

TRUCK, FORKLIFT, OFF PAVEMENT, TELESCOPIC LOADER, 3 TONNE MERLO P35.9EV, STANDARD AND FLAMEPROOF

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, Forklift, Off Pavement, Telescopic Loader, 3 Tonne Merlo P35.9EV, Standard and Flameproof. Table 1 details the frequency of each level of servicing and Table 2 details the actions to be performed at each of the levels of servicing. The servicing points are shown in Figure 1.

Associated Publications

2. Reference may be necessary to the latest issue of the following documents:
- a. EMEI Engr Equip A 019 – Servicing of C Vehicles and Material Handling Equipment – Service and Inspections Timings of Engineering Plant and Material Handling Equipment;
 - b. EMEI Engr Equip A 019-1 – Servicing of C Vehicles and Material Handling Equipment – Fluid Sampling;
 - c. EMEI Engr Equip A 020 – C and D Vehicles – Inspection for Useability;
 - d. EMEI Engr Equip T 150 – Truck, Forklift, Off Pavement, Telescopic Loader, 3 Tonne Merlo P35.9EV, Standard and Flameproof – Data Summary;
 - e. EMEI Engr Equip T 156 – Truck, Forklift, Off Pavement, Telescopic Loader, 3 Tonne Merlo P35.9EV, Standard and Flameproof – Authority for Use;
 - f. EMEI Engr Equip T 156-1 – Truck, Forklift, Off Pavement, Telescopic Loader, 3 Tonne Merlo P35.9EV, Standard and Flameproof – Service Manual;
 - g. EMEI Engr Equip T 156-2 – Truck, Forklift, Off Pavement, Telescopic Loader, 3 Tonne Merlo P35.9EV, Standard and Flameproof – Parts Manual;
 - h. EMEI Engr Equip T 156-3 – Truck, Forklift, Off Pavement, Telescopic Loader, 3 Tonne Merlo P35.9EV, Standard and Flameproof – Operation and Maintenance Manual;
 - i. EMEI Engr Equip T 157-1 – Truck, Forklift, Off Pavement, Telescopic Loader, 3 Tonne Merlo P35.9EV, Standard and Flameproof – Strengthening of Fork Carriage Load Backrest – Modification Instruction;
 - j. EMEI Engr Equip T 157-2 – Truck, Forklift, Off Pavement, Telescopic Loader, 3 Tonne Merlo P35.9EV, Standard and Flameproof – Fitting of Grab Handle to the Tyre Compressor Cover – Modification Instruction;
 - k. EMEI Engr Equip T 157-3 – Truck, Forklift, Off Pavement, Telescopic Loader, 3 Tonne Merlo P35.9EV, Standard and Flameproof – Fitting Engine Bell Housing Drain Plug – Modification Instruction;
 - l. EMEI Engr Equip T 157-4 – Truck, Forklift, Off Pavement, Telescopic Loader, 3 Tonne Merlo P35.9EV, Standard and Flameproof – Battery Box Cover Bolt Access – Modification Instruction;
 - m. EMEI Engr Equip T 157-5 – Truck, Forklift, Off Pavement, Telescopic Loader, 3 Tonne Merlo P35.9EV, Standard and Flameproof – Joystick Removal – Modification Instruction;
 - n. EMEI Engr Equip T 157-6 – Truck, Forklift, Off Pavement, Telescopic Loader, 3 Tonne Merlo P35.9EV, Standard and Flameproof – Fitting of Tyre Pressure Decals – Modification Instruction;

- o. EMEI Engr Equip T 157-7 – Truck, Forklift, Off Pavement, Telescopic Loader, 3 Tonne Merlo P35.9EV, Standard and Flameproof – Falling Object Protection Support Mechanism – Modification Instruction;
- p. EMEI Engr Equip T 157-8 – Truck, Forklift, Off Pavement, Telescopic Loader, 3 Tonne Merlo P35.9EV, Standard and Flameproof – Modification of the Boom Safety Lock Device – Modification Instruction;
- q. EMEI Engr Equip T 157-9 – Fitting of Solid Stalk Seat Belts – Modification Instruction;
- r. EMEI Vehicle A 591-1 – Miscellaneous – Inspection and Cleaning of Dry Type Air Cleaners;
- s. DEF(AUST)206F – Petroleum, Oils and Lubricants Handbook;
- t. Material Safety Data Sheets (MSDS) – Product Information Sheets; and
- u. 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>).

