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AEROSPACE RECOMMENDED PRACTICE

ARP 908

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B

HOSE AND TUBE FITTING - INSTALLATION AND QUALIFICATION TEST TORQUE REQUIREMENTS

TABLE I

Coupling Nut Installation Torque for Types I and II

Dash Size	Material I				Material II			
	Minimum		Maximum		Minimum		Maximum	
	Pound- Inch	Newton- Metre	Pound Inch	Newton- Metre	Pound Inch	Newton- Metre	Pound Inch	Newton Metre
-2	75	8.47	120	13.55	50	5.64	80	9.03
-3	95	10.73	140	15.81	70	7.90	105	11.86
-4	135	15.25	190	21.46	100	11.29	140	15.81
-5	170	19.20	240	27.11	130	14.68	180	20.33
-6	215	24.29	280	31.63	150	16.94	195	22.03
-8	470	53.08	550	62.14	270	30.50	350	39.54
-10	620	70.05	745	84.17	360	40.67	430	48.58
-12	855	96.60	1055	119.18	460	51.97	550	62.14
-16	1140	128.80	1370	154.78	700	79.08	840	94.90
-20	1520	171.73	1825	206.19	850	96.03	1020	115.24
-24	1900	214.67	2280	257.60	900	101.68	1080	122.02
-28								
-32	2660	300.54	2940	332.17	1800	203.37	2000	225.97

"See note 1, page 2 for potential torque variations with lubricants such as molybdenum disulfide, cadmium plate, etc."

1. SCOPE

This Aerospace Recommended Practice (ARP) is intended to establish recommended installation torque value limits and test criterion for machined flared and flareless hose and tube end fitting connections.

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This ARP is applicable to two types of connections and two basic material classifications.

Type I - Flared to mate with MS33656, Style E

Type II - Flareless to mate with MS33514, Style E

Material I - Steel, CRES, and titanium fittings

Material II - Aluminum fittings

2. INSTALLATION TORQUE

Hose and tube fittings should be assembled with a torque per values established for the material being installed. When any component of the joint (e.g. nipple or fitting end) is aluminum, the values for Material II shall apply.

3. REPEATED TORQUE TEST

When qualification testing, at least two fittings of the type and material to be qualified shall be tested as follows:

3.1 Repeated Assembly Test

Specimens shall be screwed together and unscrewed eight times. Each of the eight cycles shall include the complete removal of the fitting from the test manifold union. Fitting nuts shall be tightened to the torques specified in Table I, one half shall be tightened to the minimum, one half to the maximum tightening torque. Following the first, fourth and eighth installation, proof tests shall be conducted. Following the eighth installation the fittings shall be pressure tested with nitrogen for 5 minutes at the nominal rated (system) pressure. There shall be no leakage and the fitting nut shall remain free to swivel by hand after the final disassembly.

3.1.1 Lubrication: All adapter to fittings threads and contact surfaces shall be lubricated with MIL-H-5606 oil prior to application of torque.

NOTE 1, It is noted that MIL-H-5606 oil is not compatible with all systems and is not therefore used as a universal lubricant. However, for purposes of consistency of testing, all qualification testing will be performed with MIL-H-5606. Use of other lubricants are permitted in systems, but torques may have to be adjusted accordingly. In no case should the fittings be assembled totally dry and without lubricants on all bearing surfaces.