

TRUCK, CARGO, MEDIUM, MC2 – UNIMOG

SERVICING INSTRUCTION

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.

INTRODUCTION

1. This EMEI lists the requirements for each level of servicing for the Truck, Cargo, Medium, MC2 – Unimog. Para 4 details the servicing sequence. Table 2 details the actions to be performed at each of the levels of servicing by both the operator and tradesperson.

WARNING

All industrial safety, work practices and equipment operating and maintenance instructions pertaining to this EMEI are to be adhered to.

The handling, storage and use of chemical substances is to be in accordance with SAFETYMAN, MSDS and EMEI Workshop series requirements.

Associated Publications

2. Reference may be necessary to the latest issue of the following EMEI for maintenance and repair procedures:
- a. [EMEI Misc Equip Q 208](#) – Inspection of Portable Fire Extinguishers – Equipment Inspection and Examination Data;
 - b. [EMEI Vehicle A 049-1](#) – Pintle Hooks – Inspection and Repair – Miscellaneous Instruction;
 - c. [EMEI Vehicle A 028-1](#) – Vehicles – General – B Mounted Vehicle Cranes – Technical Inspection Requirements – Inspection for Useability;
 - d. [EMEI Vehicle A 029-9](#) – Vehicle – General – Road Testing of Medium and Heavy B Vehicles and Combinations – General Instruction;
 - e. [EMEI Vehicle A 291-5](#) – Tyres and Tubes – General Service B Vehicles Tyre Guide – Operator Instructions;
 - f. [EMEI Vehicle A 298-2](#) – Tyres and Tubes – General Service B Vehicle Tyres – Inspection for Useability;
 - g. [EMEI Vehicle A 548-1](#) – Vehicle Seat Belts – Inspection Data – Inspection for Useability;
 - h. [EMEI Vehicle A 591-1](#) – Miscellaneous – Inspection and Cleaning of Dry Type air Cleaners – Miscellaneous Instruction;
 - i. [EMEI Vehicle D 108](#) – Recovery Equipment – Inspection of Recovery Equipment – Inspection for Useability;
 - j. [EMEI Vehicle G 603](#) – Truck, Cargo, Medium, MC2 – Unimog – Light Grade Repair;
 - k. [EMEI Vehicle G 604](#) – Truck, Cargo, Medium, MC2 – Unimog – Medium Grade Repair;
 - l. [EMEI Vehicle G 604-1](#) – Truck, Cargo, Medium, MC2 – Unimog – Base Repair;
 - m. [EMEI Vehicle G 609-7](#) – Truck, Cargo, Medium, MC2 – Unimog – Inspection/Replacement of Tailgate/Sidegate Hinges and Hinge Mounts – Miscellaneous Instruction;
 - n. [EMEI Vehicle G 617-4](#) – Truck, Medium, MC2 – Unimog – All Types – Accelerator Pedal Stop Bolt – Modification Instruction;
 - o. [EMEI Vehicle G 617-14](#) – Truck, Medium, MC2 – Unimog – All Types – Brake Airline Chaffing – Modification Instruction;

- p. [EMEI Vehicle G 617-26](#) – Truck, Medium, MC2 – Unimog – All Types – Handbrake Lever – Modification Instruction;
- q. [EMEI Vehicle G 617-29](#) – Truck, Medium, MC2 – Unimog – All Types – Transmission Shift Mechanism – Modification Instruction;
- r. [EMEI Vehicle G 617-36](#) – Truck, Medium, MC2 – Unimog – All Types – Fitting of 12.5 Tonne Safety Chain Mounts – Modification Instruction;
- s. [EMEI Vehicle G 619-29](#) – Truck, Medium, MC2 – Unimog – All Types – Stripping, Assembly and Calibration of the Werner Winch Torque Limiter – Miscellaneous Instruction;
- t. [EMEI Vehicle G 633](#) – Truck, Dump, Medium, Winch, MC2 – Unimog – Light Grade Repair;
- u. [EMEI Vehicle G 634](#) – Truck, Dump, Medium, Winch, MC2 – Unimog – Medium and Heavy Grade Repair;
- v. [EMEI Workshop H 149-1](#) – Vehicle Jacks – Mechanical and Hydraulic – General Instruction;
- w. Current version of the Technical Regulation of ADF Materiel Manual – Land (TRAMM-L) (available from DTR-A website <http://intranet.defence.gov.au/armyweb/Sites/DTRA>); and
- x. [Defence Safety Manual \(SAFETYMAN\)](#).

