluid DOT 4 (OX-8)
 - (2) Capacity 1.0 L
- l.** Clutch System:
 - (1) Type brake fluid DOT 4 (OX-8)
 - (2) Capacity 0.2 L
- m.** Grease Nipples:
 - (1) Type Shell Retinax LX2 or equivalent (XG-291)
 - (2) Quantity as required
- n.** Winch Case:
 - (1) Type hypoid trans oil SAE 90 (OEP-220)
 - (2) Capacity 2.0 L

11. Engine

- a.** Make Mercedes-Benz
- b.** Model OM 353.939
- c.** No of Cylinders 6 (in line)
- d.** Displacement 5.675 L
- e.** Turbocharger Honeywell Garrett
- f.** Bore Diameter 97 mm
- g.** Stroke length 128 mm
- h.** Compression Ratio 16.0:1
- i.** Compression Pressure (Minimum) 2 MPa (measured on a warm engine)
- j.** DIN Output (Minimum) 124 kW at 2800 rpm
- k.** Torque Output 520 N.m at 1800 rpm
- l.** Firing Order 1-5-3-6-2-4
- m.** Valve Type OHV (mechanical tappets)
- n.** Coolant Temperature 80°C to 90°C
- o.** Oil Pressure:
 - (1) Normal 200 kPa to 500 kPa

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- (2) Hot Low Idle 60 kPa (minimum)
- p. Idle Speed 700 rpm
- q. Governed Speed 2 800 rpm
- r. Valve Clearance (Cold):
 - (1) Inlet Valves 0.25 mm
 - (2) Exhaust Valves 0.40 mm

12. Clutch:

- a. Type hydraulically operated single plate dry clutch
- b. Pressure Plate:
 - (1) Make Fitchel and Sachs
 - (2) Model GFM 300K
 - (3) Contact Force 10 000 N to 11 200 N
 - (4) Throwout Force 2 950 N (maximum)
 - (5) Throwout Movement 10 mm to 12 mm
- c. Clutch Plate:
 - (1) Make Fitchel and Sachs
 - (2) Model 330 GSBL
 - (3) Lining Raybestos 1488/05
 - (4) Wear (Per Side) 1.5 mm (maximum)

13. Main Transmission:

- a. Type UG 3/40-8/13.01 GPA
- b. Manufacturer Daimler-Benz
- c. Ratios:
 - (1) Forward 13.01/9.02/5.96/4.38/2.97/2.06/1.36/1.00:1
 - (2) Reverse 12.06/8.74/5.78/4.24/2.88/2.00/1.32/0.97:1
- d. Shift Mechanism manual with automatic engagement and disengagement of planetary gears, synchromesh on all ratios
- e. Transfer Case front axle drive engaged by pneumatically operated dog-clutch system

14. Front Axle:

- a. Type AU 3/1 S-5.3
- b. Manufacturer Mercedes Benz
- c. Ratios:
 - (1) Overall 6.38:1
 - (2) Differential 2.18:1
 - (3) Wheel Hub Drives 2.92:1

15. Rear Axle:

- a. Type HU 3/1 S-6.5
- b. Manufacturer Mercedes Benz
- c. Ratios:
 - (1) Overall 6.38:1

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- (2) Differential 2.18:1
- (3) Wheel Hub Drives 2.92:1

16. Brakes:

- a. Parking Brake spring applied actuator on rear brakes, pneumatic release
- b. Foot brake pneumatically controlled, hydraulically operated disc brakes
 - (1) Front Wheels dual caliper
 - (2) Rear Wheels single caliper
- c. Automatic Load Dependant Brake (ALB) system automatically increases available braking effort at rear wheels as load increases
- d. Engine Brake pneumatically operated exhaust manifold butterfly
- e. Operating Pressures
 - (1) Pneumatic 950 kPa maximum without trailer
 - (2) Hydraulic 15 MPa maximum
- f. Trailer Brake system:
 - (1) Type dual line
 - (2) Operating Pressure 730 kPa maximum

