

## TRUCK, MEDIUM, MC2 – UNIMOG 4X4 – ALL TYPES

### TECHNICAL INSPECTION

## INSPECTION FOR USEABILITY

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.

### GENERAL

#### Introduction

1. This EMEI details the actions required to complete a Technical Inspection (TI) of the Truck, Medium, MC2 – Unimog 4x4 – All Types.
2. A TI can be carried out on a vehicle by personnel who are competent, qualified, authorised in materiel specific instructions; utilising appropriate tools, gauges and test equipment IAW authorised procedures. TIs must result in land materiel classification.
3. TIs as a minimum, are carried out every 12 monthly or 10 000 kms and should be aligned with the scheduled servicing for the vehicle. TIs may be routinely carried out for the following purposes:
  - a. as an in-inspection prior to the vehicle entering a workshop (effective pre-planning);
  - b. as an out-inspection following maintenance in a workshop (effective quality assurance);
  - c. as required following an accident/ result of battle damage or after failure; and
  - d. routinely IAW materiel specific instructions [e.g. as part of a Preventative Maintenance (PM) regime].

#### Associated Publications

4. Reference may be required to the current issue of the following publications to assist with management of equipment maintenance and specifications:
  - a. Technical Regulation of Army Materiel Manual – Land (TRAMM-L);
  - b. Defence Road Transport Instructions (DRTI);
  - c. EMEI Misc Equip Q 208 – Inspection of Portable Fire Extinguishers – Equipment Inspection and Examination Data;
  - d. EMEI Vehicle A 028-1 – Vehicles – General, B Vehicle Mounted Cranes – Technical Inspection Requirements – Miscellaneous Instruction;
  - e. EMEI Vehicle A 029-2 – Vehicles – General, Road Testing of Medium and Heavy B Vehicles and Combinations – General Instruction;
  - f. EMEI Vehicle A 049-1 – Towing Pintle Hooks, Medium and Heavy General Services B Vehicles – Inspection and Repair – Miscellaneous Instruction;
  - g. EMEI Vehicle A 298-2 – Tyres and Tubes, General Service B Vehicles Tyres – Inspection for Useability;
  - h. EMEI Vehicle A 548-1 – Vehicle Seat Belts, Inspection Data – Inspection for Useability;
  - i. EMEI Vehicle G 60 decade – Truck, Cargo, Medium, MC2 – Unimog;
  - j. EMEI Workshop H 149-1 – Vehicle Jacks, Mechanical and Hydraulic – General Instruction; and
  - k. EMEI Workshop E 410 – Hazardous Substances, Occupational Health and Safety Instruction – Asbestos – General Instruction.

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**Inspection Procedure**

5. Do not use ‘Keep Under Observation’ (KUO) or words to that effect within a TI. The vehicle is to be classified in accordance with TRAMM-L. If an item inspected is likely to require maintenance prior to the standard 12 month expiry date a shortened due date should be used.

**DETAIL**

6. Paragraph 8 to 14 identifies the systems and components that are inspected as part of the TI. The tables contained within this EMEI are used for Unimog 4x4 – All Types and are listed below:

a. Table 1 – All Types, plus the following as required:

- (1) Table 2 - Cargo;
- (2) Paragraph 10 - With Twist Locks;
- (3) Table 3 - With Power Take-off;
- (4) Table 4 - With Winch;
- (5) Paragraph 13 – Crane; and
- (6) Table 5 - Dump.

7. These lists are not exhaustive and are intended to be used as guidelines only from which the vehicle can be effectively inspected. Any additional systems or items identified are to be inspected and listed on the Standard Job with signatures to confirm they have been inspected. This includes any extra inspection regimes resultant from any RODUM investigations. An example, of when shortened expiry dates could be used would be when a tyre will require replacement (has reached 10 years of age) prior to the normal 12 month expiry for the TI.