Servicing Points

- 3. Servicing points are identified as follows:
 - a. Figure 1 – Cargo with Winch; and
 - b. Figure 2 – Dump.

Servicing Sequence

- 4. The following servicing sequence is to be applied:
 - a. Technical Inspection (TI) – 5 000 km or 12 months after the last service (this TI is to include a brake and clutch fluid change);
 - b. Minor Service – 5 000 km or 12 months after the last TI;
 - c. TI – 5 000 km or 12 months after the last Minor Service;
 - d. Major Service – 5 000 km or 12 months after the last TI;
 - e. TI – 5 000 km or 12 months after the last Major Service;
 - f. Minor Service – 5 000 km or 12 months after the last TI;
 - g. TI – 5 000 km or 12 months after the last Minor Service; and
 - h. Alternate Major Service – 5 000 km or 12 months after the last TI.
- 5. Servicing is based on distance travelled or time elapsed, with all vehicles being serviced at least once every 24 months. Unit commanders may reduce the periods between services or add servicing tasks to meet operational or exercise requirements. A scheduled service may be anticipated or delayed within a limit of plus or minus 10 percent of the interval between services to meet operational needs and to permit workload planning.

NOTE

When any equipment exceeds the 10 percent maximum limit of the servicing interval (Table 1), it is to be classified 'DO NOT USE – XX' until the outstanding service is completed.

Authorised Personnel

- 6. All operator tasks are to be carried out only by those qualified and under the supervision of personnel nominated at Para 7.

7. All tradesperson tasks are to be carried out by the following tradespersons as applicable to the task:
 - a. Vehicle Mechanic (ECN 229);
 - b. Fitter Armament (ECN 146);
 - c. Recovery Mechanic (ECN 226); or
 - d. Tri-service/civilian equivalent.

Standard Job

8. Standard job numbers have been raised to detail the vehicle servicing and Technical Inspection procedures. Table 1 lists the standard job numbers that have been allocated.

Table 1 Standard Jobs

Serial	Standard Job Number	Description
1	000554	Unimog brake/clutch fluid and TI
2	000474	Unimog Minor Service And TI
3	000473	Unimog Major Service And TI
4	000471	Unimog Alternate Major Service and TI
5	006431	Unimog w/winch Minor Service and TI
6	006432	Unimog w/winch Major Service and TI
7	006433	Unimog w/winch Alternate Major Service and TI
8	006434	Unimog w/crane Minor Service and TI
9	006435	Unimog w/crane Major Service and TI
10	006436	Unimog w/crane Alternate Major Service and TI
11	006437	Unimog dump Minor Service and TI
12	006438	Unimog dump Major Service and TI
13	006439	Unimog dump Alternate Major Service and TI
14	006530	Unimog Technical Inspection

Additional Tasks

9. No additional tasks are to be added to scheduled maintenance work orders. A separate work order shall be raised to record additional maintenance tasks identified during the servicing and/or the Technical Inspection. These additional tasks may include, but not be limited to, the replacement of wheel bearings, brake pads/shoes, wheel cylinders etc, and outstanding modifications. The additional tasks are to be completed in conjunction with the scheduled maintenance.