General

3. Servicing is based on hours run and/or calendar periods expired. The equipment is to be serviced when any of the specified servicing limits is reached. Unit commanders are permitted to reduce the period between services or add servicing operations to meet extraordinary requirements. A scheduled service may be anticipated or delayed within a limit of plus or minus ten percent of the schedule, to meet operational needs and to assist workshop planning.

Fluid Sampling and Analysis

4. Fluid sampling is used to predict component failure or alleviate the equipment servicing maintenance liability. All systems and components utilising fluid as a transfer medium or for lubrication are subject to fluid sampling and analysis. Fluid sampling is to be carried out in accordance with the Servicing Schedule and is used as an alternative to replacing fluid. Fluid sampling and analysis (Ref EMEI Engr Equip A 019-1) may be carried out:

- a. in lieu of when ‘drain’ or ‘replace’ fluid is stated in the relevant equipment servicing table;
- b. when an internal component fault or failure is suspected; or
- c. when fluid is suspected of being contaminated.

Table 1 Servicing Schedule

Serial	Period
1	Daily
2	Weekly
3	250 hours
4	500 hours
5	1 000 hours or 24 months

NOTE

If an hourly-based service is not carried out within a 24 month period, then a 24-monthly service is to be completed.

Where two types of period are expressed (e.g. 1000 hours or 24 months) the service is to be applied at the expiration of the first occurring period.

During all servicing procedures, bolts and nuts that require re-tightening or adjusting, which have been assembled using Loctite products, are to have the Loctite renewed.

Warranty

5. Equipment while under warranty is to be serviced in accordance with the operator’s manuals and the warranty agreement.

Authority

- 6.** The following personnel are authorised to carry out servicing on the vehicle:
- a.** mechanical systems – ECN 229 (Vehicle Mechanic) or civilian equivalent;
 - b.** electrical systems – ECN 418 (Technician Electrical) or civilian equivalent;
 - c.** welding – ECN 235 (Metalsmith) or civilian equivalent; and
 - d.** a qualified operator, to carry out general servicing under supervision of the tradespersons listed above.

