

TRUCK, LIGHTWEIGHT AND TRUCK, LIGHT – ALL TYPES – LAND ROVER 110 4X4 AND 6X6

RECTIFICATION OF RADIUS ARM MOUNTS ON FRONT AXLE HOUSING

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. Most 4X4 and 6X6 variants were originally manufactured using front axle housings that have narrow type radius arm mounting brackets (i.e. 49 mm between the locating plates). Axles have been supplied as replacement parts having wide type radius arm mounting brackets (i.e. 55 mm between the locating plates) that make them unsuitable for use on vehicles originally fitted with axles having narrow type mounting brackets, unless they have been converted.
2. This instruction details the procedure to be used to convert wide type radius arm mounting brackets to the narrow type. This incorporates additional spacers to the inside of the locating plates on axle housings with wide type mounting brackets to convert them to narrow type mounting brackets. In future, axle housings supplied by Land Rover Australia as spare parts will have the spacers incorporated before delivery.
3. Whilst in service, both types of axle housing (i.e. with wide and narrow type radius arm mounting brackets) have had wear detected in the mounting bracket locating plate holes. This wear has caused the holes to elongate. EMEI Vehicle G 189-11, EMEI Vehicle G 104-1, and EMEI Vehicle G 204-1 authorise a reclamation process to weld a collar and a locknut to the mounting bracket plates in order to prolong axle life. These EMEI limit reclamation to narrow type axle housings.
4. These EMEI are still the authority to reclaim the locating plates on the narrow type radius arm mounting brackets.
5. The process of incorporating spacers with the inside of the locating plates to reduce the internal width of the opening is considered to be a satisfactory method of reclaiming worn locating plate holes. This rectification action will require that the collars and locknuts previously installed as part of the reclamation process are removed, if present, and replaced with the new spacers fitted inside the locating plates.

AUTHORITY

6. This procedure is a medium grade maintenance action. It is intended that this procedure be performed primarily during rebuild of the front axle assembly at Heavy Grade Repair facilities. Maintenance organisations that are authorised to conduct Medium Grade Repairs to Land Rover vehicles may also conduct this procedure to stocks of front axle assemblies with the following NSNs prior to installation in a vehicle:
 - a. 2520-66-128-4250;
 - b. 2520-66-128-4251;
 - c. 2520-66-128-6136; and
 - d. 2530-66-141-6078.
7. If the conversion cannot be completed for any reason by a Medium Grade Repair facility, the existing practice of using spacers is to be followed.

Associated Publications

8. Reference may be necessary to the latest issue of the following documents:
 - a. [AS 4882](#) Shielding Gases for Welding;
 - b. [AS/NZS 1554.1:2004](#) Structural Steel Welding – Part 1: Welding of Steel structures;
 - c. [AS/NZS 2717.1](#) ES6-GC/M-W503AH Welding – Electrodes – Gas Metal Arc – Ferritic Steel Electrodes;

- d. [AS/NZS 4855](#) Welding Consumables – Covered Electrodes for Manual Metal Arc Welding of Non-alloy and Fine Grain Steels;
- e. [EMEI Vehicle G 104](#) Truck, Utility, Lightweight and Truck, Utility, Lightweight, Winch, MC2 – Land Rover 110, 4x4, Medium Grade Repair;
- f. [EMEI Vehicle G 189-11](#) Truck, Lightweight, MC2 – Land Rover 110, 4x4 and Truck, Light, MC2 – Land Rover, 110, 6x6, All Types – Reclamation of Panhard Rod and Lower Link Mounts;
- g. [EMEI Vehicle G 204](#) Truck, Cargo, Light and Truck, Cargo, Light, Winch, MC2 – Land Rover 110, 6x6, Medium Grade Repair;
- h. EMEI Workshop J Series – Welding and Cutting Equipment;
- i. [Defence Supply Chain Manual](#) (DSCM)
- j. [Defence Safety Manual](#) (SAFETYMAN) – Vol 1, Part 5, Chap 1 – Management of Hazardous Substances – Excluding Explosives and Radioactive Materials;
- k. [Material Safety Data Sheet](#) (MSDS); and
- l. [Technical Regulation of Army Materiel Manual](#) (TRAMM).

GENERAL

Application

9. This rectification procedure is to be applied to wide type radius arm mounting brackets.

Action Required

10. Actions detailed in this instruction are to be performed by technical maintenance organisations authorised to perform Medium Grade Repairs. Actions are only to be performed by the following qualified tradespeople:
- a. ECN 235-2, Metalsmith;
 - b. RAAF Ground Welder; or
 - c. a civilian equivalent.
11. All welding workmanship is to be in accordance with the guidelines stated in AS/NZS 1554.1, Section 5.
12. All welds produced during implementation of this instruction are to be visually inspected, in accordance with AS/NZS 1554.1, Section 6, Table 6.2.2 (SP).

Estimated Workhours

13. For initial planning purposes only, it is estimated that it will require 1.25 workhours to perform this conversion.

Stores Required

14. The stores required are detailed in Table 1 and should be ordered on an as required basis. The spacers (Table 1, Item 1) can be purchased as an NIC item through Land Rover dealers or agents. If this is not possible they can be manufactured by the Unit, in accordance with the provisions of the TRAMM for Local Manufacture of Technical Components (Volume 3, Section 2, Chapter 4).

