



Advanced Braking Pty Ltd

Technical Bulletin – TBN-023

Product: LCV1

Subject:

Motor Upgrade (Marine Grade) for EMMA Pump

Change Revision

Issue Revision	Issue Date	Comments
00	12-MARCH-2007	INITIAL RELEASE
01	23-FEB-09	P/N's REVISED.



Technical Bulletin – TBN-023

Product: EMMA Hydraulic Pump

Subject: Marine Grade Motor Installation

Summary:

In wet and corrosive environments, water can ingress the standard motor supplied with the EMMA pump. This TBN details fitment of a marine grade motor with an increased IP rating and therefore improved resistance to water ingress.

The marine grade motor is of a slightly different internal construction: series wound rather than permanent magnet type of the standard motor. As such, the current drawn by the motor is greater than the standard pump. Therefore a relay capable of drawing larger currents must also be fitted with the motor.

ABT have a kit (02-5000) that includes all the necessary components to install the motor and relay to standard EMMA units fitted to SIBS on all 70 series Toyota Landcruisers. Contact ABT Customer Service Dept for information regarding fitment to other vehicles.

Equipment Required.

- Marine Grade Motor Upgrade Kit (Safe Effect P/N 02-5000). This contains:
 - 1 x Marine grade motor (ABT P/N: 02-7019)
 - 1 x Spacer
 - 1 x Relay 12V (100A continuous /400A inrush). (ABT P/N: 02-7053)
 - 2 x Bolt M6
 - 2 x Bolt 3/8" x 1 1/2" LG
 - 2 x Nut M6
 - 2 x Washer flat M6
 - 2 x Washer spring M6
 - 2 x Washer flat M10
 - Terminal (mm eye)

- Plasti-Dip (Safe Effect P/N 00-3600)
- General Hand Tools



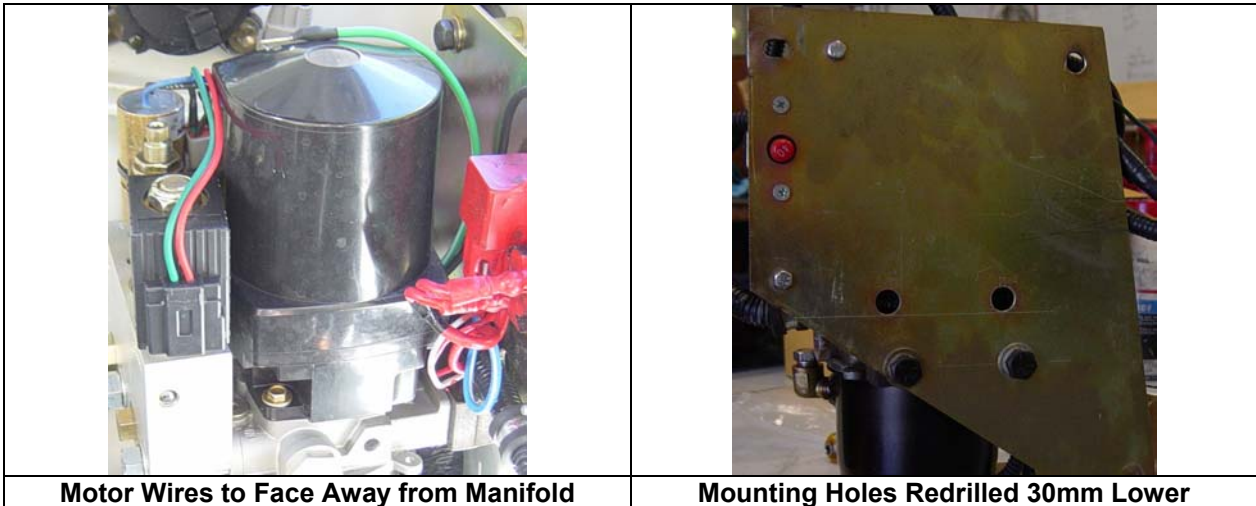
AM Series Wound Motor (Marine Grade)



AE Permanent Magnet Motor to be Replaced

Conversion Procedure.

1. Remove EMMA pump from vehicle.
2. Remove the old motor from the EMMA pump.
3. Fit the AM motor to the EMMA pump, ensuring that the wires are facing rearward, away from the manifold.



4. Redrill the pump mounting holes in the EMMA Pump Mounting Bracket 30mm lower. The marine grade motor is taller, so the pump needs to be mounted lower to clear the bonnet of the vehicle.
5. Bolt the pump to the bracket using two stacks of 12 washers to space the pump 20mm from the bracket, and the two 3/8UNC x 1 1/2" bolts and spring washers.
6. Remove the existing relay.
7. Mount the new relay. Drill new holes if required. Note the replacement relay looks substantially different to the automotive relay it replaces.



8. Remove the female spade from the harness side of the 5.0mm thick red wire. This is the wire coming from the circuit breaker and supplies the current draw to the motor via the relay. Crimp a 9mm eye terminal to this wire. Note the replacement relay has studs
9. To the motor wires, ensure a 9mm eye terminal is on the BLUE wire.
10. The GREEN wire from the motor is not used, and should be trimmed and insulated.
11. The BLACK wire from the motor is the earth, and should be connected under one of the bolts fixing the mounting bracket to the vehicle
12. Install the 6.4mm spades of the red and grey wire to the new relay. The order in which these wires are connected is not critical
13. Install the larger 9mm eye terminals from the circuit breaker and the pump to the top of the relay. Locate with nuts provided. Refer to the wiring diagram (available in the manual) if required.
14. Refit the EMMA pump assembly to the vehicle.
15. Test operation.
16. Coat all exposed terminals with plasti-dip once correct operation is confirmed.

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