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Table 2 Servicing Requirements

Serial	Item or Assembly (Note 1)	TI	Minor Service	Major Service	Alternate Major Service	Capacity (Litres)	Lubricant
Operator Tasks (Para 6)							
1	Engine oil	-	D	D	D	15	SAE GRADE 40 (OMD-115)
2	Engine oil filter	-	R	R	R		
3	Transmission oil	-	T	D	D	10.5	SAE GRADE 40 (OMD-115)
4	PTO transmission oil	-	T	D	D	5.75	SAE GRADE 40 (OMD-115)
5	Front and rear differential oils	-	T	D	D	2.5	OEP-220
6	Front and rear reduction hub oils	-	T	D	D	0.6	OEP-220
7	Park brake lever	-	L	L	L		XG-291
8	Power steering reservoir	-	T	T	D	2.25	OX-47
9	Steering system	-	L	L	L		XG-291
10	Clutch to transmission drive shaft	-	L	L	L		XG-291
11	PTO transmission shaft joints	-	L	L	L		XG-291
12	PTO winch driveshaft	-	L	L	L		XG-291
13	Winch dog clutch shaft	-	L	L	L		Molybond 122L (NSN 9150- 66-089-5365)
14	Winch mounting pins	-	L	L	L		Molybond 122L (NSN 9150- 66-089-5365)
15	Winch oil	-	T	D	D	2.0	OEP-220
16	Winch fairleads and rollers	-	L	L	L		XG-291
17	Winch rope (Para 11)	-	C,L	C,L	C,L		Rocol wire rope lube (NSN 9150- 99-337-1498)
18	Engine brake linkage	-	L	L	L		XG-291
19	Door locks and hinges	-	L	L	L		SAE GRADE 40 (OMD-115)
20	Fuel tank	-	D (water)	D (water)	D (water)		
21	Fuel pre-filter	-	C	C	C		
22	Main fuel filters	-	-	R	R		
23	Air filter	-	C	C	C		
24	Spare wheel carrier operation	-	I	I	i		
25	Bonnet locks and hinges	-	L	L	L		SAE GRADE 40 (OMD-115)
26	Accelerator cross shaft and pedal pivot	-	C,L	C,L	C,L		XG-291

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Table 2 Servicing Requirements (Continued)

Serial	Item or Assembly (Note 1)	TI	Minor Service	Major Service	Alternate Major Service	Capacity (Litres)	Lubricant
27	Tailgate hinges, catches and latches	-	L	L	L		SAE GRADE 40 (OMD-115)
28	Battery compartment slides	-	L	L	L		XG-291
29	Battery electrolyte level (bottom of the filler spouts), security and cleanliness of terminals and posts	-	T,C	T,C	T,C		
30	Seat slides	-	L	L	L		XG-291
31	Driving mirrors and window glasses	-	C,I	C,I	C,I		
32	Tyre pressures (Para 23)	-	I	I	I		
33	Wheel nut security	-	I	I	I		
34	Spare wheel security	-	-	I	I		
35	Spare wheel winch operation	-	I	I	I		
36	Pintle hook	-	L	L	L		XG-291
37	Tray twist locks	-	L	L	L		SAE GRADE 40 (OMD-115)
38	CES	-	I	I	I		
39	Vehicle jack classification tag	-	I	I	I		
40	Vehicle fire extinguisher inspection tag	-	I	I	I		
41	Vehicle cleanliness	-	C	C	C		
Dump (Note 2)							
42	Hydraulic oil reservoir	-	T	D	D		OM-33
43	Hydraulic oil filter	-	-	R	R		
44	Hoist cylinder and tailgate trunnions	-	L	L	L		XG-291
45	Tailgate cylinder	-	-	C,L	C,L		XG-291
46	Tailgate hinge lever	-	-	C	C		
47	Dump system operation incl. locks and gauges	-	AR	AR	AR		
Tradesperson Tasks (Para 0)							
48	Engine mounting bolts (Para 15)	-	-	I	I		
49	Exhaust manifold bolts security	-	-	I	I		
50	Valve clearance	-	-	I	I		
51	Engine breather filter	-	-	-	R		
52	Front and rear axle stabiliser bar mounting bolts security (bracket to chassis)	-	I	I	I		

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Table 2 Servicing Requirements (Continued)

