



## Assessment of Pull Tabs and Snaps Found at Site LA-00527 November 20, 2025

### Summary

At the Steadman Family's (REFNO 1781) request, Healing Through History (HTH) attempted to determine if two zipper pull tabs (one smaller and one longer) and five snaps found in 2013 at Site LA-00527 are life support or not. Our findings are:

1. The smaller pull tab is a nearly exact match for the dimensions of the sleeve pocket pull tab from a 1971 flight suit belonging to Captain Jim Steadman, REFNO 1781 pilot. However, since the 2013 photo does not show the manufacturer's mark (which may be on the other side) we could not definitively say this is from a flight suit and therefore life support.
2. We could not identify the longer pull tab but are certain it is not from the zippered map case found in both cockpits of F-4C/D aircraft. Additionally, we determined the aircraft had at least one zippered component with a pull tab without its own part number (i.e., the pull tab was an integral part of the component). Since the aircraft was made from many thousands of components, this means a part number search for zippers cannot be used to determine whether the larger pull tab must be life support.
3. The F-4 aircraft itself had many snaps, which rules out a categorical assessment that snaps must be life support. We believe one of the snaps may be aircraft-related, one very closely matches the dimensions of the waist snaps on the 1971 flight suit, and others may be possible matches for the 1971 flight suit due to the variation in snap button size.

### Background Research and Distinctions between Aircraft and Aircrew Items

For context, we first referenced the following governing specifications for zipper pull tabs and snaps. That is, we needed to account for the possibility that items found at LA-00527 could be either life support (i.e., related to life supporting equipment or something on a pilot's person, which would indicate at least one man was in the aircraft at impact) or aircraft-related (something that was part of the aircraft itself and would remain with it after the crew ejected). V-F-106 – covers interlocking slide fasteners of various types, styles, sizes, lengths, and materials and AN227 – covers aeronautical fasteners related to snaps and curtains.

### Assessments of Pull Tabs Found at LA-00527 – Aircraft vs. Life Support

We began by analyzing which pull tabs possibly be aircraft-related. (i.e., part of the aircraft itself and not associated with life support or any pilot-related items). You can see the two pull tabs found in Laos (shown to-scale) show evidence of heat and/or corrosion. However, while there are no manufacturer markings on either of the burned tabs, we also have images only showing one side. Therefore, it may be possible the markings are on the other side.



45.0 x 14.2 mm

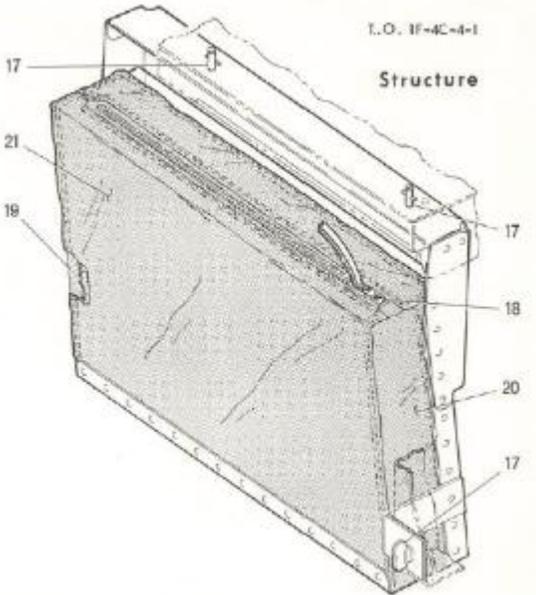
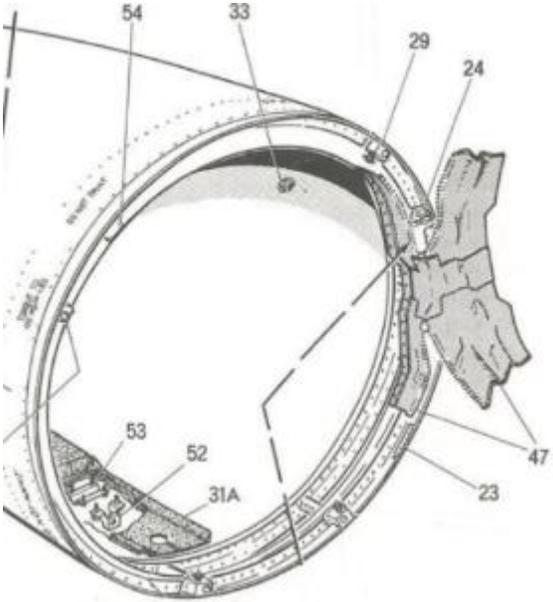


15.0 x 12.0 mm

As an example of determining pull tab manufacturer name, the March 2006 REFNO 1216 Evaluation Of Life Sciences Equipment Artifacts Report shows how DPAA was able to use a whitish substance to reveal the maker's name.

