



HI-LOK™ PIN AND COLLAR AFTER ASSEMBLY

FIRST DASH NO.	PIN NOM DIA	A DIA	B REF	D DIA		TD DIA	F REF	H	R RAD	Z MAX	S CHAMFER REF	THREAD MODIFIED	SOCKET				DOUBLE SHEAR POUNDS MINIMUM	TENSION POUNDS MINIMUM
				WITHOUT COATING OR SOLID FILM	AFTER COATING OR SOLID FILM								W HEX	T DEPTH	T1 DEPTH MAX	Y DIA		
5	5/32	.3304 .3256	.312	.1635 .1630	.1635 .1625	.1595 .1570	.004	.0700 .0680	.025 .015	.010	1/32 x 37°	.1640-32 UNJC-3A	.0645 .0635	.135 .115	.160	.090 .075	4,010	2,180
6	3/16	.3813 .3765	.325	.1895 .1890	.1895 .1885	.1840 .1810	.005	.0805 .0785	.030 .020	.015	1/32 x 37°	.1900-32 UNJF-3A	.0806 .0791	.135 .115	.175	.119 .104	5,380	3,180
8	1/4	.5066 .5018	.395	.2495 .2490	.2495 .2485	.2440 .2410	.006	.1080 .1060	.030 .020	.015	1/32 x 37°	.2500-28 UNJF-3A	.0967 .0947	.150 .130	.200	.142 .122	9,300	5,820
10	5/16	.6335 .6287	.500	.3120 .3115	.3120 .3110	.3060 .3020	.007	.1350 .1330	.040 .030	.015	3/64 x 37°	.3125-24 UNJF-3A	.1295 .1270	.170 .150	.240	.180 .160	14,600	9,200
12	3/8	.7604 .7556	.545	.3745 .3740	.3745 .3735	.3680 .3640	.008	.1620 .1600	.040 .030	.015	3/64 x 37°	.3750-24 UNJF-3A	.1617 .1582	.200 .180	.275	.217 .197	21,000	14,000
14	7/16	.8884 .8812	.635	.4370 .4365	.4370 .4360	.4310 .4260	.009	.1895 .1865	.050 .040	.022	3/64 x 37°	.4375-20 UNJF-3A	.1930 .1895	.230 .210	.315	.253 .233	28,600	18,900
16	1/2	1.0139 1.0068	.685	.4995 .4990	.4995 .4985	.4930 .4880	.010	.2160 .2130	.050 .040	.022	3/64 x 37°	.5000-20 UNJF-3A	.2242 .2207	.260 .240	.360	.289 .269	37,300	25,600
18	9/16	1.1408 1.1337	.770	.5615 .5610	.5615 .5605	.5550 .5500	.010	.2430 .2400	.050 .040	.025	1/16 x 37°	.5625-18 UNJF-3A	.2555 .2520	.290 .270	.400	.326 .306	47,200	32,400
20	5/8	1.2723 1.2651	.825	.6240 .6235	.6240 .6230	.6180 .6120	.010	.2720 .2690	.050 .040	.025	1/16 x 37°	.6250-18 UNJF-3A	.2555 .2520	.330 .305	.440	.326 .306	58,300	41,000
24	3/4	1.5308 1.5236	1.050	.7490 .7485	.7490 .7480	.7430 .7370	.012	.3280 .3250	.050 .040	.025	1/16 x 37°	.7500-16 UNJF-3A	.3185 .3150	.330 .300	.465	.398 .378	83,900	59,500
28	7/8	1.7845 1.7773	1.210	.8740 .8735	.8740 .8730	.8680 .8610	.014	.3820 .3790	.050 .040	.025	5/64 x 37°	.8750-14 UNJF-3A	.3820 .3780	.400 .370	.560	.471 .451	114,000	81,500
32	1	2.0405 2.0310	1.390	.9990 .9985	.9990 .9980	.9930 .9860	.014	.4370 .4330	.050 .040	.025	5/64 x 37°	1.0000-12 UNJF-3A	.5100 .5040	.520 .490	.715	.618 .598	149,000	106,000

SEE COLLAR STANDARDS  
 FOR COLLAR STRENGTHS.  
 LOWER STRENGTH (PIN OR  
 COLLAR) DETERMINES  
 SYSTEM STRENGTH

"HI-LOK", "HL", AND "HI-KOTE"  
 ARE TRADEMARKS OF HI-SHEAR CORPORATION

DRAWN BY J.F. OBISPO MARTIN	DATE 2014-07-31 1963-07-23	TITLE <b>HI-LOK™ PIN</b> 100° FLUSH MS24694 TENSION HEAD TITANIUM 1/16 GRIP VARIATION  <b>HL13</b>
APPROVED CESSNA	DATE 1963-07-23	
REVISION 43	DATE K. PHAM 2022-04-04	
DRAWING NUMBER		1 OF 2

- GENERAL NOTES:**
- 1 Head edge out of roundness shall not exceed "F".
  - 2 Concentricity: Conical surface of head to "D" diameter within .003 FIM.
  - 3 Dimensions are in inches and to be met after finish.
  - 4 Surface texture per ASME B46.1.
  - 5 Hole preparation per NAS618.
  - 6 "H" is dimensioned from maximum "D" diameter.
  - 7 Maximum "D" diameter may be increased by .0002 to allow for solid film or aluminum coating application.
  - 8 Broach petals removed.
  - 9 Non-lubed pins must be used with lubed collars or wet sealant.
  - 10 Curved or flat edge manufacturer's option.
  - 11 Use HL113 for oversize replacement.
  - 12 After February, 21st of 2015, HI-KOTE™ 1 aluminum pigmented coating will be replaced by REACH compliant HI-KOTE™ 1 NC aluminum pigmented coating per Hi-Shear Spec. 294 on fasteners coated in UK and European Union.