Serial	Item or Assembly (Note 1)	TI	Minor Service	Major Service	Alternate Major Service	Capacity (Litres)	Lubricant
53	Front and rear strut securing bolts security (axle to torque tube)	-	-	I	I		
54	Front and rear pan hard rod securing bolts security (axle to chassis) (Para 25)	-	-	I	I		
55	Transmission mounting bolts security	-	-	I	I		
56	Transmission shift mechanism (Para 18)	-	I	I	I		
57	Power steering reservoir	-	I	I	I		OX-47
58	Power steering oil filter	-	-	-	R		
59	Steering system	-	I	I	I		
60	Steering box mounting bolts security	-	-	I	I		
61	Compressed air system including pipes and hoses	-	I	I	I		
62	Drive belts	-	I	I	I		
63	Fuel lines for chaffing, leaks and security	-	I	I	I		
64	Air filter (Para 20)	-	I	I	I		
65	Air system operation	-	I	I	I		
66	Brake hydraulic system	D,B	D,B	D,B	D,B	1.0	OX-8
67	Brake system operation	-	I	I	I		
68	Brake pad wear	-	I	I	I		
69	Clutch hydraulic system	D,B	D,B	D,B	D,B	0.2	OX-8
70	Clutch system operation	-	I	I	I		
71	Tray to chassis mounting bolts security	-	-	I	I		
72	Cab to chassis mounting bolts security	-	-	I	I		
73	Engine brake operation	-	I	I	I		
74	Generator mounting bolts security	-	I	I	I		
75	Brake caliper shroud securing bolts security	-	I	I	I		
76	Fuel pre-filter	-	I	I	I		
77	Accelerator linkage and pedal stop bolt (Para 12)	-	-	I	I		
78	Radiator coolant (Para 16)	-	I	D	D		
79	Suspension components	-	I	I	I		
80	Drive shafts and universal joints	-	I	I	I		
81	Cabin heating and ventilation system filter (Para 20)	-	I	I	I		

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Table 2 Servicing Requirements (Continued)

Serial	Item or Assembly (Note 1)	TI	Minor Service	Major Service	Alternate Major Service	Capacity (Litres)	Lubricant
82	Spare wheel winch and cable	-					
83	PTO driveshaft	-					
84	Winch dog clutch operation	-					
85	Winch mounting pins	-					
86	Winch operation	-					
87	Winch rope and CES recovery items (Para 11)	-					
88	Winch torque limiter (Para 17)	-	-				
89	Tyres (Para 14)	-					
90	Wheel alignment (Para 26)	-					
91	Body/chassis condition	-					
92	Seat belts, mountings and inertia reel operation (Para 21)	-					
93	Headlight alignment (Para 27)	-					
94	Operation of lights, gauges, warning lights and horn	-					
95	Tailgate/sidegate hinges and hinge mounts (Para 13)	-					
96	Safety chain mounts secure and complete	-					
97	Pintle hook (Para 22)	-					
98	NATO plug operation	-					
99	Vehicle jack (Para 19)	-					
Dump (Note 2)							
100	Hydraulic oil pump and mounting bracket	-					
101	Hydraulic oil pump drive	-					
102	Tailgate locking switch	-					
103	Dump system operation incl. locks and gauges	-					
104	Airlines, hoses, bushes and clamps	-					
105	Hoist cylinder mounting bolts	-					
106	Hoist valve connections	-					
107	Tailgate cylinder	-					
108	Tailgate hinge lever	-					
109	Hoist valve mounting bolts	-					

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Table 2 Servicing Requirements (Continued)

Serial	Item or Assembly (Note 1)	TI	Minor Service	Major Service	Alternate Major Service	Capacity (Litres)	Lubricant
110	Chassis sub-frame mounting bolts	-	I	I	I		
111	Dump body	-	I	I	I		
Cargo with Crane							
112	Crane useability (Para 28)	I	I	I	I		
All Variants							
113	Road test (Para 29)	AR	AR	AR	AR		
114	Raise Technical Inspection Report (Para 30)	AR	AR	AR	AR		
115	Record details of inspection in GM 120 Part 2 – Record of Inspection	AR	AR	AR	AR		
116	Record details of service in GM 120 Part 4 – Record of Service	AR	AR	AR	AR		