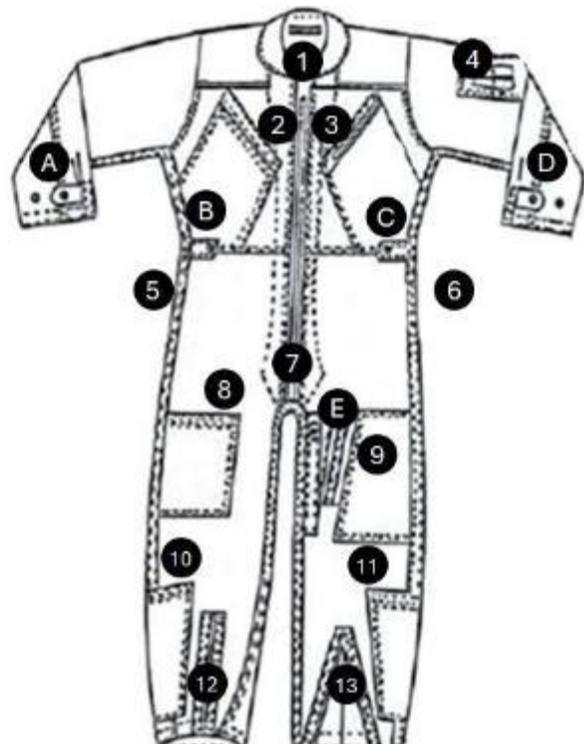


We discovered the F-4 itself had at least the two pull tabs shown below and the AN229-1AL521 (map case) tab is clearly not match. However, since the aircraft had thousands of components, this means that while our part number search found only two pull tabs, this is not a guarantee there were no others in the aircraft. As an additional note, we determined the F-4 drag chute did not have any pull tabs.

	<p>34.1 x 20.5 (max width) mm</p>	<p>No image available</p>	<p>No dimensions available</p>
<p><b>Part Number:</b></p>	<p>AN229-1AL521</p>	<p><b>Part Number:</b></p>	<p>Unnumbered</p>
<p><b>Location:</b></p>	<p>Both cockpits</p>	<p><b>Location:</b></p>	<p>Radome</p>
<p><b>Function:</b></p>	<p>Map case cover</p>	<p><b>Function:</b></p>	<p>Part of a seal cover</p>
<p>The map case pull tab is shown as Item 18 below.</p>		<p>The radome cover pull tab is shown as part of Item 47 below. While there is a part number for this seal cover, there is no part number for its pull tab because the zipper was an integral part of the cover.</p>	
			

We then considered the possibility either of the pull tabs could be from an item on a pilot's person – flight suit, survival vest, life preserver unit, G-suit, web belt, holster, boot, or parachute harness. However, we know from other MIA cases that the origin of pull tabs and snaps without corresponding fabric material is difficult to determine.

Therefore, we researched flight suits used by members of the 497th Fighter Squadron "Nite Owls." These crews – who flew mainly at night – wore a mix of K-2B cotton flight suits, standard green ones for day missions and dyed black ones for night missions. The Steadman Family has one of Jim Steadman's K-2B flight suits from 1971 (not a similar-looking but unofficial "party suit"). It is embroidered with his name, pilot wings, Nite Owl logo, and captain's rank. While he did two tours in the 497th – 1969-1970 and 1971 – we know this flight suit is from 1971 because it shows captain's bars, the rank he was promoted to in June 1971. It was returned to his family after he went missing. It has 13 zippers and 5 snaps with 13 studs and is shown below next to an illustration of the front of the K-2B flight suit from MIL-C-6265E, dated 4 Feb 1964. The zipper pull tabs are numbered 1-13 and the snaps are lettered A-E. However, there were only 4 buttons for the 13 studs. This was because there were 4 adjusters (2 sleeve and 2 waist) with only one button per 3 studs each, and the knife pocket has only the stud (no button). It is missing the button was because since fighter pilots wore G-suits (with a similar knife pocket) over their flight suits, the latter's knife pocket was redundant. Therefore, as a status symbol, fighter pilots cut their knife pockets off, leaving a stud with no button.



