

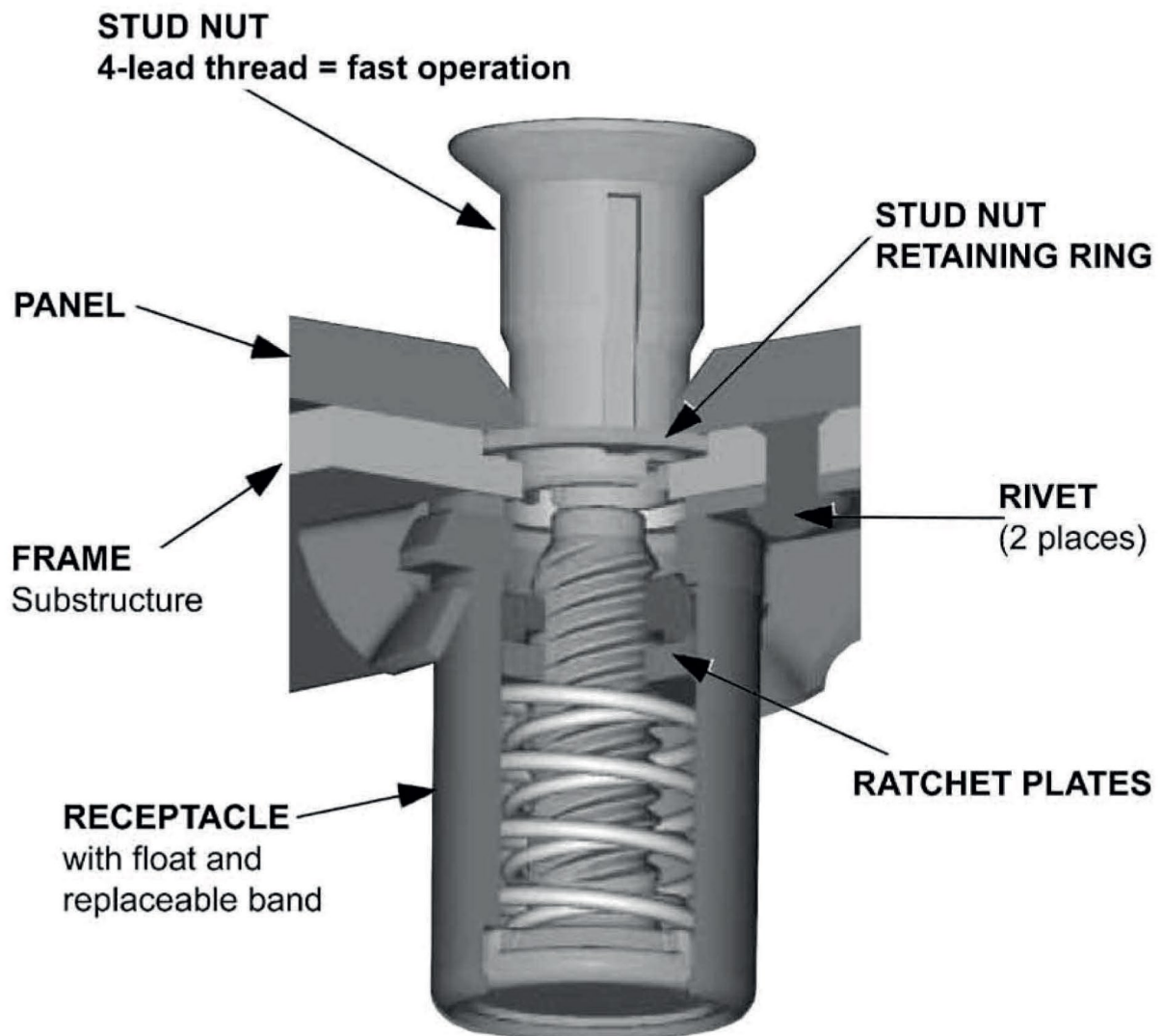


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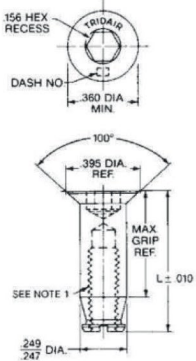