Legend: AR – Action Required, B – Bleed, C – Clean, D – Drain and Refill, I – Inspect, L – Lubricate, R – Replace, T – Top up

Notes:

1. Refer to Figure 1
2. Refer to Figure 2

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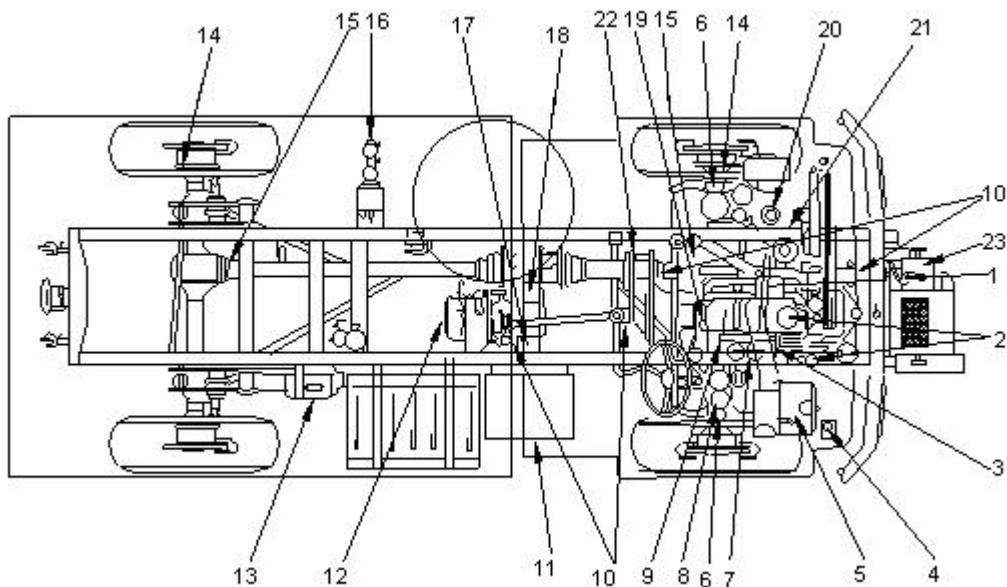
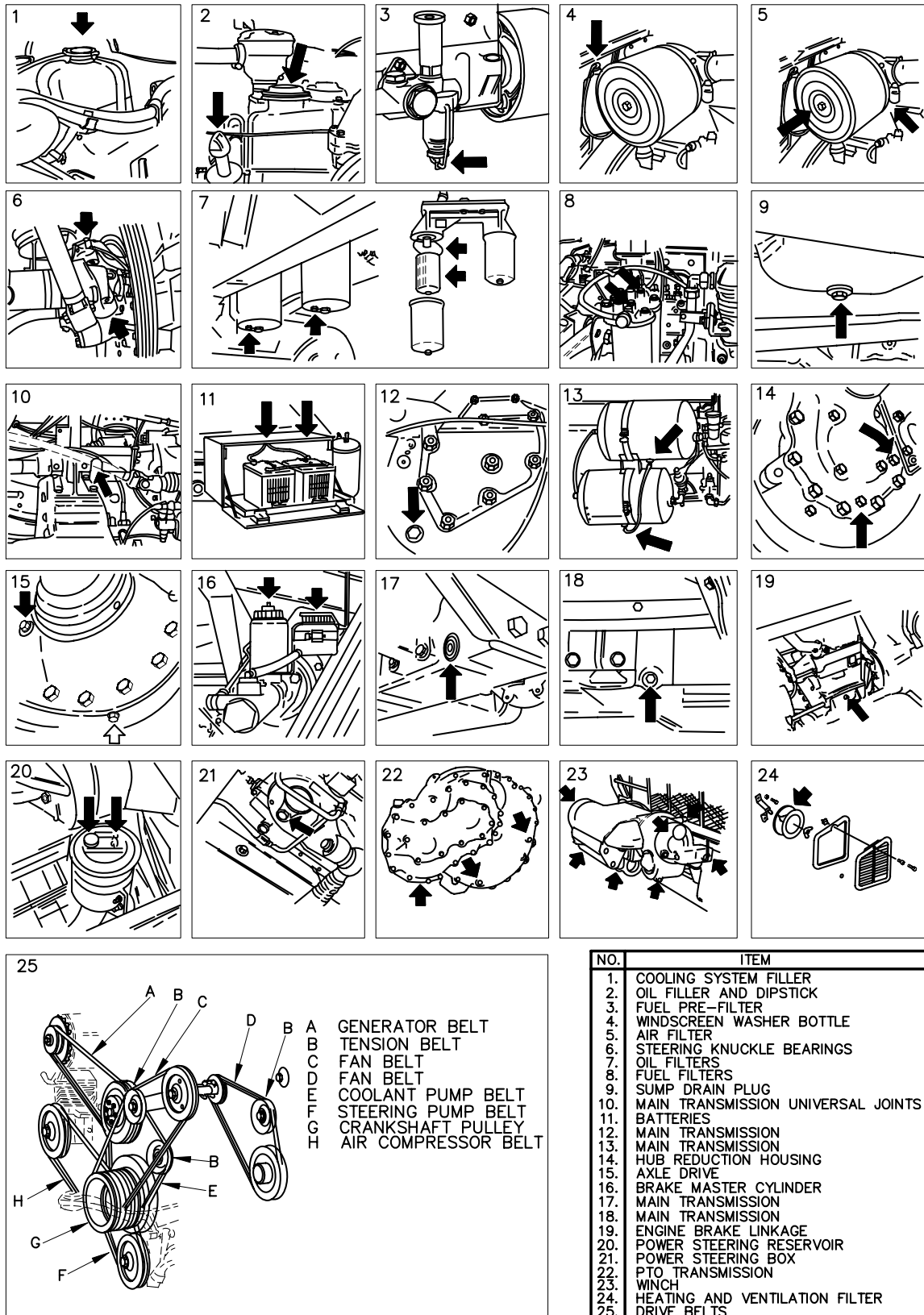


