

## TRUCK, CARGO, MEDIUM, MC2 - UNIMOG

### INSPECTION/REPLACEMENT OF TAILGATE/SIDEGATE HINGES AND HINGE MOUNTS

## MISCELLANEOUS 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. There have been instances where tailgates have separated from their associated hinge mounts. Subsequent investigation found that a combination of both wear and the mechanical opening of the leaf butt hinge gap (tailgate/sidegate hinge) have caused the tailgates to separate from their tray sub-frame hinge mounts.
2. This instruction details the inspection criteria and the replacement procedure for damaged or worn tailgate/sidegate hinges and hinge mount pins. The original equipment manufacturer has advised that repair is by replacement only. If any tailgate/sidegate hinge or hinge mount pin fails to meet the inspection parameters (Para 10), the tailgate/sidegate and/or vehicle are to be classified accordingly.

### Associated Publications

3. Reference may be necessary to the latest issue of the following documents:
  - a. [EMEI Workshop D 180](#) – Flaw Detection – Non Destructive;
  - b. [EMEI Workshop D 700](#) – Painting of Army Equipment, Basic Painting Principles;
  - c. [EMEI Workshop D 701](#) – Painting of Army Equipment, Repair Policy for Equipment Painted in Polyurethane Paint (PUP);
  - d. [EMEI Workshop E 652](#) – Application and Removal of Polyurethane Paints and Solvents;
  - e. [AS/NZS 1554.1](#) – Structural Steel Welding – Part 1: Welding of Steel Structures;
  - f. [AS 1796](#) – Certification of Welders and Welding Supervisors;
  - g. [AS/NZS 2717.1](#) – ES6-GC/M-W503AH Welding – Electrodes – Gas Metal Arc – Ferritic Steel Electrodes;
  - h. [Defence Safety Manual](#) (SAFETYMAN);
  - i. [Material Safety Data Sheet](#) (MSDS) – product information sheet; and
  - j. [Technical Regulation of Army Materiel Manual](#) (TRAMM).
4. **Authority.** ECO LVSP0 091/08 is the authority to carry out this repair.

### GENERAL

#### Instruction Application

5. This instruction is applicable to the Truck, Cargo, Medium, MC2 - Unimog.

#### Items Affected

6. The items affected include the tailgate/sidegate hinges and associated tray subframe hinge mounts, which may have excessive wear and/or excessive hinge gap due to mechanical opening of the tailgate/sidegate hinge.

#### Authorised Tradespersons

7. Action detailed in this instruction is to be performed only by RAEME or civilian equivalent tradespersons, in workshops authorised to carry out Light, Medium or Heavy Grade repairs, with the following ECNs/qualifications:
  - a. **Inspection.** As a minimum ECNs 229-4, 146-4 or 235-2 or civilian equivalent.

- b. **Removal and Fitting.** ECN 235-2 or civilian tradespersons qualified to Certificate No 8 or Certificate 3E, Gas, Metal, Arc Welding, as per AS 1796 – Welding Certificate Code.

**Welding Process**

- 8. The welding process is as follows:
  - a. **Pre-weld Cleaning.** Pre-weld cleaning is done to remove all surface protective coatings from the repair area for a distance of 25 mm in all directions in accordance with EMEI Workshop D 701. This will include the tailgate hinges if required. Personal Protective Equipment for this procedure is detailed in EMEI Workshop E 652.
  - b. **Workshop Environmental Conditions.** The weld repair area should be maintained at a temperature of not less than 10 degrees C and the temperature of the actual metal should not be less than 20 degrees C.
  - c. **Welding Procedure.** The welding procedure is to be in accordance with AS 1554.1 (SP).
  - d. **Type.** The welding process is to be Gas Metal Arc Welding (GMAW).
  - e. **Joint Position.** The joint position will be a 6 mm single run fillet weld horizontal 2F and vertical 3F/PF.
  - f. **Shielding Gas.** The shielding gas is Argoshield Light (composition is Argon + 5% CO<sub>2</sub> and + 3% O<sub>2</sub>) with a flow rate of 15-20 L/min.
  - g. **Inspection of Welds.** A visual inspection of the repair is required during the preparation and setting up of the joint to ensure alignment. After welding a visual inspection is to be conducted for any weld defects. If a Dye Penetrant Inspection is required the procedure is detailed in EMEI Workshop D 180.

**Stores Required**

- 9. **Consumables.** The stores required are the welding consumables (filler wire) to meet AS 2717.1 ES6-GM-W503AH (Autocraft LW1-6) - 0.9 mm wire.

**DETAIL**

- 10. **Inspection Criteria.** Visually inspect all tailgate/sidegate hinges and hinge mounts for signs of damage, deformation or cracking and replace them as required. Using suitable precision measuring equipment, measure the diameter of the hinge mount pivot pin along its length where the hinge rotates when fitted. If the diameter is less than 16.7 mm the hinge mount must be replaced (Figure 1). Measure along the opening of the hinge, if the gap of the hinge is greater than 14.5 mm the hinge must be replaced (Figure 2). All dimensions are in millimetres unless stated otherwise.