Standard Job

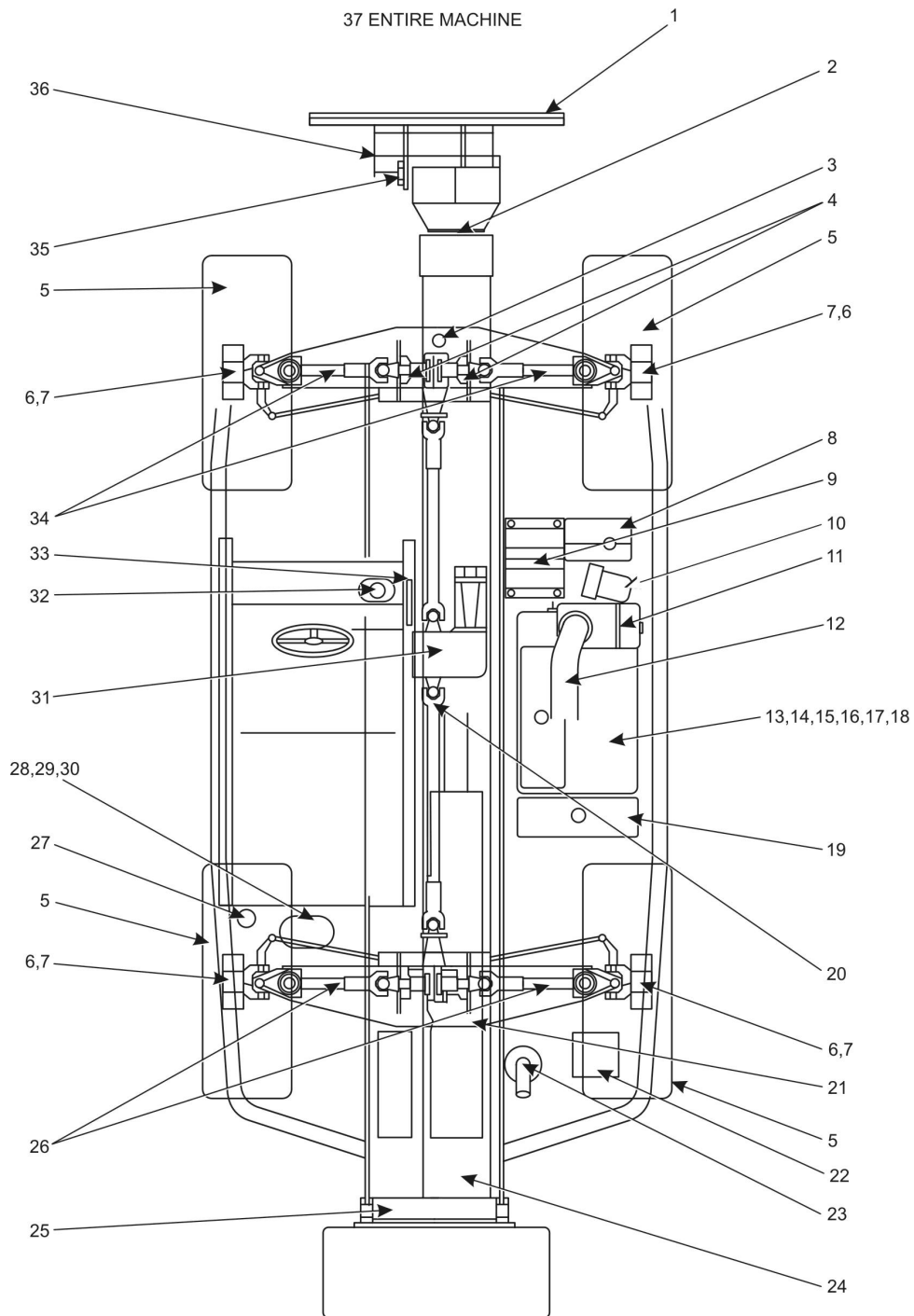
- 7.** All Standard Jobs are held globally within the MILIS system. Refer to EGI ACM100 and ACM120 for the standard jobs for the Merlo Telehandler. Units are to load the respective MST against their units equipment.
- 8.** Standard Job Numbers for the servicing tasks are detailed in Tables 2, 3, and 4.
- 9.** Standard Job Number for through life inspections are as follows:
- a.** Standard variant
 - (1)** Annual - 7128; and
 - (2)** Major – 7710.
 - b.** Flameproof variant
 - (1)** Annual - 6616; and
 - (2)** Major - 7707.

Technical Inspection

- 10.** Regardless of equipment usage, a Technical Inspection is to be carried out by an ECN 229 – Vehicle Mechanic or civilian equivalent, every 12 months in accordance with the TRAMM – Volume 2, Section 4, Chapter 4.

Documentation

- 11.** At the completion of any servicing the vehicle's GM 120 (Record Book of Service Equipment) is to be updated with a record of the service carried out.