**All Types**

8. The systems and components listed in Table 1 are required to be inspected for Unimog 4x4 – All Types.

**Table 1 All Types**

Serial	Description	Serial	Description
1	Brush guard, securing bolts, pins & chains	2	Bumper bar
3	Front access step & retaining bracket	4	Headlight mesh grills including; hinges and latches
5	Front & rear TAC sign holders	6	Front & rear number plate condition
7	Bridge classification plate	8	Front and rear lifting & tie-down points
9	Bonnet	10	Bonnet locks & hinges
11	Bonnet mesh screen	12	Bonnet stay & retaining clip
13	Decal – fan & 'V' belt warning	14	Engine rocker & side covers & gaskets
15	Oil, coolant & fuel leaks	16	All engine drive belts; tension and condition
17	All engine drive & idler pulleys	18	Engine timing cover gasket & seal
19	Turbocharger, gaskets, seals & fasteners	20	Dipstick & dipstick boot
21	Engine oil & level	22	Engine oil filters
23	Inlet and exhaust manifolds	24	Exhaust brake & linkage including; operation
25	Engine breather	26	Compressor & pipes & mounting brackets
27	28 V Generator, mounting brackets & cannon plug	28	Air filter housing
29	Air cleaner filter element – restriction indicator	30	Air intake hose & clamps
31	Engine mounts, bolts & earth strap	32	Engine sump, gasket & rear main seal
33	Clutch slave cylinder	34	Clutch pipes
35	Clutch master cylinder & reservoir level	36	Clutch fluid & reservoir filter screen
37	Fuel injection pump & lines	38	Fuel transfer pump & lines
39	Coolant header tank hoses & mounts	40	Radiator cap and chain

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**Table 1 All Types (Continued)**

Serial	Description	Serial	Description
41	Coolant – type, level and when due for replacement	42	Radiator mounts, shrouds & decals
43	Radiator/heater hoses	44	Air system valves, lines & pipes
45	Power steering reservoir & fluid level	46	Power steering pump including hoses
47	Electrical harness	48	Steering column & mounting bush at firewall including; universal joint play and security (*see serial 82 for detail)
49	Windscreen washer reservoir, hose, cap & level	50	Windscreen washer pump & connector
51	Heater box	52	Starter motor & electrical connections
53	Air intake plastic grille and cabin filter	54	Panels and body including; paint, damage & corrosion
55	Mudguards & mudflaps	56	CES stowage bins & mounts
57	CES de-ditching tool mounting frame & brackets	58	Jerry can carrier & rubbing blocks
59	Fuel tank, mounting brackets & rubber straps	60	Battery box & battery mounting tray
61	Battery cables terminals & cleanliness	62	Battery type, security, electrolyte level
63	Air tanks	64	Brake master cylinder & reservoir
65	Brake fluid reservoir filter screen	66	Brake fluid including; next due date
67	Exterior mirrors; condition and security. Spot mirrors fitted	68	Tyres & rims, age & condition, including spare. Rims for corrosion, correct assembly & free from damage
69	Wheel nuts	70	Wheel alignment considering vehicle tracking and tyre wear
71	Spare wheel carrier & winch	72	NATO plug & 24 V decal
73	Pintle hook including pin & chain	74	Safety chain mounts
75	Trailer glad hand coupler & dust covers	76	Steering protection plate
77	Brake callipers, discs and pads	78	Brake lines, clamps and wear wiring
79	Brake calliper shrouds & securing bolts	80	Steering swivel pin
81	Steering box, boot & box mounting bolts including; pitman arm security (castellated nut & split pin or nyloc self locking nut)	82	Steering right angle drives including; steering shaft security and full universal joint engagement (through bolts must be aligned with machined groove in input/output splines)
83	Steering tie rod including; tie rod ends, boots & locking nuts	84	Steering drag link & tie rod ends & boots
85	Shock absorbers	86	Coil springs
87	Suspension bump stops	88	Front & rear panhard rod, bushes & bolts
89	Front & rear stabiliser bars & bushes	90	Front & rear stabiliser bar mounting brackets
91	Tray to chassis mounts & bolts	92	Tray cross-members
93	Transmission & transfer case	94	Transmission mountings
95	Torque tube bellows/hose clamps/seals, including; inspection for diff pinion/transfer case oil leaks.	96	Struts & securing bolts
97	Axles & reduction hubs	98	Engine to transmission drive shaft and guard
99	Park brake actuators	100	Cabin mounts & mounting bolts
101	Cabin steps	102	Cabin lift jack mounting points
103	Door locks/hinges/seals/trim/check links	104	Door glass including; winder operation
105	Cabin decals	106	Hydraulic jack stowage bracket
107	Portable fire extinguisher & mounting bracket including; date for next test of extinguisher	108	Floor & mats, roof lining