The 13 pull tabs on Captain Steadman’s 1971 flight suit were made by two different manufacturers – Scovill and Conmar – and the table below summarizes our findings. Since Scovill “Gripper” pull tabs have a round opening at the bottom, which does not match the half-moon opening on the smaller pull tab found at LA-00527, we categorically ruled out all “Grippers” and omitted dimensions because they were unnecessary.

Suit Location	Thumbnail	Manufacturer/ Model	Height x Width (mm)	LA-00527 Match?
① Center Upper		Scovill Gripper	--	No
② Right Chest Pocket		Scovill	18.0 x 14.0	No
③ Left Chest Pocket		Scovill	17.2 x 12.8	No
④ Left Arm Pocket		Scovill	15.0 x 12.0	Near match for smaller pull tab
⑤ Left hip pocket		Scovill	16.5 x 12.0	No

Suit Location	Thumbnail	Manufacturer/ Model	Height x Width (mm)	LA-00527 Match?
⑥ Right hip pocket		Conmar	16.5 x 12.0	No
⑦ Center lower		Scovill	17.0 x 12.5	No
⑧ Right Thigh Pocket		Conmar	17.2 x 12.2	No
⑨ Left Thigh Pocket		Conmar	16.4 x 12.2	No
⑩ Left Calf Pocket		Scovill Gripper	--	No
⑪ Right Calf Pocket		Scovill Gripper	--	No

Suit Location	Thumbnail	Manufacturer/ Model	Height x Width (mm)	LA-00527 Match?
⑫ Right Leg Closure		Conmar	17.2 x 13.0	No
⑬ Left Leg Closure		Conmar	17.2 x 13.0	No

The LA-00527 small zipper pull and Captain Steadman's flight suit zipper pulls were measured by importing the images into Publisher and drawing a box around the zipper pull to get the "best fit" possible. The box was then copy/pasted over the scale in the image to determine the measurements. This is a fairly crude method of measurement and if the camera is off of a perpendicular axis to the scale and zipper pull, the measurement will be skewed.

Given these constraints, the LA-00527 small zipper pull measures 15.0 mm long and 12.3 mm wide, which is a very close match in both dimensions and shape for the ④ Left Arm Pocket zipper pull, which we measured as 15.0 mm long and 12.0 mm wide. Both of these pulls are considerably shorter than any of the other pulls found on the 1971 flight suit.

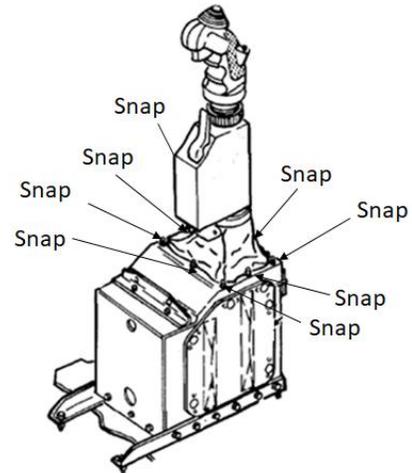


**Assessments of Snaps Tabs Found at LA-00527 – Aircraft vs. Life Support**

We then analyzed the five snaps found at LA-00527, which, like the pull tabs, also show evidence of corrosion. Snap 1 is likely aircraft-related, Snaps 2 and 5 appear to be sockets, and Snaps 3 and 4 appear to be buttons. None of the snaps appear to be studs, so we categorically ruled those out and did not include dimensions. Unlike the pull tabs, we were unable to determine any manufacturers because these snaps carried no markings.

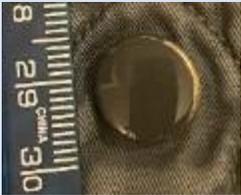
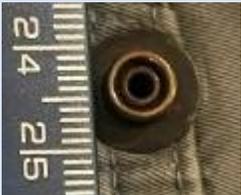
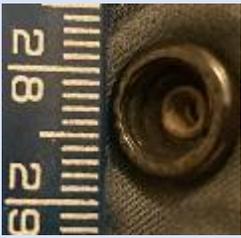
				
<b>Snap 1</b>	<b>Snap 2</b>	<b>Snap 3</b>	<b>Snap 4</b>	<b>Snap 5</b>
14.4 x 16.9 mm	12.8 mm	12.8 mm	13.8 mm	14.9 mm

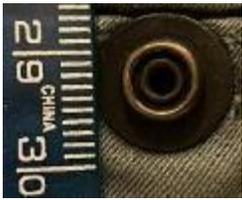
The F-4 had multiple components with snaps, including the pilot’s control stick shown here. There were 8 AN227 snaps that secured the stick’s dust boot cover and we suspect Snap 1 is one of them. Likewise, there was a similar dust boot cover on the control stick in the rear cockpit.