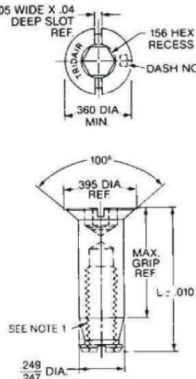

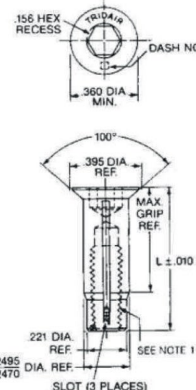

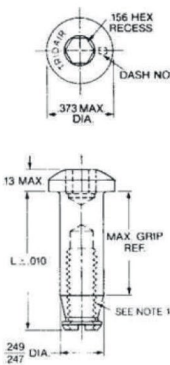
## LOW PREVAILING TORQUE - HIGH VIBRATION RESISTANCE

### Fast Operation - Captive Stud Nut




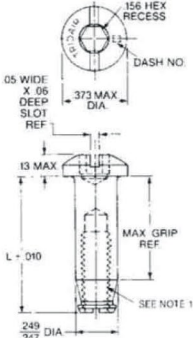

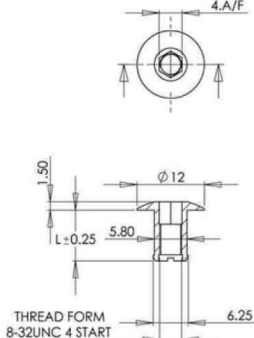
### Typical Installation

Spring-loaded ratchet design insures positive locking action and vibration resistance without relying on prevailing torque. Spring(s) nullify effects of resonant vibrations.

Style	Detail	Materials/ Finish	Part No.
<p><b>Flush Head Hex Recess</b></p> 		<p>Material: 300 Series CRES Finish: Passivated per QQ-P-35</p>	<p><b>CA1820-*</b></p>
<p><b>Flush Head Hex Recess Slotted</b></p> 		<p>Material: 300 Series CRES Finish: Passivated per QQ-P-35</p>	<p><b>CA1832-*</b></p>
<p><b>Flush Head Hex Recess Slotted Shank</b></p> 		<p>Material: Alloy Steel Finish: Cadmium Plated per QQ-P-416, Type II, Class 2 Heat Treatment: Per MIL-H-6875</p>	<p><b>CA18121-<sup>HS</sup></b></p>
<p><b>Pan Head Hex Recess</b></p> 		<p>Material: 300 Series CRES Finish: Passivated per QQ-P-35</p>	<p><b>CA1824-*</b></p>


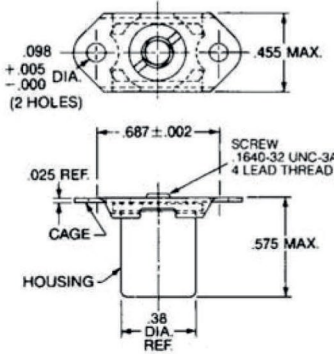

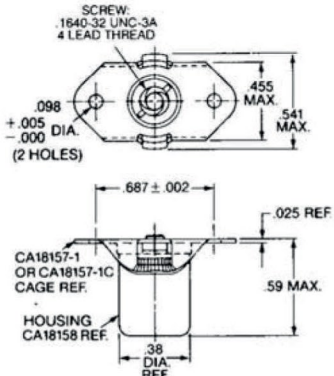

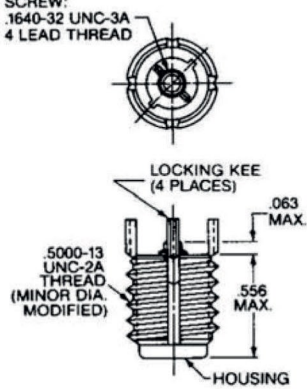
\* see Stud Selection Table on page 10 LL

1. Thread Size: .1640-32 UNC-3B, modified minor diameter, 4 lead thread
2. Recommended tightening torque: 30 inch pounds.