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**Table 1 All Types (Continued)**

Serial	Description	Serial	Description
109	Accelerator pedal & cross shaft grease nipple including; stop bolt present and correctly adjusted	110	Brake & clutch pedal pads
111	Seat belts; condition, matching and correct orientation	112	Weapon mounts including; butt boxes and top clips
113	Cupola pad seal/release catch/hinge	114	Cupola locking catch – spring & plastic cover
115	Grommets in cabin near gear selector	116	Passenger seat lock down bar and bump stops including; non-slip rubber strips
117	Seat slides & adjusters/cushions	118	Dash instrument panel/lights/switches/gauges
119	Circuit breakers, decal & cover	120	Park brake lever
121	Bonnet key & retaining clips	122	Glove box & glove box hinges including; map light
123	Trailer brake hand control	124	Steering wheel including; condition & alignment
125	Horn	126	Windscreen wiper arms/blanking caps/blades
127	Windscreen & side windows, glass & seals	128	Park lights
129	Windscreen washers including; adjustment	130	Front indicator lights
131	Headlights including; low/high beam operation and aim	132	Mirror clearance lights
133	Front hazard lights	134	Front black out driving lights
135	Front black out marker lights	136	Rear indicator lights
137	Rear tray clearance lights	138	Tail lights & reflectors
139	Rear hazard lights	140	Reversing lights
141	Brake lights	142	Rear blackout convoy light
143	Rear black out reduced lights (markers)	144	Black out brake lights
145	Engine idle	146	Engine stop control & hand throttle
147	Exhaust system for leaks, damage & security	148	Clutch operation
149	Foot brake and park brake operation	150	Tyre changing CES

**Cargo**

9. To complete the TI on a Unimog Cargo, the systems and components listed in Table 2 are also to be inspected.

**Table 2 Cargo**

Serial	Description	Serial	Description
1	Tailgate & hinges	2	Tailgate bump rubbers & bump stops
3	Canopy & canopy bows	4	Front canopy bow support brackets
5	Tray headboard	6	Side board & canopy bow securing plates & bolts
7	Tray floor timber	8	Tray rear lifting point access plates
9	Tray rear section checker plate	10	Tray seats/legs & retaining straps

**Vehicle Fitted with Twist Locks**

10. To complete the TI on a Unimog fitted with twist locks, inspect all twist locks to ensure they are free from damage, are not seized and are functioning correctly.

**With Power Take-off**

11. To complete the TI on a Unimog with power take-off, the systems and components listed in Table 3 are also to be inspected.

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**Table 3 With Power Take-off**

Serial	Description	Serial	Description
1	Hydraulic reservoir, hoses & mounts	2	Hydraulic filter, housing, piping & mounts
3	Pump & valves	4	Switches, controls, cables & fittings
5	Operation		

**With Winch**

**12.** To complete the TI on a Unimog with winch, the systems and components listed in Table 4 are also to be inspected.

**Table 4 With Winch**

Serial	Description	Serial	Description
1	Winch identification & WLL plate	2	Winch working angle plate
3	Winch control levers	4	Winch fairleads & rollers
5	Winch propeller shaft & support bearings	6	Winch dog clutch
7	Winch rope including; condition and cleanliness	8	Winch operation/cut-out
9	Winch operating instruction decal	10	Hook including; catch and tied to the vehicle by cordage only.