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Figure 1 Servicing Points for the 3 Tonne Merlo

Table 2 Servicing Tasks

Serial	Component	Daily	Weekly	250 Hrs	500 Hrs	1 000 Hrs or 24 Months	Remarks or Specifications
Standard Job Flameproof		Nil	Nil	295	296	261/6615	
Standard Job Standard		Nil	Nil	8089	8090	8091/8092	
1	Carriage slide (1)	-	L	L	L	L	XG-291
2	Boom sliding pads (front) (2)	-	L	L	L	L	XG-291
3	Front differential oil (3)	-	-	S, K	S, K	S/D	OEP-220
4	Brake pads (4)	-	I	I	I	I	(Note 2)
5	Tyres (inc spare) (5)	I	I, K	I, K	I, K	I, K	4.8 bar
6	Wheel nuts (5)	I	Q	Q	Q	Q	450 N.m
7	Reduction hub articulation (6)	-	L	L	L	L	XG-291
8	Reduction hub oil (7)	-	-	S, K	S, K	S/D	OEP-220
9	Hydrostatic transmission oil (8)	-	K	S, K	S, K	S/D	Mobil 424
10	Battery electrolyte (9)	K	K	K	K	K	Distilled water
11	Battery terminals (9)	-	-	C	C	C	(Note 2)
12	Transmission oil filter (10)	-	-	-	R	R	(Note 2)
13	Engine air filter (11)	-	C, I	C, I	C, I	R	(Note 3)
14	Air intake hoses (12)	-	I	I	I	I	(Note 2)
15	Fuel filter (13)	-	-	R	R	R	(Note 2)
16	Fuel pre-filter (14)	-	D	D	D	D	(Note 2)
17	Fuel injectors (15)	-	-	-	-	C, I	(Note 2)
18	Valve clearances (15)	-	-	-	-	I, A	(Note 2)
19	Alternator and starter motor (15)	-	-	-	-	I	(Note 2)
20	Engine crankcase vent tube (15)	-	-	-	-	C	(Note 2)
21	Engine drive belts (16)	-	-	I, A	I, A	I, A	(Note 2)
22	Engine crankcase oil (17)	K	K	S/D	S/D	S/D	SAE Grade 40
23	Engine crankcase oil filter (18)	-	-	R	R	R	(Note 2)
24	Engine cooling system (19)	K	K	K	K	F, D	Nalcool
25	Driveshaft universal joints (20)	-	-	I, L	I, L	I, L	XG-291
26	Rear differential oil (21)	-	-	S, K	S, K	S/D	OEP-220
27	Air compressor cooling fins (22)	-	-	-	C	C	(Note 2)
28	Air compressor oil (22)	-	K	S, K	S, K	S/D	SAE Grade 40
29	Air compressor air filter element (22)	-	C	C	C	R	(Note 2)
30	Air compressor intake and delivery valves, and NR valve (22)	-	-	-	-	I, C	(Note 2)
31	Engine exhaust system (23)	-	-	I	I	I	(Note 2)
32	Boom sliding pads (rear) (24)	-	L	L	L	L	XG-291
33	Rear boom pin (25)	-	-	L	L	L	XG-291
34	Rear axle, universal joints (26)	-	-	L	L	L	XG-291
35	Fuel tank (27)	N, K	N, K	N, K	N, K	N, K	Diesel (Note 4)
36	Hydraulic oil (28)	K	K	S, K	S, K	S/D	Mobil 424
37	Hydraulic return filter (29)	-	-	-	R	R	(Note 2)
38	Hydraulic sump bleed filter (30)	-	-	C, I	R	R	(Note 2)
39	Gear box oil (31)	-	-	S, K	S, K	S/D	OEP-220
40	Bell housing drain plug vent hole (31)	-	-	C	C	C	Loctite 567 (Note 5)

Table 2 Servicing Tasks (Continued)