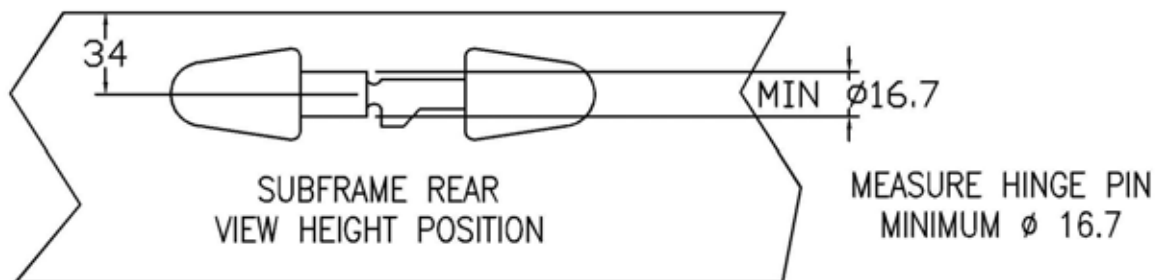


Figure 1 Hinge Mount Pivot Pin

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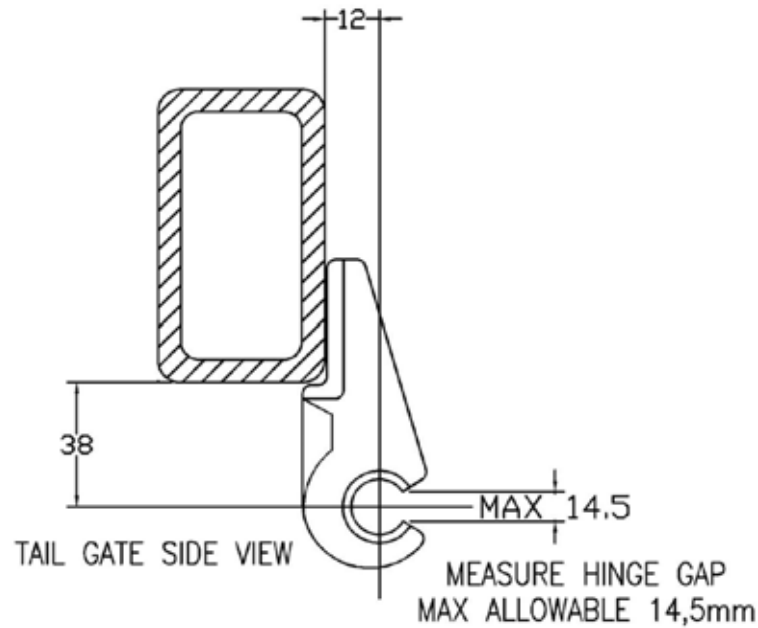


Figure 2 Hinge Gap

### Repair Procedure

#### WARNING

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

Precautions should be taken prior to carrying out repairs which include painting, sanding, scraping or welding. Refer to EMEI Workshop:

**D 701 – Repair Policy for Equipment Painted in Polyurethane Paint ;and**

**E 652 – Application and Removal of Polyurethane Paints and Solvents.**

11. **Removal.** Should the hinge or hinge pin fail the inspection criteria in Para 10, proceed as follows:
  - a. Mark the position of the the tailgate/sidegate hinge and/or the hinge mount to enable fitting of the replacement items to the same position.
  - b. Remove the hinge and/or hinge mount by cutting the hinge and/or the hinge mount as close as possible to the welds without damaging the base material and remove them.
  - c. Buff away the excess weld and paint ensuring no penetration into the base material.
12. **Installation.** Position the new item/s and weld in accordance with Para 8 (Figures 1, 2, 3 and 4).

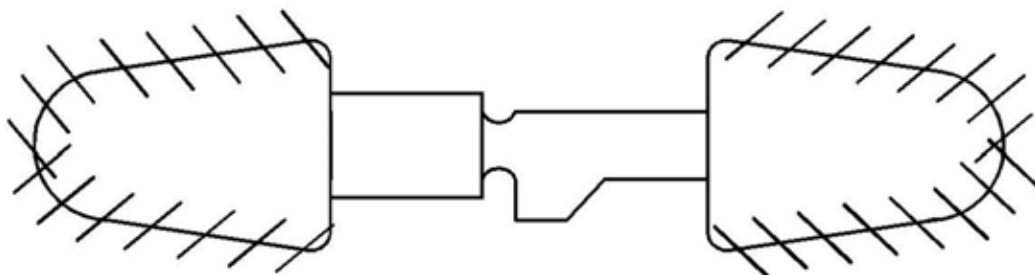
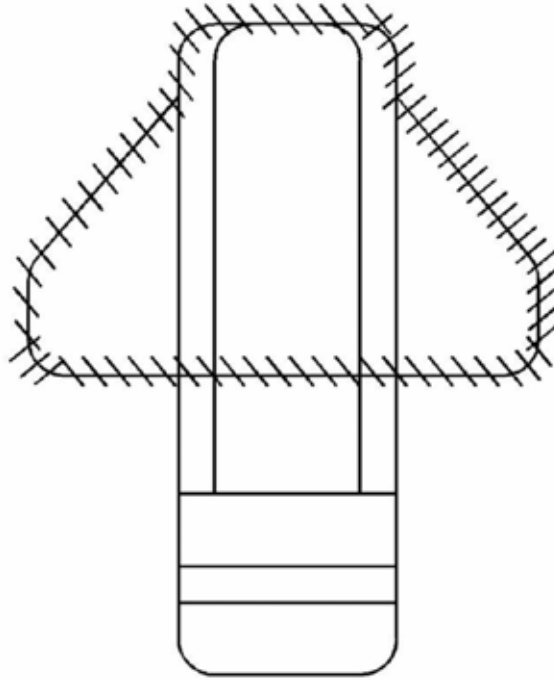


Figure 3 Hinge Mount Weld



**Figure 4 Tailgate/Sidegate Hinge Weld**

13. Touch-up any affected paint surfaces in accordance with EMEI Workshop D 700.
14. **Documentation.** A weld data sheet for this repair is to be compiled and entered in part 4 of the Record Book for Service Equipment GM 120. A copy of a Weld Data Sheet can be located in EMEI Workshop J 003.

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**END**

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