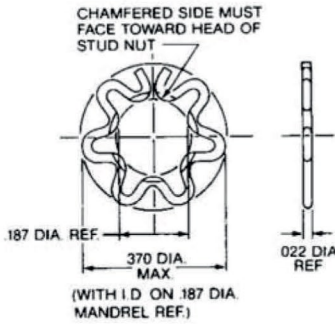

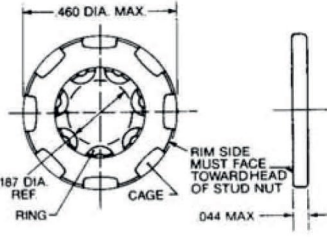

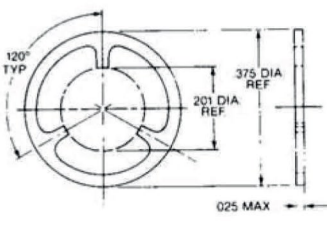

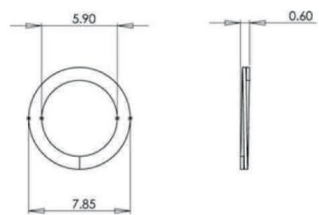
Style	Detail	Materials/ Finish	Part No.
<p><b>Pan Head Hex Recess Slotted</b></p> 		<p>Material: 300 Series CRES Finish: Passivated per QQ-P-35</p>	<p><b>CA1821-*</b></p>
<p><b>Low Profile Head</b></p> 		<p>Material: 300 Series CRES Finish: Passivated per QQ-P-35 4 lead thread</p>	<p><b>LM4943-0*</b></p>

\* see Stud Selection Table on 10 LL  
 1. Thread Size: .1640-32 UNC-3B, modified minor diameter, 4 lead thread  
 2. Recommended tightening torque: 30 inch pounds.



Style	Detail	Materials/ Finish	Part No.
<p><b>2-Lug .025 Radial Float</b></p> 	 <p>Weight: .014 lbs./ea. approx.</p>	<p>Housing &amp; Cage: 300 Series CRES Screw: A286 CRES Heat Treat: Screw: Per MIL-H-6875 Finish: Housing &amp; Cage: Passivated per QQ-P-35 Screw: Dry Film Lubed</p>	<p><b>CA1810</b></p>
<p><b>2-Lug Lightweight Replaceable .025 Radial Float</b></p> 	 <p>Weight: .011 lbs./ea. approx.</p>	<p>Housing: Aluminium Alloy per QQ-A-225 Screw: Alloy Steel Cage: 17-7PH CRES Heat Treat: Screw: Per MIL-H-6875 Cage: Per MIL-H-6875 Finish: Housing: Blue anodised per MIL-A-8625 Screw: Cadmium plated per QQ-P-416 Type II, Class 2 Cage: Passivated per QQ-P-35</p>	<p><b>CA18157</b></p>
<p><b>LiveSert</b></p> 	 <p>Weight: .018 lbs./ea. approx.</p>	<p>Housing: 300 Series CRES Screw: A286 CRES Heat Treat: Screw: Per MIL-H-6875 Finish: Housing: Passivated per QQ-P-35 Screw: Dry Film Lubed</p>	<p><b>CA18062</b></p>

\* see Stud Selection Table on page 10 LL

Style	Detail	Materials/ Finish	Part No.
<b>Wire Form</b>  	 <p>Weight: .019 lbs/100 approx.</p>	<p>Elgiloy Wire Finish: Passivated per QQ-P-35 Heat Treat: Spring Tempered</p> <p>Supplied on 50 piece tool</p>	<p>CA1825*</p>
<b>Wire Form Caged</b>  	 <p>Weight: .071 lbs/100 approx.</p>	<p>Elgiloy Wire Finish: Passivated per QQ-P-35 Heat Treat: Spring Tempered Cage: 300 Series CRES Finish: Passivated per QQ-P-35</p> <p>Supplied on 50 piece tool</p>	<p>CA18377**</p>
<b>Solid, 3-Tabs</b>  	 <p>Weight: .036 lbs/100 approx.</p>	<p>Material: 17-7PH CRES Finish: Passivated per QQ-P-35 Heat Treat: Per MIL-H-6875</p> <p>Same as CA18062 except Finish: Cadmium Plated per QQ-P-416, Type II, Class 2</p>	<p>CA18132***  CA18132C***</p>
<b>Spiral</b>  		<p>Material: 300 series CRES</p> <p>Use with LM 4943-xxx Low Profile Head Stud Nut</p>	<p>LM4076</p>

\* chamfered side must face toward head of stud

\*\*rim side must face toward head of stud nut

\*\*\*use with stud nut CA18121-( ) series or CA18161-( ) series only

**INTRODUCTION**

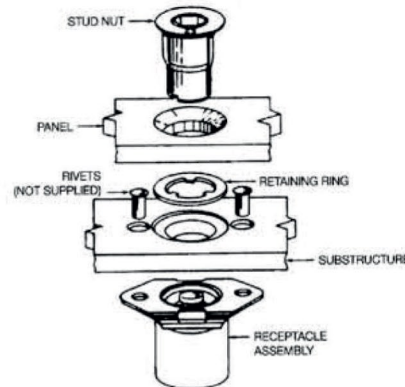
Combining low profile, light weight and high performance, Livellock panel fasteners are designed to take high shear and tensile loads. Used on access panels and electronic packaging for civil and military aircraft. Each style of stud requires the relevant retainer and receptacle installed with the appropriate tool.