Serial	Component	Daily	Weekly	250 Hrs	500 Hrs	1 000 Hrs or 24 Months	Remarks or Specifications
Standard Job Flameproof		Nil	Nil	295	296	261/6615	
Standard Job Standard		Nil	Nil	8089	8090	8091/8092	
41	Brake fluid (32)	K	K	K	K	R	LHM-S
42	Air ventilation filter (33)	-	C, I	C, I	R	R	(Note 2)
43	Front axle, universal joints (34)	-	-	L	L	L	XG-291
44	Tilt ram pivots (35)	-	L	L	L	L	XG-291
45	Carriage pivots (36)	-	L	L	L	L	XG-291
46	Cap-screws and bolts (37)	-	-	I, Q	I, Q	I, Q	(Note 2)
47	Fuel, oil and air leaks	I	I	I	I	I	(Note 2)
48	Carriage articulation cap	-	-	-	L	L	XG-291
49	Fuel pump filter	-	-	C	C	C	(Note 2)
50	Articulated joints	-	-	I	I	I	(Note 2)
51	Road travel interlock	-	T	T	T	T	(Note 2)
52	Gauges and warning lights	I	I	I	I	I	(Note 2)
53	Lights	T	T	T	T	T	(Note 2)
54	Windscreen washer fluid	K	K	K	K	K	Fresh water
55	Heating/air-conditioner	-	T	T	T	T	(Note 2)
56	Seat and seat belt	I	I	I	I	I	(Note 2)
57	Controls and linkages	I	I	I	I	I	(Note 2)
58	Exhaust system spark arrestor water and additive	R	R	R	R	R	(Note 6) (Note 7)
59	Exhaust system spark arrestor water purifier	-	C	C	C	C	(Note 6)
60	Wiring and enclosure terminations (glands)	-	I	I, Q	I, Q	I, Q	(Note 6)
61	Flameproof enclosure cover screws	-	-	Q	Q	Q	(Note 6)
62	Earth leakage	-	-	-	-	T	(Note 6)
<p>Legend: A – Adjust, C – Clean, D – Drain and refill, F – Flush, I – Inspect, K – Check and top up, L – Lubricate, N – Drain, Q – Torque/tighten, R – Replace, S – Fluid sample, T – Test</p>							
<p>Notes:</p> <ol style="list-style-type: none"> Item numbers in brackets refer to Figure 1. Ref EMEI Engr Equip T 156-3. Ref EMEI Engr Equip A 591-1. Drain water and sediment only. Remove drain plug, clean vent hole and reseal with Loctite 567. Flameproof vehicles only (Ref EMEI Engr Equip T 156-1). In hot climates or prolonged usage, replace water every four hours. 							

Table 3 Drum Clamp Attachment Servicing Tasks

Serial	Component	Daily	Weekly	250 Hrs	500 Hrs	1 000 Hrs or 24 Months	Remarks or Specifications
Standard Job Flameproof		Nil	Nil	295	296	261/6615	
Standard Job Standard		Nil	Nil	8089	8090	8091/8092	
1	Arm pin	-	L	L	L	L	
2	Stopper	-	-	A	A	A	
3	Spring	-	-	-	-	T	
4	Lock screw	-	-	A	A	A	
5	Selloc pin	-	-	-	-	T	
6	Arm assemblies Left/Right	-	-	I	I	I	
Legend: A – Adjust, C – Clean, D – Drain and refill, F – Flush, I – Inspect, K – Check and top up, L – Lubricate, N – Drain, Q – Torque/tighten, R – Replace, S – Fluid sample, T – Test							
Notes:							

Table 4 Fork Carriages Standard/ISO Servicing Tasks

Serial	Component	Daily	Weekly	250 Hrs	500 Hrs	1 000 Hrs or 24 Months	Remarks or Specifications
Standard Job Flameproof		Nil	Nil	295	296	261/6615	
Standard Job Standard		Nil	Nil	8089	8090	8091/8092	
1	Carriage slide	-	L	L	L	L	XG-291
2	Back rest	-	-	I	I	I	
3	Side shift cylinders	-	-	I,C,L	I,C,L	I,C,L	XG-291
4	Fork blades	-	-	I	I	I	
5	Hydraulic Hoses	-	-	I	I	I	
6	Quick connect fittings	-	-	I,L	I,L	I,L	XG-291
Legend: A – Adjust, C – Clean, D – Drain and refill, F – Flush, I – Inspect, K – Check and top up, L – Lubricate, N – Drain, Q – Torque/tighten, R – Replace, S – Fluid sample, T – Test							
Notes:							

END

Distribution List: **Limited – Code 2** (Maint Level)
(Sponsor: CSVSPO, Engr Veh)
(Authority: EC-001076)