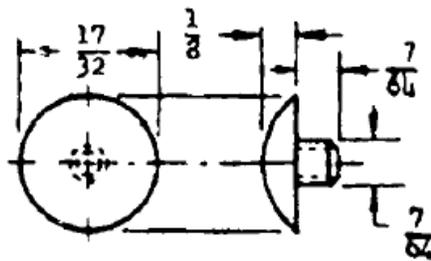
Since an indeterminate number and type of snaps were part of the aircraft itself, we could not say that any snaps found must be Life Support-related. However, since there were no studs found at LA-00527, we categorically ruled out flight suit studs as possible matches and omitted dimensions because they were unnecessary.

Suit Location	Thumbnail	Manufacturer/Model	Diameter (mm)	LA-00527 Match?
Ⓐ Right sleeve button top		Unknown	12.8	Snap 3
Ⓐ Right sleeve button bottom		Unknown	10.4	No

Suit Location	Thumbnail	Manufacturer/ Model	Diameter (mm)	LA-00527 Match?
Ⓐ Right sleeve stud		Unknown	--	No
Ⓑ Right waist button top		Unknown	15.0	Snap 5
Ⓑ Right waist button bottom		Unknown	10.2	No
Ⓑ Right waist stud		Unknown	--	No
Ⓒ Left waist button top		Unknown	12.3	Snap 3
Ⓒ Left waist button bottom		Unknown	10.8	No

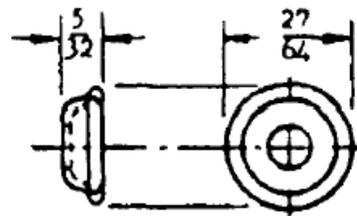
Suit Location	Thumbnail	Manufacturer/ Model	Diameter (mm)	LA-00527 Match?
© Left waist stud		Unknown	--	No
© Left sleeve button top		Unknown	12.3	Snap 3
© Left sleeve button bottom		Unknown	10.0	No
© Left sleeve stud		Unknown	--	No

The original snap fastener specification was AN 227 (Air Force-Navy Aeronautical Standard). This is an image from AN 227 showing the button and socket design. The small shank of the button is placed through a hole in the fabric and then through the hole in the socket on the other side of the fabric. The shank is then crimped down to retain the button and socket as a single unit attached with the fabric in between the parts.



**BUTTON**

-11 PLATED, -11 B BLACK  
-11 A BROWN



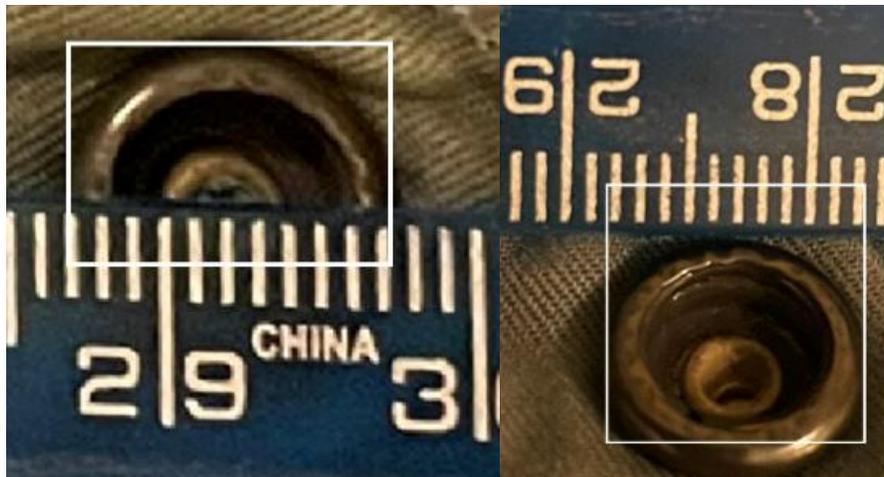
**SOCKET**

-12 PLATED, -12 B BLACK  
SMALL WIRE SPRING CLAMP TYPE

MIL-C-6265 Rev E, dated 4 February 1964 requires snap fasteners that conform to style 2A, finish 2 of MIL-F-10884. MIL-10884 shows that style 2A is a small wire spring clamp type that was superseded by Military Standard MS27981. Per MS27981, the outside diameter of the button is 17/32 inch (13.5 mm) and the outside diameter of the socket is 27/64 inch (10.7 mm). The waist snap fasteners on Captain Steadman's flight suit should have these size buttons and sockets on the waist and both arms.