Features:

- Low prevailing installation and removal torque required, yet provides high vibration resistance.
- Receptacles offer radial float; most versions can be replaced without removing rivets.
- Total CRES (corrosion resistant) configurations available.
- Locking element is totally encapsulated.
- Stud nut hold-out feature available.
- Positive stud nut retention.

**Typical Livellock Fastening System**

Not shown are optional stud hold-out grommets and cages designed for applications where stud hold-out and bottom flush condition is required. Shims are also available.

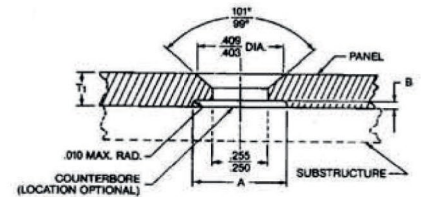


Exploded View

**PANEL PREPARATION**

**Flush Head Stud Nuts**

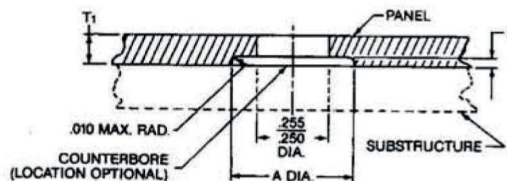
Type of Retaining Ring	Stud Nut Reference Part No.	A Diameter Min.		B Counterbore Depth Min.	
		ins	mm	ins	mm
Wire Form	CA1800 Series	.468	11.88	.025	.64
Wire Form Caged		.484	12.29	.045	1.14
Solid, 3-Tabs	CA18121-( )Series CA18161-( )Series	.406	10.31	.030	.76



Notes:

1. Locate and drill .255 (6.48mm) diameter hole through panel.
2. Countersink 100 degree to .409 (10.39mm) diameter.
3. If 'T1' is greater, counterbore panel to 'A' diameter by 'B' depth. Preferred location for counterbore retaining ring recess is in panel 'T1'.
4. Panel 'T1' = .090 (2.29mm) min. when counterbore is located in substructure.

**Protruding Head Stud Nuts**



Notes:

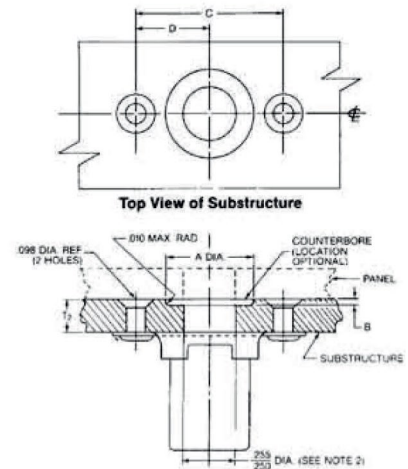
1. Refer to table above.
2. Locate and drill .255 (6.48mm) diameter hole through panel. For the LM4943 series, drill .284 (7.2mm) diameter hole.
3. If 'T1' is .090 (2.29mm) greater, counterbore panel to 'A' diameter by 'B' depth. Preferred location for counterbore retaining ring recess is in panel 'T1'.
4. Panel 'T1' = .021 (.53mm) min. when counterbore is located in substructure.



## FRAME

### 2-Lug Receptacles

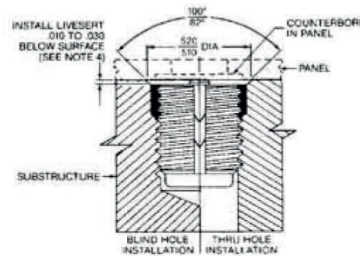
Receptacle Part No.	C		D Ref.	
	ins	mm	ins	mm
CA1810 CA1810C	.689	17.5	.343	8.71
CA18157 CA18157C				
CA18193	.752	19.1	.375	9.53



#### Notes:

1. Refer to table on page 8 LL.
2. Locate and drill .255 (6.48mm) diameter hole through frame.
  - a. To allow for misalignment, open through hole to .250 (6.35+mm) + min. receptacle float.
 In addition, if counterbore is located in frame, open 'A' diameter min. + min. receptacle float.
3. If required, counterbore to 'A' diameter by 'B' depth.  
(see panel preparation for flush or protruding head, note 3, page 8 LL).
4. Locate, drill and countersink two holes for flush mount rivets (not supplied).  
Holes must be symmetrical to .255 (6.48mm) diameter hole.
5. Rivet receptacle in place.