**With Crane**

**13.** To complete the TI on a Unimog with crane, complete all tasks in accordance with Ref 4.d

**Dump**

**14.** To complete the TI on a Unimog Dump, the systems and components listed in Table 5 are also to be inspected.

**Table 5 Dump**

Serial	Description	Serial	Description
1	Decals	2	Airlines, hoses, bushes & clamps
3	Hydraulic reservoir oil	4	Hydraulic oil pump & mounting bracket
5	Hydraulic oil pump drive belts	6	Hoist cylinder (dump body lift) & mounting bolts
7	Hoist valve & mounting bolts	8	Chassis sub-frame mounting bolts
9	Tailgate cylinder	10	Tailgate trunnions
11	Tailgate hinge lever	12	Dump body support stay
13	Operation		

**Modifications**

**15.** Ensure all applicable modifications have been incorporated and recorded on the vehicle's modification plate and correspond with Part 3 of the Logbook (GM120). Ensure there have been no unauthorised modifications made to the vehicle. If any such modifications exist, the TI should detail the removal tasks to return the vehicle to the agreed build state.

**Asbestos Management**

**16.** Ensure the asbestos item removal history sheet (Annex A) has been incorporated into the rear of Part 4 of the GM120. The inspector should conduct an audit of the recent maintenance history of the vehicle and update the history sheet as applicable.

**17. Caution Asbestos Fibres Label.** The Unimog FOV is to be affixed with an asbestos warning label in accordance with EMEI Workshop E 410 unless all suspected asbestos items, identified in Part 4 of the GM 120, have been remediated. The warning label, NSN 7690-66-136-4741, is to be positioned next to the useability label on the windscreen and read from inside the vehicle cabin.

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**Road Test**

**18.** A road test is to be completed in accordance with EMEI Vehicle A 029-2.

**Useability Labels**

**19.** Once materiel has been classified IAW TRAMM-L, the vehicle’s classification for useability must be easily identifiable to all personnel. The use of tags and labels, as applicable to each respective equipment fleet, is mandatory. The following adhesive labels are authorised for use on the Unimog family of vehicles:

- a.** Fully Functional (AD204);
- b.** Restricted Use (AD207);
- c.** Do Not Use – XX (AD210); and
- d.** Battleworthy (AD202) – only permitted during operations.

**20. Suspected Fault Label.** The Suspected Fault label (AD209) is generally only used by vehicle operators including non-technical personnel. The Suspected Fault (SF) label is white in colour with a diagonal red band across the label. The SF process allows any individual to identify materiel with a perceived fault or requiring periodic maintenance. A vehicle being released from workshops is not permitted to retain an SF label and is to be removed during the reclassification process during the conduct of the TI.

**21.** All labels are to be positioned on the lower left-hand corner of the windscreen and orientated to be read from inside the vehicle cabin. Classifications should be made with fine permanent markers to ensure the label can be easily interpreted and remain legible until removed.

**Technical Inspection Report**

**22.** Raise and complete a TI report entering the details of the inspection in Part 2 of the Logbook (GM 120) and include a printed copy of the report in the front cover. The original signed copy of the report must be retained by the originating organisation and filed in a dedicated inspection report file. A copy is also to be retained with the work order.

**MILIS Standard Jobs**

**23.** The current computer based program used to record and manage vehicle maintenance (MILIS) incorporates Standard Jobs (SJs). TIs for the Unimog fleet have been created on MILIS as SJs and are linked to each Minor, Major and Alternate Major Services along with stand alone TIs. The following table provides the current list of SJs with TI tasks.

**Table 6 MILIS Standard Jobs For Technical Inspections**

<b>Standard Job Number</b>	<b>Type</b>	<b>Variant</b>
0471	Alternate Major Service and Technical Inspection	Cargo
0473	Major Service and Technical Inspection	Cargo
0474	Minor Service and Technical Inspection	Cargo
0554	Brake and Clutch Fluid Replacement and Technical Inspection	All
6431	Minor Service and Technical Inspection	W/Winch
6432	Major Service and Technical Inspection	W/Winch
6433	Alternate Major Service and Technical Inspection	W/Winch
6434	Minor Service and Technical Inspection	W/Crane
6435	Major Service and Technical Inspection	W/Crane
6436	Alternate Major Service and Technical Inspection	W/Crane
6437	Minor Service and Technical Inspection	Dump
6438	Major Service and Technical Inspection	Dump
6439	Alternate Major Service and Technical Inspection	Dump
6530	Technical Inspection only	Cargo

