

# QUALITY ENGINEERING INSTRUCTION

## CHANGE RECORD

**TITLE:** O-RING AND PACKING SHELF LIFE

**SECTION:** 15-3

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REV LTR	REV DATE	PAGE AFF'D	PARA AFF'D	APPROVED BY	DESCRIPTION OF CHANGE
G	02-03-29	Various	Various	JR 03-29-2002	Update material and shelf life requirements per various "O"-Ring specifications. See Rev F for changes.
H	07-01-2002	Various	Various	JR 07-02-2002	Update material and shelf life requirements per various "O"-Ring specifications. See Rev G for changes.
J	10-02-2002	Various	Various	JR 10-02-2002	Update material and shelf life requirements per various "O"-Ring specifications. See Rev H for changes.
K	01-13-2003	Various	Various	JR 01-13-2003	Update material and shelf life requirements per various "O"-Ring specifications. See Rev J for changes.
L	04-07-2003	Various	Various	JR 04-07-2003	Update material and shelf life requirements per various "O"-Ring specifications. See Rev K for changes.
M	07-08-2003	Various	Various		Transferred detailed listing of O-Rings and Packing material to form QA14-106.

# QUALITY ENGINEERING INSTRUCTION

<b>TITLE</b>	O-RING AND PACKING SHELF LIFE	<b>NUMBER</b>	15-3	<b>REV</b>	M
<b>APPROVED BY:</b>	Jon Rourke, Manager Quality Assurance	<b>PAGE</b>	1	<b>OF</b>	2
		<b>DATE</b>	07-08-2003		

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1.0 PURPOSE: To establish the shelf life of O-rings and packing materials in stock.  
(Reference: MIL-HNDBK-695, SAE APR5316)

### 2.0 GENERAL

2.1 "Shelf life" is the maximum period of age after cure date that will assure desired conformance characteristics of synthetic rubber materials. Shelf life is based on the premise that synthetic rubber deteriorates upon exposure to ozone, oxygen, heat, light and other environmental conditions.

2.2 "Cure date" is the date the compounded, uncured high molecular weight elastomer is crosslinked to produce synthetic rubber products.

2.3 Cure date is normally indicated by quarter of year, and the year (i.e., 1Q97). The year is divided into quarters as follows:

1st quarter - January, February, March

2nd quarter - April, May, June

3rd quarter - July, August, September

4th quarter - October, November, December

### 3.0 PROCEDURE

3.1 The identity of the O-ring and packing material must be maintained as to supplier, manufacturer, part number, compound and cure date. The loss of identity is cause for inspection rejection.

3.2 O-rings and packing materials shall be packaged as follows:

3.2.1 Preferred method is single or multiple O-rings in Kraft paper bags or polyethylene bags more than 0.075 mm thick and UV resistant. Opaque packaging is preferred but certified UV resistant materials can be used if available. Metal foil bags can be used provided they are salt free. Packaging up to 50 O-rings per pack is acceptable for stock.

3.2.2 Unpackaged or unidentified packaged O-rings are cause for rejection.

3.2.3 All packaging materials shall be free of copper naphthenates or creosote preservatives, which can degrade rubber.

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- 3.3 O-rings and packing material aged beyond the shelf life shall be removed from stock and rejected by Inspection.
- 3.4 Shelf-life information is located in the O-Ring and Packing Shelf Life Reference Log (Form QA14-106). Shelf-life information as a minimum consists of:
- 3.4.1 Table I lists the Whittaker compound letters (suffix to part numbers 100111, 100112, 100114, 100115, 100117, 100119, 100121, 100123, 100125, 100172) and the corresponding shelf life.
- 3.4.2 Table II lists the military part numbers, compound, and shelf life.
- 3.4.3 Table III lists the Whittaker part numbers (those without a suffix), compound and shelf life. (Caution: Tables II and III may not be complete.)
- 3.5 Many part numbers have compounds from several vendors and the duration of the shelf life varies. For this reason it is mandatory that vendor lots be maintained separate in stock to prevent the intermingling of one vendor's compound with another.
- 3.6 Supplemental testing is described in Quality Engineering Instruction 10-40.