



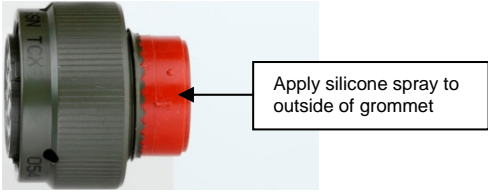

## WORK INSTRUCTION FOR THE INSTALLATION AND TORQUE TIGHTENING OF ADAPTORS

WORK INSTRUCTION ASQAW0002	ISSUE	2	DATE: 25/09/2008
REVIEWED AND APPROVED BY	NAME	K.SHEPPARD	DATE: 25/09/2008

No	Process Description	Key Points	Comments / Details
1.	Performance Objective	This code of practice is produced to support operators already trained in the installation of heat shrinkable products and harnessing components. It identifies the installation procedure to be used when installing adaptors onto circular electrical connectors, to consistently tighten adaptors to specified torque figures in a controlled manner.	
2.	Adaptor Materials and Finishes	All adaptor types use the same torque tightening procedure with the exception of parts with Zinc Cobalt plating which require lubricating and Loctiting during assembly, as specified within this document.	<i>Adaptors with a Zinc Cobalt finish are identified with the code "ZB" within the part number.</i>
3.	Materials and Equipment	Connector Adaptor Connector Holder (consult Sales Office for details) TG69 soft jaw pliers (consult Sales Office for details) Torqueleader ADS 25 torque wrench (consult Sales Office) 3/8" to 1/4" square drive converter Loctite™ 243 (as required) Rocol Precision Silicone Spray (product code 20646) (as required) WD-40 lubricant (Zinc Cobalt plated adaptors only) 4mm artist flat end brush (Zinc Cobalt plated adaptors only)	<i>Information on Loctite™ can be found at <a href="http://www.loctite.com">www.loctite.com</a></i>  <i>Information on Rocol products can be found at <a href="http://www.rocol.com">www.rocol.com</a></i>  <i>Information on WD-40 can be found at <a href="http://www.WD40.com">www.WD40.com</a></i>

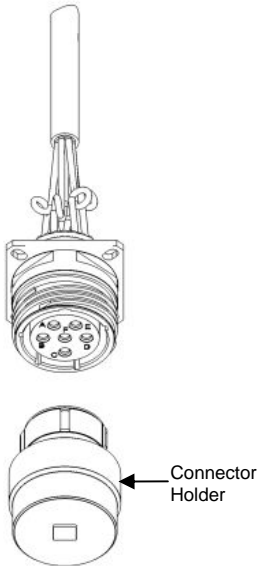


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4.	Health and Safety	<ul style="list-style-type: none"> <li>Adhere to local codes and regulations relating to safe working practices.</li> <li>Adhere to the Manufacturer's Safety Data Sheet for the use of lubricants.</li> <li>Assemble parts in a well ventilated area.</li> </ul>	<p><i>For the U.K. adhere to the requirements of the Health and Safety Act 1974 and subsequent amendments.</i></p>
5.	Procedure	<p><u>Connectors with Grommets</u>                      Where a rubber grommet is used with the connector / adaptor it is recommended to apply a light coating of silicone spray to the outside of the grommet, if required, to ease assembly (see Detail 1)</p> <p><u>Zinc Cobalt Plated Adaptors</u>                      Using a 4mm artist flat end brush (or similar), apply a light coating of WD-40 lubricant to the rear of the adaptor spin nut (see Detail 2).</p> <p>This method avoids excessive WD-40 contaminating other areas of the adaptor, such as the coupling nut knurl.</p>	<div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Detail 1</p> <p><i>If using Loctite to secure adaptor, do not allow silicone spray or WD-40 onto the connector thread, as it can affect the Loctite curing.</i></p> </div> </div> <div style="display: flex; align-items: center; margin-top: 20px;">  <div style="margin-left: 10px;"> <p>Detail 2</p> </div> </div>



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5.	Procedure (cont.)    Figure 1	<p><u>All Adaptors</u></p> <ol style="list-style-type: none"> <li>1. Apply a globule of Loctite™ to the first 2 to 3 threads of the connector accessory thread as per Process 7, if required.</li> <li>2. Finger tighten adaptor onto connector thread, ensuring no wires are trapped.</li> <li>3. Set the torque wrench's max torque indicator to the appropriate value for the connector shell size, as table 1.</li> <li>4. Locate the connector holder on the mating face of the connector.</li> <li>5. Locate the torque wrench on the connector holder.</li> <li>6. Hold the adaptor spin-coupling nut with the TG69 pliers. Do not use excessive grip.</li> </ol>	<p><i>Loctite is mandatory for Zinc Cobalt plated adaptors</i></p> <p><i>Feel for the positive alignment and meshing of the anti-rotation teeth by gently twisting the adaptor follower back and forth.</i></p> <p><i>Always ensure that the torque wrench is calibrated.</i></p> <p><i>Ensure equipment used for torque application will not scratch or damage the connector or adaptor, particularly the connector mating face.</i></p>