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**Table 7 MILIS Standard Jobs For Technical Inspections (Continued)**

6531	Technical Inspection only	W/Winch
6532	Technical Inspection only	W/Crane
6533	Technical Inspection only	Dump

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**END**

Distribution List: **VEH G 25.0 – Code 2** (Maint Level)  
(Sponsor: CGSV SPO Mdm/Hvy B Vehicle Section)  
(Authority: EC-004030)

**ASBESTOS ITEM REMOVAL HISTORY (GM120 Part 4)**

Serial (1)	Item (2)	Asbestos Containing Material (ACM) NIIN (3)	Non-ACM NIIN (4)	Has item been replaced since 2009? (Yes) (5)	Carried out by repair agency (6)	Date (7)
1	Gasket - Engine Drain Plug; All variants	12-126-0420	12-124-4379			
2	Gasket - Fuel Tank Drain Plug Washer	12-156-4547	12-131-4119			
3	Gasket - Parkbrake Pneumatic Line Washer	12-156-4547	12-131-4119			
4	Gasket - Engine; Oil Cooler to Cover	12-124-1185	12-323-8272			
5	Gasket - Engine; Bell Housing Drain Plug	12-156-4552	12-335-8363			
6	Gasket - Engine; Turbo Drain Pipe	12-168-5836	12-331-5310			
7	Packing, Engine; Performed Seal Crankshaft	66-140-5249	12-339-1107			
8	Gasket - Engine Dipstick block mounting to sump	12-173-3440	12-332-6949			
9	Clutch - Disc plate	12-197-4851	12-315-1428			
10	Gasket - Transmission Shift Housing	12-197-1785	66-135-2706			
11	Gasket - Transmission Housing	12-197-3203	66-139-1660			
12	Gasket - Transfer gear case rear output housing	12-300-8412	12-354-2839			
13	Gasket - Transfer gear case front output housing	12-300-8414	12-354-2841			
14	Gasket - Transmission Rear Bearing Cap	12-300-8435	66-120-6238			
15	Gasket - Oil Cooler Cover to Engine Block	12-305-7731	12-376-3287			
16	Guard - Heatshield; Engine Compartment (*Note; Non-ACM NIIN is for the bare guard and two asbestos free panels to be riveted in place*)	12-314-6910	12-381-8340* 12-376-3189* 12-381-8337*			
17	Gasket - Engine; Waterpump	12-320-0431	Not Known			
18	Gasket - Transmission rear bearing cap #2	12-197-3200	66-128-6988			
19	Gasket - Engine; Compressor Drive Blanking Plate on engine block	12-176-8995	12-351-3128			
20	Gasket - Engine oil filter housing to block	12-173-7783	12-335-8039			
21	Gasket - Engine; thermostat housing	12-173-7791	12-329-9067			
22	Gasket - Engine; coolant manifold to thermostat housing	12-173-7793	12-326-1589			
23	Gasket - Transmission; Selector plate air actuator mtg	12-173-7796	12-376-2268			
24	Gasket - Transfer Gearcase; Fwd/Rev shift cyl mtg	12-173-7798	12-354-2840			
25	Gasket - Waterpump outlet elbow	12-174-2894	12-337-6165			
26	Gasket - Engine; coolant manifold to cylinder head	12-174-2895	12-329-0403			
27	Gasket - Engine; exhaust turbo elbow to tailpipe	12-177-4758	66-157-1002			
28	Gasket - Engine; cylinder head	66-117-2298	12-330-2134			
29	Gasket - Air compressor parts kit	12-303-5862	66-158-5364			
30	Gasket - Engine; waterpump repair kit	12-301-3225	12-358-8920			
31	Gasket - Engine; rocker cover	12-322-3458	01-229-3513			
32	Kit - Steering Box Overhaul	12-197-8290	Not Known			
33	Gasket - Engine; Timing Cover.	12-179-3403	12-324-5739			

**Note:** All 33 items suspected of containing asbestos can remain in place if they are not disturbed or when replacement is necessary.

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