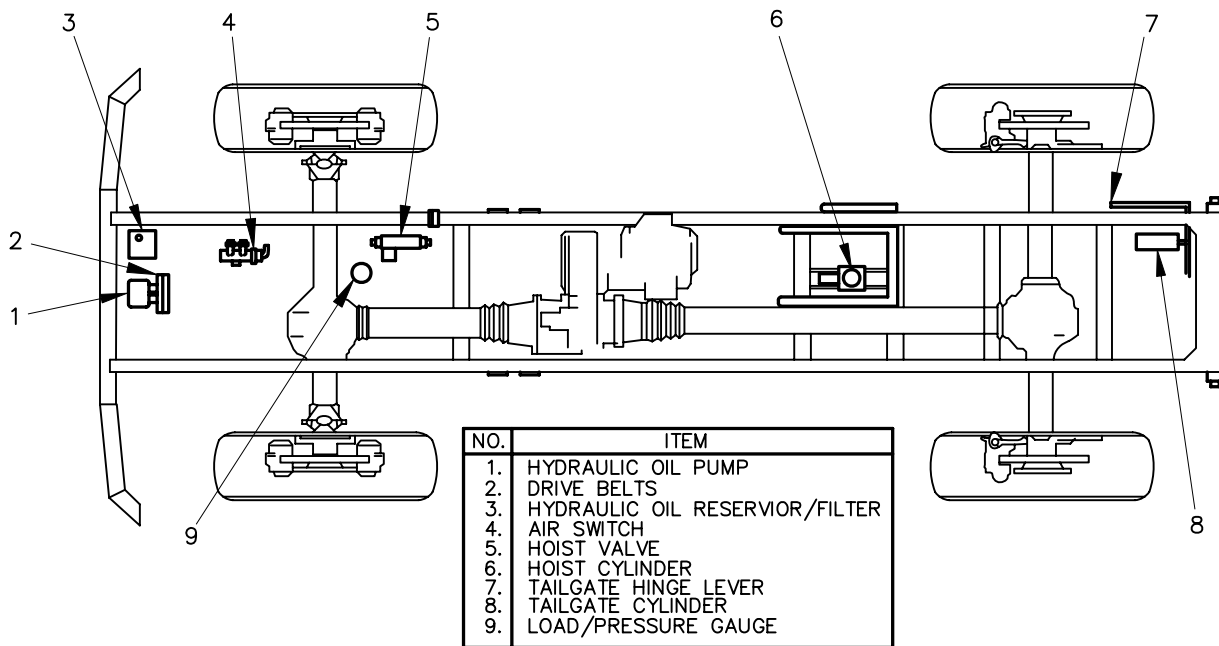
Figure 1 Cargo with Winch Servicing Points (Sheet 1 of 2)