Table 1 Stores Required

Item	NIIN	Manufacturers Part No	Description	Qty Per Equipment
1	NA	STC 2957	Spacer, Mild Steel, 50 mm od x 16.3 mm id x 3.7 mm thick	8
2	99-941-0365	BH 610321	Bolt, 5/8 in UNF, 4 in lg	4
3	66-147-5678	NA	Paint, Primer, Zinc Phosphate (APAS 0162/1)	As required
4	66-148-1737	NA	Paint, Black (APAS 0165/1)	As required

WARNING

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

DETAIL

NOTE

Prior to carrying out the procedures detailed in this EMEI, ensure that the front axle is removed from the vehicle in accordance with Para 8.e. and 8.g.

15. Carry out the following procedure:

- a. Place the axle housing on a suitable bench and support it so that it will not move or become unstable during the repair.

WARNING

The use of grinding or sanding equipment may cause personal injury.

- b. Remove all surface protection coatings from the repair area for a distance of 25 mm in all directions, using either a grinder, sander or file.
- c. Fit Items 1 and 2 from Table 1 to the axle assembly mounts, as shown in Figure 1, using the bolt to align the holes in the spacer with the holes in the locating plates. Clamp the spacers in position against the inside surface of the locating plates and remove the bolt.

NOTE

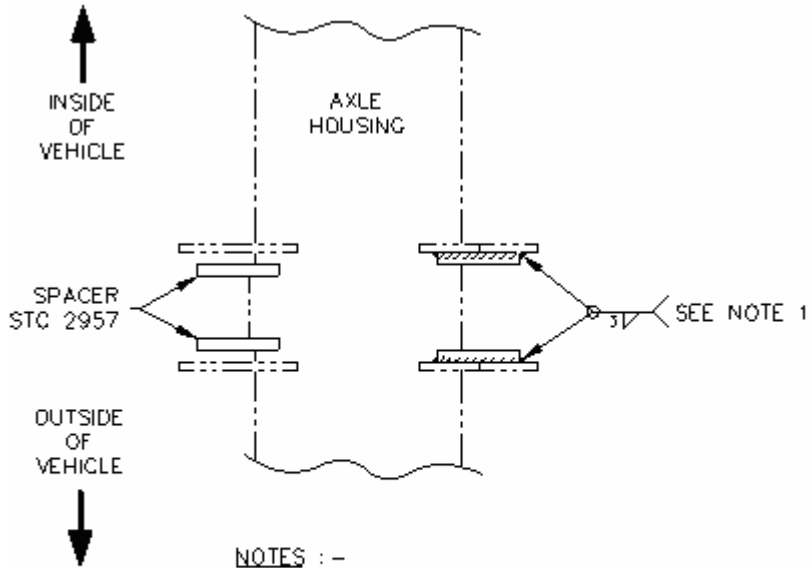
Ensure the spacer holes are aligned with the mounting plate holes before welding the spacers into position.

- d. Tack weld the spacers in position using the consumables specified in Para 15.f.
- e. Remove the clamps.
- f. Weld the spacers to the inside surfaces of the mount plates, as shown in Figure 1, with a 3 mm continuous fillet weld using either of the following processes:
 - (1) the manual metal arc welding (MMAW) process using electrodes that conform to AS/NZS 4855: E4819; or
 - (2) the gas metal arc welding (GMAW) process using consumables that conform to AS/NZS 2717.1: ES6-GC/M-W503AH and using shielding gas that conforms to AS 4882:SG-ACO-16/2.75.
- g. If the radius arm mounts have been previously reclaimed by welding a collar and nut to the outside of the locating plates (Figure 2), remove them using a grinder. Take care not to remove parent metal from the locating plates.

NOTE

Ensure any collars and nuts that have been welded to the outside of the locating plates, as part of previous reclamation work, are removed.

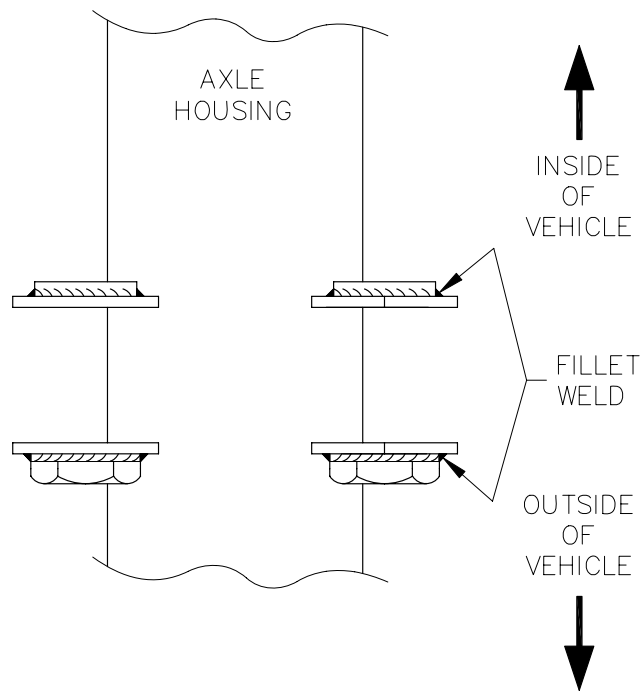
- h. The completed repair area is to be patch painted with zinc phosphate primer (Table 1, Item 3) and black paint (Table 1, Item 4).



- NOTES :-
1. EDGE IS TO BE BUILT OUT TO ENSURE DESIGN THROAT THICKNESS (2.1) IS ACHIEVED.
 2. NEW WORK IN FULL LINE EXISTING WORK IN CHAIN LINE

TDC3301-1

Figure 1 Adding Spacers to Radius Arm Mounts



TDC3301-2

Figure 2 Radius Arm Mounts Showing Previous Reclamation Work to be Removed

END

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