These are the waist buttons from the left and right sides of Captain Steadman's flight suit. The right waist snap button is 15.0 mm, which is larger than the specified button. The left-side button is 12.3 mm, which is also larger than the specified button. The sockets on Captain Steadman's flight suit measured 10.2, 10.8 and 10.0 mm, compared to the specification of 10.7 mm. It appears that the size of snap fastener buttons, although called out by the military specification were not always sized per the specification. The variation in button diameters on Captain Steadman's flight suit demonstrates that although the specification calls out a 13.5 mm button, actual flight suit buttons vary from 12.3 mm to 15.0 mm. Snap 3 from LA-00527 is a button that measures approximately 12.8 mm and may be considered a good match for the right and left sleeve and left waist buttons on Captain Steadman's flight suit. Snap 5 measures 14.9 mm and may be considered a good match for the 15.0 mm right waist button on Captain Steadman's flight suit.



The left and right waist sockets are 10.2 mm, which is close to 10.7 mm given the method of measurement appear to conform to the specification. Snap 2 from LA-00527 is a socket that measures 12.5 mm and appears to be too large to match the flight suit sockets.

**Assessment of Snaps Tabs Found at LA-00527 – Non-Aircraft and Non-Life Support**

We also considered the possibility that one or more of the pull tabs could be from an aircrew helmet bag. That is, while it would have been carried in the cockpit, it was neither aircraft nor Life Support-related. A sampling of Vietnam-era helmet bags for sale revealed a mix of pull tabs, at least some of which appear to be V-F-106 standard but none are a clear match for what was found in Laos. Likewise, we are aware that there some helmet bags used in Southeast Asia were custom-made, non-regulation items and therefore we could not definitively say that either LA-00527 pull tab was not from a helmet bag.

Stock Number (URL)	Thumbnail	Assessment
<a href="#">8415-00-782-2989</a>		Listing says, "Vietnam War era." Pull tab is YKK and not a match for either LA-00527 pull tab.
<a href="#">8415-00-782-2989</a>		Listing says, "Vietnam Vintage" but it appears newer than that. Manufacturer name is not visible but the pull tab is clearly a wire and not match for either LA-00527 pull tab.
<a href="#">8415-782-2989</a>		Synthetic bag with unusual loop-type pull tab of an unknown manufacturer. Not a match for either LA-00527 pull tab.
<a href="#">Unknown</a>		Synthetic bag. No stock number listed but the pull tab is clearly a Scovill and not a match for either LA-00527 pull tab.
<a href="#">Unknown</a>		No stock number listed but the listing says it could be Air Force or Army. Pull tab is marked "General". Not a match for either LA-00527 pull tab.

## Conclusions and Recommendations

The lack of corresponding fabric material on the pull tabs and snaps found at LA-00527 made it difficult to determine if they were life support-related or not. Likewise, the unknown and likely unknowable number of zippers and snaps on the aircraft itself precluded making categorical statements that these artifacts must be life support. However, the small pull tab found in Laos in 2013 is a nearly exact match for the sleeve pocket zipper found on Captain Steadman's 1971 flight suit.

That said, we have three recommendations for DPAA regarding the pull tab and snap artifacts accessioned from LA-00527 in 2013. While we understand the first two actions may have already been done, since no association with a possible REFNO could have been made in 2013, the findings may not have been circulated to researchers working nearby cases.

1. Reexamine the small pull tab to determine its manufacturer markings. If it is marked "Scovill" this is a strong indication this artifact is life support and by process-of-elimination, LA-00527 must be the REFNO 1781 crash site.
2. Reexamine the long pull tab for manufacture markings of any kind.
3. Reexamine Snaps 2-5 to determine more accurate measurements for these items given that the 1971 Steadman flight suit has multiple snap buttons that do not meet the button diameter specification.