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Figure 1 Cargo with Winch Servicing Points (Sheet 2 of 2)



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SERVICING POINTS
Figure 2 Dump Servicing Points

General Information

- 10. Lubricate the park brake lever using a low pressure grease gun. If grease nipples are not fitted to the levers, they are to be modified in accordance with EMEI Vehicle G 617-26.
- 11. The winch rope is to be cleaned using mains pressure fresh water. The winch rope is not to be cleaned using high pressure cleaners. Once cleaned, the winch rope is to be inspected in accordance with EMEI Vehicle D 108 prior to lubricating. A winch rope that is fully functional can be wound back onto the winch drum. The recovery items, e.g. chain, shackles etc that are part of the vehicle CES are to be inspected in accordance with EMEI Vehicle D 108. Inspection of the winch rope and recovery CES items is a part of this check/service and must be completed if the vehicle is to be classified '**Fully Functional**'.
- 12. Remove the accelerator cross shaft cover. Clean and lubricate the shaft. Inspect the accelerator pedal for the presence of an accelerator stop bolt. If the stop bolt is not fitted, modify the accelerator pedal in accordance with EMEI Vehicle G 617-4. If required, set the throttle linkage in accordance with EMEI Vehicle G 603 (adjust as required).
- 13. Inspect all tail/sidegate hinge pins and mounts for signs of damage, deformation and cracking. Check the hinge pin and hinge gap in accordance with EMEI Vehicle G 609-7.
- 14. Inspect the tyres in accordance with EMEI Vehicle A 298-2.
- 15. Inspect the engine mounting bolts for the correct tension in accordance with EMEI Vehicle G 603.
- 16. Inspect and pressure test the cooling system in accordance with EMEI Vehicle G 603.
- 17. Calibrate the winch torque limiter in accordance with EMEI Vehicle G 619-29.
- 18. Confirm the transmission shift mechanism operates correctly and that the expansion plug is present and secure in accordance with EMEI Vehicle G 617-29.
- 19. Inspect the vehicle jack in accordance with EMEI Workshop H 149-1.
- 20. Clean the air filter in accordance with EMEI Vehicle A 591-1.
- 21. Inspect the seat belts in accordance with EMEI Vehicle A 548-1.
- 22. Inspect the pintle hook in accordance with EMEI Vehicle A 049-1.

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23. Check the tyre pressures in accordance with EMEI Vehicle A 291-5.
24. Examine the fire extinguisher inspection tag in accordance with EMEI Miscellaneous Equipment Q 208.
25. The panhard rod securing bolt is not to be over-tightened. If the bolt is over-tightened, the bush inner sleeve may collapse. Tighten the bolt to 315 N.m.
26. Carry out a wheel alignment in accordance with EMEI Vehicle G 603.
27. Carry out the head light alignment in accordance with EMEI Vehicle G 603.
28. The crane is to be inspected for useability in accordance with EMEI Vehicle A 028-1 and serviced in accordance with EMEI Vehicle G 629.
29. Road test the vehicle in accordance with EMEI Vehicle A 029-2.
30. A complete Technical Inspection is to be carried out every twelve months in conjunction with all services. A Technical Inspection Report completed or an electronic Inspection Report completed and inserted and entered in Part 2 of the vehicle's GM 120.

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END

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