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5.	Procedure (cont.)	<p>Figure 2</p> <p>7. Tighten adaptor spin-coupling nut with the pliers. When the nut begins to tighten, relax grip and rotate tool back 90°, then resume grip and continue to tighten. Repeat this operation until the applied torque reaches the max torque indicator. Do not exceed this torque value.</p>	<p><i>It is recommended that the pliers' jaws are regularly checked for excessive wear and replaced if necessary.</i></p>



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5.	Procedure (cont.)	<p><u>Style 2 Adaptors</u></p> <p>In cases where the cable bundle or jacket diameter is greater than the adaptor throat diameter (which is controlled by the connector shell size), a Style 2 assembly may be supplied.</p> <p>The assembly will consist of a standard adaptor of a larger shell size than the connector and a Style 2 adaptor which creates the interface between the larger adaptor and the connector.</p> <p>Figure 3 - Assembly Sequence for Style 2 Assemblies</p>	<p><i>The component adaptors are installed individually, following the above instructions.</i></p> <p><i>The installation procedure is repeated for the secondary adaptor using the same torque setting.</i></p>



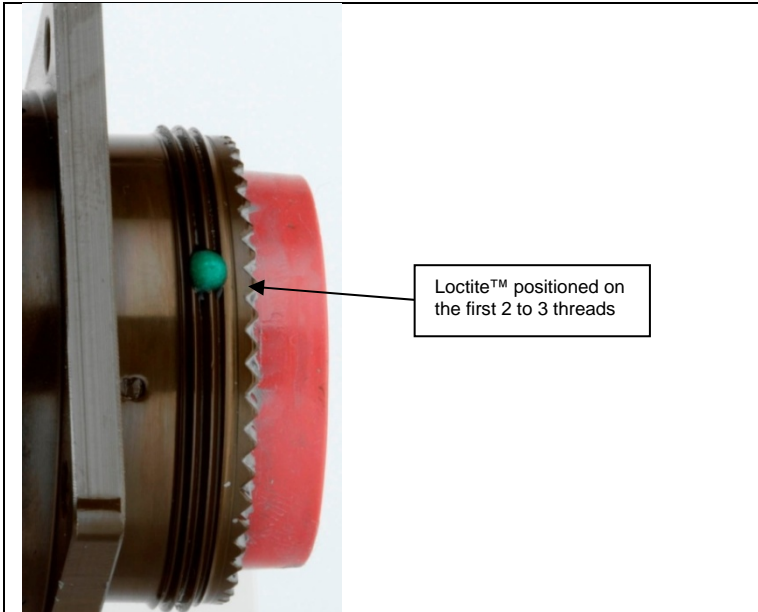
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5.	Procedure (cont.)	<p style="text-align: center;">Table 1 - Recommended Accessory Tightening Torque</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 30%;">Connector Shell Size</th> <th colspan="2" style="width: 20%;">Light &amp; Medium Duty MIL-DTL-5015 (MS31 Series) MIL-DTL-26482 Series I MIL-C-26500 MIL-C-27599 MIL-DTL-38999 Series I &amp; II MIL-C-81511 Series I - IV MIL-C-81703 Series I</th> <th colspan="2" style="width: 20%;">Heavy Duty MIL-DTL-5015 (MS34 Series) MIL-C-22992 MIL-DTL-26482 Series II MIL-C-28840 MIL-DTL-38999 Series III &amp; IV MIL-C-81703 Series III MIL-C-83723 Series I, II, III</th> </tr> <tr> <th style="width: 10%;">lbs ins. ± 5</th> <th style="width: 10%;">Nm ± 0,5</th> <th style="width: 10%;">lbs ins. ± 5</th> <th style="width: 10%;">Nm ± 0,5</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">8, 9, A</td><td style="text-align: center;">40</td><td style="text-align: center;">4,5</td><td style="text-align: center;">56</td><td style="text-align: center;">6,3</td></tr> <tr><td style="text-align: center;">3, 10, 10SL, 11, B</td><td style="text-align: center;">40</td><td style="text-align: center;">4,5</td><td style="text-align: center;">76</td><td style="text-align: center;">8,6</td></tr> <tr><td style="text-align: center;">7, 12, 12S, 13, C</td><td style="text-align: center;">40</td><td style="text-align: center;">4,5</td><td style="text-align: center;">108</td><td style="text-align: center;">12,2</td></tr> <tr><td style="text-align: center;">14, 14, 15, D</td><td style="text-align: center;">40</td><td style="text-align: center;">4,5</td><td style="text-align: center;">116</td><td style="text-align: center;">13,1</td></tr> <tr><td style="text-align: center;">16, 16S, 17, E</td><td style="text-align: center;">40</td><td style="text-align: center;">4,5</td><td style="text-align: center;">116</td><td style="text-align: center;">13,1</td></tr> <tr><td style="text-align: center;">18, 19, F</td><td style="text-align: center;">40</td><td style="text-align: center;">4,5</td><td style="text-align: center;">116</td><td style="text-align: center;">13,1</td></tr> <tr><td style="text-align: center;">20, 21, 37, G</td><td style="text-align: center;">80</td><td style="text-align: center;">9,0</td><td style="text-align: center;">136</td><td style="text-align: center;">15,4</td></tr> <tr><td style="text-align: center;">22, 23, H</td><td style="text-align: center;">80</td><td style="text-align: center;">9,0</td><td style="text-align: center;">136</td><td style="text-align: center;">15,4</td></tr> <tr><td style="text-align: center;">24, 25, 61, J</td><td style="text-align: center;">80</td><td style="text-align: center;">9,0</td><td style="text-align: center;">136</td><td style="text-align: center;">15,4</td></tr> <tr><td style="text-align: center;">28</td><td style="text-align: center;">120</td><td style="text-align: center;">13,6</td><td style="text-align: center;">148</td><td style="text-align: center;">16,7</td></tr> <tr><td style="text-align: center;">32</td><td style="text-align: center;">120</td><td style="text-align: center;">13,6</td><td style="text-align: center;">148</td><td style="text-align: center;">16,7</td></tr> <tr><td style="text-align: center;">36</td><td style="text-align: center;">120</td><td style="text-align: center;">13,6</td><td style="text-align: center;">148</td><td style="text-align: center;">16,7</td></tr> <tr><td style="text-align: center;">40</td><td style="text-align: center;">170</td><td style="text-align: center;">19,2</td><td style="text-align: center;">164</td><td style="text-align: center;">18,5</td></tr> <tr><td style="text-align: center;">44</td><td style="text-align: center;">170</td><td style="text-align: center;">19,2</td><td style="text-align: center;">164</td><td style="text-align: center;">18,5</td></tr> <tr><td style="text-align: center;">48</td><td style="text-align: center;">170</td><td style="text-align: center;">19,2</td><td style="text-align: center;">164</td><td style="text-align: center;">18,5</td></tr> </tbody> </table>	Connector Shell Size	Light & Medium Duty MIL-DTL-5015 (MS31 Series) MIL-DTL-26482 Series I MIL-C-26500 MIL-C-27599 MIL-DTL-38999 Series I & II MIL-C-81511 Series I - IV MIL-C-81703 Series I		Heavy Duty MIL-DTL-5015 (MS34 Series) MIL-C-22992 MIL-DTL-26482 Series II MIL-C-28840 MIL-DTL-38999 Series III & IV MIL-C-81703 Series III MIL-C-83723 Series I, II, III		lbs ins. ± 5	Nm ± 0,5	lbs ins. ± 5	Nm ± 0,5	8, 9, A	40	4,5	56	6,3	3, 10, 10SL, 11, B	40	4,5	76	8,6	7, 12, 12S, 13, C	40	4,5	108	12,2	14, 14, 15, D	40	4,5	116	13,1	16, 16S, 17, E	40	4,5	116	13,1	18, 19, F	40	4,5	116	13,1	20, 21, 37, G	80	9,0	136	15,4	22, 23, H	80	9,0	136	15,4	24, 25, 61, J	80	9,0	136	15,4	28	120	13,6	148	16,7	32	120	13,6	148	16,7	36	120	13,6	148	16,7	40	170	19,2	164	18,5	44	170	19,2	164	18,5	48	170	19,2	164	18,5	
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6.	Inspection	<ul style="list-style-type: none"> <li>• Ensure that there is no excessive Loctite™</li> <li>• Ensure that there is no excessive WD-40 present</li> <li>• Check for damage to the connector after torque tightening</li> <li>• Check by hand that each adaptor is tight</li> </ul>	
7.	Visual Standard	 <p>Loctite™ positioned on the first 2 to 3 threads</p> <p>Detail 3 - Visual Standard of Loctite™ Application</p>	