## Sources

Air Force–Navy Aeronautical Standard. *AN227 Fasteners – Snap and Curtain*. 22 May 1970. [http://everyspec.com/AN-SPECS/AN100-AN999/download.php?spec=AN227\\_REV-9.008320.pdf](http://everyspec.com/AN-SPECS/AN100-AN999/download.php?spec=AN227_REV-9.008320.pdf)

AN229 (REV. 5), *AIR FORCE-NAVY AERONAUTICAL STANDARD: FASTENERS - INTERLOCKING SLIDE* (15 AUG 1968). [http://everyspec.com/AN-SPECS/AN100-AN999/AN229\\_REV-5\\_20246/](http://everyspec.com/AN-SPECS/AN100-AN999/AN229_REV-5_20246/)

Defense POW/MIA Accounting Agency (DPAA). *Life Sciences Equipment Material Evidence Report: CIL 2013-095-1-01 Through L-08 DPAA Laboratory*. 18 June 2018

Federal Specification. *V-F-106F Fasteners, Slide Interlocking*. 12 June 1968

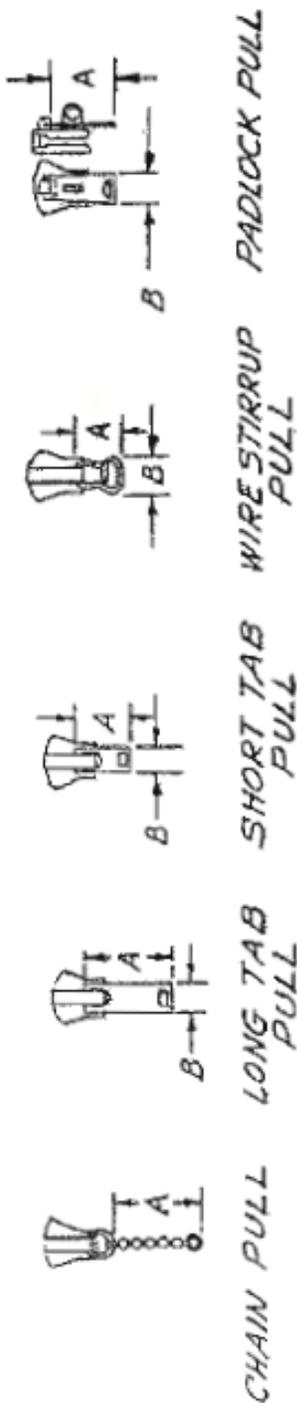
McDonnell Aircraft. *T.O. 1F-4C-4-1, Technical Manual, Illustrated Parts Breakdown, Volume 1, Airframe, (Structure, Canopy, Windshield), USAF Series F-4C, F-4D, and RF-4C Aircraft*. 1 November 1965, Change 1 August 1967

McDonnell Aircraft. *T.O. 1F-4C-4-2 Technical Manual, Illustrated Parts Breakdown, Mechanisms, Controls And Ejection Seats USAF Series F-4C And F-4D Aircraft*. 1 November 1971, Change 63 - 17 October 1994

US Air Force, Life Sciences Equipment Laboratory. *EVALUATION OF LIFE SCIENCES EQUIPMENT ARTIFACTS, REFNO 1216*. March 2006. [https://tile.loc.gov/storage-services/service/frd/pwmia/S135\\_1/17.pdf](https://tile.loc.gov/storage-services/service/frd/pwmia/S135_1/17.pdf)