17. Steering System:

- a. Type LS3B
- b. Manufacturer Mercedes-Benz
- c. Design hydraulic assisted, recirculating-ball nut system
- d. Hydraulic Supply:
 - (1) Flow Rate 12 L/min maximum
 - (2) Pressure 13.5 MPa maximum
- e. Ratio 19.33:1

18. Electrical System:

- a. Voltage 24 V dc
- b. Generator EDE 28 V/100 A
- c. Number of Batteries two
- d. Battery Capacity 55 Ah each
- e. Earth Polarity negative
- f. RF Suppression to MIL-STD-461A RE05

19. Trailer Facilities:

- a. Socket Type NATO 12-pin
- b. Pintle Hook fully rotating
- c. Brakes dual line pneumatic

20. PTO Transmission:

- a. Special Version Number SA35737
- b. Make Daimler-Benz
- c. Ratio 4.32:1

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- d. Output Speed:
 - (1) At 2340 rpm Engine Speed 540 rpm
 - (2) At 2800 rpm Engine Speed 658 rpm
- e. Shift Mechanism manually engaged (vehicle clutch controls applications of power)

21. Winch:

- a. Type F64M1 SW05
- b. Make Werner and Co
- c. Line Pull 62 kN (maximum)
- d. Cable Length 30 m (maximum)
- e. Cable Diameter 14 mm

22. Accessories:

- a. Horn 24 V electrically operated
- b. Windscreen Wipers 24 V electric, two speed, self parking
- c. Windscreen Washer 24 V electrically operated, four sprays
- d. Heater/Demister three speed fan, engine cooling water heated
- e. Fire Extinguisher 1.5 kg dry powder

23. Associated Information:

- a. SIGC:
 - (1) Truck, Cargo, Without Winch 2320-0045
 - (2) Truck, Cargo, With Winch 2320-0044
 - (3) Truck, Cargo, Without Winch, With Twist Locks 2320-0051
 - (4) Truck, Cargo, With Winch, With Twist Locks 2320-0050
- b. NSN:
 - (1) Truck, Cargo, Without Winch 2320-66-112-8974
 - (2) Truck, Cargo, With Winch 2320-66-112-8975
 - (3) Truck, Cargo, Without Winch, With Twist Locks 2320-66-128-3146
 - (4) Truck, Cargo, With Winch, With Twist Locks 2320-66-128-3147
- c. RPS:
 - (1) Truck, Cargo, Without Winch 02155
 - (2) Truck, Cargo, With Winch 02156
 - (3) Truck, Cargo, Without Winch, With Twist Locks 02202
 - (4) Truck, Cargo, With Winch, With Twist Locks 02204
- d. SCES:
 - (1) Truck, Cargo, Without Winch 01173
 - (2) Truck, Cargo, With Winch 01175
 - (3) Truck, Cargo, Without Winch, With Twist Locks 12072
 - (4) Truck, Cargo, With Winch, With Twist Locks 12073
- e. User Hand Book 7610-66-156-2407
- f. Other EMEI:
 - (1) [Vehicle A 291-5](#) General Service B Vehicles Tyre Guide

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- (2) [Vehicle G 602](#) Technical Description
- (3) [Vehicle G 603](#), [Vehicle G 613-1](#), [Vehicle G 613-3](#) Light Grade Repair
- (4) [Vehicle G 604](#) Medium Grade Repair
- (5) [Vehicle G 604-1](#) Heavy Grade Repair
- (6) [Vehicle G 609](#) Servicing Instruction

g. ILSI ALI MM 10-11

24. Manufacturer and Australian Supplier Details:

DaimlerChrysler Australia/Pacific Pty Ltd – Southern Region
Lexia Place
MULGRAVE, VIC, 3170
Tel: (03) 9566 9266

25. Point of Contact:

National Fleet Manager Med/Hvy B Vehicles
LV SPO, DMO
Level 7
Defence Plaza Melbourne
661 Bourke Street
MELBOURNE VIC 3000

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END

Distribution List: **VEH G 31.0 – Code 1** (Maint Level)
(Sponsor: LV SPO Med/Hvy B Vehicles Section)
(Authority: ECO LVSP0 028/08)