**MATERIAL:** 6AL-4V titanium alloy per AMS4928 or AMS4967.

**HEAT TREAT:** 160,000 psi tensile minimum (95,000 psi shear minimum for sizes up to 3/4; 90,000 psi shear minimum for 7/8 and larger).

- FINISH:**
- HL13V(-)(-) = Cetyl alcohol lube per Hi-Shear Spec. 305.
  - 43 12 HL13VAP(-)(-) = HI-KOTE™ 1 or HI-KOTE™ 1 NC aluminum pigmented coating per Hi-Shear Spec. 294, and cetyl alcohol lube per Hi-Shear Spec. 305.
  - 43 12 HL13VAT(-)(-) = HI-KOTE™ 1 or HI-KOTE™ 1 NC aluminum pigmented coating per Hi-Shear Spec. 294.
  - 43 12 HL13VAZ(-)(-) = HI-KOTE™ 1 or HI-KOTE™ 1 NC aluminum pigmented coating per Hi-Shear Spec. 294, with color black on thread end, and cetyl alcohol lube per Hi-Shear Spec. 305.
  - HL13VB(-)(-) = I.V.D. aluminum coating per MIL-DTL-83488, Type II, Class 3, and cetyl alcohol lube per Hi-Shear Spec. 305.
  - 9 HL13VBV(-)(-) = I.V.D. aluminum coating per MIL-DTL-83488, Type II, Class 3, with color blue on thread end.
  - 8 HL13VDK(-)(-) = Solid film lube per "KalGard™" FA. "KALGARD" is a trademark of Metal Improvement Company.
  - 43 HL13VF(-)(-) = Anodize per Hi-Shear Spec. 306, Type I, color blue, and cetyl alcohol lube per Hi-Shear Spec. 305.
  - 43 12 HL13VHA(-)(-) = HI-KOTE™ 1 or HI-KOTE™ 1 NC aluminum pigmented coating per Hi-Shear Spec. 294, with color black on thread end, and apply Precoat No. PR1436G sealant (.002-.005 thick), and cetyl alcohol lube per Hi-Shear Spec. 305.
  - 43 HL13VLJ(-)(-) = Anodize per Hi-Shear Spec. 306, Type II, and solid film lube per AS5272.
  - 43 HL13VLV(-)(-) = Phosphate fluoride treat and Esna-Lube No. 382 (Everlube Corp).
  - 43 HL13VRA(-)(-) = Anodize per Hi-Shear Spec. 306, Type II, and solid film lube per "Electrofilm" 4396.
  - 43 HL13VRA(-)(-) = Phosphate fluoride treat with color red on thread end and cetyl alcohol lube per Hi-Shear Spec. 305.
  - 43 HL13VSY(-)(-) = Phosphate fluoride treat, solid film lube per AS5272, Type I, and color red on thread end.
  - 43 HL13VT(-)(-) = Anodize per Hi-Shear Spec. 306, Type I, color pink, and cetyl alcohol lube per Hi-Shear Spec. 305.
  - HL13VTA(-)(-) = Anodize Ti-Shield III and HI-KOTE™ 2 solid film lube per Hi-Shear Spec. 292, and cetyl alcohol lube per Hi-Shear Spec. 305.
  - HL13VTB(-)(-) = HI-KOTE™ 2 solid film lube per Hi-Shear Spec. 292, and cetyl alcohol lube per Hi-Shear Spec. 305.
  - HL13VTF(-)(-) = HI-KOTE™ 2 solid film lube per Hi-Shear Spec. 292.
  - 9 HL13VU(-)(-) = Bare, no lubricant.
  - 43 HL13VUE(-)(-) = Anodize per Hi-Shear Spec. 306, Type II, and cetyl alcohol lube per Hi-Shear Spec. 305.
  - HL13VV(-)(-) = Solid film lube per "Lubeco" 2123, Type II.
  - HL13VYS(-)(-) = HI-KOTE™ 2 solid film lube per Hi-Shear Spec. 292 on threads only.
  - HL13VVK(-)(-) = HI-KOTE™ 1 NC aluminum pigmented coating per Hi-Shear Spec. 294, with color silver on thread end, and cetyl alcohol lube per Hi-Shear Spec. 305.
  - HL13VNKK(-)(-) = Sulfuric acid anodizing per ISO8080 and HI-KOTE™ 1 NC aluminum pigmented coating per Hi-Shear Spec. 294 on threads only, with color silver on thread end, and cetyl alcohol lube per Hi-Shear Spec. 305.
  - HL13VNKL(-)(-) = HI-KOTE™ 1 NC aluminum pigmented coating per Hi-Shear Spec. 294 on threads only, with color silver on thread end, and cetyl alcohol lube per Hi-Shear Spec. 305.
  - HL13VHK(-)(-) = HI-KOTE™ 4 NC aluminum coating per Hi-Shear Spec. 397.

**SPECIFICATION:** HI-LOK™ Product Specification 342.

**CODE:** First dash number indicates nominal diameter in 1/32nds.  
 Second dash number indicates maximum grip in 1/16ths.  
 See Finish note for explanation of code letters.

**HOW TO ORDER  
 EXAMPLE:**

Pin Part Number  
 HL13VAP8-8  
 8/16 or 1/2 Maximum Grip Length  
 8/32 or 1/4 Nominal Diameter Pin  
 Finish Code  
 Pin Basic Part Number