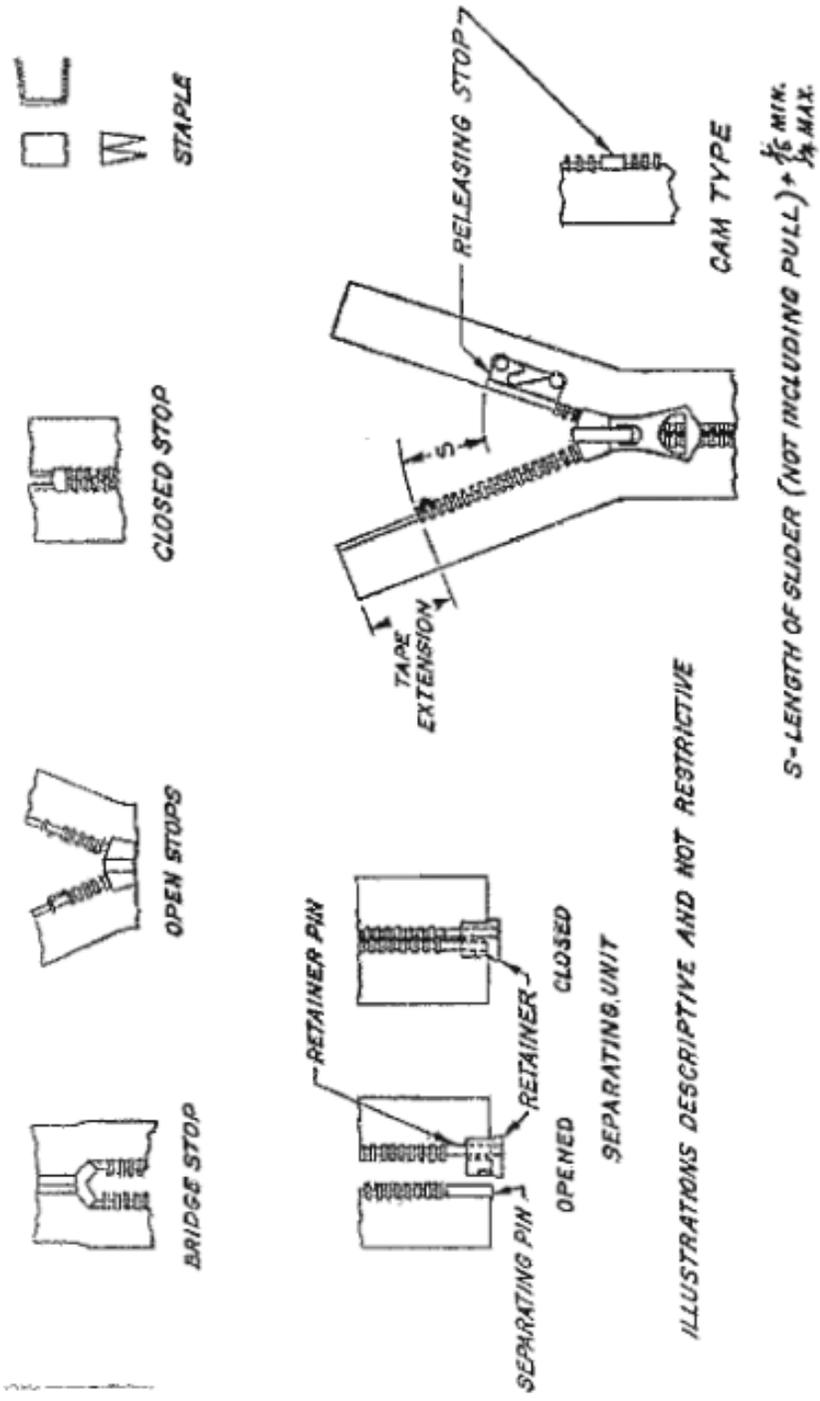


V-F-106b



PULL TYPE	PULL DIMENSIONS		PULLS, SLIDER LOCKS & SIZE COMBINATIONS		LOCK TYPES	
	A	B	AUTOMATIC	PIN OR CAM	FLANGE	W/O LOCK
CHAIN	ANY	—	—	—	—	L, LS, LM, LMS
LONG TAB	1 1/2" MIN	NOT MORE THAN 1/8" WIDER THAN SLIDER	—	—	—	LM, LMS
SHORT TAB	1" MAX	—	L, LS, LM, LMS, M, MS	—	—	L, LS, LM, LMS
WIRE STIRRUP	—	—	M, MS, MH, MHS, H	—	—	M, MS, MH, MHS, H
PADLOCK	ANY	—	—	—	—	LM, LMS

ILLUSTRATIONS DESCRIPTIVE AND NOT RESTRICTIVE  
FIG. 1—Pull Types

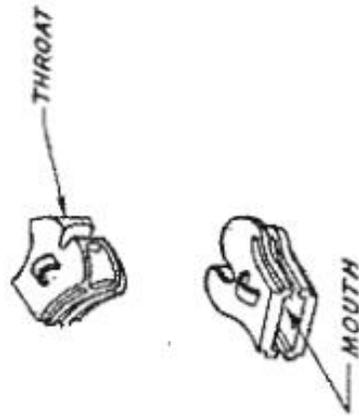


ILLUSTRATIONS DESCRIPTIVE AND NOT RESTRICTIVE

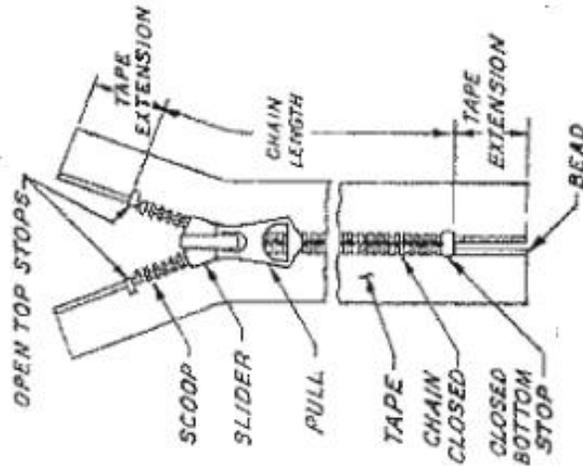
QUICK RELEASE STOPS  
SPRING TYPE

FIG. 2—Stop Types

V-F-106b



TYPICAL SLIDER BODY CONSTRUCTION



BASIC SLIDE FASTENER  
ALL OTHER TYPES FORMED  
BY COMBINATIONS OF THE  
VARIOUS STOPS, SLIDERS  
PULLS, ETC.