### LiveSert Receptacle



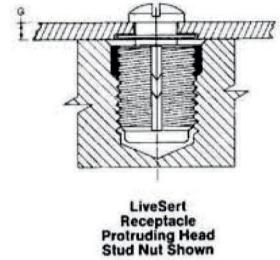
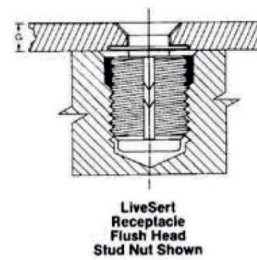
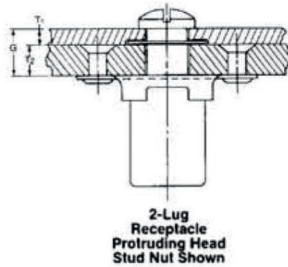
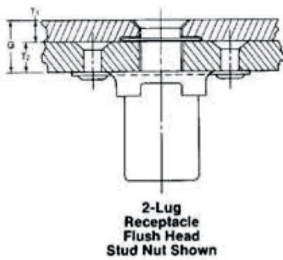
Shown With Locking KEES Installed

#### Notes:

1. Locate and drill .457 (11.61mm) diameter to .590 (15mm) min. depth.
2. Countersink 100 degree to .520 (13.2mm) diameter.
3. Tap .5000-13 UNC-2B thread to .533 (13.54mm) min. depth.
4. LiveSert is designed to stop at the correct depth below the surface of the frame.
5. Drive in the KEES

**SELECTION PROCEDURE**

1. Determine "G" thickness
  - a. **All receptacles except LiveSert:** "G" = "T1" + "T2", plus shim, any compressed gasketing material, paint or other finishes.
  - b. **LiveSert receptacle:** "G" = grip range, plus any other material.
2. Locate "G" grip range in the Stud Nut Dash Number Selection Tables below.



L	"G" Grip Range		Dash No.				
	inches	mm	CA1820**	CA1832**	CA1821**	CA1824**	CA1828**
.375*	.098-.155	2.49-3.94	-0	-0	-0*	-0*	-0*
.437	.156-.250	3.96-6.35	-1	-1	-1	-1	-1
.531	.251-.343	6.38-8.71	-2	-2	-2	-2	-2
.625	.344-.437	8.74-11.10	-3	-3	-3	-3	-3
.718	.438-.531	11.13-13.49	-4	-4	-4	-4	-4
.812	.532-.625	13.51-15.88	-5	-5	-5	-5	-5
.906	.626-.718	15.90-18.24	-6	-6	-6	-6	-6
1.000	.719-.812	18.26-20.63	-7	-7	-7	-7	-7

\* (-0) "L" dimension is .343 for part numbers CA1821, CA1824 and CA1828

\*\* If "G" is .097 (2.46mm) or less, a shim is required.

L	"G" Grip Range		Dash No.	
	inches	mm	CA18121	CA18161
.430	.150-.220	3.81-5.59	-1HS	-1HS
.500	.221-.290	5.61-7.37	-2HS	-2HS
.570	.291-.360	7.39-9.14	-3HS	-3HS
.640	.361-.430	9.17-10.92	-4HS	-4HS
.710	.431-.500	10.95-12.7	-5HS	-5HS
.780	.501-.570	12.73-14.48	-6HS	-6HS
.850	.571-.640	14.5-16.26	-7HS	-7HS
.920	.641-.710	16.28-18.03	-8HS	-8HS
.990	.711-.780	18.06-19.81	-9HS	-9HS
1.060	.781-.850	19.84-21.59	-10HS	-10HS

"G" Grip Range*		Dash No.
inches	mm	LM4943
.098-.149	2.50-3.80	-000
.150-.220	3.81-5.60	-010
.221-.289	5.61-7.35	-020

\* For CA18060 LiveSert, G = T1 + .08 (2.0mm)

Part No.	Page
CA18062	6 LL
CA1810	6 LL
CA18121	4 LL
CA18132	7 LL
CA18132C	7 LL
CA18157	6 LL
CA1820	4 LL
CA1821	5 LL
CA1824	4 LL
CA1825	7 LL
CA1832	4 LL
CA18377	7 LL
LM4076	7 LL
LM4943	5 LL