

TRUCK, TANK, WATER, HEAVY, MC3, MACK
REPLACEMENT WATER PUMP, DRIVE COUPLING AND DRIVE MOTOR

MODIFICATION 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 instruction details the fitting of a new bulk water pump and associated components to the Truck, Tank, Water, Heavy, MC3 Mack R series NSN 2320-66-112-8853.
2. **Associated Publications.** Reference may be necessary to the latest issue of the following documents:
 - a. Current version of the Technical Regulation of Army Materiel Manual (TRAMM) (available from DTR-A website <http://intranet.defence.gov.au/armyweb/Sites/DTRA>);
 - b. TRAMM, Volume 3, Section 2, Chapter 2, Fleet Engineering Change Management Process;
 - c. Defence Supply Chain Manual (DSCM), Volume 4, Section 3 – Supply Management Processes, Stores Accounting General (DSCM website <http://dknl009.car.defence.gov.au/dscm/index.htm>); and
 - d. DSCM, Volume 6 – Manage Repairable Items; and
 - e. RPS 02168 – Distributor, Water, Tank Type, Truck Mtd, 8 Tonne Chassis
3. **Authority.** BLD ECO 038/04 is the authority to carry out this modification.

GENERAL

4. **Modification Application.** This modification is to be applied to all stocks of NSN 66-112-8853 after failure of any of the three components listed within Paragraph 5, below. The Mack R series TTW are fitted with a wide variety of water pumps, couplings and drive motors. This modification involving change-out of failed components will lead to improved fleet standardisation and simpler ongoing maintenance.
5. **Items Affected.** This modification alters the following assemblies:
 - a. the bulk water pump, RPS 02168, Group W;
 - b. the hydraulic drive motor, RPS 02168, Group WFA; and
 - c. the pump shaft drive coupling, RPS 02168, Group WFB.
6. **Priority – Group 2.** This modification is to be conducted upon failure or during change-out of any of the currently fitted components listed within Paragraph 5 above.

NOTE

Where modification would delay priority issues of depot or pool stock, equipment may be issued unmodified providing the equipment record book is endorsed appropriately.

7. **Action Required.** Actions detailed in this instruction are to be performed by technical maintenance organisations authorised to carry out Light, Medium or Heavy Grade Repairs.

NOTE

On receipt of this instruction, enter all relevant information other than date completed in the modifications section of the GM 120 – Record Book for Service Equipment.

8. **Task Recording.** The conduct of this modification is to be recorded in a SDSS Work Order using MMM Standard Job Number **8109**.

9. Estimated Workhours. For initial planning purposes only, it is estimated that this modification will take three hours to perform.

10. Stores Required. The stores required are listed in Table 1. All stores are to be demanded through normal supply channels.

Table 1 Stores Required

Item	NSN	Mfr Part No	Designation or Description	Unit of Issue	Qty per Equip
1	66-158-2667	PSFC1-C	Southern Cross 80x50x200 ISO Sovereign Centrifugal pump	ea	1
2	66-158-2670	FM-33-1-2	Southcott FM Series hydraulic drive motor	ea	1
3	66-158-2695	GM38 / E	Nylon drive element	ea	1
4	66-158-2692	GM38 / 74	Steel drive hub -	ea	1
5	66-158-2678	GM38 / 14	Steel drive hub -	ea	1

11. Items to be Removed. The items to be removed are listed in Table 2. All stores removed are to be processed in accordance with DSCM, Volume 4, Section 3 – Supply Management Processes, Stores Accounting General.

Table 2 Items to be Removed

Item	NSN	Mfr Part No	Designation or Description	Qty per Equip
1	66-123-2392	6308A	Pump, centrifugal, water, 3 inch, SPD	1
2	66-043-6604	26M42A1C20	Motor, hydraulic	1
3	66-123-2409	HRC 130 HF	Coupling, shaft, flexible	1

DETAIL

12. Removal of Existing Components. The procedure is as follows:

- a. Remove the bolts connecting the two pipe flanges to the inlet and outlet ports of the water pump. The gaskets can be reused with the new water pump.
- b. Remove the protective cover over the drive coupling.
- c. Disconnect the hydraulic hoses on the hydraulic drive motor. Lift the hoses vertically and secure them to the hydraulic oil reservoir to avoid spillage. Use a spill bucket to catch any lost hydraulic oil.



Clearly mark the hydraulic hoses to enable their correct reconnection.

- d. Remove the two bolts connecting the hydraulic drive motor to the pump framework.
- e. Undo the grubscrew on the drive coupling hub situated on the drive motor shaft.
- f. Remove the drive coupling and the hydraulic drive motor from the pump framework.
- g. Remove the nylon drive cog and drive coupling from the water pump shaft.
- h. Remove the mounting bolts on the water pump base.
- i. Remove the water pump leaving the mounting plates. The unit is now fully stripped.

13. Installation of Replacement Components. The procedure is as follows:

- a. Fit the Southern Cross water pump (Item 1, Table 1) onto the mounting plates on the pump framework. Do not completely tighten the mounting bolts at this stage.

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- b.** Fit the water pump drive hub (Item 4, Table 1) to the pump shaft flush with the end of the shaft. Ensure the drive hub teeth are facing to the left. Fully tighten the grub screw to lock the drive hub in position.
- c.** Fit the hydraulic drive motor drive hub (Item 5, Table 1) to the motor shaft flush with the end of the shaft. Ensure the drive hub teeth are facing to the right. Fully tighten the grub screw to lock the drive hub in position.
- d.** Slip the nylon drive element (Item 3, Table 1) over the drive hub on the water pump shaft.
- e.** Slide the hydraulic drive motor through the side mount hole and line up the drive hub on the end of the shaft to slip inside the nylon drive element.
- f.** Refit the two bolts to attach the hydraulic drive motor to the pump frame and tighten them.
- g.** Gently tighten the pump base mounting bolts. While tightening these bolts, check that the nylon drive element can move freely on the drive coupling hubs. It may be necessary to shim the left hand mount on the water pump to achieve correct alignment.
- h.** Correct alignment is achieved when the nylon drive element can slip slightly left and right across the drive hub teeth when the hydraulic drive motor and water pump mounting bolts are fully tightened.
- i.** Refit the guard over the assembled drive coupling. Ensure all mounting bolts are tightened.
- j.** Reconnect the inlet and outlet pipe flanges to the water pump using new gaskets if required.
- k.** Reconnect the hydraulic hoses to the hydraulic drive motor. Ensure the hoses are reconnected to the corresponding ports (see Paragraph 12. (c) above).
- l.** Top up the hydraulic oil reservoir if necessary.
- m.** Open the water tanker valves to deliver water to the pump, and the system is now ready for use.



On initial start up of the pump system it may take several seconds for the pump to purge itself of air before actual water flow occurs.

14. Recording Action. On completion of the modification, the following action is to be taken in accordance with TRAMM, Volume 3, Section 2, Chapter 2, Annex D:

- a.** Deface the number 55 on the modification record plate.
- b.** Complete the modification details in the GM 120 – Record Book for Service Equipment.
- c.** Forward the modification completion details using form GM 119 – Advice of Change in Build State (TRAMM, Volume 3, Section 2, Chapter 3, Annex C) to:

Fleet Manager
Mdm/Hvy B Veh Fleet
CGSVSPO, DMO
DPM
661 Bourke St
MELBOURNE VIC 3000

END

Distribution List: **VEH G 55.0 – Code 2** (Maint Code)
(Sponsor: CGSVSPO, Mdm / Hvy B Veh Fleet)