NON REVERSIBLE SINGLE PULL  
NON REVERSIBLE DOUBLE PULL  
REVERSIBLE DOUBLE PULL  
REVERSIBLE TRIPLE PULL

SLIDER TYPES

TYPE III, STYLE 1 FASTENER SHOWN  
FOR ILLUSTRATION PURPOSES

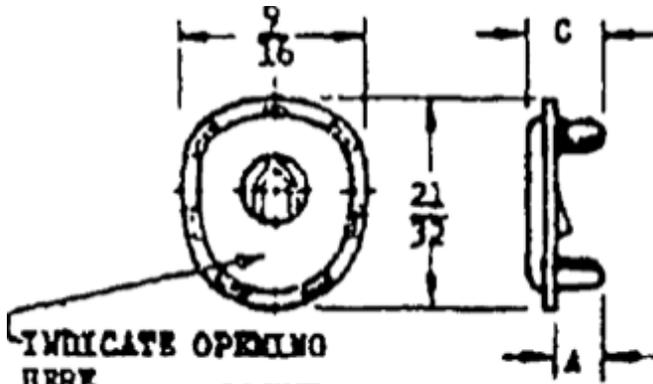
FIG. 3--Slider Types and General Construction

U. S. GOVERNMENT PRINTING OFFICE: 1960

Copies of this specification may be purchased for 25 cents each.

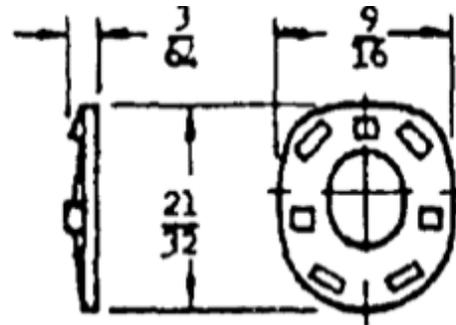
**Appendix 1 – AN227 Nomenclature and Standards for Snaps**

This appendix shows the source material used in our research. The Air Force–Navy Aeronautical Standard AN227 Fasteners – Snap and Curtain is dated 22 May 1970.



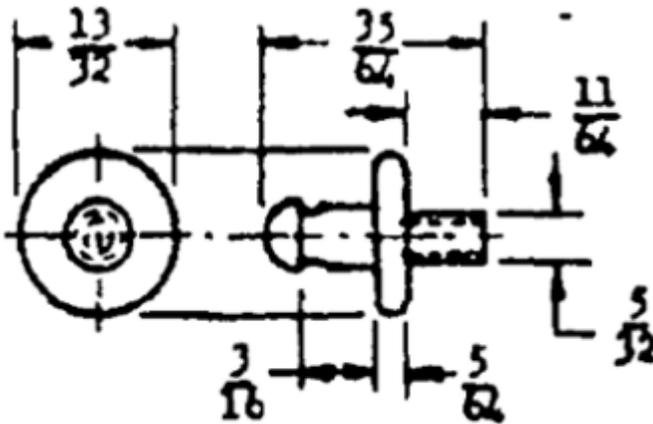
SOCKET

DASH NO.		A	C
PLATED	BLACK		
1	1B	11/64	1/4
1L	1BL	7/32	19/64



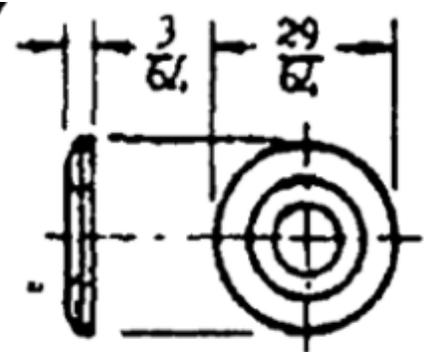
PLATE

-2 PLATED  
-2B BLACK



POST STUD

-5 PLATED  
-5B BLACK



WASHER

-3 PLATED  
-3B BLACK