



No: 97117-197
Subject: PRIMAAX TORQUE ADAPTOR
Date: SEPT - 2008 Revision: C

INTRODUCTION

1. Technical bulletins 97117-157-D and 97117-196-A were recently released to highlight that the correct application of torque to the Primaax Suspension is crucial. To assist maintenance personnel to apply the correct torque during initial build, pre-delivery inspection, first service and maintenance activities, a torque adaptor has been developed by Hendrickson Asia Pacific, refer to figure 1.

PRIMAAX TORQUE ADAPTOR PART NUMBER: 98596-015

Figure 1.



Note: The Torque Adaptor is designed to be used with a 3/4 inch drive ratcheting torque wrench

DISCUSSION

2. This tool is specifically designed to enable operators and maintainers to torque the Primaax main beam to cross tube and torque rod to top pad bolts without removing the vehicle wheel ends. Access to these fasteners on vehicles fitted with rigid bodies may not be available therefore; access must be made from underneath the vehicle, by way of a hoist or pit.

3. The Primaax torque adaptor increases mechanical advantage to the torque wrench and therefore the applied torque of 780 N.m to the main beam to cross tube and torque rod to top pad bolt connection **MUST** be calculated to match with the length of torque wrench used by the technician. The following two options are available to calculate the setting on the torque wrench:

1. **Automatic Torque Value Calculation**
2. **Manual Torque Value Calculation**

The User is responsible for any errors or damages that result from miscalculation. You must verify that the values obtained from the formula are accurate before using them in any critical application.

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Automatic Torque Value Calculation:

4. Automatic calculation of the torque wrench setting torque can be calculated by referring to the Norbar Calculation at:

<http://www.norbar.com.au/Calculators/TorqueWrenchExtensionCalculator/tabid/279/Default.aspx>

Enter the required L1, L2 and M2 data. The desired torque shall be automatically calculated. In the event that access to the Norbar automatic calculator is not possible manual calculation is required in accordance with the procedure at paragraph five (5).



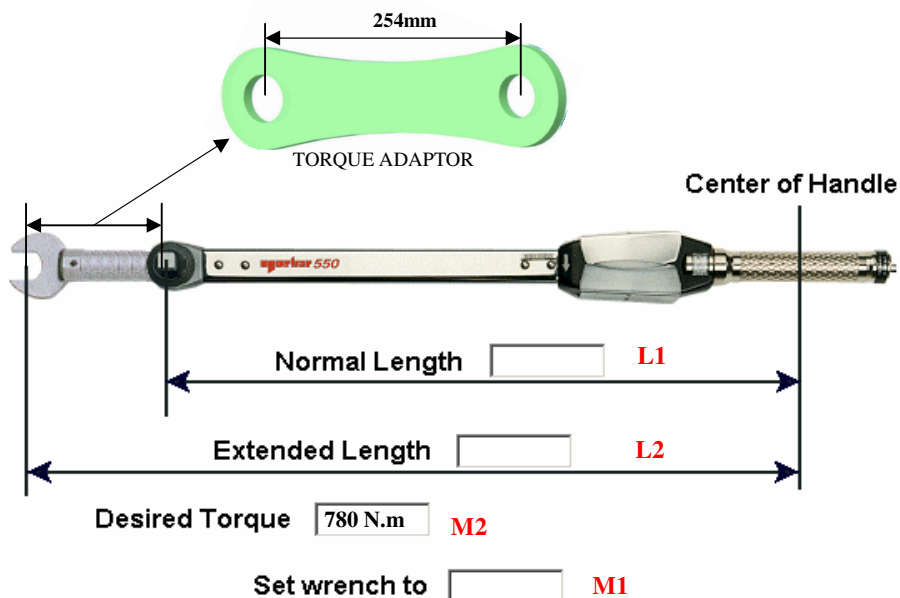
The Primaax torque adaptor must be placed directly in line with the torque wrench to ensure the setting required torque of 780 N.m is applied to the fastener. Failure to place the torque adaptor directly in line with the torque wrench may result in incorrect torque applied to the fastener and may result in personal injury or damage to the equipment.



The correct calculation of the desired torque is dependant on entering the correct information into the Norbar calculator. Failure to calculate correctly may result in incorrect torque applied to the fastener and may result in personal injury or damage to the suspension components.

The illustration detailed in figure 2, shows the fixed parameters and a measurement guide to assist you with the formula detailed above.

Figure 2



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Manual Torque Value Calculation.

5. The torque setting of the torque wrench, when used in combination with the torque adaptor, can be calculated using the following formula:

$$\text{Formula: } M1 = \frac{L1}{L2} \times M2$$

Where:

M1 is the calculated torque setting with the tension wrench fitted with the Primaax torque adaptor Part No. 98596-010.

M2 is the desired torque applied to the fastener.

L1 is the normal length of the torque wrench when not fitted with the Primaax torque adaptor.

L2 is the length of the torque wrench plus the length of the extension arm (254 MM). Note the length of the torque wrench is measured from the centre of the hand grip to the centre of the torque wrench drive.

For Example: To calculate M1 with a torque wrench that has a length of 960 MM the following procedure is recommended:

L1 = 960 mm

L2 = 1214 (torque wrench length of 960mm plus the extension arm of 254 mm)

M2= 780 N.m actual Torque Desired

Therefore: L1 (960mm) divided by L2 (1214mm) = 0.790774 Multiplied by M2 (desired torque at hardware, 780N.m) = 620N.m

In the above example the torque should be set at 620 N.m, (when using the torque adaptor) to achieve the desired applied torque of 780 N.m.

 **CAUTION**

The Primaax torque adaptor must be placed directly in line with the torque wrench to ensure the setting required torque of 780 N.m is applied to the fastener. Failure to place the torque adaptor directly in line with the torque wrench may result in incorrect torque applied to the fastener and result in personal injury or damage to the equipment.

To purchase the Primaax Torque Adaptor please contact HAPL Customer service on 03 8792 3600.or fax your purchase order to customer service on 03 8792 3697

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